

U.S. Environmental Protection Agency Environmental Financial Advisory Board

February 11-13, 2020

Washington Marriott Georgetown
1221 22nd Street, NW, Washington, DC 20037

Minutes of the Meeting

Respectfully Submitted: Edward H. Chu
EPA Designated Federal Officer

Certified as Accurate: Joanne M. Throwe, Chair
Environmental Financial Advisory Board

NOTE AND DISCLAIMER: The minutes that follow reflect a summary of remarks and conversation during the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the Board. Formal advice and recommendations may be found in the final advisory reports or letters prepared and transmitted to the agency following the public meetings. Moreover, the Board advises that additional information sources be consulted in cases where any concern may exist about statistics or any other information contained within the minutes.

Content

Meeting Purpose.....	3
Attendees.....	3
Day 1	5
Welcome and Introduction	5
EFAB Deliberation on the Stormwater Taskforce Report	5
Section Four: Sufficiency of Funding	5
Section Five: Existing Sources of Funding.....	9
Section Six: Infrastructure Affordability	13
Recommendations.....	18
Executive Summary	31
Environmental Finance Centers	34
Day 2	38
Reconvene and Brief DFO Remarks.....	38
Small Community Environmental Services Resiliency Panel Discussion	38
Office of Brownfields and Land Revitalization.....	39
Office of Environmental Justice	40
Office of Community Revitalization	40
Office of Enforcement and Compliance Assurance	41
National Center for Environmental Economics	41
Status of Stormwater Recommendations	45
Public Comments on the Stormwater Report	46
Framing of Backhaul Alaska Session.....	46
Backhaul Alaska Consultation on Financing and Governance Options	46
Backhaul Alaska Report-Outs – Group 1: Structure.....	48
Backhaul Alaska Report-Outs – Group 2: Organization and Administration	49
Backhaul Alaska Report-Outs – Group 3: Finance and Sustainability.....	50
Feedback on Backhaul Alaska Consultation	51
Day 3	55
Stormwater Task Force Report - Executive Summary.....	55
Proposed Charge to EFAB – Opportunity Zones.....	58
Stormwater Task Force Report - Transmittal Letter	62
Proposed Charge to EFAB – Risk and the Cost of Capital.....	64
Farewell to Departing Board Members.....	65
Backhaul Alaska Debrief	66
Proposed Charge to EFAB – Stormwater Credit Trading.....	68
Voting on Proposed Charges	70
Public Comment on Proposed Charges	71

EFAB Organization and Effectiveness.....	71
Attachments.....	75

Meeting Purpose

The Environmental Protection Agency's (EPA) Environmental Financial Advisory Board (EFAB or Board) held a public meeting on February 11-13, 2020. EFAB is an EPA advisory committee chartered under the Federal Advisory Committee Act (FACA) to provide advice and recommendations to the agency on creative approaches to funding environmental programs, projects, and activities. The purpose of this meeting was to deliberate on and finalize the Stormwater Finance Task Force report; to provide consultation on financing and governance options for the backhaul of waste from Alaska; and to consider proposed charges for future EFAB projects.

Attendees

EFAB Members (for full roster, see Attachment A):

- Brent Anderson, RESIGHT
- Janice Beecher, Michigan State University
- Ted Chapman, S&P Global Ratings
- Edwin Crooks, Greystone Infrastructure Advisors
- Lisa Daniel, Public Financial Management
- Yvette Downs, Sewage & Water Board of New Orleans
- Ted Henifin, Hampton Roads Sanitation District
- Craig Holland, The Nature Conservancy
- Daniel Kaplan, King County, Washington Department of Natural Resources and Parks
- Suzanne Kim, SPI Partners
- Pam Lemoine, Black & Veatch Management Consulting
- Chris Meister, Illinois Finance Authority
- Eric Rothstein, Galardi Rothstein Group
- Joanne Throwe, Throwe Environmental LLC
- William Stannard, RAFTELIS
- Angie Sanchez Virnoche, FCS Group
- Richard Weiss, Morgan Stanley
- David Zimmer, New Jersey Infrastructure Bank

EFAB Members unable to attend the meeting:

- Lori Beary, Iowa Finance Authority
- Rudy Chow, Department of Public Works, City of Baltimore
- Marie Roberts De La Parra, BMB Construction Properties
- James McGoff, Indiana Finance Authority
- James "Tony" Parrott, Metropolitan Sewer District of Louisville
- Carl Thompson, Infiltrator Water Technologies, LLC

Designated Federal Officer: Edward Chu, EPA Region 7

Additional Attendees (Based on Sign-in Sheets):

- Amanda Aspatore, National Association of Clean Water Agencies
- Lara Beaven, IWP News (Inside EPA)
- Stacey Berahzer, IB Environmental
- Brian Bohnsack, Wichita State University EFC
- Seth Brown, Storm and Stream Solutions

- Erica Brown, Association of Metropolitan Water Agencies
- Sonia Brubaker, EPA Water Infrastructure and Resiliency Finance Center
- Medessa Burian, University of Maryland EFC
- Jacob Burney, EPA Office of Environmental Justice
- Adriana Caldarelli, Water Environment Federation
- Gabriela Carvalho, EPA Region 10
- Chuck Chaitovitz, U.S. Chamber of Commerce
- Brian Chin, American Water
- Tim Colling, Michigan Technological University
- Jennifer Cotting, University of Maryland EFC
- Andrew Crow, University of Alaska-Anchorage
- Matthew Dalbey, EPA Office of Community Revitalization
- Khristopher Dodson, Syracuse University EFC
- Steve Dye, Water Environment Federation
- Julian Gonsalves, WSP
- Elise Gout, Cadmus Group
- Tim Hamlin, EPA Region 10
- Tara Johnson, EPA Water Infrastructure and Resiliency Finance Center
- David Lloyd, EPA Office of Brownfields and Land Revitalization
- Thomas Liu, Bank of America Merrill Lynch, Water and Wastewater/SRF Group
- Michelle Madeley, EPA Office of Policy
- Al McGartland, EPA National Center for Environmental Economics
- Anthony Prince, National Rural Water Association
- Stephanie Sanzone, EPA Water Infrastructure and Resiliency Finance Center
- Surabhi Shah, EPA Office of Community Revitalization
- Martha Sheils, University of Southern Maine EFC
- Aimee Storm, EPA Office of Brownfields and Land Revitalization
- Ellen Tarquinio, EPA Water Infrastructure and Resiliency Finance Center
- Matthew Tejada, EPA Office of Environmental Justice
- Diana VanDe Hei, Association of Metropolitan Water Agencies
- Barbara VanTil, EPA Office of Enforcement and Compliance Assurance
- Britney Vazquez, EPA Water Infrastructure and Resiliency Finance Center
- Charles Walter

Day 1

Welcome and Introduction

The meeting was announced in the Federal Register (see Attachment B) and generally proceeded according to the agenda (Attachment C), with times adjusted as noted in these meeting minutes.

Edward Chu, the Designated Federal Officer (DFO) for EFAB, welcomed the EFAB Members and public attendees. He acknowledged the 50th anniversary of EPA and thanked EFAB for having now developed over 100 products in the last 30 years. He noted this is a public, federally chartered advisory committee. Under FACA, all materials are available to the public and posted to the EFAB website. The minutes of this meeting will be prepared within 90 days.

Joanne Throwe welcomed everyone. She said they have a very full agenda for the next few days. The focus of Day 1 will be on the Stormwater Finance Task Force report. In the afternoon, there will be a panel discussion with representatives from the Environmental Finance Centers (EFCs).

EFAB Deliberation on the Stormwater Taskforce Report

Ms. Throwe summarized the charge for the Stormwater Finance Task Force. EFAB developed a report in response to Section 4101 of the 2018 America's Water Infrastructure Act (AWIA), which directed EPA to establish a Stormwater Finance Task Force workgroup ("Task Force"). The purpose of the Task Force was to conduct a study on and develop recommendations for improving the availability of public and private sources of funding for construction, rehabilitation, operations, and maintenance of stormwater infrastructure. Task Force members were charged with identifying existing federal, state, and local public and private sources of funding for stormwater. They were to look at affordability, including the costs associated with infrastructure finance, and assess whether the identified funding sources were sufficient to support capital expenditure and long-term operations and maintenance (O&M) costs. The Task Force comprised 13 EFAB Members and 19 expert consultants from different federal, state, and local government entities. Task Force members had two in-person meetings, supplemented by webinars and conference calls; those responsible for a section of the Task Force report also held regular conference calls. To help inform the development of the EPA report to Congress, EPA staff engaged in public outreach on stormwater infrastructure financing through events and meetings in Florida, Massachusetts, Illinois, Washington DC, Virginia, Georgia, and Washington State. A summary of some of the issues raised at those sessions was provided to the Task Force at its October 2019 meeting. The EPA report conveying the results of the Task Force study and recommendations is due to Congress on April 23, 2020.

Ms. Throwe said the intention of this meeting is for the Board to finalize the draft Task Force report (Attachment D) and Transmittal Letter (Attachment E). These documents will then be sent to the Administrator at EPA. EPA will develop a short summary with a response to the Board's recommendations. The Task Force report and a summary of the public outreach meetings will then be included in the Appendix to the report to Congress.

Ms. Throwe thanked *Ellen Tarquinio* for her ongoing support of the Task Force. She also recognized the Task Force Section Leads – *Pam Lemoine*, *Ted Chapman*, and *Ted Henifin* – and thanked them for their leadership and coordination on the report.

Members were provided a series of "quality review" questions prior to the meeting to guide their review of the task force report and were asked to develop written preliminary responses to the questions. These pre-meeting comments were shared with the full Board to aid its deliberations (Attachment F).

Mr. Henifin, Ms. Lemoine, and Mr. Chapman summarized their respective sections in the report (Sections Four, Five, and Six detailed below). A designated Lead Discussant then facilitated a conversation on proposed revisions.

Section Four: Sufficiency of Funding

Mr. Henifin provided an overview of Section Four. Section Four looks at sufficiency of funding, specifically whether the funding sources can support capital expenditure and long-term O&M costs to meet the stormwater infrastructure needs

of municipalities. The approach of the Task Force was to review existing surveys, as there was not enough time to conduct a nationwide survey on stormwater needs. With the support of an EPA consultant, Task Force members provided synopses of these existing surveys. They supplemented their survey work with several case studies to illustrate the state of stormwater funding in many of the big and small localities throughout the U.S. Across the surveys, they found there is a great need for stormwater funding and estimated the funding gap to be approaching \$10 billion annually. Mr. Henifin noted that the American Society of Civil Engineers (ASCE) conducts a report card on infrastructure in the U.S. every four years and will be adding stormwater infrastructure to the next report card in 2021. Rather than recommend the creation of a national needs assessment, the Task Force thought it appropriate to defer to the results from the ASCE infrastructure report card as the next national needs assessment.

Mr. Henifin moved to addressing the pre-meeting comments for Section Four. He noted the National Ground Water Association has contributed a number of points throughout the report-drafting process. Mr. Henifin said the comment that stood out the most regarding funding sufficiency pertained to increasing scientific research, education, and technology transfer. Mr. Henifin said the Task Force has made such a case within its recommendations. *Suzanne Kim* commented on the need for a national needs study, and Mr. Henifin reiterated the Task Force's decision to highlight the upcoming ASCE infrastructure report card. Ms. Kim also made a comment about clearly establishing whether the problem is the lack of capital, the ability to access existing capital, or both. Mr. Henifin responded that the Task Force describes the problem as a combination of the two in Section Four on page 22.

Yvette Downs, Lead Discussant for the section, said Section Four successfully identifies the possible range of estimated annual needs. She said the Board Members must ensure they identify the availability of funding for capital expenditures compared to O&M costs. She asked them if they felt that differentiation was clear enough. She also acknowledged a pre-meeting comment that the report confuses the meaning of funding with that of financing.

Ms. Kim thanked everyone on the Task Force for their hard work. She suggested they use the language of "capital sources" instead of "funding." She said "capital sources" is a broad enough term to encapsulate the different categories in the report, including operating revenue, grants, and financing.

Ms. Downs asked what the language of the charge was.

Ms. Throwe confirmed the charge encompasses both funding and financing.

Ms. Kim said they should clarify between the two, as "sufficiency of funding" is not the correct term. Are they referring to sufficiency of financing available? Sufficiency of grants available? Is the revenue structure sufficient to be self-sustaining? She said it was not clear when reading the report whether the Board was asking for more grants or more financing.

Ed Crooks agreed with Ms. Kim and said the key will be to link the two terms. He said the availability and cost of financing will depend entirely on how robust and predictable those sources of revenue are. Stronger, more predictable sources of capital will enhance the ability to access financing.

Mr. Chu suggested the Board take all the comments on the section before responding to them.

Ms. Downs asked if the Board was satisfied with the surveys referenced in the section.

Jan Beecher agreed on the importance of differentiating between funding and financing. She proposed differentiating between operating and capital costs as well. She suggests not conflating the source of revenue, which she views as funding, with the means of spreading funds over time, which she views as financing. Otherwise, people will view privatization, for example, as a source of funding when it is really a means of financing.

Ms. Downs reread the charge as follows: "Evaluate whether the sources of funding are sufficient to support capital expenditures and long-term operation and maintenance costs necessary to meet the stormwater infrastructure needs of municipalities."

Ms. Beecher suggested stating at the beginning of the section that both funding and financing are insufficient.

David Zimmer acknowledged the thoroughness of the report. He prefaced his comments are based on his experiences lending to an end-user and working for two decades in capital markets. He said he does not consider the issue to be an insufficiency of capital. He said Wall Street will develop products to meet the extent of financial need (e.g., impact bonds). He finds the issue is the willingness of elected officials in communities to pursue a project, borrow money, and increase the rates of taxpayers. He said the question is how to incentivize people (e.g., regulations, increased free funds with required behavioral changes).

Mr. Henifin noted Mr. Zimmer's point is included in Section Four on page 23. It reads, "Perhaps the biggest obstacle to closing the stormwater funding gap is the lack of political will to increase revenues dedicated to stormwater investment at the local, state, and federal levels." He noted this language may be too buried within the report.

Ms. Kim said Section Four does not convey that there are projects where the revenue is insufficient to make a project self-financing because of problems like those described by Mr. Zimmer. There is no discussion of the top line. Instead, the section focuses on operating expenses like the cost of capital. She said the cost of capital could be zero, and a project may still not be self-financing. Section Four and the studies it cites suggest the issue is the bottom line, and the revenue is often insufficient to make a project viable. To Mr. Zimmer's point, however, the cost of capital could be zero, and there would still be problems. The top line needs to move as well.

Ms. Downs noted there have been several surveys, referred to within the section, that address whether communities believe they are achieving their goals, how much they are collecting per person, and whether they believe it is enough for their needs. It is through those surveys that the Task Force is defining the gap in stormwater funding. She said she was unsure if there was a clear nexus between financing for capital and the collection of funds for O&M. Regardless, these surveys do indicate that current sources of funding are insufficient.

Mr. Henifin said the intent of Section Four was to identify the gap through reviewing available surveys. In response to Ms. Kim, he said the section included language about the insufficiency of federal funding and the difficulty of attracting private capital because, as is stated in the report, "the expected return for third party capital is mismatched with the risk profile of most stormwater projects." Almost all communities within the case studies also identified an inability to set standards based on need rather than available funds. He noted most of what the Board is discussing is within Section Four, but the information may not be organized or presented as it could or should be. He agreed with Mr. Zimmer that, regardless of the cost of capital, the real challenge is a lack of political will to raise the revenues needed to finance and/or fund infrastructure needs.

Ms. Downs reminded the Board there were three specific questions within the charge, and each section is designed to respond to one of them. The recommendations section then pulls from Sections Four, Five, and Six. Section Four centers on sufficiency of funding. Section Five is about where the money is coming from and where there is available funding.

Ms. Thrope asked if separating funding and financing in each section of the report would make things clearer.

Ms. Kim said such a separation would make the report clearer. She noted the Board is concluding there is no way to evaluate whether the funding is sufficient because there has yet to be a comprehensive study. She said there needs to be a sentence in Section Four that stresses the difficulty in defining the gap because of an inability to evaluate the problem nationally.

Ms. Downs asked if Ms. Kim is suggesting the report authors add a bullet up front to acknowledge the inclusion of stormwater infrastructure in the 2021 ASCE scorecard. The Board could then include a statement that it thinks this scorecard will help with gathering data.

Ms. Kim agreed she would want to include something up front about the lack of and/or need for a national survey.

Mr. Crooks reiterated that the answer to a significant portion of the charge is that there is insufficient funding; the numbers provided by the surveys are huge. The Board should draw a conclusion that leads to questions of how to turn funding into financing.

Ms. Kim said she is struggling with the absence of a concrete number to strengthen the report.

Ms. Downs noted while there is not the singular number that a national survey would provide, there are several bullets in Section Four that include numbers showing the insufficiency of stormwater funding.

Mr. Henifin said the first bullet in Section Four states the funding gap is “estimated to approach \$10 billion annually.” He said they extrapolated the \$10 billion number as a marker from the variety of available studies.

Ms. Kim said the \$10 billion figure should be brought up into the Executive Summary.

Mr. Henifin agreed.

Craig Holland thanked everyone for their support in drafting the report. He noted there are key terms provided in Section 2.5 and suggested the Task Force members include the definitions for funding and financing there. He agreed they should be stressing in the Executive Summary the harsh reality that stormwater funding is insufficient. He said the Board will see in some of the recommendations that there is language about creating databases, technical assistance platforms, and other tools to help communities develop sustainable funding streams. He said it was difficult to come up with a uniform recommendation about how to fill the funding gap with a representative number because of the many different sources from which communities receive their money.

Ms. Throwe directed the Board to a series of quality review questions regarding Section Four. She noted Mr. Holland’s suggestion to be explicit in the Executive Summary about the insufficiency of stormwater funding and asked if the Board thinks this point should be clearer in Section Four as well.

Ms. Kim said it should be.

Mr. Henifin said Section Four does currently make this point up front. The first bullet of the section states there is a large gap in funding and the annual need is estimated to be \$10 billion.

Ms. Throwe asked if the charge was addressed in Section Four.

The Board agreed it was.

Ms. Throwe asked if there were any technical errors or omissions.

The Board agreed there were not.

Ms. Throwe asked if Section Four was clear and logical with the discussed modifications.

Mr. Zimmer reiterated he would like for the point on political will to be placed higher up in Section Four.

Ms. Downs noted political will is also referenced in the recommendations. She said she personally does not think political will is the only issue; affordability is also a factor, and it affects the will of operators and politicians.

Mr. Holland clarified his earlier comment. The third paragraph of the Executive Summary clearly states funding is insufficient. It also clearly states there are no comprehensive studies that would allow the authors to make a conclusion as to what the exact number is. He is concerned about specifying the need for \$10 billion of federal funding without further study.

Mr. Crooks said adding the definitions of funding and financing like Mr. Holland suggested would make things clearer. He also stressed the Board is not asking for \$10 billion in specifically federal funding; it could come from a host of sources.

Mr. Henifin agreed.

Ms. Kim emphasized the audience is Congress. Regardless of how the Board qualifies the number, the report needs to say the estimated annual funding gap at this time is \$10 billion, and the Board believes this number needs to be researched further. She also said the Board needs to be clear that this \$10 billion source of capital is not something the Board thinks Congress should appropriate. It can come from a variety of sources.

Dan Kaplan added to Mr. Zimmer's point on the lack of political will to create revenue streams. He said there needs to be a clear statement that the report is recommending the elimination of state barriers to the creation of stormwater utilities and stormwater fees. He noted he did not see such a point within the Executive Summary either.

Ms. Downs asked Mr. Henifin to clarify how the Task Force reached the estimated \$10 billion figure through reviewing the surveys.

Mr. Henifin said it was a combination of the Task Force's own analysis and the work of a consultant who reviewed the surveys. He noted they primarily pulled information about the gap in funding from the Water Environment Federation (WEF) report. He said he would refer back to the WEF report for confirmation.

Mr. Holland said the number was \$8 billion a year from the WEF report and \$150 billion over 20 years from the Clean Watersheds Needs survey.

Ms. Throwe asked Mr. Holland if he would prefer the Board not place the \$10 billion number in the Executive Summary.

Mr. Holland said the Board would have to contextualize the number if it did. The Board would have to clarify the number was the best it could extrapolate, rather than a definitive gap that, when filled, would solve the stormwater infrastructure problem.

Ms. Throwe asked if the Board could add such context to the Executive Summary.

Mr. Holland said the funding gap is contextualized in the introduction of the report. He suggested bringing that language into the Executive Summary. The Board could then make a direct, succinct point that the information available is insufficient, but with what is available, the funding gap appears to be \$10 billion.

The Board agreed.

Mr. Henifin said the \$10 billion figure, assuming it is contextualized, will grab the attention of a reader and give an idea as to where stormwater infrastructure needs stand.

Ms. Throwe asked if the Board could support Section Four with the modifications discussed.

The Board agreed.

Section Five: Existing Sources of Funding

Ms. Lemoine provided an overview of Section Five. Section Five delves further into the distinction between stormwater funding and financing. It opens with a brief discussion of the role of the federal government in funding stormwater infrastructure, recognizing the evolution of stormwater management over time. Stormwater funding is then defined as falling into three categories: revenues (ongoing, stable and meaningful flows of funds and intermittent revenue from various special fees and charges); capital financing (targeted capital funding for a specific project); and other resources and approaches for stormwater management, including development by others. The bulk of Section Five addresses the types and uses of different funding sources. Table 1 presents a detailed matrix of stormwater funding options and their

advantages and disadvantages. To assist the Task Force in its work, EPA compiled a comprehensive database of funding sources, primarily comprised of grants and loans (Attachment G). Ms. Lemoine noted the Task Force's difficulty in quantifying the amount of funding available, as very few sources are strictly dedicated to stormwater. Section Five refers to a 2019 Western Kentucky University survey and a 2018 biennial Black and Veatch survey. The Task Force used these surveys to extrapolate that between \$3.6-6.2 billion per year could be generated by the utilities identified by Western Kentucky University. Section Five then addresses the barriers to obtaining funding, including political decision-making, public perception, competing needs, and enabling legislation. A call-out box in the beginning of Section Five notes user fees are the most sustainable, recurring way to begin solving this problem.

Ms. Kim appreciated the efforts of Ms. Lemoine and her team to determine revenue generation potential. She said the Board should include how many grants and financing programs are currently dedicated to stormwater and how many of these are competing with other potential uses. She asked if such numbers would be quick and feasible to extract.

William Stannard, the Section Five Lead Discussant, noted over the last 50 years the existing funding sources for stormwater management were all taxes or local revenues. He said the evolution of stormwater management and the needs for stormwater management have accelerated faster than the capabilities of existing funding sources. When reading Section Five, he wondered about the balance between focusing on urban and non-urban stormwater management. Larger, urban areas may have more capability than smaller areas, and the need and necessary investment for stormwater may exceed the financial resources of smaller communities or local areas.

Ms. Beecher said the Board needs to be mindful of the presumptions they include regarding user fees. She said there are two separate questions about user fees – whether they are politically pragmatic and whether they are the right way to allocate costs. She acknowledged there is an impulse across the environmental sector to promote the implementation of user fees with the idea that they are the “right” way to recover costs. She said given the challenges of allocating fees precisely and the broad externalities associated with these services, there is a perfectly reasonable argument to make for shared approaches. She said Task Force members should be careful not to present user fees as the default answer. Some communities may be more than willing to explore funding combinations.

Mr. Stannard agreed. He said the Board would not want to submit that user fees are the quintessential answer to these challenges.

Ms. Lemoine noted many of the existing taxes and other approaches have sunset clauses. She said the Board could broaden the discussion of user fees and taxes to emphasize that they must be sustainable and recurring for the financing they want to achieve.

Richard Weiss noted his pre-meeting comment on the draft about better addressing implementation challenges within Section Five. He said there are difficulties in figuring out how to fairly allocate the burden between customers. As mentioned by Ms. Beecher, one size does not fit all. A user-charge system may not work for a smaller system.

Mr. Stannard noted there are existing user charge, parcel-based structures identified in Section Five. The Board may want to add a few sentences about the data challenges associated with them.

Mr. Zimmer asked Ms. Kim to clarify her earlier suggestion. He asked if she would think it helpful to have a list of other funding or financing options like the Clean Water Act section 319(h) grants.

Ms. Kim said she would like to include a number so Congress would know how many grants and/or programs are dedicated to stormwater.

Mr. Holland said he does not think it would be possible to determine the number of sources strictly dedicated to stormwater, though the Task Force logically would want to have one. He noted the Section Five team discussed this topic at length. It is difficult to arrive at a single number because there are a lot of different issues communities are trying to address in terms of stormwater (e.g., green infrastructure, flooding, water quality).

Ms. Kim suggested Mr. Holland's point be articulated somewhere in Section Five, as she was left unsatisfied without knowing how much money had been provided for stormwater so far.

Mr. Holland noted there was a recommendation for a national database in line with Ms. Kim's comment that was edited out of the report. The recommendation now pertains to establishing a national database of the challenges to developing sufficient funding sources. He wondered if there should be a recommendation for EPA to create and maintain a national database that tracks existing sources of revenues and grants.

Mr. Zimmer said not enough people look at monetizing the savings they receive when installing new infrastructure. For example, if one is looking to reduce flooding, costs associated with things like flood insurance or the number of cars that must be replaced decrease. He thinks these savings should be mentioned in the report, as they offset the cost of the project. Regarding the comment about parsing urban and rural stormwater projects, he said he thinks of flood mitigation when considering urban areas, as there are a lot of impervious surfaces. With rural and suburban areas, he thinks of farming and water quality runoff. He said if the Board chooses to differentiate between urban and rural, there will be a division to some extent between the different stormwater issues each face.

Brent Anderson seconded Mr. Zimmer. He thinks the Board should define the distinction between issues of stormwater quality and stormwater quantity. He said this distinction plays into the political will discussion as well. The report suggests water quality does not rise to the level of what people care about in the day-to-day.

Ms. Thowe reminded the Board that the Task Force had decided the charge covered both water quality and quantity.

Mr. Anderson said the Board should explicitly establish its line of thinking for that decision. He added the differentiation between urban and rural areas is also important, as it speaks to affordability and availability. He said the needs of the two are different, and there are solutions available to urban municipalities that simply do not exist for rural communities. He agreed there is an emphasis on utilities and user fees running through the document that the Board may want to deemphasize.

Ms. Downs noted "stormwater utility" seems to be used interchangeably with "stormwater user fees." She said the Board needs to clearly address the differences between them in the key terms. She also agreed with Mr. Holland's suggestion to include "stormwater financing" and "stormwater funding" in the key terms. She said she has some hesitation as to how the Board would define urban and rural areas, as they would have to determine how much detail they want to go into when differentiating between the two. She agreed they have different needs and said that is why education is one of the main components in the recommendations. She finds education relates to multiple parts of the report, including the implementation of user fees.

Mr. Holland said there is a clear definition of municipal stormwater in Section Two on the bottom of page 10 that includes both flooding and water quality. He is concerned about separating out those aspects of stormwater when defining funding purposes. He noted there has been a big trend in the stormwater space to recognize the interrelation of these aspects of stormwater and recombine them. He said the utilities that have sufficient funding mechanisms and are doing this well are integrated utilities. The Board will include a definition for "stormwater utility" in the key terms section, but he does not want to break out what a utility does or does not do.

Ms. Downs clarified that her comment was that a stormwater utility and a user fee are not the same thing, yet they have been used in the report as though they are. She said the Board should either establish that they are using those terms interchangeably or change their language to recognize those differences.

