2013
WATER CONSERVATON, REUSE AND STORAGE GRANT APPLICATION

APPLICATION INSTRUCTIONS

1. Complete Sections I through VII in the spaces provided.
2. An application must be submitted on a form provided by the Department. An explanation must accompany the application if any of the information required cannot be provided [OAR 690-600-0020(6)].
3. If in hard copy - use 8 ½" x 11" single sided, unstapled pages. Provide any attachments to application also on 8 ½" x 11" single-sided, unstapled pages. Avoid color and detail that will not photocopy clearly.
4. Contact Nancy Pustis 503 986 0919 or nancy.n.pustis@wrd.state.or.us if you have any questions.

A down-loadable MS Word application form and instructions can be obtained from **www.wrd.state.or.us/OWRD/LAW/conservation_reuse_storage_grant.shtml.**
If you need a copy of the application in a different format, please let the Department know.

Application Deadline: November 1, 2013, 5:00 PM,

(Application must be received by this date)

Grant applications will be accepted in hard copy form or cd via mail or personal delivery if need be; electronic submission is preferred.

OREGON WATER RESOURCES DEPARTMENT
Attention: Nancy Pustis
725 Summer Street NE, Suite A
Salem, OR 97301
Phone: 503-986-0919

KEY GRANT INFORMATION

To be eligible for funding applicants must clearly demonstrate funding from a source other than the Program of not less than a dollar-for-dollar match. For example, if $100,000 is requested in Program Funds, then there must be a match of at least $100,000 from another source. The matching funds must be secured or in the process of being secured. The maximum grant award is up to $500,000 for each project.

To be eligible for funding for a project planning study associated with a proposed storage project that would: a) Impound surface water on a perennial stream; b) Divert water from a stream that supports sensitive, threatened or endangered fish; or c) Divert more than 500 acre-feet of surface water annually, the proposed project planning study must contain the following elements:

- Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows;
- Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives;
- Analyses of environmental harm or impacts from the proposed storage project;
- Evaluation of the need for and feasibility of using stored water to augment in-stream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values; and
- For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.

The Department will group applications into the following four types: Water Conservation, Reuse, Above Ground Storage, and Storage Other than Above Ground. An application that involves both Water Conservation and Reuse maybe submitted as a joint application. All other applications must only include one application type. However, an applicant can submit two or more applications. For example, one application could be for Water Conservation and another application could be for Above Ground Storage. Applications will be evaluated according to two sets of criteria of equal value as follows:

Section A.

Common Criteria: Applied to all applications:
These criteria will be used to evaluate applicant readiness and ability to proceed, level and quality of support, and the degree to which the planning study will achieve an established or stated goal (the goal must be based on evaluating the feasibility of developing a water conservation, reuse or storage project).

Section B.

Unique Criteria: Specific to each of the four types:
These criteria will include statutory "priority" values and criteria uniquely suited to each type.

See <u>Application Criteria and Evaluation Guidance</u> for assistance in filling out this application.

OREGON WATER RESOURCE DEPARTMENT
WATER CONSERVATON, REUSE AND STORAGE
GRANT PROGRAM

I. Grant Information

Study Name: *Big Creek Dams #1 and #2 Seismic Stability and Retrofit Feasibility Study*

Type of Grant Requested: ☐ Water Conservation ☐ Reuse ☒ Above Ground Storage
☐ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]
Note: A Water Conservation and Reuse study may be submitted as a joint application. All other applications must only include one application type.

Program Funding Dollars Requested: $ $250,000 Total cost of planning study: $ $602,403

Note: Request may not exceed $500,000

II. Applicant Information

Applicant Name: ***City of Newport***		**Co- Applicant Name:**
Address	*169 SW Coast Highway*	Address:
	Newport, OR 97365-3806	
Phone	*(541) 574-3369*	Phone:
Fax:	*(451) 265-3301*	Fax:
Email:	*T.Gross@Newportoregon.gov*	Email:

Principle Contact: ***Timothy Gross, Dir. Public Works/City Eng.***	
Address:	*169 SW Coast Highway*
	Newport, OR 97365-3806
Phone:	*(541) 574-3369*
Fax:	*(541) 265-3301*
Email:	*T.Gross@Newportoregon.gov*

Certification:

I certify that this application is a true and accurate representation of the proposed work for a project planning study and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements of an Oregon Water Resources Department grant and are prepared to conduct the planning study if awarded.

Applicant Signature: _____ Date: *October 31, 2013*

Print Name: *Timothy Gross* Title: *Dir. of Public Works/City Engineer*

III. Planning Study Summary

Please give a brief summary of the planning study using no more than 150 words.

During construction of a water treatment facility in Newport, OR, engineers discovered subsurface soils with a high potential for liquefaction at two reservoir dams—Big Creek Dams 1 and 2. A preliminary geotechnical and seismic evaluation confirmed serious safety deficiencies that could result in catastrophic failure during a seismic event—causing flooding and loss of the city's sole source of drinking water. This grant will fund site evaluations necessary to better understand the soil composition, assess the behavior of the foundation and embankment soils, and provide informed alternatives for improving the seismic integrity of the dams, including repair, rebuilding or replacing one or both dams. This study is necessary to identify appropriate and cost effective

techniques to mitigate the seismic deficiencies in the dam structures. Oregon's dam engineer has identified these dams as the state's top priority for remediation. The grant funding requested comprises 41% of the project cost.

IV. Grant Specifics

Section A. Common Criteria

Instructions: Answer all questions in this section by typing the answer below the question. It is anticipated that completed applications will result in additional pages.

1. Describe how the planning study will be performed. Include:

   a. A description of the planning schedule/timeline, which includes identifying all key tasks. (Section VI provides an opportunity for a "graphical" representation of the schedule.)

   The project for which OWRD funds are being requested is a multi-phase feasibility study, the ultimate goal of which is to determine what repairs/remediation will be necessary to bring Big Creek Dams #1 and #2 into an appropriate level of seismic stability. Phase I has already been completed. Phase II will be largely complete by the time the OWRD grant-funded period begins. Grant funds are requested to complete Phase III, as described below. However, brief overviews of Phases I and II are provided here to demonstrate the rationale for pursuing the current course of study and to provide context. It is also worth noting that Keith Mills, Oregon's Dam Safety Engineer stated in a presentation on assessing the risk of Cascadia Subduction Zone (CSZ) events at the state's 2013 Dam Safety Conference that, "very conservative seismic analyses are unhelpful for evaluating risk at existing dams." Therefore, the proposed feasibility study will conduct further seismic analysis in order to accurately evaluate the risk at the targeted dams and to develop solutions proportional to the risk.

