



Oregon

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MEMORANDUM

TO: Water Resources Commission

FROM: Tracy Louden, Administrative Services Administrator

SUBJECT: Work Session Item K, September 30, 2011
Water Resources Commission Meeting

Update on Water Conservation, Reuse and Storage Grant Program

I. Issue Statement

The Water Conservation, Reuse and Storage Grant Program (WCRS), established by Senate Bill 1069, awarded 22 grants statewide during 2008 and 2009. The program is designed to fund the qualifying costs of planning studies that evaluate the feasibility of developing water conservation, reuse or storage projects. The technical reports from 21 of these grants have been submitted and processed. One grant award was declined by the recipient. The legislature has approved continuation of this grant program with \$1.2 million for the 2011-13 biennium. This report provides a summary of the outcomes of past grants and outlines a tentative timeline for the grant program for 2011-13.

II. Background

SB 1069, enacted into law by the Oregon Legislature in 2008, authorized the Department to establish a new grant program to pay the qualifying costs of planning studies performed to evaluate the feasibility of developing a water conservation, reuse or storage project. The program awarded \$1,370,875 to 21 grantees during the 2011-13 biennium.

III. Grant Summary

The grants were issued over a broad geographic area and ranged from \$9,927 to \$259,000 each. There were six surface water storage studies, three ground water storage studies, four water re-use studies and eight water conservation studies. A summary of the Grants is included in Attachment 1. Additional information can be found on the Department's website under "Conservation and Supply Resources and Programs".

Several individuals involved in working on the grants, including the individual grant administrators, fiscal officers, contractors and Department staff members, were sent a survey to gather their opinions and concerns with the grant process. This feedback will be used to improve the application and reporting process.

IV. 2011-13 Grant Program tentative time line

The tentative timeline for the 2011-13 Grant Program has been developed based on: 1) feedback from past applicants indicating that the process would work better for them if their primary activity for applicants occurred during the fall (October – November); and 2) the funding from Lottery-backed bonds to be issued in May 2012 will be available in June 2012.

The table below represents a tentative schedule for July 2011 through June 2012.

2011-12 schedule	J	A	S	O	N	D	J	F	M	A	M	J
Commission Meeting – Grant Report			●									
Grant Solicitation – 60 day window				●	●							
Grant Applications Due						●						
Public Notice of Applications Received						●						
Application Review Team reviews grants						●	●					
Public Comment Period – 30 days							●					
Grant Program update to Commission							●					
Public Comments due date							●					
Grant Recommendations developed								●	●			
Commission Meeting – Grant Awards										●		
Lottery Bonds issued											●	
Grant Funds available												●

This schedule will provide opportunity for development of material by applicants, public review/comment, review of applications by a team with knowledge and interdisciplinary expertise, and Commission approval. The application process will utilize the existing administrative rules and forms.

Lottery-backed bonds are issued by the State Treasurer at the request of the Department of Administrative Services. The Office of the State Treasurer recommends that the typical bond issuance be \$15 million or greater. This means that Water Resources joins in with other agencies for a combined bond issuance, thereby lowering everyone’s issuance costs.

V. Conclusion

No Commission action is necessary today. The Department will report on the status of the process and applications received at the January 2012 meeting.

Attachment 1: Grant Summary

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 and
 Bill Fujii, Water Supply and Conservation Coordinator, 503-986-0887

Attachment 1 - Grant Summary

Ashland Right Water Right Use Planning Study	\$168,863
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According to the City of Ashland, the city has two fundamental water challenges associated with long-term community sustainability: 1) Provide reliable and safe potable water for anticipated community growth; and 2) Improve the health of Ashland Creek and Bear Creek by increasing summer streamflows and lowering temperatures to improve fish habitat. Ashland's study was aimed at taking a holistic approach to water use. The study defined the interrelationships among all of the available sources of water, including the use of irrigation water and recycled/reuse treated effluent, to offset irrigation demand within the City. Additionally the study identified benefits and challenges of using irrigation water with existing organizations and regulatory oversight. As a result of the study, the alternatives were reduced to two options, which will be presented to the City Council for final decision.

