

# WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT

Organization: Skamania County - Public Utilities District

WRPIFA-1517-SkCPUD-00015

## General Information

Project Title	WRIA 29A Carson Groundwater Source Development - Phase 2
Project Short Description	Skamania PUD is working towards identifying and developing groundwater sources that would fulfill current and future supply requirements for the Carson Water System, while improving baseflows in Bear Creek and Wind River through replacement of the present Bear Creek surface water source. Skamania PUD is currently in Phase 2 of the project, which includes installing and monitoring a test well and completing a test well report.
Project Long Description	<p>The Carson Water System, owned and operated by Skamania PUD, serves approximately 2,800 people in the unincorporated community of Carson, Washington (see attached map). The system is served by both a surface water and groundwater source. The system's primary water supply is a 2.00 cfs surface water right on Bear Creek, a tributary of the Wind River. The Bear Creek source is supplemented by 300 gpm (0.67 cfs) of groundwater production from the Industrial Site Well. The existing surface water infrastructure, including a 3-mile long transmission main and a 45-year old treatment plant, are deteriorating and contribute to the systems water loss. Developing a new groundwater source lower in the watershed and decommissioning the aging surface water infrastructure would improve stream flows in Bear Creek and Wind River and provide a more cost effective raw water source for the system .</p> <p>The PUD currently utilizes a maximum surface water withdrawal of only 1.23 cfs of the available 2.00 cfs water right on Bear Creek. However, as demand within the water system increases or in the event of problems with the Industrial well, the remaining 0.78 cfs surface water right will need to be withdrawn from Bear Creek unless another groundwater source is developed. The surface water withdrawals significantly impact low flows in Bear Creek, which has a 90% exceedance flow as low as 1.7 cfs in September, as well as having downstream impacts on Wind River. The 10-foot high intake diversion structure on Bear Creek also impedes downstream passage and completely blocks upstream passage of resident fish. The lowest reach of Bear Creek also supports summer steelhead, while Wind River supports numerous anadromous fish runs (watershed details are attached).</p> <p>The effort to move from surface water to groundwater sources has five phases :</p> <ul style="list-style-type: none"><li>Phase 1: Conduct hydrogeologic study of the lower Wind River Valley (complete)</li><li>Phase 2: Permit, install, and monitor test well and complete well report</li><li>Phase 3: Preliminary engineering report and apply for water rights</li><li>Phase 4: Design, permit, and construct infrastructure improvements</li><li>Phase 5: Decommission surface water infrastructure and remove Bear Creek dam and intake structure</li></ul> <p>In 2015, the PUD completed the Phase 1 hydrogeologic study (see attached). The goal of the study was to identify potential test well locations in the lower Wind River valley that would access groundwater discharging to the Columbia</p>

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River and not the Wind River. A detailed mapping of the geology at the south end of the valley evaluated the most likely occurrence of the deepest and thickest section of the Trout Creek Hill basalt, which is most likely to be an aquifer with good hydraulic continuity to the Columbia River. The study identified the preferred location, recommended drilling an 8-inch test well to a depth of 200 to 300 ft and conducting a pump test.

Phase 2 of the project will install a test well and monitor the water level and capacity using a 24-hour pump test. Water quality testing will also be completed at this time. Additional water level and water quality testing may be conducted periodically throughout the year. The results of the monitoring and testing will be summarized in a well report. If the well report identifies an adequate groundwater source, the project will proceed into Phase 3. Skamania County National Scenic Area landuse approval will be obtained at the start of Phase 2, prior to drilling the well. The transition away from the Bear Creek surface water source will be contingent on 1) locating a proven source of groundwater to meet the needs of the Carson water system to full build-out of the area and 2) being able to transfer Bear Creek water rights to the ground water source and obtain sufficient new rights to meet Carson water system needs to build-out. Skamania PUD is committed to providing a 30 percent match of the \$116,600 Phase 2 project costs, comprised of in-kind and capital funds.

