



**Date Posted: Tuesday, June 9, 2020**

**REQUEST FOR PROPOSALS (RFP)**

***Exploring Cost-Benefit Analysis of Post Long-Term Control Plan Approaches to Wet Weather Management (RFP #4849)***

**Due Date:** Proposals must be received by 2:00 pm Mountain Time on **Thursday, August 6, 2020**

**WRF Project Contact:** Harry Zhang, PhD, PE, [hzhang@waterrf.org](mailto:hzhang@waterrf.org)

**Project Sponsors**

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

**Project Objectives**

- Evaluate the state of the knowledge and research needs for a holistic approach to wet weather management and post long-term control plans for combined sewer overflows.
- Prepare a state-of-the-practice synthesis document, including recommendations on preliminary project concepts for future research.
- Conduct an invitation-only virtual workshop and communicate the results through a broad network after the workshop.

**Budget**

Applicants may request up to **\$50,000** 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) completed a series of projects relating to stormwater and wet weather management over the years (please see the section on "references and resources"). This project will build on the previous efforts, with a focus on a holistic approach to wet weather management and post long-term control plans (LTCP) for combined sewer overflows (CSOs).

For decades, municipalities and utilities with combined sewer overflows (CSOs) have negotiated long-term control plans (LTCP) with EPA in order to reduce CSO events to approximately four to six per year, with the assumption that further investments in wastewater infrastructure would not measurably improve receiving water quality. As some LTCPs near completion, there is a national discussion about whether further CSO control actions at wastewater treatment plants are cost effective, particularly given the limited water quality improvements they are likely to achieve and in situations where rate payers are struggling with budget constraints. The water sector and regulated community need more

information on the costs and benefits of options for further wet weather management, including watershed-based strategies and actions that can reduce wet-weather total maximum daily loads (TMDL) of pollutants of concern to improve water quality. Therefore, a need exists to conduct a rigorous and holistic evaluation of the multiple benefits of potential post-LTCP wet weather control programs. In addition, innovative approaches with successful applications and “State of the Practice” should be synthesized as a practical guide for utilities and municipalities to enhance post-LTCP wet weather management.

A specific research need is a rigorous and holistic evaluation of costs and benefits (including co-benefits) of implementing potential post-LTCP wet weather control options over a long period of time. A key research question for this study is: *“What are successful and cost-effective innovative approaches and most appropriate practices for post-LTCP wet weather management?”*

The expected outputs of this project are threefold:

- A state-of-the-practice synthesis document that includes knowledge gaps, research needs, and preliminary project concepts for recommended research projects. The synthesis document will include a list of publications and resources used for the evaluation of the state of the knowledge and research needs which will be based on a combination of literature review, web search, virtual workshop, phone interviews with selected state regulatory agencies overseeing large capital CSO programs and utilities, and an online survey.
- An invitation-only virtual workshop along with logistics planning and all supporting materials.
- Communication of the results through a broad network.

## **Research Approach**

### **Task 1: Conduct literature review of post-LTCP wet weather management options and their applications.**

The research team will conduct a literature review on holistic approaches to wet weather management, with a focus on CSO and LTCP related topics at a national scale in the United States. Examples from other countries (e.g., Canada) will be reviewed as well. The literature review should focus on utilities/municipalities that have completed and/or made significant progress for CSO programs, including the use of phased LTCPs for cost-effective solutions. In addition, the literature review summary will be used to support the virtual workshop listed in Task 3 as follows.

The research team will build from existing studies and use common metrics that allow for better cross comparison at a national scale, such as cost per gallon of CSO reduction and cost per pound of pollutants of concern removed and whether the utility has applied demonstration or presumptive approaches for CSO mitigation. Cost per gallon of stormwater reduced from municipal separate storm sewer systems (MS4) will be used for reference purposes. Consistent cost metrics (e.g., capital costs, operation and maintenance costs, and/or life cycle costs) will be used during the comparison. The list of priority pollutants of concern will be defined before initiation of the study, which will include Total Suspended Solid (TSS), Total Phosphorus (TP), Total Nitrogen (TN), Biochemical and Chemical Oxygen Demand (BOD/COD), E. coli (EC or enterococci), as well as physical pollutants like litter and trash.

**Task 2: Conduct a broad online survey of utilities and municipalities to understand which options on holistic approaches to wet weather management and post-LTCP for CSOs that they have considered, along with their experience in real-world applications, including costs and benefits.**

The results from an online survey in Task 2 will supplement the literature review from Task 1. In addition, the research team will do follow-up phone interviews with selected utilities and municipalities for more in-depth discussion and information gathering.

**Task 3: Conduct an invitation-only virtual workshop / webcast to synthesize the “State of the Practice” and help identify knowledge gaps and research needs.**

The objectives of this virtual workshop/webcast should include:

- Better understanding the national landscape of designated uses, especially under wet weather condition.
- Documentation of case studies where stakeholders have worked together to find creative solutions that provide regulatory flexibility under wet weather conditions (e.g., for CSO LTCP), including costs and benefits.
- Discussion of international and other alternative regulatory frameworks that differ in approach than the U.S. for wet weather management, including costs and benefits.

