DRAFT STRATEGY SCOPING: WATER QUALITY

Executive Summary

Background

The Walla Walla Water 2050 Strategic Plan (Strategic Plan) was completed in June 2021. This memo is part of Phase 2 of the Walla Walla 2050 Strategic Plan process – an effort to build on the completed Strategic Plan by analyzing and refining implementation details of the Tier 1 strategies. The Strategic Plan identified 60 strategies to manage water resources to meet multiple benefits in the Walla Walla watershed. These strategies were prioritized into three tiers; the highest tier, Tier 1, included 23 strategies. This memo, along with a series of subsequent memos will provide additional detail on these Tier 1 strategies to help move these strategies forward to implementation. This memo is focused on the three Tier 1 priority strategies related to **Water Quality.**

Introduction

Strategies scoped in this memo include two strategies aimed at addressing nonpoint source pollution – one from urban stormwater runoff and one from agricultural practices – and one strategy addressing one of the point sources in the watershed: the City of Dayton wastewater treatment plant. This memo is focused on the three Tier 1 strategies from the WW2050 Strategic Plan:

- Strategy 1.17: Increase infiltration of stormwater rather than discharge to surface water bodies and improve coordination and management
- Strategy 1.18: Upgrade Dayton wastewater treatment plant to meet Ecology requirements and watershed community environmental goals
- Strategy 1.22: Implement conservation tillage and soil erosion BMPs to decrease nonpoint source pollution

Note to reviewers: This memo is not a complete summary of water quality status and trends nor does it discuss all the water quality project improvements projects that are needed in the basin. The memo is focused on the three Tier 1 water quality strategies in the Walla Walla 2050 Strategic Plan.

Current Status

Water quality in the Walla Walla watershed is managed by the Washington Department of Ecology (Ecology) in Washington and by the Oregon Department of Environmental Quality (DEQ) in Oregon. Both agencies regulate water quality in coordination with the U.S. Environmental Protection Agency (EPA) under the framework of the federal Clean Water Act (CWA).

Water pollution is regulated under the CWA based on whether it is from a point source or a non-point source (Oregon Department of Agriculture and Walla Walla Local Advisory Committee 2020). Point source pollution comes from discrete sources, like industrial sites or wastewater treatment plants (WWTPs), like those in College Place, Dayton, Walla Walla, and Waitsburg (Cascadia Consulting 2021). Point sources are regulated by the CWA's National Pollutant Discharge Elimination System (NPDES) permit program. An individual NPDES permit is issued to a point source polluter as a license to discharge a specified amount of a pollutant into a receiving water under certain conditions (**US EPA website**). Non-point source pollution comes from widely distributed sources across the landscape. The biggest contributors to non-point source pollution in the Walla Walla watershed are stormwater runoff from impervious surfaces in urban areas and agricultural practices. Runoff from urban areas can contain many different types of pollutants, including chemicals, metals, and sediments from road surfaces, heavy metals or organic chemicals from industrial/commercial areas, and nutrients, pesticides, and pathogens from residential areas (Washington State Department of Ecology 2004). Runoff from agricultural fields can contribute loading of nutrients, pesticides/herbicides, sediments, or bacteria/pathogens from animal waste into surface waters (Oregon Department of Agriculture and Walla Walla Local Advisory Committee 2020). Sediment pollution can also originate from forested lands, particularly from forest road erosion or timber harvesting activities (Washington State Department of Natural Resources 2005).

In both Washington and Oregon, water quality is managed to protect specific *beneficial uses* through water quality standards (note that the use of *beneficial use* in this context is different than in the water rights context). More specifically, water quality standards are protected by defining and managing for Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a specific pollutant that a water body can absorb and still meet water quality standards (Oregon Department of Environmental Quality 2005). Table 1 shows the pollutants and TMDLs in the Walla Walla watershed. Figure 1 shows priority areas for water quality in Washington.

