2026 Annual Report

WATER QUALITY CREDIT TRADING

March 2026

Clean Water Services

Executive Summary

Clean Water Services (CWS) implements a water quality credit trading program that includes flow enhancement and riparian planting activities. The thermal credits generated by these activities are used to offset the thermal load discharged from CWS' Rock Creek Water Resource Recovery Facility (WRRF), Durham WRRF, and Forest Grove WRRF including the Natural Treatment System (NTS).

In 2025, CWS released an average of 45.5 cubic feet per second (cfs) of stored water from Hagg Lake in July and an average 52.6 cfs in August. CWS also released an average of 7.68 cfs of stored water from the Barney Reservoir in July and an average of 13.5 cfs in August. The Wapato instream lease provided 5.4 cfs in July and August. The stored releases and instream lease generated 1,535 million kilocalories (kcal) per day of thermal credit for July and 1,895 million kcal per day of thermal credit for August. Compliance with the allowable thermal load to the river is assessed during the months of July and August, which is defined as the critical time period for fish in the Temperature TMDL.

CWS also enrolled 10 riparian planting projects in 2025, enhancing over 7 stream miles and generating approximately 17 million kcal per day of thermal credit. CWS established the trading program in 2004 and has 221 active planting projects along streams in the Tualatin River Watershed that have generated approximately 660 million kcal/day of thermal credit.

The thermal credits generated from CWS' flow enhancement and riparian planting activities completely offset the thermal load discharged by the Rock Creek, Durham, and Forest Grove WRRFs and NTS. This annual report details CWS' flow enhancement and riparian planting activities during 2025 and provides an accounting of thermal credits used to offset the thermal load discharged from the treatment plants.

The At a Glance graphic on the following page summarizes the benefits to date of CWS' water quality credit trading program for the Tualatin River Watershed.

AT A GLANCE

Clean Water Services' Water Quality Trading Program Provides Watershed-Scale Benefits

SHADE PROVIDED

CWS has implemented 221 riparian planting projects along streams in the Tualatin River Watershed. Shade provided by these projects helps block potential solar load (sunlight) from warming streams.

TO DATE: **1,319,000,000**
KILOCALORIES PER DAY OF SOLAR LOAD BLOCKED

REDUCTIONS O… PHOSPHORUS…

…CWS riparian planting progr… for the streams but also he… …nt and nutrients from rea… …ms.

… SEDIMENT REDUCE… …BS.
… NITROGEN REDUC…
… HOSPHORUS RE… …S.

S… AM… C…

CWS' riparian planting … both urban and rural a… Tualatin River Water… …s

TO DATE:

STREAM …

Hagg Lake

Barney Reservoir

STREAMFLOW ENHANCED

CWS releases cool stored water from Barney Reservoir and Hagg Lake during the summertime to enhance stream flows and improve water quality in the Tualatin River and its tributaries.

IN 2025
AN AVERAGE OF **38** CUBIC FEET PER SECOND (25 MILLION GALLONS PER DAY) WERE RELEASED FROM SCOGGINS AND BARNEY RESERVOIRS

1. Background

CWS is a county service district that serves the urban portion of Washington County and small portions of Clackamas, Multnomah, and Yamhill counties. CWS owns and operates four WRRFs in the Tualatin River basin and works in partnership with its co-implementers — the 12 cities in the service area and Washington County. The WRRFs, NTS, and the municipal separate storm sewer system are permitted by the Oregon Department of Environmental Quality (DEQ) under CWS' watershed-based National Pollutant Discharge Elimination System (NPDES) permit. CWS' NPDES permit (Permit) was reissued by DEQ on December 8, 2022, and became effective on January 1, 2023. This annual report covers CWS' activities under the water quality credit trading program from January 1 – December 31, 2025. This report satisfies the reporting requirements specified in the Permit.

The Permit includes thermal load limits for the CWS' Rock Creek, Durham, and Forest Grove WRRFs and NTS based on the 2021 Temperature Total Maximum Daily Load for the Tualatin River. The Permit allows CWS to offset the thermal loads from the Rock Creek, Durham, and Forest Grove WRRFs and the NTS by implementing a water quality credit trading program for temperature. The program includes flow enhancement and riparian planting as specified in Schedule D.13. of the Permit and CWS' DEQ-approved Thermal Load Management Plan (TLMP). The TLMP documents CWS' approach and programs for offsetting the thermal load from the Rock Creek, Durham, and Forest Grove WRRFs and the NTS and specifies CWS' methodology for calculating the thermal credits associated with the riparian planting and flow enhancement programs. CWS updated its TLMP in July 2021; DEQ approved it with the 2022 Permit.

As required by Schedule D.13.f. of the Permit, CWS submitted information regarding thermal loads and credits in the July and August 2025 Discharge Monitoring Reports (DMRs) for the Rock Creek, Durham, and Forest Grove WRRFs and the NTS to demonstrate that CWS is offsetting thermal loads from its WRRFs and the NTS. The July and August DMRs include the aggregate thermal load from the WRRFs and NTS, aggregate thermal credits from flow enhancement, aggregate thermal credits from riparian shade, aggregate total thermal credits, and the net thermal load to the Tualatin River.

Schedule D.13.g. of the Permit also requires CWS to submit a Water Quality Credit Trading Report annually by March 31 that summarizes the implementation and performance of the TLMP over the previous calendar year.

The Permit and TLMP require the annual report to include the following for each new riparian planting project that is enrolled within the calendar year:

- Project name and number.
- Stream length planted.
- Thermal load blocked.
- Thermal credits generated.

All this information is summarized in Section 5, Table 7.

The following information is also presented in this report. The section where the information appears in this report is noted.

- Thermal load reduction activities – recycled water use, treatment facility changes including use of the NTS, and source control activities (Section 2).
- Thermal loads discharged by the Rock Creek, Durham, and Forest Grove WRRFs and NTS (Section 3, Table 4).
- Allowed thermal loads for the Rock Creek, Durham, and Forest Grove WRRFs and NTS (Section 3, Table 4).
- Thermal load credits for flow enhancement (Section 3, Table 5).
- Thermal load credits for riparian shade (Section 5, Table 7).

For flow enhancement activities:

- The average daily effluent flow and maximum daily effluent temperature from the Rock Creek, Durham, and Forest Grove WRRFs and NTS for July 1 – August 31 (Appendix D).
- The average daily Tualatin River flow for July 1 – August 31 at Farmington Bridge (River Mile 33) and Golf Course Road (Appendix D).
- The average daily flow enhancement rate from Hagg Lake for July 1 – August 31 (Appendix D).

For riparian shade activities (at each site):

- Baseline vegetation conditions (density, width) (Appendix A).
- Enhanced vegetation conditions (type, width, anticipated density) (Appendix A).
- Stream characteristics (stream aspect, elevation, wetted width, near stream disturbance zone, incision) (Appendix A).
- Baseline thermal load blocked by existing vegetation and the anticipated thermal load blocked by the enhanced vegetation (Section 5, Table 7).
- Thermal credits from each riparian planting project (Section 5, Table 7, Appendices A and B).
- Riparian vegetation monitoring and maintenance activities (Section 2, Appendix A).
- Baseline compliance assessment (Section 2).
- Documentation of the use of public conservation funds (Section 2).

This report includes all the above information and fulfills the requirements for submitting an annual report of CWS' water quality trading activities for 2025.

2. 2025 Thermal Load Management Activities

The thermal load management activities presented in this report are from January 1 to December 31, 2025.

CWS implements a number of strategies to reduce the thermal load discharged from the WRRFs and NTS. The water quality credit trading program, which includes flow enhancement and riparian planting activities, is used to offset the remaining thermal load from the WRRFs and NTS.

2.1 2025 Thermal Load Reduction Activities

CWS' TLMP states that, on an annual basis, CWS will submit a report that specifies the actions taken to reduce the thermal load discharged from the WRRFs and NTS. CWS identified its recycled water program, the NTS, WRRF improvements, and source control activities as methods that could be used to reduce the thermal load discharged by the WRRFs and NTS. The following is a summary of the actions taken in each of these areas in 2025.

2.1.1 Recycled Water Program

CWS produced 53.8 million gallons of Class A recycled water at the Durham WRRF and 98.5 million gallons of Class A recycled water at the Rock Creek WRRF in 2025. This volume of recycled water represents a direct reduction in the thermal load discharged by CWS' WRRFs. Recycled water from the Durham WRRF is used at three golf courses, two public school athletic fields, a City of Tigard natural area, a CWS-owned natural area, a privately-owned farm, Durham City Park, and for onsite irrigation. Recycled water from the Rock Creek WRRF is used at the Reserve Golf Course.

2.1.2 Forest Grove Natural Treatment System

In 2017, CWS began discharging treated effluent from the Forest Grove and Hillsboro WRRFs through the 95-acre NTS in Forest Grove. Before implementing the NTS, the Forest Grove and Hillsboro WRRFs transferred wastewater through twin 24-inch pipelines to the Rock Creek WRRF for treatment and discharge during the dry season. Wastewater from the Forest Grove and Hillsboro service areas is now treated at the Forest Grove WRRF during the dry season; the treated effluent from the Forest Grove WRRF is then directed through the NTS for further treatment prior to discharge to the Tualatin River. CWS operated the NTS between June and September in 2025.

2.1.3 Improvements at Water Resource Recovery Facilities

CWS pursues capital improvements to further reduce thermal loads discharged from the Rock Creek, Durham, and Forest Grove WRRFs. In 2025, no significant changes were made at any of the WRRFs that would have reduced the thermal load. In previous years, CWS built a cogeneration facility at the Durham WRRF that included air-cooled radiators to dissipate excess heat to the atmosphere and avoid discharging excess heat to the treatment facility effluent. CWS also completed several projects at the Durham facility to expand the utilization of heat recovered from the operation of the cogeneration facility and displace the natural gas usage.

The hot weather in the past few years has highlighted the need to further evaluate temperature profiles across the WRRFs. In 2021, CWS began a study of the temperature profiles across key unit processes at the Rock Creek and Durham WRRFs to evaluate opportunities to further reduce discharge temperatures. The study has been used to evaluate the effect of managing surface area by removing treatment units from service and shading secondary clarifiers. A pilot study was completed in 2023, and the results agree with model predictions that shading secondary clarifiers has the potential to reduce peak daily temperatures by approximately 0.2 degrees Celsius. CWS will continue to study temperature profiles, evaluate results, and define actions, if any, to further reduce discharge temperatures at the WRRFs.

2.1.4 Source Control

CWS regulates all significant industrial user discharges into the sanitary sewer system as part of its DEQ-approved industrial pretreatment program. In 2025, there were no significant changes in permitted industrial sources that would have resulted in substantive changes in the thermal load to the WRRFs. CWS continues to evaluate new and potential industrial thermal loads. Two significant industrial users continue to implement cooling systems at their facilities, which results in a substantial reduction in thermal load to the Rock Creek WRRF.

2.2 2025 Thermal Load Trading Activities

This section summarizes CWS' flow enhancement and riparian planting activities in 2025 as well as riparian monitoring and maintenance activities and shade monitoring activities. Additionally, this section describes CWS' programmatic evaluation of the riparian planting projects enrolled in the water quality trading program, including an assessment of baseline compliance and documentation of the use of public conservation funds for each project enrolled.

2.2.1 Flow Enhancement Activities

In 2025, CWS had 12,618 acre-feet of stored water available in Hagg Lake and 1,654 acre-feet in Barney Reservoir. CWS releases stored water during the summer and fall to meet the following objectives:

- Maintain minimum stream flows in the Tualatin River.
- Generate thermal credits to offset a portion of the thermal load from the CWS' WRRFs and NTS.
- Enhance tributary stream flows.
- Provide sustainable base flows in the upper Tualatin River.
- Improve dissolved oxygen levels and overall water quality in the Tualatin River.

Stored water releases in July and August form the basis of CWS' flow enhancement credit.

In 2025, CWS began releasing stored water from Hagg Lake on May 24 and continued until November 3. Stored water releases from Barney Reservoir began on July 15 and ended on September 12. Table 1 shows the average monthly release rates from Hagg Lake and Barney Reservoir for the 2025 release season.

CWS leases U.S. Fish & Wildlife Service natural flow water rights for instream use at Wapato Lake Wildlife Refuge as described in the 2020 Water Quality Credit Trading Annual Report. The water rights are relatively senior (1928) and located in the upper Tualatin River. They can be protected over the entire downstream length of the Tualatin River from May 1 to September 30. If natural flow water rights are regulated off, the water rights include access to supplemental water from the Tualatin Valley Irrigation District (TVID). Thermal credits are available from the instream lease as long as CWS maintains an agreement with the U.S. Fish & Wildlife Service and TVID for the instream lease. The credits are calculated for July and August as defined by CWS' Permit and TLMP. Temperature benefits and thermal credits associated with the instream lease at the Forest Grove, Rock Creek, and Durham WRRFs and NTS are calculated using the formulae in the TLMP.

CWS worked with the Oregon Water Resources Department District 18 Watermaster's office to protect the instream lease rate of 5.4 cfs and have it included as part of the base flow for the Tualatin River. From May 1 until the end date of the lease on September 30, the instream lease was based on natural flow in the Tualatin River. Table 1 shows the average instream rate of the Wapato instream lease for the 2025 release season.

Table 1: 2025 Average Monthly Release Rates from Hagg Lake and Barney Reservoir and the Wapato Instream Lease

Month	2025 Average Release Rate from Scoggins Reservoir (cfs)	2025 Average Release Rate from Barney Reservoir (cfs)	2025 Average Rate from Wapato Instream Lease (cfs)	2025 Average Combined Stored Water Release Rate + Instream Lease (cfs)
May	13.8 [a]	-	5.4	8.9
June	19.3	-	5.4	24.7
July	45.5	14.0 [a]	5.4	58.6
August	52.6	13.5	5.4	71.5
September [b]	44.8	14.0 [a]	5.4	55.4
October	25.6	-	-	22.3
November [b]	40.0 [a]	-	-	40.0

a) Average based on days stored water was released.

b) Stored water releases from Hagg Lake and Barney Reservoir ended on November 3 and September 12, respectively.

CWS also works with landowners to lease their natural flow water rights for instream use. To date, CWS has leased 27 water rights on the mainstem Tualatin River or tributaries, totaling approximately 570 acre-feet, for instream use. CWS has not yet used this water to generate credits as part of its water quality credit trading program.

In 2025, CWS used approximately 11,596 acre-feet (approximately 92% of its stored water) from Hagg Lake and 1,611 acre-feet (approximately 97% of its stored water) from Barney Reservoir.

2.2.2 Riparian Planting Activities

This section lists the riparian planting projects enrolled in the water quality trading program in 2025, describes the project summary created for each project, and describes CWS' Capital and Landowner Incentive programs.

For 2025, CWS enrolled 10 projects that total approximately 7.61 stream miles in the Tualatin River Basin for thermal credit. Table 2 presents the riparian planting projects and the stream length associated with each project.

Table 2: 2025 Enrolled Riparian Planting Projects

Project	Stream Name	Stream Length (ft)
1646 – 185th to Kaiser – Springville Creek	Springville Creek	13,047
2474 – Reedville Creek Expansion	Reedville Creek	1,942
2497 – Village at Summer Creek HOA	Summer Creek	571
2529 – Rock Creek – TV Highway	Rock Creek	1,852
2530 – Witch Hazel Creek – Brookwood Crossing	Witch Hazel Creek	883
2541 – TSWCD – Tualatin River	Tualatin River	6,793
2542 – TSWCD – Christensen Creek Tributary	Christensen Creek	3,221
2552 – TSWCD – Fanno Creek Tributary	Fanno Creek	2,081
2563 – TSWCD – Gales Creek	Gales Creek	3,188
6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor	Cedar Mill Creek	6,620
Total Stream Miles		**7.61 miles**

HOA: Homeowner Association; TSWCD: Tualatin Soil and Water Conservation District

2.2.2.1 Project Summaries

Appendix A contains a project summary for each project enrolled in 2025. Project summaries contain general site information (location, size in acres, stream length and average width, plant communities, etc.), project activities and partners, a site assessment report, a summary of the thermal credits generated, and the input and output data used to calculate the effective shade and thermal load blocked for each project.

2.2.2.2 Capital Program

Riparian planting projects implemented under CWS' capital program mostly occur on public lands where large-scale restoration opportunities are available, and multiple water quality and ecological benefits can be achieved. Project activities under this program include securing easements, agreements, or contracts with property owners, preparing the site, managing invasive species, revegetating and planting, monitoring, and ongoing maintenance. Additional enhancement activities such as reconfiguring channels; placing

large wood, gravel, and boulders; and creating off-channel habitats are performed on a site-specific basis to improve a broader range of ecosystem functions.

Six riparian enhancement projects, totaling 4.72 stream miles, were planted under CWS' capital program and enrolled in 2025.

2.2.2.3 Landowner Incentive Program

CWS contracts with the Tualatin Soil and Water Conservation District (TSWCD) to secure project agreements with landowners. Using CWS funding, TSWCD offers financial incentives to landowners to participate in the U.S. Department of Agriculture's Conservation Reserve Enhancement Program (ECREP) and a Vegetated Buffer Areas for Conservation (VEGBAC) program. The ECREP provides an opportunity to leverage local and federal programs. This collaboration has greatly increased the acceptance and implementation of restoration programs at the local level. Riparian planting projects in rural areas primarily consist of site preparation, revegetation, managing invasive species, monitoring, and maintenance.

In 2025, four riparian enhancement projects were undertaken under the CWS' landowner incentive program, resulting in 2.89 stream miles of riparian planting.

2.2.2.4 Riparian Monitoring and Maintenance Activities

Site monitoring and maintenance are critical to ensure the success of riparian planting projects because revegetated sites need protection from a variety of stressors, including invasive species, herbivores, and dry weather. As a result, CWS implements a robust monitoring and maintenance program that includes qualitative and quantitative monitoring activities. The following sections outline CWS' approach toward monitoring and maintenance. The results of the activities at each project site are presented in site assessment reports. The reports for projects enrolled in 2025 are presented in Appendix A; the reports for projects enrolled between 2004 and 2024 are available upon request.

2.2.2.5 Qualitative and Quantitative Monitoring

CWS conducts qualitative and quantitative monitoring, typically during the summer at the riparian planting projects enrolled for thermal credit. Site conditions and site-specific management actions are documented in site assessment reports.

Qualitative monitoring is conducted annually to assess overall project health and inform management actions. This assessment approach not only helps project managers determine the necessary level of maintenance needed at each riparian planting project site (e.g., inter-planting, seeding, weed control, herbivore protections) but also accounts for the dynamic nature of riparian planting projects as they mature from initial plantings to stable riparian ecosystems.

Quantitative monitoring is conducted every two years and gathers information regarding native tree and shrub counts, species composition, species diversity, stem density, and riparian structure. Project phase (i.e., transitional, established, or stewardship phase) is derived from these metrics for each plant community and informs management actions.

2.2.2.6 Site Assessment Reports

CWS prepares an assessment report for each project site after monitoring is completed and uses the report to document site conditions, identify management actions taken, and propose maintenance actions for the following year. Each site assessment report contains project-specific information, including project acreage, the initial planting year, the year when thermal credit was taken, and the stream length associated with the project. Site assessment reports also contain information regarding each plant community (e.g., riparian forest, forested wetland, upland forest, scrub-shrub) within a project. This information includes a list of categorized plant species, stem densities, and the phase of each plant community.

As described in the site assessment reports, the 10 projects enrolled in 2025 range from 3.61 to approximately 83 acres. Most of the projects were planted with a riparian forest-type plant community; other plant communities included scrub-shrub, forested wetland, and emergent marsh. Management actions completed in 2025, and additional management actions recommended for 2026 at these sites include inter-planting, seeding, and invasive weed treatment.

2.2.3 Shade Monitoring

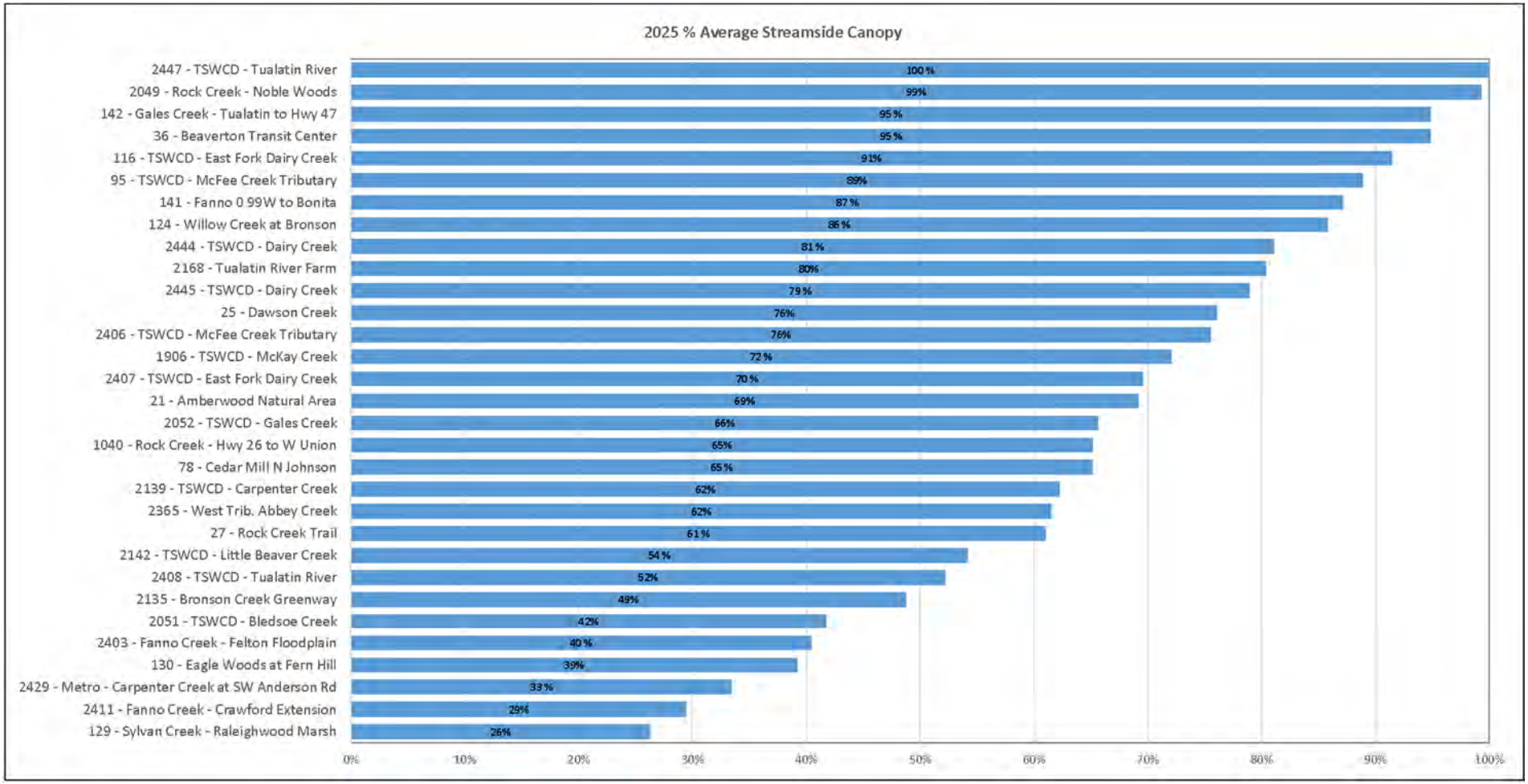
In addition to the monitoring described above, CWS collects data to assess shade at riparian projects every five years. An accurate representation of streamside canopy cover is difficult to obtain due to the challenges associated with field shade monitoring protocols. CWS conducts shade monitoring using field measurements and remotely sensed datasets, including Light Detection and Ranging (LiDAR) and aerial photos. The protocol for monitoring shade in the field is establishing one monitoring point for each 500-foot stream segment of a project with a minimum of three monitoring points per project. Photographs and densiometer readings are taken at each monitoring point. Photographic monitoring includes upstream and downstream views of each stream bank within the project. Shade is estimated as densiometer readings of canopy cover on each stream bank within the project.