Mr. Holland said there was a lot of concerted effort in drafting this report to define stormwater as broadly as possible given the interrelation of aspects like flooding and water quality. He said the Board does not want to set up unnatural silos that would result in funding being sufficient for certain aspects of stormwater but insufficient for others.

Mr. Stannard found Section Five to successfully identify and categorize the wide range of existing funding sources. He said the Task Force did as well as it could have in determining the level of funding available.

Ms. Throwe asked the Board Members for their takeaways when reviewing Section Five. She noted Mr. Holland's suggestion to have a national database that tracks existing sources of revenue. She asked if the Board should include that recommendation.

Mr. Chu said it would be beneficial to have a database to answer the charge, but he is not sure of its long-term use. He noted EPA would have to staff and pay for its creation, and he is uncertain of how actionable it would be or if it would lead to improved outcomes.

Ms. Downs said she had thought the database would be designed to help utilities search through and find options of available funding for which they could apply. She noted the development of this database could be tied into the existing recommendation about the creation of a common application. If there is a common application for grants and programs, a user will need to know what grants and programs are available.

Ms. Throwe noted that such a database had been compiled to support the Task Force. She asked the Board if that database is sufficient.

Lisa Daniel said they seem to be talking about two different database concepts. One database is to support the report, and one database is an outcome of the report to create a platform for localities. She agreed with Mr. Chu that the former would be of less value.

Ms. Lemoine explained the database to which Ms. Throwe referred was developed as part of the Task Force's effort in drafting Section Five. It includes information like the program name, funding type, and process for applying. While the database is not as comprehensive across all the different funding sources, she considers it very comprehensive for grants and loans.

Ms. Kim said she could see a policy person asking how many dollars have been spent already on stormwater and what the outcome has been of that spending.

Mr. Zimmer said the State Revolving Funds (SRFs) are responsible for providing annually the kinds of reports Ms. Kim is describing. He acknowledged the SRF reports do not cover an entire country, but they could be a potential data point.

Ms. Tarquinio clarified the database for stormwater funding is posted online and will soon be moved to the Water Finance Clearinghouse. She said EPA is looking into how to clearly establish it as the stormwater database created through this report. She wondered if the recommendation should be to keep this database up-to-date and/or enhance it. She also noted the SRF numbers Mr. Zimmer referred to are data points EPA could pull, if the Board would like to include them in the report.

Mr. Holland agreed with Ms. Lemoine that the database is comprehensive, though potentially not as comprehensive as it could be. He suggested the recommendation should be to support and maintain that database.

The Board agreed with Mr. Holland's suggestion.

Ms. Throwe returned to the list of quality review questions. She asked if Section Five addressed the charge as it was given to the Task Force.

The Board agreed it did.

She asked if Section Five had any technical errors or omissions.

Ms. Downs noted there were four case studies left out of Section Five that she felt tied into the report.

Ms. Throwe said Ms. Tarquinio had made note of case studies the Task Force would be adding to the report.

Ms. Daniel said she would like to see a couple of sentences reflective of Mr. Zimmer's point that there are potential savings in stormwater investment.

The Board agreed.

Ms. Throwe asked if Section Five was clear and logical with the discussed modifications.

The Board agreed.

Ms. Throwe asked if the conclusions and recommendations could be supported with the discussed modifications.

The Board agreed.

The Board took a fifteen-minute break and reconvened at 11:00am.

Section Six: Infrastructure Affordability

Mr. Chu reminded the Board Members they are functioning as experts to advise the Administrator. The report comprises a technical document, an Executive Summary, and a Transmittal Letter. The Transmittal Letter will include the most distilled takeaways of the report. He encouraged the Board to keep these pieces in mind. He also noted one purpose of the Executive Summary and possibly the Transmittal Letter is to bring together the sections of the technical report and highlight the holistic points. He reminded the Board that their criteria as an independent board should not be whether EPA would accept their recommendations. The Board is here to advise EPA on what they see. Once the report is transmitted to EPA, EPA will have the final penmanship and authorship for the report to Congress.

Ms. Throwe said the Board needs to pull out and highlight the benefits from stormwater investment, as Mr. Zimmer noted.

Ms. Downs said Section 3.1.1 refers to the benefits outside of stormwater. On page 14, it refers to the Federal Emergency Management Agency's (FEMA) hazard mitigation program and how "the return on investment is four times or even better through cost avoidance and quicker return to normalcy than a do-nothing scenario." She agreed it would be beneficial to reiterate these benefits in Section Six to tie back to the recommendations.

Mr. Holland said the tenor of the report is appropriately technical in nature. He suggested, in the Executive Summary and/or Transmittal Letter, the Board could more directly explain what stormwater management is, why it is important to invest in, and why Congress should care beyond solving specific environmental issues. He noted he would like for that language to be positive in nature.

Ms. Throwe asked if Mr. Holland could help in drafting that language.

Mr. Holland said he would.

Mr. Henifin said during the Section Five discussion there was a question about the dollar figure for the gap in funding. He confirmed the funding gap is annual and found the source document actually refers to a \$7.5 billion gap. He said the Task Force would correct the figure accordingly.

Mr. Chapman moved forward with summarizing Section Six. Section Six focuses on affordability in two ways: the financial capability and financial capacity of the municipality, community, or stormwater provider; and household affordability. Section Six recognizes WEF, the Association of Clean Water Administrators, and the American Water Works Association (AWWA) submitted a white paper to EPA in 2019 suggesting a reconsideration of the household affordability framework. Consequently, Section Six addresses affordability as primarily a municipality concern, though it notes many private property owners are tasked with stormwater responsibilities. The takeaway of Section Six is that the current system is inefficient and extremely decentralized; there is a wide range as to how services are provided, where revenues come from, and how revenues are leveraged. The bulk of Section Six is captured in Table 2 and Table 3. Because the

provision of stormwater management services is decentralized, with many different localities, the Task Force tried to use qualifiers like “typically” and “generally” in the tables. The tables were designed to function as a type of playbook for local decision-makers, presenting sets of available options depending on the institutional framework of a community. Mr. Chapman said the Task Force tried to be agnostic as to the initial revenue stream and indicate the various opportunities and risks associated with different financing methods.

Mr. Holland, the Lead Discussant for Section Six, noted there is a lot of overlap between Section Five and Section Six. He said that overlap comes primarily from the tables describing the sufficiency, uniformity, and capacity of the different forms of stormwater funding and financing. He proposed the Board discuss how to combine the data in these tables into a clear communication point that could then rise to the Executive Summary or elsewhere in the report.

Mr. Anderson noted the current levels in the table are low, moderate, high, strong, and volatile. He wondered if there was a way to better conform this language and suggested to instead use low, moderate, and high.

Mr. Holland acknowledged Mr. Chapman described two areas within Section Six. The first is the capability of the utility to execute projects, and the second is the capacity of the tax base to pay for whatever projects the utility wants to execute. He asked Mr. Chapman if it would be advisable to split up the tables into those two discrete areas and then describe capacity and capability separately.

Mr. Chapman said he is open to Mr. Holland’s suggestion so long as it does not make the table too granular or busy.

Mr. Stannard said the question is what the inflection point or barrier is due to affordability. He asked if affordability has impacted the ability of communities to raise funds to address stormwater management.

Mr. Chapman said the Task Force was not explicit in addressing that question. He finds the obstacles for affordability and political willingness to be implied given the existence of the \$7.5 billion annual funding gap. He acknowledged certain decisions will require political will regardless of cost. If that message is not coming across explicitly, he said he would be happy to amplify it.

Mr. Holland asked if Mr. Stannard is recommending the Task Force make a direct link between the inadequacy of funding and the need for additional capacity that may cause an affordability concern.

Mr. Stannard said the Task Force should consider what portion of the funding gap could be related to affordability issues. He acknowledged there are a variety of reasons for the gap, and political will may be one of the major ones, but political will may also be driven by affordability. He said it would be helpful to make the connection more explicit that affordability can be something that overweighs decision-making at the local level.

Ms. Beecher said she found the tables to be highly contextual. She noted the difference between property taxes and user fees jumped out at her, as she views user fees as being more regressive. She said it is true that, when income is held constant and someone is placed in a more expensive house, there can be a regressive effect. Generally, however, people live in a house that is relatively proportionate to their ability to pay, whereas user fees are more like a sales tax. She wondered if the Board should note the subjectivity of the table and how, in many cases, the outcomes could vary depending on implementation.

Mr. Holland proposed the Board discuss whether they should remove the qualifiers in the table.

Mr. Chapman reiterated the Task Force’s intention to provide a playbook or guidebook approach. He recognized some of the statements in the tables are loaded and explained the authors chose to use qualifiers for that reason. He said he would be open to removing the adjectives and leave the observational text but doing so would result in a loss of value in certain parts of the table.

Mr. Holland asked Mr. Chapman how they expect lawmakers to use the inclusion of the adjectives.

Mr. Chapman said the Task Force Members thought of the adjustives as helping address political will. Most of the text boxes in the tables inform local decision-makers as to what path they would want to pursue or what tools they would want to use.

Mr. Holland asked if the Board should vote on whether to include or remove the qualifiers within the tables.

Ms. Downs suggested they remove only the low, medium, and high levels. She argued taxes are regressive and noted one can be at the lower end of the income bracket in an inherited house. She said user fees are more flexible. She would leave the language alone but perhaps, not knowing the audience, remove the use of low, medium, and high.

Mr. Holland said that when most stormwater utility fees are created they are proportional based on impact, which would not make them regressive by definition.

Ms. Downs clarified she meant to specify property taxes. She agreed with Mr. Holland regarding user fees.

Ms. Beecher noted the progressivity or regression of taxes depends on their design. She said it is very relative and acknowledged it is a debated issue.

Ms. Downs said if one is on the poorer end, the issue is not debated.

Mr. Anderson said he likes the way the table is currently presented.

Ms. Throwe asked Ms. Tarquinio for her input before the Board votes.

Ms. Tarquinio echoed Mr. Holland's point that the information in the table is fairly dense and technical. She proposed including an introduction or high-level summary at the beginning of Section Six, so the work in the table is not lost.

Ms. Throwe said having such an introductory piece could better frame the table. She supported Ms. Tarquinio's suggestion and asked if others agreed.

Mr. Chapman agreed.

Ms. Kim agreed.

Mr. Anderson asked for clarity on what it is they are agreeing to.

Mr. Holland said they are determining the inclusion of a summary at the front of the table and voting on whether to keep the adjectives within the table.

Ms. Throwe clarified they should consider the inclusion of a summary at the front of Section Six, rather than the front of the subsection.

The majority of the Board agreed.

Mr. Holland disagreed, as he thought this table and the funding matrix table from Section Five have a lot of overlap. He suggested framing the summaries of each of those tables in their respective sections, combining the tables, and moving the combined tables to the Appendix.

Ms. Throwe asked how the Board felt about combining the Section Six table with the funding matrix from Section Five and placing it in the Appendix.

The Board agreed.

Mr. Chu noted the timing issue and said it would be a considerable amount of work to combine the tables.

Ms. Daniel said pursuing this suggestion would focus the reader on what the Board is trying to convey by pulling out some of the finer technical information.

Mr. Chu agreed with the concept. He clarified Mr. Holland is suggesting changes to the tables themselves, and there is a question as to what that would look like.

Mr. Holland explained the redundancies between the two tables. The Section Five table has a comprehensive list of potential funding and financing sources, but there is no discussion on the capacity and capability of executing those different sources or their advantages and disadvantages. That discussion is introduced in the table in Section Six. His recommendation is to combine these tables, if possible. In one table, a reader could then look across taxes and general funds, for example, to learn about what they are and the relevant issues with their implementation.

Ms. Throwe agreed with Mr. Chu that this is a heavy lift given the approaching deadline for finalizing the Task Force report. She asked if the Board would be comfortable with EPA and the Task Force Section Leads reworking the tables to the extent they can without returning to the Board for approval.

Ms. Downs asked if they would opt to move the tables to the Appendix if they are unable to combine them.

Ms. Throwe confirmed that would be the alternative.

Ms. Downs said she would be comfortable with that approach.

Mr. Chu clarified there are three options: (1) move the tables as they are to the Appendix, (2) edit the tables and move the tables to the Appendix, and (3) consolidate the tables and move them to the Appendix. He suggested Board Members weigh in on these three options, as they progressively increase in difficulty. If the Board goes with the third option, Mr. Chu said the Board would want to go through email review and approval, which would require additional time.

Mr. Weiss said if they go with option two, the Board still needs to ensure the two separate tables are consistent with one another.

Ms. Throwe said the Board does not have time for option three. She acknowledged the Members agree with moving the tables to the Appendix. To the extent EPA and the Task Force Section Leads can eliminate obvious redundancies, they will. She asked if the Board is comfortable with that approach.

The Board agreed.

Mr. Holland reiterated the tables will also be summarized in their respective sections. He said they should include something in those summaries to indicate the full tables are provided in the Appendix.

Mr. Holland moved to vote on the inclusion of adjectives and qualifiers within the Section Six tables.

Seven Board Members agreed. Seven Board Members disagreed.

Mr. Holland said the Board will be doing more to summarize and contextualize Section Six. If they can do so sufficiently, having some guide or perspective as to how they view the various options in the tables would be helpful to those reading the report.

Ms. Beecher asked if a compromise would be to soften the language to relative terms for the qualifiers (e.g., lower, moderate, higher). In some cases, the Board could then use “indeterminate” or “relatively” when there is a strong subjective element or other factors coming into play.

Mr. Holland added they should also define the qualifiers they use.

The Board voted in favor of Ms. Beecher's compromise.

Ms. Throwe moved to the quality review questions. She asked if the Task Force members have addressed the charge.

Mr. Crooks said there is a cost impact of financing they do not directly address. When there is insufficient funding to support financing, people build projects incrementally. Each one of those incremental steps adds costs for the municipality. The municipality then must integrate these pieces together.

Mr. Weiss reiterated his point on referencing integrated planning, which could help lower costs both with respect to how projects are developed and to the coordination of planning, operating, and spending.

Ms. Downs respectfully disagreed with the premise that building projects incrementally is inherently wrong. She said the Board would need to contextualize a statement about that approach, if they were to add one. She said communities have and can decide to break projects up into pieces to give local and minority communities a better opportunity in the bidding and competition process. She would not want to state that it is inherently wrong to have smaller projects.

Mr. Crooks acknowledged Ms. Downs' point. He said there are ways to get around piecemeal construction that are still inclusive and allow the municipality to have the benefit of efficiency.

Mr. Chu noted the Board should be clear in articulating that household affordability was not within the charge for the report. Otherwise, a reader will intuitively ask why they are not addressing it.

Mr. Chapman said Section 6.3 notes the intentional exclusion of household affordability but not explicitly.

Ms. Throwe asked how Mr. Chu's point could be better addressed.

Mr. Chapman said he was unsure. He noted the metrics for measuring household affordability are incredibly inconsistent.

Ms. Downs said the report has a recommendation that references the Low Income Home Energy Assistance Program (LIHEAP) model, for which she strongly advocated. She wondered if it would help to generally address in Section 6.3 the percentage of the people across the country under the poverty level without being specific as to how that affects water rates.

Ms. Throwe asked if doing so would make it seem as though the Board is addressing household affordability.

Mr. Holland suggested a compromise would be to continue emphasizing the insufficiency of funding to address needs; naturally, a \$7.5 billion annual gap will require new forms of funding and taxes. The Board could then explain that to qualify each of the funding options listed in the report in terms of affordability goes beyond the Board's current charge. The Board could acknowledge new taxes are going to create affordability issues for communities, particularly when trying to make up for such a large gap. The Board could then harken back to that point in the recommendation and state, "To blunt the impact of the additional funding and revenue streams needed to address these concerns, we are recommending there be programs set up to assist with household affordability issues." This language would also indicate that the Board does not expect the full \$7.5 billion annual gap to be filled with federal sources of money.

Mr. Chapman agreed.

Ms. Daniel reiterated the Board should stress the cost of doing nothing somewhere in the report. The cost of doing nothing could, in some cases, be greater than the cost of the options presented.

Ms. Kim said, for each of the sections, the Board needs to provide a paragraph summary that includes the recommendations in the section and the context for those recommendations. The Board should not assume that readers will read all sections of the report.

The Board agreed.

Ms. Throwe moved forward with the quality review questions. She asked if Section Six had any technical errors or omissions.

The Board said it did not.

Ms. Throwe asked if Section Six was clear and logical with the discussed modifications.

The Board said it is.

Ms. Throwe asked if the conclusions and recommendations could be supported with the discussed modifications.

The Board said they could.

Recommendations

Mr. Holland briefly summarized the report recommendations, organized into three categories, as follows:

Stormwater funding and technical assistance

- Education of officials and the general public on the need for sustainable funding sources
- Technical assistance to create sustainable funding sources

Simplification of existing federal grant and loan programs and affordability support

- Creation of a common application
- Expansion of the SRF program and/or Water Infrastructure Finance and Innovation Act (WIFIA) program
- Federal grant funding to pay for affordability programs

Dedicated federal stormwater assistance

- Comprehensive database on barriers to utility creation
- Increase in Clean Water Act section 319(h) grant funding
- New construction grant program
- Percentage of the Farm Bill subsidy set aside for stormwater control projects and programs

Mr. Holland noted it was difficult to find comprehensive information on stormwater infrastructure needs and current sources of stormwater infrastructure funding and financing. These recommendations address how to target more information and uncover where the barriers are to sufficient funding.

Mr. Holland proposed reorganizing these recommendations into two buckets: the provision for additional state and federal funding and the provision for educational and technical assistance. He noted the provision of technical assistance is, in some cases, a form of funding. He said the Board will want to clearly determine where technical assistance is referring to funding to increase administrative capacity and where it is about disseminating information. He also found an important part of implementing these recommendations will be to have a greater flow of information between localities, permittees, states, and EPA at the federal level. Additional grants and technical assistance from the federal government would hopefully increase that flow of information and result in the creation of better programs and better administration of those programs. Lastly, he acknowledged there is a lot of detail in the recommendation about expanding the SRFs and WIFIA program – more so than with any other recommendation. He explained the Task Force Members discussed the SRF options at length. Rather than make one recommendation, they chose to show a myriad of choices and the respective advantages and disadvantages of those choices.

Ms. Throwe opened the floor to discussion.

Mr. Zimmer said he loved the common application recommendation and supports any way in which efficiency can be increased through standardizing processes. He said he is wholly against creating a new stormwater SRF program. He finds the creation of another department would complicate things dramatically. By comparison, the creation of a set-aside for stormwater makes more sense, as the infrastructure of the SRF program is already there to be leveraged. He noted the SRF program started through a construction management grant program in the 1980s. A lot of money was spent in the states, the states gave that money away, and it never came back. He said New Jersey turns around \$3 billion, and it keeps growing every year.

Mr. Holland noted there was a recommendation on making a One Water SRF. He asked what Mr. Zimmer's thoughts would be to that alternative.

Mr. Zimmer said he would want to think about the potential unintended consequences in bringing the SRF programs together. He said, conceptually, it is an interesting idea, but the implementation would be very involved and complex.

Ms. Kim supported Mr. Holland's idea to recategorize the recommendations. She proposed a third category that would then deal with measurement, reporting, and the flow of information between different government players. She noted there is no way to monitor the impact or to understand the resources being deployed using a quantifiable metric.

Mr. Holland said perhaps there is a common reporting standard across the recommendations made in this report. He wondered if it is a matter of reporting on the outcomes of the recommendations.

Ms. Kim agreed. The Board and EPA could then understand the progress and continuing need.

Mr. Stannard said he had not fully considered the administrative elements at the federal and state level to enact a separate stormwater SRF. He noted the construction grant program in the 1980s provided a needed jumpstart for systems because of the severity of the gap in wastewater treatment. That program then evolved into the SRF program. He said the question is whether the stormwater gap is large enough to need such a jumpstart. He recognized part of the problem with this report is that there is no definitive study on stormwater needs or the available stormwater funding. The data indicate there is a gap, but how much of a jump start would be appropriate and, if funding was received through a construction grant program, would it then lead to the next level of expansion for the SRFs to finance capital expenditures?

Mr. Crooks acknowledged the previous discussion about the database of available funding and financing sources created through this report. He suggested the Board note in Section 3.1.3 that the database is now available and should be maintained. Currently, the first recommendation in Section 3.1.3 refers to a database that would enumerate state barriers to implementation. He said he does not know that such a database would be productive given the extent of interpretation involved; what could be identified as a barrier in one state could be an important policy consideration in another. He finds the last sentence of that recommendation, which suggests the use of the 319(h) grant funds to create an incentive framework, has greater applicability. He proposed eliminating the first recommendation as it stands and incorporate its last sentence into the following recommendation about increasing the funding allocation through the 319(h) grant program.

Mr. Holland agreed. His concern with some of these recommendations is they do not go further to say which specific department in EPA will, for example, maintain the database, for whom it will be maintained, for what purpose, and with what money. He agreed the nuances would be far too challenging to outline at the state-level. He said he has a hard time understanding why someone in Wisconsin would want to know the challenges in the state of Michigan.

Ms. Daniel proposed for the recommendation to be about developing a set of state best practices, rather than a database.

Ms. Downs agreed. She said, from her perspective, she could stand to gain from knowing the differences between her operations and those of another municipality or state.

Mr. Holland suggested providing case studies of successfully implemented utilities that had to overcome a state barrier.

Ms. Downs agreed.

Ms. Beecher said she would be cautious about using the term “best practices,” as it requires a level of vetting.

Ms. Downs said she likes the way this section is written. She is not opposed to recombining the categories, but she would not want to lose the greater meaning of the recommendations. She agreed with Mr. Zimmer’s comment on page 16 to add “would create a new layer of bureaucracy” to the disadvantages of establishing a separate stormwater SRF program. She also agreed with his comment on page 14 to add “and resiliency to the community” to the final sentence of the recommendation. She recognized the objections to creating a separate stormwater SRF program, but she does think it should be left in the recommendation as an option. She liked Mr. Holland’s suggestion to turn the database idea into a compilation of case studies. She noted the recommendation to create a common application presupposes the existence and maintenance of a database.

Mr. Kaplan said he focused his review on the Executive Summary and the recommendations and then looked in the body of the report to see if the recommendations were fleshed out. He said the Board can agree that the challenge with the Executive Summary is finding common ground without watering down the key points. On the other hand, some of the recommendations are so specific that they could be more easily dismissed. He said there is little that is controversial about the recommendations for education and technical assistance. He visited the body of the report because he had the impression that federal policy needs to encourage the support and creation of local revenue sources to solve the stormwater gap. He said the Board must be very clear that the creation of dedicated revenue sources at the local level is what is needed to solve the gap, and he thinks some dollar amount should be brought into the recommendations. He then directed the Board to the recommendation regarding the Farm Bill subsidy and noted it is not supported anywhere in the report. He wondered if, for that reason, it should be removed. To Mr. Zimmer’s point, he then said there are SRFs that do a considerable amount of lending for stormwater. It may be helpful for the recommendation to quickly identify and highlight those SRFs as an example of what is possible.

Ms. Throwe noted Mr. Kaplan’s approach to reading the document is likely to mirror how policymakers will read it. She suggested the Board continue looking at the comments on the recommendations following the break.

Mr. Chu agreed there is a lot of conversation to be had. He noted the Board had planned to address the Executive Summary and Transmittal Letter after the break. The Board will need to determine how to resolve almost all the issues with the report at this meeting to move forward. He asked the Board Members to take the time at lunch to read the recommendations, Executive Summary, and Transmittal Letter so, upon returning, they can have a plan for how to proceed and facilitate that discussion.

The Board broke for lunch at 12:00pm and continued their discussion upon returning at 1:00pm.

Ms. Throwe said the Board would spend the next hour discussing the drafted recommendations. The agenda for the meeting was adjusted accordingly. She appreciated the input of the Board Members thus far and noted they need to feel comfortable with the report before moving forward.

Ms. Tarquinio incorporated the revisions of the Board Members into the draft document as Ms. Throwe moved through each recommendation of the report. The report recommendations are provided in bolded text below.

Recommendation: Educate elected representatives, professional administrative leaders and the general public on the need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector.

Mr. Chu said the recommendations should flow from the report sections the Board approved earlier. He asked the Board to think about the connections to the technical body of the document, whether these recommendations are supported, and whether to highlight the recommendations the Board Members feel are most important.

Ms. Lemoine clarified there are recommendations in two places within the report, the Executive Summary on page 3 and the more detailed recommendations starting in Section 3.1.

Ms. Downs said the Board should add, “Educate elected representatives, professional administrative leaders and the general public on the benefits and need for sustainable local stormwater funding and organizational capacity through, for example, advocating for the creation of stormwater utilities...” She noted advocating may not be the right word.

Mr. Henifin said the word “advocating” does not properly align with the intention of the Task Force. The recommendation had been designed around educating these individuals about how to create stormwater utilities and the roadblocks and benefits to doing so. It was not about educating them on how to advocate for utilities.

Mr. Anderson said the way the recommendation reads right now is that the Board is discussing sustainable stormwater funding. He thinks it would make sense to add to the educational component the need for stormwater management and the need for funding. Doing so could also help address political resistance.

Ms. Thrope suggested the phrase in the recommendation should read, “on the need for ongoing dedicated funding,” as opposed to just “funding.”

Mr. Henifin disagreed.

Mr. Anderson said the question is how to accurately link the recommendations to funding. He feels this recommendation currently reads as educating individuals on the need for funding, but it does not acknowledge why that funding is needed.

Mr. Tarquinio noted the next subpart of the recommendation is to educate elected representatives, professional administrative leaders, and the general public on the need for “organizational capacity.” She asked if that addressed Mr. Anderson’s concern.

Mr. Henifin said Mr. Anderson’s point is covered in the last sentence of the detailed version of the recommendation in Section Three. The sentence notes how educational goals and investment directly benefit the health, safety, and economic opportunity for citizens and residents and the overall improvement of water quality.

Mr. Anderson confirmed the sentence to which Mr. Henifin referred is what he felt was needed. He suggested it be shifted higher up than Section Three.

Ms. Tarquinio asked if the Board would like to see the longer, expanded version of this recommendation in the Executive Summary rather than just in the technical portion of the report.

The Board agreed.

Ms. Beecher noted she uses the word “entity” to avoid advocating for one structural model over another. She also wondered if, when the Board refers to organizational analysis and provide a list of strategies, they could include capacity development.

Mr. Zimmer noted his comment to add “and resiliency of community” to the end of the recommendation. He said when speaking to the benefits of stormwater infrastructure, particularly in terms of economic development, it is not just a matter of water quality.

Mr. Kaplan said he would begin the recommendation with something like, “Support the expansion of technical assistance and the development of local stormwater funding through educating elected officials.” He finds the goal is to expand local funding, the means for which is technical assistance.

Ms. Daniel asked what Board Members think should be the primary elevator pitch to the federal government, and she wondered if they should reorganize the recommendations, so the dedicated federal ask is first followed by the technical assistance recommendations.

Mr. Kaplan agreed to reorganizing the recommendations as Ms. Daniel described.

Recommendation: Provide technical assistance and funding to help communities create sustainable funding sources. This could include assistance with funding need assessments, organization analysis, grant applications, and/or establishing a stormwater utility fee.

Mr. Holland noted in prior discussion the Board had suggested the addition of an analysis on affordability issues to tie it back to the affordability section of the report. The Board could fit in some language about how the affordability assessment plays into the organizational analysis piece of technical assistance.

Ms. Kim added to Ms. Daniel's comment and said the Board should explicitly recommend Congress appropriate funds that allow for education and technical assistance. She said it would be ideal to have a dollar figure, but without one, the Board should say "appropriate funds."

Ms. Throwe asked where the Board should incorporate this phrase.

Ms. Kim suggested the leading sentence of the category should be, "Appropriate funds to implement educational and technical assistance." The recommendation then becomes actionable.