Powder Basin Water & Stream Health Committee (WASH) – Type: Above Ground Storage	\$20,000
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WASH, in cooperation with the Bureau of Reclamation, examined the feasibility of several new storage sites. The feasibility study identified alternatives, collected missing data, and developed engineering solutions. The alternatives went through an evaluation and assessment process. The evaluation included technical development and cost estimate, environmental impact and economic viability evaluation, and identification of political, legal and administrative issues. It was determined that additional studies will be needed to support the development of alternatives including: hydrology, water rights, hydraulics, geotechnical investigations, engineering, and design analysis.

Baker Valley SWCD/Smith Ditch Dist Improv. Co. – Type: Water Conservation	\$20,647
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According to the Baker Valley Soil and Water Conservation District, the Smith Ditch is an unlined 18-mile long irrigation ditch that diverts water supplied by the Powder River and Phillips Reservoir. The ditch serves 17 users and is used for irrigating 2,600 acres. The loss factor of the ditch is between 20 and 40 percent. A portion of the ditch is located in a live slide area with 600 feet of tunnel in close proximity to the neighborhoods of Baker City and two miles running through the city limits. The ditch is a possible danger to the residents in the area. The feasibility study determined the preferred alternative to eliminate the open ditch, conserve water, provide a more efficient irrigation water conveyance, and eliminate a safety hazard to residents.



Central Oregon Irrigation District – Type: Water Conservation **\$10,450**

According to its grant application, Central Oregon Irrigation District’s I-Lateral in Alfalfa, Oregon serves 1,712 acres. The study sought to determine the feasibility of piping or lining a 1.5 mile section of the I-Lateral with a potential conservation savings of 4.50 cubic feet per second (cfs) of water, of which at least 2.25 cfs could be permanently converted to instream water rights in the Deschutes River through the use of the allocation of Conserved Water Program. As a result of the study, the District believes that it will be in its best interest to pursue the project and allocate approximately 6.1 cfs of conserved water to the Deschutes River for mitigation and/or permanent instream water rights.

City of Bend – Type: Water Conservation **\$21,984**

In 2007, the City of Bend completed a Water System Master Plan Update that indicated that the City needed to expand supply, storage, and pumping capacities to meet demands through 2030. The preliminary cost estimate for upgrading and modifying the existing surface water supply is \$50 million.

The alternatives analysis focused on the City’s Bridge Creek surface water supply. Key alternatives to be considered included: using groundwater, moving Bend’s point of diversion downstream, and other alternatives that may leave more water instream to benefit fish and related resources. The study estimated costs of surface water system upgrades and developed a comparative economic analysis of other water supply alternatives. The evaluation also considered efficiency and conservation, resource benefits, hydroelectric power, water rights, water quality and treatment, outside funding, long-term costs, and factors such as disruptions to the public and ease of implementation. A preferred alternative was selected as a result of this study; further refinement of that alternative will be made outside the scope of this grant.

City of Corvallis – Type: Water Reuse **\$24,988**

The City of Corvallis analyzed alternate discharge options for treated wastewater to comply with the Willamette River temperature Total Maximum Daily Load (TMDL). One of the alternatives identified may eliminate direct discharge to the river. The City has evaluated the regulatory requirements and economic impacts of current and continued long-term discharge to the Willamette River. It also conducted a screening evaluation for alternate indirect river discharges. Because of this screening evaluation, three water reuse alternatives were identified as potential solutions to protect water quantity and quality in the future and to enhance community livability by providing a sustainable water resource. Water quantity needs that could be addressed by the associated project include: agricultural irrigation, urban irrigation, wetland restoration, wildlife habitat expansion, streamflow augmentation, and water conservation from the Willamette River

and local streams.

City of Cottage Grove – Type: Water Reuse **\$23,275**

The City of Cottage Grove recently completed an \$11 million upgrade to their wastewater treatment system. The City studied the feasibility of re-using a significant portion of its treated effluent from its wastewater treatment system for irrigation purposes. The treated effluent is currently released directly into the Coast Fork of the Willamette River. Potential users of the irrigation water would be Middlefield Golf Course, several City parks, and the planned 14-acre Bohemia Park, which plans to include a significant water feature. As a result of the study, the City's consultant has identified three viable alternatives for reuse of effluent water and recommended one for possible phased development.

City of Dallas – Type: Water Conservation **\$64,693**

The City of Dallas reported that through the efforts of a Phase 1 study, that it was pilot testing a single-well 0.33-million gallon per day (MGD) aquifer storage and recovery (ASR) system utilizing the saline Siletz River Volcanics as the receiving aquifer. During recharge of the ASR system, injected source water locally displaces saline groundwater in the aquifer. Early pilot testing results show that: (1) a fresh water storage zone can be developed in the Siletz River Volcanics, (2) potable water can be recovered from the system, and (3) recovery efficiency has increased over successive pilot testing cycles.