The research team will discuss the draft findings from Tasks 1 and 2 with the PAC and utility participants through a virtual workshop. This interactive virtual workshop is anticipated to be approximately one-half day (e.g., four hours). The PI and research team will prepare the webcast agenda, facilitate the webcast discussion, and prepare a synthesis document containing a summary of the webcast, recommendations on preliminary project concepts, and discussion outcomes.

**Task 4: Prepare a “State-of-the-Practice” synthesis document.**

A “State-of-the-Practice” synthesis document will include the following:

- Summary of the literature review, notes from interviews with selected utilities and municipalities, and synthesis of an online survey.
- Supporting documents (e.g., papers, reports, and other types of publications) for evaluating the state of knowledge.
- Recommendations for future research needs and preliminary research project concepts.
- A short online video that can facilitate public communications.

**Task 5: 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 whenever possible (without the support from the project funding).

### **Expected Deliverables**

- A stand-alone literature review document (e.g., “white paper”) of post-LTCP wet weather management options with available applications;
- Synthesis of survey results from utilities and municipalities;
- Virtual workshop supporting materials (e.g., agenda, presentations, meeting notes, synthesis document);
- A “State of the Practice” synthesis document; and
- 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 12-15 months from the project 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.

Statistics Canada (2019). Municipal wastewater systems in Canada, 2013 to 2017. (<https://www150.statcan.gc.ca/n1/daily-quotidien/190625/dq190625c-eng.htm>).

U.S. EPA (1995). Combined Sewer Overflows. Guidance for Long-Term Control Plan. EPA Report 832-B-9502. (<https://www.epa.gov/npdes/npdes-cso-guidance-documents>).

U.S. EPA (1999). Combined Sewer Overflows Guidance for Monitoring and Modeling. EPA Report 832-B-99-002. (<https://www.epa.gov/npdes/npdes-cso-guidance-documents>).

U.S. EPA (2004). Report to Congress. Impacts and Control of CSOs and SSOs. EPA Report 833-R-04-001. (<https://www.epa.gov/npdes/npdes-cso-guidance-documents>).

U.S. EPA (2005). Water Quality Standards: Examples of Alternatives to Changing Long-term Designated Uses to Achieve Water Quality Goals. (<https://www.epa.gov/sites/production/files/2014-10/documents/wqs-examples-uaa.pdf>).

U.S. EPA (2006). Use Attainability Analyses and Other Tools for Managing Designated Uses. EPA 821-R-07-001.

U.S. EPA (2014). Greening CSO Plans: Planning and Modeling Green Infrastructure for Combined Sewer Overflow (CSO) Control. EPA Report 832-R-14-001. ([https://www.epa.gov/sites/production/files/2015-10/documents/greening\\_cso\\_plans\\_0.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/greening_cso_plans_0.pdf)).

U.S. EPA (2016). Report to Congress: Combined Sewer Overflows into the Great Lakes Basin. (<https://www.epa.gov/npdes/report-congress-combined-sewer-overflows-great-lakes-basin>).

WRF/WERF (2006). Collaborative Water Quality Solutions: Exploring Use Attainability Analyses. (Project Number 1186/04-WEM-7). (<https://www.waterrf.org/research/projects/collaborative-water-quality-solutions-exploring-use-attainability-analyses>).

WRF/WERF (2007). Factors for Success in Developing Use Attainability Analyses. (Project Number 118/04-WEM-1) (<https://www.waterrf.org/research/projects/factors-success-developing-use-attainability-analyses>).

WRF/WERF (2014). Practitioner's Guide for Economic Decision Making in Asset Management. Part 1: Background. Part II: Guidance. (Project Number 1725/SAM1R06b1; 1726/SAM1R0b2). (<https://www.waterrf.org/research/projects/practitioners-guide-economic-decision-making-asset-management-part-i-background>) and (<https://www.waterrf.org/research/projects/practitioners-guide-economic-decision-making-asset-management-part-ii-guidance>).

WRF (2019). Climate-Resilient Planning for Urban Stormwater and Wastewater Utilities: Workshop Proceedings (Project Number 5001). (<https://www.waterrf.org/research/projects/climate-resilient-planning-urban-stormwater-and-wastewater-utilities-workshop>).

WRF (2019). Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC) (Project Number 4978). ([https://cfpub.epa.gov/ncer\\_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10616/report/0](https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10616/report/0)).

WRF (2020). Updated User's Guide for Integrated Wastewater and Stormwater Planning (Project Number 4854/SIWM9R14). (<https://www.waterrf.org/research/projects/toolbox-completing-alternatives-analysis-part-integrated-planning-approach-water>).

WRF (2020). Framework and Tools for Quantifying Green Infrastructure Co-Benefits and Linking with Triple Bottom Line Analysis (Project Number 4852/SIWM4T17). (<https://www.waterrf.org/research/projects/framework-and-tools-quantifying-green-infrastructure-co-benefits-and-linking>).

### **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 \$50,000. 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 \$50,000. **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 Thursday, August 6, 2020.** 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, PhD, PE, at (571) 384-2098 or [hzhang@waterrf.org](mailto: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](mailto: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.)**