Mr. Chu said Ms. Kim's revision would change what Mr. Kaplan suggested.

Mr. Kaplan said he had suggested language to support the expansion and development of local stormwater funding. From what he heard from Ms. Kim, he proposed the Board include language about enhancing and developing local capacity in dealing with stormwater.

Ms. Kim clarified she wants to include language that speaks to the appropriation of money to support what Mr. Kaplan is referring to.

Mr. Crooks proposed the language, "Appropriate funds that would allow EPA to support XYZ."

Mr. Kaplan and Ms. Kim agreed with this language.

Mr. Holland noted the Board had discussed regrouping the recommendations into the following two categories: the provision for additional state and federal funding (e.g., grants, creation of utilities, federal financing) and the provision for educational and technical assistance.

Ms. Kim reiterated her suggestion for a third category about requiring consistent reporting or some means through which EPA would receive consistent information. She said that is not necessarily captured under the two categories.

Mr. Holland asked if the category Ms. Kim is proposing could be incorporated into the recommendation for maintaining a national database. Otherwise, the Board would be considering a broader category on information sharing with the community, separate from technical assistance and education.

Ms. Throwe agreed the latter would result in a broader category but recognized the importance of direct engagement in implementation.

Ms. Kim clarified the first category is about appropriating money, the second category is asking for money for technical assistance and education, and the third category is to require information collecting and data source maintenance. She

finds this would be a third category because it supports and justifies the reasons for the other recommendations. She asked how they would justify the importance of stormwater in the future without any national studies or data.

Ms. Throwe noted the Board is still on the first recommendation.

Ms. Kim said there are two discussions taking place, one on the organization of the categories and another on fleshing out each of the recommendations.

Ms. Downs said she thought they had agreed on two categories. She agreed the Board should include something about reporting, but she did not think it should be a third, stand-alone category. She seconded Mr. Holland's suggestion that this point could be a part of the recommendation on maintaining a national database.

Mr. Chapman said in terms of building financial capacity of communities, the Board discussed how cost avoidance is equally important to the enhancement of revenues, though it is hard to measure. Increasing O&M efficiency or public education can also create financial capacity; not everything has to require appropriations.

Mr. Weiss said the second recommendation on providing technical assistance and funding to create sustainable funding sources could be broader. Instead of talking about the creation of sustainable funding sources, the Board could use the language "sustainable stormwater operations." He said it is not just about funding, but also operational efficiency.

Ms. Throwe said she is not sure where the Board has landed. She asked Ms. Tarquinio to review the previous discussion.

Ms. Tarquinio noted the Task Force had decided not to number the recommendations out of a concern for providing an artificial ranking. She said the edits for the first recommendation were to add "benefit and need" for sustainable funding and "resilient communities" to the last sentence. She suggested the Board defer the discussion on recommendation categories for later into the meeting.

Mr. Chu said there are currently nine recommendations and three categories. He asked Mr. Holland how the Board would put those recommendations into two bins. Otherwise, Mr. Chu would suggest keeping the three existing categories and instead consider moving those categories up or down within the section.

Mr. Holland said it would be simple to have two categories, one for technical and education assistance and one for new funding. The recommendations would be grouped as follows:

- Technical and Education Assistance: education of officials and the general public on the need for sustainable funding sources; technical assistance to create sustainable funding sources; creation of a common application; comprehensive database on barriers to utility creation.
- New Funding: expansion of the SRF program and/or WIFIA program; federal grant funding to pay for affordability programs; increase in 319(h) grant funding; new construction grant program; percentage of the Farm Bill subsidy for stormwater control projects and programs.

Ms. Throwe asked if the Board was comfortable with this approach to organizing the recommendations.

The Board agreed.

Ms. Kim said she is comfortable with not creating the third category she recommended.

Mr. Weiss said the Board should put integrated planning into the second recommendation.

The Board agreed.

Mr. Zimmer confirmed with Mr. Chu that the report is due to Congress on April 23, 2020. He asked when EPA wants the report from the Board.

Ms. Tarquinio said EPA would want to receive the report as soon as possible. She recognized it must be a product with which the Board is comfortable. By the end of this EFAB meeting, if there are substantial changes that require a subsequent call with the Board, then the Board would have to have a call the week of March 2, 2020. EPA would need to have the report, at the very latest, by the end of that week, though such a timeline would be tight.

Mr. Zimmer said the Board will want as close to a final product as possible by the end of this meeting.

Ms. Thrope acknowledged the Board Members need to address any major concerns they have with the report, even with the approaching deadline. Should the Board choose to have another call, however, EPA would need to go through the process of opening it up to the public.

Mr. Chu agreed that the Board needs to be able to support the final report when it is provided to the Congress. He noted EPA is not just waiting for the Board but is actively working on other aspects of the deliverable for Congress.

Ms. Tarquinio confirmed Mr. Chu's statement. EPA staff have also been supporting the development of the report, so they have a sense of what to expect from the Board.

Returning to discussion of the recommendation, Ms. Kim said the Board's recommendation is not only about creating but also maintaining. The Board wants technical assistance at the beginning and throughout the length of the project to provide continuity.

Mr. Anderson said the concept of utility fees, while not a recommendation, subliminally floats throughout the report. He noted the Board provides a list of different options and asked if the report should cite more of them, rather than continually referring to utility fees as the example.

Ms. Beecher agreed. Within the recommendation, she proposed using "revenue instruments" instead.

The Board agreed with Ms. Beecher's suggestion.

Recommendation: Provide for a common application for different federal grants across all federal agencies.

Mr. Anderson asked if the Board should broaden this recommendation beyond grants.

Mr. Zimmer said, speaking as a representative of an SRF, they do not just propose in their intended use plans how they will use the funds from that year. They also explain how they are going to use funds received over the last 30+ years. He noted the structure of the SRF program is very different from a grant program. He said he has not thought a lot about whether the program should include loan funds with grant funds, but he imagined it would complicate the program dramatically for recipients like him.

The Board voted they are comfortable on the recommendation as is.

Recommendation: The SRF is an integral tool among the many infrastructure financing options available to communities. Whether stormwater receives consideration of its own through a new SRF program, or receives less restrictive eligibility considerations and larger appropriations within the existing Clean Water SRFs (CWSRF) or eligible Drinking Water SRF (DWSRF) projects, it is the view of the Task Force that stormwater would benefit from an additive – not zero-sum – recurring financial commitment from EPA. This could be achieved by the implementation of one or more of the following, each of which is outlined below:

- **Create a new SRF program exclusive to stormwater programs and projects.**
- **Expand the existing WIFIA program or fund the Army Corps of Engineer's Watershed Implementation Plan.**

- **Create a specific stormwater set-aside in the existing CWSRF framework and increase awareness/guidance on the CWSRF for stormwater projects, including the Green Project Reserve program.**

Ms. Tarquinio noted the more detailed description of this recommendation is on page 16, including the advantages and disadvantages of each option.

Mr. Zimmer said the other recommendations are all introduced by an action verb. He suggested the Board revise this recommendation to read, “Provide additional – not zero-sum – funds, through one of the options listed below” and then explain that the SRF is an integral tool.

Ms. Kim said she had the same comment.

Mr. Holland noticed incongruity between the Executive Summary and the details on pages 16-17. This recommendation as presented in the Executive Summary does not include the option of creating a One Water SRF program.

Ms. Downs noted the addition of Mr. Zimmer’s disadvantage to creating a separate stormwater SRF program. She asked if the Board could move the first sub-bullet to be third and move the third sub-bullet to be first, so the reader does not see the creation of a new stormwater SRF program as the first option. She said someone could mistake the list for a hierarchy, so the Board should be mindful of the presentation.

Mr. Holland suggested the Board move the sub-bullet for creating of a new stormwater SRF program to the bottom and include Mr. Zimmer’s additional disadvantage language.

Ms. Lemoine suggested all the SRF options stay together, followed by the WIFIA option. The organization would therefore be as follows: create a specific stormwater set-aside in the existing CWSRF framework, create a One Water SRF, create a new SRF program exclusive to stormwater, expand the existing WIFIA program or fund the Army Corps of Engineer’s Water Infrastructure Program.

Mr. Kaplan said the phrase “not zero-sum” should be replaced with “no offsets to other programs” for clarity.

Ms. Lemoine noted the first sentence cannot only reference SRF programs, as the proposed options include WIFIA. She suggested using “existing federal programs” as a substitute.

Recommendation: Use federal funding or technical assistance to help utility customers who are financially struggling to pay their water, sewer, and stormwater utility bills (similar to Low Income Home Energy Assistance Program, LIHEAP).

Mr. Henifin said he does not understand the technical assistance piece of this sentence. He does not know that there is technical assistance in LIHEAP, as it is an appropriation that flows through the states to fund programs.

Mr. Crooks said he read this recommendation as applying more to the category of funding rather than to the category of technical assistance. He also wondered if referring to water utility bills is outside of the charge.

Mr. Henifin said with One Water, bills are rolled up and whenever affordability is evaluated, it is for all water costs. He suggested the Board include language to emphasize stormwater to ensure it is eligible for a federally funded water bill assistance program.

Ms. Lemoine said assistance with water and wastewater would provide additional bandwidth to afford stormwater as well, so the One Water concept is important.

Ms. Downs suggested the language, “who are economically challenged in paying their utility charges (whether stormwater, drinking water, or sewer).” She said many utilities may be collecting sewer fees in their stormwater fees, so the Board cannot ignore it.

Mr. Anderson proposed the language “paying their stormwater charges,” as it fits the charge and eliminates the limiting word “utility.”

Ms. Kim agreed. She said if the Board specifies “stormwater charges,” it is not necessarily making someone pay indirectly or directly.

Mr. Kaplan said, in response to Mr. Chu’s comment about the role of the Board, he is willing to go beyond the Congressional mandate. Affordability is an issue for both water and wastewater, and he feels it would be too narrow and confusing to limit it to stormwater.

Mr. Henifin said the last paragraph in the more detailed recommendation addresses how this could be a matter of making water costs eligible within the existing LIHEAP program or creating a separate program. In the recommendation, referring only to stormwater charges does not eliminate the ability of the program to pay for other charges and may not distract the reader as much.

Mr. Kaplan said his concern is the reader may not go deeper into the report.

Ms. Thrope asked if the Board could adjust the recommendation to address Mr. Kaplan’s concern.

Ms. Downs shared Mr. Kaplan’s concern, but she is not sure what the solution would be.

Mr. Henifin proposed the language “water-related charges.”

Mr. Anderson proposed “water-related charges, including stormwater charges.”

The Board agreed with Mr. Anderson’s suggestion.

Recommendation: Build a comprehensive national database that enumerates state barriers to implementation of new stormwater revenue sources such as user fees and/or any state restrictions on existing fees or charges.

Ms. Tarquinio noted that the Board had previously discussed that this recommendation refer to case studies, rather than a database.

Mr. Crooks said the discussion this morning had been to change the recommendation to maintaining the database of stormwater funding sources created during this process and supplement that database with case studies of successfully overcoming barriers.

Ms. Thrope proposed the language, “Build and maintain comprehensive national case studies...”

Mr. Chapman agreed. He said the recommendation should be written in the affirmative, rather than the negative.

Ms. Kim said the recommendation was for a comprehensive national database on federal and state financing and funding sources that could also include case studies. The idea is to maintain the compiled spreadsheet and get back as much data as possible to understand how much funding and financing is being put into stormwater.

Ms. Daniel proposed the following language: “Build and maintain a compendium of available revenue sources and case studies to assist states...”

Ms. Kim said there are three allocations pertaining to operating revenue: revenue sources, grants, and other financing programs. The Board does not currently say anywhere that it wants to maintain all three.

Ms. Daniel noted possible revenues would be any kind of revenues, whether self-generated or accessed from elsewhere.

Ms. Kim said there are also capital financing programs, which are not revenue.

Ms. Tarquinio said when the Task Force Members were putting this recommendation together, there were two things they tried to address. The first was a national stormwater database with different funding sources and revenue types. The second was a compendium of what is occurring in each state, notably the state barriers to prevent the pursuit of the funding sources assembled in the database.

Ms. Kim asked if any of the recommendations capture that these databases and resources will need to be maintained.

Ms. Tarquinio said there are two different points here. She said she wants to clarify the original intention of the recommendation, which was to look at and provide a list of the state barriers and challenges to the funding sources provided. Ms. Kim's point is about ensuring the information is maintained.

Ms. Daniel suggested the language, "Build and maintain a compendium of possible revenue sources and case studies to assist users in identifying generally accepted funding mechanisms."

Mr. Holland noted these case studies are supposed to help with the creation of new revenue sources. He suggested the Board be direct and use the language, "... to assist users in the creation of new revenue sources."

Ms. Thrope turned to Ms. Kim's suggested recommendation about maintaining the information being collected and provided.

Ms. Downs wondered if that suggestion would belong under this recommendation or under the recommendation for creating a common application. She acknowledged that to utilize the common application, there must be an existing database.

Mr. Holland asked if the content of Ms. Kim's recommendation and the case studies would be in the same database or website page for someone to access.

Ms. Kim said the original intent was to highlight these case studies. She did not want to mitigate their importance.

Mr. Holland said there is a web portal for this – the EPA Water Finance Center. He suggested EPA create a page on this web portal that contains this information. Then EPA would need funding for the administration and upkeep of that portion of the website.

Mr. Henifin said this recommendation was intended to be about state-by-state barriers, similar to Jeff Hughes' work at the EFC at the University of North Carolina at Chapel Hill. He noted how far the Board has drifted from that original intention. He wondered if the Board should strike the recommendation or take up the other recommendations being presented. Since it would be a good fit for the EFCs, he wondered if the recommendation should be to provide funding for the EFCs to do this.

Ms. Beecher wondered how useful it would be for states to know what other states can do. She agreed it is useful for research and to inform people about possibilities, but each state would have to work within its own institutional frameworks. She acknowledged information always has benefits, but she was also thinking about possibly striking the recommendation.

Mr. Anderson suggested the Board add a period after "case studies" and delete the rest of the recommendation. He thinks for an EFC to identify what is wrong in a state or what might be done is somewhat presumptive. He asked how an EFC would evaluate that. He said the way to address it may be through exception (e.g., Colorado allows special districts, but Tennessee does not). He said the Board should make the recommendation affirmative, rather than pointing out or implying what is wrong in different states without a basis for doing so.

Ms. Throwe agreed the Board has moved away from the original recommendation.

Ms. Beecher suggested the recommendation comprise case studies and other resources. She said combining revenue sources with case studies seems like a nonparallel. She suggested the Board keep the recommendation at a generic level.

Mr. Kaplan noted part of every SRF application is to provide the revenue source for repayment. He asked Mr. Zimmer, if there was an expansion of clean water lending dedicated to stormwater, whether the legislation in New Jersey would prevent utilities from accessing that funding.

Mr. Zimmer said if the bill required certain projects to be identified and prioritized with the funds, possibly. As it stands right now, no. He said his SRF does a lot of different projects in New Jersey, including remediation, and is not limited by the legislation in the state.

Ms. Downs said if the Board is leaving the recommendation in, the proposed modifications are making it more useful. She suggested changing the language to “help users identify successful stormwater funding and financing approaches.”

Ms. Kim noted there are case studies, but she is asking about a compendium of federal grants and programs.

Mr. Henifin said the Board should put what Ms. Kim is referring to in the common application recommendation. Mr. Henifin voted with Ms. Downs to drop this recommendation.

Mr. Stannard noted this was his least favorite recommendation.

Mr. Zimmer explained why he believes this recommendation should be included. Camden County Municipal Utility Authority (CCMUA), in a poor area in New Jersey, was run by a visionary Andy Kricun. Mr. Kricun borrowed over \$200 million in the last 20 years to update CCMUA’s plan. The amount of money he saved in O&M costs because of these new projects was so great that he could address non-revenue producing projects like stormwater issues and odor reduction issues. He was still able to drop the per annum rate that he charged from \$337 to \$315. Mr. Zimmer said a report on this story is being developed with the intent to share it with every mayor and system in New Jersey. The storyline is one needs to invest to save. He finds it is a case study that every politician in the state should get behind, and similar case studies should be made available to others in the nation. There are case studies about investment returns and benefits that will be very helpful for other systems to read. If there was a central place where he could go for such information, he would want it.

Ms. Daniel asked if EPA already has a compendium of case studies.

Ms. Tarquinio said EPA does not have one that addresses these state barriers and gaps. She noted, through the process of creating the report, the Board has now provided over 20 case studies.

Mr. Anderson seconded Mr. Zimmer’s comment. He thinks the real value of this recommendation is at the state level.

Mr. Holland said the Board will have to include that there is a need for funding to build and maintain this case study platform.

Ms. Throwe asked for a vote on whether to include the recommendation with the proposed modifications.

The majority of the Board voted to leave the recommendation in the report with the aforementioned modifications.

Recommendation: Increase annual funding allocations for and modify the 319(h) grant program to allow and encourage local capacity building, utility fee study and implementation, asset management, and remove restrictions on use of grants funds for Municipal Separate Storm Sewer System (MS4) permit compliance.

Mr. Chapman noted the Board Members should specify they are speaking about financial capacity, not physical system capacity.

Mr. Henifin said it is not just financial capacity, though. It is also technical capacity. He agreed it was not physical.

Mr. Crooks said the Board should leave the language as is, so it is all encompassing.

The Board voted to keep the recommendation.

Recommendation: Develop a new construction grant program specifically for stormwater projects, similar to the federal Municipal Construction Grants Program that funded the construction of wastewater treatment plants.

Mr. Zimmer asked why this recommendation is not included as one of the sub-bullet points under the recommendation to expand or alter the existing SRF program.

Mr. Henifin said if someone sees this suggestion included in the SRF recommendation, they will likely think of it as a loan program. The intention of this recommendation was to have it stand on its own as a construction grant program.

Mr. Zimmer said he understood Mr. Henifin's point.

Ms. Throwe asked for a vote.

The Board voted in support of this recommendation.

Recommendation: Given the link between agricultural pollution and mandated stormwater pollutant reduction targets for impaired streams, a Farm Bill Federal subsidy dedicated to stormwater programs would also be valuable. Require 10 percent of US federal farm subsidies (all programs) be re-directed toward stormwater/nonpoint impacts in same watershed where recipient farm is located.

Ms. Kim asked how they arrived at 10% as a set-aside.

Mr. Henifin said it was an arbitrary amount to get to approximately \$2 billion a year. He felt less money would not be worth it and much more would be a stretch. He noted the Task Force members spoke a lot about new programs and funding, but they did not determine a way to get to revenue generation to add to the bottom line. There is a lingering question of how the federal government will fund the Board's recommendations. Mr. Henifin also recognized 60% of the nutrient sediment load in the Chesapeake Bay is from agricultural land and in the Gulf of Mexico it is 70%.

Mr. Kaplan asked if, given the time frame, there would be enough time for a consultant to do a short piece on the importance of agricultural runoff as a source of pollution.

Ms. Throwe said that would not be possible by the deadline.

Ms. Tarquinio agreed. She said the Task Force Members discussed whether they should look at agricultural issues, specifically runoff, and decided it would be too large in scope. They also returned to the language in AWIA and found it references a lot of stormwater infrastructure that is fairly tied to developed areas. They ultimately decided it was outside the purview of this specific request.

Mr. Holland said this recommendation would raise more questions than it answers, and it does not get at the heart of what it is trying to do. He also finds it would be politically toxic. He noted there is a Natural Resources Conservation Service (NRCS) program that provides funding for field practices and watershed remediation. He does not think the Board has enough time to craft a new recommendation that would expand the NRCS program to provide the type of funding sought through this recommendation. His personal preference would be to remove it.

Mr. Zimmer seconded Mr. Holland. He said agriculture is one of the oldest and most powerful constituencies in the country, and he does not see this recommendation as feasible. He suggested one option may be for Congress to give 10% of agriculture subsidies to EPA to create a program that states could use for the farming community.

Ms. Kim agreed with Mr. Holland that the Board should strike this recommendation. She considers it the Achilles heel of the report and a potential reason for members of Congress to dismiss the other findings.

Ms. Downs agreed. She noted the Task Force did nothing in the report to explain this recommendation further. She would rather see something acknowledge that things need to start moving in this direction. She wondered if the Board could propose studying the impact between farming and stormwater. She noted there are likely a lot of studies like that, but the Board could acknowledge it without starting a war with the agricultural sector.

Mr. Anderson said he likes the idea of a recommendation of this kind. He noted how a lot of the report is directed at an urban or built environment. The Board ignores what they know are documented agricultural contributions. He said the Achilles heel is the inability to support the 10% figure. As opposed to studying the issue, he suggested the Board say the agricultural subsidies should be conditioned on compliance with stormwater best management practices. Presumably, subsidy recipients must comply with federal laws to receive the subsidy anyway. He agreed with Mr. Zimmer that there are powerful lobbies playing both sides, but the job of the Board is to make a recommendation. He said to ignore the contributions of agriculture to stormwater is an issue.

Mr. Henifin said the recommendation was designed to acknowledge that farmers are doing what they can. This recommendation is a way to redistribute some of the federal dollars from the Farm Bill. He noted he did not expect it to reach the final draft of the report, but he agrees there is value in having a discussion-starting recommendation in the report. He suggested maybe it is not a matter of citing 10% specifically but rather “a portion” of farm subsidies. He noted a lot of the money from farm subsidies goes to large farms and rich farmers.

Mr. Zimmer suggested slightly revising the language to, “consider providing a portion of the annual appropriations to X.” In that way, the Board is not saying it should be required or placing a specific percentage on it.

Mr. Chu said if the Board decides to remove this recommendation, one way to proceed would be to address agriculture as a separate topic. There are a lot of constituents in the federal government and in state governments who are interested in it, and he thinks it is worthwhile to have a more deliberate approach to the topic. Tomorrow, the Board will have a panel to learn more about what different offices in EPA are working on with regards to small communities. The Board could have a similar panel specific to what is happening in the agricultural space. One of his observations is there is nothing in the technical report that addresses this issue. Mr. Chu stressed he is not passing a judgement about whether it should be included but rather noting the existence of a different path forward on the topic. It is an area a lot of people are working in, and the more information the Board has as to the regulatory and monetary constraints of farmers, the better set of recommendations it could develop.

Mr. Holland agreed with Mr. Chu. He said Section 2.4 specifically notes the report does not address agricultural water pollution. He noted if the Board was to consider a recommendation to help the funding gap, there is the Environmental Quality Incentives Program (EQIP) through NRCS that exists to address water quality challenges on farms.

Mr. Henifin said the Board should strike the recommendation rather than try to find a compromise.

Ms. Daniel said she liked Mr. Holland’s point. If there is a program for which Board Members could suggest increasing funding and affect the agricultural space, this would be their opportunity. She noted this is also the Board’s opportunity to have direct access to Congress, rather than have their report end at EPA. She does not want to take that opportunity for granted.

Ms. Thrope asked for a vote on how to proceed with the recommendation.

The Board tied between striking the recommendation and including it with modifications. No one on the Board voted to leave the recommendation in its current state.

Ms. Kim clarified there are two potential modifications. One is to redirect money going towards agriculture. The other, which she preferred, is to add money to an existing program to gain allies in stormwater.

Ms. Daniel suggested the language, "Consider providing additional funding to EQIP and consider designating that funding towards stormwater projects."

Mr. Holland asked Ms. Throwe if EQIP would be the right program to specify.

Ms. Throwe said EQIP is one of the potential programs, but there is a match-concern and a concern for the availability of funding. EQIP may be maxed out for this year, and demand is significant. If the Board was to recommend expanding EQIP, it would want to consider a specific designation for stormwater.

Ms. Downs asked if EQIP is a farm program.

Ms. Throwe said EQIP is a U.S. Department of Agriculture (USDA) program within NRCS.

Mr. Henifin said this recommendation was never intended to deal with agriculture and its impact on stormwater. He reiterated how the report does not address agriculture at all.

Ms. Throwe agreed with Mr. Henifin. She is worried about the Board going down the path of agriculture. She held a second vote as to whether the Board should remove this recommendation from the report.

The majority of the Board agreed to delete the recommendation.

Mr. Chu asked Mr. Zimmer, who voted to keep the recommendation, if he could accept this change.

Mr. Zimmer said he could.

The Board took a five-minute break before reconvening at 3:34pm to discuss the Executive Summary.

[Executive Summary](#)

Ms. Throwe noted the recommendations in the Executive Summary would be updated to reflect the Board's recent modifications.

Mr. Kaplan asked if it would be possible to receive a draft of the recommendations to then review the Executive Summary on Thursday morning.

Ms. Tarquinio said she would be able to revise the recommendations tomorrow.

Mr. Chu asked if it would be possible to receive something from Ms. Tarquinio by the end of the day tomorrow. The Board Members would then review them on Wednesday night to be able to discuss on Thursday.

Ms. Kim confirmed they are referring to the recommendations within the Executive Summary.

Ms. Tarquinio said she could provide the redrafted recommendations in line with Mr. Chu's proposed timeline.

Ms. Throwe moved to discussing Section One, the opening of the Executive Summary. She asked if the Board had any proposed changes.

Ms. Downs said, at the end of the second paragraph, the report starts to use "stormwater utility fees" and "stormwater user fees" interchangeably.

Ms. Kim asked about the role of the different sections within the Executive Summary. She stressed it is the most important document of the report and finds it needs to serve three purposes – educating the layman on what stormwater is, explaining why it is important, and presenting the recommendations in a digestible way. She believes the purpose of the report should be the last thing talked about in the Executive Summary.

Ms. Throwe asked for feedback on Ms. Kim’s comment.

Angie Sanchez agreed with the three purposes listed by Ms. Kim. She said the reader should understand what stormwater is and why they should care. She said the report could also note that, without political will, there could be serious consequences.

The Board voted in agreement with this suggestion.

Ms. Throwe moved to discussing Section 1.1, “Infrastructure Funding Task Force Report and Charge.”

Ms. Kim said Section 1.1 should be at the end of the Executive Summary.

Ms. Downs disagreed. She said the charge should be upfront to clearly identify why the Task Force wrote the report.

Mr. Crooks seconded Ms. Downs’ comment. He thinks the Board needs to explain why they have developed the report, frame the questions, and present the recommendations.

Ms. Throwe asked for a vote.

The Board agreed to keep Section 1.1 where it is.

Ms. Tarquinio asked if the Board still wants to add “and financing” to each of the bullets in Section 1.1.

The Board agreed.

Ms. Throwe moved to discussing Section 1.2, “Local Stormwater Funding Efforts.”

Ms. Downs questioned the first sentence of the second paragraph which reads, “Conversations in recent years are shifting from ‘how to develop stormwater utilities’ to the need for innovative funding strategies.” She wondered if conversations about stormwater have completely shifted, as it suggests. She said it would be more appropriate to say, “Conversations in recent years have begun to shift...”

The Board agreed.

Mr. Holland said this is where the report should start building the case for the lack of sufficiency in funding and for the recommendations the Board is making to address it. He does not feel the report makes a strong enough case in Sections 1.2 or 1.3 about the gaps and the justification for why the Board is focused on the two recommendation categories.

Mr. Kaplan added the report needs to make clear that there is inadequate funding at the local level, the local communities need technical assistance in creating and managing their stormwater utilities, and that assistance can be used to help evaluate some innovative programs. He finds having an entire paragraph on the various integrated programs is detracting from the message that funding at the local level needs to be developed and expanded.

Mr. Zimmer asked if the Board is looking to add “and financing” to every time the word funding is used in the report. If so, he said he has an issue with the notion of “insufficient funding *and financing*.” He reiterated, as a capital markets professional, it is not an issue that there is a lack of financing. If someone says they want to borrow funds from him, he will find them funds. If someone says they do not have the monies locally to support a local financing program, that is a very different issue.