Table 1: Oregon and Washington TMDLs

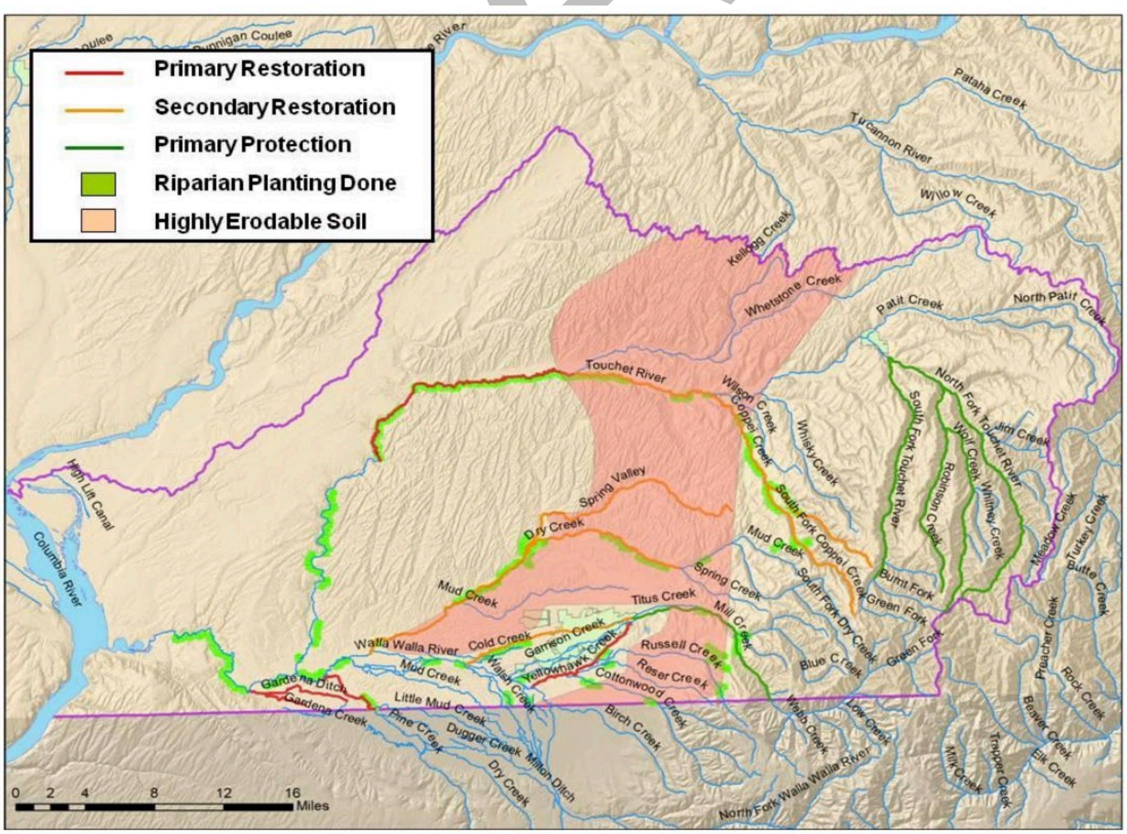
Pollutants	Walla Walla River (Washington side)	Walla Walla River (Oregon side)	Touchet River	Mill Creek
Chlorinated pesticides	✔		✔	✔
PCBs[11]				✔
Fecal coliform	✔		✔	✔
Temperature	✔	✔	✔	✔
pH & dissolved oxygen	✔		✔	✔

Water quality in the Oregon portion of the watershed is managed to protect recognized beneficial uses including public and private water supply, industrial water supply, irrigation, livestock watering, anadromous fish passage, salmonid fish rearing and spawning, resident fish and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, and aesthetic quality (OAR 340-041-682, table 12). Beneficial uses that are adversely affected include: salmonid fish rearing and spawning, anadromous fish passage, resident fish and aquatic life, irrigation, and fishing (Oregon Department of Agriculture and Walla Walla Local Advisory Committee 2020). There are no regulated point sources in Oregon; the Walla Walla River mainstem, the North and South Forks and Mill Creek have TMDL's set for high water temperatures caused by non-point source heat from human-caused increases in solar radiation (Oregon Department of Environmental Quality 2005). TMDLs for temperature were set based on life stage temperature requirements for salmonids (18 degrees C) and Bull Trout (12 degrees C).

