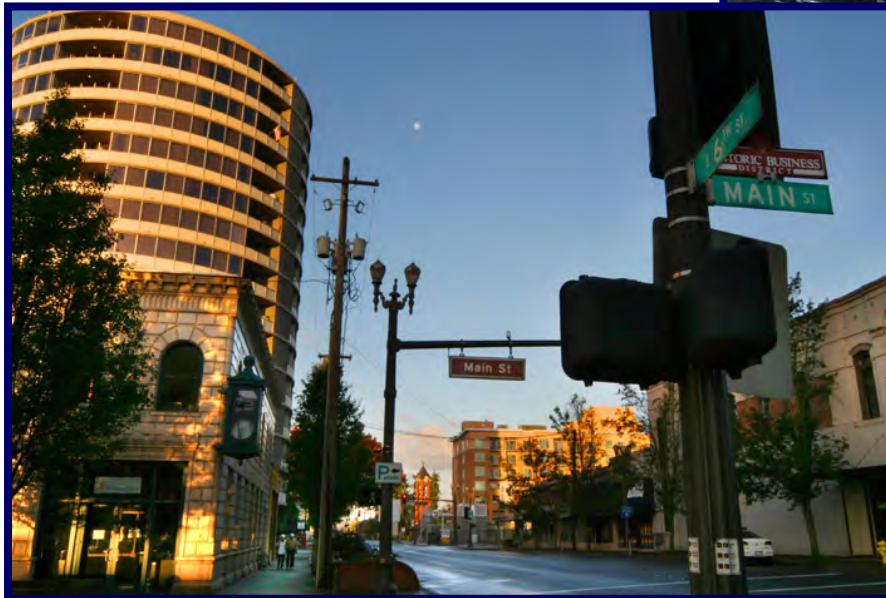
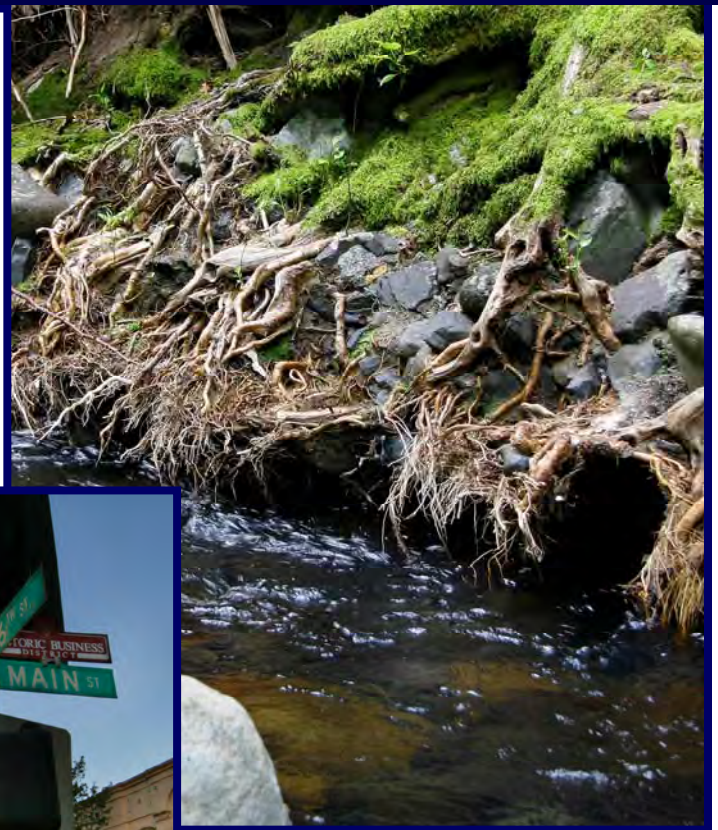




Salmon-Washougal and Lewis Detailed Implementation Plan

*"Our mission is to develop and
implement a watershed
management plan for the
responsible use of water to
balance the needs of people and
natural resources."*



Volume II-Appendices E-H

**Lower Columbia Fish Recovery Board, Lead Agency
Counties of Clark, Cowlitz and Skamania**

June 9, 2008

Salmon-Washougal & Lewis Detailed Implementation Plan

WRIA 27 and 28



**WA Department of Ecology
Grants G0700278, G0700274, G0800067**

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Volume II of III

Approved June 9, 2008



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Lower Columbia Fish Recovery Board**

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Planning Unit

Chinook Tribe
 Citizen-At-Large
 City of Battleground
 City of Camas
 City of Kalama
 City of La Center
 City of North Bonneville
 City of Ridgefield
 City of Vancouver
 City of Washougal
 City of Woodland
 Clark Conservation District
 Clark County
 Clark Public Utilities

Cowlitz County
 Cowlitz Indian Tribe
 Cowlitz Public Utility District
 Friends of the East Fork
 Lower Columbia Fish Enhancement Group
 PacifiCorp
 Skamania County
 Town of Yacolt
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 WA Department of Agriculture
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- G. Surface Water Quality Action Schedules
- H. Ground Water Quality Action Schedules
- I. Summary of Habitat Implementation Actions
- J. Outline/Framework of Interlocal Agreements
- K. LCFRB's RM&E Program Description
- L. Technical Memorandum No. 13 (Task 4): WQAP, Barber 2004

Acronyms

ACWSP	Abbreviated Coordinated Water System Plan
ADD	Average Day Demand
AFY	Acre Feet Per Year
APA	Aquifer Protection Area
ASR	Aquifer Storage and Recovery
BMP	Best Management Practice
CARA	Critical Aquifer Recharge Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFS	Cubic Feet Per Second
CIR	Crop Irrigation Demand
CMS	Comprehensive Monitoring Strategy
COA	Coordination and Oversight Agency
CPU	Clark Public Utilities
CWA	Clean Water Act
DIP	Detailed Implementation Plan
DO	Dissolved Oxygen
DOH	Washington State Department of Health
EAP	Environmental Assessment Program
Ecology	Washington State Department of Ecology
EES	Economic and Engineering Services
EIS	Environmental Impact Statement
ENSO	El Nino/Southern Oscillation
EQIP	Environmental Quality Incentives Program
ESA	Endangered Species Act
ESHB	Engrossed Substitute House Bill
FC	Fecal Coliform
FERC	Federal Energy Regulatory Commission
FFA	Washington Farm Forest Association
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FTE	full time equivalent
GMA	Growth Management Act
GPM	Gallons Per Minute
GPS	Global Positioning System
GWAC	Ground Water Advisory Committee
GWMA	Ground Water Management Area
GWMP	Ground Water Management Plan
HWS	Habitat Work Schedule
IFIM	Instream Flow Incremental Methodology
IOCs	Inorganic Compounds
IWS	Implementation Work Schedule
LCFRB	Lower Columbia Fish Recovery Board
LFA	Limiting Factors Analysis
LWD	large woody debris
MCLs	Maximum Contaminant Levels

Acronyms - Continued

MDD	maximum day demand
MGD	Million Gallons Per Day
MOU	Memorandum of Understanding
MTBE	methyl tertiary-butyl ether
NA	Not Applicable
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWPPC	Northwest Power Planning Council
PDO	Pacific Decadal Oscillation
PGG	Pacific Groundwater Group
PUD	Public Utility District
PWR	Pacific Water Resources, Inc.
PWS	Public Water System
Qa	authorized annual withdrawal/diversion
Qi	authorized instantaneous withdrawal/diversion
Ranney Well	A shallow perforated pipe used to extract shallow ground water beneath a river bed
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RFP	Request for Proposals
RM	River Mile
SDWA	Safe Drinking Water Act
SEPA	State Environmental Policy Act
SIS	Summary Implementation Strategy
SOCs	Synthetic Organic Chemicals
SSA	Sole Source Aquifer
SWSL	Surface Water Source Limitation
SWSMP	Small Water System Management Program
SWTR	Surface Water Treatment Rule
TAG	Technical Advisory Group
TBD	To Be Determined
TSCA	Toxic Substances Control Act
TMDL	Total Maximum Daily Load
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Service
VOCs	Volatile Organic Chemicals
WMA	Watershed Management Act
WRATS	Water Rights Application Tracking System
WSDA	Washington State Department of Agriculture
WSU	Washington State University
WRIA	Water Resource Inventory Area
WSDA	Washington State Department of Agriculture
WSP	Water Supply Policy

Appendix E
Salmon-Washougal and Lewis Watersheds
Water Supply Action Schedules

WRIA 27/28 DETAILED IMPLEMENTATION PLAN

ACTION SCHEDULE: #944

SEE #946 D

ACTION SCHEDULE: #944 C

SEE #954 A and B

ACTION SCHEDULE: #944 D

SEE #946 B

ACTION SCHEDULE: #944 E

SEE #946 C

ACTION SCHEDULE: #944 F

SEE #946 A

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #944 AND SUBACTION #944A
PUBLIC WATER SYSTEMS – NEW OR EXPANDED SUPPLIES
REVISE & UPDATE WATER SYSTEM PLANS**

Action Summary¹	
Lead Partner(s)	Cities, Water Purveying Counties and other Public Water Systems, Department of Health (DOH) (See Table 3-1 in WRIA 27/28 Plan for list of major purveyors)
Oversight Responsibilities	Department of Health, Department of Ecology
Coordinating Partner(s)	Various
Action Type	Requirement ☒ Recommendation ~
Is this a New, Existing or Revised Activity?	~ New ~ Existing/Ongoing ☒ Revised
Table Description	<u>Action #944:</u> Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	<u>Subaction #944A:</u> Revise and update water system plans consistent with the adopted WRIA 27/28 Plan (See Section 3.3.1).
Plan Background & Context	Implementation of plan elements through the procedure outlined in Section 3.3.1 may require updating or revisions to existing Water System Plans, if the elements are not already identified in the Water System Plans. Public water system plans are required to show consistency with adopted Watershed Plans during the established 6-year update. Small Water System Management Programs (SWSMP) are not required to be updated once initial DOH approval is granted. These plans are governed by a variety of statutes, including but not limited to the following: Efficiency Requirements Act Chapter 5, Laws of 2003; State Board of Health Code RCW 43.20; RCW 70.119; WAC 246-290 and 246-293; and RCW 90.03. The Water Supply Plans of each purveyor are subject to compliance with urban growth planning policies at county and municipal levels. Pg 3-17

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	Individual purveyors are responsible for development of Water System Plans and SWSMPs, and completion of Watershed Plan actions may warrant modifications to these plans. Development of Water System Plans and SWSMPs require coordination between purveyors, the Department of Ecology and the Department of Health. Roles and responsibilities are outlined in a document entitled "Municipal Water Law: Interim Planning Guidance for Waters System Plan Small Water System Management Program Approvals" (DOH, March 2004)
Expected Outcomes	Modification of Water System Plan's and SWSMP's as necessary or required to address incorporation and implementation of applicable Watershed Plan actions.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-14)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	Task 1

Supporting Tasks	
Task 1	Water System Plan Update
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	Development or modification of a WSP or SWSMP requires the following general tasks: • Contract for plan development (if needed) • Develop or modify plan elements to address the following: - o Description of water system - o Basic Planning Data - o System Analysis - o Conservation Program - o Source water protections - o Operation and Maintenance program - o Distribution facilities design and construction standards

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

	(Water System Plans) - o Capital improvement program - o Financial program • Completion of consistency determination • Compliance with SEPA (Water System Plan systems serving over 1000 connections) • Approval by lead authority • Department of Ecology review and comment on water right information • Approval from Department of Health

Resource Needs

Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential funding sources include water rate and hookup charges in affected service areas, grants or low-interest loans from existing state & federal programs	
Logistical Needs	Meeting rooms; communications; travel; computers, printers; meeting locations and scheduling; coordination with permitting entities, and purveyors; etc.	
Agreements, Ordinances, Permits & Approvals	Approval of the Department of Health is required. Compliance with the following statutes may also be required, as applicable: Efficiency Requirements Act Chapter 5, Laws of 2003 (municipal systems); State Board of Health Code RCW 43.20; RCW 70.119; WAC 246-290 and 246-293 (systems planning under the Public Water System Coordination Act); and RCW 90.03. Compliance with WAC 197-11 and RCW 43.21 may also be required. If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	

Constraints and Uncertainties

Availability of funding may limit ability to conduct analyses and assessments; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.

Operation and Maintenance

Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

General Comments

This action outlines the general steps that will need to be taken to develop or modify a Water System Plan or SWSMP as necessary to address implementation of plan actions.

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #944 AND SUBACTION #944B
PUBLIC WATER SYSTEMS – DEVELOP NEW OR EXPANDED SUPPLIES
IMPLEMENTATION SECTION 3.3.1

Action Summary¹	
Lead Partner(s)	Municipalities, cities, water purveying counties, purveyors, Department of Ecology, Department of Health
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Municipalities, Cities, Counties, Purveyors, Planning Unit
Action Type	Requirement ☒ Recommendation ~
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944B: Implement Section 3.3.1 when identifying new or expanded water supplies.
Plan Background & Context	The water supply policy was developed primarily with municipal water purveyors in mind, as they will provide water to the majority of the population growth and economic development anticipated to occur throughout the basin. Pg 3-10 A strategy has been developed to guide the implementation of the water supply policy. As outlined below, the strategy addresses three issues: new or expanded municipal supplies (requiring new water rights); existing municipal supplies (not requiring new water rights); and regional water supply options. Pg 3-10 Inherent in this strategy is the concept that ground water is preferred over surface water as a source of new water supplies. The Planning Unit recommends new or expanded surface water diversions be discouraged, except in limited cases where there is no feasible or cost-effective alternative. In those cases where additional water supplies are needed, ground water development is recommended. However, as discussed in Section 3.1.2, ground water has been shown to be in communication with surface water in some parts of the basin. This is especially true for withdrawals from shallow wells

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	in proximity to tributary streams. Therefore, priority should be given to ground water supply alternatives for which surface water impacts are avoided. Pg 3-10
Relationship to Other Actions and Coordination Needs	As noted above, the strategy outlined in Section 3.3.1 will be applied to requests for new or expanded water supplies. This Subaction therefore relates directly to source substitution actions #944, #945, #946, #949 and related Subactions. Action #947 (aquifer mapping) and related subactions will provide information to help identify regional water sources. Actions relating to enhanced conservation (#948 and Subactions) are addressed in Step #1 of Section 3.3.1. This Subaction also includes implementation of mitigation measures (#969) associated with use of water reservations. Given the comprehensive nature of Section 3.3.1, close coordination between the purveyor, Department of Ecology, Department of Fish and Wildlife, other affected jurisdictions and the Planning Unit may be needed. Pgs 3-10 through 3-13.
Expected Outcomes	Development of water supplies that: • Meet new or expanded needs for water supply consistent with adopted land use plans (see WSP-1); and • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages.
Is the Action Fully Addressed by the Tasks Below?	~Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (and all related recommendations) (Pgs 3-10 through 3-31) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Water Supply – City of Vancouver (Pg 3-18) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-1: Vancouver Lake Wellfield – Relation to Remediation Activities at Port of Vancouver (Pg 3-14) Policy WSP-1: Water Supply – City of Washougal (Pg 3-22) Policy WSP-1: Waters Supply – City of Woodland (Pg 3-23) Policy WSP-1: Water Supply – City of Kalama (Pg 3-23) Policy WSP-1: Water Supply – Large Industrial Plants (Pg 3-31) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pgs 3-10 through 3-33) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-14 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-14) Policy WSP-2: New Developments and Industrial Suppliers (Pg 3-16) Policy WSP-2: Surface Water Sources – Camas (Pg 3-20) Policy WSP-2: Regional Supply Options – Camas (Pg 3-20) Policy WSP-2: Alternative Sources – Battle Ground (Pg 3-21) Policy WSP-2: Regional Supply Options – Washougal (Pg 3-22) Policy WSP-2: Water Supply – Small Group A Systems (Pg 3-27)

	Policy WSP-2: Agricultural – New Ground Water Supplies (Pg 3-33) Policy WSP-2: Gee Creek Restoration – Ridgefield (Pg 3-24) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-1 and 2: Mitigation Guidelines (Pg 4-62) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-26) Policy SFP-5: Battle Ground and Ridgefield – Source Substitution (Pg 4-41) Policy SFP-5: Camas – Source Substitution (Pg 4-55)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	Tasks 1-7

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) • Coordinate with existing service providers and affected jurisdictions • Possible MOU/MOA between jurisdictions • Conduct water demand projections and analysis - o Coordinate with existing service providers - o Quantify land use in proposed service area - o Project build out density in the service area - o Project water demand for planning horizon • Determine proposed water amount needed to meet long-term growth needs	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county development fees; large water users and hydropower facilities; agricultural producers; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Other		

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 2	Evaluate Relationship of Existing Supply Source to Stream Flows (If expansion of existing source is proposed)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Collect available information on potential interaction between existing water supply sources and critical stream reaches - WRIA 27/28 Plan - WRIA 27/28 Technical Memoranda - Studies and assessments - Hydrological/geological reports - Other pertinent information - Conduct additional modeling and assessment as necessary to document potential stream flow impacts (location, timing, quantity, fish and aquatic resource impacts, etc.) - Publish report documenting findings - Options - - If impacts identified, proceed to Task 3 - If no impacts identified: - Apply to Ecology for water right - Implement source replacement or development actions (SEE ACTION #946) - Implement any required optimization and conservation actions
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.
Funding Source(s)	Same as Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology would be needed for temporary withdrawals associated with testing.
Other	

Constraints and Uncertainties	
If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 3	Conduct Alternative Supply Analysis (If Task 1 identifies flow regime impacts)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Identify potential supply source alternatives, including but not limited to: - Different (most likely deeper) aquifer - Purchase of water neighboring community - Development of tidally-influenced source - Purchase from regional water system - Coordinate with adjacent or existing service providers as needed - Conduct feasibility analysis of alternatives (impacts, costs, logistics, etc.) - Publish alternatives analysis report - Options - - If preferred and practicable alternative is available: - Apply to Ecology for water right - Implement source replacement or development actions (SEE ACTION #946) - Implement any required optimization and conservation actions - If no preferred and practicable alternative is available, proceed to Task 4
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.
Funding Source(s)	Same as Task 1

Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.
Other	
Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 4	Petition Ecology to Utilize Reservation (If no practicable alternative is identified under Task 2)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions, and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses mitigation requirements outlined in the plan and requirements of RCW 90.03.290; reserve amount will affect quantity of water available for supply needs; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc..	
Response	Develop a sound application proposal consistent with the mitigation guidelines and reserve strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Design and Engineering (If water right permit granted)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Contract for design and engineering services (or use existing staff) - Develop preliminary design and engineering plans for approval - Prepare final design and engineering plans for approval - Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	Revisions to Water Supply Plan (WSP) and/or Small Water System Management Programs (SWSMP) may be required, which may also necessitate compliance with SEPA Approval of final design and engineering by the project proponent, Department of Health and Department of Ecology; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 6	Project Permitting and Approvals
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); - Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology;

	• Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.
Funding Source(s)	See Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.
Constraints and Uncertainties	
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD
Task 7	Project Construction
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other		
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #944 AND SUBACTION #944G
CITY OF WOODLAND RANNEY WELL EXPANSION

Action Summary ¹	
Lead Partner(s)	City of Woodland
Oversight Responsibilities	Department of Health Department of Ecology
Coordinating Partner(s)	Department of Health Department of Ecology
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944G: As needed based upon increased demand, expand the City of Woodland's Ranney well system. (Tasks would include water rights processing, engineering studies, SEPA, construction and maintenance, etc) Pg 3-23
Plan Background & Context	The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region. Pg 3-15 The City's single source of supply is a Ranney Well collector that withdraws water adjacent to the Lewis River. Similar to the City of Kalama, the Ranney Well collector is shallow and considered to be in direct connection to surface water. However, the Ranney Well is at a low point in the Lewis River watershed and is directly under the influence of tidewater. Therefore, the impacts upon stream flow by City diversions are overshadowed by the larger effects of tidal influence. Pg 3-22 Increase Ranney Well withdrawals. The City of Woodland's Ranney Well is located within the tidal influence of the North Fork Lewis. The Planning Unit is not recommending protective measures in this reach. The Planning Unit supports expansion of the Ranney Well water supply. Pg. 3-23

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Subaction will provide the City of Woodland with access to water to meet long-term growth needs, consistent with WSP-1. Given the tidal designation of the stream reach in question, this action would also provide for a long-term water supply that avoids and minimizes effects on stream flows or aquatic life per WSP-2. This Subaction is consistent with the review process outlined in Section 3.3.1, and addressed in Action #944. Pg 3-10
Expected Outcomes	Provide for expansion of an existing water source to meet the City of Woodland's long-term growth needs. Protect aquatic habitat and instream flows in a manner consistent with WSP-2.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Waters Supply – City of Woodland (Pg 3-23) Policy WSP-2: Streamflow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Conduct water demand projections and analysis - o Coordinate with existing service providers - o Quantify land use in proposed service area - o Project build out density in the service area - o Project water demand for planning horizon • Determine proposed water amount needed to meet long-term growth needs	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; assessments on affected properties (local improvement districts); grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for plan development (if needed) • Develop preliminary design and engineering plans for the preferred alternative • Prepare final design and engineering plans for approval • Approval of preferred alternative by lead authority/ authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3		Water Right Permitting	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Planned Completion	• Develop application package for proposed water right • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.		
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria and plan guidance.		
Other			
Constraints and Uncertainties			
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 4	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications. Permits will vary depending on project type and jurisdiction • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology • Prepare and submit biological assessment for ESA consultation (if needed) • Complete SEPA and/or NEPA (if EIS needed, more refined benchmarks and milestones will be needed) • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	

Constraints and Uncertainties	
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments	

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #944 AND SUBACTION #944H
CITY OF WASHOUGAL WELL SYSTEM EXPANSION**

Action Summary¹	
Lead Partner(s)	City of Washougal
Oversight Responsibilities	Department of Health Department of Ecology
Coordinating Partner(s)	Department of Health Department of Ecology
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	~ New ☒ Existing/Ongoing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944H: As needed based upon increased demand, expand the City of Washougal's well system. (Tasks would include compliance with Section 3.3.1, water rights processing, engineering studies, SEPA, construction and maintenance, development of necessary mitigation plans, etc) Pg 3-22
Plan Background & Context	A strategy has been developed to guide the implementation of the water supply policy. As outlined below, the strategy addresses three issues: new or expanded municipal supplies (requiring new water rights); existing municipal supplies (not requiring new water rights); and regional water supply options. Pg 3-10 Inherent in this strategy is the concept that ground water is preferred over surface water as a source of new water supplies. The Planning Unit recommends new or expanded surface water diversions be discouraged, except in limited cases where there is no feasible or cost-effective alternative. In those cases where additional water supplies are needed, ground water development is recommended. However, as discussed in Section 3.1.2, ground water has been shown to be in communication with surface water in areas. This is especially true for withdrawals from shallow wells in proximity to tributary streams. Therefore, priority should be given to ground water supply alternatives for which surface water impacts are avoided. Pg 3-10 Development of new well. The City of Washougal should follow procedures outlined in Section 3.3.1 as it relates to the installation of a new well near the center of town. Pg 3-22

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Consider regional supply options with other public water systems. The Planning Unit recommends that the City consider use of regional sources. These include the development of a wellfield supply near the Steigerwald Wildlife Refuge or, if other opportunities prove infeasible, the potential purchase of water from Vancouver. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg. 3-22.
Relationship to Other Actions and Coordination Needs	As noted above, the strategy outlined in Section 3.3.1 will be applied to the City's request for installation of a new well system near the center of town. As a first step, Section 3.3.1 calls for evaluation of the project's impacts to instream sources. If no impacts are anticipated, then the proponent could proceed with filing an application for expansion of the existing source. If impacts are anticipated, then Section 3.3.1 calls for identification of project alternatives. This Subaction therefore relates directly to source substitution actions #944, #945, #946, #949 and associated Subactions. In particular, development of a regional groundwater source near Steigerwald Refuge (Subactions #946A, #945C and #944F) and purchase from City of Vancouver (Pg 3-22) would be considered during the alternatives analysis. If alternative sources are not available, Section 3.3.1 would provide for application to expand existing sources and utilize the established reservation. If the reservation is used, actions relating to enhanced conservation (#948 and Subactions) and mitigation (#969) may also be implemented. Given the comprehensive nature of Section 3.3.1, close coordination between the purveyor, Department of Ecology, Department of Fish and Wildlife, other affected jurisdictions and the Planning Unit may be needed. Pgs 3-10 through 3-13.
Expected Outcomes	Development of water supplies that: • Meet new or expanded needs for water supply consistent with adopted land use plans (see WSP-1); and • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (and all related recommendations) (Pgs 3-10 through 3-31) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Water Supply – City of Washougal (Pg 3-22) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pgs 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-14) Policy WSP-2: Regional Supply Options – Washougal (Pg 3-22) Policy SFP-1 and 2: Mitigation Guidelines (Pg 4-62) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-26)

Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) • Coordinate with existing service providers and affected jurisdictions • Possible MOU/MOA between jurisdictions • Conduct water demand projections and analysis ◦ Coordinate with existing service providers ◦ Quantify land use in proposed service area ◦ Project build out density in the service area ◦ Project water demand for planning horizon • Determine proposed water amount needed to meet long-term growth needs	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; large water users; assessments on affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.
Other	
Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 2	Evaluate Relationship of Existing Supply Source to Stream Flows (If expansion of existing source is proposed)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Collect available information on potential interaction between existing water supply sources and critical stream reaches - o WRIA 27/28 Plan - o WRIA 27/28 Technical Memoranda - o Studies and assessments - o Hydrological/geological reports - o Other pertinent information • Conduct additional modeling and assessment as necessary to document potential stream flow impacts (location, timing, quantity, fish and aquatic resource impacts, etc.) • Publish report documenting findings • Options - - o If impacts identified, proceed to Task 3 - o If no impacts identified: ▪ Apply to Ecology for water right ▪ Implement source replacement or development actions (SEE ACTION #946) ▪ Implement any required optimization and conservation actions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	

Funding Source(s)	Same as Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology would be needed for temporary withdrawals associated with testing.
Other	
Constraints and Uncertainties	
If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 3	Conduct Alternative Supply Analysis (If Task 2 identifies flow regime impacts)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Identify potential supply source alternatives, including but not limited to: - o Different (most likely deeper) aquifer - o Purchase of water neighboring community, including the City of Vancouver (see Pg 3-22) - o Development of tidally-influenced source, including a wellfield supply near the Steigerwald Wildlife Refuge (See Subaction #946A). - o Purchase from regional water system • Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of alternatives (impacts, costs, logistics, etc.) • Publish alternatives analysis report • Options - - o If preferred and practicable alternative is available: ▪ Apply to Ecology for water right ▪ Implement source replacement or development actions (SEE ACTION #946) ▪ Implement any required optimization and conservation actions - o If no preferred and practicable alternative is available, proceed to Task 4

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.	
Funding Source(s)	Same as Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Petition Ecology to Utilize Reservation (If no practicable alternative is identified under Task 2)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions, and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use	

	- o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance, and mitigation requirements.	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses mitigation requirements outlined in the plan and requirements of RCW 90.03.290; reserve amount will affect quantity of water available for supply needs; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc..	
Response	Develop a sound application proposal consistent with the mitigation guidelines and reserve strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Design and Engineering (If water right permit granted)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Contract for design and engineering services (or use existing staff) • Develop preliminary design and engineering plans for approval • Prepare final design and engineering plans for approval • Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	Revisions to Water Supply Plan (WSP) and/or Small Water System Management Programs (SWSMP) may be required, which may also necessitate compliance with SEPA Approval of final design and engineering by the project proponent, Department of Health and Department of Ecology; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 6		Project Permitting and Approvals	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.		
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.		
Other			
Constraints and Uncertainties			
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 7	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other		
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #944 AND SUBACTION #944I
CITY OF KALAMA – RANNEY SYSTEM EXPANSION

Action Summary¹	
Lead Partner(s)	City of Kalama
Oversight Responsibilities	Department of Health Department of Ecology Department of Fish and Wildlife
Coordinating Partner(s)	Department of Health Department of Ecology Department of Fish and Wildlife Planning Unit
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944I: As needed based upon increased demand, expand the City of Kalama's Ranney well system. (Tasks would include compliance with Section 3.3.1, assessment of instream flow impacts, water rights processing, engineering studies, SEPA, construction and maintenance, development of necessary mitigation plans, etc) Pg 3-23
Plan Background & Context	Each of the eight major municipal water providers listed in Table 3-1 will require new or expanded water supplies to meet the growth in demands over the coming 20 years, including the City of Kalama which may require additional supply by 2016. The Planning Unit endorses the City's plans to increase water rights for withdrawal from its Ranney Well of up to an additional 1.92 cfs subject to provisions outlined in Section 3.3.1. The Planning Unit recognizes that the purchase of off-setting water rights is not feasible in the Kalama River, and the 1.92 cfs of additional water rights is not subject to this provision; however, habitat mitigation requirements should be implemented commensurate with flow reduction impacts consistent with Section 3.3.1. Pg 3-23
Relationship to Other Actions and Coordination Needs	This Subaction will provide the City of Kalama with access to water to meet long-term growth needs, consistent with WSP-1. Consistent with WSP-2, the Plan also calls for mitigation commensurate with any flow reduction impacts that may result, and states that the provisions of Section 3.3.1 should be followed. Pg 2-23
Expected Outcomes	Provide for expansion of an existing water source to meet the City of Kalama's long-term growth needs. Provide habitat mitigation to adequately address any aquatic resource impacts in accordance with Section 3.3.1

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Waters Supply – City of Kalama (Pg 3-23) Policy WSP-2: Streamflow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy SFP-1: Mitigation Guidelines (Pg 4-62) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	Tasks 1 through 4

Supporting Tasks	
Task 1	Evaluate Relationship of Proposed Supply Project to Stream Flows
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Pre-planning: Identify funding sources - o Secure funds - o Prepare RFP/hire contractor (or use existing staff) - o Conduct water demand projections and analysis ▪ Quantify land use in proposed service area ▪ Project build out density in the service area ▪ Project water demand for planning horizon ▪ Determine proposed amount of requested water right (up to an additional 1.92 cfs) • Conduct analysis of instream flow impacts (location, timing, quantity, fish and aquatic resource impacts, etc.) • Options - - o If impacts identified, proceed to Task 2 - o If no impacts identified: ▪ Apply to Ecology for water right ▪ Implement source expansion actions (SEE Action #946) ▪ Implement any required optimization and conservation actions

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology would be needed for new or expanded sources, or for temporary withdrawals associated with testing; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	Not Applicable	
Describe O&M Tasks	Not Applicable	

Task 2	Petition Ecology to Utilize Reservation
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing ◦ Flow related actions (non-acquisition) and ◦ Habitat restoration actions per Section 3.3.1 • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with Plan guidance and mitigation guidelines, proposal for off-setting and mitigating actions, and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total:TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	Proponent: Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc. Permitting agencies: State General Fund	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Water Right Permit if application is approved	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses mitigation requirements outlined in the plan and requirements of RCW 90.03.290.	
Response	Develop a sound application proposal consistent with the mitigation guidelines and reserve strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	Not applicable	
Describe O&M Tasks	Not applicable	

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for design and engineering services (or use existing staff) • Develop preliminary design and engineering plans for approval • Prepare final design and engineering plans for approval by City of Kalama, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	Approval of final design and engineering by the project proponent, Department of Health and Department of Ecology.	

Constraints and Uncertainties	
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.
Operation and Maintenance	
Estimated Annual Cost	Not applicable
Describe O&M Tasks	Not applicable

Task 4	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	If physical construction is needed, potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required (SEE ACTION 944A), which may also necessitate compliance with SEPA	
Other		

Constraints and Uncertainties	
Constraint	Legal requirements and standards associated with individual construction permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	

Constraints and Uncertainties

Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Response	Close coordination with permitting agencies will be needed throughout the impact assessment, project design, engineering and construction phases.

Operation and Maintenance

Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTIONS #944, 955 AND SUBACTIONS #944J, #955C
PUBLIC WATER SYSTEMS – NEW OR EXPANDED SUPPLIES
IMPLEMENT THE SALMON CREEK RESOURCE PLAN

Action Summary ¹	
Lead Partner(s)	Clark Public Utilities
Oversight Responsibilities	Department of Health Department of Ecology
Coordinating Partner(s)	Department of Ecology Department of Health Clark County
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	~ New ☒ Existing/Ongoing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944J: Implement the Salmon Creek Water Resource Plan. Pg. 3-19
	Action #955: Selected actions involving water supply and intended to protect stream flow. See water supply items listed above.
	Subaction #955C: Implement the 1992 Salmon Creek MOU and management plan, and review the policies discussed in Sections 4.5 and 4.6 to assess whether additional stream flow management strategies are warranted in the Salmon Creek Subbasin. Pg. 4-48
Plan Background & Context	CPU has directed substantial resources at the management of existing supplies in the Salmon Creek Basin, in which many of CPU's sources are located. As a part of a 1992 joint agreement with Ecology, Clark County, and Department of Health, CPU developed a Water Resource Plan (WRP) in 1996 outlining a management strategy for this area. CPU is committed to maintaining an effective management strategy for the Salmon Creek Basin. (Pg 3-18) The WRP was created to guide Ecology in its water allocation decisions to protect minimum instream flows and enhance instream values. The WRP focused on water supply and demand in the subbasin. In 2002, a document entitled Salmon Creek Watershed Assessment (PGG, 2002) expanded on the WRP to assess the status of key fish habitat components, and made recommendations to protect them. The MOU also attempts to maintain a flow rate of 12 cfs in Salmon Creek at the Northcutt gauging station. It was anticipated that the goal would only be met 90 percent of

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	the time, unless management changes were enacted. The recommendations in the Watershed Assessment were designed to meet the 12 cfs goal 100 percent of the time. Key stream flow management recommendations from the Watershed Assessment include: reducing impervious surfaces; adding stormwater detention for existing land use; converting active surface water rights to ground water from aquifers not connected to Salmon Creek; locating new domestic wells in aquifers not connected to Salmon Creek; locating new municipal wells outside of the subbasin, preferably on the Columbia River floodplain; surveying periodically for unauthorized surface water diversions; verifying active water rights; establishing a monitoring program for stream diversion and ground water withdrawals for the largest 50 percent of water rights and claims; and planting trees to restore ground water recharge and baseflow. (Pg 4-48) The Planning Unit endorses CPU's current efforts regarding management of the Salmon Creek Basin (Pg 3-19)
Relationship to Other Actions and Coordination Needs	These Subactions relate to continued use of CPU's existing water supplies, which will be a continuing element of CPU's broader implementation strategy. Assessment of existing water supplies is part of the evaluation process for development of new or expanded supplies per Actions #944, #945, and #946. Given the relationship between existing supplies and the WRP, these Subactions also relate to purchases of water from Cities of Battle Ground and Ridgefield, per Subactions #945G, #945H and #945I. The WRP is also intended to improve stream flows, which supports implementation of the target stream flow program per Action #956. Short-term operational changes in response to low flow thresholds will also help to address instream flow strategies.
Expected Outcomes	1) To provide technical and management criteria for all water allocation decisions in the Salmon Creek basin; 2) To provide a stable water source to meet existing and future residential, commercial and industrial growth demands within the Clark Public Utilities (CPU) service area; and 3) To improve summer low flow and habitat conditions affected by existing groundwater withdrawals.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-2: Salmon Creek Management Plan – CPU (Pg 3-19 and 4-48) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11) Policy WSP-2: CPU Wholesale Supply – Battle Ground (Pg 3-21) Policy WSP-2: Salmon Creek MOU (Pg-4-48) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) Policy SFP-6: Battle Ground, Ridgefield, and Yacolt – State Trust Water Rights (Pg 4-27)

Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Implement Salmon Creek Water Resource Plan and 1992 Memorandum of Understanding (MOU)	
Schedule		
Start Date	Ongoing	
Planned Completion	Ongoing	
Actual Completion	Ongoing	
Benchmarks/ Milestones	• Sign MOU- Completed March 10, 1992 • Conduct Assessment of Watershed Conditions- Completed October 2002 • Develop Water Resource Plan- Completed March 1996 • Implement Water Resource Plan- Ongoing	
Resource Needs		
Costs	Period Beginning: 1992	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff Time; consulting services; construction costs; etc.	
Funding Source(s)	Utility ratepayers	
Logistical Needs	Administrative: Meeting rooms; communications; travel; computers and software; printers; supplies; etc. Construction: Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Agreements, Ordinances, Permits & Approvals	Administrative: If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; landowner access agreements may be needed; etc. Construction: Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.
Other	
Constraints and Uncertainties	
TBD	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD
General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN

ACTION SCHEDULE: #945 A

SEE #946 B

ACTION SCHEDULE: #945 B

SEE #946 C

ACTION SCHEDULE: #945 C

SEE #946 A

ACTION SCHEDULE: #945 E

SEE #946 D

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #945 AND SUBACTIONS #945F and #945G
CITY OF BATTLE GROUND– EXPLORE ALTERNATIVE SOURCES OF SUPPLY

Action Summary¹	
Lead Partner(s)	City of Battle Ground, Department of Health
Oversight Responsibilities	Department of Ecology, Department of Health, City of Battle Ground
Coordinating Partner(s)	Department of Ecology, Department of Health, City of Battle Ground, Clark Public Utilities, City of Ridgefield, City of La Center, City of Vancouver, Planning Unit
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction #945F: Due to the potential for withdrawal from the City's existing wells to impact stream flows in the East Fork Lewis River and Salmon Creek, Battle Ground should undertake a review of alternative sources of supply (including purchase from CPU and use of reclaimed water), similar to that discussed in Section 3.3.1. The City's plans for a new well should also be subject to Section 3.3.1. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg. 3-21 Subaction #945G: The City of Battle Ground should consider wholesale purchases of water from CPU to eliminate water-supply impacts on stream flow. This is preferred over water conservation, because of greater benefits to flow. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and other feasibility criteria. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg. 4-41 Subaction (#945H): Evaluate purchase of water from CPU to aid in meeting future demands, utilizing the recently installed fire flow intertie. Pg. 3-21
Plan Background & Context	Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. Pg 4-26

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	The City's existing sources of supply and water rights are not adequate to accommodate the significant growth anticipated for its service area. The City has identified the development of additional wells as its primary strategy to meet future needs. Due to the potential for withdrawal from the City's existing wells to impact stream flows in the East Fork Lewis River and Salmon Creek, Battle Ground should undertake a review of alternative sources of supply, similar to that discussed in Section 3.3.1. The City's plans for a new well should also be subject to Section 3.3.1. Use of reclaimed water may also be of value. Pg 3-21 It is likely that new water supplies available to Battle Ground will have hydraulic continuity with the East Fork Lewis and Salmon Creek. Due to the regional significance of the East Fork Lewis to salmon recovery and foreseeable population growth, purchase of water from a CPU regional water source is critical. Pg 3-21
Relationship to Other Actions and Coordination Needs	These combined Subactions address activities related to source substitution for the City of Battle Ground. These actions call for completion of an alternative source supply analysis to reduce potential adverse impacts to Salmon Creek and the East Fork Lewis River. These Subactions support implementation of Action #946, which addresses replacing existing sources of supply with different sources to reduce impacts on stream flows, and Action #944 which addresses development of new or expanded supplies. A regional supply source on the Lower East Fork Lewis/North Fork Lewis Rivers, if developed per Subaction #946D, may provide an alternative source for Battle Ground to consider. If Battle Ground pursues purchase/source substitution and water rights are no longer needed for primary or backup supply, the City could consider transferring water rights to the State Trust as a voluntary action (Action #961). If source substitution results, implementation of these actions may also promote target flow goals established for the East Fork Lewis River (Action #956).
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Battle Ground service area. Improve summer low flow conditions within watersheds potentially affected by existing City of Battle Ground withdrawals, including the East Fork Lewis River and Salmon Creek.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-2: Salmon Creek Management Plan – CPU (Pg 3-19 and 4-48) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: CPU Wholesale Supply – Battle Ground (Pg 3-21) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) SFP-6: Battle Ground, Ridgefield, and Yacolt – State Trust Water Rights (Pg 4-27)

Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Conduct Water Demand Analysis and Needs Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with Clark Public Utilities, Department of Ecology, Department of Health and other purveyors/entities as appropriate • Secure funds • Prepare RFP/hire contractor (or use existing staff) • Conduct water demand projections and analysis ◦ Coordinate with existing service providers ◦ Quantify land use in service area ◦ Project build out density in the service area ◦ Project water demand for planning horizon • Publish water demand analysis and needs assessment report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 2	Conduct Alternative Supply Feasibility Analysis
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Coordinate with adjacent or existing service providers as needed - Identify potential supply source alternatives, including but not limited to: - Different (most likely deeper) aquifer - Purchase of water from Clark Public Utilities (including utilization of recently installed fire flow intertie per Subaction #945H) or other existing purveyor - Development of tidally-influenced source - Use of reclaimed water - Development of the currently proposed well - Purchase from regional water system - Collect available information on potential interaction between potential alternative water supply sources and critical stream reaches - WRIA 27/28 Plan - WRIA 27/28 Technical Memoranda - Studies and assessments - Hydrological/geological reports - Other pertinent information - Conduct additional modeling as necessary to document potential stream flow impacts from potential alternatives - Conduct feasibility analysis of alternatives (impacts, benefits, reliability, costs, logistics, etc.) - Based on the above, develop a prioritized list of potential source substitution alternatives - Publish and approve alternative supply feasibility analysis report identifying preferred alternative(s).