Ms. Tarquinio said her understanding was the addition of “and financing” would just pertain to the sub-bullets in Section 1.1 that detail the tasks with which the Task Force was charged. As such, Mr. Zimmer’s comment would not apply.

Mr. Weiss said the reference to green bonds in the second paragraph of Section 1.2 should include “sustainability bonds.”

Chris Meister agreed with Mr. Weiss.

Ms. Kim said, building upon Mr. Holland’s comment, Sections 1.2 and 1.3 should be combined into one problem statement. She said the problem statement needs to support the two categories of recommendations. Specifically, it needs to speak to the lack of capacity, or why programs need to be funded that provide capacity building. It also needs to specify that the Board does not know the exact numbers, which is why additional programs dedicated to stormwater are needed.

Ms. Throwe asked if others agreed with Ms. Kim.

Ms. Downs said she finds it to be less confusing if the report splits up local and federal stormwater funding. She does think the distinction needs to be quantified more.

Mr. Anderson said Section 1.2 is more about how the increasing awareness of the problems and advancing potential mechanisms. It does not tie in as closely as he would think to local funding efforts. In the next paragraph, there is a statement that stormwater is as important as the federal highway system. Mr. Anderson noted there is a lot of opinion in that statement and suggested the Board rephrase it. He also said the report needs a quantitative statement of the problem and to add a line that defines why local stormwater funding is inadequate. Doing so would allow for a natural transition into Section 1.3, “Federal Stormwater Funding Support.” Section 1.3 then leads into the recommendations and the need for appropriations.

Mr. Crooks proposed focusing on the problem statement or funding challenges in Section 1.2. It could have a lead-in paragraph about the multiple-billion-dollar shortfall. Then subsection 1.2.1 would focus on local funding and subsection 1.2.2 would focus on federal funding. With this approach, both local and federal are captured under a problem statement up front and quantified in a way that captures the entire market.

Ms. Beecher asked about the inclusion of state funding, as the report currently references local and federal.

Mr. Crooks proposed one section for state and local funding and a second section for federal.

The Board agreed with Mr. Crooks.

Ms. Throwe said Ms. Tarquinio would revise the recommendation portion of the Executive Summary.

Ms. Tarquinio said she would also try to integrate the other modifications as much as possible before Thursday.

Mr. Chu asked if it would be possible for a subset of the Board to integrate the other proposed changes to the Executive Summary, as they will require additional writing.

Mr. Meister, Mr. Stannard, Mr. Chapman, Mr. Holland, and Mr. Anderson volunteered to help in redrafting the other portions of the Executive Summary.

Ms. Throwe acknowledged the Board does not have time for a discussion about the Transmittal Letter. She said the Letter, in its current state, is too vague. She asked if there were a couple of Board Members who would work with her to enhance it.

Mr. Zimmer volunteered to help Ms. Throwe.

Mr. Chu said the draft of the Transmittal Letter currently reads as a description of the process. He suggested the Letter should be akin to what one would say to the Administrator. He also noted it should reflect the Executive Summary, which may delay the Board's ability to work on it.

Ms. Throwe agreed Board Members will have to wait for the Executive Summary to take shape before finalizing the Transmittal Letter.

Mr. Chu said if the five-member team putting together the Executive Summary could provide a redrafted version by Thursday morning, they could review it as a Board. Otherwise, Board Members will have to hold a subsequent call to vote on the report.

Ms. Throwe asked *Stephanie Sanzone* of the EFAB staff if the Board could take a vote on moving forward with the report at this time.

Ms. Sanzone said her sense is there are too many pieces of the report still pending to hold a final vote today.

Ms. Throwe agreed and said the Board would vote at a later time.

Environmental Finance Centers

Ms. Throwe introduced *Christopher Dodson* and *Medessa Burian* from the EFCs to provide updates on their activities.

Mr. Dodson is the President of the EFC Network and Director of the EFC at Syracuse University in EPA Region 2. Ms. Burian is the Assistant Director of the EFC at the University of Maryland in EPA Region 3. At the next EFAB meeting, *Martha Sheils* from the EFC at the University of Southern Maine in EPA Region 1 will attend as the new president of the Network.

Mr. Dodson thanked the Board for their discussion and provided a summary of what the EFCs do. There are 11 EFCs, one for every EPA region and another that is not EPA-supported. Mr. Dodson noted the topics the Board is addressing are well-aligned with the work of the EFCs. The EFCs provide technical assistance. When EFAB writes these reports, it is an opportunity for EPA to use the EFCs as a vehicle to implement their recommendations. EFCs have knowledge, expertise, and the relationship with both EFAB and EPA.

Ms. Burian said she was very encouraged by the Board's conversation. She described EFC work as falling into two buckets. The first bucket is related to education and technical assistance. EFCs communicate actively with their communities to understand their needs and drivers. Stormwater, for example, can be framed in a lot of different ways (e.g., local economics, public health, flooding, infrastructure damage, impacts on businesses, urban heat island effects, green infrastructure). The second bucket deals with resource building and the creation of decision-support tools to serve a broader audience.

Ms. Throwe acknowledged there are emerging trends around the country for which the EFCs are providing support. As EFAB considers new charges, she asked where Mr. Dodson and Ms. Burian see these new trends emerging.

Mr. Dodson said they came prepared to talk on behalf of the entire EFC Network. They are starting to look at rural stormwater needs more, particularly with increasingly severe and episodic rain events that damage transportation infrastructure and jeopardize water quality. The maintenance of that transportation infrastructure, particularly in rural areas where the highway department tends to want to get the water out faster, is antithetical to what they want to take place during these storm events. The EFC Network is also looking at rural stormwater asset management (e.g., ditches, culverts, streets) as stormwater infrastructure. The EFC out of Michigan Technological University is looking at a "one infrastructure" approach, treating transportation infrastructure as stormwater infrastructure and vice versa. Another notable trend is related to small community resiliency. The Network is finding that small, generally rural communities are hollowing out both demographically and with regards to their infrastructure. Sometimes EFC staff will work with a community intending to fix its utility and set up an asset management plan, but they then find their first problem is an

aging demographic; those in the room will not know who is going to be there in 30 years. EFCs have been increasingly looking at the social and economic status of these communities.

Ms. Burian said affordability and equity are also emerging topics. Her EFC is working with the EFC out of the University of North Carolina at Chapel Hill on an affordability project that is evaluating household and community affordability metrics for water systems. They are reviewing case studies of mid-sized communities across the country to look at their affordability concerns and how they are dealing with them. The Network is also moving towards talking about integrated water resources management, or a “one water” concept. Ms. Burian noted costs for water services are continuing to increase. Moving forward, it will be important for the Network to look at these systems and the water cycle holistically. EFCs will need to consider how they can bring about cost savings for communities through an integrated system.

Ms. Downs asked what they mean by mid-sized community.

Ms. Burian said they define mid-sized communities to be 100,000 people or less.

Ms. Downs asked that they consider other urban cities that may not fall in that population-based category. She noted the poverty rate is so high in New Orleans that she would think the city’s affordability issue rivals that of some mid-sized communities.

Ms. Burian said they would love to expand the communities considered, but she noted that the initiative is EPA-funded and the agency chose to target cities of that specific scale.

Mr. Dodson said he would send Ms. Downs a report for the City of Buffalo. While Buffalo also has a smaller population than New Orleans, it may be somewhat relevant.

Mr. Zimmer said his bank would have a huge interest in the studies the EFCs are conducting regarding stormwater and transportation projects. He asked where he could find that information.

Mr. Dodson said the short answer would be for Mr. Zimmer to reach out to him personally, or the current president of the Network. Ms. Thrope also has strong ties to the EFC Network. One of Mr. Dodson’s desires would be for EFC representatives to speak with the Board more often. He finds when listening to the discussions Board Members are having, he wants to be able to have them directly call him or vice versa.

Ms. Thrope emphasized how many reports and studies the Network has produced. She confirmed the Network website would also show the latest president and their contact information.

Mr. Dodson said the Board can also look at the Water Finance Clearinghouse, where the Network posts a lot of its resources.

Mr. Chu said the different EFC websites are very well-done and listed in one place by EPA. The question is whether the current studies the EFCs are working on are posted there. In those cases, one would need to contact the EFCs directly.

Mr. Anderson asked how the Board could take better advantage of the resources that the EFCs provide and whether the EFCs are at capacity.

Mr. Dodson said the EFCs are almost never at capacity. He noted some of the EFCs are multi-million-dollar centers and almost all are at universities where they can rely on undergraduate and graduate students for cost-effective labor.

Mr. Anderson asked what kinds of schools the EFCs are affiliated with (e.g., business schools, technical schools, science schools).

Mr. Dodson said it varies. He, for example, is in the engineering school. Most staff at the EFCs are policy people.

Ms. Burian added EFCs can work in two different respects. They can work on top-down initiatives, helping translate big ideas down to the community level, or they can communicate community-level concerns and issues back up.

Mr. Dodson said one thing that differentiates EFCs from other technical assistance providers like Rural Community Assistance Partnership (RCAP) organizations or Rural Water Associations (RWA) is that they focus almost exclusively on the managerial and financial aspects of infrastructure and community and utility operations.

Mr. Henifin asked how communities access EFC resources.

Mr. Dodson said the EFCs do a lot of trainings and workshops to bring people into the room. There is a national small systems project in which the whole Network participates. Through that one program, EFCs do more than 100 training workshops a year across the country. Other centers will then do their own trainings as well, sometimes working with partners like AWWA, after which participants will often follow up for technical assistance.

Ms. Burian provided two examples from the EFC at the University of Maryland. Through its Sustainable Maryland Certified program, the EFC connects with municipalities across the state to form green teams and take them through a set of sustainability actions. The EFC also has the Municipal Online Stormwater Training Center, a region-wide, growing center that provides stormwater education and training to local government audiences.

Mr. Stannard noted the EFCs' funding comes from EPA annually. He asked if they are able to augment that funding with other research grants.

Mr. Dodson said the money EFCs receive from EPA, which they refer to as "core money," varies in percentage of their budget. That variability means there is a freeboard between what they receive annually from EPA and what they could receive should EFAB request EFC support on a project, for example. He explained the EFCs are not an EPA-funded program; they are a program set up by the EPA. They also use their core money to leverage other funding programs. A few EFCs receive a lot of USDA money. His EFC has a grant from the National Oceanic and Atmospheric Administration (NOAA) this year. Sometimes an EFC will receive private foundation money or enter into a contract with a specific community.

Mr. Chu said the arrangement is similar to another set of centers funded by EPA that focuses on pediatrics and children's health. He said EPA cannot fully fund the EFCs as EPA centers; rather, EPA provides a nominal level of seed funding to start the infrastructure. The idea is for EFCs to either grow or provide services in their EPA Region. In Region 7, for example, EPA gives the EFC money for a variety of projects (e.g., a recent waste-to-gas project for water infrastructure). States may also give money for projects. Different EFCs have different sets of expertise too. For example, the EFC in Region 10 does a lot of work with tribes in Alaska.

Ms. Throwe said the EFCs are amazingly economical and effective, working at the local level where change occurs.

Mr. Dodson said workforce development is also an emerging trend for the EFCs. WEF and AWWA had their Transformative Issues Symposium in August in D.C. focused on water workforce. At least two EFCs, Wichita State University in EPA Region 7 and Syracuse University in EPA Region 2, have developed "Work in Water" programs. Mr. Dodson noted the EFCs leverage one another's resources. The EFC at Wichita State received a grant to create a type of internship program. It then gave its application to the EFC at Syracuse University, who submitted it and replicated the program in New York and Puerto Rico. The EFC at Syracuse University and the EFC at the University of Southern Maine also have grants to conduct analyses pertaining to coastal resilience, specifically the economic impact of recurring flooding at the community level. For example, what happens when the marina goes out of business and people stop visiting and spending money? A community may not have the money to construct a seawall around the entire area but investing in certain areas can increase their resilience.

Ms. Burian added the EFCs see their core funding as innovation funding. It allows them to not only seek and leverage other funding sources, but also visit conferences and communities to seek new and better ways of serving those

communities. She noted there is a fairly high cap on their funding, which allows EPA to give funds without having to compete them. She said it can be an efficient and timely way to get work done.

Mr. Crooks said he sees the EFCs' work as amazing. He commended their capacity and ability to make an impact in the industry. He said he is concerned the EFCs fly under the radar for a lot of people. He asked, when Mr. Dodson and Ms. Burian speculate about the future of the EFC Network, what is on their wish list for how to connect with small utility entities who are struggling with issues they can support.

Mr. Dodson said EFCs are beginning to do more outreach now, both on their own and through EPA. There was an EFC Day at EPA last June; while that was not marketing to EFC audiences, it helped market the EFCs to EPA staff so they may better utilize them and promote them to others. They also market themselves through their nationwide small systems project and training workshops. He acknowledged that the process of promoting the EFCs is expensive. A year and a half ago, they had marketing one-pagers drafted with the support of EPA and Cadmus. He said it is something of a never-ending process, and he feels they could do better. If he had a wish list, it would be for their partners to have the tools they need to promote the EFCs.

Ms. Throwe suggested there may be a way for Board Members to be better acquainted with specific projects in which the EFCs are involved. For example, the Board could invite EFC representatives back to future meetings and highlight at each meeting one or two EFCs to talk specifically about their work. She asked if the Board would be interested in that idea.

Mr. Crooks agreed with regularly incorporating the EFCs into the Board's agendas. He asked if the Board has an internal process when taking on new charges to see whether the EFCs have conducted work on the topic or studied the issue.

Mr. Dodson said he is not aware of such a process. EFCs used to serve as expert witness to the charges, and every charge would have at least one if not several EFCs associated with it. In the past, EFCs have also served as the workforce for some of these charges, helping with research and writing. He said engaging with the EFCs during the charge process would be a good idea.

Mr. Chu said Mr. Crooks' question pertains to the standard operating procedure (SOP) for how the Board approaches charges. The Board could invite EFC representatives in teeing up issues in the same way it does for other experts. He noted EFCs are not a part of the Board's working groups; as they are such an integral part of the work the Board does though, he agreed there should be some connection. He said he would see how to make that work. One of the challenges is the EFCs do not have the money to attend all the Board meetings. EPA would have to find the budget for EFC representatives to join. He said the primary question is what the Board can do to expand the influence and the knowledge of the work of the EFCs. He suggested that topic could be something the EFC representatives speak to at the next meeting.

Ms. Throwe asked if others on the Board supported Mr. Chu's suggestion.

The Board agreed.

Ms. Throwe thanked both Mr. Dodson and Ms. Burian for their attendance and contributions.

Mr. Chu said he has not been in many rooms with such energy and passion for stormwater issues. On behalf of EPA and the Administrator, he appreciated the work the Board is doing. He acknowledged the Board Members are contributing their time on a volunteer basis and thanked them for their consistent engagement.

The meeting adjourned at 4:38pm.

Day 2

Reconvene and Brief DFO Remarks

Mr. Chu welcomed the Board back to the second day of the meeting. He returned to some of the remaining items from the meeting yesterday. Mr. Chu said he wanted to ensure the Board set aside time to finalize the stormwater task force recommendations, Executive Summary, and Transmittal Letter, ideally before the end of the day tomorrow. He also noted there had been some glitches in getting previous EFAB reports posted to the website, which have since been resolved. The latest EFAB reports do not all have responses from their sponsoring EPA offices; these receiving offices are working on their responses to EFAB now, and they will be shared and posted when available.

Regarding Board membership, Mr. Chu noted that all Board Members except the Chair are up for renewal or will have termed out before the August meeting. The membership of the Board at the August meeting is likely to be significantly different. There are several prospective charges the Board will discuss tomorrow that have been generated by Board Members. He asked that they keep in mind the changing composition of the Board as they consider new charges.

Ms. Throwe thanked the Board for their hard work and continuing effort. She acknowledged the expectation that the EFAB reports are uploaded on a timely basis and that the work of the Board is recognized by EPA in a timely matter.

Mr. Zimmer said he noticed the Board spends a lot of time creating incredible work for the public. The Board's work is then sent to the Administrator. He wanted to discuss the ability of the Board or EPA to promote or share the work of the Board to get it out to more people in a faster or more efficient way. In his opinion, the work of the Board is sent to the Administrator and is posted online, but once there, it sits. He wondered how distribution could be improved, be it through agencies, EFCs, or other entities.

Mr. Chu said it is his job as DFO to work with EPA to make sure the reports from the Board are not only used, but that their recommendations are answered. With respect to making the reports available to the public, he said they do the very minimum of putting the documents online. He acknowledged Mr. Zimmer is asking for more than that in the form of greater outreach and dissemination, something the Board has not discussed or considered. He noted this topic also relates to the EFCs. EPA has invested a lot in the EFCs, though very few people know about them or what they do. He said it would be great for the Board to provide some feedback on how EPA could better share and promote its work. Mr. Chu explained the Board was previously housed in the Office of the Chief Financial Officer before he was DFO. EFAB is now housed in the Office of Water. When Mr. Chu refers to glitches, he said they are not anyone's fault; rather, there has been a lot of change in personnel and in how the Agency does the work. He is hopeful these issues have been resolved and the reports and Agency responses will be made available in a timely manner moving forward. He suggested Board Members reserve time at this meeting or moving forward to talk in greater depth about the point raised by Mr. Zimmer.

Ms. Throwe agreed. She said the Board Members would return to the topic should they have time in their agenda for this meeting.

Thomas Liu, a current consultant and former EFAB member, acknowledged there is a concern in terms of who reads the Board's work. He suggested EPA track who accesses the EFAB webpage and different documents produced by the Board. He is also on EPA's mailing list, which notifies people of reports as they come out. He said this email chain may be a great way to share updates from the Board to both EPA staff and other interested parties.

Mr. Meister noted the Board is looking to amplify the impact of their work product, rather than market it. Board Members want to determine how to get their work out into their respective streams or areas of influence.

Small Community Environmental Services Resiliency Panel Discussion

Mr. Chu turned to introducing the panel discussion on the agenda. He noted the resiliency of small communities has been a recurring topic for the Board, including in their work on the Backhaul Alaska project. During the Fall 2019 EFAB meeting in Kansas City, Mr. Chu committed to sharing with the Board some perspective about what EPA is doing in this space. This panel has been assembled to discuss a sampling of what EPA programs are doing to address the needs of

smaller and/or rural communities. Mr. Chu then introduced each of the following panelists and asked them to provide a description of their work:

- *Amy Storm*, EPA's Office of Brownfields and Land Revitalization
- *Jacob Burney*, EPA's Office of Environmental Justice
- *Matthew Dalbey*, EPA's Office of Community Revitalization
- *Barbara VanTil*, EPA's Office of Enforcement and Compliance Assurance
- *Al McGartland*, EPA's National Center for Environmental Economics

Office of Brownfields and Land Revitalization

Ms. Storm thanked everyone for the invitation. She is the Team Leader of Policy Outreach and Research within the Office of Brownfields and Land Revitalization. The Office of Brownfields and Land Revitalization has four parts.

1. The first part is the Competitive Grant Program, where the Office spends a lot of its money from Congress. The Competitive Grant Program provides different types of grants for assessing brownfields, cleaning up brownfields, and providing job opportunities.
2. The second part is noncompetitive, in which the Office gives an allocation to states/tribes every year to support their brownfield programs; as the Office is not regulatory, the states/tribes provide a lot of the oversight.
3. The third part is to help explain liability and the different components of being liable under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Ms. Storm noted the Office does not currently have a lot of new work going on in this area.
4. The fourth part is the smaller and noncompetitive Land Revitalization Program. The Office offers communities technical assistance, with the projects coming by way of regional staff who have been working with communities trying to redevelop. Site design and preparation make up a lot of the technical assistance for which the Office receives requests. In the last year, Office staff have been putting together trainings and webinars to help explain the redevelopment process for contaminated properties. The Office's approach is from the perspective of a developer and what that means in terms of helping communities leverage resources. Ms. Storm noted the Office does not always receive many applications from small communities, as the capacity to manage a grant can be a significant barrier. When small communities are able to apply, they do fairly well in their competition with success rates on par with larger communities. Ms. Stone said the Office sees a heavy reliance of small communities on states. The Office has also seen success with different types of coalitions that do the assessment on behalf of small communities.

The Office also has a noncompetitive program called Targeted Brownfields Assessments in which EPA sends contractors to conduct an environmental assessment for a community. Communities can participate through reaching out to their EPA Region.

The Office also provides technical assistance not unique to small communities. For example, there are different organizations like the Center for Creative Land Recycling in California that receive grants from the Office. The Office's job under that grant is to work with communities with brownfield questions and challenges. Other types of technical assistance are in place with Groundwork USA, whose sole focus is to help communities work through equitable development and environmental justice.

Mr. Zimmer asked who the regional contacts are within the Office of Brownfields and Land Revitalization and who he should speak to for Region 2.

Ms. Storm said *Terry Wesley* is the Brownfield Section Chief in Region 2. Mr. Zimmer could also speak to *Sadira Robles*, the Land Revitalization Coordinator for Region 2.

Mr. Chu said he would be happy to provide the Board with the list of contacts for each EPA Region.

Office of Environmental Justice

Mr. Burney, with the Office of Environmental Justice, provided a review of the Environmental Justice Grants Program, the main vehicle for providing environmental justice support to small communities. The definition of environmental justice at EPA is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. There are two main environmental justice funding opportunities that the EPA has.

1. The Environmental Justice Small Grants Program. These are \$30,000 grants awarded every other year to at least 40 projects, usually about four in each EPA Region, for smaller organizations, communities, and tribes. The grant programs are catalytic in nature. The motto of this program is that small funds can lead to big impacts, and these grants are designed to help smaller communities and grassroots organizations address targeted environmental issues. In 2017, the Office focused on rural and/or under-developed states (e.g., Arkansas, West Virginia, Indiana, Utah, Kentucky). Of the 36 projects awarded in 2017, 64 percent went to those states. An example of one project is in Clinton County, Iowa, where there are disproportionately more elderly than in other Iowa counties. A study in 2015 found that pharmacies prescribe 25 percent more opioids to residents of Clinton County than other counties in Iowa. For the elderly population, it is often easier to dispose of extra medication down the toilet, and it was found to be impacting the water. Through the Environmental Justice Small Grants Program, an organization in Clinton County was able to, among other things, start medicine take-back programs and awareness campaigns.
2. The Environmental Justice Collaborative Problem-Solving Opportunity. This program provides 10 projects, one per EPA Region, with \$120,000 over two years. The program focuses on building stakeholder diversity. The environmental issues being addressed are of a nature that will reach resolution 5-10 years down the road.

Office of Community Revitalization

Mr. Dalbey is the Director of the Office of Community Revitalization within the Office of Policy. The Office was formed out of the Brownfields Policy Office in the Clinton Administration to support development beneficial for the economy, the environment, and human health. From the 1990s through the Great Recession, most of the Office's work was helping growing communities adjust their growth to reuse existing properties and infrastructure. From the federal perspective, this initiative was important because (1) better development patterns result in better environmental quality, and (2) the federal government spends a lot of money on infrastructure and development.

The Office of Community Revitalization now does a lot of outreach and communication work and recently started providing technical assistance. After the recession, Office staff recognized many communities were not developing because the basis of their economies had disappeared. A lot of legacy environmental challenges faced by communities are not due to science but rather the loss of industries that had been the economic drivers in the community. One way to address this is to help communities reinvent themselves. Mr. Dalbey spent a lot of time working with Strong Cities, Strong Communities, a program in which the federal government brought catalytic investments to communities to help them develop and execute their economic strategies. At that time, Mr. Dalbey said he came across a quote by Wallace Stevens, "It is necessary to any originality to have the courage to be an amateur." His office, mainly made up of urban planners, began to delve into economic policy.

Shortly thereafter, Appalachian communities asked for the Office's support. The Office began to create programs to help communities identify economic drivers to revitalize main streets and reuse existing infrastructure. In Appalachia, *Local Food, Local Places* became the flagship small community program to promote economic development, preserve rural lands, and increase access to locally grown food. Since 2014, the program has been in over 150 local communities. Another program the Office started around that time was *Cool and Connected*, built around the federal government's investment into broadband. The program helps rural communities use broadband service to revitalize small-town main streets. The Office also recently started *Recreation Economy for Rural Communities*, a planning assistance program to help communities revitalize their main streets through outdoor activities.

Mr. Dalbey noted, in rural America, what came from the land could once be transported by railroad and give economic purpose to towns. He said the question now is how those economies can be harnessed to revive existing properties.

Since 2005, the Office of Community Revitalization has worked with 600 communities across the country. Since 2017, the Office has worked with 150 rural communities, usually in partnership with USDA. Office staff are also working with USDA to map where their investments are going. They overlaid Opportunity Zones with their investments and found that around 20% of USDA investments are going into the actual towns, with 80% going to highways. To make catalytic investments that support economic development and quality of life in rural America, it is more advantageous to make those investments where there are existing main streets, downtowns, and properties. The Office of Community Revitalization can work with USDA to make better investment decisions for better environmental and community outcomes.

Office of Enforcement and Compliance Assurance

Ms. VanTil is in the Office of Compliance, where her colleagues have been looking into what clean water and drinking water compliance tools they can provide. A lot of drinking water and wastewater systems have a hard time achieving and sustaining compliance. There are a number of root causes for this noncompliance, especially for small systems. They include aging infrastructure, declining rate bases from population loss or inadequate rate structures, and workforce shortages. As experienced operators retire, it is very difficult to bring in and retain new people. In many cases, these systems are remote or in rural areas that cannot sustain a competitive pay level. There may also be managers and operators without the required skills or knowledge. EPA is always promoting asset management and degradation prevention of old systems. Sometimes the challenge can be as simple as not understanding the regulations or the technology.

The rate of noncompliance for small systems is much higher than with larger systems, and this problem is magnified in drinking water systems. When looking at the 150,000 public water supply systems nationwide – i.e., privately or publicly owned systems providing water for human consumption – 90% are small systems and 93% of serious violators are small systems. The Office of Compliance introduced a circuit-rider program to provide hands-on support and better understand the barriers to compliance. Circuit-riders are part consultant and part trainer. They visit systems multiple times, assisting with technical, managerial, and financial issues. The Office of Compliance is also trying to promote partnerships and the development of local support networks. While this circuit-rider program is just starting, it is meant to complement other existing circuit-rider programs to support water infrastructure.

National Center for Environmental Economics

Mr. McGartland noted the other panelists are on the “retail” side, while he is on the “wholesale” side in the Office of Policy. His main objective is quality science for quality decisions. Through benefit-cost analyses and economic impact analyses, he aims to inform decisionmakers about the consequences of their actions. He noted the United States is making large environmental investments, and it is important to get the best possible return on those investments. With the Waters of the United States rule, the Administration talked about a new environmental federalism with state and local partnerships. This shift has created an opportunity for EPA to further engage with partners in water and other media on technical assistance and economics. For example, with the recent Lead and Copper Rule Revisions, Mr. McGartland is working with behavioral economists on his staff to gather more information for utilities on how to design cost-effective lead service line replacements. President Trump also signed the Foundations for Evidence Based Policy Making Act into law a year ago, which ups the ante on trying to bring evidence to bear on the operation of programs and policies. Mr. McGartland’s Office submits a “learning agenda” to the Office of Management and Budget on the key policy questions to answer. His Office’s staff then need to provide scientific and economic evidence in response to those issues. He noted the operation of many of the regulations and programs in small communities will be an issue in that context. Lastly, the Unfunded Mandates Reform Act requires EPA and other regulatory agencies to look at impacts to small businesses and small governments. If costs go over certain triggers, staff will engage in consultations or panels to hash out better solutions to get both manageable costs and a win for the environment. He noted the consultations with small governments are more common than those with small businesses.

