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REQUEST FOR PROPOSALS (RFP)

Assessing the State of Knowledge and Research Needs for Stormwater Harvesting (RFP 4841)

Due Date: Proposals must be received by 2:00 pm Mountain Time on Tuesday, November 5, 2019.

WRF Project Contact: Harry Zhang, PhD, PE, hzhang@waterrf.org

Project Sponsors

This project is funded by The Water Research Foundation (WRF) as part of WRF's Research Priority Program.

Project Objective

- Evaluate the state of the knowledge and research needs of stormwater harvesting.
- Better understand the variation of stormwater harvesting at regional and state levels.
- Prepare a synthesis document, including recommendations on preliminary project concepts.
- Communicate the results through a broad network via a webcast and national conferences.

Budget

Applicants may request up to **\$20,000** in WRF funds for this project. WRF funds requested and total project value are evaluation criteria considered in the proposal selection process.

Background and Project Rationale

The Water Research Foundation (WRF), through its legacy Water Environment & Reuse Foundation, completed the project, *Drivers, Hindrances, Planning, and Benefits Quantification – Economic Pathways and Partners for Water Reuse and Stormwater Harvesting* (project SIWM8R14), which provides a framework for utilities considering wastewater and stormwater reuse elements in their water management portfolios.

This project will build on the previous project and will specifically focus on the area of stormwater reuse/harvesting. Given the variety of stormwater regulations among states and their impacts on stormwater harvesting (e.g., eastern versus western states), the objectives of this project are to evaluate the state of the knowledge and research needs of stormwater harvesting and to prepare a synthesis document including recommendations on preliminary project concepts. Specific regional issues including, but not limited to, the unique limitations of water rights in the western U.S. and how these limitations might impact stormwater harvesting will also be considered.

The project will help determine the research needs for stormwater harvesting at a more in-depth level. Many utilities and municipalities have significant interest in stormwater harvesting, but face both

economic and regulatory challenges. Although regulations are frequently viewed as a deterrent or barrier, they may in some cases encourage stormwater harvesting. For example, where impaired surface waters have nutrient and sediment TMDLs, stormwater harvesting could help municipalities reduce their stormwater discharges to comply with the TMDLs, while also providing an alternative water resource. This research effort will further explore the greatest opportunities to sensibly facilitate and encourage stormwater harvesting at both national and regional levels.

The expected outputs of this project are threefold:

- A synthesis document that includes knowledge gaps, research needs, and recommendations on preliminary project concepts on stormwater harvesting. Publications and documents used for the evaluation of the state of the knowledge and research needs of stormwater harvesting, based on the combination of literature review, web search, phone interviews with selected state regulatory agencies and utilities, and online survey.
- A web-based workshop for the Principal Investigator (PI) to discuss summary findings with the Project Advisory Committee (PAC) and utility participants.
- Communication of the results through a broad network, such as a WRF and WaterReuse Association webcast that is open to the general public.

Research Approach

Task 1: Evaluation of the state of the knowledge and research needs through literature review, phone interview, and online survey

The research team will evaluate the state of knowledge and research needs through a combination of literature review, web search, and phone conversations/interviews with selected state regulatory agencies and utilities (e.g., eastern versus western states) in order to better understand the variation of stormwater harvesting at regional and state levels.

In addition, the research team will develop an online survey with a list of questions, which will be sent through a national network. In addition, WRF will help facilitate the distribution of an online survey by collaborating with the WaterReuse Association. The research team will synthesize the online survey results and prepare a concise summary document for final report use.

Task 2: Discussion of the findings with PAC and utility participants through a web-based workshop

The research team will discuss the draft findings from Task 1 with the PAC and utility participants through a web-based workshop. This interactive workshop expects to be approximately half a day (e.g., four hours). The PI and research team will prepare the workshop agenda, facilitate the workshop discussion, and prepare a synthesis document containing a summary of the workshop, recommendations on preliminary project concepts, and workshop discussion outcomes.

WRF may invite other people to join this web-based workshop to participate in the discussion. The total number of workshop participants could be more than the number of PAC members and utility participants.

If an in-person meeting is determined as necessary, WRF will coordinate with the PI to host an in-person meeting in the PI's office with PAC members and WRF's project manager. The travel cost for PAC

members will be covered by WRF. In addition, such an in-person meeting may be hosted at a national conference that PI already plans to attend.