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for design and engineering services (or use existing staff) • Develop preliminary design and engineering plans for approval • Prepare final design and engineering plans for approval • If preferred alternative involves purchase of water, negotiate rates and develop and approve necessary agreements • Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	

Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.
Other	
Constraints and Uncertainties	
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.
Operation and Maintenance	
Estimated Annual Cost	Not applicable
Describe O&M Tasks	Not applicable

Task 4	Water Right Permitting (if needed)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed) - o Acquisition of upstream water rights - o Flow related actions - o Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed), and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Permitting and Approvals
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); - Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; - Prepare and submit biological assessment for ESA consultation (if needed); - Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and - Secure necessary permits, authorizations and approvals

Resource Needs		
Costs	Period Beginning	Amount
	Total	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Other		
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
Task 6	Project Construction (if preferred alternative involves construction or infrastructure changes)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other		
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #945 AND SUBACTIONS #945H AND #945I
CITY OF RIDGEFIELD – EXPLORE ALTERNATIVE SOURCES OF SUPPLY

Action Summary¹	
Lead Partner(s)	City of Ridgefield
Oversight Responsibilities	Department of Ecology, Department of Health, City of Ridgefield, Clark Public Utilities
Coordinating Partner(s)	Department of Ecology, Department of Health, Clark Public Utilities
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction (#945H): Evaluate purchase of water from CPU to aid in meeting future demands, utilizing the recently installed fire flow intertie. Pg. 3-21 Related Subaction (see below) (#945I): The City of Ridgefield should consider wholesale purchases of water from CPU to eliminate water-supply impacts on stream flow. This is preferred over water conservation, because of greater benefits to flow. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and other feasibility criteria. Pg. 4-41
Plan Background & Context	Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. Pg 4-26 The City's water supply consists of 3 active wells and 2 standby wells located in Abrams Park, near Gee Creek. The City has also recently developed an intertie with Clark Public Utilities on the east side of the City's system. In the near term, this intertie is intended only to support fire flow needs. However, wholesale purchases from CPU via the intertie are a supply option for the future. The City will require additional sources of supply to meet future needs. Pg 3-24 Consider wholesale water purchases from CPU. The Planning Unit recommends that the City consider purchasing water from CPU to aid in meeting future demands, utilizing the recently installed fire flow intertie. Pg 3-24

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	These combined Subactions relate to meeting future supply needs for the City of Ridgefield through purchase of water from CPU, using the recently installed fire flow intertie. These Subactions support implementation of Action #946, which addresses replacement of existing sources of supply with different sources to reduce impacts on stream flows, and Action #944 which addresses development of new or expanded supplies. Specifically, Subaction #946I calls for a review of alternative sources of supply per Section 3.3.1 if low flows are identified as an issue through the Watershed Stewards Program. If Clark Public Utilities develops a regional supply source on the Lower East Fork/North Fork Lewis Rivers per Subaction #946D, use of the intertie could transfer withdrawal effects to this regional source. If the City of Ridgefield pursues purchase/source substitution and existing Gee Creek water rights are no longer needed for primary or backup supply, the City could consider transferring water rights to the State Trust as a voluntary action (Action #961).
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Ridgefield service area. Improve summer low flow conditions within Gee Creek.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) SFP-6: Battle Ground, Ridgefield, and Yacolt – State Trust Water Rights (Pg 4-27)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Water Demand Analysis and Needs Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with Clark Public Utilities, Department of Ecology, Department of Health and other purveyors/entities as appropriate • Secure funds • Prepare RFP/hire contractor (or use existing staff) • Conduct water demand projections and analysis ◦ Coordinate with existing service providers ◦ Quantify land use in service area ◦ Project build out density in the service area ◦ Project water demand for planning horizon • Publish water demand analysis and needs assessment report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) may be needed between City of Ridgefield and CPU to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Conduct Alternative Supply Feasibility Analysis	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with CPU as needed • Conduct feasibility analysis of purchase of water from CPU and utilization of the intertie for distribution (impacts, benefits, reliability, costs, logistics, etc). As part of the feasibility analysis, also assess potential impacts related to the City's plans for new wells (per Subaction #946I). • Publish and approve alternative supply feasibility analysis report • If purchase of water from CPU is feasible, proceed to Task 3. • If purchase of water from CPU is not feasible or the preferred alternative, implement source substitution Action #946 (also addresses Action #945).	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) with CPU may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for design and engineering services (or use existing staff) - Develop preliminary design and engineering plans for approval - Prepare final design and engineering plans for approval - Negotiate purchase rates and develop and approve necessary agreements with CPU - Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	Not applicable	
Describe O&M Tasks	Not applicable	

Task 4	Water Right Permitting (if expansion of existing CPU source water right is needed)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed) ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed), and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Other		

Constraints and Uncertainties	
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 5	Project Permitting and Approvals (if additional construction or infrastructure modifications are needed, or updates to water system plans are necessary)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	

Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.
Other	
Constraints and Uncertainties	
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 6	Project Construction (If construction or infrastructure modifications are needed)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	

Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.
Other	
Constraints and Uncertainties	
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.
General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946 GENERAL
SOURCE SUBSTITUTION AND REPLACEMENT

Action Summary ¹	
Lead Partner(s)	TBD
Oversight Responsibilities	Department of Health Department of Ecology
Coordinating Partner(s)	Department of Health Department of Ecology
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.1).
Plan Background & Context	Section 3.3.1 outlines a strategy to guide the implementation of the water supply policy. This strategy addresses three issues: new or expanded municipal supplies (requiring new water rights); existing municipal supplies (not requiring new water rights); and regional water supply options. Pg 3-10 Communities requesting additional ground water rights to serve growth must evaluate the relationship of their proposed water supply projects to stream flows. Where such an evaluation indicates that the new or expanded source of supply will not impact stream flows, the Planning Unit recommends that Ecology grant water rights sufficient to meet projected demands. Communities receiving new and additional water rights will be required to optimize the use of their new rights, through existing and future conservation requirements. Pg 3-11, #2
Relationship to Other Actions and Coordination Needs	The strategy outlined in Section 3.3.1 is intended to apply to all municipalities requesting new or expanded water rights, as well as other users as specified in the plan. This Action outlines general tasks related source substitution actions resulting from implementation of Section 3.3.1, including planning studies to explore alternative sources of supply to replace an existing source (Action #945).
Expected Outcomes	Provide access to water resources to meet new or expanded needs for water supply consistent with adopted land use plans (WSP-1). Develop new or expanded water sources needs that avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages (WSP-2).
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (& all recommendations) (Pg 3-10) Policy WSP-2: Streamflow Protection in Developing Supplies (& all recommendations) (Pg 3-10) Policy SFP-1: Flow Monitoring (& all recommendations) (Pg 4-11) Policy SFP-2: Restrictions on New Water Rights (& all recommendations) (Pg 4-19) Policy SFP-3: Water Conservation (& all recommendations) (Pg 4-23) Policy SFP-5: Source Substitution (& all recommendations) (Pg 4-26) Policy SFP-6: Transfer of Water Rights to State Trust (& all recommendations) (Pg 4-27)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) • Conduct water demand projections and analysis - o Coordinate with existing service providers - o Quantify land use in proposed service area - o Project build out density in the service area - o Project water demand for planning horizon • Determine proposed water amount needed to meet long-term growth needs	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; large water users and hydropower facilities; agricultural producers; assessments on affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for plan development (if needed) • Develop preliminary design and engineering plans for the preferred alternative • Prepare final design and engineering plans for approval • Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Water Right Permitting	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Planned Completion	• Develop application package for proposed water right • If needed, develop proposal for off-setting and mitigating actions addressing (if needed) - o Acquisition of upstream water rights - o Flow related actions - o Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions, and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	

Operation and Maintenance	
Est. Annual Cost	TBD
Describe O&M Tasks	TBD

Task 4	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications. Permits will vary depending on project type and jurisdiction • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed) • Complete SEPA and/or NEPA (if EIS needed, more refined benchmarks and milestones will be needed) • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	

Constraints and Uncertainties	
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	

Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.
Other	
Constraints and Uncertainties	
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTIONS #946, #945, #944 AND SUBACTIONS #946A, #945C, #944F

CITIES OF CAMAS AND WASHOUGAL – SOURCE SUBSTITUTION
STEIGERWALD REFUGE REGIONAL WATER SOURCE

Action Summary¹	
Lead Partner(s)	City of Camas City of Washougal
Oversight Responsibilities	WA Department of Ecology WA Department of Health
Coordinating Partner(s)	WRIA 27/28 Planning Unit City of Vancouver
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946A: Pending positive outcome of studies and planning, replace existing water sources with a regional ground water source in the vicinity of Steigerwald Wildlife Refuge, or purchase from Vancouver (if other opportunities prove infeasible). (Tasks would include engineering studies, water rights processing, SEPA, construction, operations and maintenance, etc) Pg. 3-20, Pg. 3-22
	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction #945C: Conduct planning studies necessary to support and develop a regional ground water source in the vicinity of the Steigerwald Wildlife Refuge, or evaluate purchase from Vancouver (if other opportunities prove infeasible). (Tasks would include engineering studies, permitting, facilitation by agencies, etc) Pg. 3-20, Pg. 3-22
	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1)
	Subaction #944F: Investigate and develop a regional ground water source in the vicinity of Steigerwald Wildlife Refuge, or purchase from Vancouver (if other opportunities prove infeasible). (Tasks would include engineering studies, water rights processing, SEPA, construction, operations and maintenance, etc) Pg. 3-20, Pg. 3-22

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Plan Background & Context	The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region. Pg 3-15 The Planning Unit recommends that the City of Camas evaluate regional supply options such as those discussed in Section 3.3.3. These include the development of a wellfield supply near the Steigerwald Wildlife Refuge or, if other opportunities prove infeasible, the potential purchase of water from Vancouver. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-20 The Planning Unit recommends that the City of Washougal consider use of regional sources. These include the development of a wellfield supply near the Steigerwald Wildlife Refuge or, if other opportunities prove infeasible, the potential purchase of water from Vancouver. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-22
Relationship to Other Actions and Coordination Needs	These combined Subactions address all activities related to development of a regional water supply near the Steigerwald Refuge, including both planning studies (#945C) and source development (#946A). They also call for the potential purchase of water from Vancouver if an alternate supply is not feasible. These Subactions are components of Action #946, which addresses replacing existing sources of supply with different sources to reduce impacts on stream flows, and Action #944 which addresses development of new or expanded supplies. If alternative sources are developed and existing supplies are longer needed for primary or backup supply, these cities could consider transferring water rights to the State Trust as a voluntary action (Action #961). If source substitution results, implementation of these actions may also promote target flow goals established for the Washougal River (Action #956).
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Camas and City of Washougal service areas. Improve summer low flow conditions within watersheds affected by existing water sources (e.g., Washougal River, etc.).
Is the Action Fully Addressed by the Tasks Below?	~Yes ☒ No

Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Regional Supply Options – Camas (Pg 3-20) Policy WSP-2: Regional Supply Options – Washougal (Pg 3-22) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Camas - Source Substitution (Pg 4-45) Policy SFP-6: Transfer of Water Rights to State Trust (Pg 4-27)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Feasibility Study	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordination between purveyors and affected entities • Develop and approve any necessary agreements • Identify funding sources • Secure funds • Prepare RFP/hire contractor (or conduct with existing staff) • Complete feasibility study, including field engineering and assessment (permitting may be needed) • Identify project alternatives and publish feasibility report • If no feasible alternatives exist, evaluate purchase from City of Vancouver • If feasible alternatives exist, identify and approve "preferred alternative" (City of Washougal, City of Camas, Clark Public Health, Department of Health, Department of Ecology, and other entities as necessary)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; large water; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Project Design and Engineering	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Contract for design and engineering services (or conduct with existing staff) - Develop preliminary design and engineering plans for the preferred alternative - Review and approval of preliminary design and engineering plans - Prepare final design and engineering plans for approval by City of Washougal, City of Camas, Department of Ecology and Department of Health, and other affected entities as appropriate - Approval of final design and engineering plans - Revise Water Supply Plans as necessary		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other			
Constraints and Uncertainties			
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.		
Response	TBD		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Water Right Permitting	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed – not likely needed given tidal/Columbia River reach designation) - o Acquisition of upstream water rights - o Flow related actions - o Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed – not likely needed given tidal/Columbia River reach designation), and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 4	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	

Operation and Maintenance	
Estimated Annual Cost	
Describe O&M Tasks	

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946, #944, #945 AND SUBACTIONS #946B,
#944D, #945A
CLARK PUBLIC UTILITIES – SOURCE SUBSTITUTION
VANCOUVER LOWLANDS

Action Summary¹	
Lead Partner(s)	Clark Public Utilities WA Department of Ecology
Oversight Responsibilities	Clark Public Utilities WA Department of Ecology
Coordinating Partner(s)	WRIA 27/28 Planning Unit Port of Vancouver City of Vancouver Clark Public Health Department of Health
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946B: Pending positive outcome of studies and planning, replace existing water sources with a regional ground water source at Vancouver Lake, in a timely manner. Consider sale of water from this supply source to other purveyors for use in meeting future demands. (Tasks would include engineering studies, coordination with clean-up efforts, water rights processing, SEPA, facilitation by agencies, construction, operations and maintenance, etc) Pg. 3-19
	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944D: Develop a regional ground water source at Vancouver Lake in a timely manner. (Tasks would include engineering studies, coordination with clean-up efforts, water rights processing, SEPA, facilitation by agencies, construction, operations and maintenance, etc) Pg. 3-19
	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2)
	Subaction #945 A: Conduct planning studies and investigations necessary to support development of a regional ground water source at Vancouver Lake, in a timely manner. (Tasks would include engineering studies, permitting, facilitation by agencies, etc) Pg 3-19

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Plan Background & Context	The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region. Pg 3-15 Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-26 The Planning Unit endorses the development of the Vancouver Lake wellfield. CPU should consider sale of water from this supply source to other purveyors throughout Clark County, for use in meeting future demands. Permitting agencies should make every effort to facilitate the development of the Pleistocene Alluvial Aquifer and encourage its use over other sources. Pg 3-19
Relationship to Other Actions and Coordination Needs	These Subactions are associated with and depend upon #945 (and #945 subactions), which relate to completion of planning studies and investigations necessary to support development of a regional ground water source. These subactions are also related to the City of Vancouver's subactions #944E and #946B, which involve source substitution and development of regional water supply at Vancouver Lake. Development of a regional water supply in the Vancouver Lowlands is also related to action #979, which addresses ground water contamination clean-up actions by Port of Vancouver, Clark Public Health and Department Ecology. The successful implementation of these Subactions may also help achieve goals and objectives of the 1992 Salmon Creek MOU and management plan, which is referenced in subaction #955C.
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the Clark Public Utilities (CPU), City of Vancouver, and surrounding service areas; Improve summer low flow conditions within Salmon Creek, East Fork Lewis River, Burnt Bridge Creek and other tributaries that may be affected by existing or future groundwater withdrawals.
Is the Action Fully Addressed by the Tasks Below?	~Yes ☒ No

Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-1: Water Supply – City of Vancouver (Pg 3-18) Policy WSP-1: Vancouver Lake Wellfield – Relation to Remediation Activities at Port of Vancouver (Pg 3-14) Policy WSP-2: Salmon Creek Management Plan – CPU (Pg 3-19 and 4-48) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-14) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Feasibility Study (also addresses Subaction #945, #945A and #945B)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources; • Secure funds; • Prepare RFP/hire contractor; • Complete feasibility study, including field engineering and assessment (permitting may be needed); • Identify project alternatives, including “preferred alternative”; • Approval of “preferred alternative” by Clark Public Utilities Clark Public Health, and Department of Health in coordination with the City of Vancouver and Port of Vancouver; and • Publish Feasibility Report.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements or MOUs may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; project alternatives may be affected by limitations associated with groundwater clean-up efforts. Close coordination between CPU, the Port of Vancouver, City of Vancouver, Department of Ecology, Department of Health, and other entities will be necessary.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Coordination with Clean-up Efforts	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Hold coordination workshop(s) with CPU, City of Vancouver, Department of Ecology, Clark Public Health, Port of Vancouver, Department of Health and Planning Unit representation. • Identify strategies and approaches for development and operation of a regional water source, consistent with groundwater clean-up efforts and results of feasibility studies and assessments; • Develop a written agreement between Clark Public Utilities, City of Vancouver, Port of Vancouver, Department of Ecology, Clark Public Health and Department of Health regarding a “preferred alternative” for development of a regional wellfield.		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers, printers; meeting locations and scheduling; coordination with permitting entities, purveyors, and Planning Unit; etc.		
Agreements, Ordinances, Permits & Approvals	Written agreements will be needed between Clark Public Utilities and the City of Vancouver, Port of Vancouver, Department of Ecology, and Clark Public Health regarding a “preferred alternative” in relation to Port of Vancouver groundwater clean-up efforts.		
Other			
Constraints and Uncertainties			
Constraint	The primary constraint and uncertainty identified for this action is that development and pumping of the Vancouver Lake well field could potentially and inadvertently interfere with efforts to contain a contaminant plume underlying Port of Vancouver lands. Multiple parties are involved with this action, which emphasizes the need for close coordination.		
Response	CPU and the City of Vancouver anticipate working closely with the Port and environmental and health agencies to find a solution. Because of the regional importance of the ground water resource at Vancouver Lake, the Planning Unit recommends that all affected parties work together to create a solution that allows for development of this source of supply as quickly as possible. Pg. 3-16		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Develop preliminary design and engineering plans for the preferred alternative; - Review by Clark Public Utilities, City of Vancouver, Clark Public Health, Port of Vancouver, Ecology, Department of Health and other affected parties; - Prepare final design and engineering plans for approval.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; relationship between the clean-up efforts and project may affect feasibility of alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4		Water Right Permitting	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed – not likely needed given tidal/Columbia River reach designation) ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed – not likely needed given tidal/Columbia River reach designation), and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.		
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.		
Constraints and Uncertainties			
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information; etc.		
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.		
Operation and Maintenance			
Est. Annual Cost	TBD		

O&M Tasks	TBD
Task 5	Project Permitting and Approvals
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); - Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; - Prepare and submit biological assessment for ESA consultation (if needed); - Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and - Secure necessary permits, authorizations and approvals
Resource Needs	
Costs	Period Beginning: TBD Amount TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.
Funding Source(s)	See Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc
Agreements, Ordinances, Permits & Approvals	Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.
Other	
Constraints and Uncertainties	
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 6	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946, #945, #944 AND SUBACTIONS #946C,
#945B, #944E
CITY OF VANCOUVER – SOURCE SUBSTITUTION VANCOUVER LOWLANDS

Action Summary ¹	
Lead Partner(s)	City of Vancouver WA Department of Ecology
Oversight Responsibilities	City of Vancouver WA Department of Ecology
Coordinating Partner(s)	WRIA 27/28 Planning Unit Clark Public Utilities Port of Vancouver Clark Public Health Department of Health
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946C: Pending positive outcome of studies and planning, replace existing water sources with a regional ground water source at Vancouver Lake, in a timely manner. Consider sale of water from this supply source to other purveyors for use in meeting future demands (Tasks would include engineering studies, coordination with clean-up efforts, water rights processing, SEPA, facilitation by agencies, construction, operations and maintenance, etc) Pg 3-18
	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction #945B: Conduct planning studies and investigations necessary to support development of a regional ground water source at Vancouver Lake, in a timely manner. (Tasks would include engineering studies, permitting, facilitation by agencies, etc) Pg 3-18
	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Subaction #944E: Develop a regional ground water source at Vancouver Lake in a timely manner. (Tasks would include engineering studies, coordination with clean-up efforts, water rights processing, SEPA, facilitation by agencies, construction, operations and maintenance, etc) Pg 3-18

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Plan Background & Context	The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region. Pg 3-15 Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-26 The Planning Unit endorses the City's plan to develop a new wellfield near Vancouver Lake. Permitting agencies should make every effort to facilitate the development of the Pleistocene Alluvial Aquifer and encourage its use over other sources. Pg 3-19 Note: The following information was provided by the City of Vancouver in response to this Action Schedule. <i>"The City of Vancouver has no plans to request additional water rights from the Burnt Bridge Creek Watershed. All new water supplies will be from the Vancouver Lake area for redundant supply. The time schedule and nature of the development of a Vancouver Lake water supply has changed. The intent of this supply source will be to provide redundancy to existing Vancouver sources as opposed to a regional facility. Redundancy supply development has been scheduled to begin in 2015. The regional supply concept is no longer being considered because the other adjacent utilities are not looking to Vancouver for supply assistance. Clark Public Utilities is making efforts to develop their supply independent from Vancouver although CPU is targeting the east side of Vancouver Lake for new supplies. The cities of Camas and Washougal have investigated the potential water supply from Steigerwald Lake area and will not require water from Vancouver.</i> <i>It is recommended that Task 2 and 3 for the Clean-Up Effort proceed. Task 1, "Conduct a Feasibility Study as a regional supply" is no longer an option and can be deleted from the plan. The Clean-Up Effort has the potential to make the Vancouver Lake aquifer more available and safe guard the water quality for all users in that area."</i> Based on the above, the City of Vancouver is not proposing to utilize a Vancouver Lowlands source as a "regional supply", but rather is proposing to use the source for redundant City supply. Task 1 below therefore does not apply to development of a "regional supply", but may apply to development of additional supply wells for the City of Vancouver.

Relationship to Other Actions and Coordination Needs	These Subactions are associated with and depend upon #945 (and #945 subactions), which relates to completion of planning studies and investigations necessary to support development of a regional ground water source. These Subactions are also related to the Clark Public Utility's Subactions #944D and #946B, which involve source substitution and development of regional water supply at Vancouver Lake. Development of a regional water supply in the Vancouver Lowlands is also related to action #979, which addresses ground water contamination clean-up actions by Clark Public Health, Department Ecology and other entities.
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Vancouver, Clark Public Utilities (CPU), and surrounding service areas; Improve summer low flow conditions within Salmon Creek, East Fork Lewis River, Burnt Bridge Creek, and other tributaries that may be affected by existing or future groundwater withdrawals.
Is the Action Fully Addressed by the Tasks Below?	~Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-1: Water Supply – City of Vancouver (Pg 3-18) Policy WSP-1: Vancouver Lake Wellfield – Relation to Remediation Activities at Port of Vancouver (Pg 3-14) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-14) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Feasibility Study (also addresses Subaction #945, #945A and #945B)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources; • Secure funds; • Prepare RFP/hire contractor; • Complete feasibility study, including field engineering and assessment (permitting may be needed); • Identify project alternatives, including "preferred alternative"; • Approval of "preferred alternative" by City of Vancouver, Clark Public Health and Department of Health, in coordination with Clark Public Utilities; and • Publish Feasibility Report.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements or MOUs may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; project alternatives may be affected by limitations associated with groundwater clean-up efforts. Close coordination between City of Vancouver, CPU, the Port of Vancouver, Department of Ecology, Department of Health, and other entities will be necessary.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Coordination with Clean-up Efforts	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Hold coordination workshop(s) with CPU, City of Vancouver, Department of Ecology, Clark Public Health, Port of Vancouver, Department of Health and Planning Unit representation. • Identify strategies and approaches for development and operation of a regional water source, consistent with groundwater clean-up efforts and results of feasibility studies and assessments; • Develop a written agreement between Clark Public Utilities, City of Vancouver, Port of Vancouver, Department of Ecology, Department of Health and Clark Public Health regarding a “preferred alternative” for development of a regional wellfield.		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers, printers; meeting locations and scheduling; coordination with permitting entities, purveyors, and Planning Unit; etc.		
Agreements, Ordinances, Permits & Approvals	Written agreements will be needed between the City of Vancouver, Clark Public Utilities, Port of Vancouver, Department of Ecology, Department of Health and Clark Public Health regarding a “preferred alternative” in relation to Port of Vancouver groundwater clean-up efforts.		
Other			
Constraints and Uncertainties			
Constraint	The primary constraint and uncertainty identified for this action is that development and pumping of the Vancouver Lake well field could potentially and inadvertently interfere with efforts to contain a contaminant plume underlying Port of Vancouver lands. Multiple parties are involved with this action, which emphasizes the need for close coordination.		
Response	CPU and the City of Vancouver anticipate working closely with the Port and environmental and health agencies to find a solution. Because of the regional importance of the ground water resource at Vancouver Lake, the Planning Unit recommends that all affected parties work together to create a solution that allows for development of this source of supply as quickly as possible. Pg. 3-16		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop preliminary design and engineering plans for the preferred alternative; • Review by City of Vancouver, Clark Public Utilities, Clark Public Health, Port of Vancouver, Ecology, Department of Health and other affected parties; • Prepare final design and engineering plans for approval.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc	
Other	TBD	
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; relationship between the clean-up efforts and project may affect feasibility of alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Water Right Permitting	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed – not likely needed given tidal/Columbia River reach designation) ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed – not likely needed given tidal/Columbia River reach designation), and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	SEE TASK 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information; etc.	
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.	
Operation and Maintenance		
Est. Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5		Project Permitting and Approvals	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); - Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; - Prepare and submit biological assessment for ESA consultation (if needed); - Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and - Secure necessary permits, authorizations and approvals		
Resource Needs			
Costs	Period Beginning :TBD	Amount :TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc		
Agreements, Ordinances, Permits & Approvals	Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.		
Other			
Constraints and Uncertainties			
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 6	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946, #945, #944 SUBACTIONS #946D, #945E
CLARK PUBLIC UTILITIES – SOURCE SUBSTITUTION LEWIS RIVER

Action Summary¹	
Lead Partner(s)	Clark Public Utilities WA Department of Ecology
Oversight Responsibilities	Clark Public Utilities WA Department of Ecology WA Department of Health
Coordinating Partner(s)	WRIA 27/28 Planning Unit City of Battle Ground City of Ridgefield Department of Health
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing ~ Revised
Table Description	Action #944: Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).
	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction #945E: Investigate opportunities for a regional ground water source near the Lower North Fork Lewis/East Fork Lewis confluence. Pg 3-15
	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946D: Pending positive outcome of studies and planning, replace existing water sources with a regional ground water source near the Lower North Fork Lewis/East Fork Lewis confluence. Consider sale of water from this supply source to other purveyors for use in meeting future demands (Tasks would include engineering studies, water rights processing, SEPA, construction, operations and maintenance, etc) Pg 3-19

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Plan Background & Context	The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region. Pg 3-15 Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-26
Relationship to Other Actions and Coordination Needs	These combined Subactions address all activities related to development of a regional water supply near the confluence of the East Fork and North Fork Lewis Rivers, including both planning studies (#945E) and source development (#946D). These Subactions are components of Action #946, which addresses replacing existing sources of supply with different sources to reduce impacts on stream flows, and Action #944 which addresses development of new or expanded supplies. Depending on the project outcome, this action may also facilitate Subactions #945F and #945G which relate to wholesale purchases of water by the Cities of Battle Ground and Ridgefield. If Ridgefield and Battle Ground pursue purchase/source substitution and water rights are no longer needed for primary or backup supply, these cities could consider transferring water rights to the State Trust as a voluntary action (Action #961). The successful implementation of this action may also help achieve goals and objectives of the 1992 Salmon Creek MOU and management plan, which is referenced in subaction #955C. If source substitution results, implementation of these actions may also promote target flow goals established for the East Fork Lewis River (Action #956).
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the Clark Public Utilities (CPU) service area; Improve summer low flow conditions within watersheds affected by existing groundwater withdrawals (e.g., East Fork Lewis River, Salmon Creek, Gee Creek, etc.).
Is the Action Fully Addressed by the Tasks Below?	~Yes ☒ No

Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-2: Salmon Creek Management Plan – CPU (Pg 3-19 and 4-48) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11) Policy WSP-2: CPU Wholesale Supply – Battle Ground (Pg 3-21) Policy WSP-2: Salmon Creek MOU (Pg-4-48) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) Policy SFP-6: Battle Ground, Ridgefield, and Yacolt – State Trust Water Rights (Pg 4-27)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Feasibility Study	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify funding sources - Secure funds - Prepare RFP/hire contractor (or conduct with existing staff) - Coordinate with affected purveyors or jurisdictions as needed - Complete feasibility study, including field engineering and assessment (permitting may be needed) - Identify project alternatives, including "preferred alternative" - Approval of "preferred alternative" by Clark Public Utilities, Clark Public Health, Department of Ecology, Department of Health and other entities as necessary - Publish Feasibility Report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; public water system; legislative appropriations; congressional appropriations; misc. grants; etc	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other	TBD	
Constraints and Uncertainties		
If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for design and engineering services (or conduct with existing staff) - Develop preliminary design and engineering plans for the preferred alternative - Review and approval of preliminary design and engineering plans - Prepare final design and engineering plans for approval by Clark Public Utilities, Department of Ecology and Department of Health, and other affected entities as appropriate - Approval of final design and engineering plans	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Water Right Permitting
Schedule	
Start Date	TBD
Planned Completion	TBD

Actual Completion	TBD
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed – not likely needed given tidal/Columbia River reach designation) - o Acquisition of upstream water rights - o Flow related actions - o Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed – not likely needed given tidal/Columbia River reach designation), and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.
Funding Source(s)	See Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology's permit approval criteria, plan guidance and mitigation requirements.
Constraints and Uncertainties	
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; permit review and approval timelines may delay project construction; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.
Operation and Maintenance	
Est. Annual Cost	TBD
Describe O&M Tasks	TBD
Task 4	Project Permitting and Approvals
Schedule	
Start Date	TBD
Planned	TBD

Completion		
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Other		
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
Task 5Project Construction		
Schedule		
Start Date	TBD	
Planned Completion	TBD	

Actual Completion	TBD
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.
Funding Source(s)	See Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.
Constraints and Uncertainties	
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.
General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946 AND SUBACTIONS #946E
CLARK PUBLIC UTILITIES – EXPAND PIONEER WELLS

Action Summary¹	
Lead Partner(s)	Clark Public Utilities
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Ecology, Department of Health, Planning Unit
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.1).
	Subaction #946E: If alternative water sources are not secured (per Section 3.3.1), develop additional wells in the Pioneer area to serve as a public water supply, consistent with the off-setting and habitat mitigating measures outlined in Section 3.3.1. (Tasks would include engineering studies, impacts assessment and mitigation plan development, water rights processing, SEPA, construction, operations and maintenance, etc) Pg. 3-19
Plan Background & Context	Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. Pg. 4-26 CPU's sources of supply consist of 33 ground water wells located throughout CPU's service area. CPU's average daily demand will likely exceed the utility's primary annual water rights by year 2006. Forecast maximum day demands are expected to exceed CPU's total instantaneous water rights by 2020. CPU's water supply strategy for the future involves the development of additional wells in the Pioneer area, adjacent to high-growth areas, and development of a regional wellfield immediately southeast of Vancouver Lake. Based upon studies that have shown this aquifer to be quite productive, the Vancouver Lake wellfield is envisioned to support the majority of CPU's future growth. After the Vancouver Lake lowland wellfield is operational, supply wells in the upland areas will continue to be used to meet peak demands and for emergency backup purposes, as long as mitigation requirements continue to be met. In addition to focusing upon these new supplies, CPU has also directed substantial resources at the management of existing supplies. Pg 3-18 Acknowledging the need to manage the water resources of the Salmon

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Creek Basin, in which many of CPU's sources are located, the utility has entered into a joint agreement with Ecology and Clark County. As a part of this agreement, a Water Resource Plan was developed, outlining a management strategy for this area. CPU is committed to maintaining an effective management strategy for the Salmon Creek Basin. Pg 3-18 The Planning Unit endorses the development of additional wells in the Pioneer area to serve as a public water supply. The supply is subject to off-setting and habitat mitigating measures outlined in Section 3.3.1. Pg 3-19
Relationship to Other Actions and Coordination Needs	This Subaction addresses expansion of the Pioneer Area Wells to meet future supply needs, if alternative regional sources are not developed. This Subactions therefore relates to Action #945E and Subaction #945E, which call for planning studies to explore alternative sources of supply in the North fork Lewis/East Fork Lewis confluence vicinity, to replace existing sources. If alternative sources are not feasible, the Planning Unit endorses development of additional wells in the Pioneer areas, subject to off-setting and mitigation measures as outlines in Section 3.3.1 (see Subaction #944B). Mitigation measures would be provided per the guidance developed during Phase Four, per Action #969, which could also support implementation of the target flow program for the East Fork Lewis River, per Action #956. Expansion of the Pioneer area well sources may also relate to implementation of the CPU Salmon Creek MOU and management plan, per Subaction #955C.
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the Clark Public Utilities service area. Mitigate adverse effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Waters Supply – Clark Public Utilities (Pg 3-19) Policy WSP-2: Stream flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Salmon Creek Management Plan – CPU (Pg 3-19 and 4-48) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-1: Mitigation Guidelines (Pg 4-62) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-14)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	High