This year marks the 21st anniversary of CWS' water quality credit trading program. Figure 1 presents the shade monitoring results at the 31 sites enrolled in the program in 2005, 2010, 2015, and 2020 that were monitored for shade in 2025. Eleven of the 31 sites have been enrolled in the program for 20 years and were monitored for shade in 2005, six were monitored for shade in 2010, seven were monitored for shade in 2015, and 10 were monitored for shade in 2020.

The majority of projects are achieving performance goals. Twenty-seven of the 31 projects provided 40% or greater streamside canopy cover; the remaining four provided less than 40%. Exceptions to this are detailed below.

Minor variations in shade estimates at project sites are likely due to challenges associated with the precision of field shade monitoring protocols; more significant changes in shade are likely a result of natural processes that alter stream and riparian characteristics.

Figure 1: 2025 Shade Monitoring Results



*Some project names have changed since their enrollment in the trading program to better reflect their location in the watershed. The project numbers have not changed.

Four projects had an average streamside canopy cover of less than 40% when field monitored for shade in 2025, 129 – Sylvan Creek – Raleighwood Marsh, 130 – Eagle Woods at Fernhill, 2411 – Fanno Creek – Crawford Extension, and 2429 – Metro – Carpenter Creek at SW Anderson Road. Significant canopy cover was not expected at two of them, 2411 – Fanno Creek – Crawford Extension and 2429 – Metro–Carpenter Creek at SW Anderson Road, because they have been enrolled in the trading program for only five years. CWS will continue to monitor these sites and increase management actions if the projects are not performing as expected when monitored 10 years after project enrollment. Project 130 – Eagle Woods at Fernhill was monitored for shade in 2025 using a densiometer, however the data collected was considered to be anomalous and likely unrepresentative. Shade monitoring data from LiDAR and aerial imagery will be used to correct the densiometer data in 2026 (see below for further details on LiDAR data).

The 129 – Sylvan Creek-Raleighwood Marsh project had an average streamside canopy cover of 26% when monitored in 2025. This project was planted with 3,630 native shrubs and trees when enrolled in 2007 and has extensive emergent wetland complexes and significant beaver activity. The project has received focused attention, including invasive weed treatment and inter-planting.

This project will continue to be monitored for invasive species cover, and plant diversity and density. Completed and recommended management actions, as well as detailed monitoring data for this project, including recent stem density, cover, and observed species can be found in Appendix C.

Two projects (2137 – TSWCD – Gales Creek and 2138 – TSWCD – Little Beaver Creek) were not monitored for canopy cover using field densiometers in 2025 because there was no landowner contract in place; these projects were monitored for shade using LiDAR and aerial imagery in 2025. Results of the LiDAR monitoring are expected to be available in 2026.

CWS is committed to ensuring the success of each of its planting projects. Each project site is monitored extensively to evaluate plant diversity and density, overall project health, and project phase. Should a project not perform as expected, CWS implements management actions to ensure the project's success. Out of the 221 active riparian planting projects enrolled in CWS' water quality trading program, five required additional management actions to improve project performance in 2025. Appendix C describes the challenges encountered and the additional management actions taken at each project site.

Monitoring and management follow-up efforts have improved project conditions and overall performance. For example, Project 2051 – TSWCD – Bledsoe Creek was previously not performing as expected, but additional management actions have increased canopy cover to 41% when monitored using a field densiometer in 2025. This project has been removed from Appendix C.

2.2.4 Programmatic Assessment of Enrolled Riparian Planting Projects

This section describes the programmatic assessments conducted for riparian planting projects enrolled in the water quality trading program in 2025. These include a baseline compliance assessment and an evaluation of the use of public conservation funds.

2.2.4.1 Baseline Compliance Assessment

In accordance with Schedule D.13.c.ii. of the Permit, CWS conducts a baseline compliance assessment for each riparian planting project enrolled in the trading program. CWS identifies the regulatory requirements regarding riparian areas that apply at each site and verifies that the project is in compliance. CWS then determines the conditions that should be used to determine a baseline for calculating thermal credit.

For riparian planting projects in agricultural areas, local water quality management rules (Oregon Administrative Rules (OAR) Chapter 603, Division 95) developed by the Oregon Department of Agriculture (ODA) were identified as the regulatory requirements that apply. These rules include non-disturbance criteria for streamside riparian areas. The TSWCD, with the support of local partners, implements the Agricultural Water Quality Management Plan as a local management agency for the ODA. Only projects that are in compliance with applicable rules are enrolled into the shade monitoring program, and the TSWCD verifies compliance. For sites deemed to be in compliance, existing vegetation is used to define baseline conditions for determining thermal credit. The three riparian planting projects located in agricultural areas in 2025 were in compliance with the ODA's local water quality management rules. Thus, existing conditions were used as a baseline to determine thermal credit. The projects are:

1. 2541 – TSWCD – Tualatin River
2. 2542 – TSWCD – Christensen Creek Tributary
3. 2563 – TSWCD – Gales Creek

For riparian planting projects in urban areas, CWS' Design and Construction Standards (D&C Standards) (adopted in 2019 by CWS Resolution and Order 19-5 and amended by CWS Resolution and Order 19-22) apply to all active construction sites and to all construction project sites undertaken since the mid-1990s. In 2025, CWS did not enroll any projects for thermal credit in urban areas governed by the D&C Standards.

In cases where the D&C Standards do not apply, the cities in the CWS service area and Washington County also have regulations regarding riparian protection in urban natural resource areas. Five projects were implemented in the cities of Hillsboro, Beaverton, and Tigard in 2025. These cities' regulations regarding riparian protection are voluntary and do not require active riparian planting. Therefore, existing conditions were used as a baseline to determine thermal credits for the project. The projects and the corresponding city regulations are:

City of Hillsboro (Community Development Code Chapter 12.27.235)

1. 2474 – Reedville Creek Expansion
2. 2529 – Rock Creek – TV Highway
3. 2530 – Witch Hazel Creek – Brookwood Crossing

City of Beaverton (Ordinance No. 4414)

4. 6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor

City of Tigard (Community Development Code Chapter 18.510.080)

5. 2497 – Village at Summer Creek.

Two projects are located outside an urban area, but not where agricultural activities occur. As a result, neither the ODA's local water quality management rules nor CWS' D&C Standards apply. However, these projects are in Washington County, where regulations regarding riparian protection are voluntary and do not require active riparian planting (Washington County Development Code Section 422-1). Therefore, existing conditions were used as a baseline for determining thermal credits. The projects are:

1. 1646 – Springville Creek – 185th to Kaiser
2. 2552 – TSWCD – Fanno Creek

2.2.4.2 Public Conservation Funds

CWS' TLMP includes a requirement to document the use of public conservation funds (PCFs) for each project in the trading program. PCFs are defined in OAR 340-039-0005(4) as "[p]ublic funds that are targeted to support voluntary natural resource protection or restoration." OAR 340-039-0040(4) states that "[c]redits generated under an approved trading plan may not include water quality benefits obtained with public conservation funds. Where public sources of funding are used for credit-generating activities, it is the entity's responsibility to demonstrate compliance with this requirement in its annual report." Based on the definition of water quality benefits in DEQ's Water Quality Trading Internal Management Directive, credit-generating activities include site preparation, planting, monitoring, and maintenance activities.

CWS works with several partner agencies to implement riparian planting projects. For projects where PCFs are used, CWS uses the approaches described in Section 3 to demonstrate that the thermal credits being claimed are based on CWS' contribution toward credit-generating activities (e.g., site preparation, planting, monitoring, and maintenance activities).

For projects conducted through the VEGBAC and ECREP programs, PCFs are not used. CWS funds the cost of all credit-generating activities and thus is eligible for 100% of the thermal credits generated by these projects.

As part of the capital program, CWS partners with the co-implementers, Metro, Tualatin Hills Park & Recreation District (THPRD), and other agencies to implement riparian planting projects. For Metro and THPRD projects, CWS has intergovernmental

agreements that identify the work performed by each entity at a project site. CWS conducts the credit-generating activities; thus, 100% of the thermal credits generated are available for CWS' use. For projects where CWS partners with the co-implementers or other agencies such as the U.S. Fish & Wildlife Service, PCFs are not used. CWS funds the cost of all credit-generating activities and is, therefore, eligible for 100% of the thermal credits generated by these projects.

PCFs were not used at any of the riparian projects enrolled in 2025.

3. Calculation of Thermal Loads and Credits for 2025

Schedule B.4.f. of the Permit requires CWS to report the aggregate thermal load to offset and the aggregate thermal credits for the Durham, Rock Creek, and Forest Grove WRRFs and NTS. As referenced in Table 3 (which is Table B9 in Schedule B.4.f. of the Permit), the "aggregate thermal load to offset" is the combined "excess thermal load to offset" from the Durham, Rock Creek, and the Forest Grove WRRFs and NTS. The aggregate thermal credit is the combined credits from riparian shade plantings and flow enhancement. The "aggregate thermal load to offset" is the aggregate of the excess thermal load minus the allowable thermal load at each WRRF and the NTS.

Table 3: Aggregate Thermal Load to Offset and Aggregate Thermal Credits Generated

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type / Required Action	Report Statistic (See note a.)
Aggregate Thermal Load to Offset	Million kcals/day	July 1 – August 31	1/month	Calculation (See note b.)	Monthly Maximum
Aggregate Thermal Load Credit	Million kcals/day	July 1-August 31	1/month	Calculation (See note c.)	Monthly Maximum

Note:

a. When submitting DMRs electronically, all data used to determine summary statistics must be submitted in a DEQ-approved format as a spreadsheet via electronic reporting unless otherwise directed by DEQ.

b. The aggregate thermal load to offset is the combined thermal load to offset from the Durham and Rock Creek WRRFs and the Forest Grove NTS.

c. The aggregate thermal credit is the combined credits from riparian shade plantings and flow enhancement.

The section below presents the aggregate thermal load to offset and the aggregate thermal load credits for the Rock Creek, Durham, and Forest Grove WRRFs and NTS for 2025.

3.1 Aggregate Thermal Load to Offset

The excess thermal loads discharged from the Rock Creek, Durham, and Forest Grove WRRFs and NTS are based on daily maximum effluent temperature and daily average effluent flow conditions for each WRRF and the NTS for July and August. The period July 1 to August 31 is identified in the Permit as the temperature credit trading period and corresponds to the time of year when river temperatures are of most concern.

The excess thermal loads discharged from each WRRF and the NTS are calculated daily for July and August using the equation from Schedule A.2 in the Permit:

$$Excess\ Thermal\ Load\ \left(million\frac{kcal}{day}\right) = Q_{PS} \times \Delta T \times \left(\frac{1000}{35.3}\right) x\ 86400\ x\ 5/9$$

where: $\Delta T = T_{PS}$-T_{SP} *(degrees F)*

Q_{PS} *= treatment plant effluent flow (cfs)*

T_{PS} *= treatment plant maximum daily effluent temperature (degrees F)*

T_{SP}*=system potential temperature (degrees F)*

(Durham WRRF = 64.6 degrees F, Rock Creek WRRF=58.5 degrees F, Forest Grove WRRF and NTS = 53.1 degrees F)

Other factors: 1000 kg/m^3; 35.3 ft^3/m^3; 86,400 sec/day; (5 degrees C)/(9 degrees F)

The daily average effluent flow and daily maximum effluent temperatures that are used to calculate the excess thermal loads for each WRRF and the NTS for July and August are presented in Appendix D.

The allowable thermal load, which represents the permitted thermal load, is also calculated for each WRRF and the NTS for July and August. The aggregate thermal load to offset for the WRRFs and NTS is calculated as shown in the following equation:

$$Aggregate\ Thermal\ Load\ to\ Offset = Aggregate\ Excess\ Thermal\ Load - Aggregate\ Allowable\ Thermal\ Load$$

In 2025, the aggregate thermal load to offset from the WRRFs and NTS was 1,144 million kcal/day for July and 1,240 million kcal/day for August. The aggregate excess thermal loads, aggregate allowable thermal loads, and aggregate thermal loads to offset the WRRFs and NTS for July and August 2025 are presented in Table 4.

Table 4: Aggregate Thermal Load Summary for July and August 2025

Data Aggregate Summary for Rock Creek WRRF, Durham WRRF, and Forest Grove WRRF and NTS	
July 2025	
Aggregate excess thermal load	1,201 million kcal/day
Aggregate allowable thermal load	58 million kcal/day
Aggregate thermal load to offset	1,144 million kcal/day
August 2025	
Aggregate excess thermal load	1,299 million kcal/day
Aggregate allowable thermal load	59 million kcal/day
Aggregate thermal load to offset	1,240 million kcal/day

3.2 Aggregate Thermal Load Credits Generated

This section presents the aggregate thermal load credits generated from flow enhancement and riparian planting for the Durham, Rock Creek, and Forest Grove WRRFs and NTS for July and August 2025.

3.2.1 Flow Enhancement Credits

Table 5 presents the median flow at the Farmington gauge, on the Tualatin River at River Mile 33, and the average flow enhancement rate for July and August 2025. Flow enhancement credits are calculated using empirical equations that quantify the temperature benefits of CWS' stored water releases at each facility. The aggregate thermal credits from flow enhancement were 1,535 million kcal/day for July 2025 and 1,895 million kcal/day for August 2025. Thermal credits from flow enhancement in July and August are based on CWS' stored water releases from Hagg Lake, Barney Reservoir, and the Wapato instream lease.

Table 5: Flow Enhancement and Resulting Aggregate Thermal Credits (July and August 2025)

Flow Enhancement Summary	
July 2025	**Flow rate / credits**
Median flow at Farmington gauge	158 cfs
Average flow enhancement rate	58.6 cfs
Aggregate thermal credits from flow enhancement	1,535 million kcal/day
August 2025	**Flow rate / credits**
Median flow at Farmington gauge	163 cfs
Average flow enhancement rate	71.5 cfs
Aggregate thermal credits from flow enhancement	1,895 million kcal/day

4. Reconciliation of Thermal Loads and Credits for 2025

Table B1 and Table B9 from Schedule B.4.f. of the Permit require CWS to report the aggregate thermal load to offset and the aggregate thermal credits for the Durham, Rock Creek, and Forest Grove WRRFs and NTS as part of the July and August DMRs submitted to DEQ. Note that the July and August 2024 DMRs were updated due to a minor error in the credit calculations and were resubmitted to DEQ in January 2026. The numbers presented in Table 6 were reported in the July 2025 and August 2025 DMR to show:

- The aggregate excess thermal load.
- The aggregate allowable thermal load.
- The aggregate thermal load to offset from the Rock Creek, Durham, and Forest Grove WRRFs and NTS.
- The aggregate thermal credits generated with flow enhancement.
- The 645 million kcal/day of aggregate thermal credits generated with riparian plantings for 2004 – 2024.
- The total aggregate thermal load credit.
- The net thermal load to the Tualatin River.

Table 6: Aggregate Thermal Loads and Credits Summary (July and August 2025)

Thermal Loads and Credits: July and August 2025 [a] (in million kcal/day)								
					Aggregate Thermal Credits from Riparian Shade			
	Aggregate Excess Thermal Load	Aggregate Allowable Thermal Load	Aggregate Thermal Load to Offset	Aggregate Thermal Credits from Flow Augmentation	Generated Before Reporting Period (2004-2024)	Generated During Reporting Period	Aggregate Thermal Load Credit	Net Thermal Load (to Tualatin River)
Jul	1,201	58	1,144	1,535	645	17	2,196	0
Aug	1,299	59	1,240	1,895	645	17	2,556	0

a) Thermal loads and credits are reported in the July and August DMRs only

Note: In accordance with Schedule A.2, compliance with the thermal load limits is demonstrated by generating thermal credits that meet or exceed the Aggregate Thermal Load to Offset discharged from the Durham, Rock Creek, and Forest Grove water resource recovery facilities. The term “Net Thermal Load to Tualatin River” is the “Aggregate Thermal Load to Offset” minus the “Aggregate Thermal Load Credit.” Compliance with the thermal load limits is achieved if the “Net Thermal Load to Tualatin River” is zero.

This table shows that CWS continues to offset the excess thermal loads from the Rock Creek, Durham, and Forest Grove WRRFs and NTS using credits generated from flow enhancement and riparian shade planting activities, as demonstrated by a zero net thermal load to the Tualatin River.

CWS generated significantly more thermal credits with its water quality trading program than needed to offset thermal loads from the WRRFs and NTS. In 2025, CWS generated

1,052 million kcal/day and 1,316 million kcal/day of extra thermal credits in July and August, respectively. Note that the river flow data used to calculate the thermal loads and credits for the July and August DMRs is raw data and subject to change.

5. Riparian Planting Credits Available for 2025

As specified in Schedule D.13.g. of the Permit, this report must include, at a minimum, the project name, project number, stream length planted, thermal load blocked, and thermal credits generated for each new riparian shade project completed within the calendar year.

Table 7 presents this information for the riparian planting projects enrolled in 2025. The table shows:

- The stream miles planted.
- The thermal load blocked by existing vegetation conditions (baseline).
- The thermal load blocked by future enhanced vegetation conditions modeled using a 20-year shade establishment period.
- The overall thermal load reduction.

Using riparian vegetation codes (Appendix E) and stream characteristic information as inputs, the “Shade-a-Lator” component of DEQ’s Heat Source temperature model (version 6.0) was used to calculate effective shade and thermal load blocked with baseline riparian vegetation conditions and for the future enhanced vegetation conditions. The difference between them represents the reduction in thermal load (i.e., environmental benefit) associated with the riparian planting project. CWS’ TLMP specifies a 2-to-1 trading ratio for calculating credit for shade, meaning the thermal credit for shade is equal to half of the reduction in thermal load.

For 2025, CWS generated approximately 16.5 million kcal/day of thermal credit from 10 new riparian planting projects.

Table 7: 2025 New Riparian Planting Projects and Associated Thermal Credit

Project	CWS Program	Stream Length (feet)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) [a] (million kcal/day)	Thermal Credits Available [b] (million kcal/day)	CWS Thermal Credits [c] (million kcal/day)
1646 – 185th to Kaiser – Springville Creek	Capital	13,047	9.91	22.4	12.5	6.26	6.26
2474 – Reedville Creek Expansion	Capital	1,942	2.09	3.91	1.82	0.910	0.910
2497 – Village at Summer Creek HOA	Capital	571	0.0906	2.18	2.09	1.04	1.04
2529 – Rock Creek – TV Highway	Capital	1,852	2.69	3.50	0.816	0.408	0.408
2530 – Witch Hazel Creek – Brookwood Crossing	Capital	883	0.450	0.868	0.417	0.209	0.209
2541 – TSWCD – Tualatin River	VEGBAC	6,793	18.7	24.4	5.76	2.88	2.88
2542 – TSWCD – Christensen Creek Tributary	VEGBAC	3,221	2.71	3.57	0.867	0.433	0.433
2552 – TSWCD – Fanno Creek	VEGBAC	2,081	5.68	6.63	0.947	0.474	0.474
2563 – TSWCD – Gales Creek	VEGBAC	3,188	4.48	7.06	2.58	1.29	1.29
6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor	Capital	6,620	12.1	17.3	5.27	2.64	2.64

a) The “Thermal Load Reduction” represents the thermal load blocked by enhanced conditions minus the thermal load blocked by baseline conditions.

b) Using CWS' 2-to-1 trading ratio, the “Thermal Credits Available” represent 50% of the “Thermal Load Reduction.” Note there are minor differences in the calculation of thermal credits due to rounding associated with the application of the trading ratio.

c) “CWS Thermal Credits” represents the thermal credit claimed by CWS based on its contribution to credit-generating activities. Public conservation funds were not used at any of the riparian projects enrolled in 2025, so CWS is eligible for 100% of the thermal credits generated by these projects.

CWS has 221 active riparian shade projects enrolled in the water quality trading program, resulting in approximately 660 million kcal/day of riparian shade credit and the restoration of approximately 120 stream miles of riparian vegetation. Appendix B summarizes these riparian shade projects, including project name, credit year, project characteristics (average wetted width and stream length), and the thermal credit claimed by CWS.

CWS gains thermal credits for project sites for which a valid contract or agreement is in place with the landowner. For projects without a landowner contract in place, CWS conducts routine shade monitoring using LiDAR and aerial imagery and gains thermal credits if the project sites provide the expected canopy cover.

Five projects were removed from the water quality trading calculation portfolio in 2019 because the landowners opted not to renew their contracts or agreements. In 2023, CWS reactivated these projects into the water quality trading shade portfolio after review of the 2019 LiDAR and aerial imagery data, ensuring a continuation of function. In the future, should the projects require onsite work to create adequate shade and a landowner agreement or contract is not in place, the project will be removed from the program until a landowner contract or agreement is renewed.

In 2025, CWS voluntarily removed one of these five projects, Project 1421 – TSWCD – Tualatin River, from its portfolio of riparian shade projects because monitoring indicated it no longer provided the anticipated shade, and a landowner agreement is not in place to conduct onsite work. The 660 million kcal/day of riparian shade credit and miles of stream restored reflect the removal of this project and its associated credits from CWS' portfolio. CWS will review the project to ensure it continues to function as intended before re-enrolling it into CWS' water quality credit trading program.

CWS' 660 million kcal/day of riparian shade credit includes the addition of the approximately 17 million kcal/day of riparian shade credits that were generated by the 10 riparian shade projects enrolled in the program in 2025. The 660 million kcal/day of riparian shade credit will be available for use in 2026 and will be reported in the July and August 2026 DMRs for the Rock Creek, Durham, and Forest Grove WRRFs and NTS.

6. Adaptive Management

In its February 6, 2019, policy memorandum on water quality trading, the Environmental Protection Agency noted that adaptive management is a key principle of a water quality trading program. An updated TLMP was submitted to DEQ as an addendum to the Permit renewal application in July 2021. The updated plan incorporated the adaptive management changes to the TLMP that CWS made during the 2016 Permit cycle. The updated TLMP was approved by DEQ when it reissued the Permit in December 2022.

CWS implements an adaptive management program to assess effectiveness and to improve its water quality trading program. Project-specific adaptive management strategies are discussed in Shade Monitoring (Section 2.2.3). Additionally, CWS reviews its TLMP to ensure it reflects current implementation strategies and updates are included

in this annual report. There were no other adaptive management changes implemented in 2025.

7. Environmental Benefits

CWS' water quality credit trading program provides numerous benefits beyond temperature benefits. Ecosystem benefits include improved stream functions (e.g., floodplain roughness, bank stabilization, peak flow attenuation, habitat creation), increased diversity of aquatic and terrestrial plant and animal species, filtering of stormwater runoff, and improved water quality. The increased complexity of structure and diversity of restored riparian forests, forested wetlands, and scrub-shrub wetlands support many important ecosystem functions for the aquatic environment. One example is the colonization of some stream reaches by beavers, a keystone species for stream function in the watershed. By raising the water table, beavers promote floodplain wetlands with enhanced plant, animal, and geomorphic diversity in comparison to the original simplified stream channel. These features, and the resulting geomorphic complexity, enhance fish habitat quality and create off-channel habitats that may provide cold water refuges. CWS works with multiple partners to enhance riparian areas, which improves the overall health of the Tualatin River Watershed and improves water quality.

CWS has estimated the annual water quality benefits associated with sediment and nutrient reduction from the riparian planting program using methods developed in the Chesapeake Bay[1] that provide a wide range of sediment and nutrient removal reduction for stream restoration projects. In 2025, the 221 active riparian planting projects enrolled in CWS' water quality trading program are estimated to have removed the approximate amounts of sediment and nutrients below that would otherwise be released to streams in the Tualatin Basin.

- 1,620,000 pounds of sediment.
- 12,700 pounds of total nitrogen.
- 22,200 pounds of phosphorus.

CWS' release of stored water flow enhancement provides cooling effects, buffers against temperature changes, and results in higher dissolved oxygen levels and improved overall water quality to support aquatic life. CWS' releases of stored water also sustain base flows in the upper Tualatin River that otherwise would not exist. The release of stored water and the release of highly treated discharges from CWS' Rock Creek, Durham, and Forest Grove WRRFs and NTS provide a sustainable base flow to the mainstem Tualatin River during the dry season.