   Phase I – Initial Site Characterization - COMPLETE

   In February 2013, engineering firm HDR completed an initial assessment of the static and seismic stability of Big Creek Dams #1 and #2. This evaluation consisted of a limited site investigation to characterize the dams' earthen and foundation materials, a probabilistic seismic hazard analysis (PSHA), a geologic hazard assessment, and geotechnical analyses to determine the stability of the dams in the event of potential seismic events.

   The assessment found that the embankment and foundation soils above bedrock and beneath both dams generally consist of relatively low density and high plasticity clayey and very silty sands, sandy and slightly clayey silts, and silts, which are prone to a loss of strength and liquefaction when subjected to cyclic loading. Furthermore, the dams are located near several seismic hazard sources including active crustal faults and the CSZ. The hazard potential of the CSZ is relatively unique in terms of the magnitude of the ground motions (peak ground accelerations) and the duration of strong shaking that can occur.

   In short, the overall stability of Big Creek Dam #1 is marginal, while a "significant safety deficiency" exists at Big Creek Dam #2. Both dams are classified as high hazard dams, and remediating them is a top state priority. However, further study is necessary to determine the full extent of the structural weaknesses and to determine the most reasonable, effective remediation strategy.

   Phase II –Additional Field Exploration and Laboratory Testing – Oct. 2013-Apr. 2014

   Based on the results of the initial site characterization, it was determined that the City of Newport needs more information in order to select the best remediation strategy to secure the dams against failure during or after a seismic event. Therefore, Newport has entered into Phase II—additional field exploration and testing to refine the stratigraphic and engineering models of the structures, reduce

uncertainties related to engineering properties, and identify the most reasonable and cost effective modification requirements. The differentiation between the sand-like liquefiable soils and the clay-like soils and the corresponding post-earthquake strength of materials that may be susceptible to liquefaction or cyclic softening is a critical consideration and is dependent on the density and plasticity index (PI) of the soils.

During Phase II, which began in October 2013, HDR will conduct on-site exploration at both dams. Major tasks will include:

- *seismic cone penetrometer test (SCPT) soundings*
- *ear wave and pore water pressure dissipation tests*
- *standard penetration test (SPT) borings*
- *mud rotary borings*

The soil samples will be analyzed in laboratories and the results of the samples and the soundings will be used to develop an improved stratigraphic model of the site. This data will further inform whether additional Phase II boring locations and undisturbed sampling along the downstream and upstream side of each dam are necessary. Phase II is expected to be completed by April 2014.

Phase III – Development of Seismic Risk Profile, Corrective Action Options, and Final Recommendations

The City of Newport requests OWRD funding to conduct the third phase of this multi-phase feasibility study. Phase III will consist of several essential tasks necessary to capitalize on the site characterization work performed to date. As the "Preliminary Geotechnical Investigation and Seismic Evaluation" report presented to the City of Newport in February 2013 emphasized , "significant uncertainties exist" as to the true subsurface conditions at each dam. Therefore, the purpose of Phase III is to confirm the mineralogical origin of the soils and the reasons for low densities, further refine the understanding of engineering properties of the soils for engineering analysis and design, and to refine the subsurface stratigraphic models of the site. Phase III is expected to span from April 2014 through February 2015.

Therefore, the following tasks are recommended:

- *Task 1 – Grant Management (Ongoing-April 2014-February 2015): City of Newport will complete all contractual and fiscal paperwork required with the granting agency and the contracted engineering firm. City staff will carefully monitor project expenditures for adherence to the grant agreement. Proper documentation will be required before funds are expended, including but not limited to properly executed and approved invoices, receipts, or purchase orders. City staff will also be responsible for completing all fiscal and performance reports required by OWRD. The Director of Public Works will maintain regular in-person or phone meetings with the contracted Project Manager to track progress toward each project task and adherence to the timeline. Any unanticipated adjustments to the timeline or scope will be documented and reported to OWRD staff.*

- *Task 2 – Update Time Histories and Ground Motion for Engineering Evaluation (April 2014-May2014): HDR will conduct research and involve the Pacific Earthquake Engineering Research Institute (PEER) at Berkeley to determine new seismic design standards and update ground motions for engineering evaluations based on information from recent similar hazard earthquakes in Japan and Chile. Use of updated ground motion records for detailed seismic response evaluations and design will provide for the most up-to-date safety evaluation and decision making by the City.*

- *Task 3 – Engineering Analyses (May 2014-June 2014): HDR personnel will analyze safety concerns and any rehabilitation design completed during subsequent engineering evaluations, to include both simplified assessments based on empirically based seismic response models and more complex numerical simulations using advanced computer models such as FLAC (fast lagrangian analysis of continua).*

- *Task 4 – Engineering Analysis Technical Memorandum (July 2014): HDR will provide to the City of Newport a memorandum summarizing the results of the analyses and modeling to that date.*

- *Task 5 – Risk Analysis Decision Matrix (July 2014-October 2014): HDR will provide to the City of Newport a summarization of risk factors. The risk analysis will provide an explanation of the anticipated damage to the dams resulting from a variety of type and intensity of seismic events. The analysis will consider such factors as flood damage to the surrounding area as a result of dam breach or failure and preserving potable water for the City's use. The decision matrix provides the City of Newport with the tools to make a decision regarding the risk level to which solutions will be engineered.*

- *Task 6 – Corrective Actions Alternative Development and Evaluation (October 2014-December 2014): Based upon the City's accepted risk factor, as determined under Task 5, HDR will evaluate a range of rehabilitation concepts and methods including removal and replacement of materials, stability berms, and insitu densification and strengthening.*

- *Task 7 – Preliminary Environmental Review (January 2015): Based upon the decisions made under Tasks 5 and 6, HDR will identify the potential environmental impacts of the selected remediation strategy. HDR will also determine what federal, state, and local permits and approvals will be required to pursue the most likely remediation strategies.*

- *Task 8 – Planning Report and Presentation (January 2015-February 2015): HDR will make recommendations to the City of Newport based upon the level of risk and decisions made in Tasks 4 and 5. The report will provide details of potential environmental impacts and estimated costs to enable the City to reach a final decision regarding the remediation strategy to be pursued.*

- *Task 9 – Technical Assistance and Strategic Grants Planning (Ongoing April 2014-February 2015): Throughout the course of this project, the City of Newport is developing a strategic funding plan and will secure funding for subsequent phases of the feasibility study and construction. The City will continue work with technical consultants to execute the funding plan, receive grant-related technical assistance, cultivate relationships with funding agencies, and prepare and submit additional government grant applications in 2014.*

b. When the planning study could begin.

