

# OVERVIEW INFORMATION

**U.S. Environmental Protection Agency  
Office of Science Advisor, Policy and Engagement (OSAPE)  
Office of Research and Development**

## INNOVATION, WATER INFRASTRUCTURE, AND WATER REUSE

**This is the initial announcement of this funding opportunity.**

**Funding Opportunity Number:** EPA-G2020-ORD-XX

**Catalog of Federal Domestic Assistance (CFDA) Number:** 66.509

Solicitation Opening Date: Month dd, 20yy

Solicitation Closing Date: *Month dd, 20yy*, 11:59:59 pm Eastern Time (date above + 45 days)

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**SUMMARY OF PROGRAM REQUIREMENTS**

**Synopsis of Program:**

The objective of this Cooperative Agreement is to support improvements to the Nation's water supplies and resiliency. The Cooperative Agreement will produce, evaluate, demonstrate, and summarize performance, cost, and value data and information about innovative technologies (i.e., systems, devices, procedures) that will assist the water user community in demonstrating water reuse strategies, processes, and technologies. It is expected that outputs will benefit the user community within five years. The user community consists of utilities, industry, agriculture and other water users, technology and service providers, researchers and research funding organizations, and regulators.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.C.7.c of this solicitation), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.D and V.F of this solicitation.

Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:

<https://www.epa.gov/osa/basic-information-about-human-subjects-research-0>  
[https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr26\\_main\\_02.tpl](https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr26_main_02.tpl)

**Award Information:**

Anticipated Type of Award: Cooperative agreement

Estimated Number of Awards: One award

Anticipated Funding Amount: Approximately \$10 million total for all awards

Potential Funding per Award: Up to a total of \$10 million in EPA funds, including direct and indirect costs, with a maximum duration of 5 years. Cost-sharing is not required. Applications with budgets exceeding the total award limits will not be considered.

**Eligibility Information:**

Public and private nonprofit institutions/organizations, public and private institutions of higher education, and hospitals located in the U.S., state and local governments, Federally Recognized Indian Tribal Governments, and U.S. territories or possessions are eligible to apply. See full announcement for more details.

**Application Materials:**

To apply under this solicitation, use the application package available at Grants.gov (for further submission information see Section IV.F. "Submission Instructions and other Submission Requirements"). Note: With the exception of the current and pending support form (available at <https://www.epa.gov/research-grants/research-funding-opportunities-how-apply-and-required-forms>), all necessary forms are included in the electronic application package. Make sure to include the current and pending support form in your Grants.gov submission.

If your organization is not currently registered with Grants.gov, you need to allow approximately one month to complete the registration process. Please note that the registration process also requires that your organization have a unique entity identifier (e.g., 'DUNS number') and a current registration with the System for Award Management (SAM) and the process of obtaining both could take a month or more. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through Grants.gov and should ensure that all such requirements have been met well in advance of the submission deadline. This registration, and electronic submission of your application, must be performed by an authorized representative of your organization.

*If you do not have the technical capability to utilize the Grants.gov application submission process for this solicitation, see Section IV.A below for additional guidance and instructions.*

**Agency Contacts:**

Technical Contact:

Eligibility Contact: Ron Josephson; phone: 202-564-7823; email: [josephson.ron@epa.gov](mailto:josephson.ron@epa.gov)

Electronic Submissions Contact: Debra M. Jones; phone: 202-564-7839; email: [jones.debram@epa.gov](mailto:jones.debram@epa.gov)

## **I. FUNDING OPPORTUNITY DESCRIPTION**

### **A. Introduction**

The nation's water resources are the lifeblood of our communities, supporting our economy and way of life. Across the country we depend upon reliable sources of clean and safe water. We have made significant progress since enactment of the Clean Water Act (CWA); Safe Drinking Water Act; and Marine Protection, Research, and Sanctuaries Act. However, serious water resource and water infrastructure challenges remain. Many communities need to improve and maintain both drinking water and wastewater infrastructure and develop the capacity to comply with new and existing standards. Tens of thousands of homes, primarily in tribal and disadvantaged communities and the territories, lack access to basic sanitation and drinking water.

To improve our Nation's water supplies and resiliency, we must embrace new practices, innovation and technology and apply the concepts and practices of integrated water resources management to assess and achieve multiple benefits and outcomes to assure the resilience, security and sustainability of the Nation's water resources.