Washington's water quality standards are based upon protection of beneficial uses according to Chapter 173-201A of the Washington Administrative Code (WAC). These uses include:

- **Recreational uses**: Water contact recreation (e.g., wading, swimming, etc.), sport fishing, boating, and aesthetic enjoyment.
- **Aquatic life uses**: Salmonid and other fish migration, rearing, spawning, and harvesting. Salmonid species in the Walla Walla Basin include: Spring Chinook salmon (*Oncorhynchus tshawytscha*), Rainbow/Steelhead Trout (*Oncorhynchus mykiss*), Bull Trout (*Salvelinus confluentus*), and Mountain Whitefish (*Prosopium williamsoni*). The lower reaches of the Basin are mainly used by these species for migration and some rearing, while the headwaters provide a majority of the spawning habitat.
- **Water supply uses**: Agriculture extracts water for irrigation and stock watering and the City of Walla Walla uses Mill Creek as a drinking water source.

Figure 1: Priority Areas in WA for Improving or Protecting Water Quality



Walla Walla Subbasin

The Walla Walla River in Washington is impaired for chlorinated pesticides, fecal coliform, temperature, pH, and dissolved oxygen. The only TMDL for the Oregon side of the river is temperature. While sediment is not listed as a TMDL, it is a significant water quality concern throughout the watershed. For the water quality TMDLs in Washington, the state established waste load allocations by water quality parameter for both point (Table 2) and non-point (Table 3) sources (Baldwin, Gray, and Jones 2008).

Table 2. Washington point source wasteload allocation by TMDL parameter and WWTP.

TMDL Critical Period →	January–June	June–October	July–August	May–October
Location	**Chlorinated Pesticides & PCBs**	**Fecal Coliform**	**Temperature**	**pH & Dissolved O_2**
Dayton WWTP*	Did not include in the study	Current permit limits	21.8 °C	• 0.28 lb/day for dissolved inorganic nitrogen (sum of nitrate, nitrite, and ammonia). • 0.2 lb/day for organic nitrogen. • 0.13 lb/day for soluble reactive phosphorus. • 0.09 lb/day for organic phosphorus.
College Place WWTP	• PCBs: 0.011 gm/day • TSS: current permit limits	2005 permit limits	Current permit limits	Remove effluent from receiving waters
Walla Walla WWTP	• PCBs: 0.0062 gm/day • TSS: current permit limits	Current permit limits (does not discharge during this time)	Does not discharge during this time and is in compliance	Does not discharge during this time and is in compliance
Waitsburg WWTP**	Did not include in the study	N/A – discharges to wetland	N/A – discharges to wetland	Requires further investigation to determine if the treatment plant's wetland is a source of nutrients. If so, prevent groundwater continuity between the wetland and the Touchet River.

** Ecology is currently working with Dayton and CTUIR to remove this discharge site.*

*** Waitsburg WWTP currently discharges to a wetland that is hydraulically connected to the Touchet River through hyporheic transport. Ecology's 2010 study (ECY Pub No. 10-03-028) identified low levels of nutrients (ammonia and total phosphorus) transmitted through the hyporheic zone to the Touchet River from the treatment wetlands.*

Table 3. Washington non-point source load allocations by TMDL type for Walla Walla, Touchet, and Mill Creek reaches.

		January – June				June – October	July – August	May – October
		Chlorinated pesticide and PCB				Fecal Coliform	Temperature	pH & Dissolved Oxygen
Location		Total suspended solids (lbs/day)			PCBs (gm/day)	Target reduction (%)	Increase in shade (%)	(mg/L)
		50 mg/L	30 mg/L	15 mg/L				
Walla Walla River	Peppers Bridge (OR state line)	120,000	69,000				System potential mature riparian vegetation (vegetation capable of growing and reproducing on a site given climate, elevation, soil properties, plant biology, and hydrologic processes)	Natural background concentration of dissolved inorganic nitrogen and soluble reactive phosphorous
	Cummins Rd.	450,000	270,000			32		
	Hwy. 125					6		
	Last Chance Rd.					35		
	Detour Rd.					33		
	Touchet-Gardena Rd.					60		
Touchet River	Mouth	120,000	121,500					
	Hart Rd.					86		
	Hwy 125					72		
	Pettyjohn Rd.					46		
	Lamar Rd.					16		
	Cummins Rd.					81		
	Hwy. 12					78		
Mill Creek	Mouth	47,790	28,674		0.023	62		
	Roosevelt					76		
	9th St.					94		

This table does not include all the various tributary load allocations in the Washington portion of the basin.