Work can commence upon notice of funding. The timeline presently calls for a start date in April or May of 2014.

2. Provide a description of the relevant professional qualifications and/or experience of the person(s) that will play key roles in performing the planning study. If the personnel have not been decided upon, include a description of the professional qualifications and/or experience of the person(s) you anticipate will play key roles in performing the planning study.

City of Newport Key Personnel

Tim Gross, Director of Public Works for the City of Newport, will manage and oversee this grant. Tim has worked with the City of Newport for 3 years; 2 years as the Director of Public Works/City Engineer. Prior to joining the City of Newport, Tim spent 12 years working in the municipal sector and 6 years running the municipal engineering division for 2 different engineering consulting firms. He has a successful track record of managing complex public works projects to completion, on time and within budget. He also has extensive experience managing large federal, state and local grants, contract administration, managing consultants, and collaborating with diverse groups to achieve common goals.

Additional Key Personnel – Contractual with HDR

Phase III tasks for this OWRD grant will be completed by the engineering firm HDR, which was selected by the City of Newport through a competitive qualifications-based selection process. When necessary, HDR will call upon the expertise of outside technical advisors, laboratories and geotechnical services, as approved in their contract with the City of Newport. HDR is responsible to the City for ensuring that all tasks are completed per the approved scope of work.

Verena Winter, PE, HDR Project Engineer/Project Manager

Verena is a skilled project manager, having led a variety of projects, including the City of Newport's CM/GC water treatment facility, the initial Newport dam explorations project, and other projects in Oregon. She understands the situation with the Big Creek Dams, having been on this project since the issue was discovered. Her insight, experience, and leadership will enable her to manage the HDR team and outside assistance to determine the design parameters and develop practical solutions. Verena holds a B.S. in Engineering Management from Bauhaus University (Germany) and an M.S. in Environmental Engineering from Portland State University. She has been employed by HDR for 10 years.

Verena has also served as project manager for:

- *Scoggins Dam Corrective Action Study and Raise Appraisal Study, Clean Water Services, OR*
- *Newport Dam Seismic Analysis and Evaluation, Newport, OR*
- *Biosolids Upgrade to Wastewater Treatment Plan, City of Silverton, OR*
- *Wastewater Treatment Plant Repair, Restoration, and Expansion, City of Newberg, OR*

Keith Ferguson, PE, HDR Principal Designer

Keith specializes in dam safety, dam engineering, soil and rock mechanics, foundation engineering, and design, including specialized experience related to the Cascadia Subduction Zone (CSZ). Since 1978, he has participated in more than 350 civil and mining engineering projects including evaluation, design and/or construction services for more than 160 dams and appurtenant structures (e.g. spillways, outlet works, diversion dams), pipelines and tunnel designs. Keith is a recognized expert in dam safety, seepage, and stability analysis of dams. Keith holds a B.S. and an M.S. in Civil Engineering from the University of Colorado at Boulder and has 32 years of experience in the field.

Selected similar projects on which Keith has been involved include:

- *Newport Dam Seismic Analysis and Evaluation*
- *Scoggins Dam Corrective Action Study and Raise Appraisal Study, CWS OR*
- *Fern Ridge Dam Remediation, OR*
- *Lake Isabella Dam Potential Failure Modes Analysis, CA*
- *Howard Hansen Dam Safety Evaluation, WA*
- *Creekside Irrigation Water Reservoir Design and Construction, OR*

Other HDR Team Members

These team leaders will be ably assisted by a large team of qualified personnel, including but not limited to the following:

- *Elena Sossenkina, PE, HDR Risk Assessment-14 years of experience with dams and levees, with expertise in risk assessment, geotechnical investigations, slope stability and seepage analyses, and geotechnical instrumentation*
- *John Charlton, PG, HDR Soils Characterization Lead-21 years of experience, skilled in site seismic hazard assessment and inspecting dam construction, with more than 100 soils characterization projects completed, including the Rose Hill Dam Reconstruction in South Dakota and the Bear Creek Dam Rehabilitation in Alabama*

- *Richard Hannan, HDR Technical Expert-40 years of geotechnical engineering experience in the Pacific Northwest, including 34 years with the Portland District Corps of Engineers; highly experienced with dams of similar size and construction, including Fern Ridge Dam, John Day Dam, and Cougar Dam, all in Oregon*

- *John Ballegeer, PE, HDR Geotechnical Lead-32 years of experience leading geotechnical engineering projects for dams, especially experienced with features of the Cascadia Seismic Zone*

- *Scott Anderson, HDR Numerical Modeling-22 years of experience, specializing in numerical modeling of earth structures: static and dynamic deformation, static and dynamic soil properties, slope stability, seepage, and advanced laboratory testing; has worked on similar projects, such as Scoggins Dam and Isabella Dam*

Technical Advisors

Technical advisors will assist the HDR team. Advisors are drawn from Cornforth Consultants (Portland-based geotechnical firm specializing in earth and rockfill dams, seismic studies, earthquake engineering), from the PEER Center at U.C. Berkeley, and from U.C. Davis.