In recent years, Congress has also recognized the critical need to improve our Nation's water Infrastructure, as reflected in recent legislative action, including:

- 1) Water Infrastructure Improvement for the Nation Act (WIIN) – December 2016
- 2) American's Water Infrastructure Act (AWIA) – October 2018
- 3) Additional Supplemental Appropriations for Disaster Relief Act (ASADRA) – June 2019
- 4) Water Infrastructure Improvement Act (WIIA) – January 2019

EPA Office of Water (OW) has led the development of a National Water Reuse Action Plan to encourage consideration of water reuse, to expand the portfolio of freshwater supplies, and develop America's Water Workforce Initiative. These are examples of OW priorities that are also encompassed in the water infrastructure theme and needs under this Cooperative Agreement. The recipient (cooperator) organization selected will conduct applied research and demonstration as well as research communication and outreach to improve the Nation's water reuse capacity. Outputs are sought that can produce their intended benefits for the water user community which consists of water utilities (primary client), industry and agriculture, technology and service providers, researchers, funding organizations, and regulators. EPA's role in the cooperative agreement would be to collaborate on activities such as review of project phases and joint operational involvement in projects in concert with the recipient's activities.

### **B. Background**

Sustaining the quality of our water resources is essential to safeguarding human health. More than 300 million people living in the United States rely on the safety of tap water provided by public water systems that are subject to national drinking water standards. EPA will help protect human health and make America's water systems secure by:

- Providing financial assistance to states, tribes, and territories to assist public water systems in protecting and maintaining drinking water quality;
- Strengthening compliance with drinking water standards to ensure protection of public health by enhancing the technical, managerial, and financial capability of those systems;
- Continuing to protect and restore water resources, including sources of drinking water, from contamination;
- Taking actions to address known and emerging contaminants that endanger human health;
- Supporting states, tribes, territories, and local communities in implementing water programs by providing guidance, training, and information;
- Ensuring the security and preparedness of the nation's drinking water supplies by implementing EPA's national security responsibilities for the water sector; and
- Protecting underground sources of drinking water by providing for the safe injection of fluids underground for storage, disposal, enhanced recovery of oil and gas, or minerals recovery.

### Protect and Restore Water Quality

Protecting the nation's waters relies on cooperation among EPA, states, tribes, territories, and local communities and involves a suite of programs to protect and improve water quality in the country's rivers, lakes, wetlands, and streams, as well as in estuarine, coastal, and ocean waters. EPA will foster strong partnerships with other federal agencies, states, tribes, local governments, and other organizations that facilitate achieving water quality goals while supporting robust economic growth. In partnership with states, tribes, territories, and local governments, EPA core water programs will:

- Develop recommended water quality criteria for protecting designated uses of water;
- Assist states, authorized tribes, and territories in adopting water quality standards that support designated uses;
- Establish pollution reduction targets for impaired waters;
- Improve water quality by financing traditional and nature-based wastewater treatment infrastructure;
- Develop national effluent guidelines that set a technology-based floor;
- Work with partners to protect and restore wetlands and coastal and ocean water resources;
- In cooperation with the Army Corps of Engineers, work with states and tribes interested in assuming the Clean Water Act Section 404 program;
- Prevent or reduce the discharge of pollutants;
- Update analytical methods that enable precise analysis; and
- Conduct monitoring and assessment so we know the status of the nation's waters.

### **C. Authority and Regulations**

The authority for this Request for Applications (RFA) and resulting award is contained in the Safe Drinking Water Act, 42 U.S.C. 300j-1, Section 1442; the Clean Air Act, 42 U.S.C. 7403, Section 103(b)(3); the Clean Water Act, 33 U.S.C. 1254, Section 104(b)(3); and the Solid Waste Disposal Act, 42 U.S.C. 6981, Section 8001.

For research with an international aspect, the above statutes are supplemented, as appropriate, by the National Environmental Policy Act, Section 102(2)(F).

Note that a project's focus is to consist of activities within the statutory terms of EPA's financial assistance authorities; specifically, the statute(s) listed above. Generally, a project must address the causes, effects, extent, prevention, reduction and elimination of air pollution, water pollution, solid/hazardous waste pollution, toxic substances control or pesticide control depending on which statute(s) is listed above. Further note applications dealing with any aspect of or related to hydraulic fracking will not be funded by EPA through this program.

Additional applicable regulations include: 2 CFR Part 200, 2 CFR Part 1500, and 40 CFR Part 40 (Research and Demonstration Grants).