Total Cost \$116,600.00\* Total Eligible Cost \$116,600.00\*

Effective Date 7/1/2015 Expiration Date 6/30/2017

Ecology Program Water Resources

Project Category\*  
✓ Infrastructure and Water Management Construction (Efficiency Improvements)  
Surface and Sub Surface Storage Feasibility Study and Construction  
Water Acquisition or Water Bank/Exchange Development  
Water Measuring Devices  
Other

Will Environmental Monitoring Data be collected? Yes

Overall Goal The intended outcome of the Carson Groundwater Source Development project is to:

- Construct a well to study groundwater availability in the lower Wind River valley.
- Complete an engineering report to evaluate the feasibility of developing a new groundwater source and associated infrastructure.
- Receive and/or transfer water rights to a new groundwater source. The estimated water rights needed for buildout of the system is 3.69 cfs and 1158 acft.
- Reorganize the existing point of diversion to a location lower in the watershed

**General Information**

that would access groundwater discharging to the Columbia River and not the Wind River. This would increase stream flows on Bear Creek and Wind River by reducing or eliminating surface water withdrawals.

- Improve instream and riparian zone conditions by removing the Bear Creek dam to allow unimpeded passage of fish and amphibians.

- Achieve water savings by decommissioning aging surface water infrastructure that contributes to elevated levels of water loss.

Recipient Contacts

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Project Manager

Melanie Sharp  
Melanie Sharp

PO Box 500  
1492 Wind River Highway  
Carson, Washington 98610  
(509) 427-5126

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Authorized Signatory

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Brent Bischoff  
General Manager  
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Billing Contact

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msharp@skamaniapud.com

**Other recipient signatures on printed agreement**

**To Add a Row**

Enter a name and title

**To Delete a Row**

In the row you want to delete, remove the information in the

**Recipient Contacts**

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When done, click the **SAVE** button  
After SAVE, a new row will appear

Name

Name and Title textboxes  
When done, click the **SAVE** button  
After SAVE, the row will be deleted  
Title

# WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT

Organization: Skamania County - Public Utilities District

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## Location Information

Statewide \* Yes  No

Ecology Region \* Southwest 100%  
Click here to view map:

County \* SKAMANIA 100%  
Click here to view map:

Congressional District \* District 03 100%  
Click here to view map:

Legislative District \* District 14 100%  
Click here to view map:

WRIA \* 29a - Wind 100%  
Click here to view map:

Ecology Region Statewide 100%

County Statewide 100%

Congressional District Statewide 100%

Legislative District Statewide 100%

WRIA Statewide 100%

Latitude (expressed in decimals) 45.71887

Longitude (expressed in decimals) -121.80191

Facility Site ID

Facility Site Link

**WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT**

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**Scope of Work - Task 1 Project Admin: 1**

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Task Number	1		
Task Title	Project Administration/Management	Task Cost	\$2,160.00
Task Description	<p>A. The RECIPIENT will administer the project. Responsibilities will include, but not be limited to: maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation, progress reports and recipient closeout report (including photos); compliance with applicable procurement, contracting, and interlocal agreement requirements; application for, receipt of, and compliance with all required permits, licenses, easements, or property rights necessary for the project; and submittal of required performance items.</p> <p>B. The RECIPIENT must manage the project. Efforts will include: conducting, coordinating, and scheduling project activities and assuring quality control. Every effort will be made to maintain effective communication with the RECIPIENT's designees; the DEPARTMENT; all affected local, state, or federal jurisdictions; and any interested individuals or groups. The RECIPIENT must carry out this project in accordance with any completion dates outlined in this agreement.</p>		
Task Goal Statement	Properly managed project that meets agreement and Ecology administrative requirements.		
Task Expected Outcomes	<p>* Timely and complete submittal of requests for reimbursement, quarterly progress reports and recipient closeout report.</p> <p>* Properly maintained project documentation</p>		
Recipient Task Coordinator	Melanie Sharp		

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Enter a deliverable  
 When done, click the SAVE button  
 After SAVE a new row will appear  
 Repeat these steps for each deliverable

**To Delete a Row**

Delete data entered in a row  
 When done, click the SAVE button

Deliverable #	Description	Due Date	Received?	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
			(ECY Use					

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**Scope of Work - Task 1 Project Admin: 1**

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Only)

1.1 Progress Reports 6/30/2017

1.2 Recipient Closeout Report 6/30/2017

Task Number 2

Task Title Test Well Permitting & Construction Task Cost \$114,440.00\*

Task Description Complete Skamania County Columbia Gorge National Scenic Area (NSA) permitting for the test well. Drill an 8-inch test well, conduct a 24-hour pumping test to evaluate well performance and complete water quality testing.