- *Chris Carpenter, PE, Cornforth Seismic Hazard-career focused on earthquake engineering in Oregon with experience on multiple dam seismic studies based on the Pacific Northwest's constantly evolving earthquake criteria; expertise will assist with the development of right-sized (and not over-designed) solutions*

- *Ross Boulanger, PhD, PE, Technical Advisor (U.C. Davis)-a geotechnical earthquake engineering professor who directs an internationally renowned center with the largest geotechnical centrifuge in the U.S.; this lab will independently test the samples to confirm the lab findings*

- *Yousef Bozorgnia, PhD, PE, Technical Advisor, Seismic Hazards (PEER)- Executive Director of the Pacific Earthquake Engineering Research Center (PEER) at U.C. Berkeley, a recognized authority on earthquake hazards in the U.S. and internationally; research results from the most recent earthquakes in Japan and Chile will inform the evaluation of CSZ hazards and design solutions*

3. What local, state or federal project permitting requirements/issues/approvals do you anticipate in order for the planning study to be conducted? If approvals are required, indicate whether you have obtained them. If you have not obtained the necessary permits/governmental approval, describe the steps you have taken to obtain them.

   No permits are required for feasibility study activities for which OWRD funds are being requested.

4. Describe your goal (which must be based on evaluating the feasibility of developing a water conservation, reuse or storage project) and how this study helps to achieve the goal.

The goal of this project is to obtain sufficient information for the City of Newport to identify the most comprehensive yet ecologically and fiscally responsible strategy for remediating Big Creek Dams #1 and #2, thereby securing the City's sole source of potable water and the safety of persons and property downslope of the reservoirs. At this time, the City and engineers lack enough data to determine the full extent of the risk during a seismic event to both dams and thus are unable to select the strategy that best balances safety with environmental and economic concerns.

According to the "Preliminary Geotechnical Investigation and Seismic Evaluation" report prepared for the City of Newport by HDR Engineering in February 2013, "A broad range of design and construction methods may be suitable to achieve the desired post-earthquake factors of safety. . . [The] range of rehabilitation concepts and methods includes removal and replacement of materials, stability berms, insitu densification and strengthening." Those methods listed are among the most economical. However, HDR informed the City that additional data could lead them to recommend that the City completely replace one or both dams. The City has determined, that if the recommendation is to replace the dams, its most likely preferred option would be to remove the much older, smaller capacity Big Creek Dam #1, and to expand and raise Big Creek Dam #2. Clearly, such decisions have enormous financial and environmental impacts.

The assessment proposed for this OWRD project will provide a risk analysis upon which the City may base its decision on which remediation strategy represents a reasonable response to the level of seismic risk

identified. Once the most feasible remediation strategy is selected, the City may enter the next phase—that of determining full costs, potential environmental impacts, and a realistic timeframe for completing remediation once funds are secured.

Both dams have received a hazard rating of HIGH due to the danger of loss of life if one of the dams fails. It is imperative that the City move quickly to obtain the information needed to determine the most feasible remediation strategy.

5. Describe the technical aspects of the planning study and why your approaches are appropriate for accomplishing the goal of the planning study.

The proposed planning study is designed to reach an objective conclusion regarding the most ecologically sound, fiscally responsible method by which to remediate the two hazardous Big Creek dams. The early phases are extremely technical and are designed to reach a definitive conclusion regarding the composition of the soil materials underneath each dam and their likely reactions during and after a seismic event. The preliminary geotechnical and seismic evaluation report on Big Creek Dam #1 and #2 states: "Laboratory testing of soil samples is the only means to reliably classify the soil . . . and to support the development of estimates of peak and reduced undrained shear strength." Based upon the information obtained from additional samples, confirmed by extensive laboratory tests, the project will enter another technical phase; that of modeling multiple possible remediation strategies to determine their ability to withstand seismic events, analyzed in context with the ultimate ecological and fiscal impact of any particular remediation method.

The proposed approach is appropriate to reaching the goal of helping the City of Newport to reach a conclusion regarding which remediation strategy it will adopt for several reasons. First, it is the most fiscally responsible path to take. Not performing the proposed additional studies is very likely to cause the City to select an over-designed solution, one that exceeds the City's true needs and is potentially vastly more expensive than a more conservative solution. Second, the additional study gives the City the most complete, most accurate information upon which to base its decisions about remediation. While this information is critical in its own right, the information learned in this proposed study will also form the basis for Newport's Case for Support for the solution that is ultimately selected—a case which will be made to the public, the media, the state legislature, other state agencies, and potential funding partners. Third, the proposed study makes use of the most recently available research information about the unique Cascadia Subduction Zone and recently occurring earthquakes in Japan and Chile, information which is rapidly developing and quite new. Any solution that fails to take this knowledge into account may prove to be ineffective or as unstable as the present situation.

We briefly summarize the technical characteristics of the proposed work here:

Phase II, which occurs before the Scope of Work proposed for this OWRD grant, will consist of a total of six additional seismic Cone Penetrometer Tests (CPT), two mud rotary Standard Penetration Test (SPT) borings, an additional four mud rotary borings along the upstream side of dam #2 conducted from a barge, and two undisturbed sampling borings along the toe of each dam; laboratory analysis of all samples taken including Atterberg Limits, gradation with hydrometer and fines content, gInt logs of the borings; an updated stratigraphic model, in addition to ground water readings obtained from piezometers screened in each of the auger borings and insitu permeability tests in the piezometers. Finally, the collected undisturbed samples will be shipped to a specialized laboratory to conduct testing, including unconsolidated triaxial shear testing, cyclic direct simple shear testing, cyclic static simple shear testing, simple shear constant volume testing of the samples.

Phase III is the Scope of Work proposed for this OWRD grant

(Tasks 1 and 9 are management tasks only with no technical elements)

Task 2 - Update Time Histories and Ground Motion for Engineering Evaluation – Using the expertise of the Pacific Earthquake Engineering Research Institute (PEER) at Berkeley, California, project advisors and the

HDR team will conduct a probabilistic seismic hazard assessment to provide a combined overall hazard for the site. Assessment will include contribution from multiple earthquake sources and will account for variability of motions and occurrence rates of earthquakes. Assessment must include the latest Cascadia Subduction Zone understandings (from the most recent subduction zone earthquakes in Chile and Japan) in order to determine full risk.