The National Center for Environmental Economics also routinely conducts affordability analyses. Mr. McGartland noted EPA tends to focus on the affordability of the rule they are considering, rather than its cumulative costs. Mr. McGartland’s Office is also spending a lot of time on incidence analyses to see who is paying for these regulations. He said EPA regulations can be quite regressive. Low-income households, for example, spend a much higher percentage of

their income on power, and EPA must be cognizant of that on regulations moving forward. These analyses can have big effects. For example, arsenic in drinking water was often a problem in small and low-income communities. It was estimated the cost could be as high as \$500 per household per year. A big discussion ensued, and EPA mobilized to perfect and reduce costs of technologies and help provide funding assistance in other ways. When the rule went forward, it became quite controversial. Mr. McGartland noted the large systems enjoyed economies of scale, so the cost per household was affordable and quite low. EPA seemed legally or by policy to want the same standard for everyone.

The Office of Policy is also involved with the environmental impact statements required through the National Environmental Policy Act (NEPA) when, for example, the Army Corps is looking to invest in infrastructure. Office staff developed a handbook on land clean-up and reuse. They invited a group of academic economists to EPA for two days to discuss how to quantify the benefits of brownfields, superfund programs, and state clean-up programs. Outside of impacting health and land productivity, they talked about how these programs could also lead to agglomeration effects. For big areas like Silicon Valley, the cost savings that accrue from these agglomeration effects are easier to see; industries co-locate because of savings like reduced transportation costs, a shared labor pool, and positive information exchange. Those same benefits are possible with communities. Once there is some development, the literature has shown it is more likely for other investment to take place. Mr. McGartland noted agglomeration effects seem to be more pronounced and likely in cities rather than rural areas, which may be one of the challenges they face. Staff also worked with the Office of Environmental Justice on providing technical guidance on how to assess, using economics and science, the environmental justice issues associated with regulations, allowing them to get involved in local community issues.

Mr. Chu thanked everyone for sharing their corners of EPA in which they touch on the issues facing small and rural communities. He noted while there is not one organization at EPA dedicated to this area, there is a cross-section of EPA staff working in it.

Mr. Chu opened the floor to questions and comments. He hoped this discussion would also help inform the Board in its decisions to pursue future charges.

Ms. Thrope thanked everyone. She asked Ms. VanTil who the circuit-riders are (e.g., EPA staff, contractors).

Ms. VanTil said they have set up contracts. They work with regions and states to identify communities who are most in need and then send people accordingly.

Mr. Meister thanked Mr. McGartland for his contributions. He asked if Mr. McGartland could elaborate on the role of behavioral economics in his office.

Mr. McGartland said behavioral economics is gaining a lot of traction in his profession. Of his staff of 30 PhDs, he has two members who focus on behavioral economics issues. They did not start in behavioral economics; it has been a learning curve. He said he sees a lot of potential for what behavioral economics could bring to EPA.

Mr. Henifin said he works with a large utility in southeast Virginia where he engages with both large urban and small rural areas. He said the idea of a circuit-rider sounds great, but he wondered if it is sustainable. He finds pouring resources into these struggling communities seems to counter a long-term solution to the problem.

Mr. Dalbey acknowledged there are a lot of resources that go into communities without economies. He finds it important to look back on history. In the last 150 years, pre-New Deal, if an economy left, then the community disappeared. The New Deal led to an investment in infrastructure still important today. It also created a set of policies that treated symptoms and not the root causes. He noted there are still not policies in place that treat the root cause of economic decline in many places. His Office is trying, in a retail-type of way, to help build the capacity for communities to recognize the importance of reinventing themselves. From an environmental perspective, there is some sense that if the environment is cleaned up, economic growth will come. The Office of Community Revitalization has been afforded the opportunity to talk to other agencies working in economic development. He said there are other ways to protect the environment beyond regulation. For example, in New York, the animals in the Bronx Zoo started dying because of the

water they drank from the Bronx River. New York City recognized the need to clean up the river and protect the shoreline, resulting in the building of the Bronx River Parkway.

Ms. VanTil thanked Mr. Henifin for his question. She said her Office has a small amount of money it is putting into this program. Staff are trying to learn from the experiences of other offices in EPA to figure out what is keeping people from complying and applying those lessons more broadly. She noted some things will change the landscape. For example, there are provisions within AWIA where states will need to develop the ability to mandate some level of consolidation for water systems. At a certain point, it will not make economic sense to have utility operators work independently when there are benefits from economies of scale.

Eric Rothstein thanked the panelists for their attendance and thanked Mr. Chu and Ms. Throwe for setting up the discussion. He explained he has been in the redevelopment business for over 20 years, and a lot of the issues faced by the Board pertain to rural communities. He finds there are bigger policy implications, particularly with who is going to deal with these issues as these economies disappear. He offered a couple of observations on the issue of reinvention and why it is critical. He said a lot of these rural communities existed for logistical circumstances that no longer exist. There is a belief that if these areas are cleaned up, people will come. In his opinion, people will come regardless of the environmental condition; it is the economy, the market, and the labor pool. He said one of the issues not yet covered is how to attract capital. Programs like the ones described by the panelists are in the minority, but they are hugely valuable moving ahead. He asked what opportunities they see for the Board to help with figuring out how to attract that capital (e.g., greater certainty of regulation, a larger kick-starter element of funding, a less piecemeal approach).

Ms. Storm noted communities are always struggling with how to attract capital. Her Office has been trying to explain to communities the value of planning, but they are continuously thinking about what a community can do to prepare themselves to be of interest to a developer or investor. She suggested the Board Members consider, in their collective experience, what has really made the difference in attracting capital. She asked, "Communities can develop a plan and assess a brownfield site, but what do investors or developers really want to see?"

Ms. Kim said the main concern for developers and/or investors is risk. A developer risks a lot of soft costs. These soft costs result in a scary amount of risk because the developer must pay for consultants, architects, and engineers to see if the project is even feasible. Any grant that can relieve capital risk is helpful. She said the second piece is the need for a one-stop shop. She explained she would not want to go to the Department of Housing and Urban Development (HUD), Department of Energy (DOE), or EPA to figure out different grants. The Board has been thinking about developing a common application across the different agencies that can help pull together a set of grant opportunities and resources.

Mr. Dalbey said the Board could conduct some research into the type of catalytic public investments that could go into a community to help lower the risk of private sector investment. Does private capital follow DOE investment in a community? Does it follow USDA Rural Development money? Does it follow the assessment and cleanup of a brownfield site? Feeding that information back to EPA could help those at the staff level begin talking to other agencies to understand how investments could lead to capital. The Board could also conduct research on the policy in and around technical assistance and capacity. For example, grants at a local level could help raise the ability of a community to rezone.

Mr. McGartland said there are three groups of communities – those that are thriving, those driven by a simple market and the logistical role they played in a pre-technological economy, and those on the edge. He would ask how EPA could better identify which communities are which and where retail operations could make a difference.

Ms. Storm emphasized the reality of Ms. Kim's soft cost statement. There are not a lot of federal grants available for soft costs. She said a key question would be what other sources a community could draw upon to take care of soft costs as much as possible, as grants can only pay so much.

Mr. Anderson noted the issue Ms. Kim raised about risk and perception of risk. He said one of his challenges is that EPA and the business community are approaching the problem from two different directions. The business community is coming at the problem from the perspective that a community is a number with error bars; those error bars define the

ability to attract capital. He agreed a market study could be a really beneficial pursuit. He also said the Board needs to look at how these policies work in the context of environmental justice.

Ms. Kim said she would love to see the opportunity zones mapped in geographic information systems (GIS) with the targeted areas of the grants. The developer will go where the layers of opportunity zones, grants, and tax credits overlap.

Mr. Burney said there is a publicly accessible environmental justice screening tool, EJSCREEN. Each year it is released and updated, so such data layering would be possible. In response to the concern of the intersectionality of environmental justice, he said his Office has tried to integrate sustainability criteria in community action plans. He said the Board, with its different relationships, could help flesh out templates of what to look for in community action plans where there are buffers that mitigate soft costs.

Mr. Dalbey said his staff have also layered existing infrastructure over opportunity zones at the census block level in GIS, which can demonstrate fiscal and economic efficiency and better environmental outcomes.

Ms. VanTil said behavioral economics are a big part of her Office's concern. She noted how people are often willing to spend more money on their cell phones than their wastewater. It is a question of how to get people to understand and value the benefit of the service being provided by their utilities, so they receive the rates needed to sustain the system. She also emphasized the need for something like a clearinghouse where the funding is centralized and accessible to those who need it. She has found there are sometimes grant programs that people are not aware of that could be assisting small communities.

Mr. Zimmer addressed his question to Mr. McGartland. He said he represents the infrastructure bank for the SRF program in New Jersey, and it was interesting as a state to encounter NEPA outside of the SRF program during Hurricane Sandy. The bank received FEMA and HUD funds and created a disaster SRF program to integrate with them. He noted the need to standardize the processes to use and leverage these different funds. He explained the frustrating part was with the environmental reviews and getting different agencies to deal with one another. It took at least six months for FEMA and EPA to agree that EPA would use FEMA's funds for the SRF program. To improve efficiency, he asked if there was a way to unify NEPA environmental reviews across the country for the different programs available. If people must do three different environmental reviews for three different sources of funds, they would sooner go out on their own or not pursue the project.

Mr. McGartland said the sister office to his is the Office of Federal Activities, which coordinates all the NEPA environmental reviews. That Office interacts with HUD, Army Corps, and others. The Council on Environmental Quality and others are leading a charge to better streamline the process. He said he would take this information back with him and filter a response through Mr. Chu. He acknowledged how, in the wake of Hurricane Sandy, what Mr. Zimmer experienced would be an obstacle to what they are trying to accomplish.

Mr. Zimmer said to call it frustrating would be an understatement.

Mr. Stannard thanked the panelists for their presentations. He noted his personal concerns with smaller communities, having grown up and currently living in Kansas. He said he is in the third largest city with a population of 30,000. When he thinks of small communities, he thinks of the town where his sister taught grade school with a population of 2,500. Over the last 25 years, the demographics have shown a decline in population and an increase in average age. The once high percentage of kids have gone to college and have not come back. He said small communities are facing a multi-faceted challenge. He asked if there is nothing for young people to come back to, whether the momentum is reaching a point at which the community should be left to age out and deal with what is left afterwards. He asked if the opportunity zone concept is a way to help pull these issues together to reach a point where some of these communities can be revitalized and grow in the future.

Mr. Burney said he does think opportunity zones are a viable option that the government is exploring. Back in 2018, the Office of Environmental Justice focused on rural areas specifically with its collaborative problem-solving grants. Of those

10 grants, 80% went to rural areas (e.g., central Maine, West Virginia). Summit County, Utah had a project focused on winter inversions, in which the warm and cold air traps the pollution and results in terrible air quality. A grant in Utah was used for a wood fireplace and stove exchange program, a volunteer pilot program in which families from the sparsely populated mountainous region apply for gas and propane inserts. All the collaborative problem-solving environmental justice grants are designed to sustain and spur coalitions and collaborations to address issues holistically. Through the Environmental Justice Executive Order of 1994, the Office also includes the Environmental Justice Natural Resources Defense Council Working Group that is involved in opportunity zones with its sister office, the Office of Community Revitalization. Mr. Burney noted he and Mr. Dalbey visited Maine to discuss broadband technical assistance a couple of years ago, and there are still opportunities to try and attract young people back to the area, particularly through ecotourism.

Mr. Stannard said reinventing communities requires the excitement of political leadership. Instead of focusing on fixing the problems of today, he wondered if the Board can look ahead and communicate the idea of reinvention. He asked how the Board can help the leaders in those communities, who are also getting older, think long-term.

Mr. Dalbey said there are a lot of people writing about the point Mr. Stannard is making. Bruce Katz and Jeremy Nowak have a book called *The New Localism* which addresses how to grow leadership at the local level to help communities figure out what they are going to do next. James and Deborah Fallows wrote a book, *Our Towns*, where they visited communities that have reinvented themselves. The end of *Our Towns* offers 11 best practices, including things like being strategic about investments and connecting to the regional economy rather than the global economy. The community should consider what its competitive advantage is in building a portion of the materials needed for an industry. He agreed there is a larger question of how rural communities can be the types of places where young people want to stay. Opportunity zones can be a leveraging tool for real estate and business projects.

Mr. Dalbey pointed to the role of community champions (e.g., figures in schools or churches) in finding a way to keep kids interested in where they are born. He also noted how everything is online, so it is critical for as many towns as possible to have internet access.

Mr. McGartland said, to his understanding, opportunity zones can offer a considerable reduction of capital gains taxes for those who invest in them for some time. He wondered if there would be agglomeration effects that make communities more attractive places in the next 10 years.

Ms. Thrope thanked the panelists for their time.

The Board took a 15-minute break.

Status of Stormwater Recommendations

The Board reconvened at 11:17am.

Mr. Chu said the Board would take the extra time to provide a quick update on the status of the recommendations in the Executive Summary for the Stormwater Task Force report. The objective is to arrive at consensus, so Board Members do not have to schedule an additional call after the meeting.

Ms. Tarquinio thanked those who stayed up late to complete the recommendations. The Executive Summary has since been cleaned up and revised. Tomorrow morning the Board will review the changes made according to the discussion Day 1.

Mr. Chu asked the Board Members to email about any significant issues they have with these recommendations tonight so they can streamline the conversation tomorrow morning.

Public Comments on the Stormwater Report

No members of the public registered to give oral comments on the draft stormwater task force report. However, written comments submitted by the National Ground Water Association (Attachment H) were posted to the EFAB webpage along with other meeting materials. Mr. Chu noted that he also has just received a document that *Chuck Chaitovitz* from the U.S. Chamber of Commerce wanted to share with the Board. Hardcopies of the document were distributed to the Board and it will be put into the record (Attachment I).

Framing of Backhaul Alaska Session

Ms. Thrope said, before the break, she wanted to set the stage for the Backhaul Alaska activity. The Board will participate in a consultation, rather than a formal charge.

Mr. Chu said Board Members have been trying to figure out how they approach their charges as a Board. Part of their SOP is to establish procedures on how they decide to take on projects. They have also talked about charge options that are not necessarily projects. *Gabriela Carvalho* with EPA Region 10 came to the last EFAB meeting to discuss follow-up items and asked for additional, in-person consultation for feedback on the Backhaul Alaska project in its current state. Mr. Chu said there will not be a written report from this process. It will be a one-time engagement that, if the Board chooses, could lead to another follow-up request.

Ms. Beecher said the Board should view this opportunity as a case study. She thinks having a roundtable discussion and offering suggestions could be a complement to formal written reports and a good use of the expertise in the room.

Ms. Thrope noted Ms. Beecher was part of a small group of Board Members who talked through what this consultation could look like. Mr. Thrope thanked her and those Board Members for their time.

Mr. Zimmer said he is fascinated by this issue. He asked if the Board is allowed by statute to conduct this work if it is not explicitly through a charge.

Mr. Chu said the Board is allowed to do it. Previous groups have taken on multi-month or multi-year reports. When he became DFO, he received feedback as to how that approach was working. He said this is less a legal question and more a question about how the Board wants to provide support to the Administrator. It is a question of how to have the biggest and most timely impact on the Agency regarding key issues. Mr. Chu noted there is interest in taking on work that is timelier, and there are various models for doing so.

Ms. Thrope offered the Transit-Oriented Development Study as an example of a different project conducted by EFAB. The Board came together for a day, brainstormed, and looked at transit-oriented development. She noted the style for this consultation will be a departure from the way Board Members have worked previously. The Board will break into three groups to discuss specific sets of questions related to the Backhaul Alaska project and then rotate.

Mr. Meister thanked Mr. Chu and Mr. Zimmer for establishing in their exchange that this method is allowed and appropriate for the Board. He finds it to be a good use of EFAB public resources. He acknowledged he was very skeptical about the Backhaul Alaska project and its applicability to EFAB. Even last night, he had conversations where some said it is a market failure or a funding problem, rather than a financing problem. He said the more time he has spent on the issue, though, the greater importance it has carried. Ms. Carvalho has presented a more extreme example of all the challenges Board Members have discussed with regard to shrinking communities, old or undermaintained infrastructure, and shrinking rate bases. He noted variations of these challenges will come up again and again, and he finds the advantage to the Board is the opportunity to work through real questions in real time.

The Board broke for lunch at 11:40am.

Backhaul Alaska Consultation on Financing and Governance Options

The Board reconvened at 1:00pm.

Mr. Chu welcomed the Board back. He explained after the consultation, the Board will send a Notice of Consultation to the Administrator notifying him of this first-time activity and its consultation on the Backhaul Alaska project at the request of EPA Region 10. This letter will (1) make the engagement official and carry out the Board's responsibility of communicating to the Administrator and (2) elevate and expand the knowledge of the work the Board is doing.

Ms. Sanzone noted such consultations and notice of consultations are common across other advisory boards.

Ms. Carvalho thanked everyone for their time and asked her colleagues to introduce themselves.

Tim Hamlin is the Deputy Director of the Office of Management Programs for EPA Region 10. Though he is usually Ms. Carvalho's boss, he said he has been happy to work for her to support her efforts on the Backhaul Alaska program.

Andrew Crow works at the Cooperative Development Center at the University of Alaska, Anchorage. His involvement with the Backhaul Alaska project was instigated by a recommendation the Board made to look at cooperatives. He has met several times with the team and has experience working in rural Alaska. He has lived there for about 30 years and has worked with many of the government entities involved in the Backhaul Alaska program.

Ms. Carvalho thanked the Board for directing the team towards Mr. Crow.

Ms. Carvalho provided a presentation on Backhaul Alaska (Attachment J). Phase 1 of Backhaul Alaska resulted in the report submitted to EPA in August 2019. Phase 2 will be the consultation today. The desired outcome of the consultation is for the Board to provide financial and organizational advice to help ensure that the Backhaul Alaska organization is both fiscally sound and resilient to financial and other challenges.

In anticipation of this meeting, Ms. Carvalho conducted a webinar on January 30, 2020 to provide a foundation of information about the stakeholders, services, and conditions on the ground (Attachment K). The briefing resulted in a handful of key questions that she addressed.

1. What is the role of EPA?

The growth and development of Backhaul Alaska is spearheaded by the Solid Waste Alaska Task Force. EPA has more of a role in supporting this program through staff and guidance than through funding.

2. Is the solution top down?

The design of the program came from the ground up and was designed to address the liability surrounding packaged waste. One of EPA's key programs is the Indian General Assistance Program (IGAP). Tribes receive \$125,000 a year for all their environmental management programs. Through this program, tribes communicate their priorities through environmental plans to better direct their IGAP funds. EPA reviewed 60 of these environmental plans and all of them listed solid and hazardous waste as a top priority. For many of these communities, backhaul is too expensive and onerous. About 75% of dump sites in Alaska are within one mile of the village and water sources. These landfills are unlined and waste burning is not prohibited. Prior to the pilot phase, there were two years of engagement in which the team spoke with stakeholders on the ground. These interactions informed how this program would be designed to best meet stakeholder needs.

3. What is the role of native organizations?

The Solid Waste Alaska Task Force works very closely with native organizations. They are partners in providing services to these communities, and many representatives are serving as regional coordinators in the program. The Alaska Federation of Natives also passed a resolution in October 2019 acknowledging backhaul as a significant issue.

4. Where are they in the program?

In 2020, the team is now in the third and final year of the pilot program with 25 communities participating. The Solid Waste Alaska Task Force will then make decisions as to what happens after the pilot is over to set up a self-sustaining program.

5. Why are administrative costs high and shipping costs low?

There is a training force that is fundamental to this program. Before the existence of a coordinated training program, a recycler could receive a shipping container without knowing what they would receive. The recyclers and transporters were heavily involved in developing the training curriculum to ensure waste is packaged in a safe and compliant way. The credibility of receiving training certification is what necessitates the higher costs on the ground, so transporters keep taking waste out of communities. The program overall is not that expensive. Team members are also seeing economies of scale. Ten years from now, they expect to be serving 162 communities, resulting in a decrease in per person and per village costs. For the sake of efficiency, she asked the Board not to focus too much on the details of the program budget.

Ms. Carvalho referred the Board Members to the scenario for Backhaul Alaska contained in their meeting folders (Attachment L):

Scenario: The Backhaul Alaska program will be fully functional in March of 2021 (one year from now). It is estimated that operations will cost approximately \$1 million per year to backhaul materials initially. At full capacity, the program will cost about \$3.7 million per year. For the purpose of this scenario, assume there will be an estimated \$500,000 available for startup costs, funded through government grants. Also assume that the first two years need to be funded via grants. Past that, the ongoing funds will be a combination of (1) government funding (federal, state, tribal, or local grants or appropriations), (2) other funding, such as income from other Backhaul Alaska services including extended producer responsibility (EPR) support, donations, and/or foundation grants, and (3) program fees, collected from villages for backhauling services. For purposes of this exercise, assume the following source funding ratio: 40% government, 50% other funding, 10% program fees.

Unless EFAB recommends differently, the organization will be set up as a non-profit with a Board of Directors with advisory committees for each stakeholder group. Administration would be centralized with possible contracting/sub-awarding of all or some program functions.

Ms. Carvalho noted the process for the consultation has been adjusted slightly from the description in the meeting folders. The Board will be divided into three groups to discuss three focus areas using a set of structured questions. These focus areas are as follows:

- Group 1: Structure
- Group 2: Organization and Administration
- Group 3: Finance and Sustainability

The Board Members will spend 30 minutes in each group followed by five minutes summarizing what was discussed. Each group will have a notetaker and someone to relay what was covered by the previous rotation of Board Members. After the rotations, they will spend 10 minutes on each group sharing key findings and recommendations, followed by a Board-wide discussion.

Ms. Carvalho directed the Board Members to their respective group locations and said she would keep time throughout the process.

The Board broke into three groups and rotated between the focus areas participating in breakout group discussions. Once the Board Members had rotated through groups, they reported out on their discussions.

Backhaul Alaska Report-Outs – Group 1: Structure

Mr. Anderson provided a synopsis of the discussions within Group 1.

He said there were fairly different opinions across the three groups. A not-for-profit corporate structure was the most widely agreed upon approach for a variety of reasons. There was little to no discussion around establishing a for-profit enterprise, as it would be likely to run into regulatory concerns under the public utility commission. There was some discussion of co-ops, though the groups did not reach a conclusion other than that a co-op would be relatively more difficult to govern.

The primary reason they landed on the not-for-profit corporate structure was the perceived ability to attract capital donations. The groups floated the concept of an endowment-funded enterprise with user-fees and tax-revenues being a minor component of any revenue exercise. It would set up the opportunity to obtain tax revenue and user fees through an entity that can enforce them. The enterprise would most likely be a subsidiary entity created by the non-profit. There was some discussion about whether such an enterprise would need to be set up immediately, and they thought the core entity should be set up now for the long term.

The groups also discussed who the stakeholders are. Should the state be involved, it would probably have some representative control. It is possible the donors would have representation, and the villages should have some form of organized representation, though likely not as individual villages given their number and diversity.

There was also discussion on trusts and how they would hold money. The consensus was to favor a non-profit enterprise over a quasi-government enterprise because of concerns the quasi-government funds could be reallocated. There was also some discussion about creating an independent non-profit with taxing authority (e.g., business improvement districts). They wondered about what the duration of the trust would be and how it would maintain its tax-free status for donors. They talked about using a state-seeded trust and, through time, building up enough income off the initial seed that the trust gains some greater independence from the state.

Ms. Beecher added a few complementary points. She said there must be a clear statement of mission for this organization. There are also complexities in representing so many villages, and they will need to find a structure to ensure the organization is inclusive of their diversity. She noted there is some contrast between fully socialized cost allocation and more individualized cost allocation. She asked if everyone would pay the same in the interest of equity or if they would differentiate what they pay for the same reason. She also stressed the importance of putting firewalls around the funds so they cannot be raided for other purposes. Independent auditors and legal counsel will be very important as well. She asked if there is space for local jobs as the team introduces private involvement. She said there is potential for people to contribute to this fund or enterprise in lieu of a tax, penalty, or other enforcement mechanism.

Mr. Anderson said one of the advantages they talked about for the non-profit structure is the possibility of collecting funds from extended producer responsibility (EPR). As the settling party, the producer would then receive a tax-write off for the year, and the trust would have the benefit of the funds in hand.

[Backhaul Alaska Report-Outs – Group 2: Organization and Administration](#)

Mr. Meister said, in the last rotation, the group opened with the same idea of creating a foundation or trust. This trust would need a motivating purpose or driving mission beyond taking care of solid waste, like the preservation of a way of life and of natural Alaska. Group members noted a big idea is what will drive large private contributions to an investment corpus.

The group members agreed the composition of the board will serve a very important governance purpose, but there must also be a champion of the charge, someone driving this new entity through to success. They spoke at length about the different stakeholders that should be a part of a governing board. They recognized the state will want representation, even if only as a placeholder, but recommended that government members need to be the minority, not the drivers. Then there can be some subcommittees of outsiders. The functions of the board would include oversight, policy setting, and strategic planning. The board members would also want to think about who the Executive Director is and how they monitor outcomes.

Mr. Zimmer added the board would want to include a member or group of members who are environmentalists. Those are the people who will help structure the bylaws and ensure there are components in the structure that will outlast the first round of appointees.

Mr. Meister agreed environmental advocates are very important drivers of successful governance and outcomes. There was a common vision for a strategic or business plan developed at the board level, so everyone understands what the mission and outcomes are. The groups discussed how this board will largely be a new entity with new costs. It will have to be very public-facing, and there must be an expectation for public wins and benchmarks to add to organizational legitimacy.

Mr. Meister moved to discussing the administrative structure underneath the board. The groups broke up administrative needs into internal functions and external functions.

- Internally, the board would hire an Executive Director. Members of the board would want someone in grant management who is writing proposals, handling compliance, and documenting the delivery of outcomes. They would need someone in charge of vendor management. They would need someone for community engagement (i.e., an outward facing person to respond to inquiries and concerns). They would also need someone focused on compliance and another person on financial operations.
- Externally, there would be people in the following areas: investment management, law, auditing, information technology, and contract work (e.g., the transportation and recycling service providers).

Once the organization has its mission, board, staff, and vendors, it would want to set up metrics, third-party verification, oversight, a communication strategy for early wins, a proof of concept, and rewards for early adopters.

Mr. Zimmer said the groups felt as though the program should also focus on incentives rather than punishments. The groups discussed the need for remedies for noncompliance. One thought was to train locals in the backhaul process to receive their buy-in. A common feeling across the groups was also that the state has somewhat evaded its responsibility, and there must be some sort of a central public role for the state in this program.

[Backhaul Alaska Report-Outs – Group 3: Finance and Sustainability](#)

Mr. Rothstein said the first thing they discussed was what the actual costs and expenses are that the Backhaul Alaska team should be concerned about, as they will influence appropriate funding sources. He said they arrived at three types of expenses, each with different kinds of potential funding sources.

1. Monthly expenses. These expenses would comprise operations and maintenance and would require a continuing revenue stream likely associated with the users and regular participants of the program.
2. Intermittent expenses. These expenses could include things like grant writing and contract negotiations. They could be funded through in-kind contributions or a different revenue source than the day-to-day participants of the program.
3. Capital expenditure costs. The group felt these costs would best be provided through a different revenue source, though user fees could provide some level of funding.

Everyone agreed on the desirability of some kind of endowment fund as a potentially major revenue source. Backhaul Alaska would need a good lawyer to properly structure this fund to secure necessary tax breaks. The groups also acknowledged the program, overall, does not require a significant amount of money, though they did debate the calculations. They found around \$75 million, placed in some sort of endowment or restricted fund, could result in enough interest earnings to take care of the problem. A very small fee could easily cover the program expenses (e.g., a dollar on every piece of luggage on a cruise ship, an increase in the cost of a fishing permit, a charge for violating wildlife protection rules). There was a sense during the discussions that Alaska is reluctant to impose additional fees, but the fee levels could be so minimal as to slip under the radar and, in the very least, provide some supplemental funding basis.