This grant funded, in part, a Phase 2 feasibility study to use existing data sets to develop and calibrate operational models of aquifer geometry and dual-density flow characteristics in the Siletz River Volcanics aquifer. These advanced numerical models were to provide a technical basis for optimizing storage capacity and recovery efficiency from the City's existing ASR well and for decision making during expansion of the City's ASR program to meet their goal of a 1-MGD capacity ASR system. As a result of this study, the consultant believes it possible to recover a greater quantity of water from the aquifer system with better quality of water that would contribute to meeting future needs of the City's water supply system.

City of Damascus – Type: Water Reuse **\$71,250**

The grant application states that the build-out population of the newly formed City of Damascus is approximately 60,000 people, of which 20,000 might be expected to reside on the eastern side of Damascus. The eastern side is semi-rural and far from existing water and wastewater infrastructure, but prime for development as Damascus formulates its first Comprehensive Plan. This grant funded a study to analyze a regional cooperative and wastewater/water reuse plan that has a potential to provide 2 million gallons per day of reclaimed water and wastewater facilities

for East Damascus while helping to meet a significant portion of the water supply needs for the surrounding communities.

The final report of the study proposed staged development over time that would provide a flexible water reuse program benefitting urban and agricultural users. The report also stated that grant funding allowed the City to explore opportunities to find a solution for wastewater treatment and effluent discharge that meets goals and visions of the City, while supporting overall watershed health consistent with goals to sustainably manage water resources.

City of Hillsboro / City of Beaverton – Type: Water Conservation \$15,000

The application states that the City of Hillsboro has had a high efficiency washing machine rebate program in place for more than six years. The program has been highly successful and the washing machine market has been transformed in Hillsboro. The popularity of the rebate program and the need for financial and retrofit incentive programs provides an opportunity to develop different rebate programs that will better target water efficiency standards and should increase water savings and drop per capita consumption. Beaverton does not currently have a rebate program.

The study provided an estimate of potential water savings that could be achieved through the implementation of six variations of the Cities' Water Sense Rebate Program. The information gained from this study will assist in program and policy revisions which will reduce the overall per capita demand on the water system.

City of Rockaway Beach – Type: Above Ground Storage \$13,775

The City of Rockaway Beach diverts its water from Jetty Creek. The grant application indicates that the Jetty Creek point of diversion dam has several problems, including: (1) high runoff during storm events that causes spikes in raw water turbidity that increase the cost of water treatment, (2) sedimentation that requires frequent dredging; (3) low summer streamflows that create difficulty for the City in meeting its water demands and maintaining the instream water rights; (4) a fish passage barrier.

The study outlined the feasibility of relocating the City's existing instream raw water impoundment on Jetty Creek to a side channel location which will be beneficial to both the City's water operations and the area's aquatic resources. The City also plans to install a control device to ensure that the instream water right is met prior to diverting water for municipal needs. The study identified the engineering and financial feasibility of the project as well as the potential environmental impacts. Key components of the study include: site evaluation, geotechnical investigation, hydrologic analysis, and a biological inventory.

City of Port Orford – Type: Above Ground Storage **\$86,591**

The Hubbard Creek Impoundment feasibility study evaluated raising the reservoir by 11 feet, which would allow the City of Port Orford to impound an additional 52 acre-feet. The City believes that the additional storage is necessary to reliably meet water demands during the late summer and to prevent complete water supply shortfalls from occurring in the next five to ten years. The goal is to satisfy the City's 50-year peak month demand of 237 gallons per day per household. This study addressed the uncertainties associated with the expansion.

The study produced an environmental assessment (including a wetlands assessment) and preliminary engineering report for the associated project. The feasibility of the project was examined including identifying the scope and cost of a project build-out and any additional mitigation measures required to address environmental consequences or benefits resulting from project implementation. The study also identified a need for the City to improve its water distribution system to reduce high water loss during normal operations.