Tasks 3, 4 & 5 – Engineering Analysis – The risk assessment and numerical modeling teams will update their models based on the data derived from the latest analyzed sampling results in conjunction with the updated time histories. The modeling team will then conduct both simplified assessments based on the empirical seismic response models and more complex numerical simulations using advanced computer models, such as FLAC (fast lagrangian analysis of continua). Results will be used to develop a Risk Analysis Decision Matrix that explains anticipated damage both to the dams and downstream as a result of seismic events of varying intensities and type. Analysis will include probability of type and severity of seismic events. The City will use this matrix to determine an accepted risk factor.

Tasks 6, 7 & 8 – Corrective Actions Alternative Development and Evaluation plus Preliminary Environmental Review and Final Report – Based on the risk factor accepted by the City, engineers will then recommend one or more remediation strategies. A broad range of design and construction methods may be suitable to achieve the post-earthquake safety determined by the City. HDR will evaluate a range of rehabilitation concepts and methods and will prepare a comparative analysis of each, including materials required, length of time to completion, estimated cost, potential environmental impact, anticipated permits/approvals required, and other potential positive or negative effects. A final report will present HDR recommendations to the City to enable the City to select the most effective remediation strategy.

6. Describe the level of involvement, interest and/or commitment of different entities associated with the planning study (attach letters of support). Describe how these entities will benefit or be impacted by the planning study.

While the proposed feasibility study itself is not likely to involve or affect different entities, many stakeholders will clearly be affected by the results of this study and whatever remediation strategy the City of Newport decides to pursue (or if there is no remediation and a catastrophic failure occurs). Those include the entire population of the City of Newport and several major industries (including a commercial fishery, brewery, and aquarium). Furthermore, multiple state agencies are interested in seeing this study executed, because what is learned can be applied to other Oregon communities in the future.

Letters of support are included from the following entities:

- *Oregon Emergency Management (Dennis Sigrist)*
- *Oregon Department of Environmental Quality (David Waltz)*
- *Oregon Health Authority Drinking Water Services (Jay MacPherson)*
- *Infrastructure Finance Authority (Louise Birk)*
- *State Representative for District 10 (David Gomberg)*
- *Mayor of Newport (Sandra Roumagoux)*
- *Surfrider Foundation (Charlie Plybon)*

7. Identify when matching funds will be secured and the term of matching funds availability.

A total of $352,403 in matching funds (cash and in-kind) have been allocated to the proposed feasibility study.

For Phase II of the project, which is underway now, the City has encumbered $186,070 in cash and is contributing in-kind 50 hours each for the City Engineer and the Water Treatment Plant Supervisor (combined total value of $5,611). The City is also investing $46,500 toward a five-year strategic funding

plan and technical assistance services related to the dam project. All Phase II matching funds have been secured or expended.

For Phase III, matching funds are planned as follows:

- *$55,000 in cash has been allocated and set aside for completing Phase III tasks*
- *In-kind value of 100 hours each of the City Engineer and Water Treatment Plant Supervisor (combined total value of $11,222) will be committed during Phase III*
- *$48,000 in cash toward the five-year strategic funding plan and technical assistance is pending*

8. Describe the water supply need(s) that the project associated with the planning study is intended to meet. Applicant should reference supporting documentation that would be available upon request.

   This project addresses the only source of drinking water available for the City of Newport. Both reservoirs (at Big Creek Dam #1 and Big Creek Dam #2) provide essential water for the community of more than 10,000 residents. As the preliminary examinations have concluded, both dams are highly susceptible to structural damage or complete failure during a seismic event.

   The results of this feasibility study will have enormous impact on the City's water supply. It is unknown at this time if it is feasible to remediate either one or both dam structures. It is possible the feasibility study may recommend a new dam, or modifications to Dam #2 and elimination of Dam #1. If either of these options becomes the most feasible scenario, then the City's water treatment intake system will have to be extended by at least one-half mile of pipeline and a new intake station to the site of Dam #2. Currently the water intake for the water treatment facility is located immediately upstream of Dam #1.

   This feasibility study will help the City determine the most cost-effective approach to maintaining the City's drinking water supply while ensuring the safety of downstream residents during a seismic event. Further site characterization may reveal that the dams can be remediated to acceptable levels with only minor modifications, which would save millions of dollars while exerting the least possible environmental impact.

9. Explain how the project associated with the planning study will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000 acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50% of your need will be met).

   The proposed project affects 100% of the City of Newport's drinking water supply, as was explained in the response to Question #8 above. The purpose of this feasibility study is to determine what steps are necessary to adequately preserve the existing drinking water supply and secure the safety of residents and property in the event of a seismic event. If the determination is made to raise Dam #2 or make otherwise significant improvements to the dam structure, such improvements will be made to meet projected water supply demand for the next 50 years, based on the water supply master plan.

10. Provide data and information on the associated project and the project's sources of water supply:

    a. The location of the associated project. (Include the basin, county, township, range and section.)

The project is located in the Big Creek Watershed, Lincoln County, OR. The reservoirs extend across Township 10S, Range 11W, Section 33, (10S11W33) and Township 10S Range 11W, Section 34 (10S11W34). Both dam structures are located within Township 10S, Range 11W, Section 33, (10S11W33). A map of the project area is included with this application package (Big Creek Project and Tsunami Map.pdf).

b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.

Big Creek and the Siletz River are the source waters for the reservoirs impounded by Big Creek Dams #1 and #2. The Siletz River is a tributary to the Pacific Ocean, and the City holds a point of diversion water right and intake at river mile 41.78. Big Creek is tributary to the Pacific Ocean. Big Creek Dam #1 is located at river mile 0.91 and impounds water between 0.91 and 1.72 miles. Big Creek Dam #2 is located at river mile 1.72 and impounds water between 1.72 and 2.79.

c. Whether the project will be off-channel or on-channel.

On-channel

d. Water availability to meet project storage. (Typically, the Department evaluates new storage projects using a 50 percent water availability analysis.)

The proposed feasibility study does not affect a new storage project. Sufficient water exists to meet the current facilities' storage needs. The total authorized storage volume of the reservoir impounded by Dam #1 is 200 acre-feet, authorized under Certificates 21358 and 21357. The total authorized storage volume of the reservoir impounded by Dam #2 is 970 acre-feet, being the total of 625 acre-feet authorized under Permit R-6171 and 345 acre-feet authorized under Certificate 48627. The water stored in Big Creek Reservoir #1 and #2 is released for municipal use by the City of Newport under Certificate 48628 and Permit S-38220.

e. Proposed purposes and uses of stored water.