[1] Schueler, T., Stack, B. 2013. Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects. Chesapeake Stormwater Network and Center for Watershed Protection, Ellicott City, MD. Pages 1-131 available at: http://www.chesapeakebay.net/documents/Final_CBP_Approved_Stream_Restoration_Panel_report_LONG_with_appendices_A-G_02062014.pdf

8. Appendices

Appendix A: Project Summaries for Riparian Planting Projects Enrolled in 2025

Appendix B: Riparian Shade Planting Projects (2004-2025)

Appendix C: Additional Management Actions

Appendix D: Identification of Trading Baselines for Flow Enhancement

Appendix E: Riparian Codes for Shade-a-Lator

Appendix A

Project Summaries for Riparian Planting Projects Enrolled in 2025

1646 – 185th to Kaiser – Springville Creek

Project Summary

Project ID	Acres
1646	82.86
Location	
Public property in urban Washington County, bisected by Springville Creek, located between NW Kaiser Road and 185th Avenue.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.56, -122.84	451,332
Stream Length	**Average Stream Width**
13,047 feet	12.9 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2009/2025	6.26 million kcal/day
Plant Communities	
Riparian Forest, Scrub-Shrub, and Upland Forest (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Hills Park & Recreation District	
Riparian Planting Activities	
Site preparation, targeted invasive species treatment, and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 1646 Project Name: Springville Creek - 185th to Kaiser

Project Acres: 82.86 Initial Planting Year: 2009 Initial Credit Year: 2025 Length of Stream: 13,047 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 2,850 Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	arroyo willow	American speedwell	bull thistle
black cottonwood	beaked hazelnut	beggarticks	Canada thistle
black hawthorn	black twinberry	bluejoint reedgrass	common hawthorn
cascara	*clustered wild rose	cleavers	common velvetgrass
Douglas-fir	*Douglas' spirea	common beggarticks	herb Robert
*Oregon ash	dune willow	common cattail	Himalayan blackberry
Oregon oak	mock orange	common horsetail	reed canary grass
red alder	native wild rose	common sweet cicely	St. John's wort
	nootka rose	common yarrow	tansy ragwort
	oceanspray	fowl bluegrass	
	osoberry, indian plum	fringecup	
	Pacific ninebark	*giant horsetail	
	*Pacific Willow	grooved rush	
	red elderberry	hedgenettle	
	red-osier dogwood	lady fern	
	serviceberry	large-leaved avens	
	Sitka Willow	marsh pennywort	
	snowberry	nodding beggarticks	
	tall Oregon grape	Pacific rush	
	thimbleberry	pasture rush	
	*trailing blackberry	piggyback	
		rice cutgrass	
		small duckweed	
		small-fruited bulrush	
		spike bentgrass	
		tall annual willowherb	
		taperfruit shortscale sedge	
		tufted hairgrass	
		wapato	
		water parsely	
		western swordfern	
		willowherb	
		yellow touch-me-not	

Plant Community: Scrub-Shrub

Stems per Acre: 2,212

Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	baldhip rose	American speedwell	bull thistle
bitter cherry	beaked hazelnut	beggarticks	Canada thistle
black hawthorn	black twinberry	bigleaf lupine	common hawthorn
cascara	clustered wild rose	bittercress	common velvetgrass
*Oregon ash	*Douglas' spirea	Blue Wildrye	herb Robert
Oregon oak	mock orange	bracken fern	Himalayan blackberry
pacific crab apple	native wild rose	broadfruit bur-reed	reed canary grass
vine maple	nootka rose	cleavers	St. John's wort
W. v. ponderosa pine	oceanspray	common beggarticks	tansy ragwort
	osoberry, indian plum	*common cattail	
	Pacific ninebark	common horsetail	
	Pacific Willow	common spikerush	
	red elderberry	curlytop knotweed	
	red flowering currant	denseflower willowherb	
	red-osier dogwood	division blister buttercup	
	*snowberry	Douglas aster	
	tall Oregon grape	fowl bluegrass	
	thimbleberry	fowl mannagrass	
	trailing blackberry	fringecup	
		giant horsetail	
		grooved rush	
		lady fern	
		marsh pennywort	
		meadow barley	
		mild waterpepper	
		northern water plantain	
		nutsedge	
		Pacific rush	
		pasture rush	
		pondweed	
		rice cutgrass	
		sedge	
		skullcap speedwell	
		slender rush	
		slough sedge	
		small duckweed	
		small-fruited bulrush	
		soft rush	
		spike bentgrass	
		tall annual willowherb	
		taperfruit shortscale sedge	
		wapato	
		water horsetail	
		water smartweed	
		western swordfern	
		western water hemlock	
		willowherb	
		*yellow touch-me-not	

Plant Community: Upland Forest

Stems per Acre: 2,700 | Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	Douglas' spirea	American speedwell	Canada thistle
cascara	Sitka Willow	common beggarticks	common velvetgrass
*Douglas-fir	snowberry	common cattail	Himalayan blackberry
*Oregon ash	*tall Oregon grape	*marsh pennywort	morning-glory
Oregon oak	thimbleberry	sedge	reed canary grass
	*trailing blackberry	small duckweed	
		*small-fruited bulrush	
		spikerush	
		willowherb	

Management Actions

Completed: 2025	Recommended: 2026
☐ Interplant	☑ Interplant
☐ Invasive weed treatment	☑ Invasive weed treatment
☑ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
1646 – 185th to Kaiser – Springville Creek	Capital	13,047	9.91	22.43	12.52	6.26	6.26

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
1646 - Springville Creek – 185th to Kaiser	23%	7.84E+04	100	267.0	7.1	11.0	1.8	1375	1375	1375	1300	1325	1375	1000	1000	1000	1375	1350	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73%	1.31E+05	53	343.0	7.1	11.0	1.8	1175	1150	1100	1100	1125	1125	1100	1125	1150	1175	1175	1175	1175	1175	1175	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	61%	2.09E+05	100	324.0	7.1	11.0	1.8	1150	1150	1125	1125	1125	1125	1125	1150	1175	1175	1175	1150	1125	1125	1100	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	70%	2.38E+05	100	304.0	7.1	11.0	1.8	1175	1175	1150	1175	1000	1000	1000	1000	1000	1150	1150	1125	1100	1100	1125	1100	1125	1125
1646 - Springville Creek – 185th to Kaiser	75%	2.55E+05	100	328.0	7.1	11.0	1.8	1175	1175	1175	1150	1000	1000	1000	1000	1000	1175	1175	1000	1000	1100	1100	1100	1125	1125
1646 - Springville Creek – 185th to Kaiser	75%	2.56E+05	100	331.0	7.1	11.0	1.8	1175	1175	1175	1150	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	14%	4.85E+04	100	287.0	7.1	11.0	1.8	1325	1300	1300	1325	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	13%	4.34E+04	100	280.0	7.1	11.0	1.8	1325	1300	1325	1300	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21%	7.20E+04	100	284.0	7.1	11.0	1.8	1375	1350	1000	1000	1000	1000	1000	1000	1000	1325	1325	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	19%	6.64E+04	100	285.0	7.1	11.0	1.8	1350	1000	1000	1000	1000	1000	1000	1000	1000	1375	1325	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	30%	1.04E+05	100	243.0	7.1	11.0	1.8	1375	1350	1000	1000	1000	1000	1000	1000	1000	1350	1325	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	13%	4.45E+04	100	275.0	7.1	11.0	1.8	1325	1375	1375	1000	1000	1000	1000	1000	1000	1350	1350	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	4%	1.30E+04	100	284.0	7.1	11.0	1.8	1300	1325	1375	1350	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	19%	6.32E+04	100	237.0	7.1	11.0	1.8	1325	1325	1325	1325	1325	1000	1000	1000	1000	1325	1350	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	162.0	15.0	16.0	0.5	1300	1300	1300	1300	1000	1000	1000	1000	1000	1300	1300	1300	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	1.68E+01	100	171.0	100.0	200.0	1.0	1300	1300	1300	1300	1300	1300	1325	1300	1300	1300	1300	1300	1300	1325	1325	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	4.08E+01	100	174.0	50.0	120.0	0.5	1300	1300	1300	1300	1350	1000	1000	1000	1000	1300	1300	1300	1325	1350	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	4.94E+03	100	176.0	15.0	16.0	0.5	1300	1300	1300	1300	1300	1000	1000	1000	1000	1300	1300	1300	1325	1325	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	173.0	100.0	200.0	1.0	1100	1100	1100	1100	1100	1100	1100	1100	1100	1300	1300	1300	1300	1300	1300	1300	1000	1000
1646 - Springville Creek – 185th to Kaiser	79%	1.36E+05	100	178.0	3.6	0.8	1.4	1175	1175	1150	1125	1000	1000	1000	1000	1000	1175	1175	1125	1100	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	73	151.0	3.6	0.8	1.4	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	160.0	3.6	0.8	1.4	1100	1100	1100	1100	1100	1100	1100	1000	1000	1100	1100	1100	1100	1100	1100	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	51%	8.81E+04	100	171.0	3.6	0.8	1.4	1125	1125	1100	1125	1000	1000	1000	1000	1000	1150	1150	1100	1100	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	39%	2.13E+05	100	325.0	11.3	15.6	1.5	1150	1125	1100	1100	1150	1000	1000	1000	1000	1150	1125	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	95	296.0	11.3	15.6	1.5	1100	1100	1100	1100	1100	1100	1150	1150	1175	1100	1100	1100	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	300.0	11.3	15.6	1.5	1100	1100	1100	1100	1100	1100	1150	1150	1150	1100	1100	1100	1100	1000	1000	1000	1000	1000

Baseline Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
1646 - Springville Creek – 185th to Kaiser	2%	9.66E-00	100	300.0	11.3	15.6	1.5	1100	1100	1125	1150	1125	1100	1100	1000	1100	1100	1100	1100	1125	1125	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	40%	2.13E-05	100	292.0	11.3	15.6	1.5	1150	1150	1175	1175	1125	1000	1100	1100	1100	1125	1100	1100	1100	1100	1100	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	20%	1.08E-05	100	284.0	11.3	15.6	1.5	1125	1125	1150	1125	1125	1000	1100	1000	1000	1100	1100	1100	1100	1125	1100	1100	1000	1000
1646 - Springville Creek – 185th to Kaiser	2%	1.01E-04	100	322.0	11.3	15.6	1.5	1100	1100	1100	1125	1125	1100	1100	1000	1000	1100	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	303.0	11.3	15.6	1.5	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	1.88E-03	100	314.0	11.3	15.6	1.5	1300	1300	1000	1000	1000	1000	1000	1000	1000	1100	1300	1300	1300	1325	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	305.0	11.3	15.6	1.5	1100	1100	1000	1000	1000	1000	1000	1000	1000	1100	1000	1100	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	34%	1.87E-05	100	296.0	11.3	15.6	1.5	1150	1125	1000	1000	1000	1000	1000	1000	1000	1100	1000	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	4.77E-03	100	303.0	11.3	15.6	1.5	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1100	1125	1100	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	346.0	11.3	15.6	1.5	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	96	347.0	11.3	15.6	1.5	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	2%	7.62E-03	100	327.0	7.3	7.3	0.6	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1325	1300	1300	1300	1000	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	316.0	7.3	7.3	0.6	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	8%	2.80E-04	100	247.0	7.1	11.0	1.8	1100	1100	1100	1100	1150	1125	1150	1150	1125	1125	1150	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	77	273.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	273.0	7.1	11.0	1.8	1300	1300	1300	1300	1325	1375	1175	1175	1000	1300	1300	1300	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	18%	6.11E-04	100	285.0	7.1	11.0	1.8	1350	1350	1325	1325	1350	1375	1150	1175	1000	1325	1300	1300	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	34%	1.17E-05	100	310.0	7.1	11.0	1.8	1350	1350	1125	1125	1125	1125	1125	1000	1000	1350	1350	1325	1325	1325	1300	1300	1000	1000
1646 - Springville Creek – 185th to Kaiser	74%	2.53E-05	100	270.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1150	1350	1350	1325	1300	1300	1000	1000
1646 - Springville Creek – 185th to Kaiser	74%	2.54E-05	100	254.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1150	1125	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	77%	2.63E-05	100	260.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1150	1125	1100	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	2.87E-03	100	227.0	7.1	11.0	1.8	1100	1100	1100	1100	1100	1100	1125	1125	1000	1100	1100	1100	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	1.21E-02	100	253.0	7.1	11.0	1.8	1100	1100	1100	1100	1100	1100	1125	1150	1125	1100	1300	1300	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	3.05E-00	100	256.0	7.1	11.0	1.8	1100	1100	1100	1100	1100	1100	1100	1100	1125	1100	1300	1000	1300	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	2%	7.33E-03	100	309.0	7.1	11.0	1.8	1100	1100	1100	1100	1100	1100	1100	1125	1150	1100	1100	1125	1125	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	71%	2.43E-05	100	294.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1150	1100	1100	1150	1175	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	69%	2.36E-05	100	282.0	7.1	11.0	1.8	1175	1150	1150	1175	1175	1000	1000	1000	1000	1175	1150	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	77%	2.64E-05	100	259.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73%	2.49E-05	100	247.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	57%	1.94E-05	100	241.0	7.1	11.0	1.8	1150	1150	1175	1175	1175	1150	1100	1100	1125	1150	1150	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	53%	1.80E-05	100	254.0	7.1	11.0	1.8	1150	1150	1125	1125	1100	1100	1125	1100	1100	1125	1125	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	58%	1.96E-05	100	255.0	7.1	11.0	1.8	1150	1125	1150	1175	1150	1150	1125	1125	1150	1175	1175	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	49%	1.66E-05	100	216.0	7.1	11.0	1.8	1150	1100	1125	1100	1100	1100	1100	1100	1100	1175	1175	1150	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	20%	6.67E-04	100	211.0	7.1	11.0	1.8	1125	1100	1100	1100	1100	1100	1100	1100	1100	1125	1100	1100	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	15%	5.16E-04	100	227.0	7.1	11.0	1.8	1125	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	67%	2.29E-05	100	247.0	7.1	11.0	1.8	1175	1175	1125	1100	1100	1100	1100	1100	1100	1150	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	70%	2.40E-05	100	243.0	7.1	11.0	1.8	1175	1175	1175	1150	1125	1125	1125	1100	1125	1175	1100	1300	1300	1300	1300	1300	1300	1000
1646 - Springville Creek – 185th to Kaiser	73%	2.48E-05	100	249.0	7.1	11.0	1.8	1175	1175	1175	1150	1175	1175	1000	1000	1000	1175	1175	1125	1325	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	74%	2.52E-05	100	254.0	7.1	11.0	1.8	1175	1175	1175	1175	1150	1000	1000	1000	1000	1175	1150	1125	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	4.06E-03	100	255.0	7.1	11.0	1.8	1100	1100	1125	1125	1125	1100	1100	1000	1000	1100	1100	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	5%	1.70E-04	100	256.0	7.1	11.0	1.8	1100	1100	1100	1100	1100	1100	1100	1100	1100	1125	1125	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	275.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1300	1300	1300	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	173.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	25%	8.54E-04	100	224.0	7.1	11.0	1.8	1375	1350	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	20%	6.78E-04	100	237.0	7.1	11.0	1.8	1350	1325	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	241.0	7.1	11.0	1.8	1000	1000	1000	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	18%	6.20E-04	100	241.0	7.1	11.0	1.8	1325	1300	1300	1300	1300	1300	1300	1300	1300	1125	1125	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	6%	1.98E-04	100	239.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	34%	1.15E-05	100	239.0	7.1	11.0	1.8	1125	1300	1300	1300	1300	1300	1300	1300	1300	1150	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	15%	5.22E-04	100	237.0	7.1	11.0	1.8	1100	1100	1300	1300	1300	1300	1300	1300	1300	1150	1150	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	52%	1.76E-05	100	231.0	7.1	11.0	1.8	1150	1100	1125	1300	1300	1300	1300	1300	1300	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	64%	2.17E-05	100	228.0	7.1	11.0	1.8	1175	1125	1125	1150	1125	1325	1325	1300	1300	1175	1175	1100	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	6.74E-02	100	264.0	155.0	185.0	0.5	1100	1100	1100	1100	1125	1125	1100	1100	1100	1100	1100	1100	1000	1000	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E-00	100	246.0	155.0	185.0	0.5	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1300	1300	1300	1000
1646 - Springville Creek – 185th to Kaiser	0%	1.37E-04	100	277.0	155.0	185.0	0.5	1100	1100	1100	1100	1100	1100	1100	1100	1100	1125	1100	1100	1100	1100	1125	1125	1100	1300
1646 - Springville Creek – 185th to Kaiser	32%	1.08E-05	100	253.0	7.1	11.0	1.8	1125	1125	1100	1100	1100	1100	1100	1100	1100	1125	1100	1125	1100	1100	1100	1150	1150	1100
1646 - Springville Creek – 185th to Kaiser	77%	2.63E-05	100	262.0	7.1	11.0	1.8	1175	1150	1125	1100	1100	1100	1100	1100	1100	1175	1175	1150	1100	1100	1150	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	37%	1.26E-05	100	262.0	7.1	11.0	1.8	1125	1150	1100	1100	1100	1100	1100	1100	1100	1125	1100	1100	1100	1175	1150	1125	1125	1125

Baseline Conditions (cont.)

PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
1646 - Springville Creek – 185th to Kaiser	70%	2.40E+05	100	277.0	7.1	11.0	1.8	1175	1175	1125	1100	1100	1100	1100	1100	1100	1175	1150	1100	1125	1125	1175	1175	1175	1125
1646 - Springville Creek – 185th to Kaiser	73%	2.48E+05	100	271.0	7.1	11.0	1.8	1175	1175	1125	1100	1100	1100	1100	1100	1100	1150	1150	1125	1150	1125	1125	1125	1100	1100
1646 - Springville Creek – 185th to Kaiser	70%	2.39E+05	100	282.0	7.1	11.0	1.8	1175	1175	1150	1150	1100	1100	1100	1000	1000	1175	1150	1100	1100	1100	1100	1100	1000	1000
1646 - Springville Creek – 185th to Kaiser	76%	2.60E+05	100	259.0	7.1	11.0	1.8	1175	1175	1175	1150	1000	1000	1000	1000	1000	1150	1175	1150	1125	1125	1125	1125	1000	1000
1646 - Springville Creek – 185th to Kaiser	62%	2.12E+05	100	266.0	7.1	11.0	1.8	1150	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1125	1100	1100	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73%	2.49E+05	100	251.0	7.1	11.0	1.8	1175	1175	1375	1000	1000	1000	1000	1000	1000	1175	1175	1175	1150	1100	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	71%	2.43E+05	100	252.0	7.1	11.0	1.8	1175	1150	1325	1300	1300	1000	1000	1000	1000	1175	1150	1125	1100	1125	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75%	2.56E+05	100	269.0	7.1	11.0	1.8	1175	1175	1325	1300	1300	1300	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22%	7.55E+04	100	270.0	7.1	11.0	1.8	1350	1300	1300	1300	1300	1300	1300	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	4.58E+02	100	206.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1325	1300	1000	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	63	280.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1300	1100	1100	1100	1100	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	272.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1300	1300	1300	1300	1100	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	261.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1300	1300	1300	1300	1300	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	252.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	245.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	254.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	247.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	245.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	263.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	269.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	269.0	22.5	62.5	0.5	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	271.0	22.5	62.5	0.5	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	274.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	273.0	7.1	11.0	1.8	1300	1325	1300	1300	1300	1000	1000	1000	1000	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	9%	3.18E+04	100	271.0	7.1	11.0	1.8	1325	1325	1300	1300	1000	1000	1000	1000	1000	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	5%	1.74E+04	100	248.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1000	1000	1000	1000	1325	1350	1325	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	15%	5.27E+04	100	247.0	7.1	11.0	1.8	1325	1300	1300	1300	1000	1000	1000	1000	1000	1325	1325	1325	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	228.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1000	1000	1000	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	1%	1.88E+03	100	275.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1100	1100	1125	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	3.05E-02	100	244.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1325	1325	1300	1300	1300	1300	1300	1300	1300	1100	1100
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	243.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1325	1300	1300	1300	1300	1300	1300	1100	1100	1100
1646 - Springville Creek – 185th to Kaiser	2%	6.75E+03	100	243.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1150	1175	1125	1000
1646 - Springville Creek – 185th to Kaiser	1%	4.87E+03	100	243.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1150	1150	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	245.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1100	1100	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	2.13E+03	100	246.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1125	1100	1100	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1%	3.75E+03	100	243.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1100	1125	1125	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	4%	1.49E+04	100	248.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1100	1100	1150	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	3%	1.04E+04	100	230.0	7.1	11.0	1.8	1100	1100	1300	1300	1300	1300	1300	1300	1300	1100	1100	1100	1150	1150	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	268.0	7.1	11.0	1.8	1100	1100	1100	1300	1300	1300	1300	1300	1300	1100	1100	1100	1100	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	237.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1000	1000	1300	1300	1300	1300	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	8.97E+00	89	261.0	7.1	11.0	1.8	1300	1300	1300	1300	1350	1350	1325	1000	1000	1300	1300	1300	1300	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	3.22E+02	100	263.0	7.1	11.0	1.8	1300	1300	1300	1350	1350	1300	1000	1000	1000	1300	1300	1300	1300	1300	1300	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	270.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1000	1300	1300	1300	1300	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	289.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1000	1300	1300	1300	1300	1300	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0%	6.14E+02	100	280.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1000	1300	1300	1300	1300	1300	1300	1325	1325	1000
1646 - Springville Creek – 185th to Kaiser	0%	3.60E+02	100	285.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1000	1300	1300	1300	1300	1300	1300	1325	1300	1000
1646 - Springville Creek – 185th to Kaiser	0%	0.00E+00	100	278.0	7.1	11.0	1.8	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
1646 - Springville Creek – 185th to Kaiser	0%	2.72E+02	100	264.0	7.1	11.0	1.8	1300	1300	1300	1325	1325	1325	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1000

Enhanced Shade Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
1646 - Springville Creek – 185th to Kaiser	22.0%	7.85E-04	100	267.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	79.3%	1.42E-05	52	342.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	78.0%	2.68E-05	100	324.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	74.6%	2.54E-05	100	304.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	77.0%	2.62E-05	100	328.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1000	1000	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	75.4%	2.57E-05	100	331.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	23.8%	8.11E-04	100	287.0	7.1	11.0	1.8	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.1%	7.18E-04	100	280.0	7.1	11.0	1.8	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.3%	7.60E-04	100	284.0	7.1	11.0	1.8	1375	1375	1000	1000	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.8%	7.76E-04	100	285.0	7.1	11.0	1.8	1375	1000	1000	1000	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.5%	1.11E-05	100	243.0	7.1	11.0	1.8	1375	1375	1000	1000	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.1%	7.20E-04	100	275.0	7.1	11.0	1.8	1375	1375	1375	1000	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.3%	7.60E-04	100	284.0	7.1	11.0	1.8	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	35.6%	1.21E-05	100	237.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.5%	2.34E-05	100	162.0	15.0	16.0	0.5	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.0%	5.24E-02	100	171.0	100.0	200.0	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.2%	4.45E-03	100	174.0	50.0	120.0	0.5	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.7%	2.36E-05	100	176.0	15.0	16.0	0.5	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	1.1%	5.39E-04	100	173.0	100.0	200.0	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	84.5%	1.46E-05	100	178.0	3.6	0.8	1.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	79.5%	1.00E-05	73	151.0	3.6	0.8	1.4	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	93.1%	1.61E-05	100	160.0	3.6	0.8	1.4	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	88.3%	1.53E-05	100	171.0	3.6	0.8	1.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	63.5%	3.44E-05	100	325.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	61.7%	3.18E-05	95	296.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	62.6%	3.40E-05	100	300.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	62.7%	3.40E-05	100	300.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	60.2%	3.27E-05	100	292.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	61.2%	3.32E-05	100	294.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1000	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
1646 - Springville Creek – 185th to Kaiser	60.8%	3.30E-05	100	322.0	11.3	15.6	1.5	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	60.2%	2.72E-05	100	303.0	11.3	15.6	1.5	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	35.1%	1.90E-05	100	314.0	11.3	15.6	1.5	1375	1375	1000	1000	1000	1000	1000	1000	1000	1175	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	60.9%	3.30E-05	100	305.0	11.3	15.6	1.5	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1000	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	60.8%	3.30E-05	100	296.0	11.3	15.6	1.5	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1000	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	54.5%	2.96E-05	100	303.0	11.3	15.6	1.5	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	33.0%	1.79E-05	100	346.0	11.3	15.6	1.5	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	33.0%	1.72E-05	96	347.0	11.3	15.6	1.5	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	52.0%	1.82E-05	100	327.0	7.3	7.3	0.6	1375	1376	1376	1376	1375	1375	1376	1000	1000	1375	1376	1376	1376	1376	1000	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	49.7%	1.74E-05	100	316.0	7.3	7.3	0.6	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	72.3%	2.46E-05	100	247.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.5%	5.65E-04	77	273.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.5%	7.32E-04	100	273.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1175	1175	1000	1375	1375	1375	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.8%	7.77E-04	100	285.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1175	1175	1000	1375	1375	1375	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	43.6%	1.49E-05	100	310.0	7.1	11.0	1.8	1375	1375	1175	1175	1175	1175	1175	1000	1000	1375	1375	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	74.2%	2.53E-05	100	270.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	74.7%	2.55E-05	100	254.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	77.8%	2.65E-05	100	260.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	70.3%	2.40E-05	100	227.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73.6%	2.51E-05	100	253.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75.4%	2.57E-05	100	256.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1000	1375	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75.0%	2.56E-05	100	309.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73.1%	2.49E-05	100	294.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	70.4%	2.40E-05	100	282.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	77.5%	2.64E-05	100	259.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73.1%	2.49E-05	100	247.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	72.5%	2.47E-05	100	241.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	74.2%	2.53E-05	100	254.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75.1%	2.56E-05	100	255.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000