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Conduct Water Demand Analysis and Needs Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with Department of Ecology, Department of Health and other purveyors/entities as appropriate • Secure funds • Prepare RFP/hire contractor (or use existing staff) • Conduct water demand projections and analysis - o Coordinate with existing service providers - o Quantify land use in service area - o Project build out density in the service area - o Project water demand for planning horizon • Publish water demand analysis and needs assessment report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Est. Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Conduct Alternative Supply Feasibility Analysis	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with adjacent or existing service providers as needed • Identify potential supply source alternatives, including but not limited to: ◦ Different (most likely deeper) aquifer ◦ Development of tidally-influenced source ◦ Use of reclaimed water ◦ Development of the currently proposed well ◦ Purchase from regional water system • Collect available information on potential interaction between potential alternative water supply sources and critical stream reaches ◦ WRIA 27/28 Plan ◦ WRIA 27/28 Technical Memoranda ◦ Studies and assessments ◦ Hydrological/geological reports ◦ Other pertinent information • Conduct additional modeling as necessary to document potential stream flow impacts from potential alternatives • Conduct feasibility analysis of alternatives (impacts, benefits, reliability, costs, logistics, etc.) • Based on the above, develop a prioritized list of potential source substitution alternatives • Publish and approve alternative supply feasibility analysis report identifying preferred alternative(s). • If an alternative supply source is available per the Section 3.3.1 analysis, implement source substitution action #946 (General). • If expansion of the Pioneer area wells system is identified as the preferred alternative per the Section 3.3.1 analysis, proceed to Task 3.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.	
Other		

Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for design and engineering services (or use existing staff) - Develop preliminary design and engineering plans for approval - Prepare final design and engineering plans for approval - Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	Not applicable	
Describe O&M Tasks	Not applicable	

Task 4	Water Right Permitting (If needed)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed) ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed), and requirements of RCW 90.03.290, including the following: ◦ Water will be put to beneficial use ◦ There is no impairment to existing, or senior, rights; ◦ Flow related actions ◦ Water is available for appropriation ◦ Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 5	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Other		
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	

Operation and Maintenance	
Estimated Annual Cost	
Describe O&M Tasks	

Task 6	Project Construction (If preferred alternative involves construction or infrastructure changes)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and • Prepare RFP and hire contractor(s); • Initiate construction; • Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946, #945, #961, #964
SUBACTION #946F, #945D, #961C, AND #964C
CITY OF CAMAS: JONES-BOULDER & WASHOUGAL RIVER SOURCE SUBSTITUTION

Action Summary¹	
Lead Partner(s)	City of Camas Department of Ecology
Oversight Responsibilities	City of Camas Department of Ecology Department of Health
Coordinating Partner(s)	Washington Department of Fish and Wildlife (WDFW) WRIA 27/28 Planning Unit
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946F: Replace Jones and Boulder Creek water sources alternative sources of supply, following the procedure outlines in Section 3.3.1. If new water rights are secured, retire existing sources or use them only during periods of high flow. Pg. 3-20
	Action #945 (#932): Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).
	Subaction #945D: The City of Camas should consider alternative sources of supply to reduce or cease use of surface water diversions on Boulder and Jones Creeks. Such alternatives include installation of new wells, purchases from City of Vancouver and development of non-potable source of supply. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. Pg. 4-55
	Action #961: Purchase or lease of water rights from willing sellers, for State Trust program (See Section 4.4.5).
	Subaction #961C: If the City of Camas reduces or eliminates diversions from Jones and Boulder Creeks, and if these water rights are no longer needed for primary or backup supply, they could potentially be transferred to the State Trust. Pg. 4-55
	Action #964 (#939): Large water users and hydropower facilities: short-term drought response curtailment programs, to protect stream flows (See Section 4.4.7).
	Subaction #964C: Develop a curtailment plan to reduce diversions from Jones and Boulder Creeks in the event of a state-declared drought emergency. (This approach would not be needed, if an alternative source is developed to replace these diversions.) Pg 4-54
Plan Background &	Perform a review of alternative sources of supply to replace surface water

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Context	sources. Due to the impacts upon stream flows in Boulder and Jones Creeks of the City's surface water diversions, Camas should undertake a review of alternative sources of supply, similar to that discussed in Section 3.3.1. The City's existing plans for new ground water development near the Washougal River should be considered in this process, if the new wells are anticipated to not have negative impacts upon the river. If new water rights are secured by the City, the Jones and Boulder Creek sources should be retired, or used during periods of high flow only, as a condition of the new water right. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg. 3-20
Relationship to Other Actions and Coordination Needs	Subactions #946F, #945D, #961C and #964C are sponsor-specific subactions of the more generic Action #946. Implementation of these subactions also addresses Action #945, which relates to planning studies and investigations associated with source substitution. Successful completion of these subactions will also help achieve target flow goals and objectives for the Washougal River, per Action #956. Improving the low summer flow conditions within the Little Washougal River will also compliment and support ongoing SRFB- and NFWF-funded floodplain protection and restoration efforts in the watershed, per Action #959. Successful completion of seasonal source substitution and related permitting and agreements would eliminate the need for development of a drought-related curtailment plan per Subaction #946C.
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Camas service area; Improve summer low flow conditions within Jones and Boulder Creek, the Little Washougal River, and the Washougal River.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-2: Water Supply - Stream flow protection in developing supplies (Pg 3-10) Policy WSP-2: Water Supply - Surface water sources - Camas (Pg 3-20) Policy SFP-1: Target Flows - East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-3: Camas conservation (Pg 4-54) Policy SFP-3: Camas - curtailment during drought (Pg 4-54) Policy SFP-5: Source substitution (Pg 4-26) Policy SFP-5: Camas - Source substitution (4-55) Policy SFP-5: Camas - State trust water rights (4-55)
Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Ground Water/Surface Water Interaction Study (Addresses Subaction #945 and #945D)	
Schedule		
Start Date	Study completed by City of Camas in 2004. Study results are documented in Pacific Groundwater Group, 2004. <i>City of Camas Water Supply Alternatives Investigation</i> . October 22, 2004.	
Planned Completion	N/A	
Actual Completion	October 2004	
Benchmarks/ Milestones	Work Completed	
Resource Needs		
Costs	Period Beginning: TBD	Amount: \$74,020
	Total: \$74,020	
Key Cost Drivers	Consultant fees for water supply alternatives investigation.	
Funding Source(s)	City of Camas	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	N/A	
Constraints and Uncertainties		
N/A		
Operation and Maintenance		
Estimated Annual Cost	\$180,000 per year for 3 additional wells \$60,000 per year for chemicals, water quality testing, power, repairs per well.	
Describe O&M Tasks	See above	

Task 2	Project Permitting and Approvals	
Schedule		
Start Date	Work started in September, 2005	
Planned Completion	January 2007	
Actual Completion	TBD	
Benchmarks/ Milestones	- Complete water right permit application(s) and submit to Ecology with study/feasibility report; (submitted on 8/21/2003) - Participate in permit coordination meetings with Ecology, WDFW, LCFRB, and other affected; (work continues) - Negotiate seasonal timing requirements for water release in Jones/Boulder Creeks; (negotiations complete) - Modify water system plan and secure approval from Health Department; (complete as part of 2008 WSP) - Secure water right approval from Ecology (July 2008) - Formalize agreement for seasonal protection of instream flows (e.g., permit conditions, transfer to state trust, and/or other mechanisms)	

Resource Needs		
Costs	Period Beginning: 1/2007	Amount: \$19,850
	Total: TBD	
Key Cost Drivers	Consultant fees for permitting	
Funding Source(s)	Funding from City of Camas	
Logistical Needs		
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology; Health Department Approval of water system plan.	
Other		
Constraints and Uncertainties		
Constraint	The primary constraints and uncertainties relate to project permitting, and reaching concurrence on determination of project benefits and impacts.	
Response	Coordination and collaboration between Ecology, Fish and Wildlife, the City of Camas and other affected parties is needed to reach consensus on project benefits/impacts, and to identify an appropriate seasonal flow regime for Jones/Boulder Creek flow releases. Given the current backlog of water permit applications, strong support from affected parties is needed to expedite processing of the water right change request. Agreements were reached with all parties and as of May 23, 2008, Ecology posted a record of examination (ROE) for 30 day review. The new wells will allow the City to eliminate the use of Boulder/Jones Creek sources during the low flow period. Project benefits will be increased flows in the Washougal River upstream of the wellfield during the period between May 15th and October 31st of each year.	
Operation and Maintenance		
Estimated Annual Cost	N/A	
Describe O&M Tasks	N/A	

Task 3	Project Implementation
Schedule	
Start Date	May 15, 2009
Planned Completion	New wells will be developed over a 20-year planning horizon. Reduced use of Boulder and Jones Creek will begin in May 2009 and will continue on in perpetuity.
Benchmarks/ Milestones	• Apply for and receive Phase 4 Watershed Planning and Implementation Grant (\$390,000) to assist with source substitution actions (pending approval as of March 2008) • Initiate increased withdrawals from lower Washougal wells as City demand increases over 20 year planning horizon. • Eliminate use of Jones/Boulder Creeks between May 15th and October 31st of each year starting in 2009 • Construct three new supply wells over next 20 years to meet increased water demand and to provide for lost supply from Boulder/Jones Creeks during low flow season. • Project management and oversight (ongoing)

Resource Needs		
Costs	Period Beginning: May 2009	Amount: \$1,500,000
	Total: TBD	
Key Cost Drivers	Construction of new wells and pumping facilities	
Funding Source(s)	City of Camas	
Logistical Needs		
Agreements, Ordinances, Permits & Approvals	Start Cards for supply wells; source approvals from Department of Health; approval of Phase 4 Watershed Planning and Implementation Grant	
Other		
Constraints and Uncertainties		
Constraint		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	• Annual shutdown and startup of Boulder/Jones Creek sources • O&M for new supply wells • Water quality testing • Hydrologic monitoring	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946 AND SUBACTION #946G
WATER SUPPLY – ALTERNATIVE SOURCES OF MUNICIPAL SUPPLY

Action Summary¹	
Lead Partner(s)	Municipal Water Purveyors/Planning Unit
Oversight Responsibilities	Department of Ecology, Department of Health, Public Water Systems
Coordinating Partner(s)	Planning Unit, Department of Fish and Wildlife
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946G : For cases in which <i>existing</i> municipal supplies (as contrasted with planned <i>future</i> supplies) have the potential to negatively impact flows in critical stream reaches, the Planning Unit recommends that selected communities voluntarily consider enhancing their conservation efforts and undertake a review of alternative sources of supply, similar to that described in Section 3.3.1. It is recommended that, where feasible, these water suppliers cease or limit the use of certain existing supplies and develop alternative sources of supply that are less likely to impact flows in critical stream reaches. It is also recommended that implementation of such alternatives be eligible for funding from regional, state, or federal funding programs (see Section 3.6). Pg 3-14 Water suppliers in this situation should also consider availability of regional supplies (Section 3.3.3). It is important to note that existing municipal water rights are not subject to relinquishment if use of the rights ceases or is limited. Pg 3-14
Plan Background & Context	Consistent with Water Supply Policies WSP-1 and WSP-2, this Subaction addresses the voluntary enhancement of conservation efforts and identification of alternative sources of water supply to reduce adverse impacts to critical stream reaches. The alternatives review component of this Subaction calls for use of a process “similar to that described in Section 3.3.1”. Consideration of regional sources as an alternative is also encouraged. Pgs 3-11 through 3-14 Existing municipalities associated with source substitution or conservation activities include City of Camas, City of Battle Ground, City of Vancouver, City of Washougal, City of Ridgefield, and Yacolt. Table ES-6.

¹ Note: Page and section references in this document refer to the adopted “Salmon-Washougal and Lewis Watershed Management Plan” (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	Implementation of this Subaction supports Actions #945 and #946 (and associated Subactions), which involve replacement of existing water supplies with alternative sources to reduce instream flow impacts. This Subaction will work in conjunction with Subaction #946H which addresses source replacement for areas currently served by small Group A systems, and Action #967 which addressed source substitution in selected areas served by domestic wells. Aquifer mapping as described in Subaction #947A and identification of tidally influenced reaches in rule per Action #954A would help to identify alternative supply sources for consideration. Implementation of conservation measures identified through this Action would also support Action #948, which addresses enhanced conservation measures. Because this Subaction could potentially involve multiple purveyors, close coordination between the municipality, other purveyors and regulatory agencies will be needed.
Expected Outcomes	Replacement of existing municipal supplies that adversely affect instream flows in critical stream reaches with a source that is less likely to impact flows in critical stream reaches.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options - Columbia River (Pg 3-15) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pgs 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy WSP-2: Surface Water Sources – Camas (Pg 3-20) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-20) Policy WSP-2: Regional Supply Options – Camas (Pg 3-20) Policy WSP-2: Conservation – Battle Ground (Pg 3-21) Policy WSP-2: Alternative Sources – Battle Ground (Pg 3-21) Policy WSP-2: CPU Wholesale Supply – Battle Ground (Pg 3-21) Policy WSP-2: Regional Supply – Washougal (Pg 3-22) Policy WSP-2: Conservation - Ridgefield (Pg 3-22) Policy WSP-2: CPU Wholesale Supply – Ridgefield (3-22) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-3: Camas – Conservation (Pg 4-54) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-26) Policy SFP-5: Battle Ground, Ridgefield, Yacolt – Source Substitution (Pg 4-41)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Medium to High
Tasks Not Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Purveyor coordination and outreach with other purveyors and Planning Unit (?) to identify level of support for project development • Prepare scope of work and secure approval • Develop agreement between purveyors and other entities engaged in process • Prepare and post RFP • Hold pre-submittal conference • Review submittals, interview and screen consultants • Select consultant(s), negotiate and sign contract (Note: this task could also be completed with existing staff)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county development fees; large water users and hydropower facilities; agricultural producers; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Critical Stream Reach Identification and Prioritization	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• If critical reaches for preservation or enhancement of instream flows are already identified in the Plan, proceed to Task 3. • If further assessment or refinement is needed, identify critical reaches for preservation or enhancement of instream flows using information in: - o Salmon Recovery/Subbasin Plans ▪ Population priority ▪ Reach priority ▪ Limiting factors relating to flow ▪ Other relevant information - o WRIA 27/28 Watershed Plan ▪ Identified low flow problems ▪ Instream flow/toe width data ▪ Target flow priorities ▪ Status of basin (e.g., closed, open, etc.) ▪ Tidal versus non-tidal reaches ▪ Reservation status ▪ Technical assessments and studies - o Other applicable watershed or resource plans • Prioritize critical reaches for preservation or enhancement of instream flows • Prepare report summarizing critical reach identification and prioritization		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	Agreements and/or contracts between purveyors, funding agencies and implementing entities may be needed; Planning Unit Approval of draft and final documents may be needed (if completed as PU action); etc.		
Constraints and Uncertainties			
Constraint	Availability of funding may limit ability to complete pre-project planning; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance			
Est. Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3		Municipal Water Source Impact Assessment	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Document water right quantities and current/projected demand (water system plan, WRATS, WRIA 25/26 Plan, etc) - Quantities - Location - Timing - Type (surface/ground) - Collect available information on potential interaction between existing water supply sources and critical stream reaches - WRIA 27/28 Plan - WRIA 27/28 Technical Memoranda - Studies and assessments - Hydrological/geological reports - Other pertinent information - Conduct additional modeling as necessary to document potential stream flow impacts - Publish report documenting and quantifying relationships between existing supply and instream flows in critical reaches		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc		
Constraints and Uncertainties			
Constraint	Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface/ground water relationships will affect project outcomes and identification of a preferred alternative.		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 4	Alternative Supply/Impact Reduction Analysis	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify: - Potential supply source alternatives, including but not limited to: - Different (most likely deeper) aquifer - Purchase of water neighboring community - Development of tidally-influenced source - Purchase from regional water system - Other potential measures to reduce instream flow impacts, including but not limited to: - Permanent curtailment of use - Seasonal curtailment of use - Conservation measures (required for all municipal water suppliers under DOH Water Use Efficiency Rule) - Infrastructure improvements - Water re-use and reclamation - Other measures - Coordinate with adjacent or existing service providers as needed - Conduct feasibility analysis of alternatives (impacts, costs, logistics, instream flow benefits, etc.) - Identify preferred alternative(s) - Publish alternatives analysis report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Implementation	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	If practicable and feasible alternatives are available and purveyors are willing based on the above, implement source replacement or impact reduction actions. See Action #946	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	See Action #946	
Funding Source(s)	See Action #946	
Logistical Needs	See Action #946	
Agreements, Ordinances, Permits & Approvals	See Action #946	
Other		
Constraints and Uncertainties		
Constraint	See Action #946	
Operation and Maintenance		
Estimated Annual Cost	See Action #946	
Describe O&M Tasks	Not applicable	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946 AND SUBACTION #946H
SMALL GROUP-A SYSTEMS
REVIEW OF ALTERNATIVE SOURCES TO REDUCE IMPACT

Action Summary¹	
Lead Partner(s)	Small Group A System Provider (To Be Determined)
Oversight Responsibilities	Department of Health
Coordinating Partner(s)	Clark County: Clark County Planning Department Others:
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).
	Subaction #946H: In those cases where new supplies are required for small Group A systems, it is recommended that a review of alternative sources of supply be conducted (see Section 3.3.1), with an emphasis placed upon evaluating the purchase of water from an existing major water purveyor (see Section 3.3.3). If new sources are required and a reserved block of water is not available, then the net impact to surface flows should be off-set by acquiring existing upstream water rights. Pg 3-27
Plan Background & Context	Interviews with local planning departments and state agency staff suggests that little or no growth is anticipated in the number of small Group A community systems. Where new development requires public water supply, the trend in more urban areas has been to encourage connection to an existing water system. For example, in Clark County, new development can hook up to the water systems owned by either the incorporated cities or Clark Public Utilities. Growth projections related to these larger systems are described in Section 3.4. In more rural areas, such as Skamania County, water needs of new development will generally be met either by domestic wells or formation of small new public water systems serving local areas. Pg 3-26
Relationship to Other Actions and Coordination Needs	As noted above, the strategy outlined in Section 3.3.1 will be applied to requests for new or expanded water supplies related to small Group-A systems, with emphasis on purchase from existing major water purveyors. This Subaction therefore relates directly to source substitution actions #944, #945, #946, #949 and associated Subactions. This action also calls for mitigation of surface flow impacts by acquiring upstream water rights if reservations are not available, which relates to the mitigation process described in Action #969 and establishment of reservations per Subaction #944C.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Expected Outcomes	Development of water supplies that: • Meet new or expanded needs for water supply for Group-A systems, consistent with adopted land use plans (see WSP-1); and • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pgs 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Water supply – small Group A systems (Pg 3-27) Policy SFP-1: Mitigation Guidelines (Pg 4-43, 4-45, 4-56 and 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Identify New Supply Needs and Evaluate Relationship of Existing Supply Source to Stream Flows (If expansion of existing source is proposed)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: Identify funding sources - o Secure funds - o Prepare RFP/hire contractor (or use existing staff) - o Conduct water demand projections and analysis ▪ Coordinate with existing service providers ▪ Quantify land use in proposed service area ▪ Project build out density in the service area ▪ Project water demand for planning horizon • Determine proposed amount of supply need • Conduct analysis of instream flow impacts (location, timing, quantity, fish and aquatic resource impacts, etc.) • Options - - o If impacts identified, proceed to Task 2 - o If no impacts identified: ▪ Apply to Ecology for water right ▪ Implement source replacement or development actions ▪ Implement any required optimization and conservation actions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county development fees; Phase 4 implementation grants; grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology would be needed for temporary withdrawals associated with testing.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 2	Conduct Alternative Supply Analysis (If Task 1 identifies flow regime impacts)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Identify potential supply source alternatives, including but not limited to: - o Different (most likely deeper) aquifer - o Purchase of water neighboring community - o Development of tidally-influenced source - o Purchase from regional water system • Focus efforts on evaluating the purchase of water from an existing major water purveyor • Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of alternatives (impacts, costs, logistics, etc.) • Publish alternatives analysis report • Options - - o If a preferred and practicable alternative is identified and use of a reservation is not needed: ▪ Apply to Ecology for water right (if needed) ▪ Develop and enter agreements for purchase of water from an existing purveyor ▪ Implement source replacement or development actions ▪ Implement any required optimization and conservation actions - o If no preferred and practicable alternative is identified, implement Task 3
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.
Funding Source(s)	Same as Task 1
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.

Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.
Other	
Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 3	Water Right Permitting, Petition to Use Reservation (If no practicable alternative is identified under Task 2)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Develop application package for proposed water right - If reservation is available, develop proposal for off-setting and mitigating actions addressing - Acquisition of upstream water rights - Flow related actions - Habitat restoration actions (per Section 3.3.1) - If reservation is not available, off-set net impacts to surface water flows through - Acquisition of upstream water rights (see Pg 3-27) - Submit application to Ecology - Ecology review and coordination with WDFW - Consultation with Planning Unit (if needed) - Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions, and requirements of RCW 90.03.290, including the following: - Water will be put to beneficial use - There is no impairment to existing, or senior, rights; - Flow related actions - Water is available for appropriation - Issuance of the requested water right will not be detrimental to the public welfare.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	TBD
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria, plan guidance and mitigation requirements.	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses mitigation requirements outlined in the plan and requirements of RCW 90.03.290; reserve amount will affect quantity of water available for supply needs; legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc	
Response	Develop a sound application proposal consistent with the mitigation guidelines and reserve strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Project Design and Engineering (If water right permit granted)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for design and engineering services (or use existing staff) • Develop preliminary design and engineering plans for approval • Prepare final design and engineering plans for approval • Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	Revisions to Water Supply Plan (WSP) and/or Small Water System Management Programs (SWSMP) may be required, which may also necessitate compliance with SEPA Approval of final design and engineering by the project proponent, Department of Health and Department of Ecology; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Revisions to Water Supply Plan (WSP) and/or Small Water System Management Programs (SWSMP) may be required, which may also necessitate compliance with SEPA Approval of final design and engineering by the project proponent, Department of Health and Department of Ecology; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Permitting and Approvals
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed); - Prepare and submit revisions to Water System Plan for review and

	approval by Washington Department of Health and Ecology; • Prepare and submit biological assessment for ESA consultation (if needed); • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed); and • Secure necessary permits, authorizations and approvals	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; agency coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit requirements will vary depending on project type and jurisdiction. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Other		
Constraints and Uncertainties		
Constraint	Legal requirements and standards associated with individual permits may limit project alternatives and mitigation requirements; differences in permit requirements may lead to incompatible outcomes; if not factored into analyses, mitigation requirements may increase project costs above projected; permit review and approval timelines may delay project construction or limit construction periods; permit processing timelines will depend upon the quality and clarity of information provided for review; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 6	Project Construction
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s); • Initiate construction;

	• Project management and oversight; and • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Response	Close coordination with permitting agencies will be needed throughout alternatives review analysis and project design, engineering and construction phases.	
Operation and Maintenance		
Est. Annual Cost		
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #946, #962 AND SUBACTION #946I, #962B
CITY OF RIDGEFIELD – EXPLORE ALTERNATIVE SOURCES OF SUPPLY

Action Summary¹	
Lead Partner(s)	City of Ridgefield
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Ecology, Department of Health, Clark Public Utilities, Watershed Stewards Program
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #946: Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.1).
	Subaction #946I: Coordinate with the Watershed Stewards Program to identify any actions it may take to aid in the Gee Creek restoration effort. If low flows are identified as an issue needing to be addressed, the City should undertake a review of alternative sources of supply, similar to that discussed in Section 3.3.1. The City's existing plans for new wells should be considered in this exercise, if the new wells are anticipated to have less of an effect upon stream flows than current sources. Pg 3-24
	Action #962: Within authorities, identify floodplain restoration projects and implement where feasible (See Section 4.5.3).
	Subaction #962B: Coordinate with the Watershed Stewards Program to identify any actions it may take to aid in the Gee Creek restoration effort. Pg. 3-24
Plan Background & Context	Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. Pg 4-26 The Planning Unit recommends that the City coordinate with the Watershed Stewards Program to identify any actions it may take to aid in the Gee Creek restoration effort. If low flows are identified as an issue needing to be addressed, the City should undertake a review of alternative sources of supply, similar to that discussed in Section 3.3.1. The City's existing plans for new wells should be considered in this exercise, if the new wells are anticipated to have less of an effect upon stream flows than current sources. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-24

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Subaction relates to assessment of instream flow impacts in Gee Creek through the Watershed Stewards Program, and investigation of alternative sources if problems are identified. This Subaction supports implementation of Action #946, which addresses replacement of existing sources of supply with different sources to reduce impacts on stream flows, and Action #944 which addresses development of new or expanded supplies. Assessment of alternative water sources under this Subaction also relates to Subactions 945H and 945I, which call for evaluation of water purchase from Clark Public Utilities, as well as investigation of other potential sources. If Clark Public Utilities develops a regional supply source on the Lower East Fork/North Fork Lewis Rivers per Subaction #946D, use of the intertie could potentially transfer withdrawal effects to this regional source. If the City of Ridgefield pursues purchase/source substitution and existing Gee Creek water rights are no longer needed for primary or backup supply, the City could consider transferring water rights to the State Trust as a voluntary action (Action #961).
Expected Outcomes	Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Ridgefield service area. Improve summer low flow conditions within Gee Creek.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) SFP-6: Battle Ground, Ridgefield, and Yacolt – State Trust Water Rights (Pg 4-27)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Coordinate with Watershed Stewards Program	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Hold coordination meetings with the Watershed Stewardship Program • Participate in evaluation of instream flow assessment and identification of actions to aid in Gee Creek restoration efforts • If low flows are identified as a concern, implement Subactions #945H, #945I and #946.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Coordination meetings; consulting services; staff time; participation in field evaluations; public outreach; project administration; etc.	
Funding Source(s)	Water rates and hookup charges in affected service area. Grants or low-interest loans from existing state & federal programs, etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) may be needed between City of Ridgefield and implementing partners to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to coordinate with the Watershed Stewards Program and participate in instream flow analysis; the level of coordination and cooperation between entities may affect project success and outcomes;		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #947 AND SUBACTION #947A
DEVELOP AQUIFER MAP

Action Summary¹	
Lead Partner(s)	Planning Unit
Oversight Responsibilities	Planning Unit, Ecology
Coordinating Partner(s)	Ecology, Planning Unit, USGS (potentially)
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #947: Develop map of region's aquifers with emphasis on surface water hydraulic continuity (See Section 3.3.1)
	Subaction #947A: Develop a map that depicts the locations of deep aquifers that are not in hydraulic continuity with streams and are suitable for water supply development. (Tasks would include engineering studies, plan development, etc). Pg 3-12
Plan Background & Context	The WRIA 27/28 Plan recognizes that water supply management has a significant relationship to management of stream flows. To achieve a balance between protection of instream flows and water supply needs, the Plan recommends increased emphasis on groundwater supplies rather than surface water supplies, and utilization of "regional" water sources per the following: The Planning Unit views the Columbia River and ground water in hydraulic continuity with the Columbia River as a major water resource to meet water supply needs. As new water supplies are needed, it is preferable they be withdrawn from the Columbia River, adjacent lowland reaches of tributaries subject to tidal effects, and/or associated ground waters, rather than from flow-limited reaches of streams tributary to the Columbia. This approach can meet regional supply needs, while protecting important aquatic habitat in the region (Pg 3-15) To assist with identification of alternative water sources, the Plan provides the following recommendation: The Planning Unit recommends that a map be developed during the implementation phase of the watershed planning process that would depict locations of deep aquifers suitable for water supply development. Such a map could be developed in partnership with the USGS, and will involve a study to identify aquifers that are not in hydraulic continuity with streams. Pg 3-12

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions, and Coordination Needs	Completion of this Subaction would provide information needed to support the alternatives source analysis outlined in Section 3.3.1 of the Plan per Subaction #944B. This Subaction also relates to completion of planning studies to explore alternative sources of supply per Action #945 and its associated Subactions.
Expected Outcomes	This Subaction would result in completion of a study of regional aquifers and development of maps that describe the locations of deep aquifers suitable for water supply development, and aquifers that are not in direct hydraulic continuity with Columbia River tributaries. This will assist with long-term transition to regional water supply sources that: • Provide public and private water users throughout WRIAs 27 and 28 with access to water resources to meet new or expanded needs for water supply consistent with adopted land use plans (see WSP-1); and • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages (see WSP-2).
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Columbia River Resource (Pg 3- 9) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pgs 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-26)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify funding sources (e.g., Ecology Watershed Planning Implementation Grants) - Complete grant application and submit to funding source - Secure funds - Develop detailed scope of work - Prepare RFP/hire contractor - Coordinate with existing service providers and affected jurisdictions (Planning Unit) - Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$170,000.00	
Key Cost Drivers	Staff and Planning Unit time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	TBD (e.g., Phase 4 Watershed Planning Grants)	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	Not Applicable	
Describe O&M Tasks	Not Applicable	

Task 2	Complete Aquifer Study and Prepare Report and Maps	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with Planning Unit and affected entities • Compile existing information (e.g., reports, maps, studies, plans, etc.) • Conduct additional monitoring and assessment as necessary • Develop draft report • Planning Unit review and approval of draft report and products • Revisions to draft report and products • Planning Unit Final approval of final products • Publish report and maps	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; data collection; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Same as Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc		
Operation and Maintenance		
Estimated Annual Cost	Not Applicable	
Describe O&M Tasks	Not Applicable	
General Comments		

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #948 AND SUBACTION #948A
ENHANCED CONSERVATION EXCEEDING STATE REQUIREMENTS
CITY OF BATTLE GROUND**

Action Summary¹	
Lead Partner(s)	City of Battle Ground
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Clark Public Utilities
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #948: Enhanced conservation exceeding state requirements in selected communities (See Section 3.3.1).
	Subaction #948A: Enhance current conservation efforts, with the goal of reducing the production required of existing wells. Pg 3-21
Plan Background & Context	The City's sources of supply consist of 8 ground water wells. In addition to these well supplies, the City has three interties with Clark Public Utilities (CPU). These interties are used only in the following situations: 1) for assistance in meeting some peak demands, 2) while the City's wells are out of operation for maintenance, and 3) for emergency purposes. The City has implemented various conservation activities including an increasing block water rate structure and an advertisement campaign. As part of the watershed planning effort, relationships between surface water and ground water in the East Fork Lewis River subbasin were reviewed (PGG 2003a). This review indicates that Battle Ground's wells in the Upper Troutdale and Sand and Gravel Aquifers likely capture baseflow from both the East Fork and Salmon Creek. Due to the importance of protecting and restoring stream flows in these subbasins, the Planning Unit offers the following recommendation for Battle Ground's water supplies. Battle Ground should enhance its current conservation efforts, with the goal of reducing the production required of existing wells. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-21

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Action could assist with achieving instream flow objectives under the target flow monitoring and implementation program called for in Action #956. Identification and implementation of water conservation actions is also related to the process identified in Section 3.3.1, as described in Action #944B. When implemented in concert with source substitution Action #946, this Action could improve instream flows while providing for community supply needs. Because of infrastructure interties, coordination with Clark Public Utilities may be needed. Coordination with Department of Ecology and Department of Health may also be needed to identify conservation opportunities and implementation considerations.
Expected Outcomes	Implementation of water conservation measures that: • Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Battle Ground service area; and • Improve summer low flow conditions within Salmon Creek, East Fork Lewis River and other tributaries that may be affected by existing or future groundwater withdrawals.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-1: Water Supply – Clark Public Utilities (Pg 3-19) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Conservation – Battle Ground (Pg 3-21) Policy WSP-2: CPU Wholesale Supply – Battle Ground (Pg 3-21) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield – Source Substitution (Pg 4-41)
Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Coordinate with existing service providers and affected jurisdictions • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Conduct Feasibility Study	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of conservation alternatives (impacts, costs, logistics, etc.), including any needed field assessment • Identify “preferred alternatives” for implementation • Approval of preferred alternatives by City of Battle Ground, Department of Health and Department of Ecology, as appropriate • Publish alternatives analysis report		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for plan development (if needed) - Develop preliminary design and engineering plans for the preferred alternatives - Prepare final design and engineering plans for approval - Approval of preferred alternative by City of Battle Ground, Department of Health and Department of Ecology as appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Project Construction
Schedule	
Start Date	TBD
Planned/Actual Completion	TBD
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight

	• Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply/material costs may affect construction timelines or budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Est. Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION 948 AND SUBACTION #948B
ENHANCED CONSERVATION EXCEEDING STATE REQUIREMENTS
CITY OF RIDGEFIELD**

Action Summary¹	
Lead Partner(s)	City of Ridgefield
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Clark Public Utilities
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #948: Enhanced conservation exceeding state requirements in selected communities (See Section 3.3.1).
	Subaction #948B: Enhance current conservation efforts, with the goal of reducing the production required of existing wells, to protect flows in Gee Creek. Pg 3-22
Plan Background & Context	The City's water supply consists of 3 active wells and 2 standby wells located in Abrams Park, near Gee Creek. The City has also recently developed an intertie with Clark Public Utilities on the east side of the City's system. In the near term, this intertie is intended only to support fire flow needs. However, wholesale purchases from CPU via the intertie are a supply option for the future. Pg 3-24 The City will require additional sources of supply to meet future needs. The City's current future supply strategy consists of maximizing the use of its existing wells, as well as installing multiple new wells over the course of the next 12 years. Pg 3-24 The City supports the work of the Gee Creek Restoration Committee, efforts of which are guided by the Washington State University (WSU) Cooperative Extension Watershed Stewards Program for the purposes of reducing negative impacts to Gee Creek (e.g., high flows and water quality concerns) due to stormwater runoff. Pg 3-24 Ridgefield should enhance its current conservation efforts, with the goal of reducing the production required of existing wells. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-24

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Action could assist with achieving instream flow objectives under the target flow monitoring and implementation program called for in Action #956. Identification and implementation of water conservation actions is also related to the process identified in Section 3.3.1, as described in Action #944B. When implemented in concert with source substitution Action #946, this Action could improve instream flows while providing for community supply needs. Because of infrastructure interties, coordination with Clark Public Utilities may be needed. Coordination with Department of Ecology and Department of Health may also be needed to identify conservation opportunities and implementation considerations.
Expected Outcomes	Implementation of water conservation measures that: • Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Ridgefield service area • Improve summer low flow conditions within Gee Creek
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Streamflow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Conservation – Ridgefield (Pg 3-22) Policy WSP-2: Gee Creek Restoration – Ridgefield (Pg 3-22) Policy WSP-2: CPU Wholesale Supply – Ridgefield (Pg 3-24) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41)
Is the Activity Fully Funded?	~Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Coordinate with existing service providers, affected jurisdictions and the Watershed Stewards Program (see Subaction 946I) • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Conduct Feasibility Study	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of conservation alternatives (impacts, costs, logistics, etc.), including any needed field assessment • Identify “preferred alternatives” for implementation • Approval of preferred alternatives by City of Ridgefield, Department of Health and Department of Ecology, as appropriate • Publish alternatives analysis report		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other	TBD		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for plan development (if needed) - Develop preliminary design and engineering plans for the preferred alternatives - Prepare final design and engineering plans for approval - Approval of preferred alternative by City of Ridgefield, Department of Health and Department of Ecology as appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4		Project Construction	
Schedule			
Start Date		TBD	
Planned Completion		TBD	
Actual Completion		TBD	
Benchmarks/ Milestones		• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc). • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs			
Costs		Period Beginning: TBD	Amount: TBD
		Total: TBD	
Key Cost Drivers		Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)		See Task 1	
Logistical Needs		Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals		Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Constraints and Uncertainties			
Constraint		Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance			
Est. Annual Cost		TBD	
Describe O&M Tasks		Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments			

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #948 AND SUBACTION #948C
ENHANCED CONSERVATION EXCEEDING STATE REQUIREMENTS
CITY OF CAMAS**

Action Summary¹	
Lead Partner(s)	City of Camas
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Fish and Wildlife
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #948: Enhanced conservation exceeding state requirements in selected communities (See Section 3.3.1).
	Subaction #948C: Enhance existing conservation program to reduce water diversions from Jones and Boulder Creeks. However, if source substitution is pursued instead, this may be unnecessary. Pg. 4-54
Plan Background & Context	The City's sources of supply are comprised of nine ground water wells and two surface water sources. The two surface water sources are Jones and Boulder Creeks, which have been providing the City with water since the early 1900's. The City relies primarily upon its ground water supplies, with surface water accounting for about one-third of total production. Three emergency interties with the City of Washougal provide additional supply reliability for the City. Pg 3-19 Due to the impacts upon stream flows in Boulder and Jones Creeks of the City's surface water diversions, Camas should undertake a review of alternative sources of supply, similar to that discussed in Section 3.3.1. The City's existing plans for new ground water development near the Washougal River should be considered in this process, if the new wells are anticipated to not have negative impacts upon the river. If new water rights are secured by the City, the Jones and Boulder Creek sources should be retired, or used during periods of high flow only, as a condition of the new water right. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-54 The City of Camas should enhance its existing conservation program to reduce water diversions from Jones and Boulder Creeks. However, if source substitution is pursued instead, this may be unnecessary. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-54

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	Identification and implementation of water conservation actions is also related to the process identified in Section 3.3.1, as described in Action #944B. When implemented in concert with source substitution Action #946, this Action could improve instream flows while providing for community supply needs. However, if Subaction #946F (Jones/Boulder Creeks Source Substitution) is completed, implementation of this Subaction may not be needed to protect instream flows in Jones and Boulder Creeks. Because of infrastructure interties, coordination with City of Washougal may be needed. Coordination with Department of Ecology and Department of Health may also be needed to identify conservation opportunities and implementation considerations.
Expected Outcomes	Implementation of water conservation measures that: • Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the City of Camas service area • Improve summer low flow conditions within Jones and Boulder Creeks, the Little Washougal River, and the Washougal River.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Streamflow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Surface Water Sources - Camas (Pg 3-20) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Regional Supply Options – Camas (Pg 3-20) Policy SFP-3: Water Conservation – Camas (Pg 4-54) Policy SFP-3: Camas – Source Substitution (Pg 4-55)
Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Pre-planning: • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Coordinate with existing service providers (e.g., City of Washougal), Georgia Pacific, and affected jurisdictions • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Conduct Feasibility Study	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of conservation alternatives (impacts, costs, logistics, etc.), including any needed field assessment • Identify “preferred alternatives” for implementation • Approval of preferred alternatives by City of Camas, Department of Health and Department of Ecology, as appropriate • Publish alternatives analysis report		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other	TBD		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for plan development (if needed) - Develop preliminary design and engineering plans for the preferred alternatives - Prepare final design and engineering plans for approval - Approval of preferred alternative by City of Camas, Department of Health and Department of Ecology as appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	

Constraints and Uncertainties	
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Operation and Maintenance	
Est. Annual Cost	TBD
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.