The stored water forms the City of Newport's sole source of potable water. Water is also used for fire suppression, commercial and industrial use.

f. Environmental flow needs and water quality requirements of supply source water bodies.

The proposed feasibility study will take into account environmental flow needs and water quality requirements as part of the feasibility study recommendations, if applicable.

11. Explain how the project associated with the planning study will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000 acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50% of your need will be met).

This question appears to be a duplicate of Question #9 above and was not included as part of the .pdf version of the application. Thus, we have repeated our response to Question #9 here:

The proposed project affects 100% of the City of Newport's drinking water supply, as was explained in the response to Question #8 above. The purpose of this feasibility study is to determine what steps are necessary to adequately preserve the existing drinking water supply and secure the safety of residents and property in the event of a seismic event. If the determination is made to raise Dam #2 or make otherwise significant improvements to the dam structure, such improvements will be made to meet projected water supply demand for the next 50 years, based on the water supply master plan.

Section B. Unique Criteria

Instructions: Answer the set of questions below that applies to the type of planning study that this grant will fund.

☐ Water Conservation or ☐ Reuse

1. Water Conservation or Reuse projects that may result from this planning study are requested to be included in the Water Resources Department's "Inventory of Potential Conservation Opportunities". Though you may have already submitted this information earlier in the year through a separate survey, we ask that all applicants complete the information on the form provided at the end of this application. ☐ I have filled out the application or ☐ I have not filled out the application.

2. Explain how the associated project will mitigate the need to develop new water supplies and/or use water more efficiently. Reference documentation and/or examples of the success of similar or comparable water conservation/reuse projects that would be available upon request.

☒ Above-Ground Storage

Please answer the following three questions **BEFORE** proceeding:

Will the project divert greater than 500 acre-feet of surface water annually?	☒ Yes	☐ No
Will the project impound surface water on a perennial stream?	☒ Yes	☐ No
Will the project divert water from a stream that supports sensitive, threatened or endangered species?	☒ Yes	☐ No

If you answered "Yes" to any one of these questions, by signature on this application, you are committing to include the following required elements in your planning study.

Describe how you intend to address the required elements in your planning study:

a) **Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.**

When each dam was constructed it met all code requirements including by-pass, optimum peak, and other ecological flows. The proposed feasibility study is a study only and does not include any design elements. We are aware that if either dam is remodeled or rebuilt, it will have to be redesigned to conform to current standards. Any recommended remediation strategy will take these factors into account.

b) **Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.**

In the past, the City of Newport has examined alternatives for water supply, including Rocky Creek. However, the project lacked sufficient regional support making it too expensive for Newport to pursue on its own at the time. Even if the City decided to develop a new acquisition and storage site, the existing dams pose a significant danger to life and property in their current condition, and must be addressed in some fashion.

The proposed feasibility study will take into account how water is diverted and stored at the existing locations and will result in recommending the remediation strategy that achieves the best balance among the safety, water supply, environmental impact and fiscal concerns.

c) **Analyses of environmental harm or impacts from the proposed storage project.**

This proposed feasibility study will prepare an initial environmental analysis of one or more of the top-rated recommended remediation strategies. Once the City of Newport selects its remediation method, future studies (outside of the scope of this grant) will include a detailed environmental analysis of the proposed actions to take place at Big Creek Dams #1 and #2.

d) **Evaluation of the need for and feasibility of using stored water to augment in-stream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.**

This evaluation will be performed as part of the environmental review of the strategy that is ultimately selected as a result of this proposed study. The dams presently maintain their required bypass rate, and any modifications will maintain the required cps in this stream.

Is the proposed storage project for municipal use?

☒ Yes ☐ No

If you answered "Yes," then describe how you intend to address the following required element in your planning study:

e) **For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.**

The City of Newport has a Water Supply Master Plan that includes an analysis of local and regional water demand. Any improvements ultimately made to the dams as a result of the recommendations derived from this feasibility study would allow the City of Newport to meet its projected demand for the next 50 years.

The only other community in close proximity to Newport (Toledo) maintains its own municipal water supply. Any modifications to Newport's water storage facilities will have no impact on Toledo. Newport also frequently supplies water to the Seal Rock Supply District in emergency situations and would be able to continue to do so, regardless of the remediation strategy undertaken as a result of this feasibility study. If the dams are not remediated and Newport loses its sole water supply, then it will also be unable to supply Seal Rock with much-needed water.

Proceed in answering the following questions:

1. Describe when and to what extent the project associated with the planning study includes provisions for using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life or other ecological values.

   As was described in response to Item d. on the previous page, the proposed feasibility study is focused on determining the best solution to repairing or replacing two dams which are in extreme danger. Once the City is able to determine its best solution, a new feasibility study will be conducted focused on the implementation of that particular strategy. Any studies undertaken at that time will consider the project's impact on aquatic life and other ecological values, including the need for and desirability of using stored water to augment instream flows.

2. Present convincing argument that there are no other reasonably achievable alternatives that would be able to meet the water supply need(s). Applicant may reference supporting documentation that would be available upon request.

   As noted above, the dams cannot be left in their present condition. The proposed feasibility study will determine the best steps to take with each dam to ameliorate the risk to life and property. Without this data, analysis, and modeling to be provided by the proposed study, the City of Newport will lack the information essential to formulating an effective, safe, fiscally responsible, and envrinmentally sound response. Furthermore, without this information, any steps taken by the City may be less effective or more harmful. There is no alternative to remediating these dams to reduce the risk to life, property, and potable water as soon as possible.

   We refer interested parties to both the City of Newport's Water Supply Master Plan (http://www.thecityofnewport.net/dept/pwk/mwp.asp), which contains an analysis of water needs and other possible sources of water, and the Preliminary Geotechnical Investigation and Seismic Evaluation report prepared for the City in February 2013 by engineering firm HDR (attached). The State of Oregon's dam safety engineer, Keith Mills, has stated that Big Creek Dams #1 and #2 are the state's top priority dams for immediate attention to avoid catastrophic loss of life and property during or after a seismic event.