Lower Mainstem Walla Walla River

Water quality in the Walla Walla subbasin tends to degrade moving downstream from the upper drainage to the lower elevations (Northwest Power and Conservation Council 2004). The lower reaches of the mainstem Walla Walla River are therefore some of the most impaired in the basin. Sedimentation, stream temperature, and low flow quantity have been identified as the primary water quality factors limiting steelhead production in the Lower Walla Walla River (Northwest Power and Conservation Council 2004; National Marine Fisheries Service 2009; Snake River Salmon Recovery Board 2011; Tetra Tech 2014). The lower reaches of the mainstem Walla Walla River are listed as impaired for temperature, pesticides, pH, bacteria, and dissolved oxygen (Washington State Department of Ecology 2014). According to the Lower Walla Walla Geomorphic Assessment, portions of the Lower Walla Walla have an approved TMDL in place that is actively being implemented for each of these water quality parameters (Tetra Tech 2014). One point source of pollution, the College Place WWTP, discharges into the Lower Walla Walla River. Wasteload allocations for the plant are described in Table 2 above.

Little Walla Walla River

There are no TMDLs specific to the Little Walla Walla River. Importantly, this makes the Little Walla Walla (LWW) the only reach in the basin to not be impaired for stream temperature. In fact, the LWW and Spring Branches System (LWW/SBS) has the potential to provide cool water to mitigate high temperatures while bolstering flows (Wolcott 2010). Spring emergence, groundwater baseflow input, and hyporheic interaction within the LWW/SBS system enables and augments water temperature moderation. For example, in 2002 temperatures in E. Little Walla Walla reached only 70 degrees F; temperatures on the mainstem Walla Walla at Mojonnier Rd (less than 1 mile downstream) exceeded 75 degrees F (Mendel 2003). As such, actions to improve water quality in the Little Walla Walla River primarily focus on planting trees and shrubs to provide shade for maintaining cooler water temperatures. Other actions include continuation of a Pesticide Stewardship Program and implementation of BMPs and integrated pest management practices to reduce the possibility of pesticides getting into the streams (Wolcott 2010).

Upper Walla Walla River Mainstem

As mentioned previously, water quality in the higher elevation reaches of the basin tends to be of higher quality than at lower elevations. As such, the only TMDL in the upper portion of the mainstem Walla Walla is for stream temperature during the summer season. Oregon's water quality standards for temperature are biological targets. Biologically based temperature thresholds in the Walla Walla subbasin include:

- **Salmon and trout rearing and migration** criterion (18°C), applicable at all times when not superseded by cooler criteria.
- **Core cold water habitat** criterion (16°C), applicable year-round in waters draining the mainstem in Oregon, except where cooler criteria apply.
- **Salmon and steelhead spawning** criterion (13°C), applicable above the state border to upstream part of the City of Milton-Freewater from January 1 through June 15.
- **Bull trout spawning and juvenile rearing** criterion (12°C), applicable above the state border during times of spawning and rearing.

Oregon's approach to meeting temperature TMDLs uses three surrogate measures in place of a single load allocation:

- **Site-specific effective shade** (Walla Walla River, South Fork Walla Walla River, and Skiphorton Creek only).
- **Effective shade curves**
- **Channel width, stream type, and width/depth ratios** (Walla Walla River, South Fork Walla Walla River, and Skiphorton Creek only).

Headwaters Including North and South Forks

Like the Upper WW, the headwaters (both North and South Forks) are also only impaired for temperature during the summer season. The biologically-based temperature thresholds and approaches defined in the Upper WW mainstem section also apply to the North and South Forks.