General Comments

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #948 AND SUBACTION #948D
ENHANCED CONSERVATION EXCEEDING STATE REQUIREMENTS –
TOWN OF YACOLT**

Action Summary¹	
Lead Partner(s)	City of Camas
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Fish and Wildlife
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #948: Enhanced conservation exceeding state requirements in selected communities (See Section 3.3.1).
	Subaction #948D: Enhance existing water conservation programs to protect stream flows. This may be unnecessary, however, if source substitution is pursued instead (see below). Pg 4-41
Plan Background & Context	There are some exceptions, however, where surface water is used, or where municipal wells are located in close proximity to surface water bodies. In these cases, stream flow may be affected upstream of tidal reaches. These include the Cities of Battleground, Ridgefield, and Yacolt. Enhanced conservation efforts by these municipalities may provide some benefit to stream flows, due to the potential hydraulic connectivity between their wells and nearby streams. Pg 4-23. The City's wells are in close proximity to Yacolt Creek, a tributary to the East Fork Lewis River. Pg 4-41 Conservation activities that exceed state requirements should be carried out in selected communities where water use has the potential to cause significant impairment of stream flow conditions. Based on the Planning Unit's assessment of watershed conditions, these communities include Battle Ground, Ridgefield, Yacolt, and Camas (see Sections on East Fork Lewis River and Washougal River for further discussion of these communities). This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-34
Relationship to Other Actions and Coordination Needs	Identification and implementation of water conservation actions is also related to the process identified in Section 3.3.1, as described in Action #944B. When implemented in concert with source substitution Action #946, this Action could improve instream flows while providing for community supply needs. Enhanced conservation would also support successful implementation of the East Fork Lewis River target flow monitoring program goals and objectives per Subaction #956B. Coordination with Department of Ecology and Department of Health may also be needed to identify conservation opportunities and implementation considerations.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Expected Outcomes	Implementation of water conservation measures that: • Provide a long-term regional water source to meet projected residential, commercial and industrial growth needs within the Town of Yacolt service area • Improve summer low flow conditions within Yacolt Creek and the East Fork Lewis River.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-2: Streamflow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy SFP-1: Target Flows – East Fork Lewis River (Pg 4-43, 4-45, 4-56 and 4-57) Policy SFP-3: Water Conservation (Pg 4-54) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41)
Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify funding sources - Secure funds - Prepare RFP/hire contractor (if needed) (addresses following Tasks) - Coordinate with existing service providers (Clark Public Utilities) and affected jurisdictions - Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Conduct Feasibility Study	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Coordinate with adjacent or existing service providers as needed • Conduct feasibility analysis of conservation alternatives (impacts, costs, logistics, etc.), including any needed field assessment • Identify “preferred alternatives” for implementation • Approval of preferred alternatives by Town of Yacolt, Clark Public Utilities, Department of Health and Department of Ecology, as appropriate • Publish alternatives analysis report		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other	TBD		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3		Project Design and Engineering	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Contract for plan development (if needed) - Develop preliminary design and engineering plans for the preferred alternatives - Prepare final design and engineering plans for approval - Approval of preferred alternative by Town of Yacolt, Clark Public Utilities, Department of Health and Department of Ecology as appropriate		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other			
Constraints and Uncertainties			
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.		
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 4		Project Construction	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing;		

	Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance			
Resource Needs				
Costs	Period Beginning: TBD	Amount: TBD		
	Total: TBD			
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.			
Funding Source(s)	See Task 1			
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.			
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.			
Constraints and Uncertainties				
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.			
Operation and Maintenance				
Est. Annual Cost	TBD			
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.			
General Comments				

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #949 AND SUBACTIONS #949A AND #949B
INDUSTRIAL SUPPLIES

Action Summary¹	
Lead Partner(s)	Urban/Suburban Development Providers, Industrial facilities
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Municipalities, Counties, Cities, Purveyors, Planning Unit
Action Type	Requirement ~ Recommendation ☒ (Note: The process in 3.3.1 may be a requirement, but substituting sources is not).
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #949: Industrial supplies: Expand conservation & reuse; develop non-potable sources; connect to municipal systems (See Section 3.5.3).
	Subaction #949A: Where feasible, industries requiring additional sources of supply in the future should connect to existing municipal water supplies. Where not feasible due to technical issues, logistics, or cost, then it is recommended that the industry evaluate alternative sources as described in Section 3.3.1. Pg 3-31
	Subaction #949B: New urban or suburban developments or industrial facilities that require new or expanded water supplies shall seek to obtain water from existing municipal or other water suppliers rather than developing separate sources of supply. (Note: this would not apply to agricultural uses). If an existing municipal supplier or other water supplier is not available, then the new development or industrial facility should explore water supply sources that are not in hydraulic continuity with surface water or explore the feasibility of developing tidal and/or Columbia River sources. If none of these options are available, Ecology may consider issuing water rights that entirely off-set the net impact to stream flow. Pg 3-16
Plan Background & Context	In general, the Planning Unit recommends that new urban or suburban developments or industrial facilities that require new or expanded water supplies shall seek to obtain water from existing municipal or other water suppliers rather than developing separate sources of supply as described above in Subactions #949A and #949B. However, there are currently no large municipal water systems in Skamania County. Therefore the recommendation above has little applicability in Skamania County at this time. This could change in the future, if growth leads to creation of larger public water systems in Skamania County. Options to provide financial incentives and/or technical assistance to large industries for water conservation and water reuse will be explored, where this can be linked directly to protection of stream flows. Pg 3-16

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Projection of water usage by self-supplied industry in the future is highly uncertain. In general, a basic assumption is that existing industries will continue to use the same amount of water used now; and that new industries will be supplied by major public water systems, with their needs included in existing demand projections. However, these assumptions were modified to address specific cases where available information suggests different assumptions are warranted. Pg 3-29
Relationship to Other Actions and Coordination Needs	Implementation of this action relies upon use of existing municipal or other water sources to meet urban, suburban or industrial facility needs. This Subaction therefore relates to water supply actions for municipal providers (e.g. Actions #944, #946 and associated Subactions). If existing sources are not available, then this Subaction calls for identification of alternative sources, in a manner similar to that outlined in Section 3.3.1. This Subaction also relates to Industrial Supply Subactions #949C, #949D, #949E, which address technical assistance, development of non-potable supplies, technical assistance, and water conservation and reuse. Close coordination between the action lead and existing purveyors and regulatory agencies will be needed.
Expected Outcomes	Development of water supplies that: • Meet new or expanded needs for urban, suburban and industrial water supply consistent with adopted land use plans (see WSP-1) • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages. (see WSP-2)
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Regional Water Supply Options - Columbia River (Pg 3-15) Policy WSP-1: Water Supply – Large Industrial Plants (Pg 3-31) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy WSP-2: Water Supply – New Developments and Industrial Supplies (pg 3-16) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-120) Policy WSP-2: Columbia River Supply – Industrial (Pg 3-31) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-26) Policy SFP-5: Source Substitution – Georgia Pacific Mill (Pg 4-51)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low to High (Varies by facility)
Tasks not Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Supply Needs and Availability Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Prepare RFP/hire contractor (or complete with existing staff) • Conduct water demand assessment for planning horizon • Determine gap between existing water rights and future water demand, and net quantity needed • Identify existing purveyors that could potentially provide service • For each purveyor, review existing water right information using the following sources: - o WRATS - o DOH database - o WRIA 25/26 Plan - o Inchoate assessment - o Purveyor information • Identify potential providers based upon initial screening of quantities available in relation to documented demand) • Contact potential providers to discuss possibility of obtaining water Options - • If purveyor is willing and water rights are available and adequate, negotiate supply agreement and proceed to Task 2. • If purveyors are not willing and/or water is not available and adequate, pursue source expansion/substitution actions per Section 3.3.1 (See Actions #944 and #946)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Engineering service fees; staff time and resources	
Funding Source(s)	TBD	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Water right permit from Ecology may be needed if expansion of existing purveyor source is needed. Agreements between urban/suburban/industrial lead and purveyor will be needed.	
Constraints and Uncertainties		
TBD		
Operation and Maintenance		
Est. Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for design and engineering services (or use existing staff) - Develop preliminary design and engineering plans - Prepare final design and engineering plans for approval - Approval of preferred alternative by project proponent, purveyor, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Engineering service fees; staff time and resources	
Funding Source(s)	TBD	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Approval of final design and engineering by the project proponent, purveyor, Department of Health and Department of Ecology. Modification of existing purveyor Water System Plans may be needed (See Action 944A).	
Other		
Constraints and Uncertainties		
Constraint		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Water Right Permitting (if needed)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Develop application package for proposed water right • Develop proposal for off-setting and mitigating actions addressing (if needed) ◦ Acquisition of upstream water rights ◦ Flow related actions ◦ Habitat restoration actions (per Section 3.3.1) • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance, proposal for off-setting and mitigating actions (if needed), and

	requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	TBD	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	TBD	
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290.	
Response	Develop a sound application proposal consistent with the guidelines and strategy outlined in the plan.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Project Permitting and Approvals	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Complete and file permit applications: shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404 (if needed); and Section 401 Certification (if needed) • Prepare and submit revisions to Water System Plan for review and approval by Washington Department of Health and Ecology • Prepare and submit biological assessment for ESA consultation (if needed) • Complete SEPA (if EIS needed, more refined benchmarks and milestones will be needed) • Secure necessary permits, authorizations and approvals	

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	TBD	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Potential permits and approvals include: shoreline substantial development permit; critical areas permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. Revisions to the Water Supply Plan (WSP) may be required, which may also necessitate compliance with SEPA.	
Other		
Constraints and Uncertainties		
Constraint	Permitting and associated review processes and consultations may delay project implementation. General constraints and uncertainties also include availability of funding for feasibility, design/engineering, and construction work.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s) (or use existing staff) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Supplies; materials; construction management services; engineering service fees; staff time and resources, etc	
Funding Source(s)	TBD	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance.	
Other		
Constraints and Uncertainties		
Constraint	TBD	
Response	Close coordination with permitting agencies and purveyor will be needed throughout analysis, project design, engineering and construction phases.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance, in coordination with purveyors.	

General Comments

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #949 AND SUBACTIONS
#949C AND #949G**

EVALUATE DEVELOPMENT OF COLUMBIA RIVER NOTNPOTABLE SUPPLIES

Action Summary¹	
Lead Partner(s)	City of Camas, Self-supplied Industrial Water Users, Planning Unit
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Georgia Pacific
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #949: Industrial supplies: Expand conservation & reuse; develop non-potable sources; connect to municipal systems (See Section 3.5.3).
	Subaction #949C: Re-evaluate development of a non-potable Columbia River supply, considering the substantial amount of water used for industrial purposes in the City. The Planning Unit commits to aiding the City in identifying and obtaining funding sources for implementation of such a project, most likely through programs administered by Ecology and DOH. Pg. 3-20 Subaction #949G: Evaluate development of Columbia River non-potable supplies, similar to that considered by the City of Camas. The Planning Unit commits to aiding industries in identifying and obtaining funding sources for implementation of such a project, most likely through programs administered by Ecology and DOH. Pg. 3-31
Plan Background & Context	Projection of water usage by self-supplied industry in the future is highly uncertain. In general, a basic assumption is that existing industries will continue to use the same amount of water used now; and that new industries will be supplied by major public water systems, with their needs included in existing demand projections. Pg 3-29 Because of the importance of the lower reach of Lacamas Creek in supporting Chum recovery objectives, it would be valuable to protect and restore flows in the Lacamas Creek drainage. This includes addressing land use and water use issues in the developing area throughout the Lacamas Creek Subbasin, as well as exploring opportunities to reduce impacts of the Georgia-Pacific water usage on the lower reach of the creek. Pg 4-51 The Planning Unit places an emphasis upon water conservation and reuse with respect to industries with large water demands. Ecology and DOH should develop technical assistance and funding opportunities focused specifically upon the needs of self-supplied industries, to aid in reducing current water demands. Pg 3-31

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Where feasible, industries requiring additional sources of supply in the future should connect to existing municipal water supplies. Where not feasible due to technical issues, logistics, or cost, then it is recommended that the industry evaluate alternative sources as described in Section 3.3.1. Pg 3-31 The Planning Unit recommends that large, self-supplied industrial water users evaluate development of Columbia River non-potable supplies, similar to that considered by the City of Camas. The Planning Unit commits to aiding industries in identifying and obtaining funding sources for implementation of such a project, most likely through programs administered by Ecology and DOH. Pg 3-31
Relationship to Other Actions and Coordination Needs	Evaluation and development of non-potable supplies is consistent with and supports the recommended alternative source planning studies (Subaction #945C), source substitution Subactions (e.g., Subactions #946 and #946F), and enhanced conservation measures (Subaction #946C). If non-potable water supplies are identified and developed, any instream flow improvements would assist with meeting target flow monitoring and management program goals, per Action #956. Reducing instream flow and habitat impacts in Lacamas Creek will also help to achieve established recovery goals for priority fish populations. Close coordination between the City of Camas, Georgia Pacific, and state agencies will be needed.
Expected Outcomes	Identify opportunities for industrial use of non-potable water sources to meet existing or expanded supply needs (see WSP-1). Reduce potential adverse effects of industrial supply withdrawals on stream flows and aquatic habitat (see WSP-2).
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options - Columbia River (Pg 3-15) Policy WSP-1: Water Supply – Large Industrial Plants (Pg 3-31) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Water Supply – New Developments and Industrial Supplies (pg 3-16) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-120) Policy WSP-2: Conservation and Reuse – Industrial Needs (Pg 3-31) Policy WSP-2: Columbia River Supply – Industry (Pg 3-31) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pgs 4-43, 4-45, 4-56 and 4-57) Policy SFP-3: Water Conservation – Camas (Pgs 4-23 and 4-54) Policy SFP-5: Source Substitution – Georgia Pacific Mill (Pg 4-51)
Is the Activity Fully Funded?	☒ Yes ~ No
Financial/Economic Costs ²	Low to High (Varies by facility)

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks	
Task 1	Pre-project Planning
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Planning Unit facilitation of coordination meeting between existing service providers, affected jurisdictions, and regulatory agencies (e.g., City of Camas, Georgia Pacific, Department of Ecology, Department of Health, etc) - Identify roles and responsibilities of participating entities - Identify funding sources - Secure funds (Planning Unit assistance) - Prepare RFP/hire contractor (if needed) (addresses following Tasks) - Possible MOU/MOA between entities
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: TBD
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.
Funding Source(s)	TBD. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.
Other	
Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 2		Conduct Feasibility Study	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Conduct feasibility analysis of non-potable supply alternatives (sources, impacts, costs, logistics, instream flow benefits, etc.), including any needed field assessment - Identify “preferred alternatives” for implementation of non-potable source alternatives - Approval of preferred alternatives (e.g., City of Camas, Georgia Pacific, Department of Health and Department of Ecology, as appropriate) - Publish alternatives analysis report		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.		
Other	TBD		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			
Operation and Maintenance			
Estimated Annual Cost	TBD		
Describe O&M Tasks	TBD		

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for plan development (if needed) - Develop preliminary design and engineering plans for the preferred alternatives - Prepare final design and engineering plans for approval - Approval of preferred alternative by City of Camas, Georgia Pacific, Department of Health and Department of Ecology, as appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4		Project Construction	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Identify construction lead - Prepare final construction plans and specifications for permitting - Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) - Prepare RFP and hire contractor(s) - Initiate construction - Project management and oversight - Project completion - Operation and Maintenance		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.		
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.		
Constraints and Uncertainties			
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.		
Operation and Maintenance			
Est. Annual Cost	TBD		
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.		
General Comments			

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #949 AND SUBACTIONS
#949D AND #949E
IDENTIFY AND IMPLEMENT ACTIONS TO REDUCE
GEORGIA PACIFIC LACAMAS CREEK IMPACTS – CITY OF CAMAS**

Action Summary¹	
Lead Partner(s)	City of Camas, Georgia Pacific
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Ecology, Department of Health
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #949: Industrial supplies: Expand conservation & reuse; develop non-potable sources; connect to municipal systems (See Section 3.5.3).
	Subaction #949D: Provide technical assistance and financial support to Georgia Pacific in developing water conservation measures that would reduce dependency on surface water from Lacamas Creek and ground water from the lower Washougal River vicinity. Any ground water savings realized through conservation could be available to help meet the City's growth needs. Pg. 3-20 Subaction #949E: Identify and carry out actions to reduce the impact of Georgia-Pacific's water use on Lacamas Creek. These actions may include a combination of source-substitution; water conservation; and/or water reclamation and reuse within the paper mill. The State of Washington should offer technical assistance for this purpose. In addition, the State of Washington should identify funding mechanisms that could, in part, contribute to reduction of water usage at the mill. Pg. 4-51
Plan Background & Context	The City's average daily demand will likely exceed the City's primary annual water rights by year 2006. This situation may occur sooner, if industrial growth happens at a quicker pace than anticipated. Pg 3-19 Because of the importance of the lower reach of Lacamas Creek in supporting Chum recovery objectives, it would be valuable to protect and restore flows in the Lacamas Creek drainage. This includes exploring opportunities to reduce impacts of the Georgia-Pacific water usage on the lower reach of the creek. Pg 4-51 The Planning Unit recommends that the City provide technical assistance and financial support to Georgia Pacific in developing water conservation measures that would reduce dependency on surface water from Lacamas Creek and ground water from the lower Washougal River vicinity. Any ground water savings realized through conservation could be available to help meet the City's growth needs. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-20

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	The Plan calls for identification and implementation of actions to reduce the impact of Georgia-Pacific's water use on Lacamas Creek. These may include a combination of source-substitution; water conservation; and/or water reclamation and reuse within the paper mill. The State of Washington should offer technical assistance for this purpose. In addition, the State of Washington should identify funding mechanisms that could, in part, contribute to reduction of water usage at the mill. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-51
Relationship to Other Actions and Coordination Needs	Identification and implementation of actions to reduce Georgia Pacific's impacts to Lacamas Creek is consistent with and supports the recommended alternative source planning studies (Subaction #945C), source substitution Subactions (e.g., Subactions #946 and #946F), and enhanced conservation measures (Subaction #946C). If non-potable water supplies are identified and developed, any instream flow improvements would assist with meeting target flow monitoring and management program goals, per Action #956. Reducing instream flow and habitat impacts in Lacamas Creek will also help to achieve established recovery goals for priority fish populations. Close coordination between the City of Camas, Georgia Pacific, and state agencies will be needed.
Expected Outcomes	Identification and implementation of water supply actions that: • Meet new or expanded needs for industrial and City of Camas water supplies (see WSP-1); and • Reduce potential adverse effects of industrial supply withdrawals on Lacamas Creek stream flows and aquatic habitat (see WSP-2) (see WSP-2)
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options - Columbia River (Pg 3-15) Policy WSP-1: Water Supply – Large Industrial Plants (Pg 3-31) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Water Supply – New Developments and Industrial Supplies (pg 3-16) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-120) Policy WSP-2: Conservation and Reuse – Industrial Needs (Pg 3-31) Policy WSP-2: Columbia River Supply – Industry (Pg 3-31) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pgs 4-43, 4-45, 4-56 and 4-57) Policy SFP-3: Water Conservation – Camas (Pgs 4-23 and 4-54) Policy SFP-5: Source Substitution – Georgia Pacific Mill (Pg 4-51)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low to Medium

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Tasks not Fully Funded	TBD

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• City of Camas facilitation of coordination meeting between existing affected jurisdictions and regulatory agencies (e.g., City of Camas, Georgia Pacific, Department of Ecology, Department of Health, etc) • Identify roles and responsibilities of participating entities • Identify funding sources (State of Washington lead) • Secure funds (State of Washington lead) • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Possible MOU/MOA between entities	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	TBD. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; city development fees; large water users; assessments of affected properties (local improvement districts); Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Conduct Feasibility Study	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Conduct feasibility analysis of conservation alternatives (impacts, costs, logistics, etc.) and other actions to reduce instream flow impacts, including any needed field assessment • Identify potential ground water savings realized through conservation or other actions that are available to meet the City’s growth needs • Identify “preferred alternatives” for implementation of non-potable source alternatives • Approval of preferred alternatives (e.g., City of Camas, Georgia Pacific, Department of Health and Department of Ecology, as appropriate) • Publish alternatives analysis report	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Contract for plan development (if needed) • Develop preliminary design and engineering plans for the preferred alternatives • Prepare final design and engineering plans for approval • Approval of preferred alternative by City of Camas, Georgia Pacific, Department of Health and Department of Ecology, as appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct design and engineering analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect design and engineering alternatives; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Water Right Permitting (If net water savings are available for transfer to City of Camas)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Planned Completion	• Develop application package for proposed water right transfer • Submit application to Ecology • Ecology review and coordination with WDFW • Consultation with Planning Unit (if needed) • Decision on application considering consistency with plan guidance and requirements of RCW 90.03.290, including the following: - o Water will be put to beneficial use - o There is no impairment to existing, or senior, rights; - o Flow related actions - o Water is available for appropriation - o Issuance of the requested water right will not be detrimental to the public welfare.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; application fees; modeling/data analysis and assessment; acquisition of water rights; agency coordination meetings; field assessment and studies; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; etc.	
Agreements, Ordinances, Permits & Approvals	Permit outcomes will depend upon consistency with Ecology’s permit approval criteria and plan guidance.	
Other		
Constraints and Uncertainties		
Constraint	Permitting outcome will depend on how well the application package addresses requirements outlined in the plan and requirements of RCW 90.03.290.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 5	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, purveyor, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Est. Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #949 AND SUBACTION #949F
INDUSTRIAL SUPPLIES – TECHNICAL ASSISTANCE AND FUNDING

Action Summary¹	
Lead Partner(s)	Planning Unit, Ecology, DOH
Oversight Responsibilities	Ecology, DOH
Coordinating Partner(s)	TBD
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #949: Industrial supplies: Expand conservation & reuse; develop non-potable sources; connect to municipal systems (See Section 3.5.3).
	Subaction #949F: The Planning Unit places an emphasis upon water conservation and reuse with respect to industries with large water demands. Ecology and DOH should develop technical assistance and funding opportunities focused specifically upon the needs of self-supplied industries, to aid in reducing current water demands. Pg 3-31 The Planning Unit recommends that large, self-supplied industrial water users evaluate development of Columbia River non-potable supplies, similar to that considered by the City of Camas. The Planning Unit commits to aiding industries in identifying and obtaining funding sources for implementation of such a project, most likely through programs administered by Ecology and DOH Pg 3-31
Plan Background & Context	In general, the Planning Unit recommends that new urban or suburban developments or industrial facilities that require new or expanded water supplies shall seek to obtain water from existing municipal or other water suppliers rather than developing separate sources of supply, as described in Action #949. Options to provide financial incentives and/or technical assistance to large industries for water conservation and water reuse will be explored, where this can be linked directly to protection of stream flows. The Plan calls upon Department of Health, Department of Ecology, and the Planning Unit to provide technical assistance and help obtain funding. Pg 3-16

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This action relates to providing technical and financial assistance to industrial water users seeking new or expanded supplies, or seeking to improve conservation of existing supplies. This Subaction is intended to facilitate the following: connection to existing municipal water supplies (Subaction #949A); exploration of alternative sources that are tidally influenced and not in continuity with tributary surface waters (Subaction #949B); evaluation of non-potable supplies (Subaction #949C); improved conservation (Subaction #949D); and improvements to instream flows (Subaction #949E). Implementation of this Subaction would also likely involve the alternative source analysis process outlined in Section 3.3.1, per Subaction #944B. Close coordination between industrial water users, Department of Ecology, and the Planning Unit will be needed. It is anticipated that the Planning Unit will take the lead in facilitating initiation of this Subaction.
Expected Outcomes	Development of water supplies that: • Meet existing, new or expanded industrial water supply needs consistent with WSP-1 • Reduce and avoid adverse effects on stream flows and aquatic habitat consistent with WSP-2
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Regional Water Supply Options - Columbia River (Pg 3-15) Policy WSP-1: Water Supply – Large Industrial Plants (Pg 3-31) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy WSP-2: Water Supply – New Developments and Industrial Supplies (pg 3-16) Policy WSP-2: Columbia River Supply – Camas (Pg 3-20) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-120) Policy WSP-2: Columbia River Supply – Industrial (Pg 3-31) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-26) Policy SFP-5: Source Substitution – Georgia Pacific Mill (Pg 4-51)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low to High (Varies by facility)
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Identify and Prioritize Technical Assistance and Funding Opportunities	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify and secure funding source for analyses • Identify industrial water users with conservation needs or increased demand for new or expanded supplies • Coordinate with industrial water users as needed • Prioritize technical assistance opportunities based on potential instream flow impacts and benefits (e.g., recovery reach tiering, population priorities, low-flow considerations, etc.) • Develop prioritized list of industrial users based on the above • Identify funding sources for subsequent Tasks	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Potential sources include: grants from existing state & federal programs; private industry; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; Phase 4 implementation grants; grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
TBD		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2		Conduct Alternative Action Analysis	
Schedule			
Start Date	TBD		
Planned Completion	TBD		
Actual Completion	TBD		
Benchmarks/ Milestones	- Identify highest priority implementation opportunities based on the above Task - In coordination with industrial user(s), identify and secure funding sources - In coordination with industrial user(s), identify (as appropriate): - Potential supply source alternatives, including but not limited to: - Different (most likely deeper) aquifer - Purchase of water neighboring community - Development of tidally-influenced source - Purchase from regional water system - Other potential measures to reduce instream flow impacts, including but not limited to: - Permanent curtailment of use - Seasonal curtailment of use - Conservation measures - Infrastructure improvements - Water re-use and reclamation - Coordinate with adjacent or existing service providers as needed - Conduct feasibility analysis of alternatives (e.g., impacts, costs, logistics, instream flow benefits, etc.) - Publish alternatives analysis report - Select preferred alternative(s) for implementation - In coordination with industrial user, solicit and secure funding for implementation		
Resource Needs			
Costs	Period Beginning: TBD	Amount: TBD	
	Total: TBD		
Key Cost Drivers	Consulting services; staff time; field testing; modeling/data analysis and assessment; coordination meetings; project oversight and administration; etc.		
Funding Source(s)	See Task 1		
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.		
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work and assessment; etc.		
Constraints and Uncertainties			
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water impacts will affect project outcomes and identification of a preferred alternative; etc.			

Operation and Maintenance	
Est. Annual Cost	TBD
Describe O&M Tasks	TBD

Task 3	Project Design, Engineering and Implementation (See Actions #946, #948, #949, etc.)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	See Actions #946, #948, #949, etc.	
Resource Needs		
Costs	Period Beginning	Amount:
	TBD	TBD
	Total: TBD	
Key Cost Drivers	See Actions #946, #948, #949, etc.	
Funding Source(s)	See Actions #946, #948, #949, etc.	
Logistical Needs	See Actions #946, #948, #949, etc.	
Agreements, Ordinances, Permits & Approvals	See Actions #946, #948, #949, etc.	
Other		
Constraints and Uncertainties		
Constraint	See Actions #946, #948, #949, etc.	
Response	See Actions #946, #948, #949, etc.	
Operation and Maintenance		
Estimated Annual Cost	See Actions #946, #948, #949, etc.	
Describe O&M Tasks	See Actions #946, #948, #949, etc.	

General Comments
See Actions #946, #948, #949, etc.

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTIONS #950 AND #965
INDIVIDUAL DOMESTIC WELLS AND
EXTENSION OF SEWER SERVICE- PLANNING CONSIDERATIONS**

Action Summary¹	
Lead Partner(s)	Counties (including Clark and Cowlitz), Cities
Oversight Responsibilities	Ecology, Department of Health
Coordinating Partner(s)	TBD
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	~ New ~ Existing/Ongoing ☒ Revised
Table Description	Action #950: Consider the effects of individual domestic wells when modifying or adopting comprehensive plans, zoning designations, or other land use regulations. Pg 3-7 (See Sections 3.5.2 and 4.4.4).
	Action #965: When modifying or adopting comprehensive plans, zoning designations, or other land use regulations, consider the water balance implications of allowing extension of sewer service to communities formerly served by septic systems (See Section 4.5.2). When modifying or adopting comprehensive plans, zoning designations, or other land use regulations, jurisdictions should consider the water balance implications of allowing extension of sewer service to developing areas. The Planning Unit recognizes that provision of sewer service can provide substantial water quality benefits. However, where sewer service is extended to replace septic systems, and residents continue to rely on water wells, stream flows may be reduced. This effect should be anticipated and mitigated where applicable. This is particularly important in areas with relatively dense development near small streams. Pg 4-31
Plan Background & Context	The Planning Unit commissioned a pilot review of data on domestic wells (exempt wells) in the Washougal River Basin. In this setting, where rural residences are relatively low-density, and where most houses have septic systems that return domestic water to the subsurface, well withdrawals have a relatively small effect on stream flow in the dry season. Based on this finding, management of exempt wells does not appear to be a high priority at the regional scale. However, there may be localized areas where due to density, availability of public sewer service, or other conditions, even domestic wells could cause problems for stream flow. Pg. 3-7 and 4-25 Based upon data on domestic wells and the results of the analysis described above, and considering the relatively small amount of water withdrawals comprised by this category of water use, the Planning Unit recommends that a reservation of water be identified in rule language that provides for domestic well use, even within closed basins. However, this is not intended to promote use of domestic wells in lands zoned for urban densities. In addition, this recommendation is intended for areas served by septic systems that return water to the shallow ground water locally.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Where homes are not served by septic systems or where sewer service is extended to an area, extension of public water supply may be needed. Pg 3-28 In limited cases, this policy may apply to rural areas where residents rely on domestic wells (exempt wells). Clark and Cowlitz counties should assess this possibility through a water-balance analysis, in selected rural areas where extensive new development is expected to occur or where there is substantial existing development served by exempt wells. The intent is to explore solutions for small creeks where a large number of existing domestic wells may deplete stream flows. Under the right circumstances, if a different source could be used to replace individual wells, effects on stream flow could potentially be reduced or eliminated. Local community views should be included in this process. Pg 4-26
Relationship to Other Actions and Coordination Needs	The Washougal River pilot assessment of exempt well impacts suggested that in areas where low density development is served by exempt wells and septic systems, instream flow impacts are not a high priority concern. However, Action #950 is intended to address situations where higher density development could pose problems to instream flows. Related Action #965 is intended to address situations where extension of sewer service to areas served by domestic wells could deplete instream flows. These Actions call for consideration of these potential instream flow impacts when modifying or adopting comprehensive plans, zoning designations, or other land use regulations. The successful implementation of these Actions would support broader Actions designed to protect and restore instream flows (e.g., Actions #955, #956, #959, #960, etc). Identification of alternative sources of supply to reduce instream flow impacts would involve Action #944B, which describes the procedure for evaluating new or expanded supplies. Aquifer mapping per Action #947 could also help with identification of alternative water supplies.
Expected Outcomes	Development and implementation of land use plans and regulations that eliminate or reduce instream flow impacts resulting from high densities of residences served by domestic wells and septic systems, and/or extension of sewer services to these areas.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Domestic Wells (Pg 3-28) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy SFP-1: Target Flows (Pg 4-43) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Source Substitution (Pg 4-55) Policy SFP-11: Sewer Extensions (Pg 4-31)
Is the Activity Fully Funded?	~ Yes ☒ No

Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks	
Task 1	Integrate Instream Flow Considerations into Planning Processes
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Initiate planning process based on the need to develop or update comprehensive plans, zoning designations, or other land use regulations or plans • Identify the scope and scale of target planning area(s) • Coordinate with water and sewer service providers, DOH, and Ecology as needed • Identify critical reaches for preservation or enhancement of instream flows in the planning area(s) using information in: - o Salmon Recovery/Subbasin Plans ▪ Population priority ▪ Reach priority ▪ Limiting factors relating to flow ▪ Other relevant information - o WRIA 27/28 Watershed Plan ▪ Identified low flow problems ▪ Instream flow/toe width data ▪ Target flow priorities ▪ Status of basin (e.g., closed, open, etc.) ▪ Tidal versus non-tidal reaches ▪ Reservation status ▪ Technical assessments and studies - o Other applicable watershed or resource plans • Prioritize critical reaches for preservation or enhancement of instream flows • Conduct a water balance within the target planning area(s), addressing: - o Location and number of existing and projected domestic wells and other water supply sources - o Location and number of existing and projected onsite sewage disposal systems - o Location of existing and projected sewer service areas - o Analysis of the relationship between existing and projected water supplies, onsite and offsite sewage treatment and

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

	disposal systems, and instream flows (Note: this task may involve hydrological assessments or modeling) - Identify planning scenarios designed to preserve or enhance instream flow conditions (Note: See Actions #944 and #945 for processes to identify or expand alternative water supplies) - Select and implement preferred alternative(s). This may involve implementation of various plan actions and subactions (e.g., Action #946) - Integrate preferred alternative(s) into land use plans and codes as necessary				
Resource Needs					
Costs	<table border="1"> <tr> <td>Period Beginning: TBD</td><td>Amount: TBD</td></tr> <tr> <td>Total: TBD</td><td></td></tr> </table>	Period Beginning: TBD	Amount: TBD	Total: TBD	
Period Beginning: TBD	Amount: TBD				
Total: TBD					
Key Cost Drivers	Staff time; coordination meetings; consulting services; public outreach; advertising; project oversight and administration; etc.				
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.				
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.				
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; compliance with a variety of land use statutes and planning requirements (e.g., GMA, comprehensive planning, SEPA, capital facilities planning, etc) may be needed.				
Other					
Constraints and Uncertainties					
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; extensive public coordination and outreach will be necessary, etc.					
Operation and Maintenance					
Estimated Annual Cost	TBD				
Describe O&M Tasks	TBD				
General Comments					

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #951 AND SUBACTIONS
#951A, #951B, AND #951C**

**AGRICULTURAL SUPPLIES – CHANGE OF WATER RIGHTS FROM SURFACE TO
GROUNDWATER, OR FROM ONE USER/LOCATION TO ANOTHER; EXPEDITE
PROCESSING OF TRANSFERS**

Action Summary¹	
Lead Partner(s)	Agricultural Water User, Department of Ecology, Conservation District, Planning Unit
Oversight Responsibilities	Department of Ecology
Coordinating Partner(s)	Agricultural Water User, Department of Ecology, Conservation District, Planning Unit, others TBD
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #951 (#934): Agricultural supplies: switch from surface to ground water. Discourage new uses of surface water (use ground water instead) (See Section 3.5.4).
	Subaction #951A: Request change of existing surface water rights to ground water rights not in hydraulic continuity with surface waters. Pg 3-33. Subaction #951B: Transfer ground water rights from one user to another to meet future agricultural water demands. Pg 3-33 Subaction #951C: Expedite processing of agricultural ground water right transfers between agricultural water users. Pg 3-33
Plan Background & Context	There has been considerable change in the use of agricultural lands in recent years, as rural development has altered the character of these lands. The overall impact on total water use is unknown. Interviews with farmers, conservation district staff, county staff, and Washington State Department of Agriculture staff have not yielded any clear trends in water resource needs or issues in this sector. There may be water supply issues affecting individual farmers in WRIAs 27 and 28. Pg 3-33 As part of a broader strategy to improve instream flows while maintaining adequate water supplies to meet demands, the Planning Unit encourages agricultural water right holders to request changes of existing surface water rights to ground water rights that are not in hydraulic continuity with surface waters. The Planning Unit also recommends that groundwater rights be transferred from one user to another to meet future agricultural water demands. To facilitate this process, the Planning Unit recommends that Ecology expedite the processing of these agricultural water right transfers. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-33