☐ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]

Please answer the following three questions **BEFORE** proceeding:

Will the project divert greater than 500 acre-feet of surface water annually?	☐ Yes	☐ No
Will the project impound surface water on a perennial stream?	☐ Yes	☐ No
Will the project divert water from a stream that supports sensitive, threatened or endangered species?	☐ Yes	☐ No

If you answered "Yes" to any one of these questions, by signature on this application, you are committing to include the following required elements in your planning study.

Describe how you intend to address the required elements in your planning study:

a) **Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.**

b) **Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.**

c) **Analyses of environmental harm or impacts from the proposed storage project.**

d) **Evaluation of the need for and feasibility of using stored water to augment in-stream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.**

Is the proposed storage project for municipal use?

☐ Yes ☐ No

If you answered "Yes," then describe how you intend to address the following required element in your planning study:

e) **For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.**

Proceed in answering the following questions:

1. Water Conservation or Reuse projects that may result from this planning study are requested to be included in the Water Resources Department's "Inventory of Potential Conservation Opportunities". Though you may have already submitted this information earlier in the year through a separate survey, we ask that all applicants complete the information on the form provided at the end of this application.
   ☐ I have filled out the application or ☐ I have not filled out the application.

2. Present convincing argument that there are no other reasonably achievable alternatives that would be able to meet the water supply need(s). Applicant may reference supporting documentation that would be available upon request.

V. Match Funding Information

Applicants must demonstrate a minimum dollar-for-dollar match based on the total funding request. The match may include a) secured resources, b) previously expended resources, and/or c) pending resources. For secured funding, you must attach a letter of support from the match funding source that specially mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application. For resources that have been previously expended, the expenditure must have occurred on or after July 1, 2013. Resources expended prior to July 1, 2013 are not eligible for match purposes.

The Type of matching funds may include:	The Status of matching funds may include:
• The value of in-kind labor, equipment rental and materials essential to the planning study provided by the applicant or partner*.	• Secured funding commitments from other sources.
• Cash is direct expenditures made in support of the planning study by the applicant.	• Associated and documented expenditures for the planning study from non-program sources incurred on or after July 1, 2013.
	• Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.

*"Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	**Type (✓ One)**	**Status (✓ One)**	**Amount/ Dollar Value**	**Date Match Funds Available** *(Month/Year)*
Phase II –Additional Site Explorations and Laboratory Testing plus contracting fees of $46,500 - Cash (City of Newport General Fund)	☒ cash ☐ in kind	☒ secured ☐ expended ☐ pending	*$232,570*	*October 13*
Phase II –Additional Site Explorations and Laboratory Testing – In-Kind City of Newport General Fund: Salary & fringe for City Engineer and Water Treatment Plan Superv. @ 50 hrs each	☐ cash ☒ in kind	☒ secured ☐ expended ☐ pending	*$5,611*	*October 13*
Phase III – THIS GRANT - Cash (City of Newport General Fund)	☒ cash ☐ in kind	☒ secured ☐ expended ☐ pending	*$55,000*	*October 13*
Phase III – THIS GRANT – In-Kind City of Newport General Fund: Salary & fringe for City Engineer and Water Treatment Plant Supervisor @ 100 hrs each	☐ cash ☒ in kind	☒ secured ☐ expended ☐ pending	*$11,222*	*October 13*
Phase III – THIS GRANT – In-Kind City of Newport General Fund: Contractual fees for technical assistance and strategic grants planning	☒ cash ☐ in kind	☐ secured ☐ expended ☒ pending	*$48,000*	*July 14*
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ expended ☐ pending		

VI. Project Planning Study Schedule

Estimated Project Duration: April 1, 2014 to February 28, 2015

Place an "X" in the appropriate column to indicate when each element (key task) of the project will take place.

	2014				2015				2016
Project Planning Study Element (Key Tasks)	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	**& Beyond**
Phase I - Initial Site Characterization- COMPLETED 2012									
Phase II –Additional Site Characterization, Explorations and Laboratory Testing (Oct. 2013-Feb. 2014)	X								
This Grant Request									
Phase III – Development of Seismic Risk Profile, Corrective Action Options, and Final Report to the City									
Task 1 – Grant Management		X	X	X	X				
Task 2 – Time histories and ground motion update for engineering evaluation		X							
Task 3 – Engineering analysis of updated site characterization data		X							
Task 4 – Engineering analysis technical memorandum			X						
Task 5 – Risk analysis			X	X					
Task 6 – Corrective action alternatives development and evaluation.				X					
Task 7 – Preliminary environmental review					X				
Task 8 – Planning report and presentation					X				
Task 9 – T/A and Strategic Grants Planning	X	X	X	X	X				

VII. Project Planning Study Budget

Section A

Please provide an estimated line item budget for the project planning study. An example would include: labor, materials, equipment, contractual services and administrative costs.

Line Items *Note: Administrative costs may not exceed 10% of the total funding requested by the Department.*	**Unit * Number** *(e.g. # of hours)*	**Unit Cost** *(e.g. hourly rate)*	**In-Kind Match**	**Cash Match Funds**	**OWRD Grant Funds**	**Total Cost**
Staff Salary/Benefits-City Engineer	*150*	*$62.68*	*$9,402*			*$9,402*
Staff Salary/Benefits-Water Plant Super.	*150*	*$49.54*	*$7,431*			*$7,431*
Contractual – HDR (Eng. Firm)				*$228,070*	*$238,000*	*$466,070*
Contractual – Chase Park (Tech. Assist.)				*$94,500*		*$94,500*
Other:						
Administrative Costs				*$13,000*	*$12,000*	*$25,000*
Total for Section A			*$16,833*	*$335,570*	*$250,000*	*$602,403*
Percentage for Section A			***2.8%***	***55.7%***	***41.5%***	***100%***

** Note: The "Unit" should be per "hour" or "day" – not per "project" or "contract."*

Section B

If Grant amount requested is $50,000 or greater, you MUST complete Section B. Elements (key tasks) in Section B should be the same as the elements (key tasks) in Section VI (Project Planning Study Schedule).