### **D. Specific Areas of Interest/Expected Outputs and Outcomes**

*Note to applicant: The term "output" means an environmental activity, effort, and/or associated work products related to an environmental goal or objective, that will be produced or provided over a period of time or by a specified date. The term "outcome" means the result, effect or consequence that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective.*

The activities to be funded under this announcement support EPA's FY 2018-22 Strategic Plan (<https://www.epa.gov/planandbudget/strategicplan.html>). Activities to be funded under this announcement support Goal 3: Greater Certainty, Compliance, and Effectiveness, Objective 3.3: Prioritize Robust Science, and Goal 1: A Cleaner, Healthier Environment, Objective 1.2 Provide for Clean and Safe Water of EPA's FY 2018-22 Strategic Plan. All applications must be for projects that support the goal and objective identified above. Awards made under this announcement will further EPA's priorities supporting robust science for Safe and Sustainable Water Resources by supporting applied research and demonstration of water infrastructure.

EPA also requires that grant applicants adequately describe environmental outputs and outcomes to be achieved under assistance agreements (see EPA Order 5700.7A1, Environmental Results under Assistance Agreements, <https://www.epa.gov/grants/epa-order-57007a1-epas-policy-environmental-results-under-epa-assistance-agreements>). Applicants must include specific statements describing the environmental results of the proposed project in terms of well-defined outputs and, to the maximum extent practicable, well-defined outcomes that will demonstrate how the project will contribute to the priorities described above.

## **Outputs/Outcomes**

The outputs of this project will assist users to more effectively understand and apply innovation, applied research and implementation activities to improve the Nation's water supplies. This Cooperative Agreement is expected to result in a variety of products including: analyses, technical guidance documents, best practices, partner convenings and reports, communication materials, collaborative and integrated action, published research papers, and other products on topics such as:

### **Water Innovation**

- HAB technology demonstration program to evaluate scalable technologies
- Lifecycle evaluation of rehabilitation and replacement technologies for wastewater/stormwater collection systems and drinking water distribution systems.
- Treatment technology validation and verification
- In situ sensors, real-time monitoring and methods development
- Activities to support drinking water system efficacy
- Approaches to evaluate the efficacy of treatment for removal of contaminants from a variety of water sources and end uses.
- Innovative technologies, practices and approaches for wastewater and stormwater treatment.
- Water resource recovery
- Policy considerations that support or hinder innovation across the water spectrum

### **Water Infrastructure**

- Studies identifying intractable water systems and describing barriers to delivery of potable water to individuals
- Strategic plans for improving the accuracy and availability of drinking-water monitoring data within one year
- Updated materials on asset management best practices
- Guidance and technical assistance to systems serving fewer than 3,300 on how to conduct resilience assessments, prepare ERPs, and address threats from malevolent acts and natural hazards
- Cost-effective and alternative wastewater recycling and treatment technologies, including onsite and decentralized systems, for the CWA Section 319 (nonpoint source) and Section 405 (sewage sludge disposal) programs
- Water utility workforce development materials to increase public awareness of water utilities and careers

### **Water Reuse**

- Compilations of state policies and approaches to implement water reuse programs
- Compilations and/or development of protection strategies for different sources of waters for potential reuse
- Compilations of existing fit-for-purpose specifications
- Frameworks for public and environmental health risk-based targets

- Coordination and enhancement of technology demonstration and validation programs to provide reliable performance information to support water reuse
- Monitoring best practices for various sources of water and reuse applications
- Inventories of water reuse research
- Compile water reuse research for the spectrum of potential sources and end uses
- Identification of research gaps
- Develop a coordinated national research strategy on water reuse
- Compile and develop water Reuse program outreach and communication materials
- Compilations of national estimates of available water and water needs

To the extent practicable, research applications must embody innovation and sustainability. Innovation for the purposes of this RFA is defined as the process of making changes; a new method, custom or device. Innovative research can take the form of wholly new technologies or applications that build on existing knowledge and approaches for new uses. Research applications must include a discussion on how the proposed research is innovative (see Section IV.C.7.a). The goal of sustainability, derived from the U.S. National Environmental Policy Act of 1969 (NEPA), is to “create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.” Research applications must include a discussion on how the proposed research will seek sustainable solutions that protect the environment and strengthen our communities (see Section IV.C.7.a). Reviewers will draw from all of the above-mentioned innovation and sustainability definitions in the review/evaluation process of research applications (see Section V.A).

## **E. References**

None.

## **F. Special Requirements**

It is EPA Policy to ensure that the results of EPA-funded extramural scientific research are accessible to the public to the greatest extent feasible consistent with applicable law; policies and Orders; the Agency’s mission; resource constraints; and U.S. national, homeland and economic security. This entails maximizing, at no charge, access by the public to peer-reviewed, scientific research journal publications or associated author manuscripts, and their underlying digital research data, created in whole or in part with EPA funds, while protecting personal privacy; recognizing proprietary interests, confidential business information and intellectual property rights; and avoiding significant negative impact on intellectual property rights, innovation and U.S. competitiveness. EPA’s *Policy for Increasing Access to Results of EPA-Funded Extramural Scientific Research* may be accessed at: <https://www.epa.gov/research/non-epa-researcher-requirements>. Terms and conditions implementing this policy may be accessed at: <https://www.epa.gov/research/non-epa-researcher-requirements>.