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	Subactions #951A, #951B, #951C and #951D are intended to work in concert with one another to address agricultural water demand needs while protecting and enhancing instream flows. These Subactions support implementation of Action #946, which relates to replacement of existing sources of supply with less impacting sources. Implementation of conservation actions by farmers per Action #966 will also help achieve the desired outcomes related to these Subactions. These Subactions could also support implementation of the instream flow monitoring and management program called for in Action #956, especially with regard to target flows. Completion of maps depicting the locations of deep aquifers suitable for water supply development per Action #947 could help identify opportunities for transfer of water agricultural water rights. Implementation of these Subactions will likely require close coordination between Ecology and agricultural water users. The Conservation District should be called upon to help facilitate implementation of these Subactions, and to help identify and prioritize candidates for consideration.
Expected Outcomes	Expedited transfer of groundwater rights from one user to another to meet agricultural water demands, consistent with WSP-1. Improved stream flows from transfer of water rights from existing surface water sources to less impacting groundwater sources, consistent with WSP-2.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-11) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy WSP-2: New Supply – Agriculture (Pg 3-33) Policy WSP-2: Existing Supply – Agriculture (Pg 3-33) Policy WSP-2: Transfer of Agricultural Water Rights – Agriculture (Pg 3-33) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-14)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Identify and Prioritize Water Right Transfer Opportunities (To be facilitated by Planning Unit and Conservation District. If a transfer is proposed by an individual agricultural water right user, proceed to Task 2)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify and secure funding source for analyses - Inventory existing agricultural water right permits holders - Conduct outreach and education (Conservation District lead) - Identify active agricultural water users with conservation needs, increased demand for new or expanded supplies, or potential surface to ground transfer opportunities - Prioritize opportunities based on water needs and potential instream flow impacts and benefits (e.g., recovery reach tiering, population priorities, low-flow considerations, etc.) - Develop prioritized list of potential agricultural water right transfers based on the above - Identify funding sources for subsequent Tasks	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Potential sources include: grants or low-interest loans from existing state & federal programs; legislative appropriations; congressional appropriations; grants; agricultural producers; Phase 4 implementation grants; grants from Ecology or Department of Agriculture; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; contracts may be needed between coordinating entities and/or agricultural water users is grants are secured.	
Other	TBD	
Constraints and Uncertainties		
Success of these Subactions will depend on voluntary participation by agricultural water users, close coordination between the Planning Unit, Ecology and Conservation District, and the ability of Ecology to expedite permit processing. Availability of funding may limit ability to conduct analyses. Data, information and modeling limitations may affect project results and outcomes.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Implement Water Right Transfer(s) (Note: application process can be initiated by agricultural water right user, or facilitated by Conservation District)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Note: The following permit processing steps are intended to be expedited by Ecology based on Watershed Plan priorities and recommendations. • Pre-application consultation with Ecology • File "Application for Change/Transfer of Water Right" • Ecology – submit "legal notice of application" to applicant for publication • After publication, applicant submits "Affidavit of Publication" to Ecology • Ecology – determine extent and validity of the water right – may include field examination • Applicant may be required to submit supplementary documentation regarding proposed change • Ecology applies legal tests and criteria (e.g., no increase in amount used, demonstrate non-abandonment/relinquishment for non-use, beneficial use demonstration, no detriment to public welfare, etc.) • Ecology consults Watershed Plan for policy guidance, including Section 3.3.1) and mitigation guidelines. • Ecology prepares Report of Examination (ROE) • Department issues final ROE or Order approving the ROE • Transmittal of decision to applicant and parties of record • After appeal period, implement action • Ecology issuance of Certificate of Change, to be recorded at county auditor's office. Note: the optional <i>cost reimbursement contracting</i> process may be used to help expedite the permit process.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	See Task 1	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Est. Annual Cost	See Task 1	
Describe O&M Tasks	See Task 1	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #951 AND SUBACTION #951D
AGRICULTURAL SUPPLIES – PROCESS WATER RIGHTS
CONSISTENT WITH SECTION 3.3.1

Action Summary¹	
Lead Partner(s)	Department of Ecology
Oversight Responsibilities	Department of Ecology
Coordinating Partner(s)	Agricultural Water User
Action Type	Requirement ☒ Recommendation ~
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #951: Agricultural supplies: switch from surface to ground water. Discourage new uses of surface water (use ground water instead) (See Section 3.5.4).
	Subaction #951D: Process water right requests pertaining to future agricultural ground water demand, subject to consistency with the Planning Unit's water supply policy (Section 3.3.1) and successful completion of Ecology's water right application review process. Pg 3-33
Plan Background & Context	There has been considerable change in the use of agricultural lands in recent years, as rural development has altered the character of these lands. The overall impact on total water use is unknown. Interviews with farmers, conservation district staff, county staff, and Washington State Department of Agriculture staff have not yielded any clear trends in water resource needs or issues in this sector. There may be water supply issues affecting individual farmers in WRIAs 27 and 28. Pg 3-33 As part of a broader strategy to improve instream flows while maintaining adequate supplies to meet agricultural water demands, the Planning Unit encourages agricultural water right holders to request changes of existing surface water rights to ground water rights that are not in hydraulic continuity with surface waters, or to transfer rights from one user to another. However, in cases where water is not available from these approaches and new or expanded supplies are needed, the Planning Unit recommends that Ecology process requests to ensure consistency with Section 3.3.1. Pg 3-33
Relationship to Other Actions and Coordination Needs	Subactions #951A, #951B, #951C, and #951D are intended to work in concert with one another to address agricultural water demand needs while protecting and enhancing instream flows. Implementation of this Subaction involves the process outlined in Section 3.3.1 of the Plan, which is described in Subaction #944B. Implementation of this Subaction will likely require close coordination between Ecology and agricultural water users.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Expected Outcomes	Development of new or expanded agricultural water supplies that: • Meet new or expanded needs for water supply consistent with adopted land use plans (see WSP-1) • Avoid or minimize effects on stream flows or aquatic habitat in stream reaches where flow conditions are an important factor for sustaining aquatic life, including fish populations in their various life stages
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10); Policy WSP-1: Regional Water Supply Options – Columbia River (Pg 3-15) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-11) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy WSP-2: New Supply – Agriculture (Pg 3-33) Policy WSP-2: Existing Supply – Agriculture (Pg 3-33) Policy WSP-2: Transfer of Agricultural Water Rights – Agriculture (Pg 3-33) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-1 and 2: Mitigation Guidelines (Pg 4-62) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-14)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Tasks	See Subaction #944B for Description of Key Tasks Relating to Implementation of Section 3.3.1	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	See Subaction #944B	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Potential sources include: state general fund programs; grants; agricultural producers; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	TBD	
Other	TBD	
Constraints and Uncertainties		
Success of this Subaction will depend on close coordination between Ecology and agricultural water users. Availability of funding may limit ability to conduct analyses of potential surface water impacts. Data, information and modeling limitations may affect project results and outcomes. Staffing and funding constraints may limit Ecology's ability to process permits in a timely manner. Mitigation may be required to offset streamflow depletion.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #952, #956 AND SUBACTION #956A
WATER LEVEL MONITORING FOR AQUIFERS

Action Summary¹	
Lead Partner(s)	Water Purveyors, USGS, Counties
Oversight Responsibilities	Department of Health, Department of Ecology
Coordinating Partner(s)	Planning Unit
Action Type	Requirement ~ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ~ Existing/Ongoing ~ Revised
Table Description	Action #952: Within authorities and as staffing and funding allow, develop water-level monitoring program for aquifers (See Section 4.2).
	Action #956: Establish target flow monitoring and management program (See Section 4.3).
	Subaction #956A: Develop a water-level monitoring program for aquifers in the region. Pg 4-12
Plan Background & Context	In order to manage flows, streams must be monitored consistently. For purposes of the flow management program developed in the Plan, flow monitoring is needed for a variety of reasons, including to provide basic data to determine how various components of the watershed contribute to flow (e.g. flow contributed by specific tributaries; gains and losses from ground water interactions, etc.). For purposes of improving stream flow management in the region, it is important that existing stream flow gauges be maintained over the long-term and that additional, permanent gauges be installed. Because of the groundwater and surface water interactions, the plan also identifies the value of groundwater monitoring, and recommends that water-level monitoring program be developed for aquifers in the region. Details of this program will be developed during the implementation phase. Pgs 4-10 and 4-11
Relationship to Other Actions and Coordination Needs	This Action is intended to support and work in coordination with Action #953, which calls for establishment and maintenance of stream flow gauges at prioritized locations. This Action would also provide data and information necessary for implementation of a target flow monitoring management program as called for in Action #956, as well as management activities addressing shallow water aquifer interactions as described in Action #968. Identification and mapping of aquifers per Action #947 would provide information to support development of a water level monitoring program. Information collected through this action would also assist decision-making under Action #944B, which describes the process for identifying new or expanded water supplies, as well as studies to explore alternative water sources (Action #945).

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Expected Outcomes	Development of a water-level monitoring program to support management decisions relating to protection of instream flows and water supply development.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ~ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Monitoring of Aquifer Levels (Pg 4-14) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10 and 3-11) Policy WSP-1: Aquifer Mapping (Pg 3-12) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-14)
Is the Activity Fully Funded?	~ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify funding sources (e.g., Ecology Watershed Planning Implementation Grants, etc.) - Complete grant application and submit to funding source (if grant source is pursued) - Secure funds - Develop detailed scope of work - Prepare RFP/hire contractor (if needed) - Coordinate with existing service providers and affected jurisdictions - Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Water Purveyor, USGS, County and Planning Unit staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	TBD (e.g., Phase 4 Watershed Planning Grants, water purveyor revenues)	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	Not Applicable	
Describe O&M Tasks	Not Applicable	

Task 2	Complete Water Elevation Study and Prepare Report	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with affected entities • Compile existing information (e.g., reports, maps, studies, plans, etc.) • Conduct additional monitoring and assessment as necessary • Develop draft report • Review and approval of draft report and products • Revisions to draft report and products • Approval of final products • Publish report and maps	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; consulting services (if needed); data collection; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Same as Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

Appendix F
Salmon-Washougal and Lewis Watersheds
Stream Flow Action Schedules

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #953 AND SUBACTIONS
#953A AND #953B**

STREAM GAUGES – MAINTAIN EXISTING AND INSTALL NEW GAUGES

Action Summary¹	
Lead Partner(s)	Ecology
Oversight Responsibilities	Ecology
Coordinating Partner(s)	USGS, LCFRB, Counties
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #953: Maintain existing stream gauges. Install new gauges at selected locations. Select exact sites; permit and construct gauges; O&M; data management (See Section 4.2).
	Subaction #953A: Maintain existing stream gauges over the long-term and install additional permanent stream gauges. Pg 4-11, Pg 4-46, Pg 4-58 Subaction #953B: Install stream gauges on the East Fork Lewis and Washougal Rivers. Pg 4-46, Pg 4-58
Plan Background & Context	In order to manage flows, streams must be monitored consistently. For purposes of the flow management program developed in this Plan, flow monitoring is needed to: provide basic data needed to assess current status and long-term trends in stream flow; provide basic data to determine how various components of the watershed contribute to flow (e.g. flow contributed by specific tributaries; gains and losses from ground water interactions, etc.); assess how short-term or long-term changes in watershed conditions affect flows (e.g. land use, precipitation trends); and, evaluate the effectiveness of specific management actions designed to improve the flow regime. While not the focus of this section, stream flow data is also very valuable in the context of water quality monitoring. For purposes of improving stream flow management in the region, it is important that existing stream flow gauges be maintained over the long-term and that additional permanent gauges be installed (see Section 5.4.2). The Planning Unit has established criteria for focusing funding resources, as well as priorities for stream gauge installation and maintenance, on a watershed by watershed basis. Pgs 4-10, 4-11, 4-43, 4-46, 4-53, and 4-58

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	In general, this Action is intended to provide for collection of instream flow data that is necessary to make management decisions under the Plan. This Action has a direct relationship to all water supply and stream flow Actions outlined in the Plan, and is necessary to provide for adaptive management as described in Section 8. This Action would also provide data and information necessary for implementation of a target flow monitoring management program as called for in Action #956.
Expected Outcomes	Installation and maintenance of stream flow gauges as called for and prioritized in the Plan; and to provide necessary information and data to support management decisions relating to protection of instream flows and water supply development, including decisions on water right permit applications.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policies WSP-1 and WSP-2: Water Supply Policies and Recommendations Policies SFP-1 through SFP-13: Stream Flow Policies and Recommendations
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	TBD
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Gauge Installation, Operation, Maintenance and Data Reporting	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify gauges for installation based on Plan priorities and recommendations • Identify funding sources for installation, operation and maintenance • Secure funds • Install gauge(s) • Operate and maintain gauges • Periodically report data to decisions-makers, land-use managers, the Planning Unit and County legislative authorities to: - o provide basic data needed to assess current status and long-term trends in stream flow - o provide basic data to determine how various components of the watershed contribute to flow (e.g. flow contributed by specific tributaries; gains and losses from ground water interactions, etc.) - o assess how short-term or long-term changes in watershed conditions affect flows (e.g. land use, precipitation trends) - o evaluate the effectiveness of specific management actions designed to improve the flow regime (including target flow programs) - o provide a basis for management decisions, including long-term adaptive management	
Resource Needs		
Costs	Period Beginning: TBD	Amount: Amount: Continuous gauge installation cost - \$6,400 to \$11,000 per gauge; Yearly operation and maintenance per gauge - \$8000 to \$9000.
	Total: TBD	
Key Cost Drivers	Infrastructure/capital acquisitions costs ; gauge equipment (varies by gauge type – housing, radio, antenna, cable, lighting protector, solar panel, air dryer, instrument panel, housing, etc.); installation costs; maintenance costs; monitoring costs; staff time; reporting; etc.	
Funding Source(s)	Legislative appropriations (Ecology budget); Congressional appropriations (USGS budget); Counties; Public Water Systems	
Logistical Needs	Property access; travel; communications, computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Property access agreements or permits may be needed; permits may be needed for gauge installation and maintenance activities; data sharing agreements may be needed; etc.	

Other	
Constraints and Uncertainties	
Coordination with decisions-makers, land-use managers, the Planning Unit and County legislative authorities will be needed to ensure data access and facilitate management decisions.	
Operation and Maintenance	
Estimated Annual Cost	Not Applicable
Describe O&M Tasks	Not Applicable
General Comments	
TBD	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #954 AND SUBACTIONS #945A,
#954B, AND #944C
DEPARTMENT OF ECOLOGY - RULE ADOPTION

Action Summary¹	
Lead Partner(s)	Department of Ecology
Oversight Responsibilities	Department of Ecology
Coordinating Partner(s)	WRIA 27/28 Planning Unit
Action Type	Requirement ☒ Recommendation ☐
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing ☐ Revised
Table Description	Action #954: Adopt restrictions on issuance of new water rights in State Rule (See Section 4.4.1).
	Subaction #954A: Adopt State Rules (WACs) under the Instream Resources Protection Program to restrict issuance of new water rights in WRIAs 27 and 28. In all affected streams reaches, establish a closure, but with certain exceptions as noted in the Plan. Pg 4-19 Subaction #954B: Based upon the results of the analysis described in Section 3.5.2, and considering the relatively small amount of water withdrawals comprised by this category of water use, establish a reservation of water in rule language that provides for domestic well use, even within closed basins, subject to the considerations and limitations outlined in the plan (e.g., Sections 3.5.2 and 4.3.2). Pg 3-28 Subaction #944C: Reserve a block of water for future public water supply that would not be subject to the closures and/or instream flows established by rules for WRIAs 27 and 28. (Tasks would include rule writing and adoption, and coordination with the Planning Unit). Pg 3-13
Plan Background & Context	In order to satisfy the goals associated with the establishment of closures and/or instream flows, and the goals associated with providing a secure source of water for future public water supply, it is recommended that in each basin a block of water be reserved for future public water supply that would not be subject to the closures and/or instream flows established by rules for WRIAs 27 and 28. Pg 3-13 The Department of Ecology should adopt State Rules (WACs) under its Instream Resources Protection Program to restrict issuance of new water rights in WRIAs 27 and 28. In all affected streams reaches a closure should be established, but with certain exceptions as indicated below. Existing water rights shall not be affected by this policy. For each stream that flows into the Columbia River, the zone where water

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	levels are substantially affected by tidal influence and backwater from the Columbia River shall not be closed to issuance of new water rights. The location of the lower most extent of the closure will be recommended by the Planning Unit prior to management plan adoption; The rules adopted shall not prevent issuance of water rights for selected purposes and conditions... Pg 4-6 The Planning Unit recommends that minimum instream flows be adopted as an additional element of the State Rules in selected basins where sufficient data is available. The minimum instream flows will be used in processing applications for changes or transfers of existing water rights. However, the blocks of water reserved for domestic, municipal, and other beneficial uses (see above) shall not be subject to minimum instream flow conditions... Pg 4-6 RCW 90.82.080 requires the Department of Ecology undertake rule making for instream flow components of the plan.
Relationship to Other Actions and Coordination Needs	Adoption of a rule that adequately and thoroughly addresses plan needs is a primary step that must be undertaken before the plan can be effectively implemented. This action is therefore related to all other plan actions.
Expected Outcomes	Adoption of State rules that adequately address plan goals, objectives, strategies, policies, actions and related processes. This would include but not be limited to the following elements: • Instream closures • Tidal reaches • Reservations • Minimum instream flows • Section 3.3.1 • Mitigation • Other procedural and substantive elements
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	• Policy WSP-1: Water Reservations (pg 3-15); • Policy WSP- 2: Procedure for Evaluating New or Expanded Supplies (pg 3-11); and • Policy SFP-2: Restrictions on New Water Rights (pg 4-19).
Is the Activity Fully Funded?	☒ Yes ☐ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Planning Phase	
Schedule		
Start Date	May 2004	
Planned Completion	TBD	
Actual Completion	2004	
Benchmarks/ Milestones	File CR-101 (Preproposal Statement of Inquiry)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	State General Funds (Ecology), Phase 4 funds watershed planning and watershed council funds (Planning Unit and LCFRB involvement).	
Logistical Needs	Close coordination between Ecology, the LCFRB and the Planning Unit will be necessary.	
Agreements, Ordinances, Permits & Approvals	Formal rule making procedures and requirements relating to the above tasks must be adhered to.	
Other		
Constraints and Uncertainties		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Draft/Proposal Phase	
Schedule		
Start Date	January 2007	
Planned Completion	June 2007	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop Rule Scope • Develop Draft rule language addressing appropriate plan elements, including but not limited to the following: - o Instream closures - o Tidal reaches - o Reservations; - o Minimum instream flows - o Section 3.3.1 - o Mitigation - o Other procedural and substantive elements • Mail out open house/workshop notices and place newspaper adds (one week before workshops) • Clark and Skamania workshops/open houses (with Planning Unit) • Complete associated documents - o Final SEPA document - o Preliminary cost benefit and least burdensome alternative analysis - o Final small business economic impact statement • Planning Unit review of associated documents • Final draft rule language (six weeks before CR-102 filed) • File CR-102 (proposed rule) and associated documents (six weeks after final draft language) - o SEPA document - o Preliminary cost benefit and least burdensome alternative analysis - o Final small business economic impact statement - o Maximum net benefit analysis; and • Publish CR-102	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	State General Funds (Ecology), Phase 4 funds watershed planning and watershed council funds (Planning Unit and LCFRB involvement).	
Logistical Needs	Close coordination between Ecology, the LCFRB and the Planning Unit will be necessary.	
Agreements, Ordinances, Permits & Approvals	Formal rule making procedures and requirements relating to the above tasks must be adhered to.	
Other		
Constraints and Uncertainties		
TBD		

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 3	Public Comment Phase	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Public Hearings (Clark and Skamania Counties); and - Close of comment period (at least 7 days after last hearing).	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	State General Funds (Ecology), Phase 4 funds watershed planning and watershed council funds (Planning Unit and LCFRB involvement).	
Logistical Needs	Close coordination between Ecology, the LCFRB and the Planning Unit will be necessary.	
Agreements, Ordinances, Permits & Approvals	Formal rule making procedures and requirements relating to the above tasks must be adhered to.	
Other		
Constraints and Uncertainties		
Constraint	TBD	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Adoption Phase	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Respond to comments - Prepare concise explanatory statement and responsiveness summary - Modify rule language if necessary - Revise SEPA or economic analyses, as necessary - Modify Rule language if necessary - Complete associated documents - Rule implementation plan - Rule-making criteria documentation - Cost benefit and least burdensome alternative analysis - Concise explanatory statement and responsiveness summary; and - Adopt Rule – File CR-103	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	TBD	
Funding Source(s)	State General Funds (Ecology), Phase 4 funds watershed planning and watershed council funds (Planning Unit and LCFRB involvement).	
Logistical Needs	Close coordination between Ecology, the LCFRB and the Planning Unit will be necessary.	
Agreements, Ordinances, Permits & Approvals	Formal rule making procedures and requirements relating to the above tasks must be adhered to.	
Other		
Constraints and Uncertainties		
Constraint	TBD	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments
TBD

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #955 C
SEE #944 J

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #955 SUBACTION#955A AND #955B
CITY OF BATTLE GROUND WASTEWATER TREATMENT FACILITY**

Action Summary ¹	
Lead Partner(s)	City of Battle Ground
Oversight Responsibilities	Department of Ecology, Department of Health
Coordinating Partner(s)	Department of Wildlife (mitigation credit review)
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #955: Selected actions involving water supply and intended to protect stream flow.
	Subaction #955A: Develop a new wastewater treatment plant that uses Class-A Reclaimed water to augment streamflows, provided water quality in receiving waters is also maintained or improved. Pg 3-22 Subaction #955B: Determine mitigation credits for stream flow augmentation resulting from the City of Battle Grounds new wastewater treatment plant. Mitigation credits should reflect net stream-flow benefits in relation to withdrawal impact areas. Pg 3-22
Plan Background & Context	As part of the watershed planning effort, relationships between surface water and ground water in the East Fork Lewis River subbasin were reviewed (PGG 2003a). This review indicates that Battle Ground's wells in the Upper Troutdale and Sand and Gravel Aquifers likely capture baseflow from both the East Fork and Salmon Creek. Wastewater from the City is currently conveyed to a treatment plant near the mouth of Salmon Creek. However, the City is assessing the feasibility of constructing a new treatment plant that will treat wastewater to Class-A Reclaimed Water standards, and directly or indirectly discharge reclaimed water into Salmon Creek or other watercourses. To facilitate this, modification of existing Total Maximum Daily Loads (TMDLs) may be necessary. Provided water quality concerns are adequately addressed, flow augmentation could provide substantial benefits to Salmon Creek or other surface waters. The City has requested that consideration be given to granting mitigation credits for flow augmentation. Due to the importance of protecting and restoring stream flows in these subbasins, the Planning Unit offers the following recommendations for Battle Ground's water supplies. Pg 3-21 The Planning Unit endorses the City of Battle Ground's efforts to develop a new wastewater treatment plant and to augment stream flows with Class-A reclaimed water, provided water quality in receiving waters is also maintained or improved. The Planning Unit also supports

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	consideration of mitigation credits for stream flow augmentation. Mitigation credits should reflect net stream-flow benefits in relation to withdrawal impact areas. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 3-22
Relationship to Other Actions and Coordination Needs	These Subactions will work in concert with other Actions designed to improve instream flows in Salmon Creek and other watercourses (e.g., East Fork Lewis), including the following: source replacement Actions #946 and #967; Salmon Creek MOU implementation per Action #955C; water conservation Actions #948 and #966; and agricultural source supply Action #951. Determination of mitigation credits is also a critical step in implementing Action #969, which describes the process and mitigation requirements for accessing water reservations. Ensuring water quality is maintained or improved will also facilitate implementation of TMDLs for Salmon Creek and the East Fork Lewis River, as addressed in Action #970. Flow augmentation in the East Fork Lewis River will also support implementation of the target flow program outlined in Action #956.
Expected Outcomes	Construction of a new wastewater treatment facility that augments flow conditions in Salmon Creek and other watercourses through discharge of Class-A reclaimed water; and determination of mitigation credits for use in future water right decisions relating to the affected watercourses.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Salmon Creek Management Plan - CPU Policy WSP-2: Conservation – Battle Ground (Pg 3-21) Policy WSP-2: Alternative Sources – Battle Ground (Pg 3-21) Policy WSP-2: Stream Flow Augmentation – Battle Ground (Pg 3-22) Policy WSP-2: Salmon Creek MOU (Pg 4-48) Policy SFP-1: Target Flows (Pg 4-43) Policy SFP-1: Mitigation Guidelines (Pg 4-62) Policy SFP-3: Battle Ground, Ridgefield, Yacolt – Conservation (Pg 4-41) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-5: Battle Ground, Ridgefield, Yacolt – Source Substitution (Pg 4-55) Policy SWQ-1: TMDL's (Pgs 501, 5-9, 5-11, 5-17)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Feasibility Analysis	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Coordinate with existing service providers and affected jurisdictions • Identify potential alternatives (designs, locations, etc.) • Conduct feasibility analysis of alternatives (impacts, costs, logistics, etc.), including field assessment • Conduct analysis of instream flow benefits (location, timing, quantity, fish and aquatic resource benefits/impacts, etc.) • Identify "preferred alternative" • Consult with Departments of Ecology and Wildlife to determine mitigation credits per Watershed Plan mitigation guidelines for preferred alternative, and formalize agreement for use in future water right decisions • Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology, as needed • Publish alternatives analysis report with preferred alternative	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; consulting services; field testing; modeling/data analysis and assessment; preliminary designs; coordination meetings; public outreach; project oversight and administration; etc.	
Funding Source(s)	Sewer rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; legislative appropriations; congressional appropriations; assessments of affected properties; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water benefits will affect project outcomes and identification of a preferred alternative; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Design and Engineering	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Contract for plan development based on preferred alternative (if needed) - Develop preliminary design and engineering plans for the preferred alternative - Prepare final design and engineering plans for approval - Approval of preferred alternative by lead authority/authorities, Department of Health and Department of Ecology	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other		
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect alternatives considered in the analysis; potential surface water benefits will affect project outcomes and mitigation credits; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Project Construction	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Secure funding • Prepare final construction plans and specifications for permitting • Permitting: TBD (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc) • Prepare RFP and hire contractor(s) • Initiate construction • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; mitigation implementation; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project alternative selected. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent, Department of Health and/or Department of Ecology may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to construction; contracts between proponents and consultants/contractors may be needed; etc.	
Other		
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #956 A
SEE #952

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #956 AND SUBACTION #956B
DEVELOP TARGET FLOW MONITORING PROGRAM
FOR EAST FORK LEWIS AND WASHOUGAL RIVERS**

Action Summary ¹	
Lead Partner(s)	Planning Unit, LCFRB
Oversight Responsibilities	Ecology
Coordinating Partner(s)	Ecology, WDFW, Purveyors, Counties, Cities, USGS
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #956: Establish target flow monitoring and management program (See Section 4.3).
	Subaction #956B: Establish target flows for the main stem of the East Fork Lewis River and Washougal River. Target flows should address both low flows and peak flows. The suite of flow-management techniques discussed for these streams should be designed with the goal of protecting these flows from degradation; and if possible improving the flow regime. (Tasks would include gauge installation, establishment of target flows, monitoring, etc) (See the following sections for more detailed specifications on recommended actions) Pgs 4-12, 4-43 through 4-57, 4-56 through 4-58, and Appendix F.
Plan Background & Context	One way in which the effectiveness of stream flow management can be quantified and monitored is through the establishment of "target flows." As used in the watershed plan, the term "target flows" means a realistic flow regime that could be achieved in most years by following selected management techniques over a long period of time (e.g. 10 years or more). The "flow regime" is defined by a set of statistics that define both high flows and low flows, durations, and their frequency of occurrence over a period of years. These statistics are readily developed from flow records at stream-gauging sites. An appropriate flow regime for a specific stream can be determined by evaluating historical flow conditions, current and projected water uses, and fish habitat needs. The Watershed Plan calls for development of a target flow program for both the East Fork Lewis and Washougal River basins. Technical information to form the basis for development of the target flow program in these two rivers is described in Appendix F and Sections 4.7.3 and 4.7.7. Target flows have not been developed for other streams in the region at this time, but could be developed in the future. A target flow program is

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	intended to be implemented within the context of an adaptive management program, as described in Section 8. Pgs 4-12, 4-39 through 4-58, Appendix F, Pg 8-18 (Table 8-3).
Relationship to Other Actions and Coordination Needs	Implementation of a target flow program will provide a way to quantify and monitor the effectiveness of stream flow management actions under the plan, and will provide a basis for adaptive management. This Action will help guide decisions under source substitution Action #946, and assess the effectiveness of conservation efforts under Actions #948, #949, #951, and #966. This Action will also provide long term data needed to assess the effectiveness Actions relating to broader land use initiatives, as described in Actions #958, #960, #962 and #968. In areas where surface and groundwater interaction is a concern, this Action will work in concert with the groundwater monitoring program called for in Action #952. The Action will also provide a means to assess short-term responses to enforcement actions, as called for in Action #957. Establishing and maintaining stream flow gauges per action #953 is intended to provide the infrastructure necessary to complete this action.
Expected Outcomes	Development and Implementation of a target flow program for the East Fork Lewis and Washougal Rivers.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Monitoring of Aquifer Levels (Pg 4-14) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10 and 3-11) Policy WSP-2: Procedure for Evaluating New or Expanded Supplies (Pg 3-11 and 3-14) Policy WSP-2: Georgia Pacific Conservation Efforts (Pg 3-20) Policy WSP-2: Surface Water Sources – Camas (Pg 3-20) Policy WSP-2: Conservation – Battle Ground (Pg 3-21) Policy WSP-2: Existing Supply – Agriculture (Pg 3-33) Policy WSP-2: Regional Supply Options – Camas (Pg 3-20) Policy WSP-2: Regional Supply Options – Washougal (Pg 3-20) Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-3: Camas – Conservation (Pg 4-54) Policy SFP-3: Battle Ground, Ridgefield, Yacolt - Conservation (Pg 4-41) Policy SFP-5: Source Substitution (Pg 4-14) Policy SFP-5: Battle Ground and Ridgefield - Source Substitution (Pg 4-41) Policy SFP-5: Camas - Source Substitution (Pg 4-55) Policy SFP-5: Source Substitution – Georgia Pacific Mill (Pg 4-51) Policy SFP-7: Enforcement – Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-32)

Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	All

Supporting Tasks		
Task 1	Pre-project Planning – Planning Unit/LCFRB	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with Ecology • Identify funding sources • Secure funds • Prepare RFP/hire contractor • Coordinate with existing service providers and affected jurisdictions • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount : \$3000
	Total: \$3000	
Key Cost Drivers	Staff time; Planning Unit time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: grants from existing state & federal programs; legislative appropriations; phase 4 implementation grants; other grants from Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of RFP and grant applications by Planning Unit may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to complete Task 1; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 2	Develop Detailed Implementation Program and Operational Guidelines – Planning Unit/LCFRB/Consultant	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Development of a detailed implementation program and operational guidelines that address the following: • Location and frequency (e.g. daily, monthly, yearly, etc.) of sampling based on existing and proposed gauging stations and Plan guidance • Sampling protocols, procedures and metrics • Data transfer and storage protocols • Data assessment procedures • Effectiveness monitoring and adaptive management procedures and benchmarks • Reporting format, outline and templates • A prioritized plan for addressing logistical and funding gaps related to monitoring, operation and maintenance; • Identification of responsible entities, and completion of agreements for monitoring, operation and maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: \$30,000
	Total: \$30,000	
Key Cost Drivers	Consulting services; staff time; Planning Unit time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles and responsibilities for implementation and maintenance, and coordination functions.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to complete task; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 3	Integrate Target Flow Program into LCFRB's Research, Monitoring and Adaptive Management (RM&E) Program	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Integrate Target Flow Program elements from Task 2 into appropriate Chapters and Sections of LCFRB's RM&E Program	
Resource Needs		
Costs	Period Beginning: TBD	Amount: \$3000
	Total: \$3000	
Key Cost Drivers	Consulting services; staff time; Planning Unit time; RM&E committee time; publication costs; etc	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	Approval of deliverables by Planning Unit, LCFRB, and RM&E workgroup will be needed.	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 4	Target Flow Program Implementation	
Schedule		
Start Date	TBD	
Planned Completion	Ongoing	
Actual Completion	Ongoing	
Benchmarks/ Milestones	- Stream flow monitoring and data collection - Data analysis and reporting - Implementation of adaptive management procedures - Operation and maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: estimated \$10,000 per year (Ecology to confirm)	
Key Cost Drivers	Stream gauge operation and maintenance costs; data analysis and reporting costs; adaptive management; etc.	
Funding Source(s)	Potential sources include: grants from existing state & federal programs; legislative appropriations; phase 4 implementation grants; other grants from Ecology; state general fund (Ecology); federal general fund (e.g., USGS); etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; gauge access and maintenance; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements between implementation partners (e.g., Ecology, USGS, Planning Unit, LCFRB, etc.) may be needed; property access agreements may be needed for gauge site access; permits may be needed for gauge installation and maintenance; data sharing agreements may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
Constraint	Funding will be needed for ongoing stream flow monitoring, data analysis and reporting, and implementation of adaptive management procedures; close coordination will be needed between implementing partners; adaptive management will involve coordination with multiple state, federal and local entities.	
Operation and Maintenance		
Estimated Annual Cost	\$10,000	
Describe O&M Tasks	Stream flow monitoring and data collection; data analysis and reporting; implementation of adaptive management procedures	

General Comments

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #957 AND SUBACTIONS
#957A AND #957B
ENFORCEMENT ACTION FOR UNAUTHORIZED USES**

Action Summary¹	
Lead Partner(s)	Ecology
Oversight Responsibilities	Ecology
Coordinating Partner(s)	Planning Unit, Purveyors, USGS
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #957: Initial surveys in selected subbasins to identify unauthorized uses and take enforcement actions. Follow-up in other basins if warranted (See Section 4.4.6).
	Subaction #957A: Conduct or support initial surveys in selected subbasins to determine whether unauthorized water uses are occurring on streams deemed critical to salmon recovery within WRIAs 27 and 28. If these surveys identify extensive unauthorized uses, they should be expanded to additional subbasins and carried out on a regular, periodic basis (e.g. once every five years). Pg 4-27
	Subaction #957B: Where unauthorized uses are identified based upon initial surveys, take enforcement actions to eliminate these uses. An alternative or additional approach would be the establishment of a watermaster that has regulatory authority to regulate illegal water diversions. Pg 4-27
Plan Background & Context	Aside from the legal, appropriated use of surface and ground waters, there is a potential for illegal diversions of surface water and withdrawals of ground water to occur. Where unauthorized uses are occurring involving either surface waters and/or ground waters in continuity with surface streams, enforcement actions against unauthorized uses can potentially help to improve low flows. Ecology is the agency responsible for enforcement actions. The quantity of unauthorized water used within the WRIAs 27 and 28 watersheds is not known. However, in the more populated areas, some unauthorized uses are expected to occur. Therefore, the Planning Unit has adopted the above policies and actions regarding enforcement against unauthorized water use as a stream flow management technique in WRIAs 27 and 28. The two highest priority watersheds identified for implementation of instream flow actions are the East Fork Lewis and Washougal Rivers. Pgs 4-27 and 4-34

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	These Actions are intended to work in coordination other Actions designed to improve instream flows, including the following: source substitution actions (#946); conservation actions (#948, #949, #951, and #966); limitations on issuance of new water rights (#954); select instream flow actions (#955); and a variety of actions relating to broader land use considerations (e.g., #958, #960, #962 and #968). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of enforcement actions.
Expected Outcomes	Development and implementation of a program to survey and effectively enforce unauthorized water uses, focusing on the East Fork Lewis and Washougal Rivers.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-7: Enforcement – Unauthorized Uses (Pg 4-27)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	All

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Hire Compliance Position	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Consult with Planning Unit to determine: - Duration of project (e.g., pilot vs permanent); - Preferred approach (Watermaster or Ecology compliance/enforcement position); and - Geographical scope (single vs multi-WRIA, and watershed priorities) - Develop position description outlining duties and classification and public notice - Conduct interviews, hire and train position	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$4,000	
Key Cost Drivers	Staff time; advertising/publication costs; Planning Unit consultation	
Funding Source(s)	Legislative appropriations (Ecology budget & staffing); state general fund; purveyor contributions (potential); phase 4 grants; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; training; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of budget requests may be needed; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to hire compliance position		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Develop Detailed Enforcement Plan	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Compile existing information on permitted users in focus area(s) • Coordinate with Planning Unit to: - o Develop criteria and process for watershed/reach prioritization (e.g., using Watershed Plans, Recovery Plans, instream flow data, ground/surface water continuity data, population information, etc); - o Determine investigation period (e.g., June through October); and - o Develop prioritized plan for field investigations	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$4,000	
Key Cost Drivers	Staff time; advertising/publication costs; Planning Unit consultation, etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; computers; supplies/materials; vehicle; travel; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements between Ecology, Planning Unit, and other participating entities (e.g., purveyors, local compliance staff, etc.) may be needed to clarify roles and responsibilities.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to prepare detailed enforcement plan; close coordination between Ecology, Planning Unit and other participating entities will be needed.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Project Implementation	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Conduct field surveys and investigations for unauthorized uses based on plan developed under Task 1 • Coordinate with legal counsel as needed • Initiate formal enforcement actions as needed • Prepare enforcement reports and supporting documentation • Coordinate with Planning Unit, USGS, and Ecology staff to determine project effectiveness (based on gauge and other data, comparison across watersheds, etc) • Prepare final project report with recommendations for future work • Outreach and education	
Resource Needs		
Costs	Period Beginning: TBD	Amount: Estimated \$8,500 per month for salaries, benefits, and travel
	Total: Depends on scope and duration of project	
Key Cost Drivers	Salaries; benefits; travel; legal consultation; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Computer; software; vehicle; lodging; meeting rooms; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements between Ecology and other participating entities (e.g., purveyors, local compliance staff, etc.) may be needed to clarify roles and responsibilities.	
Other	TBD	
Constraints and Uncertainties		
Constraint	Availability of funding may limit ability to complete enforcement work; close coordination between field compliance position, Ecology legal counsel, and other participating entities will be needed. Support from legal staff will be key to project success.	
Operation and Maintenance		
Estimated Annual Cost	Depends on scope and duration of project.	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #958 AND SUBACTIONS #958A,
#958B, #958C AND #958D
EFFECTS OF FOREST PRACTICES ON STREAM FLOW

Action Summary¹	
Lead Partner(s)	DNR, USFS, Private Forest Landowners
Oversight Responsibilities	DNR, USFS
Coordinating Partner(s)	LCFRB, Ecology, WDFW
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☒ Existing/Ongoing ☒ Revised
Table Description	Action #958: Consider and address effects of forest practices on stream flow. Monitor effectiveness of Forest & Fish Rules and Northwest Forest Plan. Report to public periodically (See Section 4.5.1).
	Subaction #958A: Consider effects of forest management practices on stream flow and other fish habitat factors, in making forest management decisions. The Planning Unit anticipates that existing programs under the State's Forests and Fish regulations DNR's Habitat Conservation Plan, and the federal government's Northwest Forest Plan will provide the regulatory framework needed in this regard. Pg. 4-29 Subaction #958B: Analyze and document the effects of planned timber harvesting on stream flow. Pg. 4-29 Subaction #958C: Monitor the effectiveness of these programs and periodically provide public documentation of their effectiveness in protecting fish habitat, including flow conditions, in WRIAs 27 and 28. Hold public meetings to discuss the effects of forest activities. Pg. 4-29 Subaction #958D: Integrate monitoring of forest practices programs into the LCFRB Research, Monitoring and Evaluation (RME) program. Pg. 4-29
Plan Background & Context	Over 85 percent of the lands within WRIAs 27 and 28 are forested, and these areas are typically found in the middle and upper reaches of the various subbasins. A majority of this forested land is owned and managed by the U.S. Forest Service (USFS) and Washington State Department of Natural Resources (DNR). Private companies also own and manage significant acreages in some areas. Given the extent of forested lands, forest practices have substantial potential to affect the magnitude and timing of flows. Pg 4-28 Moreover, the Forests and Fish Rules adopted by Washington State and incorporated in the Forest Practices Act will have a substantial impact on forest management practices. On federal lands, the Northwest Forest Plan has also altered trends on forest management practices. The Watershed Planning Unit has limited ability to influence forest

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	practices. Local regulations are not allowed to conflict with the Forest Practices Act, which regulates private and State forest lands ² . This limitation also includes watershed plans as described in RCW 90.82.120(3). Recognizing the jurisdiction over forest management rests with USFS, DNR and private landowners, the Planning Unit has adopted the above policy and actions relating to forest practices as a tool for stream flow management. Pg 4-28 and Pg 4-29
Relationship to Other Actions and Coordination Needs	These Actions are designed to ensure that the effects of changes in the watersheds' forested areas are to be considered as part of the overall context for the target flows discussed in Action #956. These Actions are intended to work in coordination with other Actions designed to improve instream flows, including the following: source substitution actions (#946); conservation actions (#948, #949, #951, and #966); limitations on issuance of new water rights (#954); select instream flow actions (#955); and a variety of actions relating to broader land use considerations (e.g., #960, #962 and #968). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of State and Federal management actions that affect instream flows. Integration of USFS and DNR monitoring efforts with the LCFRB Research, Monitoring and Evaluation Program per Tasks 1 and 3 below will also establish the data sharing process necessary for assessing the effects of forest practices on water quality, per Subaction #974D.
Expected Outcomes	Integration of forest practices monitoring programs into the LCFRB Research, Monitoring and Evaluation Program. USFS, State DNR and private landowner consideration of the effects of forest management practices on stream flow and other fish habitat factors in making forest management decisions under the State's Forest and Fish regulations and Habitat Conservation Plan, and the Federal Forest Plan. Implementation of an effectiveness monitoring program by State DNR and USFS and presentation of results to the public, Planning Unit and LCFRB, relating to protection of fish habitat and flow conditions in WRIAs 27 and 28.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No

² The Forest and Fish Rules are incorporated in the Forest Practices Act.