Enhanced Shade Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
1646 - Springville Creek – 185th to Kaiser	67.8%	2.31E-05	100	216.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	68.9%	2.29E-05	100	211.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	70.8%	2.41E-05	100	227.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	72.3%	2.46E-05	100	247.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1176	1175	1175	1175	1175	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	72.8%	2.48E-05	100	243.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1375	1375	1375	1375	1000
1646 - Springville Creek – 185th to Kaiser	73.1%	2.49E-05	100	249.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	74.5%	2.54E-05	100	254.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	74.8%	2.55E-05	100	255.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75.4%	2.57E-05	100	256.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.2%	7.21E-04	100	275.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	46.1%	1.57E-05	100	173.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	25.5%	8.68E-04	100	224.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	25.2%	8.57E-04	100	237.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.1%	2.80E-02	100	241.0	7.1	11.0	1.8	1000	1000	1000	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	39.3%	1.34E-05	100	241.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1000	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	41.8%	1.42E-05	100	239.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	66.8%	2.28E-05	100	239.0	7.1	11.0	1.8	1175	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	70.5%	2.40E-05	100	237.0	7.1	11.0	1.8	1175	1175	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	70.4%	2.40E-05	100	231.0	7.1	11.0	1.8	1175	1175	1175	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	69.8%	2.38E-05	100	228.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1375	1375	1375	1375	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.9%	6.59E-04	100	264.0	155.0	185.0	0.5	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	1.6%	1.20E-05	100	246.0	155.0	185.0	0.5	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1375	1000
1646 - Springville Creek – 185th to Kaiser	1.0%	7.20E-04	100	277.0	155.0	185.0	0.5	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375
1646 - Springville Creek – 185th to Kaiser	74.4%	2.53E-05	100	253.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	78.0%	2.66E-05	100	262.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	78.0%	2.66E-05	100	262.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	70.4%	2.40E-05	100	277.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	73.3%	2.50E-05	100	271.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	70.6%	2.41E-05	100	282.0	7.1	11.0	1.8	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
1646 - Springville Creek – 185th to Kaiser	77.6%	2.64E-05	100	259.0	7.1	11.0	1.8	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
1646 - Springville Creek – 185th to Kaiser	77.2%	2.63E-05	100	266.0	7.1	11.0	1.8	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73.2%	2.50E-05	100	251.0	7.1	11.0	1.8	1175	1175	1375	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	73.6%	2.51E-05	100	252.0	7.1	11.0	1.8	1175	1175	1375	1375	1375	1000	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	75.1%	2.56E-05	100	269.0	7.1	11.0	1.8	1175	1175	1375	1375	1375	1375	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	24.9%	8.50E-04	100	270.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	42.7%	1.46E-05	100	206.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	21.2%	4.58E-04	63	280.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1175	1175	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	21.7%	7.39E-04	100	272.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1375	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	25.7%	8.75E-04	100	261.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1375	1375	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	28.7%	9.78E-04	100	252.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1000	1000
1646 - Springville Creek – 185th to Kaiser	31.6%	1.08E-05	100	245.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	28.1%	9.58E-04	100	254.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	30.5%	1.04E-05	100	247.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	31.6%	1.08E-05	100	245.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	24.8%	8.44E-04	100	263.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.4%	7.63E-04	100	269.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.0%	3.97E-02	100	269.0	22.5	62.5	0.5	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	0.0%	4.06E-02	100	271.0	22.5	62.5	0.5	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	21.3%	7.26E-04	100	274.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	21.5%	7.32E-04	100	273.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	21.9%	7.46E-04	100	271.0	7.1	11.0	1.8	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	30.1%	1.03E-05	100	248.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	30.5%	1.04E-05	100	247.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	38.3%	1.31E-05	100	228.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	23.7%	8.08E-04	100	275.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.1%	1.09E-05	100	244.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175
1646 - Springville Creek – 185th to Kaiser	32.7%	1.11E-05	100	243.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175
1646 - Springville Creek – 185th to Kaiser	32.7%	1.11E-05	100	243.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000

Enhanced Shade Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – *code only vegetation that CWS is responsible for*									RIPARIAN CODES – RIGHT BANK – *code only vegetation that CWS is responsible for*								
PROJECT	**Effective Shade** (%)	**Thermal Load Blocked** (kcal/d)	**Segment Length** (ft)	**Orientation** (0 deg=N)	**Wetted Width** (ft)	**NSDZ Width** (ft)	**Channel Incision** (ft)	**LB** 0-15 ft	**LB** 15-30 ft	**LB** 30-45ft	**LB** 45-60 ft	**LB** 60-75 ft	**LB** 75-90 ft	**LB** 90-105 ft	**LB** 105-120 ft	**LB** 120-135 ft	**RB 0-15 ft**	**RB 15-30 ft**	**RB 30-45ft**	**RB 45-60 ft**	**RB 60-75 ft**	**RB 75-90 ft**	**RB 90-105 ft**	**RB 105-120 ft**	**RB 120-135 ft**
1646 - Springville Creek – 185th to Kaiser	32.8%	1.12E+05	100	243.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.2%	1.10E+05	100	245.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	32.6%	1.11E+05	100	246.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	39.1%	1.33E+05	100	243.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	35.7%	1.22E+05	100	248.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	69.9%	2.35E+05	100	239.0	7.1	11.0	1.8	1175	1175	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	76.0%	2.59E+05	100	268.0	7.1	11.0	1.8	1175	1175	1175	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	35.8%	1.22E+05	100	237.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	25.7%	7.82E+04	89	261.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1375	1375	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	24.8%	8.44E+04	100	263.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1000	1000	1000	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.1%	7.54E+04	100	270.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	25.1%	8.55E+04	100	289.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1375	1000	1000	1000	1000
1646 - Springville Creek – 185th to Kaiser	21.1%	7.19E+04	100	280.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1375	1375	1375	1000	1000
1646 - Springville Creek – 185th to Kaiser	22.8%	7.77E+04	100	285.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1375	1375	1375	1375	1000
1646 - Springville Creek – 185th to Kaiser	20.9%	7.12E+04	100	278.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
1646 - Springville Creek – 185th to Kaiser	24.3%	8.29E+04	100	264.0	7.1	11.0	1.8	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000

2474 – Reedville Creek Expansion

Project Summary

Project ID	Acres
2474	7.71
Location	
Public property in City of Hillsboro, bisected by Reedville Creek, located between SE 51st Avenue and SE 73rd Avenue.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.51, -122.92	6,750
Stream Length	**Average Stream Width**
1,942 feet	29.6 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2020/2025	0.910 million kcal/day
Plant Communities	
Riparian Forest, Scrub-Shrub, and Forested Wetland (refer to the Site Assessment Report for additional information)	
Partners	
City of Hillsboro	
Riparian Planting Activities	
Targeted invasive species treatment and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2474	Project Name: Reedville Creek Expansion		
Project Acres: 7.71	Initial Planting Year: 2020	Initial Credit Year: 2025	Length of Stream: 1,942 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Forested Wetland

Stems per Acre: 1,567 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	clustered wild rose	American sloughgrass	Canada thistle
Oregon ash	*Douglas' spirea	American speedwell	reed canary grass
	native wild rose	American water horehound	
	*Pacific ninebark	beggarticks	
	Pacific Willow	blue skullcap	
	*red-osier dogwood	common horsetail	
	tall Oregon grape	fowl bluegrass	
		*giant horsetail	
		golden nutsedge	
		horseweed	
		marsh yellowcress	
		meadow barley	
		meadow woollyheads	
		northern water plantain	
		pasture rush	
		*redroot flatsedge	
		*rice cutgrass	
		slender hairgrass	
		*slough sedge	
		small-fruited bulrush	
		spike bentgrass	
		tufted hairgrass	
		water foxtail	
		*willowherb	
		witchgrass	

Plant Community: Riparian Forest

Stems per Acre: 4,700 — Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	*beaked hazelnut	American sloughgrass	common hawthorn
*Douglas-fir	black twinberry	American water horehound	English ivy
*Oregon ash	*Douglas' spirea	checkermallow	Himalayan blackberry
*Oregon oak	native wild rose	common beggarticks	reed canary grass
vine maple	osoberry, indian plum	*common horsetail	
	Pacific ninebark	fowl bluegrass	
	Pacific poison oak	giant horsetail	
	red-osier dogwood	lady fern	
	salmonberry	meadow barley	
	Scouler's Willow	meadow checkerbloom	
	serviceberry	nodding beggarticks	
	*snowberry	pasture rush	
	tall Oregon grape	rice cutgrass	
	trailing blackberry	slender hairgrass	
		slough sedge	
		small-fruited bulrush	
		spike bentgrass	
		tall mannagrass	
		taperfruit shortscale sedge	
		tufted hairgrass	
		wapato	
		*willowherb	
		yellowcress	

Plant Community: Scrub-Shrub

Stems per Acre: 1,475 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
black hawthorn	beaked hazelnut	American sloughgrass	Canada thistle
*Oregon ash	Douglas' spirea	American speedwell	common velvetgrass
red alder	native wild rose	common beggarticks	Himalayan blackberry
	*Pacific Willow	common horsetail	reed canary grass
	*red-osier dogwood	dense sedge	
	Sitka Willow	fringecup	
	tall Oregon grape	*giant horsetail	
	trailing blackberry	lady fern	
		marsh pennywort	
		Mexican hedgenettle	
		pasture rush	
		*rice cutgrass	
		tall mannagrass	
		taperfruit shortscale sedge	
		western swordfern	
		willowherb	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☑ Interplant
☑ Invasive weed treatment	☐ Invasive weed treatment
☐ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2474 – Reedville Creek Expansion	Capital	1,942	2.09	3.91	1.82	0.910	0.910

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK– code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2474 - Reedville Creek Expansion	31%	2.89E+05	100	282.0	19.5	25.5	1.3	1175	1150	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1125	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	31%	1.84E+05	64	272.0	19.5	25.5	1.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1150	1150	1150	1150	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	5%	5.03E+04	100	276.0	19.5	25.5	1.3	1100	1150	1125	1000	1000	1000	1000	1000	1000	1150	1150	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	16%	1.46E+05	100	272.0	19.5	25.5	1.3	1125	1125	1125	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	24%	2.21E+05	100	273.0	19.5	25.5	1.3	1150	1125	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	31%	2.88E+05	100	273.0	19.5	25.5	1.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	16%	1.46E+05	100	283.0	19.5	25.5	1.3	1125	1150	1150	1175	1175	1175	1175	1175	1150	1150	1150	1150	1125	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	7%	4.88E+04	78	319.0	19.5	25.5	1.3	1000	1100	1000	1125	1000	1000	1000	1000	1000	1000	1175	1150	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	5%	4.69E+04	100	306.0	19.5	25.5	1.3	1100	1125	1150	1175	1175	1125	1000	1000	1000	1100	1000	1100	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	26%	2.48E+05	100	321.0	19.5	25.5	1.3	1150	1175	1175	1175	1175	1125	1000	1000	1000	1100	1100	1100	1125	1125	1000	1000	1000	1000
2474 - Reedville Creek Expansion	25%	2.31E+05	100	301.0	19.5	25.5	1.3	1150	1175	1150	1150	1125	1000	1000	1000	1000	1100	1100	1100	1125	1125	1125	1000	1000	1000
2474 - Reedville Creek Expansion	12%	1.17E+05	100	294.0	19.5	25.5	1.3	1125	1150	1150	1175	1175	1175	1150	1150	1150	1100	1100	1100	1100	1100	1100	1000	1000	1000
2474 - Reedville Creek Expansion	2%	2.02E+04	100	270.0	19.5	25.5	1.3	1325	1325	1300	1300	1300	1325	1325	1325	1000	1300	1325	1350	1350	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0%	9.75E+02	100	275.0	60.0	70.0	1.3	1300	1325	1350	1325	1300	1000	1000	1000	1000	1300	1000	1300	1325	1325	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0%	2.32E+03	100	274.0	60.0	70.0	1.3	1000	1000	1325	1300	1000	1000	1000	1000	1000	1000	1000	1325	1325	1300	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0%	8.36E+02	100	273.0	60.0	70.0	1.3	1000	1300	1300	1350	1000	1000	1000	1000	1000	1000	1000	1300	1325	1325	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0%	6.85E+03	100	263.0	60.0	70.0	1.3	1000	1300	1325	1350	1325	1300	1300	1325	1375	1000	1325	1350	1350	1325	1000	1000	1000	1000
2474 - Reedville Creek Expansion	1%	1.78E+04	100	251.0	60.0	70.0	1.3	1350	1325	1325	1350	1325	1300	1300	1325	1300	1300	1325	1350	1350	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	1%	9.81E+03	100	260.0	19.5	25.5	1.3	1300	1300	1300	1350	1350	1325	1325	1000	1000	1300	1350	1350	1325	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	2%	1.69E+04	100	263.0	19.5	25.5	1.3	1300	1325	1325	1300	1325	1350	1350	1325	1000	1325	1375	1375	1000	1000	1000	1000	1000	1000

Enhanced Shade Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– *code only vegetation that CWS is responsible for*									RIPARIAN CODES – RIGHT BANK– *code only vegetation that CWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2474 - Reedville Creek Expansion	31.4%	2.94E+06	100	282.0	19.5	25.5	1.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	31.2%	1.68E+05	64	272.0	19.5	25.5	1.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	30.5%	2.85E+06	100	276.0	19.5	25.5	1.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	31.2%	2.92E+06	100	272.0	19.5	25.5	1.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	30.8%	2.89E+06	100	273.0	19.5	25.5	1.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	30.8%	2.89E+06	100	273.0	19.5	25.5	1.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	31.7%	2.97E+06	100	283.0	19.5	25.5	1.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	17.0%	1.23E+06	78	319.0	19.5	25.5	1.3	1000	1175	1000	1175	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	43.6%	4.08E+06	100	306.0	19.5	25.5	1.3	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1000	1175	1000	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	48.4%	4.53E+06	100	321.0	19.5	25.5	1.3	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2474 - Reedville Creek Expansion	43.1%	4.03E+06	100	301.0	19.5	25.5	1.3	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2474 - Reedville Creek Expansion	38.0%	3.56E+06	100	294.0	19.5	25.5	1.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000
2474 - Reedville Creek Expansion	4.5%	4.24E+04	100	270.0	19.5	25.5	1.3	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0.7%	2.09E+04	100	275.0	60.0	70.0	1.3	1375	1375	1375	1375	1375	1000	1000	1000	1000	1375	1000	1375	1375	1375	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0.2%	5.61E+03	100	274.0	60.0	70.0	1.3	1000	1000	1375	1375	1000	1000	1000	1000	1000	1000	1000	1375	1375	1375	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0.2%	5.44E+03	100	273.0	60.0	70.0	1.3	1000	1375	1375	1375	1000	1000	1000	1000	1000	1000	1000	1375	1375	1375	1000	1000	1000	1000
2474 - Reedville Creek Expansion	0.5%	1.32E+04	100	263.0	60.0	70.0	1.3	1000	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1375	1000	1000	1000	1000
2474 - Reedville Creek Expansion	1.6%	4.51E+04	100	251.0	60.0	70.0	1.3	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	5.6%	5.28E+04	100	260.0	19.5	25.5	1.3	1375	1375	1375	1375	1375	1375	1375	1000	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
2474 - Reedville Creek Expansion	5.2%	4.86E+04	100	263.0	19.5	25.5	1.3	1375	1375	1375	1375	1375	1375	1375	1375	1000	1375	1375	1375	1000	1000	1000	1000	1000	1000

2497 – Village at Summer Creek HOA

Project Summary

Project ID	Acres
2497	3.78
Location	
Private property in City of Tigard, bisected by Summer Creek, located between SW Barrows Road and SW 135th Avenue.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.44, -122.82	4,800
Stream Length	**Average Stream Width**
571 feet	25.3 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2025/2025	1.04 million kcal/day
Plant Communities	
Riparian Forest and Forested Wetland (refer to the Site Assessment Report for additional information)	
Partners	
Homeowners Association	
Riparian Planting Activities	
Site preparation, targeted invasive species treatment, riparian plantings, and native herbaceous seeding	
Instream Enhancement Activities	
None	

Project Number: 2497	Project Name: Village at Summer Creek HOA

Project Acres: 3.78 Initial Planting Year: 2025 Initial Credit Year: 2025 Length of Stream: 571 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Forested Wetland

Stems per Acre: 2,733 Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
	*clustered wild rose	American speedwell	reed canary grass
	Pacific Willow	American water horehound	
	Sitka Willow	cottonbatting plant	
		denseflower willowherb	
		marsh seedbox	
		mild waterpepper	
		*ovate spikerush	
		pasture rush	
		*rice cutgrass	
		small duckweed	
		*strawcolored flatsedge	
		tapertip rush	
		water foxtail	
		*willowherb	
		yellowcress	

Plant Community: Riparian Forest

Stems per Acre: 2,175 Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
*Oregon ash	clustered wild rose	bigleaf lupine	common hawthorn
vine maple	osoberry, indian plum	denseflower willowherb	common velvetgrass
W. v. ponderosa pine	Pacific ninebark	Douglas aster	
	*Pacific Willow	fringecup	
	red flowering currant	grand collomia	
	*red-osier dogwood	slender hairgrass	
	salal	slender rush	
	serviceberry	slough sedge	
	snowberry	western swordfern	
	tall Oregon grape	*willowherb	
	thimbleberry		
	trailing blackberry		

Management Actions

Completed: 2025	Recommended: 2026
☐ Interplant	☐ Interplant
☑ Invasive weed treatment	☑ Invasive weed treatment
☑ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2497 – Village at Summer Creek HOA	Capital	571	0.0906	2.18	2.09	1.04	1.04

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – *code only vegetation that CWS is responsible for*									RIPARIAN CODES – RIGHT BANK – *code only vegetation that CWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2497 - Village at Summer Creek HOA	1%	9.71E+03	100	283.0	25.3	26.7	1.0	1100	1100	1100	1100	1100	1100	1125	1150	1100	1100	1100	1100	1100	1100	1150	1150	1000	1000
2497 - Village at Summer Creek HOA	1%	6.22E+03	71	315.0	25.3	26.7	1.0	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1125	1125	1150	1150
2497 - Village at Summer Creek HOA	1%	9.97E+03	100	307.0	25.3	26.7	1.0	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1125	1150	1150	1000
2497 - Village at Summer Creek HOA	2%	2.19E+04	100	274.0	25.3	26.7	1.0	1100	1100	1100	1100	1100	1125	1100	1125	1100	1100	1100	1100	1100	1150	1175	1175	1150	1000
2497 - Village at Summer Creek HOA	2%	2.20E+04	100	270.0	25.3	26.7	1.0	1100	1100	1100	1150	1150	1150	1150	1125	1100	1100	1100	1100	1100	1125	1175	1175	1000	1000
2497 - Village at Summer Creek HOA	2%	1.88E+04	100	275.0	25.3	26.7	1.0	1100	1100	1100	1100	1100	1100	1100	1100	1000	1100	1100	1100	1100	1125	1175	1175	1000	1000

Enhanced Shade Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – *code only vegetation that CWS is responsible for*									RIPARIAN CODES – RIGHT BANK – *code only vegetation that CWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2497 - Village at Summer Creek HOA	27.2%	3.30E+05	100	283.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000
2497 - Village at Summer Creek HOA	42.7%	3.68E+05	71	315.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2497 - Village at Summer Creek HOA	40.3%	4.90E+05	100	307.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000
2497 - Village at Summer Creek HOA	26.7%	3.25E+05	100	274.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000
2497 - Village at Summer Creek HOA	27.9%	3.39E+05	100	270.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000
2497 - Village at Summer Creek HOA	26.5%	3.23E+05	100	275.0	25.3	26.7	1.0	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000

2529 – Rock Creek – TV Highway

Project Summary

Project ID	Acres
2529	5.27
Location	
Private property in City of Hillsboro, directly adjacent to Rock Creek, located south of Tualatin Valley Highway.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.50, -122.95	9,800
Stream Length	**Average Stream Width**
1,852 feet	24 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2025/2025	0.408 million kcal/day
Plant Communities	
Riparian Forest (refer to the Site Assessment Report for additional information)	
Partners	
Private landowner	
Riparian Planting Activities	
Targeted invasive species treatment and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2529	Project Name: Rock Creek - TV Highway		
Project Acres: 5.27	Initial Planting Year: 2025	Initial Credit Year: 2025	Length of Stream: 1,852 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 850 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
black cottonwood	clustered wild rose	Blue Wildrye	bull thistle
black hawthorn	Douglas' spirea	California brome	common velvetgrass
Douglas-fir	mock orange	cleavers	tansy ragwort
*Oregon ash	red-osier dogwood	common beggarticks	
*paper birch	Sitka Willow	grand collomia	
	snowberry	horseweed	
	trailing blackberry	piggyback	
		triangle orache	
		willowherb	
		yellow touch-me-not	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☑ Interplant
☑ Invasive weed treatment	☐ Invasive weed treatment
☐ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2529 – Rock Creek – TV Highway	Capital	1,852	2.69	3.50	0.816	0.408	0.408

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2529 - Rock Creek - TV Highway	20%	2.32E-05	100	172.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1150	1125	1125	1125	1100	1000	1000
2529 - Rock Creek - TV Highway	11%	6.51E-04	51	309.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1150	1125	1100	1100	1100	1100
2529 - Rock Creek - TV Highway	1%	1.06E-04	100	15.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1125
2529 - Rock Creek - TV Highway	1%	1.46E-04	100	298.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175
2529 - Rock Creek - TV Highway	4%	4.70E-04	100	263.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1150	1150	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	18%	2.06E-05	100	197.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1150	1125	1000	1000	1000
2529 - Rock Creek - TV Highway	29%	3.30E-05	100	156.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1150	1150	1175	1175	1175	1150	1150
2529 - Rock Creek - TV Highway	14%	1.66E-05	100	196	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1150	1150	1100	1100	1100	1000	1000
2529 - Rock Creek - TV Highway	18%	2.04E-05	100	196	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1125	1000	1000	1000	1000
2529 - Rock Creek - TV Highway	12%	1.32E-05	100	226	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1150	1100	1100	1100	1125	1175	1175
2529 - Rock Creek - TV Highway	4%	5.16E-04	100	287	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175	1150	1125	1000	1000	1000	1000
2529 - Rock Creek - TV Highway	21%	2.48E-05	100	344	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1150	1175	1150	1125
2529 - Rock Creek - TV Highway	17%	1.92E-05	100	7	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1125	1125	1125	1125	1150	1175	1175	1150
2529 - Rock Creek - TV Highway	2%	2.05E-04	100	299	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1100	1125	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	3%	3.59E-04	100	250	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1150	1150	1150	1150	1175	1175
2529 - Rock Creek - TV Highway	20%	2.27E-05	100	204	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1150	1150
2529 - Rock Creek - TV Highway	20%	2.29E-05	100	204	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1150
2529 - Rock Creek - TV Highway	18%	2.09E-05	100	211	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1125	1000
2529 - Rock Creek - TV Highway	6%	6.88E-04	100	184	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1125	1150	1175	1150	1000	1000