Mill Creek Subbasin

Mill Creek's water quality conditions range from near pristine at its headwater to highly degraded below the US Army Corps of Engineers (USACE) Bennington and Division Works Dams, through the City of Walla Walla, and to the mouth. The degraded water quality largely results from and is exacerbated by agricultural runoff, point source pollution, water withdrawals, and highly modified channels and riparian areas due to urban development (City of Walla Walla, Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and Washington State Department of Fish and Wildlife (WDF&W) 2018). Point source pollution comes from the City of Walla Walla's WWTP, which discharges into Mill Creek.

Portions of Mill Creek are listed on Washington State's Water Quality Assessment and 303(d) list of impaired water bodies for the following pollutants: ammonia-nitrogen (ammonia-n), chlorine, dissolved oxygen, pH, fecal coliform, and temperature. The portions of Mill Creek located within the state of Oregon, which are higher in the subbasin, are only impaired for stream temperature (City of Walla Walla, Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and Washington State Department of Fish and Wildlife (WDF&W) 2018). Specific waste load allocations for Mill Creek point and non-point source pollutants are listed above in Table 2 and Table 3.

Touchet River Subbasin

Like the Washington portion of the mainstem Walla Walla, the Touchet River is impaired for chlorinated pesticides, fecal coliform, temperature, pH, and dissolved oxygen. Target reduction percentages for fecal coliform are generally higher than those in the mainstem Walla Walla, suggesting higher levels of impairment. In addition, there are two point sources of pollution into the Touchet River, the Dayton and Waitsburg WWTPs (their waste load allocations are summarized in Table 2 above). As noted previously, the Dayton WWTP is currently unable to achieve the water quality targets with its existing technology and needs an upgrade. The Dayton WWTP upgrade was highlighted by the Strategic Plan as one of the Tier 1 priority strategies (Strategy 1.18), which is described in more detail in the next section. The Waitsburg WWTP discharges treated effluent to an unlined infiltration wetland considered in hydraulic continuity with the Touchet River. Based on this knowledge, studies were conducted to confirm whether or not the facility delivers an excess nutrient load to the river via subsurface transport and discharge of groundwater. These studies observed elevated concentrations of dissolved nitrogen and phosphorus in upwelling groundwater downgradient of the infiltration wetland, which could contribute additional nutrient loading into the Touchet River (Washington State Department of Ecology 2010).

In 2019, the Washington State Department of Agriculture (WDSA) conducted a surface water monitoring program to study the water quality inputs into the Touchet River from agricultural practices. WDSA staff selected the Touchet River to represent typical dryland agricultural practices in Eastern Washington. Pesticide concentrations in the Touchet River were sampled at a site located near the bottom of the watershed, just upstream of the confluence with the Walla Walla River (on the upstream side of the bridge crossing at Cummins Road near Touchet). The results from the monitoring program found 107 detections in six different use categories, including 19 types of herbicides, 3 insecticides, 4 fungicides, 5 degradates, 1 antimicrobial, and 1 insect repellent (Sandison 2021). Pesticides detected at the sampling site originated from application on agricultural lands higher in the watershed and were transported into the Touchet River due to surface runoff caused by irrigation practices or precipitation events.

Detailed Description of Strategies

Tier 1 strategies for Water Quality identified in the Strategic Plan focus on addressing point source pollution from the Dayton Wastewater Treatment Plant (Strategy 1.18 - Dayton WWTP), non-point source pollution from stormwater runoff in urban areas (Strategy 1.17) and from non-point source pollution from agricultural practices in rural areas (Strategy 1.22). While there are other important water quality issues in the WW watershed, this memo will focus on these three strategies.