Financial/Economic Costs ³	Medium
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Integrate State DNR and USFS Forest Practices Monitoring Programs into the LCFRB Research, Monitoring and Evaluation (RM&E) Program	
Schedule		
Start Date	2006	
Planned Completion	June 2008	
Actual Completion	TBD	
Benchmarks/ Milestones	• Participate in the LCFRB RM&E Workgroup and assist with development of biological, habitat and effectiveness monitoring program elements (in process) • Coordinate monitoring efforts to improve sampling and data collection efficiency and compatibility, to the extent feasible • Share data and information with the LCFRB, Planning Unit and other entities conducting watershed monitoring under the WRIA 27/28 Plan	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; data and information distribution costs; publication costs; travel; etc.	
Funding Source(s)	State and federal general fund; legislative appropriations; congressional appropriations; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Data sharing and access agreements may be needed.	
Other	TBD	
Constraints and Uncertainties		
Staff, funding or policy limitations may affect agency participation in LCFRB’s RM&E program development and implementation; incompatibility between data collection protocols and analyses may limit ability to interpret results and make conclusions; differences in geographical scope and scale monitoring efforts may limit applicability to WRIA 27/28, as well as utility of resulting data and information.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

³ Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 2	Consider Effects of Forest Management Practices on Stream Flow and other Fish Habitat Factors in Making Decisions under the State’s Forest and Fish Rules, DNR’s Habitat Conservation Plan, and the Northwest Forest Plan	
Schedule		
Start Date	Ongoing	
Planned Completion	Ongoing	
Actual Completion	Ongoing	
Benchmarks/ Milestones	- LCFRB to provide State DNR and USFS with results of instream flow and target flow monitoring efforts to assist with management decisions relating to instream flows and other habitat factors in WRIA 27/28 (<i>Needs more discussion, report frequency to be determined upon completion of RM&E Program</i>) - State DNR and USFS to incorporate instream flow considerations into management decisions, including timber harvest decisions, under the Forest and Fish Rules, Habitat Conservation Plan, and Northwest Forest Plan; and document results (<i>appropriate benchmarks/milestones need discussion</i>)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; data and information distribution costs; publication costs; permit review and processing; planning; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; training; etc.	
Agreements, Ordinances, Permits & Approvals	Data sharing and access agreements may be needed.	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Provide Public Documentation of the Effectiveness of State Forest and Fish Rules, DNR Habitat Conservation Plan, and Northwest Forest Plan in Protecting Fish Habitat, Including Flow Conditions, in WRIAs 27 and 28	
Schedule		
Start Date	Ongoing	
Planned Completion	Ongoing <i>(need to consult with DNR and USFS on existing reporting protocols to determine frequency, format, etc)</i>	
Actual Completion	Ongoing	
Benchmarks/ Milestones	USFS and DNR to provide LCFRB, Planning Unit and public (via meetings and reports) with the results of effectiveness monitoring related to protection of fish habitat, including flow conditions and water quality, in WRIAs 27 and 28.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; data and information distribution costs; publication costs; travel; etc.	
Funding Source(s)	State and federal general fund; legislative appropriations; congressional appropriations; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Data sharing and access agreements may be needed.	
Other	TBD	
Constraints and Uncertainties		
Constraint	See Task 1	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #959
PROTECTION OF FLOODPLAIN FUNCTIONS

Action Summary¹	
Lead Partner(s)	Counties, Cities
Oversight Responsibilities	State Agencies with Land Management Responsibilities
Coordinating Partner(s)	Varies
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New (Varies) ☒ Existing/Ongoing ☒ Revised
Table Description	Action #959: Within authorities, local jurisdictions and state agencies with land-management responsibilities should protect existing floodplains from modifications that would impair their hydrologic functions and habitat value. Pg. 4-32
Plan Background & Context	Floodplains provide storage for flood waters, thereby reducing peak flows and attendant damage during flood events. Water stored in a floodplain from a peak flow event drains back to the stream over a period of days or weeks. In addition to their hydrologic functions, floodplains offer important habitat functions. The Planning Unit reviewed opportunities for using floodplain management actions as a tool for managing stream flow. Floodplain activities that can be regulated under local floodplain ordinances include controlling alteration of natural flood plains, controlling filling and grading within flood plains, controlling construction of flood barriers such as dikes, and restricting land uses that might increase erosion. The majority of floodplain areas within WRIAs 27 and 28 are located in the middle or lower reaches of the various subbasins. Therefore, hydrologic benefits of floodplain management actions would occur primarily in these areas. Pgs 4-31 and 4-32
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, and conservation activities per Action #948. This Action specifically addresses floodplain protection and restoration. Similar and supporting land use Actions address stormwater management (#960), forest practices (#958), and wetlands protection (#963). Establishing and maintaining stream flow gauges under Action #953

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of floodplain protection programs.
Expected Outcomes	Maintenance and improvement to instream flows by protecting floodplains from modifications that would impair their hydrologic functions and habitat value.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Review Adequacy of Existing Ordinances and Programs for Protection of Floodplain Function	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Inventory existing ordinances (e.g., floodplain, shoreline master program, subdivision, grade and fill, critical areas, etc.) and land use programs (e.g., greenspace, acquisition, parks and recreation, etc.) with applicability to floodplain protection • Review ordinance and program provisions for adequacy, using best available science (BAS), and Salmon Recovery and Watershed Plan guidance • Identify gaps in existing protection mechanisms, along with BMP’s and strategies for addressing gaps • If gaps exist, initiate ordinance and/or program update process (See Task 2)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; contractor costs; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative approvals; budget approvals, etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct review of ordinances and/or programs; the level of support for ordinance and/or program updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Draft, Adopt and Implement Ordinance and/or Program Updates; Monitor and Report Results	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Conduct public outreach and participation process as needed for ordinance and/or program updates (e.g., committees, workgroups, workshops, etc.) - Using BAS and Recovery Plan and Watershed Plan guidance, update ordinance and/or program provisions to protect floodplain functions - Adopt updated ordinance and/or program provisions - Implement updated ordinance and/or program provisions - Monitor and Report results	
Resource Needs		
Costs	Period Beginning: TBD	Amount : TBD
	Total: TBD	
Key Cost Drivers	Staff time; committee/workgroup meetings; advertising; enforcement; communications; reporting; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; vehicles; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative and budget approvals needed for ordinance/program updates; updates may require compliance with SEPA and/or NEPA; compliance with open meetings law requirements may be required; approval by funding or regulatory entities may be needed; various permit processes may be involved during implementation; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to update ordinances and/or programs; the level of public support for ordinance and/or program updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #960 AND SUBACTIONS #960A,
#960B, AND #960C
STORMWATER DISCHARGE ON STREAM FLOW AND HABITAT

Action Summary¹	
Lead Partner(s)	Phase I Entities: Clark County and secondary permittees Phase II Entities: Battle Ground, Camas, Washougal, Vancouver, Cowlitz County and secondary permittees Non-Phase I and II Entities: Skamania County and Cities of Woodland, Yacolt, LaCenter, Kalama, North Bonneville, and Ridgefield Note: Secondary permittees include: ports, drainage improvement districts, diking districts, sewer districts, state agencies, public schools and universities, etc.
Oversight Responsibilities	Department of Ecology, Environmental Protection Agency (EPA)
Coordinating Partner(s)	Varies depending on entity
Action Type	Requirement ☒ (Phase I and Phase II entities and Secondary Permittees) Recommendation ☒ (Skamania County and other Non-Phase I and II entities)
Is this a New, Existing or Revised Activity?	☐ New Varies depending on entity ☐ Existing/Ongoing ☐ Revised
Table Description	Action #960: Review effects of stormwater discharges on stream flow and habitat. Where needed to protect key habitat, implement programs that exceed minimum requirements (See Section 4.5.2). Subaction #960A: Carry out legally mandated responsibilities with regard to stormwater management. Pg 4-30 (Note: this Subaction applies to Phase I and II entities and secondary permittees) Subaction #960B: Review stormwater management ordinances to determine whether they are adequately protective of fish habitat in local streams that may be affected by future development. Where enhanced stormwater management needs are identified, revisions to local ordinances should be considered in light of the guidance and BMPs provided in Ecology's Manual. The focus should be on upgrading development practices and mitigation requirements in areas where stream flow and fish habitat may be compromised as development occurs. Costs, expected magnitude of benefits, and feasibility considerations should be included in this review. Pg 4-30 (Note: this recommended Subaction applies to all entities managing stormwater) Subaction #960C: Voluntarily consider developing a stormwater management ordinance. Pg 4-30 (Note: this Subaction applies to Skamania County)

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Plan Background & Context (Con't)	Land use and development practices, particularly those related to impervious surfaces and stormwater management, also impact stream flows. Conversion of lands from rural uses to suburban or urban uses typically alters watershed hydrology substantially. Based on the hydrologic study by PWR (2003) for the WRIAs 27 and 28 subbasins, small increases in effective impervious area (net including mitigation) can result in small but significant increases in peak flows and reductions in low flows. In general, when land uses pass a threshold of ten percent effective impervious surfaces, stream flow degradation can be expected to begin (PWR 2003). Over the very long term (e.g. 50 years), there may be extensive changes in land use as the region continues to grow and development spreads. This will have corresponding effects on stream flow, unless significant resources are devoted to mitigation practices. City and County policies can mitigate effects of development by controlling development densities, specifying amounts of impervious surface area, establishing stream buffers, protecting floodplains and wetlands, and addressing storm water management. Ecology's recently updated Stormwater Management Manual for Western Washington (Manual) provides guidance to local jurisdictions regarding implementation of best management practices (BMPs) regarding stormwater management. City and county ordinances, rules, and permits are used to translate Ecology's guidance into requirements that have authority. Pgs 4-29 and 4-30 State and federal statutes addressing stormwater runoff include the State of Washington Water Pollution Control Law (90.48 Revised Code of Washington), and the Federal Water Pollution Control Act (the Clean Water Act) Title 33 United States Code, Section 1251 et seq. These statutes provide requirements for Phase I (large/medium system) and Phase II (small system) municipal stormwater permits.
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows and habitat conditions, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, and conservation activities per Action #948. This Action specifically addresses stormwater management. Similar and supporting land use Actions address floodplain management (#959), forest practices (#958), and wetlands protection (#963). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of stormwater management programs.
Expected Outcomes	Maintenance and improvement to instream flows and habitat conditions through management of stormwater runoff.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23)

	Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SDP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Develop and/or Update Stormwater Management Ordinances to Comply with State of Washington Water Phase I and Phase II Municipal Stormwater Permit Requirements Note: This Task applies to Phase I and II entities and secondary permittees.	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• If a stormwater management ordinance exists, review provisions for compliance with Phase I or Phase II (depending on entity) permit requirements and standards, and update ordinance as required (includes: public outreach, education and participation; coordination with other entities; draft updates; review and adoption process, etc.) • If no ordinance currently exists, develop and adopt stormwater management ordinance in accordance with the applicable Phase I or Phase II permit requirements and standards (includes: public outreach, education and participation; coordination with other entities; draft ordinance preparation; review and adoption process, etc.) • Implement stormwater management ordinance • Monitor and Report results(as required)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; outreach and education; public notification; contractor costs; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; stormwater assessment fees; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative approvals; budget approvals; approval of draft and final ordinances by Ecology, etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct review or development of ordinances; the level of public support for ordinance development or updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks	
Task 2	Review Existing Stormwater Management Ordinances for Adequate Protection of Instream Flows and Fish Habitat Affected by Future Development Note: this Task applies to Phase I and II entities and secondary permittees, and others with existing ordinances addressing stormwater management. Skamania County should also voluntarily consider development of a stormwater management ordinance under the general provisions of this task, per Subaction #960C.
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Review existing stormwater management provisions for adequacy with regard to protection of instream flows and fish habitat. This review should consider the following: - o The location and nature of existing and future development based on comprehensive land use plans and zoning codes - o Identification and prioritization of areas for instream flow and fish habitat protection based on: ▪ Salmon Recovery/Subbasin Plans • Population priority • Reach priority • Limiting factors relating to high and low flows, and resulting habitat conditions • Other relevant information ▪ WRIA 27/28 Watershed Plan • Identified low and high flow problems • Instream flow/toe width data • Target flow priorities • Status of basin (e.g., closed, open, etc.) • Tidal versus non-tidal reaches • Technical assessments and studies ▪ Other applicable watershed or resource plans - o Evaluation of the adequacy of existing provisions and standards based on a review of best available science and best management practices and guidelines (e.g., Ecology's Stormwater Manual) • Based on the above, identify gaps in current protection, enhanced management needs and updated standards and provisions to address gaps, in light of expected magnitude of benefits and feasibility considerations • Revise, update or adopt (e.g., Skamania County) ordinance (includes: public outreach, education and participation; coordination with other entities; draft updates; review and adoption process, etc.) • Implement revised, updated or adopted stormwater management ordinance • Monitor and report results

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; outreach and education; public notification; contractor costs; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; stormwater assessment fees; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative approvals; budget approvals; approval of draft and final ordinances by Ecology, etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct review or development of ordinances; the level of public support for ordinance development or updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #961 C
SEE #946 F

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #961, #961A AND #961B
PURCHASE OR LEASE WATER RIGHTS FOR STATE TRUST PROGRAM

Action Summary¹	
Lead Partner(s)	Ecology, Water Purveyors (including Battle Ground, Yacolt and Ridgefield)
Oversight Responsibilities	Ecology
Coordinating Partner(s)	Washington Water Trust, Planning Unit
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #961: Purchase or lease of water rights from willing sellers, for State Trust program (See Section 4.4.5).
	Subaction #961A: Use the existing State Trust program, and funding provided by the State Legislature, to identify and acquire water rights from water users willing to sell or donate their water rights in WRIAs 27 and 28, where transfers to the State Trust would provide a significant benefit to fish habitat. Pg 4-27 Subaction #961B: If source substitution is pursued and if water rights are no longer needed for primary or backup supply, consider transferring water rights to the State Trust. Pg 4-42
Plan Background & Context	Ecology has established a program under chapter 90.42 RCW in which water rights can be acquired from willing water rights holders and put into a trust water rights program. Trust water rights can either be held by the state or authorized for use by Ecology for instream flows, irrigation, municipal, or other beneficial uses. The trust water rights program is voluntary on the part of the existing water right holder. By reducing or eliminating selected diversions, the transfer of water rights to the trust program can increase stream flows. This technique has limited applicability in the WRIAs 27 and 28 subbasins. As mentioned previously, the majority of surface water diversions (i.e., irrigation uses) are located in the lower portion of the subbasin where flow restoration, in general, is considered less beneficial to fish, as compared to flow protection and enhancement in the upper reaches of the subbasin. There may be local exceptions, however, where a transfer could offer a significant benefit. Such transfers may be made possible if funds were made available for the State to purchase the water rights. In addition, for the selected communities discussed above under the source-substitution technique,

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	transfers of water rights to the State Trust could be performed for any water rights no longer needed. Pgs 4-26 and 4-27 If source substitution is pursued as recommended above, and if water rights are no longer needed for primary or backup supply, Battle Ground, Ridgefield and Yacolt should consider transferring water rights to the State Trust. This is a Planning Unit recommendation for voluntary action. Implementation should not be mandated by the State. Pg 4-42
Relationship to Other Actions and Coordination Needs	These Subactions specifically addresses transfer of water rights to the State Trust program. These Subactions are designed to work in coordination with a variety Actions addressing protection and restoration of instream flows, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, conservation activities per Action #948, and land management actions addressing stormwater management, forest practices, and wetlands protection (Actions #960, #958, and #963, respectively). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of these Subactions. If source substitution is pursued under Action #946 and water rights are no longer needed for primary or backup supply, these Subactions call for transfer of water rights to the State Trust. The Washington Water Acquisition Program is a voluntary, incentive-based program designed to encourage water right holders in Washington State to sell, lease, or donate some or all of their water rights to increase instream flows for the purpose of salmon restoration. The program is administered by the Washington State Department of Ecology (Ecology) in collaboration with the Washington Water Trust (WWT). Acquisitions under the program may include purchase, lease, split season lease, dry year lease, or donation. Water right transfers are governed by Chapters 90.42 RCW, 90.03 RCW, 90.38 RCW, and 90.14 RCW.
Expected Outcomes	Maintenance and improvement to instream flows by transfer of active water rights to the State Trust Program.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Mitigation Guidelines (Pg 4-62) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-55) Policy SFP-6: Transfer of Water Rights to State Trust (Pgs 4-27, 4-42, 4-55) Policy SFP-9: Forest Practices (Pg 4-29)

	Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks		
Task 1	Transfer Water Right to State Trust	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	The following outlines the general steps involved in transfer of a water right to State Trust: • Applicant files standard application for change/transfer (90.03.380 requirements apply) • Standard public notice made in newspapers (Ecology) • Evaluation of the extent and validity of the water right (Ecology) • Quantification of the trust water right based on the existing state guidelines developed under RCW 90.42.050 (Ecology) • Completion of impairment analysis to ensure existing water rights are not impaired (not required for short term-leases) (Ecology) • Issue report of exam or findings of fact that describes the extent of the right, quantification of the trust water right, etc. (Ecology) • Issuance of superseding certificate (for trust rights based on a state-issued certificate) (Ecology) For more detailed information on the State of Washington’s Water Right Trust Program procedures and applicability consult the Department of Ecology’s website at: http://www.ecy.wa.gov/pubs/0311005.pdf	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time and/or consulting time related to the above steps; permit fees; publication and advertising fees; direct acquisition costs; etc.	
Funding Source(s)	State and federal grants; legislative appropriations; congressional appropriations; Columbia Basin Water Transactions Program funds; etc	

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	See statutory requirements discussed above.
Other	TBD
Constraints and Uncertainties	
Availability of funding may limit ability to identify and secure water rights for transfer; limited numbers of active water right permits may be available in key watersheds; program success will depend on the voluntary participation by willing water right holders; etc	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #962 B
SEE #946 I

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #962 AND SUBACTION #962A
IDENTIFY AND IMPLEMENT FLOODPLAIN RESTORATION PROJECTS

Action Summary¹	
Lead Partner(s)	Counties, Cities, State Agencies w/Land Management Responsibilities, Non-Governmental Organizations, Others
Oversight Responsibilities	Local, State and Federal Agencies with Permitting Responsibilities
Coordinating Partner(s)	Various
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☒ Existing/Ongoing ☐ Revised
Table Description	Action #962 (#937): Within authorities, identify floodplain restoration projects and implement where feasible (See Section 4.5.3).
	Subaction #962A: Within authorities, local jurisdictions and state agencies with land-management responsibilities should identify floodplain restoration projects, subject to local input, cost-benefit analysis, and availability of funding. Where these factors are favorable, and where substantial benefits to flow or other habitat factors are identified, these projects should be pursued for implementation. Pg 4-32
Plan Background & Context	Floodplains provide storage for flood waters, thereby reducing peak flows and attendant damage during flood events. Water stored in a floodplain from a peak flow event drains back to the stream over a period of days or weeks. In addition to their hydrologic functions, floodplains offer important habitat functions. Pg 4-31 The Planning Unit reviewed opportunities for using floodplain management actions as a tool for managing stream flow, and for improving fish habitat conditions. In addition to protecting existing floodplains, there may be opportunities to restore floodplain functions where floodplains have been altered or disconnected from the river channel. The majority of floodplain areas within WRIsAs 27 and 28 are located in the middle or lower reaches of the various subbasins. Therefore, hydrologic benefits of floodplain management actions would occur primarily in these areas. Pg 4-32
Relationship to Other Actions and Coordination Needs	This Action identifies floodplain restoration as a tool for managing stream flow. This action is intended to work in coordination with a variety of Actions addressing protection and restoration of instream flows and habitat conditions, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, and conservation activities per Action #948. This Action specifically addresses floodplain management. Similar and supporting land use Actions address

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	stormwater management (#960), forest practices (#958), and wetlands protection (#963). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of floodplain restoration programs.
Expected Outcomes	Maintenance and improvement to instream flows and habitat conditions through floodplain restoration.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SDP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☒ Yes ☐ No
Financial/Economic Costs ²	Medium to High
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks	
Task 1	Planning/Project Development
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Identify floodplain restoration opportunities using: - Salmon Recovery and Fish & Wildlife Subbasin Plan Habitat Strategy - Watershed assessments - Watershed Plan guidance - Other available documents

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

	• Seek and securing funding • Prioritize potential floodplain restoration projects based on: - o Flow benefits - o Fish and habitat benefits - o Local input - o Cost-benefit analysis - o Availability of funding - o Risk analysis • Preliminary project design and engineering • Final project design and engineering • Permitting (e.g., shoreline substantial development permit; critical areas; floodplain; grading and clearing; Section 404; Section 401 Certification; hydraulic project approval; SEPA compliance, etc)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; habitat analysis and assessment; coordination meetings; public outreach; project oversight and administration; plan review and approval; etc.	
Funding Source(s)	State, federal and other grant programs (e.g., SRFB, National Fish and Wildlife Foundation, Community Salmon Fund, Family Forest and Fish Passage Program, Bonneville Power Administration, etc.); private industry; legislative appropriations; local diking districts; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; field equipment; drafting hardware and software; etc	
Agreements, Ordinances, Permits & Approvals	Permitting requirements will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft plans may be needed; contracts between funding entities, proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct identify and prioritize floodplain restoration project opportunities; the level of coordination and cooperation between entities may affect project success and outcomes; public interest and support will affect project feasibility and alternatives; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 2	Project Implementation	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Prepare final construction plans and specifications • Prepare RFP and hire contractor(s) (if needed) • Initiate construction • Project management and oversight • Project completion • Operation and maintenance • Monitoring	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; monitoring; permit fees; supplies and materials; project meetings; compliance inspections; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Approval of final construction plans by the project proponent and permitting agencies may be needed; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; contracts between funding entities, proponents and consultants may be needed; etc.	
Other		
Constraints and Uncertainties		
Constraint	Construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	Once completed, the project will require ongoing monitoring, and infrastructure maintenance. Project plans and funding approaches should include provisions for long-term operation and maintenance.	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #963 AND SUBACTION #963A
COUNTY-WIDE WETLAND ASSESSMENT
FOR HYDROLOGICAL FUNCTIONS

Action Summary¹	
Lead Partner(s)	Counties, Planning Unit
Oversight Responsibilities	Counties, Planning Unit
Coordinating Partner(s)	Varies
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	<u>Action #963 (#938): Wetlands inventories and ordinances: assess and protect hydrologic functions, consider strengthening mitigation ratios (See Section 4.5.4).</u>
	<u>Subaction #963A:</u> In conjunction with the Planning Unit, Counties should explore funding opportunities for conducting a county-wide wetland assessment that includes evaluation of hydrological functions. Pg 4-33
Plan Background & Context	There are a variety of different wetland types in WRIAs 27 and 28, and different wetlands offer different benefits in terms of hydrology and habitat. The hydrologic functions of most wetlands in the subbasins have not been studied in detail. Those wetlands that are associated with streams and floodplains can help to moderate peak flows. However, the amount of attenuation provided by restoration of a wetland is not always significant relative to the flow rates that occur. There could also be some limited benefit to low flow periods, since water from high flow events is stored and then released over a period of several weeks. Wetlands associated with streams and floodplains occur throughout the many subbasins in WRIAs 27 and 28. However, the most hydrologically significant wetlands are located along the mainstem rivers, and especially in low-lying terrain near the mouths of these rivers. As with floodplain preservation and restoration, there are benefits to restoring and preserving wetlands for benefit of fish habitat in general, apart from their effects on flow rates. County policies offer the best tools for wetland management in WRIAs 27 and 28. Wetland ordinances can be modified to include hydrologic functions in the protection hierarchy. Prohibitions on development can be enacted for wetlands with strong hydrologic functions. Where development will reduce or eliminate wetlands, mitigation ratios can be increased. Pg

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	4-33
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, and conservation activities per Action #948. This Action specifically addresses protection of wetland hydrological functions. Similar and supporting land use Actions address stormwater management (#960), forest practices (#958), and floodplain protection (#959). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of wetland protection programs.
Expected Outcomes	Completion of a county-wide wetland assessment that includes hydrological functions.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify geographical scope of project (e.g., single or multiple counties) • Identify funding sources • Complete grant application and submit to funding source (if grant source is pursued) • Secure funds • Develop detailed scope of work • Prepare RFP/hire contractor (if needed) • Coordinate with existing service providers and affected jurisdictions • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount : TBD
	Total: TBD	
Key Cost Drivers	Water Purveyor, USGS, County and Planning Unit staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; grants from existing state & federal programs; legislative appropriations; congressional appropriations; state, county, city general fund revenues; Phase 4 implementation grants; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	Not Applicable	
Describe O&M Tasks	Not Applicable	

Task 2	Complete Wetland Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion		
Benchmarks/ Milestones	• Coordinate with affected entities • Compile existing information (e.g., reports, maps, studies, plans, etc.) • Conduct additional monitoring and assessment as necessary • Develop draft report • Review and approval of draft report and products • Revisions to draft report and products • Approval of final products • Publish report and maps	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; consulting services (if needed); data collection; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	Same as Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; modeling software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; permits may be needed for associated field work; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #963 AND SUBACTIONS#963B,
#963C, #963D
WETLAND ORDINANCES – EVALUATE AND PROTECT HYDROLOGICAL
FUNCTIONS, STRENGTHEN MITIGATION RATIOS

Action Summary ¹	
Lead Partner(s)	Counties
Oversight Responsibilities	State Agencies with Land Management Responsibilities
Coordinating Partner(s)	Varies
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New (Varies) ☐ Existing/Ongoing ☐ Revised
Table Description	Action #963 (#938): Wetlands inventories and ordinances: assess and protect hydrologic functions, consider strengthening mitigation ratios (See Section 4.5.4).
	Subaction #963B: Counties should Require evaluation of hydrological function as part of any site-specific wetland assessments conducted under their critical areas, wetland or other land use ordinances. Pg 4-33 Subaction #963C: County wetland ordinances should be modified as needed to include hydrologic functions in the wetland protection hierarchy. Pg 4-33 Subaction #963D: Counties should review and consider strengthening mitigation ratios, for selected wetland areas that offer significant hydrologic functions or other fish habitat benefits. Pg 4-33
Plan Background & Context	Those wetlands that are associated with streams and floodplains can help to moderate peak flows. However, the amount of attenuation provided by restoration of a wetland is not always significant relative to the flow rates that occur. There could also be some limited benefit to low flow periods, since water from high flow events is stored and then released over a period of several weeks. Wetlands associated with streams and floodplains occur throughout the many subbasins in WRIAs 27 and 28. However, the most hydrologically significant wetlands are located along the main stem rivers, and especially in low-lying terrain near the mouths of these rivers. As with floodplain preservation and restoration, there are benefits to restoring and preserving wetlands for benefit of fish habitat in general, apart from their effects on flow rates. County policies offer the best tools for wetland management in WRIAs 27 and 28. Wetland

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	ordinances can be modified to include hydrologic functions in the protection hierarchy. Prohibitions on development can be enacted for wetlands with strong hydrologic functions. Where development will reduce or eliminate wetlands, mitigation ratios can be increased. Clark County's wetland ordinance generally provides greater wetland protection than ordinances in Cowlitz or Skamania Counties (EES 2003b). Clark County has also obtained grant funding to perform a county-wide wetland inventory. Pg 4-33
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, and conservation activities per Action #948. This Action specifically addresses protection of wetland hydrological functions. Similar and supporting land use Actions address stormwater management (#960), forest practices (#958), and floodplain protection (#959). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the short and long-term effectiveness of wetland protection programs.
Expected Outcomes	Maintenance and improvement to wetland hydrological functions.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Review Adequacy of Existing Wetland Protection Ordinances for Protecting Hydrological Functions	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Inventory existing ordinances (e.g., floodplain, shoreline master program, subdivision, grade and fill, critical areas, etc.) that address protection of wetland hydrological functions • Review ordinance provisions for adequacy, using best available science (BAS), Salmon Recovery and Watershed Plan guidance, model ordinances/regulations (e.g., Department of Ecology and Department of Community, Trade and Economic Development documents), and other technical guidance documents. This review should include evaluation of the following: - o Inclusion of hydrological functions in site-specific assessments - o Inclusion of hydrological functions in wetland protection hierarchy - o Strengthening of mitigation ratios for selected areas that offer significant hydrological functions or other fish habitat benefits • Identify gaps in existing protection mechanisms and provisions, along with BMP's and strategies for addressing gaps • If gaps exist, initiate ordinance update process (See Task 2)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; contractor costs; project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative approvals; budget approvals, etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to conduct review of ordinances; the level of support for ordinance updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Draft, Adopt and Implement Ordinance Updates; Monitor and Report Results	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Conduct public outreach and participation process as needed for ordinance updates (e.g., committees, workgroups, workshops, etc.) • Using best available science (BAS), Salmon Recovery and Watershed Plan guidance, model ordinances/regulations, and other technical guidance documents, develop updated ordinance provisions to address the considerations discussed in Task 1 • Implement updated ordinance provisions • Monitor and Report results	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; committee/workgroup meetings; advertising; enforcement; communications; reporting; etc.	
Funding Source(s)	Varies depending on entity. Grants from existing state & federal programs; legislative appropriations; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; vehicles; etc.	
Agreements, Ordinances, Permits & Approvals	Administrative and budget approvals needed for ordinance updates; updates may require compliance with SEPA and/or NEPA; compliance with open meetings law requirements may be required; approval by funding or regulatory entities may be needed; various permit processes may be involved during implementation; etc.	
Other	TBD	
Constraints and Uncertainties		
Availability of funding may limit ability to update ordinances; the level of public support for ordinance updates may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #964 C
SEE #946 F

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: SUBACTIONS #964, #964A AND #964B
SHORT-TERM DROUGHT RESPONSE CURTAILMENT PROGRAMS

Action Summary¹	
Lead Partner(s)	Planning Unit, Water Users (It is anticipated the Planning Unit will take the lead in soliciting funds for development of a drought response program in coordination with water users, Ecology and other interested entities)
Oversight Responsibilities	Ecology
Coordinating Partner(s)	Ecology, Water Users, Department of Fish and Wildlife
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #964 (#939): Large water users and hydropower facilities: short-term drought response curtailment programs, to protect stream flows (See Section 4.4.7).
	Subaction #964A: Where major surface water diversions or ground water withdrawals have a direct effect on stream flows on a time scale of weeks or less, the water user should consider adopting voluntary procedures to alter operations in the event of a State-declared drought emergency affecting WRIAs 27 and/or 28. The water user should adopt policies and procedures in advance, to allow for quickly altering operations to minimize or eliminate the depletion of stream flow to the extent feasible in the event such a drought occurs. For hydropower operations such as the Lewis River project, it is assumed that FERC license conditions fully address releases under low flow conditions, including drought conditions. Pg 4-14, Pg. 4-25 Subaction #964B: Identify small surface water users that could implement this type of management strategy to improve low flow conditions (see above). Pg 4-25
Plan Background & Context	Short-term adjustments in water use or other activities can immediately improve flows during extreme conditions such as a severe drought. When the extreme conditions have passed, the action(s) can be discontinued. An example of short-term actions that could be taken in response to extreme conditions is the short-term curtailment of water use by large water users that might have a direct impact on stream flows. When flow levels drop to predetermined "trigger" levels, a water user may switch to an alternative supply, or curtail non-essential water uses in the community. This approach is most effective in cases where a large water user relies directly on surface water supplies. It should be recognized that there may be smaller surface water users in

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	several subbasins that could adopt this management strategy. These could offer some benefits, but would be more difficult to implement, compared with programs addressing a few, large water users. While this approach offers relatively few opportunities in WRIs 27 and 28, it is still important as an element of the overall, comprehensive approach to managing stream flow. Potential application of short term responses discussed in the Watershed Plan include PacifiCorp on the North Fork of the Lewis River (see Sections 2.4.2 and 4.4.7), and the City of Camas (see action #946F).
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows and habitat conditions, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, conservation activities per Action #948, and a variety of land use Actions addressing stormwater management (960#), floodplain management (#959), forest practices (#958), and wetlands protection (#963). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the effectiveness of drought response Actions.
Expected Outcomes	Maintenance and improvement to instream flows and habitat conditions during State declared drought emergencies.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SDP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low to Medium
Identify Tasks that have not been Fully Funded	All Tasks

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-project Planning (Planning Unit lead)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop scope of work • Identify funding sources • Secure funds • Prepare RFP/hire contractor (if needed) • Preliminary coordination with potential water users, Ecology, WDFW, and affected jurisdictions • Possible MOU/MOA between jurisdictions	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: water rates and hookup charges in affected service area; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; large water users and hydropower facilities; Phase 4 implementation grants; grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; Planning Unit approval of scope of work may be needed; contracts between proponents and consultants may be needed; etc.	
Other	Note: This Task assumes that the Planning Unit will take the lead in initiating this Action. Individual entities may also pursue develop of drought response plans and action implementation independent of the Planning Unit.	
Constraints and Uncertainties		
Availability of funding may limit ability to complete the action; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Critical Watershed and Water User Screening	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify and prioritize critical reaches for preservation or enhancement of instream flows and drought response, using information in: - Salmon Recovery/Subbasin Plans - Population priority - Reach priority - Limiting factors relating to flow - Other relevant information - WRIA 27/28 Watershed Plan - Identified low flow problems - Instream flow/toe width data - Target flow priorities - Status of basin (e.g., closed, open, etc.) - Tidal versus non-tidal reaches - Technical assessments and studies - Other applicable watershed or resource plans - Identify candidate water users in high priority watersheds using available information: - WRIA 27/28 Plan information and recommendations - Inchoate water right assessment results - WRATS, DOH database - Quantity, location, type and timing of water withdrawal - Potential instream flow impacts (based on studies, reports, assessments, etc.) - Conduct additional analysis as necessary to document potential stream flow impacts - Develop final report with prioritized list of candidate water users based on the above - Contact high priority water users to identify willing entities	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; modeling/data analysis and assessment; coordination meetings; public outreach; project administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	Agreements and/or contracts between purveyors, consultants, funding agencies and implementing entities may be needed; Planning Unit approval of draft and final documents may be needed; etc.	
Other		