Task Goal Statement The goal is to gain Skamania County NSA landuse approval and then drill a test well to evaluate the feasibility for developing the site as a groundwater source.

Task Expected Outcomes Skamania County NSA landuse approval issued so a test well can be drilled. Skamania PUD will have the information required to know whether the site is a feasible groundwater source for the Carson Water System.

Recipient Task Coordinator Melanie Sharp  
06/30/17

Deliverables

**To Add a Row**

Enter a deliverable  
When done, click the SAVE button  
After SAVE a new row will appear  
Repeat these steps for each deliverable

**To Delete a Row**

Delete data entered in a row  
When done, click the SAVE button

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
2.1	Skamania County NSA land use	4/29/2016						

Scope of Work - Additional Tasks: 2 - Test Well Permitting & Construction

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2.2	approval Pump test report	12/30/2016
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**WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT**

**Organization: Skamania County - Public Utilities District**

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**Scope of Work Summary**

Task Title	Task Cost
Project Administration/Management	\$2,160.00
Test Well Permitting & Construction	\$114,440.00
	\$116,600.00
 Total Eligible Costs (from the General Information Form)	
\$116,600.00	

**WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT**

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**Budget Proposal**

Estimate your proposal's total budget needs by task and by element for FY 16, FY17 and beyond.

FY 16 - July 1, 2015 to June 30, 2016

FY 17 - July 1, 2016 to June 30, 2017

Total Eligible Costs (from General Information form)
\$116,600.00

**By Task**

Task Title	Task Cost	*FY 16	*FY 17	Additional Fiscal Years	Total
Project Administration/Management	\$2,160.00	\$1,080.00	\$1,080.00	\$0	\$2,160.00
Test Well Permitting & Construction	\$114,440.00	\$6,765.00	\$107,675.00	\$0	\$114,440.00
<b>Total</b>	<b>\$116,600.00</b>	<b>\$7,845.00</b>	<b>\$108,755.00</b>	<b>\$0</b>	<b>\$116,600.00</b>

**By Element**

Element	*FY 16	FY 17	Additional Fiscal Years	Total
Salaries - 1	\$0	\$0	\$0	\$0
Benefits - 1	\$0	\$0	\$0	\$0
Salaries and Benefits Combined - 1	\$5,570.00	\$5,250.00	\$0	\$10,820.00
Contracts	\$1,200.00	\$101,270.00	\$0	\$102,470.00
Travel	\$0	\$0	\$0	\$0
Equipment - 2	\$145.00	\$450.00	\$0	\$595.00
Goods/services - 3	\$930.00	\$1,785.00	\$0	\$2,715.00
Overhead - 4	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$7,845.00</b>	<b>\$108,755.00</b>	<b>\$0</b>	<b>\$116,600.00</b>

If you receive a grant, you are responsible for procuring professional, personal, or other services using sound business judgment and good administrative procedures consistent with applicable state, and local laws, orders, regulations, and permits. This includes issuance of invitation of bids, requests for proposals, selection of contractors, award of sub-agreements, and other related procurement matters.