Dayton WWTP

The point source in the basin identified as a Tier 1 priority strategy is the City of Dayton's Wastewater Treatment Plant. The plant collects the City's municipal wastewater and treats it before discharging it into the Touchet River at Rivermile 52.1. The warm, dry-weather months of May through October are the critical period for the Touchet River, which is impaired for temperature, pH, fecal coliform bacteria, and dissolved oxygen (Table 1). During these critical low flow periods, the City's effluent discharge to the Touchet River is not meeting water quality standards. The wasteload allocations for the Dayton Wastewater Treatment Plant are so restrictive that they cannot be met with currently available technology; the plant will therefore need to avoid any wastewater discharge into the river from May through October. The City's wastewater discharge permit also has a compliance schedule that requires the city to remove discharge from the river during those months.

In early 2023 the City of Dayton was focused on purchasing a 65 acre property for an upgraded wastewater treatment facility. The city has since signed purchase and sale agreement and is beginning geotechnical work and other due diligence efforts on the site. Funding for the land purchase will be provided by Department of Ecology through a low-interest loan. Monitoring wells are being installed at locations approved by Department of Ecology, and monthly sampling will begin immediately after installation for 37 parameters. In addition to providing data on the quality of the groundwater at the site, monitoring will establish direction of flow and any potential hydraulic connectivity to the Touchet River. Geotechnical borings, infiltration testing, topographic surveying and additional site explorations are expected to take place in August 2023 after the existing crop has been harvested. The city initiated consultation with the Washington State Department of Archaeology and Historical Preservation and received a determination of "no effects", so additional cultural resources work will not be needed at this time.

Design of the improvements will begin in 2024, with construction of the preferred alternative expected in 2025. Design and construction of needed improvements will allow the City to construct a facility that will protect surface and groundwater and critical fisheries.

Lead Entities and Roles

The City of Dayton is the lead for this project. Project partners include; Ecology, CTUIR, Washington Water Trust, Department of Commerce, and Anderson Perry, consulting engineers.

Urban Stormwater Runoff

The WW Strategic Plan identifies stormwater runoff from urban areas as a Tier 1 priority strategy for addressing non-point source pollution into surface waters in the Basin. Pollutants carried by stormwater runoff as well as changes in the patterns of runoff from lands following development, affect the quality and habitat function of the Basin's waters (Washington State Department of Ecology 2004). To address pollutant loading from non-point sources in Washington, general NPDES permits, referred to as Phase II Municipal Stormwater Permits are applied at the city or county level. In February 2007, the Department of Ecology issued a Phase II Permit to Walla Walla County, as well as to the cities of Walla Walla and College Place. The Phase II Permit is broken down into six components, and the implementation and enforcement of the six components is accomplished through the Walla Walla County Stormwater Management Program (SWMP). The six components are:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment
- Municipal Operations and Maintenance

In addition to these six minimum components, the Phase II Permit also requires the following:

- Compliance with Total Maximum Daily Load (TMDL) Requirements
- Monitoring and Assessment
- Reporting and Record Keeping.

Federal regulations specify minimum measures required for municipal stormwater programs for compliance with Phase II rules. The Department of Ecology's Stormwater Management Manual for Eastern Washington (Washington State Department of Ecology 2004) provides technical guidance for projects to comply with municipal stormwater requirements. The method by which the Manual mitigates the adverse impacts of development and redevelopment is through the application of Best Management Practices (BMPs).

Excess stormwater runoff volumes are generally managed by flow control BMPs, which seek to control the volume, flow rate, frequency, and duration of stormwater runoff by use of infiltration, evaporation, or detention (Washington State Department of Ecology 2004).

Strategy 1.17 of the Strategic Plan focuses specifically on increasing infiltration to reduce stormwater discharges into surface waters. On-site infiltration is the preferred means of disposing of stormwater runoff where feasible, generally in areas with relatively permeable soils where high ground water is not an issue. An infiltration facility is typically an open basin (pond), trench, or buried perforated pipe used for distributing the stormwater runoff into the underlying soil. One of the benefits of an infiltration facility is that it can be constructed in new development or retrofitted in redevelopment of land-limited areas, including residential lots, commercial areas, parking lots, and open space areas. Companion practices, such as street sweeping, catch basin inserts, low-impact development (LID), and similar BMPs can provide additional benefit, and reduce the cleaning and maintenance needs for the infiltration facility. With the lower amounts of runoff in the arid and semiarid climate of eastern Washington, especially during the summer months when there is little rainfall, infiltration may be feasible in many areas across the region. The Stormwater Management Manual describes criteria for site suitability, design, construction, and maintenance of each type of infiltration facility (Washington State Department of Ecology 2004; Oregon Department of Environmental Quality 2005).