Constraints and Uncertainties	
Constraint	Availability of funding may limit ability to conduct watershed and water user screening and related analyses; the level of coordination and cooperation between entities may affect project success and outcomes; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 3	Develop and Implement Drought Response Plan(s)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with willing water users to develop drought response plans addressing: - o Flow monitoring - o Establishment of management triggers and thresholds - o Response actions (e.g., alternative supplies, curtailment, etc.) - o Coordination and communication - o Data reporting • Implement drought response plan(s) • Monitoring, reporting and adaptive management	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Direct implementation costs (infrastructure, physical management activities, lost revenue, etc.), staff time; coordination meetings; consulting services (plan development); project oversight and administration; etc.	
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; private industry; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; large water users and hydropower facilities; Phase 4 implementation grants; grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Permits may be needed for implementation of management actions (e.g., pumping, diversions, infrastructure modification, etc.); modification of existing permits or licenses (e.g., water rights, FERC, etc.) may be needed; agreements and/or contracts between purveyors, consultants, funding agencies and implementing entities may be needed; data sharing agreements may be needed; etc.	
Other		

Constraints and Uncertainties	
Availability of funding may limit ability to develop drought response plans and implementation management activities; the level of coordination and cooperation between entities may affect project success and outcomes; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #965
SEE #950

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #966 AND SUBACTION #966A and #966B
WATER CONSERVATION BY FARMERS PRACTICING
IRRIGATED AGRICULTURE; TECHNICAL ASSISTANCE BY
CONSERVATION DISTRICTS

Action Summary¹	
Lead Partner(s)	Planning Unit, Conservation Districts, Agricultural Water Users
Oversight Responsibilities	Department of Ecology
Coordinating Partner(s)	Planning Unit
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #966 (#941): Water conservation by farmers practicing irrigated agriculture. Technical assistance by Conservation District in each county (See Section 4.4.2).
	Subaction #966A: Where there would be significant benefits to stream flows, practice water conservation actions. Pg 4-24
	Subaction #966B: Provide technical assistance to farmers to identify water conservation opportunities and funding sources. Pg 4-24
Plan Background & Context	Water conservation in the agricultural sector was not studied in detail during the planning process. There may be opportunities for water conservation activity involving agricultural irrigation uses. However, there are no irrigation districts in WRIAs 27 and 28, where water use and management is conducted on a large scale. Furthermore, there is no sign of increases in this type of water use. Water conservation by farmers in a localized area may offer localized opportunities for stream flow protection or enhancement. Pg 4-23 Water conservation actions by farmers practicing irrigated agriculture may be warranted in selected locations, where there would be significant benefits to stream flows. The Conservation District in each County should provide technical assistance to farmers to identify water conservation opportunities and funding sources. Pg 4-24
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows and habitat conditions, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, conservation activities per Action #948, and a variety of land use Actions addressing stormwater management (960#), floodplain management (#959), forest practices (#958), and wetlands

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	protection (#963). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the effectiveness of conservation measures by farmers practicing irrigated agriculture.
Expected Outcomes	Identification, funding and implementation of agricultural water conservation projects.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Medium
Identify Tasks that have not been Fully Funded	TBD

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Identify and Prioritize Technical Assistance and Funding Opportunities (Conservation District/Planning Unit Lead)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify and secure funding source for analyses • Identify and prioritize stream reaches for enhancement of instream flows using information in: - o Salmon Recovery/Subbasin Plans ▪ Population priority ▪ Reach priority ▪ Limiting factors relating to flow ▪ Other relevant information - o WRIA 27/28 Watershed Plan ▪ Identified low flow problems ▪ Instream flow/toe width data ▪ Target flow priorities ▪ Status of basin (e.g., closed, open, etc.) ▪ Tidal versus non-tidal reaches ▪ Reservation status ▪ Technical assessments and studies - o Other applicable watershed or resource plans • Inventory agricultural water users with conservation needs in prioritized streams • Coordinate with agricultural water users as needed • Prioritize technical assistance opportunities based on potential instream flow benefits (e.g., recovery reach tiering, population priorities, low-flow considerations, etc.) • Develop prioritized list of agricultural water users based on the above • Identify funding sources for implementation of conservation measures.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; staff time; coordination meetings; property owner outreach; project administration; etc.	
Funding Source(s)	Potential sources include: grants from existing state & federal programs; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; Phase 4 implementation grants; grants from DOH or Ecology; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other	TBD	

Constraints and Uncertainties	
TBD	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 2	Project Development and Implementation (Conservation District/Agricultural Water User Lead)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with willing agricultural water users to develop water conservation plans, using best management practices • If needed, prepare plans and specifications for permitting • Permitting: TBD • Implement project • Project management and oversight • Project completion • Operation and Maintenance	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consulting services; contractor services; staff time; permitting and application fees; project oversight and administration; permit fees; supplies and materials; project meetings; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	Meeting rooms; communications; travel; computers; field meeting locations and scheduling; coordination with permitting entities; equipment rentals; supply and material handling and transport; etc.	
Agreements, Ordinances, Permits & Approvals	Permits for construction will vary depending on specific project. Examples of required permits include: shoreline substantial development permit; building; critical areas; floodplain; grading and clearing; ESA consultation; Section 404; Section 401 certification; hydraulic project approval; and SEPA compliance. Approval of final construction plans by the project proponent may be required; if multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions related to project implementation; contracts between proponents and consultants/contractors may be needed; etc.	
Other		

Constraints and Uncertainties	
Constraint	Project success will depend on willingness of agricultural water users and funding availability; construction may be delayed if permit approvals are not secured sufficiently in advance; changes in supply and material costs may affect construction timelines and budgets; weather constraints affect project timing; permit requirements may affect construction methods, timing and design; etc.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, the project may require ongoing monitoring, infrastructure maintenance and upgrades.

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #967
SOURCE SUBSTITUTION FOR SELECTED AREAS
SERVICED BY DOMESTIC WELLS

Action Summary¹	
Lead Partner(s)	Counties (Clark and Cowlitz), Cities, Local Governments, Ecology
Oversight Responsibilities	Ecology
Coordinating Partner(s)	Public Water Systems, Landowners
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #967: Source substitution for selected areas served by domestic wells: relatively higher densities and likelihood of stream impacts; dependent on feasibility and cost (See Section 4.4.4). Communities using water sources (surface or ground water) that significantly reduce base flows in any stream that provides important fish habitat within WRIAs 27 and 28 should consider alternative sources of supply that eliminate or minimize these effects. It is anticipated that this would require examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. In limited cases, this policy may apply to rural areas where residents rely on domestic wells (exempt wells). When modifying or adopting comprehensive plans, zoning designations, or other land use regulations, Clark and Cowlitz counties, cities, local governments, Ecology, and/or others as appropriate should assess this possibility through a water-balance analysis, in selected rural areas where extensive new development is expected to occur or where there is substantial existing development served by exempt wells. The intent is to explore solutions for small creeks where a large number of existing domestic wells may deplete stream flows. Under the right circumstances, if a different source could be used to replace individual wells, effects on stream flow could potentially be reduced or eliminated. Local community views should be included in this process. Pg 4-26
Plan Background & Context	The Planning Unit commissioned a pilot review of data on domestic wells (exempt wells) in the Washougal River Basin. In this setting, where rural residences are relatively low-density, and where most houses have septic systems that return domestic water to the subsurface, well withdrawals have a relatively small effect on stream flow in the dry season. Based on this finding, management of exempt wells does not appear to be a high priority at the regional scale. However, there may be localized areas where due to density, availability of public sewer service, or other conditions, even domestic wells could cause problems

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	for stream flow. This Action is intended to address this situation. Pg 3-7 and 4-25
Relationship to Other Actions and Coordination Needs	The Washougal River pilot assessment of exempt well impacts suggested that in areas where low density development is served by exempt wells and septic systems, instream flow impacts are not a high priority concern. However, Action #967 and related Action #950 are intended to address situations where higher density development could pose problems to instream flows. Related Action #965 is intended to address situations where extension of sewer service to areas served by domestic wells could deplete instream flows. These Actions call for consideration of these potential instream flow impacts when modifying or adopting comprehensive plans, zoning designations, or other land use regulations. The successful implementation of these Actions would support broader Actions designed to protect and restore instream flows (e.g., Actions #955, #956, #959, #960, etc). Identification of alternative sources of supply to reduce instream flow impacts would involve Action #944B, which describes the procedure for evaluating new or expanded supplies. Aquifer mapping per Action #947 could also help with identification of alternative water supplies.
Expected Outcomes	Development and implementation of land use plans and regulations that eliminate or reduce instream flow impacts resulting from high densities of residences served by domestic wells and septic systems, and/or extension of sewer services to these areas.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-1: Domestic Wells (Pg 3-28) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy WSP-2: Procedure for Evaluating Existing Supplies (Pg 3-11 and 3-14) Policy WSP-2: Aquifer Mapping (Pg 3-12) Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River (Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-5: Source Substitution (Pg 4-55) Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SFP-11: Sewer Extensions (Pg 4-31) Policy SFP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No

Financial/Economic Costs ²	Medium to High
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks	
Task 1	Integrate Instream Flow Considerations into Planning Processes
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Initiate planning process based on the need to develop or update comprehensive plans, zoning designations, or other land use regulations or plans • Identify the scope and scale of target planning area(s) • Coordinate with water and sewer service providers, DOH, and Ecology as needed • Identify critical reaches for preservation or enhancement of instream flows in the planning area(s) using information in: - o Salmon Recovery/Subbasin Plans ▪ Population priority ▪ Reach priority ▪ Limiting factors relating to flow ▪ Other relevant information - o WRIA 27/28 Watershed Plan ▪ Identified low flow problems ▪ Instream flow/toe width data ▪ Target flow priorities ▪ Status of basin (e.g., closed, open, etc.) ▪ Tidal versus non-tidal reaches ▪ Reservation status ▪ Technical assessments and studies - o Other applicable watershed or resource plans • Prioritize critical reaches for preservation or enhancement of instream flows • Conduct a water balance within the target planning area(s), addressing: - o Location and number of existing and projected domestic wells and other water supply sources - o Location and number of existing and projected onsite sewage disposal systems - o Analysis of the relationship between existing and projected domestic wells, onsite and offsite sewage treatment and disposal systems, and instream flows (Note: this task may involve hydrological assessments or

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

	modeling) - Identify planning scenarios designed to preserve or enhance instream flow conditions (Note: See Actions #944 and #945 for processes to identify or expand alternative water supplies) - Select and implement preferred alternative(s). This may involve implementation of various plan actions and subactions (e.g., Action #946). Identification of preferred alternatives must include examination of cost, potential rate impacts, reliability considerations, and evaluation of other feasibility criteria. - Integrate preferred alternative(s) into land use plans and codes as necessary.
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD Total: TBD
Key Cost Drivers	Staff time; coordination meetings; consulting services; public outreach; advertising; project oversight and administration; etc.
Funding Source(s)	Varies depending on entity. Potential sources include: water rates and hookup charges in affected service area; grants or low-interest loans from existing state & federal programs; public water system; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; county/city development fees; Phase 4 implementation grants; grants from DOH or Ecology; private industry; etc.
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; compliance with a variety of land use statutes and planning requirements (e.g., GMA, comprehensive planning, SEPA, capital facilities planning, etc) may be needed.
Other	
Constraints and Uncertainties	
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; extensive public coordination and outreach will be necessary, etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD
General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #968
SHALLOW AQUIFER INTERACTIONS

Action Summary ¹	
Lead Partner(s)	Planning Unit
Oversight Responsibilities	TBD
Coordinating Partner(s)	TBD
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #968: Evaluate the need to take additional actions addressing shallow aquifer interactions (See Section 4.5.5). Evaluate the need to take additional actions to prevent disruption of shallow aquifer recharge, subsurface flow patterns, and aquifer discharge that support the stream flow regime in low flow periods. Pg 4-33
Plan Background & Context	Other activities can also disrupt shallow aquifer recharge, subsurface flow patterns, and discharge that support the stream flow regime. These activities were not evaluated in detail during the planning process, and require additional evaluation during the implementation phase.
Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with a variety of Actions addressing protection and restoration of instream flows and habitat conditions, including adoption of restrictions on issuance of new water rights in rule (e.g., water right reservations, instream flows, closures, etc.) per Action #954, conservation activities per Action #948, drought responses per Action #964, and a variety of land use Actions addressing stormwater management (960#), floodplain management (#959), forest practices (#958), and wetlands protection (#963). Establishing and maintaining stream flow gauges under Action #953 and implementation of a target stream flow program per Action #956 will provide data and information necessary to evaluate the effectiveness of stream flow Actions.
Expected Outcomes	Completion of an evaluation of the need to take additional actions addressing shallow aquifer interactions, and identification of recommended implementation actions.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SFP-1: Flow Monitoring (Pg 4-11) Policy SFP-1: Stream Gages – Various Rivers (Pg 4-46 and 4-58) Policy SFP-1: Target Flows – East Fork Lewis River and Washougal River

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	(Pg 4-43, 4-45, 4-56, 4-57) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19) Policy SFP-3: Water Conservation (Pg 4-23) Policy SFP-7: Enforcement, Unauthorized Uses (Pg 4-27) Policy SFP-9: Forest Practices (Pg 4-29) Policy SFP-10: Stormwater Management (Pg 4-30) Policy SDP-12: Floodplain Management (Pg 4-32) Policy SFP-13: Wetlands Management (Pg 4-33) Policy SFP-13: Other Activities Affecting Shallow Aquifer Interactions (Pg 4-33)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Low
Identify Tasks that have not been Fully Funded	No Tasks have been funded.

Supporting Tasks	
Task 1	Assess Shallow Aquifer Interactions
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Prepare scope of work • Identify and secure funds • Prepare RFP/hire contractor (if needed) (addresses following Tasks) • Coordinate with existing service providers and land managers (e.g., counties, cities, etc.) • Prioritize watersheds for consideration based on: - o Salmon Recovery/Subbasin Plans ▪ Population priority ▪ Reach priority ▪ Limiting factors relating to flow ▪ Other relevant information - o WRIA 27/28 Watershed Plan ▪ Identified low flow problems ▪ Instream flow/toe width data ▪ Target flow priorities ▪ Status of basin (e.g., closed, open, etc.) ▪ Tidal versus non-tidal reaches ▪ Reservation status ▪ Technical assessments and studies - o Other applicable watershed or resource plans

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

	• Collect available information on potential interaction between existing shallow water aquifers and prioritized stream reaches - o WRIA 27/28 Plan - o WRIA 27/28 Technical Memoranda - o Studies and assessments - o Hydrological/geological reports - o Other pertinent information • Conduct additional modeling as necessary to document potential stream flow impacts from shallow aquifer disruption • Within prioritized stream reaches, inventory land use and management activities (e.g., grading, filling, excavation, vegetation removal, drainage alteration, etc.) with potential to disrupt shallow aquifers • Inventory and document existing regulatory and non-regulatory tools and programs addressing land use and management activities • Based on the above, develop implementation recommendations for mitigating impacts to shallow aquifers • Publish report and findings	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; consulting services; public outreach; project oversight and administration; etc.	
Funding Source(s)	Potential sources include: grants or low-interest loans from existing state & federal programs; legislative appropriations; congressional appropriations; state, county, city general fund revenues; misc. grants; Phase 4 implementation grants; etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	If multiple jurisdictions are involved, agreements (or MOUs) may be needed to define roles, responsibilities, and coordination functions; review and approval of draft and final scope of work and reports may be needed; contracts between proponents and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to conduct analyses; data, information and modeling limitations may affect project results and outcomes; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #969
DEPARTMENT OF ECOLOGY – MITIGATION GUIDELINES

Action Summary ¹	
Lead Partner(s)	WA Department of Ecology LCFRB Consultant
Oversight Responsibilities	WA Department of Ecology WRIA 27/28 Planning Unit LCFRB (Administration and Facilitation)
Coordinating Partner(s)	WRIA 27/28 Planning Unit Washington Department of Fish and Wildlife
Action Type	Requirement ☒ Recommendation ☐
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing ☐ Revised
Table Description	Action #969: Develop clear guidance for mitigation (See Section 3.3.1). Develop clear guidance for mitigation for use by water rights applicants. An existing Ecology document listing examples of mitigation can be used as a starting point. Pg 4-62
Plan Background & Context	The reserved supplies discussed above (except for domestic wells) can be tapped only if the community first demonstrates there is no other practicable alternative, commits to effective stewardship through conservation and/or production of reclaimed water; and commits to offsetting actions and mitigating actions that minimize the effects on stream flow or aquatic habitat. Actions will be evaluated within the context of other supply alternatives, water supply total project cost, and the cost of the off-setting and mitigating actions. These costs should be evaluated within the context of other fish recovery actions that may be needed to compensate for impairment to streamflow. Pg 4-3 If the supply alternatives analysis indicates that no practicable alternative is available, the water right applicant may petition Ecology to utilize a 'reservation of water defined within state rule (see Section 4.4.1). The Planning Unit recommends that Ecology (in conjunction with Fish & Wildlife) evaluate requests for reservation use by reviewing the applicant's analysis of other alternatives <u>and</u> by evaluating the applicant's proposal in terms of off-setting and mitigating actions... Pg 3-12 & H-6
Relationship to Other Actions, and Coordination Needs	Development of a clear mitigation strategy is a key element necessary for the successful implementation of the WRIA 27/28 watershed management plan. This action relates to all other plan actions that address development of new or expanded water supplies, or replacement of existing sources (e.g., #944, #945, #946, #955, and #967).
Expected Outcomes	Development of an effective and clear mitigation strategy and guidelines will: • Ensure the balance between supply needs and instream flows is

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	maintained during implementation, in accordance with existing plan priorities; • Assist regulatory agencies with consistent application of permit requirements; • Provide certainty regarding future mitigation obligations associated with reservation access and use; and • Ensure that instream flow impacts are adequately mitigated, and that mitigation efforts focus on the highest priority needs in each subbasin.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy WSP-1: Access to Water Supplies (Pg 3-10) Policy WSP-1: Water Reservations (Pg 3-13) Policy WSP-2: Stream Flow Protection in Developing Supplies (Pg 3-10) Policy SFP-1: Mitigation Guidelines (Pg 4-62) Policy SFP-2: Restrictions on New Water Rights (Pg 4-19)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Medium (Phase 1 and Phase 2 approximately \$90,000)
Identify Tasks that have not been Fully Funded	Although a basic mitigation strategy and guidelines will be developed during Phase 4, more refinement may be needed during the implementation phase.

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Pre-Project Planning	
Schedule		
Start Date	February 2007	
Planned Completion	May 2007	
Actual Completion		
Benchmarks/ Milestones	• Prepare scope of work and secure Planning Unit approval (February 2007); • Prepare and post RFP (March 2007); • Hold pre-submittal conference (March 2007); • Review submittals, interview and screen consultants (March - April 2007); • Select consultant(s), negotiate and sign contract (April 2007);	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Advertising, staff, travel and reproduction costs.	
Funding Source(s)	Phase 3 and Phase 4 Watershed Planning funds	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	LCFRB Board approval will be needed for preparation and posting of an RFP, and entering into a contract with a consulting firm.	
Other		
Constraints and Uncertainties		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Develop Mitigation Strategy and Guidelines	
Schedule		
Start Date	April 2007	
Planned Completion	January 2008	
Actual Completion	TBD	
Benchmarks/ Milestones	• Create Planning Unit mitigation subcommittee (Planning Unit/LCFRB - April 2007) • Meet with Planning Unit and discuss SOW (Consultant - May 2007); • Attend and facilitate meetings and workshops with agencies and Planning Unit (Consultant, Planning Unit, Ecology, and Agencies – April through December 2007); • Coordinate and conduct technical evaluations (Consultant – April through November 2007); • Develop draft recommendations for strategies and guidelines (Consultant, Planning Unit, Ecology, and Agencies – April through November 2007); • Planning Unit review of draft materials (Planning Unit - December 2007); • Revisions to draft materials/finalization of recommendations (Planning Unit, LCFRB, and Consultant – December 2007); and • Planning Unit approval of final guidelines (per SOW deliverables) for inclusion in DIP (Planning Unit – January 2008);	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: Approximately \$15,556.00	
Key Cost Drivers	Consulting services, staff time, travel, reproduction costs, etc.	
Funding Source(s)	Phase 4 Watershed Planning Funds, State General Funds.	
Logistical Needs	Coordination between the LCFRB, Planning Unit, Ecology and Fish and Wildlife will be needed; meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Planning Unit approval will be needed for the final mitigation strategy and guidelines. Mitigation strategies and guidelines must be adequately referenced in the Rule. Upon development of the guidelines, inter-local or other agreements may be needed between WDFW, Ecology and others for implementation.	
Other		
Constraints and Uncertainties		
Constraint	The existing plan guidance is based upon maintaining a balance between meeting the water supply needs and maintenance of instream flows. The current level of funding is limited given the broad scope of elements that must be addressed in the mitigation guidelines.	

Response	Close coordination between the project consultants, Ecology, WDFW, the LCFRB and Planning Unit will be necessary to ensure the plan balance is maintained during strategy and guideline development. Development of a clear strategy and guidelines will reduce uncertainty regarding future mitigation obligations associated with reservation access and use. Additional funding should be sought to augment completion of this action.
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Task 3	Incorporate Mitigation Strategy and Guidelines into DIP and 6-Year Habitat Work Schedules	
Schedule		
Start Date	January 2008	
Planned Completion	February 2008	
Actual Completion	TBD	
Benchmarks/ Milestones	• Incorporate mitigation strategy and guidelines into DIP (LCFRB, Planning Unit, and Consultant – January 2008); and • Integrate mitigation actions into partner 6-year implementation work schedules (LCFRB, Consultants, implementation partners –February 2008).	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: Included in Task 1 costs.	
Key Cost Drivers	Staff time; coordination mTGs; project oversight and administration; etc.	
Funding Source(s)	Phase 4 Watershed Planning funds, Salmon Recovery funds	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Final approval of the Planning Unit will be needed.	
Other		
Constraints and Uncertainties		
Constraint	Workload constraints may limit ability to complete tasks on time.	
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

Appendix G
Salmon-Washougal and Lewis Watersheds
Surface Water Quality Action Schedules

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #970
DEVELOP WATER BODY CLEANUP PLANS (TMDLs)

Action Summary¹	
Lead Partner(s)	Ecology
Oversight Responsibilities	Ecology, EPA
Coordinating Partner(s)	Local Governments, Conservation Districts, and Other Interested Parties
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☒ Existing/Ongoing ☐ Revised
Table Description	Action #970: Develop water body cleanup plans (TMDLs) for subbasins, in prioritized sequence as indicated in Watershed Management Plan. Carry out necessary modeling, reporting, public involvement, and waste load allocations (See Section 5.3.2). The Planning Unit recommends that Ecology develop TMDLs according to the priority list shown in Table 5-3. At such time as the 2002/2004 303(d) list is approved by Ecology and EPA, these priorities should be revisited. Pg 5-11
Plan Background & Context	The WRIAs 27 and 28 Planning Unit has identified protection and improvement of surface water quality as an important objective linked to the Watershed Management Plan. At the same time, the Planning Unit recognizes that programs already exist to protect and improve water quality, and it is not desirable to duplicate these programs. The primary vehicle for achieving compliance with State criteria for surface water quality is the Washington State Department of Ecology's (Ecology) Total Maximum Daily Load (TMDL) program, also known as Water Cleanup Plans. Pg 5-1 The Planning Unit determined that it would be valuable to provide guidance to Ecology in terms of prioritizing activities with regard to water cleanup plans. Local input at the watershed scale can help ensure that limited water quality funding is allocated in an effective and efficient manner. Pg 5-1 A sub-group of the Planning Unit was assembled to propose and apply criteria to prioritize impaired waterbody segments, and then use the findings from this analysis as the basis for recommending cleanup plans. As an initial step in this process, the sub-group developed six criteria to evaluate and prioritize cleanup plans in water quality impaired subbasins in the planning area. The criteria were based on the watershed planning goals and objectives of the planning unit, as well as issues associated with the practicality of cleanup success, anticipated development, and adequate data to substantiate prioritization (See Section 5.3.2). These criteria were then applied to the subbasins in WRIAs 27 and 28 and used to develop recommendations for prioritization of cleanup plans (Table 5-3). Pg 5-11

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with several other Actions relating to protection and improvement to surface water quality. Development of a full-scale assessment strategy for non-point sources of water quality impairment in WRIAs 27/28 per Action #971 will provide information and data to support development and implementation of TMDLs. Implementing management actions identified through the assessment strategy per Actions #971B and #973 will also support and complement implementation of TMDLs. Expansion of water quality monitoring activities per Action #974 will also provide information and data necessary for development and implementation of TMDLs, as well as help determine the effectiveness of implemented cleanup activities.
Expected Outcomes	Development and implementation of TMDL's in accordance with the priorities established by the Planning Unit for impaired watercourses within WRIA 27 and 28.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	Policy SWQ-1: TMDL's (Pg 5-1, 5-10, 5-11) Policy SWQ-1: Assessment of Sources of Impairment (Pg 5-17)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	High
Identify Tasks that have not been Fully Funded	TBD

Supporting Tasks	
Task 1	Integrate Watershed Plan TMDL Priorities into Ecology's Comprehensive Watershed Approach for Development of TMDLs
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Coordinate with Planning Unit as additional 303(d) listings occur and assist with prioritization in accordance with Ecology criteria, and the criteria identified in Section 5.3.2 of the Watershed Plan - Consult Table 5-3 (as updated) to identify TMDL priorities in WRIAs 27 and 28 - Integrate Watershed Plan TMDL priority recommendations into Ecology's comprehensive watershed approach for development of TMDLs

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; Planning Unit coordination meetings; etc.	
Funding Source(s)	Legislative appropriations; state general fund revenues; Phase 4 implementation grants (Planning Unit); etc.	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	Approval of revised TMDL priorities by the Planning Unit may be needed.	
Other		
Constraints and Uncertainties		
Agency budget and workload priorities may affect ability to integrate Planning Unit priorities into Ecology's TMDL work schedule; Availability of funding may limit the number and sequence of TMDLs that can be addressed.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks	
Task 2	Develop and Implement TMDLs
Schedule	
Start Date	East Fork Lewis River: 2005 Salmon Creek: Turbidity and fecal coliform 1995; temperature TBD Lacamas Creek: TBD, but currently a high priority for Ecology Burnt Bridge Creek: 2008 Kalama River: TBD, but currently not a high priority for Ecology Other:
Planned Completion (of WQIP)	East Fork Lewis River: 2011 Salmon Creek: Turbidity and fecal coliform 2002; temperature TBD Lacamas Creek: TBD Burnt Bridge Creek: 2012 Kalama River: TBD Other:
Actual Completion	East Fork Lewis River: TBD Salmon Creek: Turbidity and fecal coliform 2005; temperature TBD Lacamas Creek: TBD Burnt Bridge Creek: TBD Kalama River: TBD Other:
Benchmarks/ Milestones	- Form TMDL advisory committee - Conduct studies and technical analyses - Develop implementation strategy - Submit Water Quality Improvement Report (WQIR), which includes study results and implementation strategy, to EPA for approval

	• Develop detailed Water Quality Implementation Plan (WQIP) that identifies responsible parties and specific actions to be accomplished • Implement TMDL (multiple entities involved) • Adaptively manage cleanup plan • Conduct effectiveness monitoring when appropriate	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; advisory group meetings; field studies and analyses; report writing; etc.	
Funding Source(s)	Ecology's TMDL program	
Logistical Needs	Meeting rooms; communications; travel; computers and software; printers; supplies; field equipment (e.g., water quality meters and devices, etc).	
Agreements, Ordinances, Permits & Approvals	Approval of revised TMDL priorities by the Planning Unit may be needed.	
Other		
Constraints and Uncertainties		
Agency budget and workload priorities may affect ability to integrate Planning Unit priorities into Ecology's TMDL work schedule; availability of funding may limit the number and sequence of TMDLs that can be addressed; success of implementation will depend upon participation and cooperation by various local, state and federal entities; cleanup plan will need to be revised if WQIP activities are not adequate.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments	
Ecology prioritizes and selects TMDL "new starts" each fiscal year based on available funding and staff. Priorities are not determined in advance for out years.	
It is not possible to estimate annual costs for each TMDL as the cost is affected by availability of existing data, complexity and size of the watershed, and the number of parameters that must be monitored and modeled. However, each TMDL typically costs between \$100,000 and \$500,000.	

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #971, #972, AND #973,
AND SUBACTIONS #971A AND #971B
DEVELOP AND IMPLEMENT ASSESSMENT STRATEGY
FOR NON-POINT SOURCES**

Action Summary¹	
Lead Partner(s)	Counties, Ecology, Conservation Districts
Oversight Responsibilities	Ecology, Planning Unit
Coordinating Partner(s)	Various
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #971: Within authorities, develop full-scale assessment strategy for non-point sources (See Section 5.5).
	Subaction #971A: Develop a detailed assessment strategy for WRIAs 27 and 28 to identify sources of water quality impairment (specific sites or areas). (See Pg. 5-18 for specific tasks). Pg 5-17, Pg 5-18
	Subaction #971B: Following completion of the strategy, seek funds to carry out this assessment and take corrective actions where needed. Pg 5-17, Pg 5-18
	Action #972: Within authorities, carry out source assessment of non-point sources (See Section 5.5).
Plan Background & Context	Action #973: Actions to correct sources of impairment (See Section 5.5) (specifics to be determined, pending outcome of assessment above). Pg 5-17
	It is recommended that a detailed assessment strategy be developed for WRIAs 27 and 28 to identify sources of water quality impairment (specific sites or areas). The framework described in Section 5.5 of the Plan is intended to serve as a basis for development of a more detailed assessment approach during the Implementation Phase. Following completion of the strategy, it is recommended that funds be sought to carry out this assessment and take corrective actions where needed. The purpose of the assessment strategy is to obtain specific information on sources of non-point source pollution, so they can be targeted for action. Once sites or areas are identified in each subbasin, follow-up actions can be defined, such as outreach and technical assistance to landowners; specific projects to eliminate or control sources; or, where appropriate, enforcement actions. Pgs 4-17 through 4-19.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with several other Actions relating to protection and improvement to surface water quality. Development of a full-scale assessment strategy for non-point sources of water quality impairment in WRIAs 27/28 per these Actions and Subactions will provide information and data to support development and implementation of the WQAP and TMDLs addressed in Actions #970 and #974. Implementing management actions identified through the assessment strategy per Actions #971B and #973 will also support and complement implementation of the WQAP and TMDLs.
Expected Outcomes	Secure funding and implement a full-scale assessment strategy for non-point sources; and measurable improvement in surface water quality in WRIAs 27 and 28).
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SWQ-1: TMDL's (Pg 5-1, 5-9, 5-11) Policy SWQ-1: Assessment of Sources of Impairment (Pg 5-17)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Subaction #971A: Low Subaction #971B: Low Action #972: Medium (depends on specific action) Action#973:Medium to High
Identify Tasks that have not been Fully Funded	Tasks 1, 2 and 3

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Secure Funding and Consulting Services (Planning Unit in coordination with Counties)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Prepare RFP/hire contractor	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Legislative appropriations; Phase 4, Centennial or other grants from Ecology; federal water quality grants; etc.	
Logistical Needs	Staff time; meeting rooms; communications; advertising; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	MOU or MOA between cooperating entities may be needed; contracts between LCFRB and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to initiate the project; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Develop Full-scale Assessment Strategy (Planning Unit in coordination with consultant and Counties)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Using the guidance provided in Section 5.5 of the Plan, and for each subbasin: • Coordinate with existing entities conducting non-point source assessments or management actions (e.g., counties, cities, Ecology, USFS, etc.) • Based on existing information, identify and prioritize non-point sources and conditions • Define metrics and techniques for gathering additional information on each target condition, as needed • Perform additional field work or other activities to gather information as defined • Evaluate results • Based on results, identify and prioritize target management activities and responsible entities • Coordinate with responsible entities to identify feasible project and program opportunities	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	See Task 1	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 3	Implement Non-point Source Management Actions (Lead – various)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Within authorities, implement Non-point source management actions (e.g., projects to control sources, outreach and education, technical assistance, enforcement actions, etc.) (Note: benchmarks/milestones will vary depending action)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Varies depending on project	
Funding Source(s)	Various: Legislative appropriations; Phase 4, Centennial or other grants from Ecology; federal water quality grants; public water system; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Varies depending on project	
Agreements, Ordinances, Permits & Approvals	Varies depending on project	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to initiate and complete non-source management actions; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments
The WRIA 27/28 Plan identifies “counties” as the lead for development of a full-scale assessment strategy for non-point sources. However, to improve efficiency and coordination of efforts, this Action schedule recommends that the Planning Unit coordinate development of the strategy in consultation with counties and other entities.