- 1 Fill in either the "Salaries" field and the "Benefits" field or fill in the "Salaries and Benefits Combined" field
- 2 Upload an itemized list of all equipment and explain why the equipment is needed. Equipment is defined as tangible property other than land, buildings, improvements other than buildings, or infrastructure, which is used in operations and with a useful life of more than one year. Examples are furnishings, equipment, and software.
- 3 Upload an itemized list of all Goods and Services

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**Budget Proposal**

4 Overhead cannot exceed 25% of salaries/benefits

**Upload Documents**

Click the Browse button

Select your file

Click Save, your file will appear in the List of uploaded documents

Repeat for each file

To Delete a file, select the Delete checkbox next to the file and click SAVE

\_Upload/16804-ListofEquipment,GoodsServices.pdf

**Additional Comments**

A standard overhead rate has not been established for Skamania PUD. If this grant is awarded, Skamania PUD could develop an overhead rate.

**WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT**

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**Infrastructure and Water Management Construction (Efficiency Improvements) Information**

**Water Right Permit or Certificate Information**

- \* Water Right Holder Name (if other than applicant) Skamania County PUD No. 1
- \* Water Right Permit or Certificate Number S2-00400 C
- \* Mailing Address PO Box 500
- \* City Carson \* State Washington \* Zip Code 98610

**Project Location**

- \* Stream reach mile or location SE1/4 of Section 33 T3N, R8E and SW1/4 of the NE1/4 of Section 28 T3NR8E

- \* Does the project proponent own the land where the project would occur if funded?

If not, will the proponent be able to get permission to enter the project site?

Skamania PUD operates the existing Bear Creek water withdrawal diversion on US Forest Service land under a Special Use Permit and has permission to enter the site and operate the existing facilities.

Skamania PUD does not currently own the land where the test well will be installed. However, the PUD has been in discussions with the landowner and has permission to enter the project site. An Option to Lease/Purchase Agreement is currently being negotiated with the land owner and will be completed prior to installation of the test well. If the test well proves successful, the agreement will give the PUD the option to purchase or obtain a long-term lease with the landowner. National Scenic Area zoning regulations prohibit subdividing the parcel, so a long-term lease agreement will be obtained if the entire property cannot be purchased.

**Funding Source Information**

- \* Known (in-hand), estimated or potential funding that is or may be part of the total project provided by sources other than this program

Amount	\$35,000.00
Percentage of project budget	30%

- \* Identify sources and type of funding other than through this grant. Include expected dates of participation. Upload letters of commitment, offer letters, application approvals or other supporting information.

Source and type of Funding

Amount	Percentage	Status	Known or expected date funds will be available
\$35,000.00	30%	Approved	July 1, 2015

**Upload Documents**

Click the Browse button

Select your file

# WATER RESOURCES WATERSHED PLAN IMPLEMENTATION AND FLOW ACHIEVEMENT

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## Infrastructure and Water Management Construction (Efficiency Improvements) Information

Click Save, your file will appear in the List of uploaded documents

Repeat for each file

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### Estimated Total Water Savings

\* Estimate the water to be conserved through efficiency gains from this project. Provide engineering or technical analyses to support your estimates.

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
QA(ACRE-FEET)	24.5	24	20	27.9	28.9	37.1	40.2	47.6	34.8	23.1	23.5	18.4	350
QI (CFS)	2	2	2	2	2	2	2	2	2	2	2	2	24

### Instream Flow or Habitat Benefits

\* Briefly describe the expected instream flow or habitat benefits if this project is funded:

Daily mean flow recorded in Bear Creek between 2008 and 2012 (Ecology Gage 29F050) was 1.8 cfs. Ecology's draft hydrographs lists the 90% exceedance flow as low as 1.7 cfs in September for Bear Creek and 145 cfs in October for Wind River near Carson (see attached). The PUD's 2.0 cfs and 350 acft water right on Bear Creek significantly impacts low flows in Bear Creek and Wind River. As additional source capacity is needed, the 0.78 cfs of currently unused water right will be withdrawn from Bear Creek, further reducing base flow and increasing the frequency of flow below the 90% exceedance level. During extreme drought conditions, it is possible for the PUD water right to withdraw the entire available streamflow of Bear Creek. Improving base flow may also help reduce high temperatures in Bear Creek and Wind River. Removal of Bear Creek dam and intake structure will also restore natural streamflow processes including sediment transport and revegetation of the riparian area.

### Resources currently committed to ensure long-term performance of the proposal

\* Who will be responsible for long-term operations, maintenance and stewardship of the project?