City of Veneta – Type: Water Conservation **\$9,975**

The City of Veneta's water is supplied entirely from groundwater. Currently, the City's wells cannot produce enough water to meet peak seasonal demands. During the process of pumping groundwater, filters help remove excess iron from the water. The City scrubs the filters daily by reversing the water flow through the filters and then disposing of that water and the accumulated unwanted material. This is called the "backwash" process. The City currently loses an average of 25,000 gallons per day during the backwash process. This is equal to 4.8 percent of total water use. During the backwash process the wells are shut down.

With the grant funds, the city contracted an engineering study which assessed a range of options for conservation and use of the "backwash" water and safely disposing of the accumulated iron and other particles. Potential alternatives include the use of a membrane treatment to produce high quality drinking water from the original backwash water and produce a small volume of non-useable backwash water or a microfiltration cartridge to recover the backwash water.

Polk County – Type: Above Ground Storage **\$171,000**

Polk and Lincoln Counties are seeking to meet regional water needs through a collaborative effort to evaluate a storage reservoir in an area of the former Valsetz community. According to the grant application, this facility would meet water needs through 2050 for municipal water providers and agricultural users in both Lincoln and Polk counties. This storage site would be located near the coastal mountain divide. Impounded water would be diverted in both directions, serving Lincoln County on the west side through the Siletz River and Polk County on the east side through the Luckiamute River. The funded planning study includes collection of streamflow

and environmental information; completion of hydrologic, streamflow, and water demand analyses; development of baseline environmental impacts assessments; and completion of a storage concept and alternative analysis.

The final report provided preliminary data on three alternatives that would meet water demand through 2050. Recommendations in the report included the need for additional investigations and modeling to determine the impact on surrounding habitats.

Deschutes River Conserv/N Unit Irrigation Dist – Type: Water Conservation \$50,000

The grant application states that the Deschutes River Conservancy (DRC) and the North Unit Irrigation District (NUID) are partnering to produce a preliminary design for a water conservation project. The associated project will enhance irrigation conveyance efficiencies within NUID and improve instream flows in the Deschutes and Crooked Rivers. When completed, the project will produce new water supply to help meet existing agricultural and environmental water supply needs. It will enhance instream flows in 130 miles of river, including the upper Deschutes River in the winter and the middle Deschutes River and lower Crooked River during the summer. This proposal will build on a feasibility study commissioned by the DRC and performed by HDR Engineering in 2006.

The study's final report projected a reduction in loss due to seepage in the canal of 12,000 to 16,000 acre-feet and a net increase in streamflow within the first year following completion of the canal lining project.

Eagle Point Irrig. Dist./Medford Water Comm. – Type: Above Ground Storage 57,995

Eagle Point Irrigation District (EPID) and the Medford Water Commission (MWC) are the primary water right holders in the Big Butte Creek watershed. EPID services approximately 8,000 acres of land through a water right on South Fork Big Butte Creek. MWC provides domestic water to more than 130,000 people around Medford through a series of water rights on Big Butte Creek and the Rogue River. Willow Lake is used to balance the water needs of these two entities. Water is released from the lake when natural flows in South Fork Big Butte Creek are insufficient to meet water right requirements. Droughts, decreased rain and snow, and warmer weather patterns have challenged both water systems' ability to meet customer water demands.

The goal of this planning study was to determine the feasibility of the development of proactive strategies to manage the water in Big Butte Creek. 1) Completion of a feasibility study on increasing the storage capacity of Willow Lake by 300 to 1,700 acre-feet; 2) Development of a basin model to forecast demands and test different water management strategies; and 3) Analysis

of the ecological impact of flow withdrawal, alternative means of supply and environmental impacts, and developed stream flow and water temperature goals for early fall Spring Chinook spawning season in Big Butte Creek.

After evaluation of three possible alternatives, the recommendation of the contractor was to “do nothing” and maintain the current system, because of the expense of raising the dam and the current impracticality of implementing additional, significant conservation measures.

East Valley Water District – Type: Above Ground Storage	\$258,952
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The grant application stated that the East Valley Water District needs a source of stable water supply for 15,000 acres of agricultural development. The study provided further assessment of an on-channel reservoir in the upper Pudding River watershed on Drift Creek. According to the District, the proposed reservoir would: (1) impound at least 12,000 acre-feet of water, (2) relieve pressure in the three limited groundwater areas in the District’s service area, and (3) benefit fully-appropriated surface water sources.