Enhanced Shade Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2529 - Rock Creek - TV Highway	27.0%	3.11E+05	100	172.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2529 - Rock Creek - TV Highway	11.3%	6.70E+04	51	303.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	3.4%	3.89E+04	100	15.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175
2529 - Rock Creek - TV Highway	1.6%	1.81E+04	100	298.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175
2529 - Rock Creek - TV Highway	5.2%	6.04E+04	100	263.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	21.1%	2.40E+05	100	197.0	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2529 - Rock Creek - TV Highway	30.6%	3.52E+05	100	156	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	21.5%	2.47E+05	100	196	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2529 - Rock Creek - TV Highway	20.9%	2.41E+05	100	196	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2529 - Rock Creek - TV Highway	14.5%	1.67E+05	100	226	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	5.2%	5.99E+04	100	287	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2529 - Rock Creek - TV Highway	21.7%	2.50E+05	100	344	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	25.2%	2.90E+05	100	7	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	9.9%	1.14E+05	100	299	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	8.5%	9.78E+04	100	250	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	19.9%	2.29E+05	100	204	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	19.9%	2.29E+05	100	204	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2529 - Rock Creek - TV Highway	18.2%	2.10E+05	100	211	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2529 - Rock Creek - TV Highway	24.2%	2.78E+05	100	184	24.0	36.7	10.7	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000

2530 – Witch Hazel Creek – Brookwood Crossing

Project Summary

Project ID	Acres
2530	3.61
Location	
Public, urban property in City of Hillsboro, bisected by a tributary to Rock Creek, located on either side of SE Lone Oak Street.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.50, -122.94	7,110
Stream Length	**Average Stream Width**
883 feet	6.7 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2024/2025	0.209 million kcal/day
Plant Communities	
Riparian Forest (refer to the Site Assessment Report for additional information)	
Partners	
City of Hillsboro	
Riparian Planting Activities	
Targeted invasive species treatment and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2530	Project Name: Witch Hazel Creek - Brookwood Crossing		
Project Acres: 3.61	Initial Planting Year: 2024	Initial Credit Year: 2025	Length of Stream: 883 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 1,420 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
*Douglas-fir	*beaked hazelnut	beggarticks	Canada thistle
*red alder	Pacific poison oak	bracken fern	Himalayan blackberry
*western red cedar	*snowberry	California poppy	
	*tall Oregon grape	denseflower willowherb	
	thimbleberry	Douglas aster	
	trailing blackberry	*giant horsetail	
		grand collomia	
		meadow checkerbloom	
		Rocky Mt. goldenrod	
		western swordfern	
		willowherb	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☐ Interplant
☑ Invasive weed treatment	☑ Invasive weed treatment
☐ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2530 – Witch Hazel Creek – Brookwood Crossing	Capital	883	0.450	0.87	0.417	0.209	0.209

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2530 - Witch Hazel Creek - Brookwood Crossing	30%	3.54E+04	100	223	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1175	1000	1125	1150	1150	1150	1000	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	3%	9.28E+03	100	246	6.7	28.7	2.0	1100	1100	1100	1100	1100	1100	1100	1000	1000	1100	1125	1150	1175	1150	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	9%	2.88E+04	100	246	6.7	28.7	2.0	1125	1100	1100	1100	1100	1100	1100	1000	1000	1100	1125	1175	1175	1175	1150	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	11%	3.39E+04	100	212	6.7	28.7	2.0	1100	1100	1100	1125	1100	1100	1100	1000	1000	1125	1175	1175	1175	1175	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	2%	5.40E+03	100	256	6.7	28.7	2.0	1100	1100	1100	1100	1100	1100	1000	1000	1000	1100	1100	1125	1150	1150	1125	1125	1125	1125
2530 - Witch Hazel Creek - Brookwood Crossing	34%	1.09E+05	100	208	6.7	28.7	2.0	1175	1175	1175	1175	1150	1000	1000	1000	1000	1150	1125	1125	1175	1175	1175	1150	1125	1000
2530 - Witch Hazel Creek - Brookwood Crossing	19%	5.97E+04	100	201	6.7	28.7	2.0	1100	1175	1175	1175	1175	1175	1150	1000	1000	1100	1150	1150	1175	1150	1175	1150	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	9%	3.02E+04	100	247	6.7	28.7	2.0	1125	1150	1125	1125	1125	1100	1000	1000	1000	1100	1125	1175	1175	1150	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	30%	7.88E+04	83	215	6.7	28.7	2.0	1175	1175	1175	1175	1175	1125	1100	1000	1000	1150	1000	1000	1000	1000	1000	1000	1000	1000

Enhanced Shade Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2530 - Witch Hazel Creek - Brookwood Crossing	35.5%	1.14E+05	100	223	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	25.5%	8.16E+04	100	246	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	25.6%	8.18E+04	100	246	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	37.9%	1.21E+05	100	212	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	16.1%	5.15E+04	100	256	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2530 - Witch Hazel Creek - Brookwood Crossing	38.6%	1.23E+05	100	208	6.7	28.7	2.0	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2530 - Witch Hazel Creek - Brookwood Crossing	39.5%	1.26E+05	100	201	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	24.6%	7.87E+04	100	247	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2530 - Witch Hazel Creek - Brookwood Crossing	33.6%	8.95E+04	83	215	6.7	28.7	2.0	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1000	1000	1000	1000	1000	1000	1000	1000

2541 – TSWCD – Tualatin River

Project Summary

Project ID	Acres
2541	47.03
Location	
Private, rural property in Washington County, directly adjacent to Tualatin River, located east of SW 345th Avenue.	
Program	
VEGBAC	
Lat/Long	**Number of Plants Installed**
45.51, -123.04	8,348
Stream Length	**Average Stream Width**
6,793 feet	46.8 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2024/2025	2.88 million kcal/day
Plant Communities	
Riparian Forest (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Soil and Water Conservation District	
Riparian Planting Activities	
Site preparation, targeted invasive species treatment, seeding, and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2541 Project Name: TSWCD Project 2541 - Tualatin River

Project Acres: 47.03 Initial Planting Year: 2024 Initial Credit Year: 2025 Length of Stream: 6,793 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 3,182 Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	*beaked hazelnut	Alaska brome	bull thistle
bitter cherry	black twinberry	American trailplant	Canada thistle
black cottonwood	blue elderberry	bedstraw	English ivy
black hawthorn	Douglas' spirea	Blue Wildrye	Himalayan blackberry
Douglas-fir	elderberry	common horsetail	poison hemlock
*Oregon ash	native wild rose	Douglas aster	St. John's wort
Oregon oak	nootka rose	feathery false lily of the valley	tansy ragwort
red alder	oceanspray	*fringecup	traveler's joy
W. v. ponderosa pine	osoberry, indian plum	giant horsetail	
western red cedar	Pacific ninebark	inside-out flower	
	*Pacific poison oak	meadowrue	
	red-osier dogwood	native clover	
	serviceberry	sedge	
	*snowberry	stinging nettle	
	tall Oregon grape	tall annual willowherb	
	thimbleberry	threepetal bedstraw	
	*trailing blackberry	tufted hairgrass	
		western swordfern	
		willowherb	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☐ Interplant
☑ Invasive weed treatment	☑ Invasive weed treatment
☑ Seeding	☑ Seeding
☑ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2541 – TSWCD – Tualatin River	VEGBAC	6,793	18.67	24.43	5.76	2.88	2.88

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– code only vegetation that CWS is responsible for								RIPARIAN CODES – RIGHT BANK– code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2541 - TSWCD – Tualatin River	0%	9.18E-03	100	115	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1150	1175	1150	1150	1125	1100	1000
2541 - TSWCD – Tualatin River	17%	3.59E+05	93	189	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1150
2541 - TSWCD – Tualatin River	12%	2.69E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13%	2.92E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1150	1125
2541 - TSWCD – Tualatin River	13%	2.85E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1150	1100	1100	1100
2541 - TSWCD – Tualatin River	12%	2.62E+05	100	217	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1125	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	11%	2.56E+05	100	216	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1150	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	11%	2.48E+05	100	208	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1125	1100	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	13%	2.91E+05	100	192	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1125	1100	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	5%	1.14E+05	100	158	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1125	1100	1100	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	4%	8.69E+04	100	155	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1100	1100	1100	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	0%	0.00E+00	100	171	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	0%	0.00E+00	100	196	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1000	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	11%	2.55E+05	100	209	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	12%	2.60E+05	100	217	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	9%	2.04E+05	100	222	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1150	1125	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	10%	2.18E+05	100	221	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1100	1100	1100	1100	1000	1000
2541 - TSWCD – Tualatin River	7%	1.67E+05	100	222	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1125	1100	1100	1100	1100	1100	1000	1000
2541 - TSWCD – Tualatin River	7%	1.51E+05	100	229	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1125	1100	1100	1100	1100	1100	1100	1000
2541 - TSWCD – Tualatin River	9%	1.95E+05	100	210	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1125	1100	1100	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	12%	2.74E+05	100	195	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1100	1100	1100	1100	1100	1100	1100
2541 - TSWCD – Tualatin River	0%	0.00E+00	100	192	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1100	1100	1100	1100	1100	1100	1000
2541 - TSWCD – Tualatin River	12%	2.62E+05	100	188	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1100	1100	1100	1100	1000	1000	1000
2541 - TSWCD – Tualatin River	13%	2.91E+05	100	188	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1100	1100	1100	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	12%	2.61E+05	100	183	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1150	1100	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	13%	2.88E+05	100	176	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1100	1000	1000	1000	1000	1000	1000

Baseline Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK– code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2541 - TSWCD – Tualatin River	4%	9.95E-04	100	187	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1125	1100	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	16%	3.49E-05	100	200	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14%	3.15E-05	100	208	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	11%	2.49E-05	100	202	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	11%	2.44E-05	100	196	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14%	3.22E-05	100	144	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	12%	2.59E-05	100	65	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1175	1150	1150	1125	1100
2541 - TSWCD – Tualatin River	17%	3.92E-05	100	57	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13%	2.88E-05	100	62	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14%	3.16E-05	100	59	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	15%	3.32E-05	100	64	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	11%	2.41E-05	100	77	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1150	1175	1175	1150	1150	1175
2541 - TSWCD – Tualatin River	18%	3.95E-05	100	122	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21%	4.64E-05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21%	4.76E-05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21%	4.76E-05	100	145	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	18%	4.04E-05	100	149	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1150	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21%	4.70E-05	100	152	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1150	1150
2541 - TSWCD – Tualatin River	21%	4.71E-05	100	153	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	17%	3.87E-05	100	157	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20%	4.51E-05	100	154	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	16%	3.62E-05	100	134	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	10%	2.21E-05	100	116	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	10%	2.19E-05	100	94	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	15%	3.44E-05	100	62	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20%	4.45E-05	100	23	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19%	4.37E-05	100	13	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19%	4.31E-05	100	9	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	18%	4.10E-05	100	11	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1125	1150	1150	1150	1150	1175
2541 - TSWCD – Tualatin River	13%	3.00E-05	100	68	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1150	1125	1100	1000
2541 - TSWCD – Tualatin River	10%	2.29E-05	100	162	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1150	1150	1150	1150	1150	1175	1150	1150
2541 - TSWCD – Tualatin River	7%	1.61E-05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1100	1100	1150	1150	1150	1150	1150	1150	1150
2541 - TSWCD – Tualatin River	6%	1.32E-05	100	69	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1150	1150	1150	1100	1100	1100	1100	1175
2541 - TSWCD – Tualatin River	14%	3.14E-05	100	40	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1150	1150	1150	1125	1125	1150	1175
2541 - TSWCD – Tualatin River	16%	3.53E-05	100	50	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1175	1175	1175	1175	1125	1150	1125	1100
2541 - TSWCD – Tualatin River	10%	2.31E-05	100	78	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1175	1175	1175	1175	1175	1175	1125
2541 - TSWCD – Tualatin River	10%	2.15E-05	100	64	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1125	1125	1150	1175	1175	1175	1175	1150
2541 - TSWCD – Tualatin River	19%	4.17E-05	100	38	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1175	1175	1175	1175	1175	1175	1125
2541 - TSWCD – Tualatin River	14%	3.05E-05	100	57	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1175	1175	1175	1175	1150	1150	1125
2541 - TSWCD – Tualatin River	3%	7.20E-04	100	86	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1125	1125	1125	1100	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	11%	2.39E-05	100	108	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1175	1175	1150	1150	1000	1000
2541 - TSWCD – Tualatin River	6%	1.42E-05	100	119	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1125	1150	1175	1175	1175	1175	1175	1150

Enhanced Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that CWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2541 - TSWCD – Tualatin River	13.5%	3.03E+05	100	115	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2541 - TSWCD – Tualatin River	17.2%	3.60E+05	93	189	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13.2%	2.96E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13.2%	2.98E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13.2%	2.98E+05	100	214	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	12.8%	2.83E+05	100	217	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	12.8%	2.88E+05	100	216	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.2%	3.19E+05	100	208	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	16.8%	3.76E+05	100	192	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20.7%	4.64E+05	100	158	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.7%	4.42E+05	100	155	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	16.8%	3.77E+05	100	171	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	12.1%	2.72E+05	100	196	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	12.0%	2.69E+05	100	209	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	11.6%	2.60E+05	100	217	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	10.8%	2.42E+05	100	222	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	11.6%	2.61E+05	100	221	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2541 - TSWCD – Tualatin River	11.6%	2.60E+05	100	222	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2541 - TSWCD – Tualatin River	10.3%	2.32E+05	100	229	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2541 - TSWCD – Tualatin River	13.9%	3.12E+05	100	210	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	16.3%	3.67E+05	100	195	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	16.7%	3.74E+05	100	192	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2541 - TSWCD – Tualatin River	16.9%	3.79E+05	100	188	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2541 - TSWCD – Tualatin River	16.5%	3.70E+05	100	188	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
2541 - TSWCD – Tualatin River	16.5%	3.70E+05	100	183	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	16.2%	3.64E+05	100	176	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	14.9%	3.34E+05	100	187	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	15.5%	3.49E+05	100	200	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.0%	3.15E+05	100	209	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.2%	3.19E+05	100	208	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	15.9%	3.56E+05	100	198	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.76E+05	100	144	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.4%	3.23E+05	100	65	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	17.5%	3.92E+05	100	57	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	15.6%	3.51E+05	100	62	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	16.9%	3.79E+05	100	59	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.8%	3.32E+05	100	64	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	10.8%	2.43E+05	100	77	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	17.6%	3.95E+05	100	122	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.76E+05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.76E+05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.76E+05	100	145	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.75E+05	100	149	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.0%	4.72E+05	100	152	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.0%	4.71E+05	100	153	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20.7%	4.66E+05	100	157	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20.9%	4.70E+05	100	154	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	20.5%	4.61E+05	100	134	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.1%	3.16E+05	100	116	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	9.8%	2.19E+05	100	94	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	15.6%	3.51E+05	100	62	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.8%	4.45E+05	100	23	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.4%	4.37E+05	100	13	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.2%	4.31E+05	100	9	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.3%	4.34E+05	100	11	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	13.4%	3.01E+05	100	68	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
2541 - TSWCD – Tualatin River	20.3%	4.56E+05	100	162	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	21.2%	4.76E+05	100	146	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175

Enhanced Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that CWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2541 - TSWCD – Tualatin River	13.1%	2.94E+05	100	69	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.4%	4.35E+05	100	40	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	18.5%	4.16E+05	100	50	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	10.5%	2.36E+05	100	78	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	14.8%	3.32E+05	100	64	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	19.5%	4.37E+05	100	38	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	17.5%	3.92E+05	100	57	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2541 - TSWCD – Tualatin River	8.4%	1.90E+05	100	86	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2541 - TSWCD – Tualatin River	10.6%	2.39E+05	100	108	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2541 - TSWCD – Tualatin River	15.9%	3.58E+05	100	119	46.8	67.9	16.9	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175

2542 – TSWCD – Christensen Creek Tributary

Project Summary

Project ID	Acres
2542	18.61
Location	
Private, rural property in Washington County, bisected by a tributary to Christensen Creek, located south of SW Firdale Road.	
Program	
VEGBAC	
Lat/Long	**Number of Plants Installed**
45.44, -123.01	17,600
Stream Length	**Average Stream Width**
3,221 feet	5.5 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2024/2025	0.433 million kcal/day
Plant Communities	
Riparian Forest and Scrub-Shrub (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Soil and Water Conservation District	
Riparian Planting Activities	
Site preparation, targeted invasive species treatment, seeding, and riparian plantings with fenced enclosures	
Instream Enhancement Activities	
None	

Project Number: 2542 Project Name: TSWCD Project 2542 - Christensen Creek Tributary

Project Acres: 18.61 Initial Planting Year: 2024 Initial Credit Year: 2025 Length of Stream: 3,221 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 1,933 Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
*bigleaf maple	*beaked hazelnut	American trailplant	bull thistle
*cascara	blue elderberry	curlytop knotweed	Canada thistle
*Douglas-fir	low Oregon grape	fragrant bedstraw	common hawthorn
grand fir	oceanspray	giant horsetail	common velvetgrass
Oregon ash	*Pacific poison oak	horseweed	herb Robert
*western red cedar	red huckleberry	inside-out flower	Himalayan blackberry
	snowberry	lady fern	
	thimbleberry	miner's lettuce	
	*trailing blackberry	piggyback	
		skunk cabbage	
		slender rush	
		stinging nettle	
		taperfruit shortscale sedge	
		water parsely	
		*western swordfern	
		wild ginger	
		willow dock	
		willowherb	

Plant Community: Scrub-Shrub

Stems per Acre: 1,058 Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	beaked hazelnut	American sloughgrass	bull thistle
Douglas-fir	Douglas' spirea	American speedwell	Canada thistle
grand fir	dune willow	beggarticks	herb Robert
Oregon ash	elderberry	common spikerush	Himalayan blackberry
red alder	*Pacific Willow	common sweet cicely	reed canary grass
*western red cedar	red elderberry	giant horsetail	tansy ragwort
	red huckleberry	golden nutsedge	
	salmonberry	horseweed	
	Sitka Willow	lady fern	
	snowberry	lateral sedge	
	trailing blackberry	needle spikerush	
		northern water plantain	
		ovate spikerush	
		pasture rush	
		piggyback	
		*rice cutgrass	
		*sedge	
		skullcap speedwell	
		slender rush	
		slough sedge	
		soft rush	
		stinging nettle	
		taperfruit shortscale sedge	
		tapertip rush	
		water parsely	
		western swordfern	
		*willowherb	
		witchgrass	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☑ Interplant
☑ Invasive weed treatment	☑ Invasive weed treatment
☑ Seeding	☑ Seeding
☐ Herbivore Control	☑ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2542 – TSWCD – Christensen Creek Tributary	VEGBAC	3,221	2.71	3.57	0.867	0.433	0.433

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK– code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg-N)	Wetted Width (ft)	NSD2 Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2542 - TSWCD – Christensen Creek Tributary	9%	2.87E-04	100	72	6.6	16.3	1.0	1375	1375	1375	1350	1000	1000	1000	1000	1000	1375	1175	1175	1175	1175	1150	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	5%	8.93E-03	56	50	6.6	16.3	1.0	1300	1300	1300	1300	1300	1300	1300	1325	1350	1325	1350	1000	1000	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	2%	7.07E-03	100	64	6.6	16.3	1.0	1300	1300	1325	1350	1325	1300	1300	1300	1300	1300	1325	1375	1375	1175	1175	1175	1000	1000
2542 - TSWCD – Christensen Creek Tributary	4%	1.20E-04	100	78	6.6	16.3	1.0	1325	1300	1325	1350	1375	1325	1325	1300	1325	1350	1375	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	3%	3.03E-03	100	84	6.6	16.3	1.0	1325	1300	1300	1300	1300	1300	1300	1325	1375	1325	1350	1175	1175	1175	1150	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	4%	1.38E-04	100	78	6.6	16.3	1.0	1325	1300	1325	1300	1300	1300	1300	1300	1325	1375	1175	1175	1175	1175	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	58%	1.85E-05	100	90	6.6	16.3	1.0	1325	1300	1300	1300	1300	1300	1300	1300	1300	1175	1175	1175	1150	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	5%	1.43E-04	100	79	6.6	16.3	1.0	1325	1325	1325	1300	1300	1300	1300	1300	1350	1375	1175	1175	1175	1175	1175	1175	1150	1150
2542 - TSWCD – Christensen Creek Tributary	8%	2.53E-04	100	71	6.6	16.3	1.0	1325	1300	1325	1325	1350	1375	1375	1375	1350	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	5%	1.59E-04	100	82	6.6	16.3	1.0	1350	1350	1350	1350	1325	1350	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1000	1000
2542 - TSWCD – Christensen Creek Tributary	6%	1.94E-04	100	78	6.6	16.3	1.0	1375	1375	1375	1375	1350	1325	1300	1300	1300	1375	1175	1175	1175	1175	1125	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	58%	1.83E-05	100	93	6.6	16.3	1.0	1350	1350	1350	1350	1325	1300	1300	1300	1300	1175	1175	1175	1175	1175	1125	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	52%	1.66E-05	100	71	6.6	16.3	1.0	1350	1325	1300	1300	1300	1300	1300	1300	1325	1175	1175	1175	1175	1150	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	47%	1.48E-05	100	52	6.6	16.3	1.0	1350	1325	1350	1325	1300	1300	1325	1375	1375	1175	1175	1175	1175	1150	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	23%	7.44E-04	100	50	6.6	16.3	1.0	1350	1375	1375	1350	1350	1325	1000	1000	1000	1350	1175	1175	1150	1100	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	50%	1.09E-05	100	135	4.5	6.8	1.6	1325	1300	1325	1350	1175	1175	1175	1175	1150	1150	1150	1100	1000	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	2%	2.89E-03	65	126	4.5	6.8	1.6	1300	1325	1325	1000	1000	1000	1000	1000	1000	1300	1300	1300	1325	1375	1375	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	12%	2.63E-04	100	137	4.5	6.8	1.6	1300	1350	1350	1350	1175	1175	1175	1150	1000	1300	1325	1350	1375	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	8%	1.63E-04	100	145	4.5	6.8	1.6	1300	1300	1325	1350	1175	1175	1175	1000	1000	1300	1300	1300	1350	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	34%	7.36E-04	100	151	4.5	6.8	1.6	1325	1325	1350	1350	1350	1150	1175	1175	1125	1325	1300	1325	1375	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	9%	1.95E-04	100	153	4.5	6.8	1.6	1300	1325	1350	1350	1375	1175	1175	1175	1150	1300	1300	1300	1325	1350	1350	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	1%	2.26E-03	100	121	4.5	6.8	1.6	1300	1300	1300	1300	1300	1325	1125	1150	1150	1300	1300	1300	1325	1325	1375	1350	1000	1000
2542 - TSWCD – Christensen Creek Tributary	28%	5.96E-04	100	106	4.5	6.8	1.6	1325	1325	1300	1300	1300	1300	1300	1325	1325	1325	1375	1375	1375	1350	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	55%	1.20E-05	100	112	4.5	6.8	1.6	1375	1350	1300	1300	1300	1300	1300	1300	1300	1375	1375	1375	1150	1125	1125	1150	1150	1125
2542 - TSWCD – Christensen Creek Tributary	63%	1.36E-05	100	112	4.5	6.8	1.6	1350	1325	1300	1300	1300	1300	1300	1300	1300	1375	1175	1150	1175	1150	1150	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	70%	1.50E-05	100	154	4.5	6.8	1.6	1375	1350	1325	1300	1300	1300	1300	1300	1300	1375	1175	1175	1175	1175	1175	1175	1175	1125
2542 - TSWCD – Christensen Creek Tributary	58%	1.25E-05	100	105	4.5	6.8	1.6	1375	1300	1300	1300	1325	1375	1375	1175	1175	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	69%	1.49E-05	100	137	4.5	6.8	1.6	1350	1325	1300	1300	1325	1325	1325	1350	1175	1175	1150	1150	1175	1150	1150	1125	1125	1000
2542 - TSWCD – Christensen Creek Tributary	77%	1.66E-05	100	147	4.5	6.8	1.6	1375	1350	1325	1300	1325	1350	1125	1000	1000	1175	1175	1175	1175	1175	1175	1150	1150	1150
2542 - TSWCD – Christensen Creek Tributary	75%	1.61E-05	100	128	4.5	6.8	1.6	1375	1325	1300	1100	1125	1150	1175	1175	1000	1175	1175	1175	1175	1175	1175	1175	1175	1150
2542 - TSWCD – Christensen Creek Tributary	70%	1.51E-05	100	121	4.5	6.8	1.6	1325	1300	1300	1100	1100	1100	1125	1175	1175	1175	1175	1175	1175	1175	1150	1150	1150	1100
2542 - TSWCD – Christensen Creek Tributary	76%	1.65E-05	100	107	4.5	6.8	1.6	1375	1325	1300	1300	1300	1150	1175	1175	1175	1175	1175	1175	1175	1150	1125	1125	1125	1100
2542 - TSWCD – Christensen Creek Tributary	76%	1.64E-05	100	120	4.5	6.8	1.6	1375	1325	1300	1300	1300	1325	1175	1175	1175	1175	1175	1175	1175	1150	1175	1150	1150	1150