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #972
SEE #971 A and B

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: #973
SEE #971 A and B

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #974 AND SUBACTIONS
#974A, #974B, #974C AND #974D
EXPAND WATER QUALITY MONITORING ACTIVITIES**

Action Summary¹	
Lead Partner(s)	Planning Unit, Ecology
Oversight Responsibilities	Planning Unit, Ecology
Coordinating Partner(s)	TBD
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #974: Within authorities and as staffing and funding allow, expand water quality monitoring activities to improve understanding of status and trends. Install monitoring equipment; collect and analyze samples; manage and analyze data; report results (see Section 5.4.2).
	Subaction #974A: Secure funds to implement the Water Quality Analysis Plan (WQAP) outlined in Section 5.4.2 (Barber, 2004 Technical Memorandum). Pg 5-14 Subaction #974B: Implement the WQAP outlined in Section 5.4.2 (Barber, 2004 Technical Memorandum). Pg 5-14 Subaction #974C: Monitor water temperature in various streams and rivers. Section 5.4.2 Pg 5-14 Subaction #974D: Document the effects of forest practices on water quality in annual monitoring reports. Section 5.4.2
Plan Background & Context	As part of its assessment of water quality information, the Planning Unit reviewed existing water quality monitoring activities being conducted by local, State, and federal agencies (Appendix K). From this review, it was apparent that water quality monitoring activities currently in place are designed to meet specific needs of various programs but are not comprehensive in terms of either the network of streams or the types of parameters monitored. In the absence of a comprehensive monitoring framework at the regional scale, it is difficult to identify impaired water bodies, characterize status and trends in surface water quality, or develop effective approaches to improving water quality. The Planning Unit therefore developed a recommended Water Quality Analysis Plan (WQAP) for improving water quality data collected. Full documentation of this strategy is presented in a Technical Memorandum No. 13 (Task 4) Surface Water Quality Monitoring Strategy for WRIAs 27 and 28 (Barber, 2004). The proposed WQAP would monitor core water quality information related to flow, temperature, nutrients, and several other parameters at as many as 28 different stream segments in WRIAs 27 and 28.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

Relationship to Other Actions and Coordination Needs	This Action is designed to work in coordination with several other Actions relating to protection and improvement to surface water quality. Development of a full-scale assessment strategy for non-point sources of water quality impairment in WRIAs 27/28 per Action #971 will provide information and data to support development and implementation of the WQAP and TMDLs. Implementing management actions identified through the assessment strategy per Actions #971B and #973 will also support and complement implementation of the WQAP and TMDLs. Expansion of water quality monitoring activities per this action will also provide information and data necessary for development and implementation of TMDLs, as well as help determine the effectiveness of implemented cleanup activities. Integration of USFS and DNR monitoring efforts with the LCFRB Research, Monitoring and Evaluation Program per Action #958 will establish the data sharing process necessary for assessing the effects of forest practices on water quality, per Subaction #974D.
Expected Outcomes	Secure funding and implement the WQAP outlined in Section 5.4.2 (Barber, 2004 Technical Memorandum – Technical Memorandum No. 13 (Task 4) Surface Water Quality Monitoring Strategy for WRIAs 27 and 28).
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	Policy SWQ-1: TMDL's (Pg 5-1, 5-9, 5-11) Policy SWQ-1: Assessment of Sources of Impairment (Pg 5-17)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	High (long-term)
Identify Tasks that have not been Fully Funded	Tasks 1, 2 and 3

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Secure Funding and Consulting Services (Planning Unit Lead)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Identify funding sources • Secure funds • Prepare RFP/hire contractor	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Legislative appropriations; Phase 4, Centennial or other grants from Ecology; federal water quality grants; etc.	
Logistical Needs	Staff time; meeting rooms; communications; advertising; computers; printers; supplies; etc.	
Agreements, Ordinances, Permits & Approvals	MOU or MOA between cooperating entities may be needed (Ecology lead); contracts between LCFRB and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to initiate the project; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Update WQAP (Consultant in Coordination with Planning Unit)	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with LCFRB Research, Monitoring and Evaluation (RME) work group, Ecology and entities conducting monitoring • Inventory existing monitoring efforts • Update WQAP based on current 303d listings and inventory of current monitoring efforts • Based on updated WQAP, develop implementation plan and schedule • If needed, develop MOU/MOA for cooperating entities • Publish updated WQAP for inclusion in the Detailed Implementation Plan	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
Key Cost Drivers	Consultant fees; staff time; coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	Approval of updated WQAP by Planning Unit will be needed; MOU/MOA between cooperating entities may be needed (Ecology lead); contracts between LCFRB and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to initiate the project; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 3	Implement WQAP and Publish Results	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Implement WQAP (See updated WQAP) • Ecology to promote and coordinate cooperative monitoring and data sharing among agencies, including State Department of Natural Resources and U.S. Forest Service (See Action #958) • Publish results annually	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: TBD	
	Total: Upfront equipment costs of the WQAP are \$65,650. The annual cost is \$154,650. The total first year cost for the WQAP is \$214,600. (Note: these cost estimates need to be updated based on inflation and results of WQAP update)	
Key Cost Drivers	Consulting services; staff time (estimated one-half FTE) for program coordination; field monitoring; equipment acquisition	
Funding Source(s)	Legislative appropriations; Phase 4, Centennial or other grants from Ecology; federal water quality grants; public water system; state, county, city general fund revenues; county/city development fees; etc.	
Logistical Needs	Monitoring equipment; vehicles; computers, software and printers; communications; etc.	
Agreements, Ordinances, Permits & Approvals	MOU/MOA between cooperating entities may be needed (Ecology lead); contracts between LCFRB and consultants may be needed; data sharing agreements may be needed; etc.	
Other		
Constraints and Uncertainties		
Availability of funding may limit ability to initiate WQAP implementation; the level of coordination and cooperation between entities may affect project success and outcomes; etc.		
Operation and Maintenance		
Estimated Annual Cost	\$154,650 (Note: this cost estimate needs to be updated based on inflation and results of WQAP update)	
Describe O&M Tasks	See WQAP	
General Comments		

Appendix H
Salmon-Washougal and Lewis Watersheds
Ground Water Quality Action Schedules

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #975 AND SUBACTIONS
#975A, #975B, #975C, AND #975D
IMPROVE PUBLIC AWARENESS OF GROUND WATER QUALITY**

Action Summary¹	
Lead Partner(s)	County Health Departments
Oversight Responsibilities	County Health Departments
Coordinating Partner(s)	Cities, DOH, School Districts, Conservation Districts., Water Purveyors
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #975: Within authorities, improve public awareness of ground water quality issues. Information outlets. Mass-media campaign. Schools program. Public opinion surveys (See Section 6.5.1). The Planning Unit recommends that steps be taken to improve public understanding and awareness of issues related to drinking water quality (6-13)
	Subaction #975A: Provide outlets for ground water protection information. Pg. 6-13 Subaction #975B: Develop a mass media campaign for ground water protection. Pg. 6-13 Subaction #975C: Make available and/or coordinate with a ground water protection program for schools. Pg. 6-14 Subaction #975D: Conduct periodic public opinion surveys related to ground water protection efforts. Pg. 6-14
Plan Background & Context	Five management objectives were developed for ground water quality purposes in WRIAs 27 and 28, based on the conclusions and recommendations found in the Level 1 Assessment. These objectives include the following: • Improve public understanding and awareness of issues related to drinking water quality • Assess susceptibility of ground water supplies to contamination on a regional basis • Improve local wellhead protection programs • Implement management strategies to minimize impacts of land use activities on ground water supplies • Clean up ground water contamination Action #975 and Subactions A through D focus on first bullet above, which addresses improving public understanding and awareness of issues related to drinking water quality.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Educating the public about the importance of ground water quality will over time change mindsets and practices. An aware public will likely be able to facilitate more change in terms of ground water protection than local government agencies. In addition, broad public support will be necessary to successfully implement technical management strategies selected by the implementing agency. Pg 6-13
Relationship to Other Actions and Coordination Needs	As described above, this Action and related Subactions are part of a broader Plan strategy for management of groundwater supplies in WRIAs 27 and 28. This Action and related Subactions are designed to work in concert with Actions directed at improving protection of local wellheads (Action #977), identification of at-risk groundwater supplies (Action #976), preventing future impacts to groundwater (#978), and clean up contaminated groundwater (Action #979). In general, this objective is tied to all the other objectives in this section since broad public support will be necessary to successfully implement management strategies. Pgs 6-13 and 6-14
Expected Outcomes	Enable the public to recognize potential problems and make educated decisions that help protect ground water quality.
Financial/Economic Costs ²	Provide outlets for groundwater protection information: Medium Develop a mass media campaign for groundwater protection: Medium Make available and/or coordinate with groundwater protection program for schools: Medium Conduct periodic public opinion surveys related to groundwater protection efforts: Medium
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	The Planning Unit has established two primary goals related to management of ground water quality: • Protect surface water quality for designated uses, with an emphasis on protection of aquatic biota, including fish species in their various life stages. • Protect surface and ground water needed for public drinking water supplies. (Pg 6-1) In addition the Planning Unit has established the following recommendations for achieving these goals: • Improve public understanding and awareness of issues related to drinking water quality; • Assess susceptibility of ground water supplies to contamination on a regional basis; • Improve local wellhead protection programs; • Implement management strategies to minimize impacts of land use activities on ground water supplies; and • Clean up ground water contamination. (Pg 6-13)
Is the Activity Fully Funded?	☐ Yes ☒ No
Tasks not Fully Funded	Tasks 1, 2, 3 and 4

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Provide Outlets for Ground Water Protection Information	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Provide outlets for ground water protection information, including: ◦ region-specific information about the ground water resource, risk assessment activities, monitoring programs, wellhead protection activities, technical management strategies, and clean up efforts ◦ Existing national programs for private homeowners such as “Home-A-Syst/Farm-A-Syst” and NRCS’s EQIP • Compile, synthesize, and periodically update all information related to groundwater protection • Make information available to the public in a variety of mediums such as compact disk, web site, flyers, workshops, community fairs, etc.	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff resources (estimated 1-2 fulltime equivalent (FTE) per Table 6-5); coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	Potential funding sources include: Federal grants from EPA and United States Department of Agriculture; cooperative agreements with federal agencies (e.g., USGS) in which the federal government funds a portion of the project; Clean Water Act Section 319 Non-point Source Fund; Centennial Clean Water Fund; Washington State Revolving Fund; Washington State Water Pollution Control Fund; grants from the Washington Conservation Commission; create septic system maintenance utility; tax or fee on septic system and/or water use with Aquifer Protection Area Program; user fees on drinking water systems not associated with Aquifer Protection Area Program; property tax or other local taxes; plan review fees and permit fees; water rate surcharges adopted by public water systems benefiting from program; and other state or local appropriations.	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		

Constraints and Uncertainties	
Availability of funding may limit ability to complete this Action; the level of coordination and cooperation between entities may affect project success and outcomes; public education programs require expertise often unavailable in the existing staff resources of the anticipated implementing agencies; a long-term commitment of resources (both funds and staff time) will be required to develop a successful public education program; while a mass media campaign can quickly improve the public's name-recognition of a particular issue, it is not an efficient means of educating the public about complex or technical ideas; etc.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 2	Develop a Mass Media Campaign for Ground Water Protection	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	Provide public service announcements and advertisements in print, radio and television with the intent to reach a broad audience	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff resources (estimated >2 fulltime equivalent (FTE) per Table 6-5); coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 3	Make Available and/or Coordinate with a Ground Water Protection Program for Schools	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Develop class presentations, class exercises, and field trips in coordination with school districts • Integrate into class presentations, class exercises, and field trips into school district science and environmental education programs and curricula	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff resources (estimated >2 fulltime equivalent (FTE) per Table 6-5); coordination meetings; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 4	Conduct Periodic Public Opinion Surveys Related to Ground Water Protection Efforts	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Design and distribute public opinion surveys • Collect survey data • Synthesize and analyze results • Implement outreach where gaps exist	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff resources (estimated 1-2 fulltime equivalent (FTE) per Table 6-5); coordination meetings; data analysis; public outreach; advertising; project oversight and administration; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	
General Comments		

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #976 AND SUBACTIONS #976A,
#976B, AND #976C
ASSESS SUSCEPTIBILITY OF GROUND WATER SUPPLIES
TO CONTAMINATION ON A REGIONAL BASIS

Action Summary¹	
Lead Partner(s)	County Health Departments (See Pg 6-19)
Oversight Responsibilities	State Department of Health, County Planning Department, Ecology, Department of Health, Local Water Purveyors
Coordinating Partner(s)	State Department of Health, County Planning Department, Ecology, Department of Health, Local Water Purveyors
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☒ New ☐ Existing/Ongoing ☐ Revised
Table Description	Action #976: Within authorities, assess susceptibility of ground water supplies to contamination. Risk assessment. Evaluate data management and improve if necessary. Regional mapping (See Section 6.5.2). The Planning Unit recommends that steps be taken to assess susceptibility of ground water supplies to contamination on a regional basis. Pg 6-13
	Subaction #976A: Conduct Risk Assessment. Pg 6-15 Subaction #976B: Evaluate existing data management system and improve system if necessary. Pg 6-18 Subaction #976C: Produce regional maps showing results of the risk assessment. Pg 6-18
Plan Background & Context	Five management objectives were developed for ground water quality purposes in WRIAs 27 and 28, based on the conclusions and recommendations found in the Level 1 Assessment. These objectives include the following: • Improve public understanding and awareness of issues related to drinking water quality • Assess susceptibility of ground water supplies to contamination on a regional basis • Improve local wellhead protection programs • Implement management strategies to minimize impacts of land use activities on ground water supplies • Clean up ground water contamination Action #976 and Subactions A through C focus on bullet 2 above, which addresses protection of ground water supplies used for drinking water purposes. The focus is placed on the aquifers used for this purpose in the southwest portion of the planning area, because most of the ground water used for drinking water supply occurs in that area. Management strategies should focus resources primarily on drinking water supplies

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	that are unprotected and “at risk” of becoming impacted in the future. The risk assessment procedures addressed by these Actions and Subactions will be used to rank ground water supplies in terms of relative susceptibility to contamination. This will enable management strategies to be prioritized for maximum benefit in preventing ground water supplies from becoming impacted. Pgs 6-12 through 19.
Relationship to Other Actions and Coordination Needs	As described above, this Action and related Subactions are part of a broader Plan strategy for management of groundwater supplies in WRIAs 27 and 28. This Action and related Subactions are designed to work in concert with Actions directed at improving public awareness of ground water issues (Action #975), improving wellhead protection (Action #977), preventing future impacts to groundwater (#978), and clean up contaminated groundwater (Action #979). Identification of groundwater supplies that are at risk of being contaminated will provide key information upon which to base future management actions and strategies.
Expected Outcomes	Identification of ground water supplies used for drinking water purposes currently unprotected and “at risk” of becoming contaminated.
Is the Action Fully Addressed by the Tasks Below?	☒ Yes ☐ No
Supporting Strategies, Policies & Recommendations	The Planning Unit has established two primary goals related to management of ground water quality: • Protect surface water quality for designated uses, with an emphasis on protection of aquatic biota, including fish species in their various life stages. • Protect surface and ground water needed for public drinking water supplies. (Pg 6-1) In addition the Planning Unit has established the following recommendations for achieving these goals: • Improve public understanding and awareness of issues related to drinking water quality; • Assess susceptibility of ground water supplies to contamination on a regional basis; • Improve local wellhead protection programs; • Implement management strategies to minimize impacts of land use activities on ground water supplies; and • Clean up ground water contamination. (Pg 6-13)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Conduct Risk Assessment: Medium Evaluate existing data management system and improve system if necessary: Low Produce regional maps showing results of the risk assessment: Low
Identify Tasks that have not been Fully Funded	Tasks 1, 2, and 3

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Conduct Risk Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Identify aquifers likely to be tapped in the future as well as aquifers currently used. (e.g., Water Supply Plans for Group A purveyors) - Apply land use and hydrogeologic screening criteria (see pages 6-15 and 6-16 for criteria) to ground water quality database - Based on the above, rank the susceptibility of groundwater supplies - Build a ground water quality database with data obtained from DOH, Ecology, county governments, and other agencies, addressing items identified in Table 6-6 (Pg 6-17) - Depending on the outcomes of the preliminary risk assessment identification of various follow-up actions may be warranted. These could include, for example: - Direct outreach to well users in an area deemed to be at risk - Outreach and/or enforcement action to parties contributing to ground water contamination - Further, more intensive data collection to better define sources of further contamination. If appropriate, seek funding for local ground water monitoring.	
Resource Needs		
Costs	Period Beginning TBD	Amount TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff time (estimated 1-2 fulltime equivalent (FTE's) per Table 6-5); database development; outreach and education; data collection; etc.	
Funding Source(s)	Potential funding sources include: Federal grants from EPA and United States Department of Agriculture; cooperative agreements with federal agencies (e.g., USGS) in which the federal government funds a portion of the project; Clean Water Act Section 319 Non-point Source Fund; Centennial Clean Water Fund; Washington State Revolving Fund; Washington State Water Pollution Control Fund; grants from the Washington Conservation Commission; create septic system maintenance utility; tax or fee on septic system and/or water use with Aquifer Protection Area Program; user fees on drinking water systems not associated with Aquifer Protection Area Program; property tax or other local taxes; plan review fees and permit fees; water rate surcharges adopted by public water systems benefiting from program; and other state or local appropriations.	
Logistical Needs		
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other	TBD	

Constraints and Uncertainties	
Budget and staffing constraints may limit the ability to complete this Task; the accuracy of some data will be compromised due to inherent inaccuracies and inconsistencies in the data source; field mapping using Global Positioning Systems (GPS) may be necessary if precise locations are needed; mapping those "at risk" areas for which no area map exists (e.g. the very small Group A and Group B public water systems) will be challenging; it will be difficult to establish uniform hydrogeologic and land use ranking criteria that apply to all ground water supplies; ranking the susceptibility of ground water supplies and then prioritizing management strategies based on that ranking will be a much more difficult process; a considerable amount of work would be required to compile all the data suggested for a Level II Risk Assessment; if the Level II Risk Assessment is not completed due to budget constraints, some of the data for the Level II Risk Assessment could still be gathered for use in the Level I Risk Assessment; technical map products may be misunderstood by some public audiences.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks	
Task 2	Evaluate Existing Data Management System and Improve System if Necessary
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	• Inventory existing data management systems (e.g., DOH, Ecology, CPU, etc.) • Investigate software/hardware options (e.g. Excel, ArcInfo, AutoCAD, etc) and develop recommendations for improving data management systems • Modify data management systems as needed to store, link, manipulate and present data from a variety of sources
Resource Needs	
Costs	Period Beginning: TBD Amount: TBD
	Total: Less than \$50,000.00 per county
Key Cost Drivers	Staff time (estimated ¼ to 2 FTE to implement); development of data management system recommendations; etc.
Funding Source(s)	See Task 1
Logistical Needs	See Task 1
Agreements, Ordinances, Permits & Approvals	See Task 1
Other	
Constraints and Uncertainties	
See Task 1	

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 3	Produce Regional Maps Showing Results of the Risk Assessment	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Develop and produce regional maps showing the results of the risk assessment - Present maps to local agencies, water purveyors, facility/site operators and others for use as a planning and education tool	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: Less than \$50,000.00 per county	
Key Cost Drivers	Staff time (estimated ¼ to 3/4 FTE to implement); production of maps; outreach and education; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

General Comments

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #977 AND SUBACTIONS #977A,
#977B, AND #977C
IMPROVE LOCAL WELLHEAD PROTECTION

Action Summary ¹	
Lead Partner(s)	County Health Departments, DOH
Oversight Responsibilities	County Health Departments, DOH
Coordinating Partner(s)	Public Water Systems
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #977: Within authorities, improve local wellhead protection. Determine which Group A Systems have wellhead program. Apply technical assistance and enforcement to meet state requirements. Facilitate use of computer modeling. Encourage Group B systems to voluntarily establish wellhead programs (See Section 6.5.3). The Planning Unit recommends that steps be taken to improve local wellhead protection programs. Pg 6-13
	Subaction #977A: Determine which Group A public water systems (PWS) have a Wellhead Protection Program and enforce Wellhead Protection Program requirements. Pg 6-20 Subaction #977B: Facilitate use of a computer model for delineating select Group A PWS wellhead protection areas. Pg 6-20 Subaction #977C: Encourage Group B PWSs to voluntarily establish a Wellhead Protection Program. Group B PWSs are not required to do any wellhead protection planning under current regulations. Pg 6-20
Plan Background & Context	Five management objectives were developed for ground water quality purposes in WRIAs 27 and 28, based on the conclusions and recommendations found in the Level 1 Assessment. These objectives include the following: • Improve public understanding and awareness of issues related to drinking water quality • Assess susceptibility of ground water supplies to contamination on a regional basis • Improve local wellhead protection programs • Implement management strategies to minimize impacts of land use activities on ground water supplies • Clean up ground water contamination Action #977 and Subactions A through C focus on bullet 3 above, which addresses improvement of local wellhead protection programs.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	Local water purveyors have the greatest ability to assess, protect and manage their own ground water sources. Unfortunately, many small water systems lack the resources to develop a formal wellhead protection program or implement wellhead protection activities. Technical and/or financial assistance could be provided to these small systems to complete formal or informal wellhead protection activities. Assistance should be concentrated in areas with ground water supplies that are already impacted or "at risk" of becoming impacted in the future. Pg 6-20
Relationship to Other Actions and Coordination Needs	As described above, this Action and related Subactions are part of a broader Plan strategy for management of groundwater supplies in WRIAs 27 and 28. This Action and related Subactions are designed to work in concert with Actions directed at improving public awareness of ground water issues (Action #975), identification of at-risk groundwater supplies (Action #976), preventing future impacts to groundwater (#978), and clean up contaminated groundwater (Action #979). Wellhead protection area delineations and contaminant inventories completed by local water purveyors could be added to the ground water quality database used for the risk assessment (Action #976). Assistance to local water purveyors should be targeted in areas identified as "at risk" in Subaction #976A. Successful implementation of this Subaction will greatly improve public understanding and awareness of issues related to drinking water quality, as called for in Subaction #975. Pgs 6-19 and 6-20
Expected Outcomes	Improve management of unprotected ground water sources located outside the service areas of large and medium water purveyors.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	The Planning Unit has established two primary goals related to management of ground water quality: • Protect surface water quality for designated uses, with an emphasis on protection of aquatic biota, including fish species in their various life stages. • Protect surface and ground water needed for public drinking water supplies. (Pg 6-1) In addition the Planning Unit has established the following recommendations for achieving these goals: • Improve public understanding and awareness of issues related to drinking water quality; • Assess susceptibility of ground water supplies to contamination on a regional basis; • Improve local wellhead protection programs; • Implement management strategies to minimize impacts of land use activities on ground water supplies; and • Clean up ground water contamination. (Pg 6-13)
Is the Activity Fully Funded?	☐ Yes ☒ No

Financial/Economic Costs ²	Enforce wellhead protection program requirements for all Group A Public Water Systems: Low to Medium Facilitate use of a computer model for delineating select Group A PWS wellhead protection areas: High Encourage Group B PWSs to voluntarily establish a Wellhead Protection Program: Medium
Identify Tasks that have not been Fully Funded	Tasks 1, 2 and 3

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Determine which Group A public Water Systems Have a Wellhead Protection Program and Enforce Wellhead Protection Program Requirements	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Inventory and evaluate existing Group A PWS's for status of Wellhead Protection Programs • Identify gaps in protection area delineations, contaminant inventories, and/or management programs • Prioritize actions to address gaps in existing Wellhead Protection Programs • In order of established priorities, require compliance for all Group A PWSs and provide additional technical and/or financial assistance, as needed	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: \$50,000 to \$250,000	
Key Cost Drivers	Staff resources (estimated ¼ to ¾ fulltime equivalent (FTE) per Table 6-8)	
Funding Source(s)	Potential funding sources include: Federal grants from EPA and United States Department of Agriculture; cooperative agreements with federal agencies (e.g., USGS) in which the federal government funds a portion of the project; Clean Water Act Section 319 Non-point Source Fund; Centennial Clean Water Fund; Washington State Revolving Fund; Washington State Water Pollution Control Fund; grants from the Washington Conservation Commission; create septic system maintenance utility; tax or fee on septic system and/or water use with Aquifer Protection Area Program; user fees on drinking water systems not associated with Aquifer Protection Area Program; property tax or other local taxes; plan review fees and permit fees; water rate surcharges adopted by public water systems benefiting from program; and other state or local appropriations.	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		
Constraints and Uncertainties		
Funding availability will limit ability to complete this Task; 100 percent compliance of Group A PWS's with wellhead protection regulations may not be attainable; many local water purveyors lack the technical background to accurately identify potential sources of contamination; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Supporting Tasks		
Task 2	Facilitate Use of a Computer Model for Delineating Select Group A PWS Wellhead Protection Areas	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Based on the priorities above, use computer modeling to delineate select Group A PWS wellhead protection areas (e.g., delineate capture zones) around Group A PWS ground water supplies that are impacted or “at risk” of becoming impacted in the future. - Integrate modeling result into development of management strategies to protect wellhead protection zones	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: Greater than \$250,000	
Key Cost Drivers	Staff time (estimated greater than 2 FTE and/or contracted services per Table 6-8); computer modeling; etc	
Funding Source(s)	See Task 1	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		
Constraints and Uncertainties		
Funding availability will limit ability to complete this Task; Group A PWSs and local government agencies may not have the technical staff to use computer models to generate more accurate wellhead protection area delineations - this may require reliance on USGS staff or contracted services; many local water purveyors lack the technical background to accurately identify potential sources of contamination; etc.		
Operation and Maintenance		
Estimated Annual Cost	TBD	
Describe O&M Tasks	TBD	

Task 3	Encourage Group B PWSs to voluntarily establish a Wellhead Protection Program	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	- Develop guidance for development of a simplified Wellhead Protection Program for Group B PWSs based on existing guidance documents and protection regulations for Group A PWSs, and addressing establishment of wellhead protection area delineations, contaminant inventories, and simple management programs. - Conduct outreach to Group B PWSs, including mass-mailing of information packets and guides - Establish follow-up contacts in areas with "at risk" or impacted groundwater supplies - Provide technical assistance to entities developing Group B PWSs	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: Less than \$50,000 per county	
Key Cost Drivers	Staff time (estimated between ¼ and ¾ FTE per Table 6-8)	
Funding Source(s)	See Task 1	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		
Constraints and Uncertainties		
Funding availability will limit ability to complete this Task; success of this Task will depend on voluntary cooperation by Group B PWSs; many Group B PWSs will not perform wellhead protection activities even if technical and financial assistance is provided; wellhead protection literature and informational packets may be misunderstood by some public audiences; etc.		
Operation and Maintenance		
Estimated Annual Cost		
Describe O&M Tasks		
General Comments		

**WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #978 AND
SUBACTIONS #978A AND #978B
COORDINATE, PROMOTE AND IMPLEMENT MANAGEMENT STRATEGIES
TO PREVENT IMPACTS TO GROUND WATER QUALITY**

Action Summary¹	
Lead Partner(s)	County Health Departments (Note: lead roles may vary depending on authorities and implementation strategies)
Oversight Responsibilities	County Health Departments
Coordinating Partner(s)	County Planning Departments, Conservation Districts, Ecology, Department of Agriculture, Natural Resource Conservation Service (NRCS)
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #978: Within authorities, coordinate and promote management strategies to prevent impacts to ground water quality from land use activities (See Section 6.5.4).
	Subaction #978A: Take steps to implement management strategies to minimize impacts of land use activities on ground water supplies. Pg 6-13 Subaction #978B: Coordinate and promote management strategies. Pg 6-22
Plan Background & Context	Five management objectives were developed for ground water quality purposes in WRIAs 27 and 28, based on the conclusions and recommendations found in the Level 1 Assessment. These objectives include the following: • Improve public understanding and awareness of issues related to drinking water quality • Assess susceptibility of ground water supplies to contamination on a regional basis • Improve local wellhead protection programs • Implement management strategies to minimize impacts of land use activities on ground water supplies • Clean up ground water contamination Action #978 and Subactions A and B focus on bullet 4 above, which addresses implementation of management strategies to minimize impacts of land use activities on ground water supplies.

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	A variety of land use activities can act together as non-point sources to impact ground water supplies. It is more efficient and cost-effective to prevent land use activities from impacting ground water supplies than attempt to clean up ground water supplies after they have been impacted. One approach for preventing ground water contamination from land use activities is through implementation of the Critical Aquifer Recharge Area (CARA) ordinances discussed in Section 6.4.4. Another approach for preventing contamination is through the use of region-specific management strategies. Potential management strategies that could be adopted for WRIAs 27 and 28 are addressed by this Action. Pgs 6-21 through 6-23
Relationship to Other Actions and Coordination Needs	As described above, this Action and related Subactions are part of a broader Plan strategy for management of groundwater supplies in WRIAs 27 and 28. This Action and related Subactions are designed to work in concert with Actions directed at improving public awareness of ground water issues (Action #975), identification of at-risk groundwater supplies (Action #976), improving wellhead protection (#977), and clean-up of contaminated groundwater (Action #979). The type of management strategies that need to be implemented and the locations where the strategies need to be implemented should be based on the risk assessment (Action #976). Locations where management strategies are implemented should be added to the data management system described in Action #976. Public outreach activities (Action #975) could use management strategy case studies as presentation and education tools. Pgs 6-21 through 6-23
Expected Outcomes	Prevent degradation of ground water supplies by various land use activities.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	The Planning Unit has established two primary goals related to management of ground water quality: • Protect surface water quality for designated uses, with an emphasis on protection of aquatic biota, including fish species in their various life stages. • Protect surface and ground water needed for public drinking water supplies. (Pg 6-1) In addition the Planning Unit has established the following recommendations for achieving these goals: • Improve public understanding and awareness of issues related to drinking water quality; • Assess susceptibility of ground water supplies to contamination on a regional basis; • Improve local wellhead protection programs; • Implement management strategies to minimize impacts of land use activities on ground water supplies; and

	Clean up ground water contamination. (Pg 6-13)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Coordinate and promote management strategies: High Take steps to implement management strategies to minimize impacts of land use activities on ground water supplies: High
Identify Tasks that have not been Fully Funded	Tasks 1 and 2

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Coordinate and Promote Management Strategies	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Coordinate with the public, local and state governments, stakeholders, and interest groups to identify management strategies to prevent impacts to ground water quality from land use activities, using Section 6.5.4 (Pg 6-22) for guidance • Based on willingness to participate and resource benefits, prioritize management strategies for implementation • Identify funding sources for implementation of management strategies	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: >\$250,000	
Key Cost Drivers	Staff time (estimated greater than 2 FTE and/or contracted services per Table 6-9); public meetings; outreach; etc	
Funding Source(s)	Potential funding sources include: Federal grants from EPA and United States Department of Agriculture; cooperative agreements with federal agencies (e.g., USGS) in which the federal government funds a portion of the project; Clean Water Act Section 319 Non-point Source Fund; Centennial Clean Water Fund; Washington State Revolving Fund; Washington State Water Pollution Control Fund; grants from the Washington Conservation Commission; create septic system maintenance utility; tax or fee on septic system and/or water use with Aquifer Protection Area Program; user fees on drinking water systems not associated with Aquifer Protection Area Program; property tax or other local taxes; plan review fees and permit fees; water rate surcharges adopted by public water systems benefiting from program; and other state or local appropriations.	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		
Constraints and Uncertainties		
Funding availability will limit ability to complete this Task; success of this Action will depend on voluntary cooperation by implementing entities; it may be difficult to discern from the results of the risk assessment and monitoring program which land use activities and contaminants need to be addressed; etc.		

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD
Supporting Tasks	
Task 2	Implement Management Strategies to Minimize Impacts of Land Use Activities on Ground water Supplies (Note: lead roles may vary depending on authorities and implementation strategies)
Schedule	
Start Date	TBD
Planned Completion	TBD
Actual Completion	TBD
Benchmarks/ Milestones	- Secure funding sources for implementation of management strategies based on the outcome of Task 1 - Implement management strategies – examples include the following: - Develop operations and maintenance program for on-site septic systems - When considering whether to convert areas served by septic systems to a public sanitary sewer system, the local "water balance" should be considered. If homes in an area rely on domestic wells for water supply, conversion to a public sewer system may transfer water out of the local watershed, with unintended effects on summertime base flows in nearby surface streams. These effects should be considered from a comprehensive perspective involving water quantity as well as water quality. - Establish more stringent guidelines for land application of wastewater effluent - Establish more stringent guidelines prohibiting on-site disposal of non-domestic wastewater from commercial and industrial facilities - Establish more stringent design and operation standards for chemical storage and handling operations - Promote implementation of BMPs for fertilizer and pesticide application (e.g., Field Operations Technical Guide - FOTG), with special application to small non-commercial ("hobby") farms - Promote implementation of BMPs for irrigation management practices that protect ground water quality, with special application to small non-commercial farm - Promote implementation of BMPs for manure handling, with special application to small non-commercial farms - Establish more stringent guidelines for siting of concentrated animal feeding operations

	- o Provide technical and financial assistance to agricultural and animal feeding operations for ground water quality improvement projects - o Organize regional information sharing groups for farmers and ranchers - o Maintain local household hazardous waste collection and disposal programs; and, State producer pesticide collection (WSDA) - o Consider feasibility study for a manure digester power plant to address waste issues associated with manure generation in Clark County - o Support research on contaminant fate and transport issues (Pg 6-22)	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: >\$250,000	
Key Cost Drivers	Staff time (estimated greater than 2 FTE and/or contracted services per Table 6-9); consulting services; coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation. For projects involving physical activities and infrastructure, permit requirements may apply. Potential permits and approvals include: shoreline substantial development permit; critical areas permit; building permit; floodplain permit; grading and clearing permit; Section 404 permit (if needed); Section 401 Certification (if needed); water right permit; SEPA/NEPA compliance; and water system plan update and approval. SEPA/NEPA compliance may also be required for programmatic or regulatory actions.	
Other		
Constraints and Uncertainties		
Funding availability will limit ability to complete this Task; success of this Action will depend on voluntary cooperation by implementing entities; selection and implementation of technical management strategies does not guarantee adequate protection of ground water supplies from contamination; management strategies should not be applied uniformly to all locations; some locations and land uses may require site-specific strategies.		

Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	Once completed, projects may require ongoing monitoring, infrastructure maintenance and upgrades. Project plans and funding approaches should include provisions for long-term operation and maintenance.
General Comments	

WRIA 27/28 DETAILED IMPLEMENTATION PLAN
ACTION SCHEDULE: ACTION #979 AND
SUBACTIONS #979A AND #979B
CLEAN UP SOURCES OF GROUNDWATER CONTAMINATION

Action Summary¹	
Lead Partner(s)	County Health Departments (Note: lead roles may vary depending on authorities and implementation strategies)
Oversight Responsibilities	County Health Departments
Coordinating Partner(s)	Ecology, Local Water Purveyors, Department of Agriculture
Action Type	Requirement ☐ Recommendation ☒
Is this a New, Existing or Revised Activity?	☐ New ☐ Existing/Ongoing ☒ Revised
Table Description	Action #979: Within authorities, clean up sources of ground water contamination. Evaluate need for greater involvement by local organizations. Evaluate need for independent cleanup actions outside Ecology programs (See Section 6.5.5).
	Subaction #979A: Evaluate the need for greater involvement by local organizations as stakeholders in clean up actions at Ecology regulated facilities and sites. Pg 6-24 Subaction #979B: Evaluate the need for independent clean up actions. Some land use activities that have contributed to ground water contamination cannot be easily assigned to responsible parties . Pg 6-24
Plan Background & Context	Five management objectives were developed for ground water quality purposes in WRIAs 27 and 28, based on the conclusions and recommendations found in the Level 1 Assessment. These objectives include the following: • Improve public understanding and awareness of issues related to drinking water quality • Assess susceptibility of ground water supplies to contamination on a regional basis • Improve local wellhead protection programs • Implement management strategies to minimize impacts of land use activities on ground water supplies • Clean up ground water contamination Action #979 and Subactions A and B focus on bullet 5 above, which addresses greater involvement of local organizations in Ecology regulated clean-up activities, as well as evaluation of the need for independent clean-up actions. While prevention is the most effective way of protecting clean ground water supplies, a significant number of unprotected ground water supplies may already be impacted. These impacted ground water supplies cannot be safely used as an existing

¹ Note: Page and section references in this document refer to the adopted "Salmon-Washougal and Lewis Watershed Management Plan" (LCFRB, 2006)

	or future source of supply. Impacted ground water supplies should be cleaned up such that the resulting ground water quality would be acceptable for use as a drinking water source. Pg 6-23
Relationship to Other Actions and Coordination Needs	As described above, this Action and related Subactions are part of a broader Plan strategy for management of groundwater supplies in WRIAs 27 and 28. This Action and related Subactions are designed to work in concert with Actions directed at improving public awareness of ground water issues (Action #975), identification of at-risk groundwater supplies (Action #976), improving wellhead protection (#977), and implementation of strategies to prevent impacts to groundwater from land use activities (Action #978). Impacted ground water supplies would most likely be identified through follow-up actions to the risk assessment (Action #976). Public outreach activities (Action #975) could use some clean up case studies as presentation and education tools. Pgs 6-23 and 6-24
Expected Outcomes	Restore impacted, unprotected ground water supplies outside the service areas of large water purveyors for potential use as a drinking water source.
Is the Action Fully Addressed by the Tasks Below?	☐ Yes ☒ No
Supporting Strategies, Policies & Recommendations	The Planning Unit has established two primary goals related to management of ground water quality: • Protect surface water quality for designated uses, with an emphasis on protection of aquatic biota, including fish species in their various life stages. • Protect surface and ground water needed for public drinking water supplies. (Pg 6-1) In addition the Planning Unit has established the following recommendations for achieving these goals: • Improve public understanding and awareness of issues related to drinking water quality; • Assess susceptibility of ground water supplies to contamination on a regional basis; • Improve local wellhead protection programs; • Implement management strategies to minimize impacts of land use activities on ground water supplies; and • Clean up ground water contamination. (Pg 6-13)
Is the Activity Fully Funded?	☐ Yes ☒ No
Financial/Economic Costs ²	Evaluate the need for greater involvement by local organizations as stakeholders in clean up actions at Ecology regulated facilities and sites: Low Evaluate the need for independent clean up actions: High
Identify Tasks that have not been Fully Funded	Tasks 1 and 2

² Preliminary, generalized estimates of financial or economic cost to the community or water user involved. High: greater than \$500,000; Medium: \$50,000 to \$500,000; Low: less than \$50,000. Total cost, whether up-front or over a period of time up to ten years.

Supporting Tasks		
Task 1	Evaluate the Need for Greater Involvement as a Stakeholder in Clean-up Actions at Ecology Regulated Facilities and Sites	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Inventory Ecology regulated facilities and sites (consult Ecology facility/site database) • Identify facilities and sites where Ecology proposes to allow contaminants to be left in place at concentrations significantly above maximum contaminant levels (MCLs) • Notify local implementation agencies about remediation actions that will not restore impacted groundwater to concentrations below MCLs (Ecology lead) • Prioritize remediation actions for further involvement and lead entities for follow-up • Based on priorities, coordinate with Ecology and actively engage in remediation action processes to ensure actions are sufficient to protect existing and future water supplies	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: less \$50,000 per county	
Key Cost Drivers	Staff time (estimated 1-2 FTE and/or contracted services per Table 6-10); public meetings; outreach; etc	
Funding Source(s)	Potential funding sources include: Federal grants from EPA and United States Department of Agriculture; cooperative agreements with federal agencies (e.g., USGS) in which the federal government funds a portion of the project; Clean Water Act Section 319 Non-point Source Fund; Centennial Clean Water Fund; Washington State Revolving Fund; Washington State Water Pollution Control Fund; grants from the Washington Conservation Commission; create septic system maintenance utility; tax or fee on septic system and/or water use with Aquifer Protection Area Program; user fees on drinking water systems not associated with Aquifer Protection Area Program; property tax or other local taxes; plan review fees and permit fees; water rate surcharges adopted by public water systems benefiting from program; and other state or local appropriations.	
Logistical Needs	TBD	
Agreements, Ordinances, Permits & Approvals	Interagency agreements may be a vehicle for promoting cooperation.	
Other		

Constraints and Uncertainties	
It may be difficult to stay up-to-date with the status of all remediation activities in the county or basin unless significant resources are earmarked for this task. It may be extremely difficult in most cases to identify specific land use activities that have contributed to ground water contamination and need to be cleaned up. A strong link between an impacted ground water supply and a land use activity would need to be firmly established.	
Operation and Maintenance	
Estimated Annual Cost	TBD
Describe O&M Tasks	TBD

Supporting Tasks		
Task 2	Evaluate the Need for Independent Clean-up Actions	
Schedule		
Start Date	TBD	
Planned Completion	TBD	
Actual Completion	TBD	
Benchmarks/ Milestones	• Inventory groundwater contamination problem areas based on available information (e.g., TMDL’s, Ecology facility/site database, Department of Health database, County Health Department data base, etc.), and consultation with Ecology, local and state agencies, and other entities • Investigate the potential for providing technical and/or financial assistance to remove or remediate sources of contamination and down gradient impacts associated with these land use activities • Prioritize remediation actions for further involvement and lead entities for follow-up • Secure funding and implement projects	
Resource Needs		
Costs	Period Beginning: TBD	Amount: TBD
	Total: > \$250,000	
Key Cost Drivers	Staff time (estimated greater than 2 FTE and/or contracted services per Table 6-10); consulting services; coordination meetings; public outreach and notification; field assessment and studies; project administration; publication/ printing costs; etc.	
Funding Source(s)	See Task 1	
Logistical Needs	See Task 1	
Agreements, Ordinances, Permits & Approvals	See Task 1	
Other		
Constraints and Uncertainties		
See Task 1		

Operation and Maintenance	
Estimated Annual Cost	
Describe O&M Tasks	

General Comments