The groups also discussed how organizations and corporations may want to claim their provision of support for protecting environmental areas populated by indigenous populations. Accessing foundations may be a great opportunity to raise necessary money on a one-time basis. Ms. Sanchez offered the idea of appealing to companies like Amazon, who are major haulers and shippers, to secure some type of endowment.

The groups also spoke about issues related to EPR and locational and regional disparities. There was the notion that, regardless of the fee structure, there will likely need to be some form of a sliding scale for affordability. This fee structure is likely best established and administered at the regional level.

They found next steps would include the following: fuller financial modeling to understand how big the problem is and alternative ways one could structure the combination of components like user fees and grants, assessing the opportunity for endowment funding from a variety of different sources, and looking at tax and/or user fee allocations and the user fee options that might be available.

Ms. Kim added they also discussed the role of positive and negative financial incentives to encourage greater program success. One idea was to offer awards for communities (e.g., an award for the most waste backhauled). Another idea was, instead of charging people to dump their waste, to provide something like \$20 for every computer brought in to be recycled.

Ms. Carvalho said she feels all the questions from each section were addressed. Her initial reaction is the discussion and feedback is going to and already has launched the team's thinking about the future. She said she would take the summary from the Board and debrief with the Solid Waste Alaska Task Force and the advisory committee.

Ms. Throwe thanked the notetakers and the facilitators from each group. She asked the Board if everything was captured during the report-out.

The Board agreed.

Ms. Throwe noted if the Board Members have any documents that may support their recommendations or be of use to Ms. Carvalho, they could provide them to Ms. Sanzone within the next week.

Mr. Hamlin thanked the Board for their time. He said the consultation process reenergized him, and he found their contributions to be very heartening.

[Feedback on Backhaul Alaska Consultation](#)

Ms. Throwe asked the Board for feedback on the process and approach for the Backhaul Alaska consultation.

Mr. Zimmer said, as the Board Members discussed Backhaul Alaska, he found they were talking about a much larger opportunity. He thinks it would be remiss of them not to encourage the Backhaul Alaska team to think of the process in setting up this program as a microcosm of the environmental issues Alaska faces. This program could be a template for preserving Alaska on multiple levels. As the team members set up the governance structures and trust, he encouraged them not to limit their thinking to backhaul.

Ms. Throwe noted Backhaul Alaska has applicability to other projects the Board is considering as well, making it beneficial to everyone.

Mr. Chu connected their process as a Board to one idea from their Fall 2019 EFAB meeting in Kansas City to do more of a deep dive on a project. As Board Members have conversations about their process, this consultation experience could be a kind of appetizer into what it would look like to do a specific project with an EPA client.

Mr. Rothstein said Ms. Carvalho and her team are taking on a somewhat impossible task to digest everything that has been said to them. He wanted to check if the summary would be distributed for the Board's review, as it may not faithfully represent all the Board Members' thoughts. He offered to do a review for the portion on Group 3 to ensure the information was fully captured.

Mr. Chu said he would want to discuss the idea with Ms. Carvalho. He commended her for helping the Board in developing its SOP and for returning to the Board with what EPA did in response to their product. He noted this consultation was designed as a one-time engagement, and he does not want to ask the Board to take on additional work informally or as an official charge. Doing so would require an additional FACA process, as the Board would need to be transparent in sharing its dialogue with the public. He would like to end the engagement here and asked Ms. Carvalho to share what she and her team develop as a next step. The Board can then discuss how to handle future engagements.

Ms. Carvalho asked if there is a requirement as a part of the consultation to provide a written submittal to EPA.

Ms. Thrope recognized Mr. Rothstein's point that Board Members want to ensure Ms. Carvalho understood the Board's feedback.

Mr. Rothstein said he does not think it would require any kind of additional posting of materials, but rather a mechanism to make sure Ms. Carvalho's team has fully documented what was discussed.

Mr. Chu said there will be meeting notes.

Mr. Kaplan said he found the depth of ideas, possible solutions, and awareness of different structures that could address this problem to be incredibly interesting. He believes the Board as a group has committed a lot of ideas that he hopes will be helpful for the program. He noted Board Members are being forced to think about raising endowments and receiving charitable contributions as a solution to what has been a government failure. They should think about this problem in terms of what government should be doing to support solutions.

Mr. Holland thanked Ms. Carvalho, Mr. Hamlin, and Mr. Crow for preparing a well-run and well-thought-out session. He said he would lobby for more of these consultation sessions if people are bringing similarly well-organized question and topic areas. Regarding the output of the process, he said one common theme he saw was that the Backhaul Alaska team should seek out pro-bono legal counsel as soon as possible to figure out the myriad of tax and structural issues the Board is not qualified to answer.

Mr. Anderson seconded Mr. Holland and agreed with Mr. Rothstein's point. He said, through this consultation, Board Members have created institutional knowledge that can be shared with other people. He wondered how they could memorialize it for Ms. Carvalho's benefit and the Board's future benefit. He said it could be as simple as sending a transcript around for annotation.

Mr. Chu said Mr. Anderson's idea would be reasonable. He recognized everyone wants an accurate product, even if it is a summary. He noted the Board is not precluded from sending the Administrator a note to talk about this issue and the discussion. As an independent board to the Administrator, there is also no reason why the Board cannot make recommendations for the Administrator to consider.

Mr. Meister said his understanding was the actual working groups from the consultation were outside of the FACA documentation process. He had thought when they presented the summaries, however, it was being reported as part of the FACA process.

Ms. Sanzone said the Board never left the FACA environment. The meeting was always open to the public. The issue with the notetaking was more about having someone sit in all three groups and capture the conversation for the minutes. The minutes themselves will note the Board broke into groups and then gave report-outs of the discussions, which will be captured in the minutes.

Ms. Kim said she found this process to be effective because it was not just about taking information and putting it on paper. The Board was actively thinking through ideas and interacting. She said a lot of the work they have done as a Board is compiling rather than thinking and applying their skills.

Ms. Beecher said she found the consultation to be very effective and consistent with her concept of an advisory panel. She thinks it increased efficiency as well. She said the specific form of the Board's consultation could vary moving forward, and she noted how much the preparation helped.

Mr. Zimmer asked who was responsible for setting up the three groups.

Ms. Sanzone assigned the Board Members to the groups. She said she tried to balance sectors across the groups and split up those who had attended the earlier webinar.

Mr. Zimmer said he had the impression they were grouped by common expertise, and he had really enjoyed having all the brain power come together at the same time.

Ms. Daniel asked if anyone would like to entertain a discussion about whether there should be something in the form of a letter to EPA to help resolve this issue.

Mr. Chu said if Ms. Daniel is making a proposal to the group then she should do so officially.

Ms. Daniel proposed the Board consider writing something definitive to EPA to recommend a solution for the Backhaul Alaska program.

Mr. Chapman said his concern with Ms. Daniel's proposition is he did not hear a lot of potentially actionable things EPA could control. The Board made a lot of observations of things that could be set up within the rights of the state.

Ms. Daniel offered a more specific proposal to ask EPA to fund an endowment like WIFIA to put a sum of money into a trust fund for Alaska.

Mr. Henifin said Alaska is not a poor state; it is the seventh wealthiest state in the country. He acknowledged it has a high poverty rate but so does West Virginia and New Jersey. He said he has a hard time seeing the federal government stepping in to provide support for Alaska when it could find many opportunities to provide similar funding to any other state.

Ms. Kim said she thinks it is a great idea. She said even \$5-10 million would be great for the endowment, as capital attracts other capital.

Ms. Daniel withdrew her proposal.

Mr. Weiss echoed previous comments that this was a useful process that could be a template for other projects. He asked if the Board could receive updates on the status of the Backhaul Alaska program.

Ms. Carvalho said she would be happy to return in a year or year and a half to provide feedback.

Ms. Throwe recognized Mr. Liu as an expert consultant on this work. She thanked him for his research and preparation.

Mr. Liu noted he strongly recruited Ms. Throwe to join the previous EFAB workgroup that looked at Backhaul Alaska and thanked her for her support. He also thanked the Backhaul Alaska attendees and each of the Board Members. He recognized this topic area was out of everyone's area of expertise, and he said the discussion reflected the depth of their knowledge and ability to transfer it. He also noted one of the goals of the Board is the active participation of all parties;

with perhaps with the exception of the discussion of the Stormwater Task Force report, this consultation was one of the only cases where everyone was actively engaged.

Ms. Throwe agreed. She said she has never seen this level of engagement and suggested it is because Board Members are truly invested and passionate in the product they are delivering.

Mr. Chu said he has only been with EFAB for a couple of years, but he recognized there was a real consideration at this meeting of the struggles EPA has in supporting smaller, rural communities. He suspected the challenges of Backhaul Alaska will continue in other arenas. He also noted the approach the Board has taken today may start to come into focus as they begin to take on new charges. He said Ms. Daniel's motion for an EFAB recommendation is the kind of thing he would encourage the Board to do in the future to suggest ideas for EPA.

Mr. Kaplan thanked Mr. Chu and Ms. Daniel for encouraging him to think harder about his thoughts on this issue. While he respects the work done by the Backhaul Alaska team and wishes them success in their efforts, he stressed there is a failure of government. He noted he has not fully thought out what the response of the Board should be but directing responsibility to the state and native entities to be better stewards of their environment is of some import to him. He said they should be supporting direct government and community action.

Mr. Meister said the consensus appears to be that this process was a positive experience for the Board and a productive use of time and expertise. He finds it would merit at least a summary of the report-out recommendations in a Notice of Consultation letter to the Administrator. Otherwise, Mr. Chu would send a brief Notice of Consultation, and the Administrator would not have any context or understanding as to what a positive break from past practice this process was.

Mr. Chapman agreed and said he hopes it will lead to success for Region 10. He said he cannot wait to hear back a year from now about what Backhaul Alaska has done. He thinks the Board should hold themselves accountable on a performance and outcome basis.

Mr. Chu said the Board could easily summarize a few points in their Notice of Consultation. He noted everyone is interested in some kind of summary based on the feedback he is hearing.

Ms. Throwe confirmed no one was registered for public comment.

Mr. Chu transitioned to discussing the agenda for tomorrow. The Board will do two things. First, they will arrive at some consensus on the Stormwater Task Force recommendations in the Executive Summary. He noted the recommendations are in their verbatim form in the Executive Summary, so approving them is approving the way they are presented in the body of the document as well. Second, the Board will discuss the Transmittal Letter. Mr. Chu said this Letter is probably the most important document. The Board will have to agree about the major elements that will be in the Letter for Ms. Throwe to then prepare and send it to the Administrator.

Ms. Throwe asked for feedback on what the Board would like to see in the Transmittal Letter. She said she does not want it to describe process but rather to function as a summary of top-line recommendations.

Mr. Chu reiterated if the Board is unable to accomplish these tasks tomorrow, they will have to hold another public teleconference. Holding another call will require posting another Federal Register notice, pushing back the delivery of the product into March. The first time the Board could have a call would be the week of March 9. He said all the edits on the Executive Summary should be reflected in the document Mr. Holland will circulate digitally tonight. He is hopeful there will only be minor edits to the Executive Summary, and most of the discussion will be focused on the Transmittal Letter.

Ms. Sanzone said Mr. Holland should send the document to Mr. Chu first, as the Board is currently in a public process. Mr. Chu can then distribute the document to the Board Members. Mr. Chu adjourned the meeting at 4:53pm.

Day 3

Mr. Chu welcomed the Board to the third morning of the EFAB meetings. He noted how impressed he is by the Board's continued energy and engagement.

Stormwater Task Force Report - Executive Summary

Ms. Thrope directed the Board's attention to the Executive Summary of the Stormwater Task Force report. She thanked Mr. Holland for his work last night in revising it. She said she found it very basic when rereading it, but the Board needs to start with introductory language and definitions to explain stormwater for those unfamiliar.

Ms. Kim said she has minor comments. She said she would like to include a sentence that introduces the two major recommendations: appropriate new federal stormwater funding and appropriate funds dedicated to stormwater education and technical assistance. That way, if the reader does not get past the first page, they will see it.

Mr. Holland thanked the Board for allowing him to redraft the Executive Summary. He said he tried to stay faithful to the document and refrained from introducing drastic changes. Now that the Board has reconvened, he would like to propose some major edits. He said he finds Section 1.2 and Section 1.3 to be fairly redundant, and he suggested they be deleted. From the last sentence of Section 1.0, the Executive Summary would then go into the recommendations in Section 1.4. Section 1.0 directly preceding the recommendations would also resolve Ms. Kim's concern. The last piece of the Executive Summary would then be the reiteration of the charge.

Ms. Thrope asked if the Board agreed to Mr. Holland's proposed change in structure.

All but Mr. Rothstein agreed.

Mr. Rothstein explained he does not agree because of the importance of the charge. He said he does not have a significant problem with the charge being placed at the bottom, but he feels it is the "why" that frames what follows. He said he could accept this proposed change, though, considering the consensus of the Board.

Ms. Kim asked if the Executive Summary could specify what the "\$133 billion in assistance" is for. Right now, she interprets the figure as being all for stormwater financing, which is not the case.

Ms. Lemoine said the Executive Summary also needs to cite where the figures for \$133 billion in assistance and 1,600 of the 7,550 permitted stormwater entities are from. If the Board cites the information, it will be clearer.

Ms. Daniel agreed with Ms. Kim. She suggested revising the second sentence in the third paragraph to read, "...with dedicated sources of funding that facilitate access to capital." She stressed what is missing from stormwater management is sources of funding to help acquire needed capital. In response to Ms. Kim, she suggested the next sentence then read, "Cumulatively, clean water state revolving programs have provided \$133 billion in assistance for drinking water and wastewater projects."

Ms. Tarquinio noted the assistance was just for wastewater projects.

Mr. Zimmer asked to include the year 1985 to the sentence, so a reader understands the period over which the \$133 billion was provided.

Ms. Daniel said the Executive Summary should also note how the pursuit of dedicated revenue sources is faced with the headwinds of affordability and political will. She does not want the gap to be dismissed as something for which utilities could easily raise their own money.

Mr. Chu provided a comment on behalf of Ms. Downs, who was not in attendance. She wrote the Board should change the use of stormwater utilities as an example in Section 1.2 to stormwater fees and cite the 90% figure.

Mr. Holland noted her comments no longer apply, as the Board is striking Section 1.2.

Ms. Daniel noted the Board is avoiding the topic of climate change, and she said she is comfortable with that decision. The Executive Summary does cite statistics on the increasing number of significant rain events as driving an urgency to address stormwater. She is wondering if the Board should insert a sentence that better recognizes this urgency, so Congress cannot ignore it.

Ms. Throwe agreed.

Mr. Stannard said the Executive Summary starts with a focus on the pollution effects of stormwater and water quality impacts, but it does not make a strong statement with regards to flooding caused by stormwater runoff. He said, for many, flooding is the driver for stormwater management with pollution being a subset of that.

Ms. Throwe noted this report addresses both water quality and quantity, and Mr. Stannard's contribution connects to Ms. Daniel's point about increased rain events.

Ms. Beecher said the last sentence in the third paragraph lists the following dedicated revenue sources: stormwater user fees, stormwater utilities, taxes, and established drainage districts. She noted this sentence conflates revenue sources and structural opportunities. Stormwater utilities and drainage districts are structures, and stormwater user fees and taxes are revenue sources. She reiterated there is a ratepayer pocket and a taxpayer pocket. The other terms are ways to structure and provide the service. She suggested the Board rephrase that portion of the sentence to read, "dedicated stormwater management sources including user fees and taxes."

Mr. Meister echoed Ms. Beecher. He noted taxpayers and ratepayers are often the same people. He also said, with 2020 being the 50th anniversary of U.S. EPA, one of the triumphs of the last 50 years has been addressing point-source pollutants for water quality. He said the next challenge is stormwater which includes and helps to trigger flooding. He said the Board can work into one of the sentences of the Executive Summary that this report can build upon the organizational successes of the federal statute and EPA.

Ms. Beecher appreciated Mr. Meister's point. She said taxpayers and ratepayers can and might be the same person, but one of the struggles is those footprints do not always match. Tax instruments and user fee instruments can also have very different impacts on household affordability.

Mr. Rothstein said his concern has been there are many municipalities who recognize it would be a good idea to have a stormwater fee of some kind, but they are daunted by the potential of continuing legal challenges. In a number of places, municipalities have implemented stormwater user fees and are spending all their time in court defending them. He wondered if the Board could incorporate the need to provide technical assistance and resources to help states navigate legal challenges.

Ms. Throwe noted the issue of legal challenges faced by municipalities is not quite captured in the report or its recommendations.

Mr. Henifin said the Task Force Members intended to address it in the second recommendation. He suggested the Board insert a piece about legal defense into that language.

Mr. Rothstein agreed. He said only a couple of words are needed about how legal defensibility is a part of sustainable funding.

Ms. Kim asked to change the structure of the two recommendation categories so the second also leads with an action verb. Instead of "New federal stormwater funding," it would be "Allocate new federal stormwater funding." She also

proposed, for the first recommendation about developing a construction grant program, the inclusion of soft costs associated with construction. She recognized this is a substantive addition.

Ms. Throwe said the Board Members should discuss the inclusion of soft costs, as they spoke about it yesterday, but it is not currently explicit in the report or the recommendations.

Mr. Crooks suggested the Board revise the lead-in to the recommendation, so it reads, "Federal grants, loans, and new programs are needed to fund critical stormwater infrastructure and early state development of those resources."

Ms. Throwe asked if Congress would understand Ms. Kim's point on soft costs. She wondered if it is explicit enough.

Ms. Lemoine said the Board could add a footnote that explains what soft costs comprise.

Mr. Henifin said he did not necessarily like the addition of the footnote. He noted this recommendation needs the further explanation provided in Section Three where it is detailed how this construction grant program would differ from those that come before it. He said the Board Members need to ensure they do not pile all the information into this short Executive Summary. Section Three is where the soft cost inclusion should go.

Mr. Weiss agreed. He suggested for the first recommendation to use the language "to develop a new and enhanced stormwater construction grant program." There are a lot of things in Section Three, and he does not want Congress to think the Board is proposing a return to the old construction grant program.

Mr. Zimmer suggested Board Members insert a parenthetical to "see Section Three" so they are telling the reader there is more information later in the report.

Mr. Holland suggested including a preamble to the entire recommendation section explicitly stating there are detailed versions of the recommendations in Section Three.

The Board agreed with Mr. Holland's suggestion.

Ms. Kim asked if the Board would want to ask Congress to fund technology development.

Mr. Holland disagreed.

Mr. Weiss wondered if, for the third recommendation in Section Three, the Board should move the parenthetical up into the introductory paragraph so it reads, "the need for increased federal investments in stormwater infrastructure (with no offsets to other programs)." This parenthetical could also apply to all the recommendations.

Ms. Throwe asked for the Board's feedback on Mr. Weiss' suggestion.

Mr. Zimmer asked for Mr. Weiss to repeat his point.

Mr. Weiss said the first sentence in the third paragraph has a parenthetical that there should not be offsets to other programs, recognizing this is with respect to creating a new SRF or adding additional funding to the CWSRF. He suggested that parenthetical be placed in an introductory paragraph, as it applies not only to the third recommendation but also to the first and second. The Board wants Congress to appropriate additional funds for stormwater but not to reduce existing programs.

The Board agreed.

Mr. Zimmer said the CWSRF and DWSRF are two very separate programs. They are from two different laws and managed by two different groups. He noted the recommendation currently uses terminology that suggests the existence

of a generic SRF program. He suggested the Board specifically recommend larger appropriations “within the existing Clean Water SRF,” as that is the SRF where stormwater is housed. He also proposed revising the next sentence to emphasize the recommendation for financial commitment that is additive. The sentence would then read, “It is the view of the Task Force that stormwater would benefit from a separate, additive recurring financial commitment from EPA.”

The Board agreed.

Mr. Holland asked if the report defines these terms.

Ms. Tarquinio said there is an acronym section just before in the Table of Contents where the terminology will be included.

Ms. Lemoine said the second part of the first paragraph, starting with “stormwater management is a critical policy issue,” should be a new paragraph.

Mr. Crooks said the second recommendation starts with “educate elected officials.” He asked if the Board Members would want to ask for funding to educate elected officials. If so, they should add that to the recommendation.

The Board agreed.

Ms. Throwe shifted the focus of the Board to the first panel on opportunity zones. She asked the Board Members to remember the current discussion for when they return to it later in the day.

Mr. Holland noted there are a number of people for whom this EFAB meeting is their last. He asked the Board to acknowledge their service at some point during the day.

Ms. Throwe agreed and said she would incorporate that into the agenda.

Proposed Charge to EFAB – Opportunity Zones

Mr. Chu noted, after the Backhaul Alaska consultation and Stormwater Task Force report, the ongoing work of the Board will be done. New Board Members will convene in August 2020. It is a good time to begin considering a set of new charges for the next phase of work (Attachment M). Mr. Chu noted the first charge will be presented by EPA leads, and three other proposed charges will be introduced by Board Members. Mr. Chu asked that the Board Members recall the SOP in how they consider new charges.

Mr. Chu introduced *Helena Wooden-Aguilar*, the Deputy Associate Administrator in the Office of Policy, and *Brittany Bolen*, the Associate Administrator for the Office of Policy. Ms. Bolen is also the Senior Policy Advisor to the Administrator. The Office of Policy and Ms. Bolen hold important positions within EPA, and they are here to present a charge on their initiative with Opportunity Zones.

Ms. Bolen wished everyone a good morning and thanked the Board Members for their service. She recognized their impressive backgrounds and expertise. She acknowledged EPA Administrator *Andrew Wheeler* sends his regrets for not being able to meet with the Board Members this week. She said he looks forward to receiving their recommendations on a number of products they are considering.

The Office of Policy is housed in the Office of the Administrator and works across the Agency and the regional EPA offices. It is the chief policy-making arm of EPA, tasked with identifying ways to advance the mission of protecting human health and the environment. The Office is structured to advance that mission through two multi-disciplinary tracks. One track is through traditional regulatory work (e.g., implementing statutes, policies, and permitting processes). Within the Office of Policy is the Office of Regulatory Policy Management, the National Center for Environmental Economics, and the Office of Federal Activities. The second multidisciplinary track is the more innovative side of the

Office of Policy, dedicated to advancing the mission through collaborative problem-solving and external community engagement. Within this track is the Office of Environmental Justice and the Office of Community Revitalization. They also have a Climate Adaptation Team and a sectors-based program interested in engaging with industry and regulated communities to identify best practices for advancing the EPA mission.

Ms. Bolen moved to discussing opportunity zones. When President Trump signed Executive Order 13853 on opportunity zones, the Administrator designated the Office of Policy to lead the EPA's implementation and coordination of opportunity zone work. She said it was a natural fit, particularly because of the Office of Environmental Justice's longstanding work developing community-driven solutions. Opportunity zones are economically distressed communities that have been formally created and designated by the governors of each state. Currently, there are more than 8,700 census tracts designated as opportunity zones. They were designed to spur economic development and encourage job creation in distressed communities by providing tax benefits to investors. In December of 2017, the Tax Cuts and Jobs Act was signed into law, establishing this tax incentive program to promote equity investment in low-income communities. A year later, in December 2018, President Trump signed Executive Order 13853, establishing a Revitalization Council to carry out the White House Administration's plans on how to target, streamline, and coordinate federal sources and programs to be used in opportunity zones. EPA is one of the agencies on the Revitalization Council. The Administrator participated in the first meeting of the council with President Trump in April 2019. Ms. Bolen regularly participates in the staff-level meetings and engagements for the Council.

On the Council, EPA participates in two of the six workstreams: economic development and safe neighborhoods. The economic development workstream is tasked with leveraging federal grants and loans in a more integrated way to develop dilapidated properties and to provide basic infrastructure and financial tools to attract private investment. The safe neighborhoods workstream is tasked with finding ways to make these opportunity zones safer with the reasoning that a safer community is a more attractive community. Some of the items the workstream has discussed is how to combat drug addiction and the opioid crisis, reduce crime, enhance public safety, and address environmental contamination.

The workstreams were designed to pull together different agencies with different levels of expertise to focus on six areas that would have the most impact in furthering the implementation and incentives for opportunity zone investment. EPA recently worked with the rest of the Council on a report that went to President Trump in February 2020 about the workstream-specific programs, activities, and accomplishments. The report also identified other actions to advance this work.

Ms. Bolen shared a few examples from the report within EPA's two workstreams.

1. For the 2019-2020 Environmental Workforce Development and Job Training Grant, EPA has included the location of brownfield projects in opportunity zones as another factor that could serve as a tiebreaker.
2. EPA has included language in the guidelines for the 2020 Brownfields Assessment, Revolving Loan Fund, and Cleanup Grants. There will now be additional points given to applications for site-specific locations in opportunity zones and applications that would directly spur redevelopment in an opportunity zone.
3. The Local Foods and Local Places program within the Office of Community Revitalization is a technical assistance program in which EPA works to revitalize communities by increasing access to fresh and local food. Over the last year, EPA has identified opportunity zones as a consideration in selecting the communities with which it partners.
4. The Environmental Justice Small Grants Program within the Office of Environmental Justice has also added opportunity zones as a consideration when looking at applicants.

Ms. Bolen said EPA's experience suggests economic investments from the private sector may be more attractive when environmental quality is maintained at healthy levels, as potential environmental liability leads to uncertainty. EPA believes additional environmental improvements are necessary, including critical infrastructure projects to attract private sector investment, and opportunity zones lend to that effort.

While EPA has been encouraged by the positive feedback it has received on this work, Ms. Bolen recognized this work is evolving across the country at multiple levels. To maximize the tax exclusion of a qualified opportunity fund, it must be invested in by the end of 2021. Ms. Bolen noted this approaching year makes the work with the Board all the more timely.

Ms. Bolen recognized EFAB's expertise and mission to explore ways to lower costs and increase investment in environmental protection.

She thanked the Board Members for their consideration and introduced the following questions within the draft charge:

1. First, which specific federal/EPA incentives (monetary or otherwise) are most likely to increase public/private investment in opportunity zones?
2. Looking at existing EPA incentives, including funding programs such as environmental justice or brownfields grants, which incentives, programs, or approaches are better suited to achieve desired community outcomes while reducing risk, liability, and/or regulatory uncertainty for investors in opportunity zones?
3. Does the EFAB have recommendations on readily implementable adjustments to existing Agency programs to make them more effective in reducing risk, liability, and/or regulatory uncertainty? Are there more complicated adjustments that should be also considered by the Agency?
4. What regulatory/liability/risk data could be provided to allow investors to compare opportunity zones and determine which opportunity zone might be a best fit for their investment?
5. Does the EFAB have any recommendations on how EPA shares information and resources in a way that would ensure that the programmatic resources they leverage for opportunity zone purposes lead to improvements in local health and environmental outcomes for the existing community?

Ms. Bolen said she appreciated any feedback and questions, and she looks forward to continuing to work with the Board.

Ms. Kim thanked Ms. Bolen for taking the time to explain what the Office of Policy does. She noted these projects are incredibly complicated and take a lot of time; her main fear is 2021 is not enough time. She wondered if there is any way or ability to extend the 2021 deadline.

Ms. Bolen noted Ms. Kim is not the first to have voiced such a concern. She said the structure of the opportunity zone initiative was created through the Tax Cuts and Jobs Act, and the Department of the Treasury drafted the regulations around its implementation. Though she and EPA do not have control over that part of the initiative, she said she could raise the point to the broader Council to see what options are available.