Enhanced Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that CWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2542 - TSWCD – Christensen Creek Tributary	9.1%	2.87E+04	100	72	6.6	16.3	1.0	1375	1375	1375	1375	1000	1000	1000	1000	1000	1375	1175	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	16.7%	2.97E+04	56	50	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	9.0%	2.85E+04	100	64	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1000	1000
2542 - TSWCD – Christensen Creek Tributary	5.4%	1.70E+04	100	78	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	4.4%	1.40E+04	100	94	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	6.1%	1.94E+04	100	78	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	59.2%	1.88E+05	100	90	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	5.9%	1.87E+04	100	79	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	9.8%	3.12E+04	100	71	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	5.3%	1.69E+04	100	82	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1000	1000
2542 - TSWCD – Christensen Creek Tributary	6.1%	1.94E+04	100	78	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	57.9%	1.83E+05	100	93	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	53.3%	1.69E+05	100	71	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	48.3%	1.53E+05	100	52	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	25.4%	8.06E+04	100	50	6.6	16.3	1.0	1375	1375	1375	1375	1375	1375	1000	1000	1000	1375	1175	1175	1175	1175	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	74.2%	1.60E+05	100	135	4.5	6.8	1.6	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	62.6%	8.82E+04	65	126	4.5	6.8	1.6	1375	1375	1375	1000	1000	1000	1000	1000	1000	1375	1375	1375	1375	1375	1375	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	64.4%	1.39E+05	100	137	4.5	6.8	1.6	1375	1375	1375	1375	1175	1175	1175	1175	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	65.5%	1.42E+05	100	145	4.5	6.8	1.6	1375	1375	1375	1375	1175	1175	1175	1000	1000	1375	1375	1375	1375	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	66.0%	1.43E+05	100	151	4.5	6.8	1.6	1375	1375	1375	1375	1375	1175	1175	1175	1175	1375	1375	1375	1375	1000	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	66.1%	1.43E+05	100	153	4.5	6.8	1.6	1375	1375	1375	1375	1375	1175	1175	1175	1175	1375	1375	1375	1375	1375	1375	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	61.8%	1.34E+05	100	121	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1175	1175	1175	1375	1375	1375	1375	1375	1375	1375	1000	1000
2542 - TSWCD – Christensen Creek Tributary	49.4%	1.07E+05	100	106	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1000	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	55.6%	1.20E+05	100	112	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	64.2%	1.39E+05	100	112	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1000	1000	1000
2542 - TSWCD – Christensen Creek Tributary	70.3%	1.52E+05	100	154	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	57.8%	1.25E+05	100	105	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1175	1175	1375	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	75.3%	1.63E+05	100	137	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000
2542 - TSWCD – Christensen Creek Tributary	77.5%	1.67E+05	100	147	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	75.0%	1.62E+05	100	128	4.5	6.8	1.6	1375	1375	1375	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	75.9%	1.64E+05	100	121	4.5	6.8	1.6	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	76.2%	1.65E+05	100	107	4.5	6.8	1.6	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2542 - TSWCD – Christensen Creek Tributary	76.0%	1.64E+05	100	120	4.5	6.8	1.6	1375	1375	1375	1375	1375	1375	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175

2552 – TSWCD – Fanno Creek Tributary

Project Summary

Project ID	Acres
2552	4.15
Location	
Private, urban property in City of Beaverton, bisected by Fanno Creek, located west of SW Oleson Road.	
Program	
VEGBAC	
Lat/Long	**Number of Plants Installed**
45.48, -122.75	9,665
Stream Length	**Average Stream Width**
2,081 feet	13.4 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2025/2025	0.474 million kcal/day
Plant Communities	
Riparian Forest (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Soil and Water Conservation District	
Riparian Planting Activities	
Targeted invasive species treatment and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2552 Project Name: TSWCD Project 2552 - Fanno Creek

Project Acres: 4.15 Initial Planting Year: 2025 Initial Credit Year: 2025 Length of Stream: 2,081 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 2,100 Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
*bigleaf maple	*beaked hazelnut	*Alaska brome	Canada thistle
Oregon ash	osoberry, indian plum	*Blue Wildrye	English ivy
*red alder	red elderberry	cleavers	Himalayan blackberry
vine maple	red flowering currant	common beggarticks	morning-glory
	red-osier dogwood	nodding beggarticks	poison hemlock
	serviceberry	*stinging nettle	reed canary grass
	*snowberry	taperfruit shortscale sedge	
	trailing blackberry	willowherb	
		yellow touch-me-not	

Management Actions

Completed: 2025	Recommended: 2026
☐ Interplant	☐ Interplant
☐ Invasive weed treatment	☑ Invasive weed treatment
☐ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2552 – TSWCD – Fanno Creek	VEGBAC	2,081	5.68	6.63	0.947	0.474	0.474

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK– *code only vegetation that CWS is responsible for*									RIPARIAN CODES – RIGHT BANK– *code only vegetation that CWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2552 - TSWCD – Fanno Creek	24%	1.51E+05	100	197	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	17%	8.75E+04	81	205	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1150	1150	1125	1100	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	20%	1.30E+05	100	225	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek	55%	3.55E+05	100	121	13.4	19.6	6.6	1150	1175	1175	1175	1175	1175	1175	1175	1175	1150	1175	1175	1175	1175	1150	1000	1000	1000
2552 - TSWCD – Fanno Creek	57%	3.68E+05	100	149	13.4	19.6	6.6	1150	1150	1175	1175	1175	1175	1175	1175	1175	1150	1150	1175	1175	1175	1150	1125	1125	1125
2552 - TSWCD – Fanno Creek	60%	3.86E+05	100	259	13.4	19.6	6.6	1175	1150	1175	1175	1175	1150	1175	1175	1175	1175	1175	1175	1150	1125	1100	1000	1000	1000
2552 - TSWCD – Fanno Creek	59%	3.82E+05	100	230	13.4	19.6	6.6	1175	1150	1150	1175	1175	1175	1150	1000	1000	1175	1175	1175	1125	1125	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	59%	3.82E+05	100	235	13.4	19.6	6.6	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1150	1150	1150	1150	1150	1150	1150
2552 - TSWCD – Fanno Creek	60%	3.87E+05	100	213	13.4	19.6	6.6	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek	60%	3.83E+05	100	84	13.4	19.6	6.6	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1000	1000
2552 - TSWCD – Fanno Creek	63%	4.05E+05	100	157	13.4	19.6	6.6	1175	1175	1175	1175	1150	1150	1150	1150	1175	1150	1175	1175	1175	1150	1125	1125	1000	1000
2552 - TSWCD – Fanno Creek	40%	2.57E+05	100	270	13.4	19.6	6.6	1150	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	31%	2.00E+05	100	189	13.4	19.6	6.6	1175	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	22%	1.39E+05	100	155	13.4	19.6	6.6	1150	1125	1175	1175	1175	1125	1150	1175	1125	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	54%	3.44E+05	100	197	13.4	19.6	6.6	1175	1175	1150	1150	1150	1150	1150	1125	1150	1175	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	36%	2.34E+05	100	226	13.4	19.6	6.6	1150	1175	1175	1175	1175	1150	1125	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	24%	1.53E+05	100	272	13.4	19.6	6.6	1125	1175	1150	1125	1150	1125	1100	1100	1125	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	56%	3.57E+05	100	268	13.4	19.6	6.6	1175	1175	1175	1000	1000	1000	1000	1000	1000	1125	1100	1125	1150	1150	1125	1125	1000	1000
2552 - TSWCD – Fanno Creek	33%	2.15E+05	100	169	13.4	19.6	6.6	1125	1150	1125	1125	1000	1000	1000	1000	1000	1125	1125	1125	1125	1150	1175	1150	1150	1150
2552 - TSWCD – Fanno Creek	25%	1.61E+05	100	156	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1125	1150	1175	1150	1125	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek	32%	2.05E+05	100	172	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1000	1000	1000	1000	1000	1000	1000

Enhanced Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that DWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that DWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2552 - TSWCD – Fanno Creek Tributary	25.2%	1.62E+05	100	197	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	25.5%	1.22E+05	81	265	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	20.2%	1.20E+05	100	225	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek Tributary	66.7%	4.23E+05	100	121	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	69.5%	4.47E+05	100	149	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek Tributary	61.2%	3.94E+05	100	259	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	61.7%	3.97E+05	100	230	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	59.8%	3.85E+05	100	235	13.4	19.6	6.6	1175	1175	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek Tributary	60.1%	3.87E+05	100	213	13.4	19.6	6.6	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek Tributary	59.5%	3.83E+05	100	84	13.4	19.6	6.6	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2552 - TSWCD – Fanno Creek Tributary	70.0%	4.51E+05	100	157	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000
2552 - TSWCD – Fanno Creek Tributary	51.1%	3.29E+05	100	270	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	31.4%	2.02E+05	100	189	13.4	19.6	6.6	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	26.5%	1.70E+05	100	155	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	55.0%	3.54E+05	100	197	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	42.2%	2.72E+05	100	226	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	48.4%	3.12E+05	100	272	13.4	19.6	6.6	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	57.4%	3.69E+05	100	268	13.4	19.6	6.6	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
2552 - TSWCD – Fanno Creek Tributary	68.0%	4.37E+05	100	169	13.4	19.6	6.6	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
2552 - TSWCD – Fanno Creek Tributary	42.9%	2.76E+05	100	156	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1000	1000	1000	1000
2552 - TSWCD – Fanno Creek Tributary	33.9%	2.18E+05	100	172	13.4	19.6	6.6	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000

2563 – TSWCD – Gales Creek

Project Summary

Project ID	Acres
2563	17.12
Location	
Public, rural property in Washington County, directly adjacent to Gales Creek, located west of Gales Creek Road.	
Program	
VEGBAC	
Lat/Long	**Number of Plants Installed**
45.55, -123.19	6,350
Stream Length	**Average Stream Width**
3,188 feet	37.4 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2025/2025	1.29 million kcal/day
Plant Communities	
Riparian Forest (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Soil and Water Conservation District	
Riparian Planting Activities	
Site preparation, targeted invasive species treatment, and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 2563	Project Name: TSWCD Project 2563 - Gales Creek		
Project Acres: 17.12	Initial Planting Year: 2025	Initial Credit Year: 2025	Length of Stream: 3,188 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Riparian Forest

Stems per Acre: 3,295 — Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
*bigleaf maple	beaked hazelnut	Alaska brome	common velvetgrass
black cottonwood	Douglas' spirea	American sloughgrass	English ivy
*Oregon ash	gooseberry	American speedwell	garlic mustard
*red alder	oceanspray	Blue Wildrye	herb Robert
vine maple	*osoberry, indian plum	coast tarweed	Himalayan blackberry
western red cedar	Pacific ninebark	coastal hedgenettle	morning-glory
	Pacific Willow	Columbia brome	perennial pea
	red elderberry	common horsetail	reed canary grass
	*red-osier dogwood	curlytop knotweed	St. John's wort
	salmonberry	disc mayweed	tansy ragwort
	Sitka Willow	field mint	
	*snowberry	fringecup	
	thimbleberry	lady fern	
	trailing blackberry	manroot	
	wax current	Pacific bleeding heart	
		Pacific waterleaf	
		piggyback	
		polypody	
		redroot amaranth	
		sedge	
		silverleaf phacelia	
		starry false lily of the valley	
		stinging nettle	
		water smartweed	
		western swordfern	
		willowherb	
		yellowcress	

Management Actions

Completed: 2025	Recommended: 2026
☑ Interplant	☑ Interplant
☑ Invasive weed treatment	☑ Invasive weed treatment
☑ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
2563 – TSWCD – Gales Creek	VEGBAC	3,188	4.48	7.06	2.58	1.29	1.29

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2563 - TSWCD – Gales Creek	9%	1.62E+05	96	162	37.4	56.6	4.3	1150	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	3%	4.61E+04	100	155	37.4	56.6	4.3	1000	1000	1000	1150	1150	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12%	2.26E+05	100	179	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1125	1125	1125	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	2%	2.80E+04	100	55	37.4	56.6	4.3	1100	1100	1125	1125	1100	1125	1125	1150	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	0%	2.86E-03	100	109	37.4	56.6	4.3	1100	1100	1100	1100	1100	1100	1125	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	0%	0.00E+00	100	165	37.4	56.6	4.3	1100	1100	1100	1100	1100	1100	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	1%	9.40E+03	100	198	37.4	56.6	4.3	1100	1100	1100	1125	1100	1100	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12%	2.21E+05	100	223	37.4	56.6	4.3	1175	1175	1175	1175	1175	1150	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	14%	2.44E+05	100	199	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12%	2.14E+05	100	169	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	11%	2.03E+05	100	163	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1000	1100	1100	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	9%	1.61E+05	100	124	37.4	56.6	4.3	1150	1175	1175	1175	1175	1175	1175	1175	1150	1125	1175	1125	1100	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	2%	3.94E+04	100	100	37.4	56.6	4.3	1100	1150	1175	1175	1175	1175	1175	1175	1175	1100	1150	1175	1100	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5%	9.69E+04	100	122	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1100	1125	1125	1150	1100	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	4%	6.91E+04	100	88	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1100	1100	1100	1125	1125	1125	1125	1000	1000
2563 - TSWCD – Gales Creek	11%	1.99E+05	100	42	37.4	56.6	4.3	1150	1150	1175	1175	1175	1175	1175	1175	1175	1125	1125	1125	1100	1100	1100	1000	1000	1000
2563 - TSWCD – Gales Creek	2%	3.21E+04	100	122	37.4	56.6	4.3	1100	1125	1125	1100	1125	1125	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	3%	6.13E+04	100	145	37.4	56.6	4.3	1100	1100	1125	1125	1150	1175	1175	1175	1175	1100	1100	1125	1100	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12%	2.13E+05	100	162	37.4	56.6	4.3	1150	1150	1150	1150	1175	1175	1175	1175	1175	1100	1100	1100	1150	1150	1175	1150	1150	1125
2563 - TSWCD – Gales Creek	20%	3.66E+05	100	163	37.4	56.6	4.3	1150	1175	1175	1175	1175	1175	1175	1175	1175	1150	1150	1175	1175	1175	1175	1175	1175	1175
2563 - TSWCD – Gales Creek	18%	3.30E+05	100	159	37.4	56.6	4.3	1100	1125	1150	1150	1175	1175	1150	1175	1175	1175	1175	1175	1175	1175	1175	1175	1150	1000
2563 - TSWCD – Gales Creek	18%	3.23E+05	100	153	37.4	56.6	4.3	1100	1150	1150	1150	1150	1150	1175	1175	1175	1175	1175	1175	1175	1150	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	15%	2.74E+05	100	156	37.4	56.6	4.3	1100	1100	1150	1175	1175	1175	1175	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	7%	1.19E+05	100	164	37.4	56.6	4.3	1100	1150	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12%	2.22E+05	100	174	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5%	8.73E+04	92	129	37.4	56.6	4.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5%	9.01E+04	100	127	37.4	56.6	4.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	6%	1.05E+05	100	129	37.4	56.6	4.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	7%	1.33E+05	100	137	37.4	56.6	4.3	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	3%	5.47E+04	100	113	37.4	56.6	4.3	1175	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5%	8.14E+04	100	67	37.4	56.6	4.3	1150	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	4%	6.48E+04	100	62	37.4	56.6	4.3	1100	1150	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000

Enhanced Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that CWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
2563 - TSWCD – Gales Creek	11.0%	1.90E+05	96	162	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	3.7%	6.66E+04	100	155	37.4	56.6	4.3	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12.8%	2.29E+05	100	179	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	6.8%	1.22E+05	100	55	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	2.6%	4.65E+04	100	109	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	11.5%	2.07E+05	100	165	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	13.6%	2.43E+05	100	198	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12.4%	2.22E+05	100	223	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	13.6%	2.44E+05	100	199	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	11.9%	2.14E+05	100	169	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	22.4%	4.03E+05	100	163	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	15.3%	2.74E+05	100	124	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	6.6%	1.19E+05	100	100	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	14.1%	2.53E+05	100	122	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	7.3%	1.31E+05	100	88	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000
2563 - TSWCD – Gales Creek	20.9%	3.76E+05	100	42	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000
2563 - TSWCD – Gales Creek	4.9%	8.82E+04	100	122	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	22.0%	3.95E+05	100	145	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	24.7%	4.44E+05	100	162	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2563 - TSWCD – Gales Creek	24.8%	4.45E+05	100	163	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
2563 - TSWCD – Gales Creek	24.4%	4.38E+05	100	159	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000
2563 - TSWCD – Gales Creek	23.5%	4.21E+05	100	153	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	22.0%	3.95E+05	100	156	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	11.4%	2.05E+05	100	164	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	12.4%	2.22E+05	100	174	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5.3%	8.73E+04	92	129	37.4	56.6	4.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5.0%	9.01E+04	100	127	37.4	56.6	4.3	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5.8%	1.05E+05	100	129	37.4	56.6	4.3	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	7.4%	1.33E+05	100	137	37.4	56.6	4.3	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	3.1%	5.52E+04	100	113	37.4	56.6	4.3	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5.1%	9.15E+04	100	67	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
2563 - TSWCD – Gales Creek	5.8%	1.05E+05	100	62	37.4	56.6	4.3	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000

6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor

Project Summary

Project ID	Acres
6882	40.48
Location	
Public, rural property in City of Beaverton, directly adjacent to Cedar Mill Creek, located east of 170th Avenue.	
Program	
Capital	
Lat/Long	**Number of Plants Installed**
45.50, -122.85	204,093
Stream Length	**Average Stream Width**
6,620 feet	14.3 feet
Initial Planting Year/Credit Year	**CWS Thermal Benefits/Credits**
2021/2025	2.64 million kcal/day
Plant Communities	
Riparian Forest, Scrub Shrub, and Forested Wetland (refer to the Site Assessment Report for additional information)	
Partners	
Tualatin Hills Park and Recreation District	
Riparian Planting Activities	
Targeted invasive species treatment and riparian plantings	
Instream Enhancement Activities	
None	

Project Number: 6882	Project Name: Cedar Mill Trunk - Jenkins to Beaverton Interceptor		
Project Acres: 40.48	Initial Planting Year: 2021	Initial Credit Year: 2025	Length of Stream: 6,620 ft

Summary of Current Conditions by Plant Community Type

* denotes species that are considered diverse

Plant Community: Forested Wetland

Stems per Acre: 2,644 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
black cottonwood	beaked hazelnut	American bird's-foot trefoil	Canada thistle
black hawthorn	Douglas' spirea	American sloughgrass	common hawthorn
cascara	elderberry	annual hairgrass	common velvetgrass
Douglas-fir	native wild rose	blue skullcap	English ivy
*Oregon ash	nootka rose	Blue Wildrye	herb Robert
Oregon oak	osoberry, indian plum	bracken fern	Himalayan blackberry
pacific crab apple	Oval-leaved viburnum	California oatgrass	reed canary grass
Pacific dogwood	Pacific ninebark	cinquefoil	shiny geranium
red alder	Pacific Willow	clarkia	tansy ragwort
W. v. ponderosa pine	*red-osier dogwood	cleavers	yellow flag iris
western red cedar	salal	Columbia brome	
white alder	salmonberry	common beggarticks	
	*snowberry	common horsetail	
	tall Oregon grape	denseflower willowherb	
	thimbleberry	*fowl bluegrass	
	trailing blackberry	fragrant bedstraw	
	wax current	fringecup	
	willow	grand collomia	
		grooved rush	
		lady fern	
		lance self heal	
		large-leaved avens	
		lateral sedge	
		meadow barley	
		Pacific waterleaf	
		pasture rush	
		riverbank lupine	
		sawbeak sedge	
		sedge	
		Siberian springbeauty	
		*slender hairgrass	
		slender rush	
		slough sedge	
		spike bentgrass	
		stinging nettle	
		taperfruit shortscale sedge	
		toad rush	
		tufted hairgrass	
		*water foxtail	
		water parsely	
		western swordfern	
		willowherb	
		winecup clarkia	
		yellow touch-me-not	
		yellowcress	

Plant Community: Riparian Forest

Stems per Acre: 4,041 — Phase: Establishment

Native Tree	Native Shrub	Native Herbaceous	Invasives
bigleaf maple	beaked hazelnut	American bird's-foot trefoil	bull thistle
black cottonwood	clustered wild rose	annual hairgrass	common velvetgrass
black hawthorn	Douglas' spirea	blue skullcap	English ivy
Douglas-fir	dune willow	bracken fern	herb Robert
grand fir	elderberry	cleavers	Himalayan blackberry
*Oregon ash	low Oregon grape	denseflower willowherb	reed canary grass
pacific crab apple	native wild rose	enchanter's nightshade	shiny geranium
red alder	nootka rose	*fowl bluegrass	St. John's wort
vine maple	osoberry, indian plum	fragrant bedstraw	tansy ragwort
W. v. ponderosa pine	Pacific ninebark	fringecup	
western red cedar	Pacific Willow	grand collomia	
	*red-osier dogwood	grooved rush	
	salmonberry	Henderson's sedge	
	serviceberry	lady fern	
	Sitka Willow	large-leaved avens	
	*snowberry	meadow barley	
	tall Oregon grape	Pacific waterleaf	
	*trailing blackberry	scouring rush	
	wax current	Siberian springbeauty	
	Western wahoo	skunk cabbage	
	willow	slender hairgrass	
		*slough sedge	
		spike bentgrass	
		stinging nettle	
		taperfruit shortscale sedge	
		tufted hairgrass	
		*western swordfern	
		willowherb	
		winecup clarkia	
		yellow touch-me-not	

Plant Community: Scrub-Shrub

Stems per Acre: 1,967 — Phase: Implementation

Native Tree	Native Shrub	Native Herbaceous	Invasives
grand fir	black twinberry	American bird's-foot trefoil	common velvetgrass
noble fir	Douglas' spirea	*annual hairgrass	
Oregon ash	elderberry	beggarticks	
Oregon oak	native wild rose	common beggarticks	
pacific crab apple	Pacific ninebark	denseflower willowherb	
red alder	*Pacific Willow	disc mayweed	
W. v. ponderosa pine	red flowering currant	fowl bluegrass	
white alder	red-osier dogwood	*meadow barley	
	snowberry	sedge	
	thimbleberry	*slender hairgrass	
	willow	spike bentgrass	
		toad rush	
		*tufted hairgrass	
		*water foxtail	
		willowherb	

Management Actions

Completed: 2025	Recommended: 2026
☐ Interplant	☐ Interplant
☐ Invasive weed treatment	☐ Invasive weed treatment
☐ Seeding	☐ Seeding
☐ Herbivore Control	☐ Herbivore Control
☐ Other	☐ Other
☑ Monitoring for Adaptive Management	☑ Monitoring for Adaptive Management

Thermal Credit for Shade Enhancement

Project	CWS Program	Stream Length (ft)	Thermal Load Blocked (Baseline Conditions) (million kcal/day)	Thermal Load Blocked (Enhanced Conditions) (million kcal/day)	Thermal Load Reduction (Environmental Benefits) (million kcal/day)	Thermal Credits Available (million kcal/day)	CWS Thermal Credits (million kcal/day)
6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor	Capital	6,620	12.05	17.32	5.27	2.64	2.64