Urban stormwater runoff in Oregon is minimal. Cities in the Oregon portion of the basin are smaller than those in Washington and the TMDL for temperature in Oregon does not specifically address urban stormwater. For the largest urban area in Oregon, Milton-Freewater, the Oregon TMDL does identify the flood control levee project and the lack of riparian vegetation therein as a factor that influences WW mainstem stream temperatures (Oregon Department of Environmental Quality 2005).

Lead Entities and Roles
Cities: Walla Walla, Milton-Freewater, College Place, Dayton and Waitsburg. Walla Walla County, Walla Walla Basin Watershed Council

Agricultural Runoff

The final Tier 1 strategy focuses on implementing BMPs to reduce the amount of pollution entering waters from agricultural runoff. In Oregon, the Department of Agriculture (ODA) is the agency responsible for regulating agricultural activities that affect water quality. In 2020, ODA developed the Walla Walla Agricultural Water Quality Management Area Plan (Area Plan) to identify strategies for reducing pollution from agricultural and rural lands consistent with goals for nonpoint source pollution reduction established in the Walla Walla Basin TMDL. Under the Area Plan, agricultural landowners or operators are responsible for implementing regulatory and voluntary measures that prevent and control the sources of water pollution associated with agricultural activities. This includes measures for upland runoff and soil erosion, irrigation activities and return flows, and livestock enterprises (Oregon Department of Agriculture and Walla Walla Local Advisory Committee 2020). The Area Plan also lists various agricultural BMPs, including those for conservation tillage and soil erosion reduction, which are the focus of Strategy 1.22. BMPs listed include cover crops, contour farming, crop rotations, early/double seeding in critical areas, vegetative buffer strips, filter strips/field borders, prescribed burning, weed control, grazing management plans, range plantings, livestock distribution, road design and maintenance, and others. While implementation of the measures outlined in the Area Plan is only required for landowners or operators on the Oregon side of the basin, the BMPs it describes are applicable to agricultural lands Basin-wide.

In Washington, the Department of Ecology developed a Water Quality Implementation Plan for the Walla Walla watershed as part of its TMDL for PCBs, chlorinated pesticides, fecal coliform, temperature, pH, and dissolved oxygen (Baldwin, Gray, and Jones 2008). For the Implementation Plan, the Walla Walla Watershed Planning Unit's Water Quality Subcommittee identified priority reaches for water quality restoration and protection (Figure 1 above). The Subcommittee also identified and recommended several agricultural BMPs that residents can use to improve water quality. These BMPs focus on a variety of actions meant to reduce water quality impacts from livestock, roads, dryland agriculture, irrigated agriculture, septic systems, yard maintenance, and more. The specific BMPs listed are similar to those identified in Oregon Department of Agriculture's Area Plan (Baldwin, Gray, and Jones 2008). Ecology works with landowners, agricultural interest groups, and partner agencies to develop and implement BMPs in priority areas to reduce the impact of agricultural runoff on surface and groundwater quality.

Lead Entities and Roles
WWCCD, WWBWC, Oregon Department of Agriculture, Umatilla Soil and Water Conservation District, USDA Farm Service Agency and Natural Resources Conservation Service, WSDA, Counties,

Possible Barriers to Implementation

This section briefly highlights potential complications that may be barriers to successfully implementing the strategies discussed above. Because the potential barriers for each of the strategies addressed in this memo are unique, barriers for each strategy are discussed separately below.

Dayton WWTP

The primary barrier to implementing technological upgrades of Dayton's WWTP is the expense. (Any additional detail from the City of Dayton about other barriers?)