Mr. Chu reiterated one of the criteria in the SOP is how EFAB can be impactful under the authority of EPA. Because this is a federal, government-wide initiative with other agencies involved, he recommended the Board be strategic and savvy about what they could offer to the Administrator. He noted Mr. Zimmer would be leading this discussion.

Mr. Zimmer said this is an area of interest to many on the Board. He noted the process of investing in an opportunity zone involves project design, collaboration with a developer, and permitting. He asked if the 2021 deadline is when one has to expend their funds, or if 2021 is when they must have their contract or loan agreement in place.

Ms. Bolen acknowledged she does not have an extensive financial background. Her understanding is one would need to have their funds in a qualified opportunity zone fund by the end of 2021. That fund does not necessarily need to have those resources expended, but it must be in a fund by 2021 to receive the greatest credit.

Mr. Zimmer said the market will figure out how to make the most money in the cheapest and shortest amount of time. From the perspective of a redeveloper, there are projects that have already been completed. Then there are projects that will never be touched. Through this tax law, the government is trying to incentivize redevelopers to consider projects that did not make sense before; it is providing a financial incentive to potentially get over the minimum return required by investors. Mr. Zimmer said two of the big issues are uncertainty and risk. There is no way to know what is in

the ground, and even after completing a remedial action work plan, the project may still be too costly to move forward. He said when Board Members think about this charge, they must consider three things. The first is how they can minimize uncertainty for the redeveloper. Doing so allows the redeveloper to make the necessary pro forma and cost-benefit analyses. He proposed the charge should include a component on how to remove uncertainty. Even with the removal of uncertainty, too much bureaucracy will also impede the program, given the time-value of money. From an efficiency perspective, the Board will also want to consider the issues they can address to minimize bureaucracy so people believe this is a worthwhile investment they can pursue on an expected timeline with relatively little hassle. Lastly, the Board will want to think about the existing programs they could make available to decrease the cost of financing. If they address those three big concepts, they can come up with ideas and recommendations to make opportunity zones attractive for redevelopers.

Mr. Anderson said he is one of the redevelopers to which Mr. Zimmer is referring. He has been a redeveloper for over 20 years, and he finds this to be a great charge. He said Mr. Zimmer made a number of good points. There are 430,000+ impaired sites in the United States. Some will never be redeveloped, and others are being worked on every day. Of the many sites that exist somewhere in between, a small fraction are in opportunity zones. Whatever work is done for opportunity zones has applicability well beyond that specific program. His question is what the Office of Policy will do with what the Board develops. He noted a number of the issues relate not to providing money or incentives. The cost of delay, extension risk, market risk, and cost of capital are far greater in these projects, and those elements are what the redevelopers use in their decision-making. In this context, these projects are associated with 20% internal rate of return (IRR) equity deals, rather than the 5% that is customary with banking deals. He expects the recommendations would involve statutory changes, and he does not know how feasible that is.

Mr. Zimmer asked Mr. Anderson to explain his comment about 20% equity.

Mr. Anderson said the capital stack for one of these deals is such that a developer will bring in an equity partner, as a bank will not want to be involved. This equity partner will ask for around 20% return on their equity investment. As a developer, that project is then really expensive compared to a traditionally financed deal with a bank.

Ms. Bolen thanked Mr. Anderson for his explanation. She said EPA welcomes any recommendations but cannot commit to advancing statutory recommendations. She recognized this is about more than money; it is about programmatic changes at EPA. She noted EPA has other efforts underway on the streamlining front like geospatial tools that it would welcome recommendations on as well.

Mr. Chu reminded the Board the charges that Ms. Bolen is asking the Board to consider are very explicit. He noted Board Members have talked about other recommendations. As they discuss taking on the charge, he urged the Board to decide on whether to take it as it is or consider how it could be modified. Some of the Board's recommendations could also encompass asking Ms. Bolen or the Administrator to transmit information about extending the deadline.

Mr. Meister thanked both Ms. Bolen and Ms. Wooden-Aguilar for coming. He observed it is rare for there to be so much executive support for an initiative at the federal level that impacts the state and/or local level. He recognized the chain of command that Ms. Bolen and Ms. Wooden-Aguilar represent. He said the national representation and multidisciplinary expertise of this topic leads him to suggest that several of the points raised by Mr. Anderson and Mr. Zimmer could take the form of factual observations, given the Board's role in fact finding. With the help of the resources of the Office of Policy to assist in fact-finding, the Board could make a series of written observations. He recommended the Board take this charge and fast-track it for consideration at the August meeting. He noted it does not have to be lengthy, especially with the resources represented by Ms. Bolen and Ms. Wooden-Aguilar.

Ms. Bolen said they would greatly appreciate fast-tracking the charge given its time sensitivity. To Mr. Meister's point on fact-finding, she said *Scott Turner*, the Executive Director for the Opportunity and Revitalization Council, has joined HUD Secretary *Ben Carson* in visiting opportunity zones around the country to meet with local leaders and gain a sense of what people on the ground are recommending. She recognized there are limitations to the number of places they have

been able to visit. While she knows their trip has been beneficial, they do not have something in writing that is as detailed as what Mr. Meister described.

Ms. Throwe clarified for the Board that they will hear about all the charges first before taking a vote.

Mr. Holland thanked Ms. Bolen and Ms. Wooden-Aguilar for coming and speaking to the Board about the charge. He agreed opportunity zones address a critical issue and provide a way to increase the capital flowing into communities in need. Given the critical timing constraints, he is considering what the Board could do. It struck him that EPA will never be in a position to manage the flows of opportunity zone funds into projects, as it is outside the capacity of the Agency. He said EPA could do a few other things, though. First, EPA has great convening power. He suggested EPA work quickly to understand what the existing opportunity zone funds are struggling with in terms of financing and building projects. Receiving direct feedback from those opportunity zone funds will be critical in determining what steps EPA can take to ensure whatever money it puts out is impactful. Second, he wondered if there is any precedent for federal agencies putting out a request for proposals (RFP) for a fund manager who would manage funds that invest into other opportunity zone funds using specific underwriting criteria adherent to the mission of EPA. He explained EPA has specific objectives it wants to meet across all the different teams within the Office of Policy. Those objectives could be translated into underwriting criteria for projects. One potential product of the charge could be an RFP for a fund of funds – that is, a fund that lends to qualified opportunity zone funds – and the criteria or conditions under which it would lend that money. If enough people are interested in such an RFP, EPA could at least establish to have funds flowing before the 2021 deadline and determine how to deploy those funds in a reasonable timeframe.

Ms. Kim said, in the past, the Board has convened experts around the table for advice and perspective. She noted it is not the fund managers with issues, but rather the developers on the ground who are interacting with and applying for these grants. She suggested, as part of the charge, the Board host a roundtable of developers from different areas to ask them what programs they are trying to access and why they cannot receive the grant funding and financing they need. What the Board and EPA really need is to understand the roadblocks for the developers.

Mr. Chu acknowledged Mr. Holland presented potential solutions to the charge and Ms. Kim discussed some of the ways in which the Board could acquire the necessary information for recommendations. He suggested the Board talk further about the process of the charge first.

Mr. Zimmer said there are a lot of different ideas and directions the Board could pursue. He asked if the Board could establish this charge as something they have interest in as a Board and then pick a group to work on how they would set up the charge for the August EFAB meeting.

Ms. Throwe said Mr. Zimmer's proposal would be allowed, but she would like the Board to go through all the prospective charges before proceeding.

Ms. Sanzone noted the idea is not to decide whether to accept this charge in August but to decide how the Board would approach the charge in August, assuming they vote to proceed today.

Mr. Chu noted there is a prioritization of the proposed charges that must take place before the Board votes to proceed.

Ms. Throwe thanked Ms. Bolen and Ms. Wooden-Aguilar for coming.

Ms. Bolen thanked the Board Members for their time, energy, and service. She said they look forward to engaging with the Board moving forward.

[Stormwater Task Force Report - Transmittal Letter](#)

Ms. Throwe transitioned to discussing the Transmittal Letter. She noted the Board Members should have a copy of the initial draft in their folders. She asked if they would like to list out the recommendations within the Letter.

Mr. Henifin said they should.

Mr. Zimmer said his style of reading and communicating is to present the key points upfront. He said the Letter currently addresses the recommendations at the end. He also wondered if the paragraph about stormwater management costs (paragraph three) is necessary.

The Board agreed.

Mr. Henifin said the Letter should acknowledge the gap in funding right away. After presenting the gap, they could state the recommendations on how to fill it.

Ms. Throwe said she wants to keep the Letter to a couple of pages.

Mr. Henifin said the Board should make sure to do so.

Mr. Crooks wondered if the Board needed to keep the recommendations in the Letter. He agreed they should note the substantial gap in funding and the need to fill it, but they could do so without going into great detail about the recommendations. Rather, they could summarize the recommendations after the introductory paragraph.

Ms. Beecher agreed. She suggested they include a one-page of the recommendations in an Appendix at the end.

Ms. Throwe said her concern with Mr. Crooks' suggestion is if the Transmittal Letter is all that is read.

Ms. Lemoine said the third paragraph of the Letter summarizes the recommendations without too much detail. If the Board moves that paragraph higher to the opening of the Letter, they could get their point across.

Mr. Anderson said the Board seems to be struggling with who will be reading what parts of the report. He suggested they may be overthinking and proposed making the Letter two paragraphs. The other information could be included in the Executive Summary.

Mr. Crooks seconded Mr. Anderson. He said Congress asked for a report, and the Board produced a report. Congress did not ask for a Letter.

Ms. Tarquinio said she does not think the Transmittal Letter will go in the Appendix of the larger EPA report to Congress. It will go to the Administrator.

Ms. Throwe noted this Letter will be read and will have her name on it. She asked the Board what their one point would be to get across.

Mr. Anderson turned the question back to Ms. Throwe and asked what one point she would want to make.

Ms. Throwe said the paragraph on the second page of the report that notes how the Task Force analyzed the funding needs of communities and emphasizes the need to prioritize stormwater captures the meaning for her.

Mr. Zimmer agreed. He said he does not think this is a two-page Letter. He said the Board should build out the paragraph Ms. Throwe identified and state their recommendations. He thinks they should distill in two paragraphs the work that everyone did, as if they were pitching their findings to the Administrator.

Ms. Throwe said she is comfortable with that approach and wants to come out of the gate with the Letter. She said she has recorded the Board's feedback for when she revises it. She asked Ms. Sanzone if the Board could take a vote on the report at this time, including the Executive Summary. She recognized they could not take a vote on the Transmittal Letter until everyone has had the opportunity to review the final version.

Ms. Sanzone said Ms. Throwe could ask for a motion regarding the finalization of the report, including the Transmittal Letter, subject to the discussions to which the Board has agreed.

Ms. Throwe asked if she had a motion for the report.

Mr. Crooks moved that the Board finalize the documents of the report, including the Executive Summary and Transmittal Letter, in accordance with their discussion over the last three days and authorize Ms. Throwe to transmit their work to the Administrator.

Ms. Throwe asked for a second.

Mr. Anderson seconded.

Ms. Throwe asked for a vote on the motion.

Fifteen members being present and constituting a quorum, the motion passed unanimously.

Proposed Charge to EFAB – Risk and the Cost of Capital

Ms. Beecher proposed a new charge on risk and the cost of capital for utilities, a topic around which many of the Board Members have coalesced. Specifically, the charge seeks to address the intersections of environmental and financial risk. She noted how Standard & Poor's Financial Services, Moody's Investor Service, and others are starting to look at risk, reliability, regulatory compliance, and resilience. There is an opportunity to consider how players in the market, including credit agencies, are dealing with risk-related issues.

Ms. Beecher shared the following key questions listed in the proposed draft charge:

- What risk factors (including environmental risks) are affecting utilities and how are they being addressed? Examples of risk impacts include cost (increased capital or operations scope, reporting and administrative effort, etc.), schedule (delays due to required environmental permits/approvals), and increased uncertainty about project viability (affecting cost of capital and increasing contingencies).
- How can utilities more effectively manage risk, and which tools are most cost-effective for which risks?
- Which categories of risk have been the most challenging for utilities to manage effectively, and why?
- How are utility credit ratings and insurance products affected by risk?
- How is changing risk affecting utility capital costs and revenue requirements?
- How does utility ownership affect risk management?
- For the private sector, how are risks shifted between shareholders and ratepayers?
- How does risk-bearing relate to issues of environmental justice?
- What practices and products can utilities use to manage or mitigate risk?
- How are various types of risks disclosed and reported?
- What tools are available for evaluating risk, including scorecards?

Ms. Beecher considers risk and the cost of capital to be a natural topic for the Board and EPA to consider. The Board would need to consider who within EPA might be interested in this work. Ms. Beecher noted a forum may be useful to apply to this charge. Another possible product could be a webinar or seminar to help those who do not have the financial background to understand these terms or issues.

Ms. Throwe returned to Mr. Chu's earlier point about what the Board can offer EPA.

Mr. Crooks said he was a minor contributor to the first draft of this proposed charge. In reading and thinking about the issue, he was struck by its breadth and depth. He said the Board should consider focusing on a particular aspect of risk. He suggested focusing on climate change and how those risks are affecting the cost of capital. The Board could also

focus on environmental regulatory risk. He acknowledged there is also a lot of existing written material on risk, and the Board would not want to replicate what has been done elsewhere. The Board will need feedback from EPA staff as to what would be useful in accomplishing their objectives.

Mr. Weiss agreed the Board needs to narrow the scope of the charge. He is seeing an increasing focus by investors on bond and equity markets. This topic has a direct implication on the cost of capital and the ability of EPA to achieve its mission to improve the environmental situation for utilities. He said part of the charge may relate to education and part of it may relate to things EPA could do with its policies to help utilities address risk mitigation.

Mr. Stannard said, when thinking as an advisor to municipal utilities, Ms. Throwe's comment is very important. The Board needs to frame this topic in a way that is a nexus with actionable items for EPA. He asked how they can help utility management understand and expand their approaches to risk mitigation and relate that to what EPA does. He agreed the Board needs to narrow the charge and focus on an actionable outcome.

Mr. Henifin said, as a utility and member of the regulated community, his utility is often accused, and rightfully so, that it is risk averse. He explained there is an imbalance in the public sector between risk and reward. There is no upside to taking risk in the public sector. Public sector entities are slow to adopt new technology because there is little reward for being the first one out if it does not work. He said there is an action here for EPA to figure out how to build a permit and regulatory environment that would support risk taking. Doing so could save a fortune in capital investment.

Ms. Kim said in any equity or debt document, there is a huge section on risks and how to mitigate them. She said the Board's work could be a tool for EPA. The Board could write an outline of this section for smaller entities who do not have the expertise to organize themselves and write about risk as extensively.

Mr. Meister agreed the charge should be narrowed. He noted the needed expertise is already in this room. There would be a lot of research necessary, and the Board could write about the issue in succinct, plain language. He also finds the topic timely because of the January release of the McKinsey report and Larry Fink's BlackRock letter that recognized a fundamental reshaping of finance. He said the Board could take on a narrower version of this charge quickly and return to the next EFAB meeting in August with something useful to EPA.

Mr. Zimmer said he likes the idea of narrowing the charge down to focus specifically on climate change. As a lender to utilities, he considers it to be relevant and cutting-edge. He seconded Ms. Kim's comment and added that rating agencies are looking at climate change. He noted the risk-reward issue is not about what one will be paid but what one will be penalized. He supports this charge because it presents an opportunity to help EPA get in front of this issue with regulatory guidelines for his clients.

[Farewell to Departing Board Members](#)

Mr. Chu explained the process of how the next iteration of the Board will be assembled.

The terms for all the current Board Members expire at the same time except for Ms. Throwe. There was a *Federal Register* notice seeking nominations for the Board, and the Administrator will select the members. The *Federal Register* nomination period has closed, and there is now an internal process taking place. There are several Board Members who have six years and are no longer eligible for re-nomination. The majority of the Board has not termed out. By June 2020, before the expiration of the current terms, there will be a decision about the composition of the next Board. He cannot say what will happen, but from previous processes, there is a high likelihood that many will be sitting on the Board again. There will not be a gap in the terms for those re-nominated and reappointed.

Mr. Chu had intended to have a ceremony for the current Board Members. This is a particularly important Board as the Board Members are the class of 2020 during the 50th year of the EPA. He noted they will all be receiving something from him. He is also trying to implement a procedure for welcoming new Board Members and saying farewell to old Board Members. He acknowledged the feedback he received about how strange it is in first joining the Board. If Board Members are reappointed, they may be asked to assist in the onboarding process of new members.

Mr. Chu said the Board Members have been a spectacular group for him, personally. He thanked the Board Members for their feedback, and he hopes they know the impact they have made not only on EPA but also on how EFAB functions and will continue to function moving forward.

Ms. Throwe recognized there are a few Board Members who have reached the end of their terms. She acknowledged Ms. Daniel, Ms. Kim, and Mr. Crooks. She said they are all family, and though she has been around for some time, it is difficult to say goodbye. She expressed her sincere appreciation for their six years of hard work and extensive expertise. She asked if they had any favorite projects or parting words.

Mr. Crooks said one of his favorite projects was on transit-oriented development, a project on which all three of them worked. He reflected on how much the Board has improved its operations and approach. He said the process was very ponderous then, and he finds the Board now is more efficient, effective, and impactful. Its ability to deliver has improved dramatically, for which he thanked Ms. Throwe, Mr. Chu, and the Board.

Ms. Daniel said participating on the Board may be one of the most rewarding things she has done in her career. She said it has been a pleasure to sit around a table with such brilliant minds. She explained she is engaged the entire time because of the thoughts and creativity on the Board. She agreed the Board has improved its process dramatically in capturing the value of its members.

Ms. Kim said she has really appreciated this opportunity. She said, of the last six years, this current Board comprises the most engaged group of people, and she recognized the Board Members' devotion to the mission of improving their environment. She said one highlight for her was having the White House adopt some of their recommendations. She was subsequently invited to a roundtable to discuss tax policy.

Ms. Daniel said it is also invigorating that the Board's discussions carry on beyond the table. She remembered one meeting in Washington D.C. when there was a fire drill, and she and her fellow Board Members came up with the green bond initiative while standing outside the building.

Mr. Chu noted these three individuals are not the only ones who will say farewell. Others will be voluntarily stepping down from the Board. The current process does not allow him to say more about potential retirements and reappointments, but he said the Board will be revising this process to allow for more open acknowledgement of outgoing member contributions moving forward.

Ms. Throwe thanked those who will be leaving and said they will be missed.

[Backhaul Alaska Debrief](#)

Ms. Throwe asked the Board to revisit its consultation for Backhaul Alaska. She asked if the Board effectively closed out the request from EPA and if the Board had additional comments.

Mr. Meister said, upon reflecting on the comments made yesterday, he believes the consensus was this was a failure of key stakeholders and local and state government. He noted Backhaul Alaska is the sort of collective market and public policy governance failure that is becoming increasingly common across the country. He moved for two things. First, he moved the Board to notify the Administrator in a letter of consultation about this failure and recommend EPA find a sum of money to immediately address the situation. Second, he suggested the Board Members use the business plan they collectively outlined yesterday to work with the sovereign state, local government, and tribal entities to develop a sustainable solution.

Ms. Daniel agreed.

Mr. Zimmer said there would, in the very least, need to be a constraint on the recommendation for support like a dollar amount or time limit. He reiterated Mr. Henifin's comment that Alaska is a wealthy state. As a representative from another state, he said he did not know if he would be willing to include such an addition to the letter of consultation. He said he has an issue with asking the federal government to give Alaska money to bail them out.

Mr. Henifin said he is of the same opinion as yesterday. He does not see where this request would solve anything for a sustainable future. He does not believe it is the role of the federal government.

Ms. Daniel noted Ms. Carvalho and the Solid Waste Alaska Task Force have been working on this issue for two and a half years. While the Board engaged in helpful work yesterday, she noted the Board Members all left with some feeling of dissatisfaction about the situation. She said she does not see a one-time bailing out as a sustainable solution.

Ms. Lemoine said she agrees with adding a statement about the failure of state government and the need for something to be done. Her concern with asking EPA for funding is that there are unique problems throughout all 50 states and territories. She would like to see a more sustainable approach if the federal government is going to get involved.

Mr. Rothstein agreed with Ms. Lemoine, Mr. Henifin, and Mr. Zimmer. He finds bailing out a local government for its failures to have little appeal. He noted, at the same time, they saw in Flint that the local and state government failed, and EPA was condemned for not addressing the issue in a faster, meaningful way. Backhaul Alaska is an example of consistent local and state government failures occurring throughout the country and posing significant environmental justice issues. Rather than ask for money for this particular problem, he said it should be recognized as one of several problems. He suggested there may be a charge to look into a funding mechanism that deals with how to address state and local government failures that lead to a significant environmental justice issue. The Board could use Backhaul Alaska as a pilot or example. He noted the Board must be very careful and thoughtful about the criteria by which funding is provided. EPA should function as a backstop in providing service to low-income and economically disadvantaged communities, not a parachute for failing local and state governments.

Mr. Kaplan said he strongly supports Mr. Meister's recommendation. He said the provision of federal funding or support would not be intended as a permanent measure. By citing the progress made by the Solid Waste Alaska Task Force, the Board is highlighting the existence of an organization dedicated to remedying the situation. EPA would be stepping in because there is an immediate problem that needs to be addressed by the local people.

Mr. Zimmer said he is in the same place as Mr. Kaplan. He noted he differs from Mr. Henifin in that he is more comfortable asking for money because there is a plan in place that needs seed money. The state would then be stepping in to make sure the program continues. The Board is really asking EPA to be the incubator.

Mr. Anderson said he is torn. He likes the idea of acknowledging the failure of the state to comply. He is opposed to potentially setting a precedent, and he noted there may even be constitutional issues with funding a program in this way. He would support the seed money if it was directly tied to implementing something. He acknowledged the Board would not even be in this position if not for Ms. Carvalho and her team. Their tenacity and initiative with this program sets Backhaul Alaska apart from throwing money out as a last resort.

Mr. Stannard noted the Board has spent a significant amount of effort on this issue. Yesterday, the Board Members developed frameworks that could be the basis for implementing a governing structure. He wondered if they could ask for the provision of funding not to assist with everything, but to help the Backhaul Alaska program reach the next step so, at some point, all the stakeholders are engaged.

Mr. Chu urged the Board Members to do more factfinding on the other issues they are raising about EPA funding. Since the 2018 Appropriations Act, EPA has allowed money from IGAP to be used for paying for the Backhaul Alaska program. He would urge the Board to learn more about that change from Congress before making any recommendations about allocating money. He said the question may be more about targeting and addressing issues related to that funding.

Ms. Beecher said she is comfortable with providing some kind of recommendation to the Administrator. To Mr. Rothstein's comment, she would step back and think about Backhaul Alaska as a financing problem. She noted the need to be more proactive about reestablishing a culture of compliance. Backhaul Alaska should signal a broader problem.

Ms. Kim asked if the Board could condition the seed money with matching state or local funds.

Ms. Throwe noted this letter will have her name on it, and she needs to be comfortable knowing the Board is supporting its direction. She said she is interested to see something go in the letter beyond the original acknowledgement of the consultation. She would like more time to consider what that looks like and asked Ms. Sanzone if that would be allowed. She would also like a small group to work with her in talking through these possibilities. She reiterated how impactful the Board could be here.

Ms. Sanzone said whatever the letter becomes, the Board would need to see the final draft by email to approve it.

Ms. Throwe asked for a small group to work with her on the letter before bringing it to the full Board.

Mr. Meister articulated Ms. Throwe's request as a motion. He moved to delegate to Ms. Throwe the authority to convene a small group of Board Members within the parameters of FACA to advance an additional recommendation to the Administrator in light of market and governance failure.

Mr. Holland seconded Mr. Meister's motion.

The Board all voted in favor.

Members Anderson, Beecher, Crooks, Daniel, Henifin, Holland, Kaplan, Kim, Meister, Rothstein, Stannard, Weiss, and Zimmer volunteered to help Ms. Throwe.

The Board took a break and reconvened at 11:28am.

[Proposed Charge to EFAB – Stormwater Credit Trading](#)

Mr. Holland said increasingly in the National Pollutant Discharge Elimination System (NPDES) permit writing process and because of dwindling flows into stormwater utilities, cities and municipalities are looking for ways to offload some of the responsibility for stormwater management onto the private sector. Specifically, they are looking at those developing new impervious areas in cities. Within the permit writing process, there is usually some compact between the municipality and the regulator to put in place a post-construction stormwater ordinance which obligates developers of new properties to stormwater management. The specifics of what is in the ordinance is then left to the political process of the area. Within that framework, there is an opportunity to create markets around those ordinances. These markets are effectively compliance offsets from where the property is being developed to where the stormwater management takes place. Washington D.C. was the first place in the country to have such a trading market and has been successful in driving both environmental and social outcomes. The market has also brought more financing into the stormwater space, completing larger projects at cost-efficiencies while also maintaining the compliance obligations that exist under its municipal separate storm sewer systems (MS4) permit and Total Maximum Daily Load (TMDL) obligations within the Chesapeake Bay.

Mr. Holland said The Nature Conservancy participates and invests in this market. The organization has helped think through various ways in which these markets can be run more efficiently, and its reports can be accessed online. Other communities have since been asking consultancies and non-governmental organizations how to implement their own stormwater credit trading programs. Given the interest across the United States, he sees an opportunity for EFAB to put together guidance for permit writers on how to create the ability for communities to institute stormwater credit trading within the permit writing process. This work could comprise one or more of the following:

1. The ways in which to institute a stormwater credit training market within the permit writing framework and to obligate communities to do so within the five-year permit writing cycle
2. A study into what needs to happen for a credit trading lane to take place
3. Guidance on the various considerations that a municipality would need to take to successfully implement a program like this

Mr. Meister said he finds the proposed charge to be well thought out. He thinks there will be more discussion, but he would like to move forward with this charge. It is relevant, flows out of the recommendations to Congress the Board is working on, and, locally, Illinois could use these kinds of resources.

Mr. Weiss said he is familiar with other types of trading programs, and he asked if this approach could be done on a watershed-basis or only a community basis.

Mr. Holland said ideally, with any market, there is as much volume as possible and at scale supply and demand. That is, ideally, this would exist at a watershed scale. There are challenges, though. Within the Chesapeake Bay TMDL framework, there is authorization from the Chesapeake Bay program to look at a nutrient trading market as a means of compliance. However, each state within the Chesapeake Bay watershed has its own trading framework and language. He thinks the Board could recommend that ideally if one of these markets is going to be put in place, it be on a watershed basis. However, doing so will require reconciling peculiarities of regulation sitting at various units of government. This is not impossible to overcome, but it is a challenge.

Mr. Crooks sought to better understand the nature of the advice the Board would give. Would the charge center around the commercial, legal, and financial structuring of these trading programs? Would it deal with the technical aspects of what stormwater and treatment assets could be included? Is there a narrowing of focus that might be useful?

Mr. Holland said he would not recommend the Board try to develop guidance around the specific best management practices that would make one eligible for credit certification. In his experience, that is a very locally determined decision and appropriately so, as each watershed is dealing with different issues. With this charge, he suggested the Board focus on the policy and regulatory measures that would need to be in place to have a functioning market and the administrative concerns that the permittee would need to implement to administer and manage that market.

Mr. Crooks said presumably the permittee would then address all the situation-specific issues.

Mr. Holland said that is correct. Typically, when a city institutes a post-construction stormwater ordinance, it will create guidance on eligible best management practices (e.g., local permitting) for implementing the program.

Mr. Stannard said he appreciates this concept, as it is an issue many cities are dealing with outside of a market. He asked if he was correct in understanding there would be guidance to the permit writer as well as the permit receiver.