Project Planning Study Element (Key Tasks)	**In-Kind Match**	**Cash Match Funds**	**OWRD Grant Funds**	**Total Cost**
Phase II –Additional Explorations and Laboratory Testing	*$5,611*	*$232,570*		*$238,181*
This Grant Request				
Phase III – Development of Seismic Risk Profile, Corrective Action Options, and Final Report to the City				
Task 1 – Grant Management		*$13,000*	*$12,000*	*$25,000*
Task 2 – Time histories and ground motion update		*$5,000*	*$25,000*	*$30,000*
Task 3 – Engineering analysis of updated site data	*$2,244*	*$5,000*	*$35,000*	*$42,244*
Task 4 – Engineering analysis memorandum		*$5,000*	*$25,000*	*$30,000*
Task 5 – Risk analysis	*$4,489*	*$11,000*	*$49,000*	*$64,489*
Task 6 – Corrective alternatives development		*$10,000*	*$50,000*	*$60,000*
Task 7 – Preliminary environmental review		*$2,000*	*$18,000*	*$20,000*
Task 8 – Planning report and presentation	*$4,489*	*$4,000*	*$36,000*	*$44,489*
Task 9 – Technical Assistance and Strategic Grants Planning		*$48,000*		*$48,000*
Total for Section B	*$16,833*	*$335,570*	*$250,000*	*$602,403*

Totals in Section B must match the totals in Section A

APPLICATION CHECKLIST

Instructions: Use this form as an important cross-check to ensure that your application is complete. An incomplete application will jeopardize your application's review. **This form does not need to be included in your application packet.**

General

If submitting electronically the preferred format is either a Microsoft word or Adobe pdf

- ☐ Only one application is included with the packet (other applications must be sent separately).

Paper submissions only

- ☐ The application and attachments are on 8 ½" x 11" paper.
- ☐ The application and attachments are single sided.
- ☐ The application and attachments are not stapled or bound.

Section I – Grant Information

- ☐ All questions in this section have been answered.
- ☐ The Grant Dollars Requested and the Total Project Cost mirror the totals shown in Section VII.

Section II – Applicant Information

- ☐ All contact information – for the applicant(s) and fiscal officer – is complete and current.
- ☐ The certification is signed by an authorized signer.

Section III – Planning Study Summary

- ☐ A brief summary, of no more than 150 words, is complete.

Section IV – Grant Specifics

- ☐ All questions in Section A have been answered.
- ☐ If the type of planning study is Water Conservation, Reuse or Storage Other Than Above-Ground, a Request to be added to the Oregon Water Resources Department's Inventory of Potential Conservation Opportunities has been completed. (Form is located at the end of this document.)
- ☐ All applicable questions for the type of grant requested have been answered.

Section V – Match Funding Information

- ☐ Applicant has identified that at least 50% match has been sought, secured or expended.
- ☐ Letters of support are included for "secured" match funding sources.
- ☐ Documentation is included for "expended" match funds.
- ☐ Documentation is included for "pending" match funds.

Section VI – Project Planning Study Schedule

- ☐ Estimated project duration dates have been supplied.
- ☐ All elements (key tasks) of the project are listed.

Section VII – Project Planning Study Budget

- ☐ Section A is complete.
- ☐ Administration costs do not exceed 10% of the requested OWRD Grant Funds.
- ☐ If grant amount requested is $50,000 or greater, Section B has been completed.
- ☐ All elements (key tasks) listed in Section B mirror the elements listed in Section VI.

Request to be added to the Oregon Water Resources Department's

Inventory of Potential Conservation Opportunities

The purpose of this inventory is to catalogue potential conservation projects that water users themselves have identified but not yet pursued because of financial, institutional, or other barriers. For the purpose of this application, water storage other than above-ground are included as conservation opportunities and are most likely capital conservation projects.

As a water provider or user, you know your water demands and water conservation opportunities better than anyone. We would appreciate your assistance with this important data collection effort by completing this survey. Your participation will help provide the building blocks we need to begin to identify and achieve potential future water supplies. Please answer the questions as completely as possible, to the best of your ability. We appreciate your help with this important effort.

This inventory of already-identified, potential conservation projects includes both capital and programmatic projects. Capital projects are defined as one-time, large investments resulting in water savings. Examples include reclaimed water plants, reservoir covering, transmission line upgrades reducing leaks, or industrial engineering modifications to re-use process water. Programmatic projects are defined as ongoing investments resulting in water savings. Examples include facilitating upgrades to more efficient water using devices (e.g., distributing free showerheads, toilet rebates) and distribution system leak detection programs. The conservation inventory is primarily intended to include "planned" projects rather than projects that are currently being implemented. However, currently active programmatic projects may be listed if they will continue or expand in future years. The inventory of projects submitted will be compiled by county or basin.

Examples are provided below.

	Example **Capital Conservation Project**	**Example** **Programmatic Conservation Project**
Project Description Provide brief sentence	Line 3 miles of unlined ditch.	Toilet rebate program for residential customers
Estimated Future Savings Provide brief sentence, including information regarding savings seasonality.	20 acre feet of water per year	If we spend our full budget each year, we estimate 50,000 gallons of water save per year
Seasonality Indicate what part of the year savings are generated (e.g. year-round; summer only; etc.).	Peak (irrigation) season savings.	Savings should occur throughout the year.
Estimated Future Costs Provide brief sentence.	$500,000 total project costs.	$40,000 a year.
Implementation Schedule Provide brief sentence.	Not set. Have conducted cost and savings estimate, but still seeking funding.	We started the program in 2005 and plan to implement until 2015.
Project Funded? Designate either "yes", "no", or provide brief sentence if necessary	No. Pursuing grant funding.	Yes. IN our CIP through the next 5 years.

To add a project to the inventory of potential conservation opportunities, please provide the following information for each conservation project.

This is a ☐ Capital Conservation Project ☐ Programmatic Conservation Project	
Project #/Name	
Project Description	
Estimated Future Savings	
Seasonality	
Estimated Future Costs	
Implementation Schedule	
What are the barriers to implementation, e.g. funding?	
This is a ☐ Capital Conservation Project ☐ Programmatic Conservation Project	
Project #/Name	
Project Description	
Estimated Future Savings	
Seasonality	
Estimated Future Costs	
Implementation Schedule	
What are the barriers to implementation, e.g. funding?	

- Include this form with your application -