Shade-a-Lator Input and Output Spreadsheets

Baseline Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – code only vegetation that CWS is responsible for									RIPARIAN CODES – RIGHT BANK – code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	0.00E+00	100	237	14.3	17.8	2.4	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	24%	1.09E+05	67	252	14.3	17.8	2.4	1125	1150	1175	1175	1150	1100	1125	1000	1000	1100	1125	1150	1150	1125	1125	1125	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	46%	3.18E+05	100	251	14.3	17.8	2.4	1175	1175	1150	1175	1175	1175	1150	1000	1000	1100	1125	1150	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	56%	3.79E+05	100	234	14.3	17.8	2.4	1175	1175	1175	1150	1150	1125	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1150	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	17%	1.18E+05	100	229	14.3	17.8	2.4	1100	1100	1100	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	2%	1.04E+04	100	260	14.3	17.8	2.4	1100	1100	1125	1150	1125	1125	1125	1150	1000	1300	1300	1300	1000	1100	1125	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	7%	2.93E+04	64	243	14.3	17.8	2.4	1000	1000	1000	1100	1125	1150	1150	1000	1000	1350	1350	1325	1325	1325	1300	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	3%	1.77E+04	100	240	14.3	17.8	2.4	1000	1000	1100	1125	1175	1175	1150	1150	1000	1300	1300	1300	1300	1300	1325	1350	1350	1325
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	21%	1.44E+05	100	231	14.3	17.8	2.4	1125	1150	1150	1150	1150	1125	1000	1000	1000	1300	1300	1300	1300	1300	1300	1300	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	16%	1.13E+05	100	219	14.3	17.8	2.4	1100	1150	1175	1175	1150	1000	1000	1000	1000	1300	1300	1300	1300	1300	1100	1100	1150	1150
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	11%	7.71E+04	100	225	14.3	17.8	2.4	1100	1125	1150	1150	1125	1125	1100	1100	1100	1300	1300	1300	1300	1100	1125	1150	1150	1150
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	1%	5.30E+03	100	261	14.3	17.8	2.4	1100	1100	1100	1125	1150	1150	1100	1100	1100	1300	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	2%	1.64E+04	100	250	14.3	17.8	2.4	1100	1100	1150	1175	1175	1125	1125	1125	1100	1300	1300	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	46%	3.18E+05	100	214	14.3	17.8	2.4	1125	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1150	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	30%	1.85E+05	89	226	14.3	17.8	2.4	1150	1175	1000	1175	1175	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	35%	2.42E+05	100	216	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	16%	1.13E+05	100	218	14.3	17.8	2.4	1100	1150	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	8%	5.74E+04	100	242	14.3	17.8	2.4	1100	1125	1175	1175	1175	1175	1175	1150	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	39%	2.69E+05	100	326	14.3	17.8	2.4	1175	1175	1150	1150	1150	1150	1150	1125	1125	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	26%	1.79E+05	100	341	14.3	17.8	2.4	1125	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	33%	2.28E+05	100	320	14.3	17.8	2.4	1150	1175	1175	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	26%	1.79E+05	100	315	14.3	17.8	2.4	1150	1000	1000	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	20%	1.34E+05	100	313	14.3	17.8	2.4	1125	1000	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	0.00E+00	100	295	14.3	17.8	2.4	1000	1000	1000	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42%	2.85E+05	100	249	14.3	17.8	2.4	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40%	2.77E+05	100	236	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000

Baseline Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – *code only vegetation that DWS is responsible for*									RIPARIAN CODES – RIGHT BANK – *code only vegetation that DWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42%	2.87E+05	100	269	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	43%	2.92E+05	100	312	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	35%	2.39E+05	100	296	14.3	17.8	2.4	1150	1175	1175	1175	1175	1125	1125	1125	1125	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	29%	1.97E+05	100	332	14.3	17.8	2.4	1150	1150	1150	1150	1100	1100	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	44%	2.99E+05	100	295	14.3	17.8	2.4	1175	1175	1175	1150	1150	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	22%	1.50E+05	100	349	14.3	17.8	2.4	1150	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	39%	2.65E+05	100	274	14.3	17.8	2.4	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	0.00E+00	100	284	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	0.00E+00	100	278	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	36%	2.44E+05	100	277	14.3	17.8	2.4	1175	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	39%	2.67E+05	100	269	14.3	17.8	2.4	1175	1000	1000	1000	1000	1175	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	36%	2.48E+05	100	239	14.3	17.8	2.4	1175	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	0.00E+00	100	188	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	32%	2.20E+05	100	207	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	20%	1.39E+05	100	217	14.3	17.8	2.4	1150	1000	1000	1000	1000	1000	1175	1175	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	25%	1.71E+05	100	179	14.3	17.8	2.4	1175	1175	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	17%	1.15E+05	100	130	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	28%	1.93E+05	100	179	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42%	2.87E+05	100	251	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42%	2.84E+05	100	248	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40%	2.77E+05	100	237	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1150	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42%	2.90E+05	100	254	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	12%	8.07E+04	100	346	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1150	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	15%	1.04E+05	100	309	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	14%	9.47E+04	100	234	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	27%	1.87E+05	100	229	14.3	17.8	2.4	1125	1100	1100	1150	1100	1100	1100	1000	1000	1175	1000	1000	1000	1000	1000	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	36%	2.44E+05	100	273	14.3	17.8	2.4	1150	1175	1150	1100	1100	1100	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	46%	3.12E+05	100	192	14.3	17.8	2.4	1150	1125	1150	1125	1125	1100	1100	1100	1100	1175	1175	1175	1175	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	54%	3.72E+05	100	180	14.3	17.8	2.4	1175	1175	1150	1150	1125	1100	1150	1175	1150	1175	1000	1000	1000	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	53%	3.60E+05	100	213	14.3	17.8	2.4	1175	1175	1175	1125	1125	1150	1150	1175	1175	1175	1000	1000	1000	1175	1175	1175	1150	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	32%	2.21E+05	100	297	14.3	17.8	2.4	1150	1150	1150	1150	1175	1175	1150	1150	1175	1100	1100	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	29%	1.98E+05	100	296	14.3	17.8	2.4	1125	1150	1150	1125	1125	1150	1150	1125	1100	1150	1000	1000	1000	1000	1000	1125	1100	1100
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0%	2.96E+03	100	205	14.3	17.8	2.4	1100	1100	1100	1000	1000	1000	1000	1000	1000	1100	1000	1000	1000	1000	1000	1125	1100	1100
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	10%	6.74E+04	100	182	14.3	17.8	2.4	1100	1100	1125	1100	1000	1000	1000	1000	1000	1125	1100	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	25%	1.69E+05	100	223	14.3	17.8	2.4	1150	1150	1100	1125	1100	1000	1000	1000	1000	1100	1100	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	24%	1.63E+05	100	194	14.3	17.8	2.4	1100	1150	1150	1150	1175	1150	1175	1150	1000	1100	1125	1175	1150	1150	1125	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	50%	3.43E+05	100	226	14.3	17.8	2.4	1150	1175	1175	1175	1175	1150	1150	1125	1000	1175	1175	1175	1175	1175	1175	1150	1150	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	56%	3.81E+05	100	199	14.3	17.8	2.4	1175	1175	1175	1150	1000	1000	1000	1000	1000	1175	1175	1175	1175	1150	1150	1150	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	48%	3.31E+05	100	110	14.3	17.8	2.4	1175	1000	1000	1000	1000	1000	1000	1000	1000	1175	1150	1175	1175	1175	1175	1175	1150	1150
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	1%	7.79E+03	100	137	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	21%	1.44E+05	100	216	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1150	1000	1000

Enhanced Conditions

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES – LEFT BANK – *code only vegetation that DWS is responsible for*									RIPARIAN CODES – RIGHT BANK – *code only vegetation that DWS is responsible for*								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40.2%	2.75E+05	100	237	14.3	17.8	2.4	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	52.0%	2.39E+05	67	252	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	52.2%	3.58E+05	100	251	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	55.4%	3.80E+05	100	234	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	55.0%	3.77E+05	100	229	14.3	17.8	2.4	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	47.2%	3.24E+05	100	260	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1000	1375	1375	1375	1000	1175	1175	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	9.3%	4.10E+04	64	243	14.3	17.8	2.4	1000	1000	1000	1175	1175	1175	1175	1000	1000	1375	1375	1375	1375	1375	1375	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	14.6%	9.97E+04	100	240	14.3	17.8	2.4	1000	1000	1175	1175	1175	1175	1175	1175	1000	1375	1375	1375	1375	1375	1375	1375	1375	1375
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	48.4%	3.32E+05	100	231	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1000	1000	1000	1375	1375	1375	1375	1375	1375	1375	1000	1000

Enhanced Conditions (cont.)

	SHADE & HEAT		STREAM INFORMATION					RIPARIAN CODES -- LEFT BANK -- code only vegetation that CWS is responsible for									RIPARIAN CODES -- RIGHT BANK -- code only vegetation that CWS is responsible for								
PROJECT	Effective Shade (%)	Thermal Load Blocked (kcal/d)	Segment Length (ft)	Orientation (0 deg=N)	Wetted Width (ft)	NSDZ Width (ft)	Channel Incision (ft)	LB 0-15 ft	LB 15-30 ft	LB 30-45ft	LB 45-60 ft	LB 60-75 ft	LB 75-90 ft	LB 90-105 ft	LB 105-120 ft	LB 120-135 ft	RB 0-15 ft	RB 15-30 ft	RB 30-45ft	RB 45-60 ft	RB 60-75 ft	RB 75-90 ft	RB 90-105 ft	RB 105-120 ft	RB 120-135 ft
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	47.5%	3.26E+05	100	219	14.3	17.8	2.4	1175	1175	1175	1175	1175	1000	1000	1000	1000	1375	1375	1375	1375	1375	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	48.4%	3.32E+05	100	225	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1375	1375	1375	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	46.7%	3.20E+05	100	261	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	47.4%	3.25E+05	100	250	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1375	1375	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	56.1%	3.85E+05	100	214	14.3	17.8	2.4	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	38.7%	2.24E+05	89	226	14.3	17.8	2.4	1175	1175	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	35.3%	2.42E+05	100	216	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	35.8%	2.45E+05	100	218	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	41.8%	2.86E+05	100	242	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40.3%	2.76E+05	100	326	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	37.6%	2.58E+05	100	341	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40.7%	2.79E+05	100	320	14.3	17.8	2.4	1175	1175	1175	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	36.5%	2.50E+05	100	315	14.3	17.8	2.4	1175	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	38.5%	2.64E+05	100	313	14.3	17.8	2.4	1175	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0.0%	0.00E+00	100	295	14.3	17.8	2.4	1000	1000	1000	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	41.6%	2.85E+05	100	249	14.3	17.8	2.4	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40.4%	2.77E+05	100	236	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	41.9%	2.87E+05	100	269	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42.5%	2.92E+05	100	312	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	44.1%	3.02E+05	100	296	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	39.4%	2.70E+05	100	332	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	43.7%	2.99E+05	100	295	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	31.7%	2.17E+05	100	348	14.3	17.8	2.4	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	38.7%	2.65E+05	100	274	14.3	17.8	2.4	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0.0%	0.00E+00	100	284	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0.0%	0.00E+00	100	278	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	35.6%	2.44E+05	100	277	14.3	17.8	2.4	1175	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	39.0%	2.67E+05	100	269	14.3	17.8	2.4	1175	1000	1000	1000	1000	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	36.2%	2.48E+05	100	239	14.3	17.8	2.4	1175	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	0.0%	0.00E+00	100	188	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	32.2%	2.20E+05	100	207	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	28.8%	1.97E+05	100	217	14.3	17.8	2.4	1175	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	25.0%	1.71E+05	100	179	14.3	17.8	2.4	1175	1175	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	16.8%	1.15E+05	100	130	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	28.2%	1.93E+05	100	179	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	41.9%	2.87E+05	100	251	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	41.5%	2.84E+05	100	248	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	40.5%	2.77E+05	100	237	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	42.4%	2.90E+05	100	254	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	12.3%	8.44E+04	100	346	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	15.1%	1.04E+05	100	309	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	13.8%	9.47E+04	100	234	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	52.8%	3.62E+05	100	229	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1000	1000	1000	1000	1000	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	44.5%	3.05E+05	100	273	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1000	1000	1175	1175	1175	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	57.1%	3.91E+05	100	192	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	55.8%	3.82E+05	100	180	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	53.3%	3.66E+05	100	213	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1175	1175	1175	1175	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	56.1%	3.84E+05	100	297	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	55.3%	3.79E+05	100	296	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	50.1%	3.44E+05	100	205	14.3	17.8	2.4	1175	1175	1175	1000	1000	1000	1000	1000	1000	1175	1000	1000	1000	1000	1000	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	54.9%	3.76E+05	100	182	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	53.5%	3.67E+05	100	223	14.3	17.8	2.4	1175	1175	1175	1175	1175	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	57.6%	3.95E+05	100	194	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	55.9%	3.83E+05	100	226	14.3	17.8	2.4	1175	1175	1175	1175	1175	1175	1175	1175	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	56.3%	3.86E+05	100	199	14.3	17.8	2.4	1175	1175	1175	1175	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	49.8%	3.41E+05	100	110	14.3	17.8	2.4	1175	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1175	1175
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	1.1%	7.79E+03	100	137	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1175	1175	1000	1000	1000	1000	1000	1000	1000	1000	1000
6882 - Cedar Mill Trunk – Jenkins to Beaverton Interceptor	21.0%	1.44E+05	100	216	14.3	17.8	2.4	1000	1000	1000	1000	1000	1000	1000	1000	1000	1175	1175	1175	1175	1175	1175	1175	1000	1000

Appendix B

Riparian Shade Planting Projects
2004-2025

Appendix B: Riparian Shade Planting Projects (2004-2025)

Appendix B presents a summary of the 221 active riparian shade projects enrolled in CWS' water quality trading program. The project name, credit year, project characteristics (average wetted width and stream length), and the thermal credit claimed by CWS are presented in Table B. In previous years, the average wetted width and stream length were reported as rounded values. CWS takes thermal credit for those projects for which a valid contract or agreement is in place. For projects that do not have a landowner contract in place, CWS conducts routine shade monitoring using LiDAR and aerial imagery and takes thermal credits if they are providing the expected canopy cover. The 221 active riparian shade projects have restored approximately 120 stream miles and have generated approximately 660 million kcal/day of thermal credit.

Table B: Active Riparian Shade Planting Projects (2004-2025)

Project ID	Project Name	Project Status	Credit Year	Average Wetted Width (ft)	Segment Length (ft)*	CWS Thermal Credits (milllion kcal/d)
121	Tualatin River – Thomas Dairy	Active	2004	210	500	3.16
122	Summer Creek – Fowler	Active	2004	9.9	1,600	1.55
123	Fanno Creek – Englewood	Active	2004	8.9	4,400	6.77
126	Rock Creek – Evergreen to Cornell	Active	2004	19.7	2,500	4.41
131	Rock Creek – WWTP	Active	2004	22	700	0.84
136	Johnson Creek South – Summercrest	Active	2004	1.9	1,800	0.60
138	Bronson Creek – W Union to Laidlaw	Active	2004	4.7	5,400	3.15
1166	Fanno Creek – OES Marsh	Active	2004	9.3	1,300	2.04
1767	Cedar Creek – Stella Olsen	Active	2004	15	1,500	4.08
21	Rock Creek – Amberwood Natural Area	Active	2005	17.7	900	0.19
25	Dawson Creek – Evergreen Blvd	Active	2005	8.3	1,800	1.36
27	Rock Creek – Trail – Evergreen to Hwy 26	Active	2005	20	800	3.07
36	Beaverton Creek – Transit Center	Active	2005	12.4	1,500	2.70
78	North Johnson Creek – Cedar Mill Wetlands	Active	2005	13.2	800	0.08
95	95 – TSWCD – McFee Creek Tributary	Active	2005	2	2,700	0.97
124	Willow Creek – Bronson Rd	Active	2005	4.8	800	0.04
129	Sylvan Creek – Raleighwood Marsh	Active	2005	7	2,100	3.14
141	Fanno Creek – Hall Blvd to Ash Ave	Active	2005	21	2,100	6.45
142	Gales Creek – Tualatin River to Hwy 47	Active	2005	26	4,000	14.60
1040	Rock Creek – Golf Course to Bethany Pond	Active	2005	14.4	2,900	7.62
138	Bronson Creek – W Union to Laidlaw	Active	2005	5	900	1.06
126	Rock Creek Evergreen to Cornell	Active	2005	20	3,400	8.69
131	Rock Creek – WWTP	Active	2005	22	2,300	4.27
18	Banks Elementary	Active	2006	1.6	600	0.19
65	Fanno Creek tributary – Downing to 125th	Active	2006	0.9	600	0.11
94	94 – TSWCD – East Fork Dairy Creek	Active	2006	12.3	5,300	4.12
96	96 – TSWCD – Tualatin River	Active	2006	46.9	6,300	25.30
97	97 – TSWCD – West Fork Dairy Creek	Active	2006	20	2,400	4.13
102	102 – TSWCD – West Fork Dairy Creek	Active	2006	8	1,300	0.21
114	114 – TSWCD – Tualatin River	Active	2006	45.4	1,800	7.30
137	Willow Creek – Beaverton Creek Confluence	Active	2006	11.8	1,300	1.43
1020	Dairy Creek – Davis Tool	Active	2006	42	4,900	4.76
1160	Johnson Creek – Lowami Hart Woods	Active	2006	6	500	0.52
1181	1181 – TSWCD – Tualatin River	Active	2006	29.6	10,700	14.90
1422	Beaverton Creek – 153rd to St Marys	Active	2006	9.3	4,900	9.36
1767	Cedar Creek – Stella Olsen	Active	2006	15	700	1.12
123	Fanno Creek – Englewood	Active	2006	9	2,500	1.50

Table B-1: Active Riparian Shade Planting Projects (2004-2025) (Continued)

Project ID	Project Name	Project Status	Credit Year	Average Wetted Width (ft)	Segment Length (ft)*	CWS Thermal Credits (milllion kcal/d)
1141	1141 – TSWCD – Council Creek Tributary	Active	2007	4	6,300	4.64
104	104 – TSWCD – McFee Creek	Active	2007	7.9	1,500	0.73
105	105 – TSWCD – Tualatin River	Active	2007	33.2	1,800	5.81
109	109 – TSWCD – West Fork Dairy Creek	Active	2007	20	1,600	2.55
110	110 – TSWCD – Chicken Creek Tributary	Active	2007	3	800	0.40
112	112 – TSWCD – Tualatin River	Active	2007	43.3	8,200	31.30
125	Beaverton Creek – Quatama – 205th Ave to 231st Ave	Active	2007	23	7,300	13.90
132	Tualatin River – Gales Creek to Fernhill Rd	Active	2007	44.9	4,300	9.79
1140	1140 – TSWCD – Council Creek Tributary	Active	2007	9.5	1,100	2.18
1522	1522 – TSWCD – Abbey Creek	Active	2007	6.4	1,500	1.58
1524	1524 – TSWCD – Rock Creek	Active	2007	10	1,600	2.57
1767	Cedar Creek – Stella Olsen	Active	2007	15	700	0.34
12	Tualatin River – Metro King	Active	2008	56.8	800	3.61
117	Metro – Lovejoy	Active	2008	44.5	8,100	21.80
128	Bronson Creek – Tanasbrook Ponds	Active	2008	6.7	2,700	3.04
143	Gales Creek – B St to Hwy 47	Active	2008	23	3,300	4.49
1080	Fanno Creek – Greenway Park	Active	2008	10.9	6,000	9.15
1886	1886 – TSWCD – Abbey Creek Tributary	Active	2008	2.6	700	0.22
1907	1907 – TSWCD – West Fork Dairy Creek	Active	2008	10	600	0.01
1930	1930 – TSWCD – Bledsoe Creek	Active	2008	5	1,100	1.00
1927	1927 – TSWCD – Cedar Creek	Active	2008	8	900	1.51
103	103 – TSWCD – East Fork Dairy Creek	Active	2009	11.4	3,100	0.81
107	107 – TSWCD – Tualatin River Tributary	Active	2009	5	600	0.03
108	108 – TSWCD – Tualatin River	Active	2009	50	3,600	5.19
113	113 – TSWCD – Chicken Creek	Active	2009	5	500	0.26
100	TRNWR – Dennis	Active	2009	120	4,700	3.48
115	Metro – Munger	Active	2009	120	2,100	0.69
2007	2007 – TSWCD – West Fork Dairy Creek	Active	2009	15	2,800	0.70
1080	Fanno Creek – Greenway Park	Active	2009	9	1,100	0.71
130	Tualatin River – Eagle Woods at Fern Hill	Active	2010	23	1,100	0.69
116	116 – TSWCD – East Fork Dairy Creek	Active	2010	36	2,879	5.38
1906	1906 – TSWCD – McKay Creek	Active	2010	20	5,900	8.74
2049	Rock Creek – Noble Woods	Active	2010	19	1,170	2.39
2051	2051 – TSWCD – Bledsoe Creek	Active	2010	5	2,643	2.36
2052	2052 – TSWCD – Gales Creek	Active	2010	40	900	1.98
2087	Gales Creek – Half Mile Lane	Active	2011	27	1,306	2.62
2097	2097 – TSWCD – Gales Creek	Active	2011	75	3,755	15.70
131	Rock Creek – WWTP	Active	2011	8	3,022	2.15
135	Willow Creek Enhancement	Active	2012	8	1,190	1.55
2106	2106 – TSWCD – Tualatin River	Active	2012	30	1,969	2.31
2122	2122 – TSWCD – Gales Creek	Active	2012	7.6	2,800	1.03
1181	1181 – TSWCD – Tualatin River	Active	2012	6	3,300	3.20
2105	2105 – TSWCD – Carpenter Creek	Active	2012	4	1,756	0.32
2100	2100 – TSWCD – Tualatin River	Active	2013	11.8	4,272	2.76
2101	2101 – TSWCD – Christensen Creek	Active	2013	3	1,693	1.07
2102	2102 – TSWCD – Christensen Creek	Active	2013	3	1,700	0.91
2103	2103 – TSWCD – Tualatin River	Active	2013	16.8	4,082	9.78
2126	2126 – TSWCD – Cedar Creek Tributary	Active	2013	2	587	0.17
2128	2128 – TSWCD – Jackson Creek	Active	2013	5	679	0.28

Table B-1: Active Riparian Shade Planting Projects (2004-2025) (Continued)

Project ID	Project Name	Project Status	Credit Year	Average Wetted Width (ft)	Segment Length (ft)*	CWS Thermal Credits (milllion kcal/d)
2129	2129 – TSWCD – Jackson Creek	Active	2013	5	700	0.45
124	Willow Creek – Bronson Rd	Active	2013	7.4	500	0.29
2140	2140 – TSWCD – Gales Creek	Active	2013	40	2,054	5.38
17	Durham City Park	Active	2014	20	4,193	3.48
2093	Barrows Meadows	Active	2014	6	800	0.16
2130	2130 – TSWCD – Gales Creek	Active	2014	35	5,052	11.30
2131	2131 – TSWCD – McKay Creek	Active	2014	30	4,161	5.74
2135	Bronson Creek Greenway	Active	2015	5.8	4,600	0.08
2137	2137 – TSWCD – Gales Creek	Active	2015	25	2,257	2.63
2138	2138 – TSWCD – Little Beaver Creek	Active	2015	7.5	572	0.71
2139	2139 – TSWCD – Carpenter Creek	Active	2015	6	4,023	1.74
2142	2142 – TSWCD – Little Beaver Creek	Active	2015	11.7	5,161	3.30
2168	Tualatin River Farm	Active	2015	66	2,794	0.89
1767	Cedar Creek – Stella Olsen	Active	2015	16	2,027	2.29
2099	2099 – TSWCD – Tualatin River	Active	2016	55	3,700	1.60
2199	TRNWR – Naujock	Active	2016	118	6,400	5.90
2163	2163 – TSWCD – Little Beaver Creek	Active	2016	4	1,350	0.98
2164	2164 – TSWCD – Gales Creek Tributary	Active	2016	25	2,070	0.15
2165	2165 – TSWCD – McKay Creek	Active	2016	12	3,693	0.05
2166	2166 – TSWCD – Dairy Creek	Active	2016	19	1,375	0.06
2184	Metro – Maroon Ponds Natural Area	Active	2016	45	2,700	3.30
2201	2201 – TSWCD – Tualatin River	Active	2016	52	2,247	2.80
2202	2202 – TSWCD – East Fork Dairy Creek	Active	2016	33.1	3,397	3.20
2203	2203 – TSWCD – Council Creek	Active	2016	7	1,071	0.10
2204	2204 – TSWCD – McKay Creek	Active	2016	30	2,500	3.20
2205	2205 – TSWCD – Tualatin River	Active	2016	64	3,000	0.31
2206	2206 – TSWCD – McFee Creek	Active	2016	11	550	0.27
2207	2207 – TSWCD – Tualatin River	Active	2016	50	500	0.26
2208	2208 – TSWCD – McKay Creek Tributary	Active	2016	9.3	2,046	2.20
2209	2209 – TSWCD – McKay Creek	Active	2016	28	1,091	0.32
2216	Beaverton Creek – Quatama – 197th Ave	Active	2016	32	1,676	1.30
2186	Metro – Woodard Natural Area	Active	2017	32	752	22.00
2190	Metro – Farmington Natural Area	Active	2017	123	599	0.83
2213	2213 – TSWCD – West Fork Dairy Creek	Active	2017	19	7,890	9.00
2218	Beaverton Creek – Quatama – 185th Ave	Active	2017	18	1,454	1.04
2260	2260 – TSWCD – McFee Creek	Active	2017	15	800	0.22
2261	2261 – TSWCD – Davis Creek	Active	2017	4	1,374	0.91
2262	2262 – TSWCD – Abbey Creek	Active	2017	4	1,530	0.19
2263	Fanno Creek – Crawford Reach	Active	2017	28	800	1.09
2265	Wapato View	Active	2017	2	5,045	1.41
2345	Metro – Carpenter Creek S	Active	2017	16	1,800	3.95
2346	Metro – Carpenter Creek N	Active	2017	16	382	0.90
1644	1644 – Banks High School	Active	2018	4	587	0.17
2043	2043 – Gales Creek at B Street Bridge	Active	2018	57	1,400	0.80
2187	2187 – Metro – Bonita Natural Area	Active	2018	6.3	1,732	1.57
2210	2210 – TSWCD – East Fork Dairy Creek	Active	2018	21	4,866	2.19
2215	2215 – TSWCD – Graver Creek	Active	2018	4.3	700	0.50
2259	2259 – TSWCD – McFee Creek	Active	2018	16.9	2,100	2.71
2318	2318 – TSWCD – Storey Creek	Active	2018	3	785	0.49