Task 3: Community outreach

For broader community outreach, the research team will conduct a webcast hosted by WRF and collaborating organizations on the overall findings of this project. The research team is encouraged to present the project findings at national conferences (without the support from the project funding).

Expected Deliverables

- A stand-alone synthesis document (e.g., “white paper”) from:
 - (i) the summary of the literature review, concise notes from interviews with selected state regulatory agencies and utilities, and synthesis of an online survey; and
 - (ii) supporting documents (e.g., papers, reports, and other types of publications) evaluating the state of knowledge and research needs of stormwater harvesting.
- Agenda, supporting materials, and meeting notes for web-based workshop;
- Draft report built from the synthesis document / “white paper” that further identifies knowledge gaps and research needs, and provides recommendations on preliminary project concepts on stormwater harvesting;
- Final report after one round of consolidated comments from the PAC are addressed.
- Webcast and conference presentation materials.

Communications Plan

Please review WRF’s *Project Deliverable Guidelines* for information on preparing a communications plan. The guidelines are available at <http://www.waterrf.org/funding/Pages/proposal-guidelines.aspx>. Conference presentations, webcasts, peer review publication submissions, and other forms of project information dissemination are typically encouraged.

Project Duration

The anticipated period of performance for this project is 12 months from the contract start date.

References and Resources

The following list includes examples of research reports, tools, and other resources that may be helpful to proposers. It is not intended to be comprehensive, nor is it a required list for consideration.

National Conference of State Legislatures (NCSL) (2018). Summary of State Drivers, Hindrances, Planning, and Benefits Quantification – Economic Pathways and Partners for Water Reuse and Stormwater Harvesting Rainwater Harvesting Regulation.

<http://www.ncsl.org/research/environment-and-natural-resources/rainwater-harvesting.aspx>

North Carolina Water Resources Research Institute (WRRI) (2014). Rainwater Harvesting: A Comprehensive Review of Literature (Report No. 425).

http://repository.lib.ncsu.edu/bitstream/handle/1840.4/8170/1_NC-WRRI-425.pdf

Philp, M., McMahon, J., Heyenga, S., Marinoni, O., Jenkins, G., Maheepala, S., and Greenway, M. (2008). Review of Stormwater Harvesting Practices. Urban Water Security Research Alliance Technical Report No. 9.

<http://publications.csiro.au/rpr/download?pid=procite:6057d2b6-42b7-4d03-9fd7-ddd451b9d269&dsid=DS1>

Seattle Public Utilities (2017). Street Sweeping Arterial Expansion Monitoring Study 2017 Annual Report - Integrated Plan Post-Construction Interim Report.

http://www.seattle.gov/Documents/Departments/SPU/Documents/Plans/Seattle_2017_NPDES_84.pdf

Seattle Public Utilities (2018). NPDES Phase I Municipal Stormwater Permit. 2018 Stormwater Monitoring Report – Street Sweeping Water Quality Effectiveness Study.

http://www.seattle.gov/util/cs/groups/public/@spu/@drainsew/documents/webcontent/1_074783.pdf

Southern California Water Coalition (2018). Stormwater Capture: Enhancing Recharge and Direct Use through Data Collection: An. http://www.socalwater.org/files/scwc-stormwater-whitepaper_71019.pdf

Water Environment & Reuse Foundation. (2017). Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems” (SIWM10C15). Chapter 10 – Future Needs.

http://docs.wixstatic.com/ugd/632dc3_8831385f1c2f4bb1b2976b06719832ae.pdf

Water Environment & Reuse Foundation. (2017). Drivers, Hindrances, Planning, and Benefits Quantification – Economic Pathways and Partners for Water Reuse and Stormwater Harvesting (SIWM8R14).

<http://www.waterrf.org/research/projects/drivers-hindrances-planning-and-benefits-quantification-economic-pathways-and>

The Water Research Foundation (WRF) (2018). National Stormwater Quality Database (NSQD).