Applications submitted under this announcement shall include a Scientific Data Management Plan (SDMP) that addresses public access to EPA-funded scientific research data. See the SDMP



clause in Section IV for details on the content of an SDMP. Applicants will also be asked to provide past performance information on whether journal publications or associated author manuscripts, and the associated underlying scientific research data and metadata, under prior assistance agreements were made publicly accessible. These items will be evaluated prior to award.

Reasonable, necessary and allocable costs for data management and public access as discussed in EPA's *Policy for Increasing Access to Results of EPA-Funded Extramural Scientific Research*, may be included in extramural research applications and detailed in the budget justification described in Section IV.

Agency policy and ethical considerations prevent EPA technical staff and managers from providing applicants with information that may create an unfair competitive advantage. Consequently, EPA employees will not review, comment, advise and/or provide technical assistance to applicants preparing applications in response to EPA RFAs. EPA employees cannot endorse any particular application.

Multiple Investigator applications may be submitted as: (1) a single Lead Principal Investigator (PI) application with Co-PI(s) or (2) a Multiple PI application (with a single Contact PI). If you choose to submit a Multiple PI application, you must follow the specific instructions provided in Sections IV. and V. of this RFA. For further information, please see the EPA Implementation Plan for Policy on Multiple Principal Investigators (<https://rbm.nih.gov/toolkit.htm>).

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. All applications must include a Human Subjects Research Statement (HSRS; described in Section IV.C.7.c of this solicitation). If the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.D and V.F of this solicitation.

Groups of two or more eligible applicants may choose to form a consortium and submit a single application for this assistance agreement. The application must identify which organization will be the recipient of the assistance agreement and which organizations(s) will be subawardees of the recipient.

These awards may involve the collection of "Geospatial Information," which includes information that identifies the geographic location and characteristics of natural or constructed features or boundaries on the Earth or applications, tools, and hardware associated with the generation, maintenance, or distribution of such information. This information may be derived from, among other things, a Geographic Positioning System (GPS), remote sensing, mapping, charting, and surveying technologies, or statistical data.

## **II. AWARD INFORMATION**

It is anticipated that a total of approximately \$10 million will be awarded under this announcement, depending on the availability of funds, quality of applications received and other applicable considerations. The EPA anticipates funding one award under this RFA. Requests for

amounts in excess of a total of \$10 million in EPA funds, including direct and indirect costs, will not be considered. The total project period requested in an application submitted for this RFA may not exceed 4 years.

The EPA reserves the right to reject all applications and make no awards, or make fewer awards than anticipated, under this RFA. The EPA reserves the right to make additional awards under this announcement, consistent with Agency policy, if additional funding becomes available after the original selections are made. Any additional selections for awards will be made no later than six months after the original selection decisions.

In appropriate circumstances, EPA reserves the right to partially fund applications by funding discrete portions or phases of proposed projects. If EPA decides to partially fund an application, it will do so in a manner that does not prejudice any applicants or affect the basis upon which the application, or portion thereof, was evaluated and selected for award, and therefore maintains the integrity of the competition and selection process.

EPA will award a cooperative agreement under this announcement.

Where appropriate, based on consideration of the nature of the proposed project relative to the EPA's intramural research program and available resources, the EPA may award *cooperative agreements* under this announcement. When addressing a research question/problem of common interest, collaborations between EPA scientists and the institution's principal investigators are permitted under a cooperative agreement. These collaborations may include data and information exchange, providing technical input to experimental design and theoretical development, coordinating extramural research with in-house activities, the refinement of valuation endpoints, and joint authorship of journal articles on these activities. Cooperative agreements permit substantial involvement between the EPA Project Officer and the selected applicants in the performance of the work supported. Although EPA will negotiate precise terms and conditions relating to substantial involvement as part of the award process, the anticipated Federal involvement proposed by EPA for this project will be:

- Joint involvement in projects
- EPA research, development and demonstration support, insofar as intellectual assistance in the cooperative agreement (we do not foresee the use of Federal equipment or facilities to support this effort)
- Review of products developed under this Initiative
- Posting of assessment summary statements on the

**Applications may not identify EPA cooperators, specific interactions between EPA's investigators and those of the prospective recipient for the cooperative agreement will be negotiated at the time of award.**