Skamania PUD has the staff and management ability to ensure long-term performance of the project. The PUD has almost 70 years of experience managing water systems. It was established in 1938 as an electric service and expanded into water system management in 1947 with the Underwood Water System (currently serving 341 connections) and the Carson Water System in 1953 (currently serving 961 connections). The PUD has trained staff and resources to complete maintenance activities and it has the experience and capability to implement management programs. Currently the PUD has 3 full-time certified water system operators and 11 support staff to manage its water systems.

\* Have operations and maintenance costs been identified and estimated? Yes

Summarize the estimated operations and maintenance costs on an annual basis below if possible at this time:

If the test well is put into production it is estimated to have annual O&M costs of approximately \$50,000 - \$75,000 for pump expense and maintenance, power for pumping, and chemicals.

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**Infrastructure and Water Management Construction (Efficiency Improvements) Information**

\* Are measurement devices other than diversion source meters necessary to monitor compliance with the project intent or plan? Yes  No

If yes, please describe

\* Do water measurement devices exist on the source and/or downstream of the proposed project?  Yes  
No

\* If no, will water measurement devices be installed as part of this project? Yes  No

If yes, please describe the locations and operating entity:

A staff gauge is installed on the Bear Creek water diversion structure and a source meter at the treatment plant measures the flow being withdrawn from Bear Creek. Measurement devices would also be used at the new well site to measure groundwater levels and a source meter would measure the amount of groundwater being withdrawn.

If yes, provide the river mile. 0.1

\* Is there a stream gage downstream of the proposed project? Yes  No

If yes, provide the following information:

Gage or location name: USGS 14128500 WIND RIVER NEAR CARSON, WA  
River mile: 2

**Readiness to Proceed**

\* Briefly describe the status of relevant feasibility reports, engineering designs, or associated permits. At the time of award you will need to provide documentation for these items by submitting two (2) copies of all relevant documents.

In 2015, the PUD completed the Phase 1 hydrogeologic study (see attached). The goal of the study was to identify potential test well locations in the lower Wind River valley that would access groundwater discharging to the Columbia River and not the Wind River. A detailed mapping of the geology at the south end of the valley evaluated the most likely occurrence of the deepest and thickest section of the Trout Creek Hill basalt, which is most likely to be an aquifer with good hydraulic continuity to the Columbia River. The study identified the preferred location, recommended drilling an 8-inch test well to a depth of 200 to 300 ft and conducting a pump test.

\* Does the applicant own the land where the project will occur? If no, will the applicant be able to gain legal access to the property where the project is proposed?

Skamania PUD operates the existing Bear Creek water withdrawal diversion on US Forest Service land under a Special Use Permit and has permission to enter the site and operate the existing facilities.

Skamania PUD does not currently own the land where the test well will be installed. However, the PUD has been in discussions with the landowner and has permission to enter the project site. An Option to Lease/Purchase Agreement is currently being negotiated with the land owner and will be completed prior to

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**Infrastructure and Water Management Construction (Efficiency Improvements) Information**

installation of the test well. If the test well proves successful, the agreement will give the PUD the option to purchase or obtain a long-term lease with the landowner. National Scenic Area zoning regulations prohibit subdividing the parcel, so a long-term lease agreement will be obtained if the entire property cannot be purchased.

Design/Engineering Status (if relevant):

✓ Pre-planning (pre-permitting)	Status:	Complete
Pre-design (design reports)	Status:	
Schematic design	Status:	
Design development	Status:	
Construction documents	Status:	
Bid documents (ready for bid)	Status:	

Comments relevant to Design/Engineering Status:

A hydrogeologic study of the lower Wind River Valley was completed in 2015. No other design work is needed.

Permit Status (if relevant):

SEPA	Status:	
'401	Status:	
Dept of Fish and Wildlife consultation	Status:	
Storage and/or Secondary Use Permit	Status:	
✓ Other: Skamania Co. NSA Land Use	Status:	Underway
Approval		
Other:	Status:	
Other:	Status:	