The study provided East Valley Water District with a report that focused on Alternative Water Supply Analysis, Water Supply and Rights Review, Environmental Effects, Land Use Process, and Next Steps-Consultation and Permitting. According to the consultant, the results continue to indicate that this storage project can feasibly provide cooler summer water to Drift Creek and can meet the target storage of 12,000 acre-feet to mitigate the groundwater limitations being experienced by the District’s approximate 15,000 acres.

Grande Ronde Model Watershed – Type: Below Ground Storage	\$44,234
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The planning study evaluated the potential applications of managed underground storage techniques in Bear Creek, Lostine River, upper Catherine Creek and the upper Grande Ronde River watersheds. The goals were to determine feasible ways to augment late season stream flows that are currently consumed by irrigation and to help mitigate declining groundwater tables in the upper Grande Ronde Valley. The study considered whether artificial recharge can be used in the Bear Creek and Lostine River watersheds, and whether artificial recharge and aquifer storage and recovery options are available in the upper Catherine Creek and upper Grande Ronde River watersheds.

The study recommended that a recharge and recovery project would have a high likelihood of success in providing significant and measurable benefits to stream flow during critical times of the year.

Klamath Basin Rangeland Trust – Type: Water Conservation **\$60,652**

The study developed improvements to KBRT’s water transaction program for the Upper Klamath Lake watershed. The planning study identified flow targets, developed an administrative transaction structure, a pricing framework, and a funding structure for the program.

Previous modeling determined that an additional 30,000 acre-feet of water needs to flow into the lake each year. KBRT is building upon existing data, short-term instream leases, and partnerships to develop a plan for a water transactions program to keep needed water instream and flowing to the lake. The grant process enhanced a funding partnership with the National Fish and Wildlife Foundation (NFWF), which currently administers a water transactions program in the Columbia Basin. As a result of the grant, the water transaction program has enhanced the conservation and ecologically efforts in the Klamath Basin.

Mosier Watershed Council – Type: Below Ground Storage **\$143,378**

The grant application states that groundwater levels have been declining in the agriculture-dependent Mosier Valley since significant irrigation pumping began in the 1960s. In 2005, the Mosier Watershed Council, in partnership with the Department, U.S. Geologic Survey, and others initiated a geologic study and groundwater modeling process to determine Mosier’s sustainable groundwater yield. This study evaluated the feasibility of implementing Artificial Recharge (AR) or Aquifer Storage and Recovery (ASR) to maintain that sustainable yield. Hydrogeological, physical, regulatory, ecological and economic feasibilities of AR or ASR and other alternatives are to be considered. The goal is to meet the long-term water needs of the residents and agricultural economy of Mosier Valley, predicted to be approximately 1,900 acre-feet per year, in a sustainable way that will reverse the current groundwater decline and the resulting decline in Mosier Creek base flows. Achievement of that goal will be based on evaluating the feasibility of pursuing well repairs, AR or ASR or above-ground storage and conservation alternatives.

The conclusion of the study was that aquifer storage is not currently a feasible strategy for meeting Mosier’s water needs, and it will not be feasible as long as commingling wells continue to affect Mosier’s aquifer levels to the present degree. Several suggestions and considerations were proposed in the event an aquifer storage project was pursued in the future.

Tigard Area Water Reuse Study – Type: Water Reuse	\$33,173
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Since 1984, Clean Water Services (CWS) has been producing reuse water for irrigation within the Cities of Tigard and Durham. The goal of the study was to expand the reuse of wastewater treatment plant effluent to enhance a suburban stream identified as a project in the Tigard City Center Renewal Plan, improve the livability of the Tigard downtown core, and augment the flow of Fanno Creek. Fanno Creek is a tributary to the Tualatin River that is affected by low summertime flows. Its lowest flow was 1 cubic foot per second (cfs) in September 2001, and frequently is less than 5 cfs in July and August. Fanno Creek also exceeds temperature standards established for protecting salmonids. The study evaluated the feasibility of expanding the reuse of effluent from CWS 21 MGD Durham Advanced Wastewater Treatment Facility to serve the Tigard’s downtown area to reduce the demands on Fanno Creek.

The final report of the study stated: Given the costs of each scenario relative to the potential benefits that recycled water would have on the downtown area and to improving Fanno Creek flows, the additional anticipated costs of recycled water distribution infrastructure in the downtown area to achieve a significant demand for recycled water, and the lack of year-round recycled water production, both the District and the City have agreed that further development of this project is not warranted.