Table B-1: Active Riparian Shade Planting Projects (2004-2025) (Continued)

Project ID	Project Name	Project Status	Credit Year	Average Wetted Width (ft)	Segment Length (ft)*	CWS Thermal Credits (milllion kcal/d)
2321	2321 – TSWCD – McKay Creek Tributary	Active	2018	5.7	468	0.31
2322	2322 – TSWCD – Gales Creek	Active	2018	24.5	2,153	1.18
2324	2324 – TSWCD – Iler Creek	Active	2018	8.8	1,900	0.20
2327	2327 – TRNWR – Dennis Expansion Area	Active	2018	127.5	2,000	3.86
2333	2333 – TSWCD – Gales Creek	Active	2018	26.7	1,300	1.13
2414	2414 – TSWCD – East Fork Dairy Creek	Active	2018	32.2	5,089	0.81
2449	2449 – Steed Creek Expansion	Active	2018	3.7	500	0.41
6701	6701 – Bethany Creek Enhancement	Active	2018	2.7	1,377	0.45
78	78 – North Johnson Creek – Cedar Mill Wetlands	Active	2019	12.5	887	0.26
98	98 – TSWCD – Tualatin River Tributary	Active	2019	11.0	900	0.06
1807	1807 – Hedges Creek Marsh	Active	2019	49.5	3,395	0.10
2019	2019 – Chicken Creek at Green Heron	Active	2019	17.9	686	0.97
2075	2075 – Summer Creek – 116th to Fowler	Active	2019	15.0	1,000	0.79
2081	2081 – Grace Johnson	Active	2019	33.1	4,500	5.00
2116	2116 – Jack Park	Active	2019	1.8	2,253	0.18
2144	2144 – Fanno Creek – Ash Ave to Main St	Active	2019	13.0	1,400	1.85
2145	2145 – Woodhaven Park	Active	2019	2.1	700	0.16
2235	2235 – THPRD – Whispering Woods	Active	2019	26.6	2,200	5.27
2264	2264 – TRNWR – Oleson	Active	2019	30.0	1,400	0.26
2277	2277 – Spring Hill	Active	2019	23.4	9,527	15.89
2320	2320 – TSWCD – McKay Creek	Active	2019	24.8	393	0.02
2325	2325 – TSWCD – McKay Creek	Active	2019	50.0	575	0.06
2326	2326 – TSWCD – McKay Creek	Active	2019	40.0	383	0.16
2335	2335 – Metro – Baker Heaton	Active	2019	11.3	5,041	3.71
2336	2336 – Metro – Middle Baker	Active	2019	11.0	3,550	2.59
2351	2351 – Metro – River's Bend Munger	Active	2019	115.6	3,559	1.17
2379	2379 – Nyberg Creek – Stafford	Active	2019	9.3	800	0.99
2410	2410 – Upper Hedges Creek	Active	2019	19.9	1,200	0.15
2365	2365 – West Trib. Abbey Creek	Active	2020	14.7	2,720	1.04
2403	2403 – Fanno Creek – Felton Floodplain	Active	2020	23.8	1,700	0.68
2406	2406 – TSWCD – McFee Creek Tributary	Active	2020	7.0	1,965	0.40
2407	2407 – TSWCD – East Fork Dairy Creek	Active	2020	27.0	2,956	1.59
2408	2408 – TSWCD – Tualatin River	Active	2020	6.0	1,300	0.52
2411	2411 – Fanno Creek – Crawford Extension	Active	2020	33.0	961	1.39
2429	2429 – Metro – Carpenter Creek at SW Anderson Rd	Active	2020	8.0	800	1.00
2444	2444 – TSWCD – Dairy Creek	Active	2020	22.0	3,676	1.29
2445	2445 – TSWCD – Dairy Creek	Active	2020	55.0	1,000	0.16
2447	2447 – TSWCD – Tualatin River	Active	2020	123.0	2,195	0.37
2052	2052 – TSWCD – Gales Creek	Active	2021	29.5	3,519	9.02
2183	2183 – Fanno Creek – Denney Rd to Hall Blvd	Active	2021	8.5	4,385	3.25
2332	2332 – TRNWR – Bump – Brennar	Active	2021	125.0	2,089	0.11
2353	2353 – Metro – Dairy McKay – RF	Active	2021	32.5	5,195	2.43
2424	2424 – Bronson Creek – NW Bethany Blvd to NW 147th Pl	Active	2021	5.0	14,650	0.19
2443	2443 – Bronson Creek – OHSU	Active	2021	12.3	3,086	2.35
2448	2448 – NRCS – Hutchinson Wetland Reserve – O'Neil Creek	Active	2021	5.5	3,294	1.83
2485	2485 – TSWCD – McKay Creek	Active	2021	16.0	9,184	9.71
2492	2492 – Bronson Creek Park	Active	2021	33.0	851	0.96
2502	2502 – TSWCD – Dairy Creek	Active	2021	30.4	6,600	2.40
2175	2175 – McKay Creek – Swallowtail Farm	Active	2022	29.4	3,800	2.03

Table B-1: Active Riparian Shade Planting Projects (2004-2025) (Continued)

Project ID	Project Name	Project Status	Credit Year	Average Wetted Width (ft)	Segment Length (ft)*	CWS Thermal Credits (milllion kcal/d)
2283	2283 – TRNWR – Chicken Creek	Active	2022	23.0	14,315	16.76
2319	2319 – TSWCD – Tualatin River Tributary	Active	2022	12.8	1,072	0.16
2360	2360 – Fanno Creek – Brown Natural Area	Active	2022	17.3	51,109	5.19
2376	2376 – Dawson Creek – DVIR Daycare	Active	2022	14.3	452	0.42
2404	2404 – Dawson Creek – Port of Portland	Active	2022	11.2	4,951	0.44
2409	2409 – Lower Hedges Creek	Active	2022	68.4	2,965	0.10
2457	2457 – Glencoe Creek – Corridor	Active	2022	23.5	10,405	12.90
2469	2469 – TSWCD – Tualatin River Tributary	Active	2022	4.2	5,936	4.69
2472	2472 – Cedar Creek – Sunset	Active	2022	10.7	3,420	2.19
2486	2486 – TSWCD – Christensen Creek	Active	2022	7.2	2,666	1.19
2487	2487 – TSWCD – Tualatin River Tributary	Active	2022	4.3	648	0.51
2506	2506 – TSWCD – Clear Creek	Active	2022	10.7	599	0.25
2375	2375 – West Bethany Creek	Active	2023	2.3	3,595	0.97
2420	2420 – Balm Grove	Active	2023	28.3	1,188	2.11
2439	2439 – Ghost Creek – Sunset Creek	Active	2023	4.6	500	0.49
2501	2501 – TSWCD – McKay Creek	Active	2023	30.0	2,865	0.74
2503	2503 – Butternut Creek at 198th Ave	Active	2023	11.7	1,157	1.83
2519	2519 – TSWCD – Tualatin River	Active	2023	46.6	400	0.03
2520	2520 – TSWCD – Tualatin River	Active	2023	46.7	791	0.08
2521	2521 – TSWCD – Tualatin River	Active	2023	45.0	1,900	0.26
2522	2522 – TSWCD – Tualatin River	Active	2023	46.0	2,380	1.67
2538	2538 – TSWCD – West Fork Dairy Creek	Active	2023	23.5	900	0.61
2470	2470 – Metro–Baker Creek	Active	2024	13.5	2,600	1.38
2537	2537 – TSWCD–Bledsoe Creek	Active	2024	11.1	2,088	0.26
2540	2540 – TSWCD–East Fork Dairy Creek	Active	2024	26.0	2,300	18.57
2565	2565 – Fanno Creek	Active	2024	22.3	379	0.10
2584	2584 – Hill Creek	Active	2024	25.6	8,900	97.61
1646	1646 – 185th to Kaiser – Springville Creek	Active	2025	12.9	13,047	6.26
2474	2474 – Reedville Creek Expansion	Active	2025	29.6	1,942	0.91
2497	2497 – Village at Summer Creek HOA	Active	2025	25.3	571	1.04
2529	2529 – Rock Creek – TV Highway	Active	2025	24.0	1,852	0.41
2530	2530 – Witch Hazel Creek – Brookwood Crossing	Active	2025	6.7	883	0.21
2541	2541 – TSWCD – Tualatin River	Active	2025	46.8	6,793	2.88
2542	2542 – TSWCD – Christensen Creek Tributary	Active	2025	5.5	3,221	0.43
2552	2552 – TSWCD Project 2552 – Fanno Creek	Active	2025	13.4	2,081	0.47
2563	2563 – TSWCD – Gales Creek	Active	2025	37.4	3,188	1.29
6882	6882 – Cedar Mill Trunk – Jenkins to Beaverton Interceptor	Active	2025	14.6	6,620	2.64

*Some project names have changed since their enrollment in the trading program to better reflect their location in the watershed. The project numbers have not changed.
**Segment Length: Some projects were enrolled over multiple years. The segment length planted each year is presented in this table.
***This number has been revised to reflect the correct thermal credits for the project.

Appendix C

Additional Management Actions

Appendix C – Additional Management Actions

The following is a summary of actions at sites enrolled in the trading program for 10 years or more that did not provide anticipated shade as noted in previous annual reports. These sites will continue to be monitored for invasive species, and plant diversity and density. CWS' project managers evaluate project performance to determine the additional management actions to implement, including the number of plants planted each year. In 2021, CWS began aggregating plant data for riparian planting projects on the fiscal year, July 1 to June 30. Previously, calculations were performed from January 1 to December 31. As a result, plant numbers listed below may differ from previous annual reports. Completed and recommended management actions and detailed monitoring data, such as recent stem density, canopy cover, and observed species, can be found in CWS' site assessment reports, which are available upon request.

135 – Willow Creek Enhancement:

This project was initially planted with 700 native shrubs and trees in 2006 and has extensive wetland complexes, significant beaver activity, and ongoing challenges with invasive yellow flag iris. Focused actions on this project include invasive weed treatment and inter-planting as shown below:

2007: 75 plants
2008: 2,100 plants
2011: 300 plants
2020: 3,100 plants
2023: 2,000 plants
2024: 15,160 plants*
2025: 8,877 plants*

Targeted invasive species treatment and inter-planting were completed in 2024. Additional invasive species treatment and inter-planting were completed in 2025. This project will continue to be monitored for invasive species cover, and plant diversity and density as the project transitions from ash forested wetland to scrub shrub.

* This project is part of a group of 16 projects that are collectively managed; as such, only a portion of the total plants were allocated to this project.

2128 – TSWCD – Jackson Creek:

This project was initially planted with 4,000 native shrubs and trees in 2013 and has extensive wetland complexes, significant beaver activity, and ongoing challenges with deer, elk, and beaver browsing. Focused actions on this project include invasive weed treatment and inter-planting as shown below:

2015: 1,014 plants
2016: 4,800 plants
2017: 1,000 plants
2018: 1,000 plants

2019: 1,000 plants
2024: 1,600 plants

This project will continue to be monitored for invasive species cover, and plant diversity and density. Tree tubes will be used to protect trees from herbivory. In the future, strategic caging of trees along the creek could assist in the establishment of a tall canopy.

1422 – Beaverton Creek – 153rd to St Mary's:

This project was initially planted with 20,390 native shrubs and trees in 2007. The project has extensive wetland complexes and significant beaver activity. Adaptive management efforts are ongoing to address natural changes to the project's plant communities. Focused actions on this project include invasive weed treatment and inter-planting as shown below:

2008: 12,462 plants
2009: 3,970 plants
2010: 3,000 plants
2011: 14,000 plants
2012: 15,000 plants
2013: 1,743 plants
2014: 5,227 plants
2024: 7,350 plants
2025: 21,070 plants

This project will continue to be monitored for invasive species cover, and plant diversity and density.

2137 – TSWCD – Gales Creek:

This project was initially planted with 12,000 native shrubs and trees in 2015. Initially, it was difficult for landowner to keep cattle out of the stream and project area. TSWCD is assisting with fencing and monitoring, and trees and shrubs are establishing. Focused actions on this project include invasive weed treatment and inter-planting as shown below:

2018: 11,650 plants
2019: 2,132 plants
2020: 2,500 plants

This project will continue to be monitored for invasive species cover, and plant diversity and density.

129 – Sylvan Creek – Raleighwood Marsh:

This project was initially planted with 3,630 native shrubs and trees in 2007. Due to the successful initial restoration, woody vegetation was quickly established throughout the site. However, this, in turn, attracted beaver to the project, and their activities have created a mosaic of open water and emergent wetland that has been somewhat dynamic over time, due to dam removal by landowners and response by beaver. This has reduced the total amount of woody

cover on the site below initial estimates. Increased attention has focused on responding to the changing conditions through increased native herbaceous vegetation that is more characteristic of emergent wetlands, as well as woody plants that are more tolerant of frequent and prolonged inundation. Recent monitoring shows low stems per acre in the scrub shrub portions of the site most impacted, but also low invasive cover. Establishment of native herbaceous plants and more tolerant woody plants will help the native plant community respond positively to the dynamic nature of this area. Focused actions include invasive weed treatment and inter-planting as shown below:

2008: 120 plants
2010: 2,175 plants
2011: 4,500 plants
2012: 6,600 plants
2013: 2,000 plants
2014: 3,200 plants
2015: 4,265 plants
2017: 4,900 plants
2018: 3,500 plants
2019: 5,800 plants
2023: 11,100 plants*
2024: 15,903 plants*
2025: 41,308 plants*

This project will continue to be monitored for invasive species cover, and plant diversity and density.

* This project is part of a group of 35 projects that are collectively managed; as such, only a portion of the total plants were allocated to this project.

Appendix D

Identification of Trading Baselines for Flow Enhancement

Appendix D: Identification of Trading Baselines for Flow Enhancement

The following tables present the daily average effluent flow and daily maximum effluent temperature from the Rock Creek, Durham, and Forest Grove WRRFs and NTS; daily average Tualatin River flow at the Farmington Bridge (River Mile 33) and at Golf Course Road; and daily average flow enhancement rate from Hagg Lake and Barney Reservoir and the Wapato instream lease rate for July and August 2025. This information is used to calculate the allowable thermal loads, the excess thermal loads discharged, and flow enhancement credit for the Rock Creek, Durham, and Forest Grove WRRFs and NTS.

Table D-1: Trading Baseline for Flow Enhancement for July 2025

Date	Durham WRRF Effluent Flow (MGD)	Durham WRRF Effluent Temperature (C)	Rock Creek WRRF Effluent Flow (MGD)	Rock Creek WRRF Effluent Temperature ©	Forest Grove NTS Effluent Flow (MGD)	Forest Grove NTS Effluent Temperature (C)	Golf Course Flow (cfs)	Farmington Flow (cfs)	CWS Hagg Release Rate (cfs)	Wapato Instream Lease (cfs)	CWS Barney Release Rate (cfs)
7/1/2025	16.4	22.5	23.13	22.3	2.77	28	105	193	30	5.4	0
7/2/2025	16.4	22.3	23.01	22.2	2.46	28	94	167	30	5.4	0
7/3/2025	16.0	22.3	23.70	22.1	2.74	26	101	162	30	5.4	0
7/4/2025	15.2	21.7	21.62	21.7	2.62	23	132	169	50	5.4	0
7/5/2025	15.4	22.0	22.18	21.7	2.70	26	139	184	50	5.4	0
7/6/2025	16.1	22.2	23.33	21.8	2.43	27	135	190	50	5.4	0
7/7/2025	16.4	22.5	22.32	22.2	2.14	28	129	187	50	5.4	0
7/8/2025	15.9	22.7	24.09	22.4	2.42	28	108	177	40	5.4	0
7/9/2025	16.1	22.5	25.06	22.3	2.71	26	102	166	40	5.4	0
7/10/2025	15.7	22.7	24.22	22.4	2.57	27	117	163	40	5.4	0
7/11/2025	15.7	22.9	23.89	22.5	2.97	27	99	173	40	5.4	0
7/12/2025	15.7	23.1	23.92	22.7	2.29	28	117	161	50	5.4	0
7/13/2025	16.1	23.3	24.08	22.9	1.82	28	116	171	50	5.4	0
7/14/2025	16.0	23.2	23.17	22.9	2.33	28	116	170	50	5.4	0
7/15/2025	15.9	23.1	23.48	22.7	1.31	27	115	170	50	5.4	14
7/16/2025	15.9	23.3	23.62	22.9	0.66	29	117	168	50	5.4	14
7/17/2025	15.7	23.3	23.75	22.9	1.67	28	143	171	50	5.4	14
7/18/2025	15.3	23.3	23.55	22.9	2.05	27	130	185	50	5.4	14
7/19/2025	15.4	23.2	22.77	22.8	2.30	26	110	179	40	5.4	14
7/20/2025	16.4	22.5	23.58	22.4	2.29	22	123	169	40	5.4	14
7/21/2025	17.1	22.7	24.66	22.3	2.22	24	127	182	40	5.4	14
7/22/2025	16.3	22.9	24.37	22.6	2.43	25	118	184	40	5.4	14
7/23/2025	16.9	23.3	22.79	22.9	2.46	27	114	181	30	5.4	14
7/24/2025	15.9	23.4	22.68	23.1	2.37	27	108	171	40	5.4	14
7/25/2025	15.8	23.4	22.13	22.9	2.49	26	121	169	50	5.4	14
7/26/2025	15.3	23.0	21.87	22.6	2.40	23	145	178	60	5.4	14
7/27/2025	15.8	23.1	22.38	22.5	2.24	24	159	193	60	5.4	14
7/28/2025	15.8	23.2	22.94	22.6	2.24	24	147	206	60	5.4	14
7/29/2025	15.6	23.4	22.28	22.8	2.47	26	111	192	50	5.4	14
7/30/2025	15.7	23.3	22.07	22.9	2.30	25	115	172	50	5.4	14
7/31/2025	15.6	23.4	22.04	23.0	2.23	26	108	172	50	5.4	14

Table D-2: Trading Baseline for Flow Enhancement for August 2025

Date	Durham WRRF Effluent Flow (MGD)	Durham WRRF Effluent Temperature (C)	Rock Creek WRRF Effluent Flow (MGD)	Rock Creek WRRF Effluent Temperature ©	Forest Grove NTS Effluent Flow (MGD)	Forest Grove NTS Effluent Temperature (C)	Golf Course Flow (cfs)	Farmington Flow (cfs)	CWS Hagg Release Rate (cfs)	Wapato Instream Lease (cfs)	CWS Barney Release Rate (cfs)
8/1/2025	15.5	23.6	22.27	23.2	2.39	26	103	171	50	5.4	14
8/2/2025	15.0	23.4	21.73	23.2	2.40	25	100	168	50	5.4	14
8/3/2025	15.4	23.0	22.90	22.7	2.40	23	111	167	50	5.4	14
8/4/2025	15.4	23.0	21.60	22.6	2.07	22	112	176	50	5.4	14
8/5/2025	15.8	23.1	23.56	22.8	3.23	23	107	175	50	5.4	14
8/6/2025	16.6	22.7	24.13	22.6	2.82	22	120	177	50	5.4	14
8/7/2025	16.0	22.8	23.54	22.7	3.09	22	127	189	50	5.4	14
8/8/2025	15.4	23.1	24.58	22.8	2.94	22	131	199	50	5.4	14
8/9/2025	14.9	23.2	22.76	22.9	2.45	23	115	200	50	5.4	14
8/10/2025	15.2	23.5	22.38	23.2	1.91	26	112	186	50	5.4	14
8/11/2025	15.4	23.9	22.13	23.5	1.84	27	121	183	60	5.4	14
8/12/2025	15.8	24.1	21.87	23.7	2.01	27	121	184	60	5.4	0
8/13/2025	15.8	24.1	22.83	23.7	2.18	26	120	183	60	5.4	14
8/14/2025	15.6	23.8	23.01	23.3	3.62	24	104	184	50	5.4	14
8/15/2025	16.0	23.3	24.24	23.0	2.71	22	122	182	50	5.4	14
8/16/2025	16.0	23.5	24.02	22.9	2.02	23	108	197	40	5.4	14
8/17/2025	16.1	23.5	24.18	22.8	2.01	23	111	195	40	5.4	14
8/18/2025	15.8	23.5	23.51	22.8	2.28	23	103	193	40	5.4	14
8/19/2025	15.7	23.7	23.10	22.9	2.34	23	98.3	182	40	5.4	14
8/20/2025	15.4	23.8	22.48	23.1	2.33	23	115	178	50	5.4	14
8/21/2025	15.1	23.7	22.28	23.1	2.22	23	114	185	60	5.4	14
8/22/2025	15.0	23.8	22.91	23.2	2.39	24	111	183	60	5.4	14
8/23/2025	14.9	24.0	21.29	23.4	2.63	25	125	180	60	5.4	14
8/24/2025	15.5	24.1	22.69	23.6	2.54	25	134	189	60	5.4	14
8/25/2025	16.0	24.1	23.91	23.5	2.66	25	125	196	60	5.4	14
8/26/2025	15.6	24.1	24.21	23.7	2.82	25	117	191	60	5.4	14
8/27/2025	15.7	24.3	23.60	23.8	2.18	25	98.1	182	50	5.4	14
8/28/2025	15.6	24.4	23.80	23.8	1.79	24	101	175	50	5.4	14
8/29/2025	15.2	24.2	22.99	23.7	1.38	23	92.7	174	60	5.4	14
8/30/2025	15.0	23.6	22.27	23.3	1.30	22	103	170	60	5.4	14
8/31/2025	15.2	23.9	22.40	23.3	1.28	23	111	177	60	5.4	14

Appendix E

Riparian Codes for Shade-a-Lator

Appendix E: Riparian Codes for Shade-a-Lator

Code	Description	Height (m)	Density (%)	Overhang (m)
1000	Not in project	0.0	0%	0.0
1175	Forest fully vegetated	18.3	75%	3.0
1150	Forest partially vegetated	18.3	50%	3.0
1125	Forest partially vegetated	18.3	25%	3.0
1100	Forest minimally vegetated	0.0	0%	0.0
1375	Wetland fully vegetated	6.1	75%	0.6
1350	Wetland partially vegetated	6.1	50%	0.6
1325	Wetland partially vegetated	6.1	25%	0.6
1300	Wetland minimally vegetated	0.0	0%	0.0

Source: Clean Water Services