<http://www.bmpdatabase.org/nsqd.html>

U.S. Department of Energy – Pacific Northwest National Laboratory (2015). Rainwater Harvesting State Regulations and Technical Resources.

https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-24347.pdf

U.S. EPA (2013). Rainwater Harvesting: Conservation, Credit, Codes, and Cost Literature Review and Case Studies. <http://www.epa.gov/sites/production/files/2015-11/documents/rainharvesting.pdf>

Proposal Evaluation Criteria

The following criteria will be used to evaluate proposals:

- Understanding the Problem and Responsiveness to RFP (maximum 20 points)
- Technical and Scientific Merit (maximum 30 points)
- Qualifications, Capabilities, and Management (maximum 20 points)
- Communication Plan, Deliverables, and Applicability (maximum 15 points)
- Budget and Schedule (maximum 15 points)

Proposal Preparation Instructions

Proposals submitted in response to this RFP must be prepared in accordance with the WRF document *Guidelines for Research Priority Program Proposals*. The current version of these guidelines is available at <http://www.waterrf.org/funding/Pages/proposal-guidelines.aspx>, along with *Instructions for Budget Preparation*. The guidelines contain instructions for the technical aspects, financial statements, indirect costs, and administrative requirements that the applicant must follow when preparing a proposal.

Eligibility to Submit Proposals

Proposals will be accepted from domestic or international entities, including educational institutions, research organizations, governmental agencies, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>. Researchers who are late on any ongoing WRF-sponsored studies without approved no-cost extensions are not eligible to be named participants in any proposals. Direct any questions about eligibility to the WRF project contact listed at the top of this RFP.

Administrative, Cost, and Audit Standards

WRF's research program standards for administrative, cost, and audit compliance are based upon, and comply with, Office of Management and Budget (OMB) Uniform Grants Guidance (UGG), 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in WRF's *Guidelines for Research Priority Program Proposals*, and include specific guidelines outlining the requirements for indirect cost negotiation agreements, financial statements, and the Statement of Direct Labor, Fringe Benefits, and General Overhead. Inclusion of indirect costs must be substantiated by a negotiated agreement or appropriate Statement of Direct Labor, Fringe Benefits, and General Overhead. Well in advance of preparing the proposal, your research and financial staff should review the detailed instructions included in WRF's *Guidelines for Research Priority Program Proposals* and consult the *Instructions for Budget Preparation*, both available at <http://www.waterrf.org/funding/Pages/proposal-guidelines.aspx>.

Budget and Funding Information

The maximum funding available from WRF for this project is \$20,000. The applicant must contribute additional resources equivalent to at least 33 percent of the project award. For example, if an applicant requests \$100,000 from WRF, an additional \$33,000 or more must be contributed by the applicant. Acceptable forms of applicant contribution include cost-share, applicant in-kind, or third-party in-kind that comply with 2 CFR Part 200.306 cost sharing or matching. The applicant may elect to contribute more than 33 percent to the project, but the maximum WRF funding available remains fixed at \$20,000.

Proposals that do not meet the minimum 33 percent of the project award will not be accepted.

Consult the *Instructions for Budget Preparation* available at <http://www.waterrf.org/funding/Pages/proposal-guidelines.aspx> for more information and definitions of terms.

Period of Performance

It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine

months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>.

Utility and Organization Participation

WRF encourages participation from water utilities and other organizations in WRF research. Participation can occur in a variety of ways, including direct participation, in-kind contributions, or in-kind services. To facilitate their participation, WRF has provided contact information, on the last page of this RFP, of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their particular proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their particular proposal.

Application Procedure and Deadline

Proposals are accepted exclusively online in PDF format, and they must be fully submitted before 2:00 pm Mountain Time on Tuesday, November 5, 2019. All proposal documents must be compiled into two (2) PDF files consisting of your technical review documents and your financial review documents. All forms and components of the proposal are available in the *Proposal Component Packet* zip file on the proposal website at <https://proposals.waterrf.org/Pages/RFPs.aspx>. An FAQ and a tutorial are also available. A login is required to access the proposal website and download the packet. Proposers are encouraged to create logins and verify the validity and compatibility of the system well in advance in order to avoid last-minute errors or delays.

The online proposal system allows submission of your documents until the date and time stated in this RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission.

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Harry Zhang, Program Director, PhD, PE, at (571) 384-2098 or hzhang@waterrf.org. Questions related to proposal submittal through the online system may be addressed to Caroline Bruck at (303) 347-6118 or cbruck@waterrf.org.

Utility and Organization Participants

The following utilities have indicated interest in possible participation in this research. This information is updated within 24 business hours after a utility or an interested organization submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending upon your settings, you may need to click refresh on your browser to load the latest file.)**