Urban Stormwater Runoff

BMPs for increasing infiltration to help manage urban stormwater runoff are implemented on a mix of public and private land. Many actions can be taken on city, county and state rights of way, for example construction of bio-swales and other features that store and infiltrate water; the same set of actions can also be taken on private land and can involve retrofitting already-developed sites and integrating new requirements into county and city development codes. Projects undertaken by public jurisdictions will face competition for scarce funding.

Retrofitting existing development is likely the most expensive way to address urban stormwater runoff and incentivizing these types of projects on private land will likely require cost-sharing or otherwise supporting private owners to undertake projects.

Integrating designs for stormwater infiltration into new development can be done through changes to land use and other permit processes if the changes fit within existing state law and regulation. While BMPs for stormwater management may increase development costs in some cases, this may not be the case for all developments. (Add additional detail and input from Work Group members on potential barrier to implementation of urban stormwater management).

Agricultural Runoff

The biggest challenge to wide adoption of BMP's to reduce polluted runoff from agricultural fields is incentivizing voluntary participation of private landowners. Part of this problem is having sufficient funding and technical support available to support landowners. The NRCS has had a reduction in staff with an increase in both number of contracts and number of acres, resulting in a reduction in technical assistance and more focus on contract management. (Add additional detail and input on potential barrier to implementation of from Work Group members).

Relationship to Other Strategies and Discussion of Contribution to Desired Future Conditions (DFCs)

Relationship to Other Strategies

Table 4: Specific Strategy Contributions to DFCs

Desired Future Condition	Connection with Strategies 1.17, 1.18 and 1.22
Floodplains, Critical Species, Habitat, & Water Quality	
Achieve healthy, natural floodplain function	Increasing infiltration of urban stormwater runoff and reducing agricultural runoff will support a more natural sediment transport regime.
Increase access to quality habitat	
Increase riparian cover	
Increase river channel complexity and naturalize channelized streams	
Restore a natural sediment transport regime	
Meet TMDL targets	
Increase critical fish species populations and abundance levels necessary to meet delisting criteria, support sustainable natural production, and provide a fishery for Tribes and the public	All the strategies discussed here are directly tied to meeting TMDL targets in the WW watershed
Water Supply, Streamflows, & Groundwater	
Stabilize aquifer levels to support water resources and water for people and farms	Increasing stormwater infiltration in urban areas will increase groundwater levels in localized areas.
Enhance instream flows to meet instream flow targets for critical species	
Increased natural infiltration, acreage, and duration of inundation	
Land Use & Flood Control	
Reduce flood risk for people and cities	Increasing stormwater infiltration in urban areas can help mitigate flood risks
Create climate resilience for basin water resources	Supporting water quality through the strategies discussed here is critical to overall basin climate resilience
Quality of Life	

Desired Future Condition	Connection with Strategies 1.17, 1.18 and 1.22
Sustain and improve quality of life in the Walla Walla Valley by supporting community health with clean and reliable domestic water supply as well as opportunities for outdoor recreation and sustainable tourism	Supporting water quality through the strategies discussed here is critical to overall basin quality of life

Future Work and Funding Needs

Future Implementation and Budget Needs

Table 5 is a list of funding needs for water quality project actions developed by the WWW2050 Implementation Work Group.

Table 5: Priority Projects and Funding Needs Identified in Strategic Planning Process

Strategy	Water Quality Action	Sponsor	Funding Needed ($)
1.17 (stormwater infiltration)	Converting/retrofitting existing stormwater facilities in the City of Milton-Freewater	City of Milton-Freewater, WWBWC	$50,000
1.18 (Dayton WWTP)	Dayton Wastewater Treatment Plant Upgrade	City of Dayton, CTUIR, WWT, Ecology	$2,000,000
1.18 (Dayton WWTP)	Dayton Wastewater Treatment Plant Upgrade – additional construction funds will be needed in future	City of Dayton, CTUIR, WWT, Ecology	TBD
1.22 (nonpoint source BMPs)	Soil Testing for Nutrient Management	WWCCD, CCD, USWCD, USDA NRCS	$75,000
		Total:	**$2,125,000**

Future Considerations and Potential Next Steps

To be drafted once feedback is incorporated from the Implementation Work Group

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