Mr. Holland confirmed Mr. Stannard is correct. The Board would want to have guidance on both ends, so everyone is operating from the same set of facts and language.

Mr. Stannard said there would be opportunity to take this concept further as well to things like green infrastructure where multiple communities are involved.

Mr. Holland said one of the issues in this space is when people try to measure the common denominator across different ordinances, as they are all measured differently (e.g., cost per square foot, cost per gallon managed, impervious acre treated credit). To get these programs operational across the country, there needs to be some sort of standard for what a credit means. Then the private market would be more interested in engaging. Right now, the translation costs to enter into these markets is very high.

Ms. Throwe noted a few members have to leave early. She asked if the Board could postpone their discussion on the proposed charge on water affordability to the August 2020 EFAB meeting.

Mr. Henifin said that would be fine.

Voting on Proposed Charges

Ms. Throwe said the only official charge before the Board is on opportunity zones. She said the Board would need to discuss whether to move forward with that charge before determining whether there is capacity to develop official charges for the other proposed topics.

Mr. Zimmer made a motion that the Board Members consider moving forward with the charge for opportunity zones with the idea that they would be able to modify it at some point.

Mr. Meister seconded Mr. Zimmer with the addition that the Board delegate to Ms. Throwe the ability to narrow the charge with Board consensus with a revised charge to be take up at the August 2020 EFAB. .

Ms. Throwe moved to a vote to take up the charge as amended.

The Board voted in favor.

Ms. Throwe moved to the proposed charge on risk and the cost of capital.

Mr. Crooks proposed that Mr. Chu and the EPA support team take the concept of this charge back to EPA, shop it around, and find what would resonate most. He said he agreed with Mr. Zimmer's point on the cutting-edge nature of climate change risk, but he acknowledged it may not be what EPA wants to prioritize.

Mr. Holland agreed but cautioned the Board about taking on a charge too broad in scope. Unless the charge is narrowed down to a few key points, it will be difficult to complete.

Mr. Chu said it would be difficult for him to find a client at EPA at this time because the charge is so broad. He asked the Board Members who proposed this charge to narrow the scope and identify potential client offices.

Mr. Weiss said he agreed the group should narrow the focus of the charge to bring to Mr. Chu.

Ms. Throwe asked the Board to vote on having the subset of Board Members modify the charge for their review prior to sending it to Mr. Chu.

The Board all voted in favor.

Mr. Chu noted, for Mr. Crooks, Ms. Daniel, and Ms. Kim, the expiration of their terms on the Board is April 5, 2020. He recognized Mr. Crooks is a part of the group that proposed this charge, so that establishes a deadline for narrowing the focus. The other Board Members have until June 15, 2020 in case they are not re-appointed.

Ms. Throwe moved to discuss the proposed charge on stormwater credit trading.

Mr. Anderson said all three proposed charges have merit but seem to need refinement and client selection. By comparison, the opportunity zone charge is ready now.

Mr. Chu said, if the Board thinks the charges warrant going to the next step, it could propose the Board Members further refine their respective charges and identify a specific client office.

Ms. Throwe said she also needs to hear if the Board has no interest at all in the proposed charge topics.

Mr. Holland proposed the Office of Water as the client office for his specific charge.

Mr. Anderson moved that the proposed charges on stormwater credit training, affordability challenges, and risk and cost of capital be further refined and that the Board Members identify offices that may sponsor their respective charges before the August 2020 EFAB meeting.

Mr. Holland seconded.

The Board voted in favor.

Public Comment on Proposed Charges

Ms. Throwe opened the time for public comment at 12:00pm. No one was registered in advance, but Ms. Throwe asked if anyone attending from the public would like to comment.

Ms. Sheils introduced herself from the New England EFC in EPA Region 1. She is the incoming president for the EFC Network. She agreed that the opportunity zone charge and the other proposed future charges are incredibly relevant, and the EFCs have current work on projects related to them. For example, the New England EFC has a NOAA-sponsored project with Maine Water related to the proposed charge on risk and the cost of capital. Using a state-of-the-art model, EFC staff are trying to figure out what categories of risk have been the most challenging for utilities. They are learning it is the timing of when utilities should invest in adaptation measures. She emphasized the EFCs are working directly with communities on projects they can bring to the Board. In the past, the EFCs have been included on charges as expert witnesses. The experiences the EFCs have with their communities are a direct tie to what is going on at the local level, and she said the Board could greatly benefit from their input in the future. She thanked the Board for their time and appreciated their consideration of the EFCs as a source for consultants and subject experts.

Ms. Throwe confirmed no one else wanted to provide public comment.

EFAB Organization and Effectiveness

Ms. Throwe asked for feedback from the Board about how they organize themselves and how they could amplify the impact of their products.

Mr. Zimmer said he sees this as a push and pull. He said the Board can be more proactive once their products are made more available for the public. The Board could start initiatives to ensure there is a broader distribution. Conversely, there could be a pull when their products go to EPA. He noted there is a feeling that their products go to the Administrator's office, are posted online, and that is it. The perception is there is no additional work by EPA to actively distribute or act upon their findings.

Mr. Chu said the process of distribution is wrapped up in the charge. He said this discussion ties back to what the work is and its impact. He noted the report to Congress will have greater amplification regardless because of the potential impact of some of their recommendations. On the proposed charge on stormwater credit trading, the question is who the audience will be. He agreed with Mr. Zimmer that there will be a narrower set of audiences. He would urge the Board to consider audience and impact when accepting the charges. The tenures of the Board Members are limited, and they just accepted one charge and three prospective charges. He asked which of those three they would consider, using criteria like potential audience and amplification.

Mr. Zimmer asked if he is suggesting the Board consider a ranking methodology that includes the potential impact of each charge.

Mr. Chu said he is not necessarily suggesting a ranking methodology. He said in the past the Board has tended towards creating reports, and some of those reports have had a very narrow set of audience members (e.g., the recent EFAB report on the Chesapeake Bay). The question is what the Board would prefer between that approach and something like the report to Congress. He stressed he is not offering commentary about either report. Instead, he wants to emphasize how the Board could tackle amplification within the process of accepting charges.

Mr. Anderson emphasized Mr. Chu's point that there have been enormous changes in the Board. He said the Board has transitioned from charges about strictly finding money to charges about changing the way EPA thinks. He said it is really important to continue thinking about how to leverage private investment, and he finds the Board's real value is its intellectual capital. He asked how to employ that in an actionable way. He said the exercise the Board Members did yesterday for Backhaul Alaska was a big step forward, and they should continue considering different approaches to their work. Additionally, for those on the Board in August, they have a responsibility to work with new Board Members, embracing what they bring while carrying forward the culture and investments of this current Board. He said this meeting has been the most productive he has attended thus far.

Mr. Meister suggested Ms. Throwe and Mr. Chu follow up with Ms. Bolen about these three prospective charges. He said Ms. Bolen recognized the elements of EFAB and tied them to her mission for innovation. He said the other opportunity, given how Ms. Throwe and Mr. Chu have and will continue to establish themselves as multidisciplinary resources of intellectual capital, would be to begin working with the Office of the Administrator to allow member terms beyond six years on a case-by-case basis.

Mr. Henifin said the idea of writing more reports is not thrilling. He said a lot of report writing is a grind, rather than generating ideas and working off the Board Members' intellectual capital. He finds the Board would do a lot more if the Board Members could spend time generating creative ideas. The piece that frustrates him about amplifying the reports is he has no idea as to whether those recommendations will be taken up. He would like to see further follow-up in that regard, otherwise there is no purpose to amplifying something that never happened.

Ms. Kim said the Board used to make recommendations based more closely on their audience. For a charge related to a rule promulgation issue, for example, the Board invited the White House and had representatives attend the meeting. If EPA cannot deal with funding things, then the Board's audience should be the people responsible for putting together budgets. Those individuals should be attending the meetings. The Board needs to invite the people who can either directly implement the change or push back on the feasibility of their recommendations.

Ms. Throwe said the Board is and should be multi-media. The Backhaul Alaska consultation was indicative of the different types of work they should do. She noted the Board has also been very focused on water over the last few years. She wondered if EFAB should sit in the Office of Water or if they need to be recognized higher.

Ms. Kim noted she once tried to propose a charge in the Office of Air and was not met with a positive reception.

Mr. Chu said the Board is providing advice to the Administrator, and Ms. Throwe's comment really addresses the impact and relevance of their work. While he cannot speak to what Ms. Kim experienced, he noted there were two people from the Office of Air sitting in the audience during the meeting today. He said if a lot of the work the Board does is focusing on one media, as it has the last few years, then that is how the Board will be known. It depends on what impact the Board wants to make. His thought is the Board should keep in mind moving forward the kinds of work they take on and the level of advice they provide.

Ms. Kim thanked Mr. Chu and Ms. Throwe for all the people they have worked to bring to the Board meetings.

Ms. Throwe said expanding the focus area is something the Board could work on. The Board has traditionally used the EFCs as a major resource to help backstop the Board and provide a local perspective. The Board should continue to leverage this relationship with the EFCs moving forward. Ms. Throwe noted, due to limited resources, representatives have been invited to highlight at least a couple of the EFCs each meeting.

Mr. Holland said this is a great and necessary conversation, one that was lacking when he first joined the Board. He has seen the Board, over the last four years, be more discerning about how they think about charges and interacting with clients. On the point of amplification, he noted the Board is limited but their clients are not. The clients are the ones who will take the recommendations and move them more into the public sphere or within EPA, as evidenced by the Backhaul Alaska program. He said EFAB was very passive in the beginning about the charges that were accepted. He encouraged the Board Members to not only spend a lot of intellectual capital on refining their respective charges but also on refining their clients or audiences. Consideration around amplification will be a part of that process.

Mr. Crooks agreed with Mr. Holland. He said the process of being more discerning about taking on charges must be informed by some understanding of how the Board's recommendations have or have not been impactful over time. He said if the Board can better process the outcomes of their work, then they can better navigate trends and understand where they have impact and where they do not.

Mr. Chu said, when drafting the SOP, the Board discussed the role of receiving responses from EPA clients. When Board Members make recommendations, they can ask for a specific reaction or update as to what has happened after a period of time. He recognized how the Board would want to know whether their recommendations are useful to EPA.

Ms. Sanzone confirmed the SOP states that, after the Board submits their report, they will request a post-response briefing to understand what has come from their recommendations.

Ms. Throwe noted, as the Chair of the Board, she will ensure the conversation does not end here. At every meeting the Board can continue to refine the way they manage charges and the follow-up to their work.

Mr. Kaplan noted there was mention yesterday that the Board's reports go to AWWA, National Association of Clean Water Agencies, and other industry organizations. He asked if industry organizations have participated in or been solicited by the Board to provide comments and feedback in the past.

Ms. Throwe said such industry experts have been on the Board in the past. At various times, the Board has had expert consultants come in.

Mr. Anderson asked if there are criteria as the Board develops and chooses charges.

Ms. Sanzone said the Board does not have formal criteria for how to decide which charges to select. The Board needs to continue to build the expectation about the nature of the responses expected from EPA clients.

Mr. Chu noted Board Members built the clause into the SOP for that reason. They wanted to create a kind of muscle memory about how EPA and EFAB interact with one another.

Ms. Throwe asked if the Board felt she was going in the right direction by considering relocating EFAB from the Office of Water, perhaps into the Office of the Administrator. Doing so may elevate the conversations of the Board.

Mr. Stannard said he likes the concept, as EFAB was formed to assist EPA with the depth and breadth of its responsibilities. Being in the Office of Water, the Board will naturally have more of a focus and linkage to water issues.

Mr. Meister also supported Ms. Throwe's idea. He said the Board has an opportunity with the Administrator's Office of Policy if they deliver on the opportunity zone charge in an effective and timely manner.

Mr. Crooks asked if moving to another office impacts the support EFAB receives from people like Mr. Chu and the EPA support team.

Mr. Chu said it would not. He also recognized this topic warrants another discussion. As he understands it, before coming onto the Board, EFAB resided in the Office of the Chief Financial Officer for over two decades. For reasons unknown to him, there was an internal EPA reorganization that resulted in EFAB being placed in the Water Infrastructure and Resiliency Finance Center (WIRFC) in the Office of Water. He noted the question is how such placement is influencing the work of the Board and its impacts on EPA more broadly. As this is an internal EPA matter, Ms. Throwe is more so asking if the Board would want to weigh in on it.

Mr. Weiss said it is most important that the Board be as useful to EPA as possible and maintain the support they need.

Ms. Kim noted she may be incorrect in saying so, but she remembers a time when EFAB lost almost all its funding. The Board had to hold meetings over the phone.

Ms. Throwe said there was less money at one point.

Ms. Kim said her understanding was *Andrew Sawyers*, current Director of the Office of Wastewater Management at EPA, was also on the Board at some point.

Mr. Chu said EFAB, like any advisory committee, has always had funding. If EFAB did not have money, the Board would not have existed. He said his question is if EFAB's placement is affecting their work and its impact on EPA. He noted this discussion is somewhat precipitative, as it affects even the drive for membership.

Ms. Throwe said the Board seems to be elevating their work. She found it was the right time to introduce such a discussion because she wants the Board's work to have the recognition it deserves. She thanked everyone for their efforts over the last few days. She said there is not yet a date for the next meeting, but it will be held in August 2020.

Mr. Chu said farewell to those leaving the Board and is hopeful many can be reappointed. Regardless, he said it has been a spectacular meeting, and he thanked them for their participation.

The Board adjourned at 12:26pm.

Attachments

- Attachment A. EFAB Roster, February 2020
- Attachment B. Federal Register Notice Announcing the Meeting (85 FR 3678, January 22, 2020)
- Attachment C. Meeting Agenda, EFAB February 11-13, 2020
- Attachment D. Evaluating Stormwater Infrastructure Funding and Financing Task Force: Task Force Report for EFAB Review
- Attachment E. Evaluating Stormwater Infrastructure Funding and Financing Task Force: Draft Transmittal Letter for EFAB Review
- Attachment F. EFAB Member Pre-Meeting Comments on the Stormwater Infrastructure Funding Task Force Report
- Attachment G. Evaluating Stormwater Infrastructure Funding and Financing Task Force: Database for EFAB Review
- Attachment H. Public Comment: National Ground Water Association Comments to EFAB
- Attachment I. Public Comment: Alternative Compliance and Stormwater Innovation Coalition—Comments to Members of the U.S. House of Representatives (2/7/2020)
- Attachment J. EPA Presentation: Consultation on Financing and Governance Options for Backhaul of Hazardous Waste from Remote Alaska Communities (2/12/2020)
- Attachment K. EPA Webinar Briefing Materials on Backhaul Alaska Program (1/30/2020)
- Attachment L. EPA Backhaul Alaska Consultation Plan
- Attachment M. Draft Proposed Charges for EFAB Discussion

U.S. ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCIAL ADVISORY BOARD

Joanne Throwe, Chair
Ed Chu, Designated Federal Official

MEMBERS (February 2020)

NAME	AFFILIATION	REPRESENTED GROUP
Joanne Throwe, EFAB Chairperson	President, Throwe Environmental LLC, Bristol, RI	State/Local Government
Brent Anderson	Chief Executive Officer, RESIGHT, Littleton, CO	Business – Industry
Lori Beary	Community Development Director, Iowa Finance Authority, Des Moines, IA	State/Local Government
Janice Beecher	Director, Institute of Public Utilities, Michigan State University, East Lansing, MI	Academic Expert (Special Gov't Employee)
Theodore Chapman	Senior Director, U.S. Public Finance Department, S&P Global Ratings, Dallas, TX	Business - Financial Services
Rudolph Chow	Director, Department of Public Works, City of Baltimore, Baltimore, MD	State/Local Government
Edwin Crooks	Founder and Principal, Greystone Infrastructure Advisors, Great Falls, VA	Business – Industry
Lisa Daniel	Managing Director, Public Financial Management, Memphis, TN	Business - Financial Services
Marie Roberts De La Parra	Chief Executive Officer, BMB Construction Properties, Alameda, CA	Business – Industry
Yvette Downs	Chief Financial Officer, Sewerage & Water Board of New Orleans, New Orleans, LA	State/Local Government
Ted Henifin	General Manager, Hampton Roads Sanitation District, Virginia Beach, VA	State/Local Government

Craig Holland	Senior Director, The Nature Conservancy, New York, NY	Environmental/Non-governmental Organization
Daniel Kaplan	Financial Services Administrator, King County Department of Natural Resources and Parks, Seattle, WA	State/Local Government
Suzanne Kim	Founder/Managing Partner, Motivate Capital, Tiburon, CA	Business – Industry
Pamela Lemoine	Principal Consultant, Black & Veatch Management Consulting, LLC, Chesterfield, MO	Business – Industry
James McGoff	Chief Operating Officer & Director of Environmental Programs, Indiana Finance Authority, Indianapolis, IN	State/Local Government
Chris Meister	Executive Director, Illinois Finance Authority, Chicago, IL	State/Local Government
James (Tony) Parrott	Executive Director, Metropolitan Sewer District of Louisville, Louisville, KY	State/Local Government
Eric Rothstein	Principal, Galardi Rothstein Group, Chicago, IL	Business - Financial Services
Bill Stannard	Chairman of the Board, RAFTELIS, Kansas City, MO	Business - Financial Services
Carl Thompson	Vice President, Sales and Marketing, Infiltrator Water Technologies, Old Saybrook, CT	Business – Industry
Angie Sanchez Virnoche	Vice President/Principal, FCS Group, Redmond, WA	Business - Financial Services
Richard Weiss	Executive Director, Morgan Stanley, New York, NY	Business - Financial Services
David Zimmer	Executive Director, New Jersey Infrastructure Bank, Lawrenceville, NJ	State/Local Government

Street, Suite 700, Houston, Texas 77002–2700, by telephone at (832) 320–5209, or by email at sorana_linder@tcenergy.com.

Any person or the Commission’s staff may, within 60 days after issuance of the instant notice by the Commission, file pursuant to Rule 214 of the Commission’s Procedural Rules (18 CFR 385.214) a motion to intervene or notice of intervention and pursuant to section 157.205 of the regulations under the NGA (18 CFR 157.205), a protest to the request. If no protest is filed within the time allowed therefore, the proposed activity shall be deemed to be authorized effective the day after the time allowed for filing a protest. If a protest is filed and not withdrawn within 30 days after the allowed time for filing a protest, the instant request shall be treated as an application for authorization pursuant to section 7 of the NGA.

Pursuant to section 157.9 of the Commission’s rules, 18 CFR 157.9, within 90 days of this Notice the Commission staff will either: complete its environmental assessment (EA) and place it into the Commission’s public record (eLibrary) for this proceeding; or issue a Notice of Schedule for Environmental Review. If a Notice of Schedule for Environmental Review is issued, it will indicate, among other milestones, the anticipated date for the Commission staff’s issuance of the EA for this proposal. The filing of the EA in the Commission’s public record for this proceeding or the issuance of a Notice of Schedule for Environmental Review will serve to notify federal and state agencies of the timing for the completion of all necessary reviews, and the subsequent need to complete all federal authorizations within 90 days of the date of issuance of the Commission staff’s EA.

Persons who wish to comment only on the environmental review of this project should submit an original and two copies of their comments to the Secretary of the Commission. Environmental commenters will be placed on the Commission’s environmental mailing list and will be notified of any meetings associated with the Commission’s environmental review process. Environmental commenters will not be required to serve copies of filed documents on all other parties. However, the non-party commenters will not receive copies of all documents filed by other parties or issued by the Commission and will not have the right to seek court review of the Commission’s final order.

The Commission strongly encourages electronic filings of comments, protests

and interventions in lieu of paper using the eFiling link at <http://www.ferc.gov>. Persons unable to file electronically should submit an original and 3 copies of the protest or intervention to the Federal Energy regulatory Commission, 888 First Street NE, Washington, DC 20426.

Dated: January 15, 2020.

Nathaniel J. Davis, Sr.,

Deputy Secretary.

[FR Doc. 2020–00957 Filed 1–21–20; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–10004–61–OW]

Notice of Webinar Briefing and Public Meeting

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of webinar briefing and public meeting.

SUMMARY: The EPA’s Environmental Financial Advisory Board (EFAB) will hold a webinar briefing on January 30, 2020 and a public meeting on February 11–13, 2020 in Washington, DC. The purpose of the webinar will be to receive a background briefing on the Backhaul Alaska program. The purpose of the public meeting will be to: Consider a report by the EFAB Stormwater Infrastructure Finance Task Force Workgroup; conduct a consultation with the EPA on financing options for the Backhaul Alaska program; receive briefings on other environmental financing topics; and consider possible future projects.

DATES: The webinar will be held on January 30, 2020 from 1 p.m. to 3 p.m. EST. The February 11, 2020 through February 13, 2020 public meetings will be held as follows: February 11 and 12, 2020 from 9 a.m. to 5 p.m. EST, and on February 13, 2020 from 9 a.m. to 1 p.m. EST.

ADDRESSES: The webinar briefing will be conducted by webinar only and is open to the public; interested persons must register in advance at <https://register.gotowebinar.com/register/2221546055725723395>. The public meeting will be held at the Washington Marriott Georgetown, 1221 22nd Street NW, Washington, DC 20037. The meeting is open to the public; however, seating is limited. All members of the public who wish to attend the meeting are asked to register in advance, no later than February 5, 2020 at <https://efabmeetingfeb2020.eventbrite.com>.

FOR FURTHER INFORMATION CONTACT: Any member of the public who wants further information concerning the webinar briefing or the public meeting may contact Stephanie Sanzone, EFAB Coordinator, via telephone/voice mail (202) 564–2839 or email at sanzone.stephanie@epa.gov. The EFAB mailing address is: EPA Environmental Financial Advisory Board (4204M), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460. General information about the EFAB can be found on the EPA website at <https://www.epa.gov/waterfinancecenter/efab>.

SUPPLEMENTARY INFORMATION:

Background: The EFAB is an EPA advisory committee chartered under the Federal Advisory Committee Act (FACA), 5 U.S.C. App. 2, to provide advice and recommendations to the EPA on innovative approaches to funding environmental programs, projects, and activities. Administrative support for the EFAB is provided by the Water Infrastructure and Resiliency Finance Center within the EPA’s Office of Water. Pursuant to FACA and EPA policy, notice is hereby given that the EFAB will hold a webinar briefing and a public meeting for the following purposes:

Webinar Briefing: The purpose of the webinar on January 30, 2020 will be for members of the EFAB to receive a briefing on the Backhaul Alaska program in preparation for a consultation on the program to be held at the February 11–13, 2020 public meeting. Due to unforeseen administrative circumstances, the EPA is announcing this webinar with less than 15 calendar days notice. The webinar is open to the public, but no oral public comments will be accepted during the briefing. Written public comments relating to the Backhaul Alaska consultation should be provided in accordance with the instructions below on written statements.

Public Meeting: The agenda for the meeting on February 11–13, 2020 will include:

(1) Review of a report by the EFAB Stormwater Infrastructure Finance Task Force Workgroup. Pursuant to Section 4101 of the America’s Water Infrastructure Act of 2018, the Task Force was established under the auspices of the EFAB to prepare a report on the availability of public and private sources of funding for the construction, rehabilitation, and operation and maintenance of stormwater infrastructure. The final Task Force report will be considered by the EFAB for revision or approval for transmittal

to the agency. For additional information on the work of the Task Force, contact Ms. Ellen Tarquinio, EPA staff lead, at tarquinio.ellen@epa.gov.

(2) Consultation on financing options for the Backhaul Alaska program. In 2019, the EFAB prepared an advisory report on revenue options for a waste service backhaul program in rural Alaska. At the request of EPA Region 10, the EFAB has agreed to engage in further discussions on financing and governance options for the Backhaul Alaska program. A consultation is a form of advisory activity that provides oral advice and feedback from the EFAB members at a public meeting. For additional information on the Backhaul Alaska program, contact Ms. Gabriela Carvalho, EPA Region 10, at carvalho.gabriela@epa.gov.

(3) Briefings on environmental finance topics. The EFAB will hear from invited EPA representatives on issues relating to financing of environmental protection in small communities.

(4) Discussion of potential future advisory topics. EFAB members will discuss potential environmental finance topics on which the Board may wish to provide advice and recommendations to the EPA.

Availability of Meeting Materials: Briefing materials for the webinar and materials for the February 11–13, 2020 meeting (including meeting agenda and draft review documents) will be available on the EPA website at <https://www.epa.gov/waterfinancecenter/efab>.

Procedures for Providing Public Input: Public comment for consideration by EPA's federal advisory committees has a different purpose from public comment provided to EPA program offices. Therefore, the process for submitting comments to a federal advisory committee is different from the process used to submit comments to an EPA program office. Federal advisory committees provide independent advice to the EPA. Members of the public can submit comments on matters being considered by the EFAB for consideration by members as they develop their advice and recommendations to the EPA.

Oral Statements: In general, individuals or groups requesting an oral presentation at EFAB public meetings will be limited to five minutes. Persons interested in providing oral statements at the February 11–13, 2020 meeting should contact Stephanie Sanzone in writing (preferably via email) at the contact information noted above by

February 5, 2020 to be placed on the list of registered speakers.

Written Statements: Written statements for the February 11–13, 2020 meeting should be received by February 5, 2020 so that the information can be made available to the EFAB for its consideration prior to the meeting. Written statements should be sent via email to efab@epa.gov (preferred) or in hard copy with original signature to the EFAB mailing address above. Members of the public should be aware that their personal contact information, if included in any written comments, may be posted to the EFAB website. Copyrighted material will not be posted without explicit permission of the copyright holder.

Accessibility: For information on access or services for individuals with disabilities, or to request accommodations for a disability, please contact Sandra Williams at (202) 564–4999 or williams.sandra@epa.gov at least 10 business days prior to the meeting to allow as much time as possible to process your request.

Dated: January 13, 2020.

Andrew Sawyers,

Director, Office of Wastewater Management, Office of Water.

[FR Doc. 2020–00980 Filed 1–21–20; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–10003–88–Region 6]

Notice of Availability of Final Designation of Certain Stormwater Discharges in the State of New Mexico Under the National Pollutant Discharge Elimination System of the Clean Water Act

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Regional Administrator of the Environmental Protection Agency Region 6 (EPA) is providing notice of the availability of EPA's final determination that storm water discharges from the Los Alamos Urban Cluster (as defined by the 2010 Decennial Census) and Los Alamos National Laboratory (LANL) property are contributing to violations of New Mexico water quality standards (WQS) and require National Pollutant Elimination System (NPDES) permit coverage under the Clean Water Act

(CWA). This action is in response to a June 30, 2014 petition filed with EPA by Amigos Bravos entitled “A Petition by Amigos Bravos for a Determination that Storm Water Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require a Clean Water Act Permit.”

DATES: EPA's *Designation Decision and Record of Decision in Response to Petition by Amigo Bravos for a Determination that Stormwater Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require a Clean Water Act Permit* (“EPA's Decision Document”) was signed on December 16, 2019.

ADDRESSES: For further information contact Ms. Evelyn Rosborough via email: rosborough.evelyn@epa.gov, or may be mailed to Ms. Evelyn Rosborough, Environmental Protection Agency, Water Division (6WQ–NP), 1201 Elm Street, Suite 500, Dallas, TX 75270.

SUPPLEMENTARY INFORMATION: EPA is providing notice of availability of its final determination that stormwater discharges from MS4s located in the portion of Los Alamos County within the Los Alamos Urban Cluster (as defined by the 2010 Decennial Census) and on Los Alamos National Laboratory (LANL) property within Los Alamos County and Santa Fe County are contributing to violations of New Mexico water quality standards (WQS) and require NPDES permit coverage. EPA's final designation determination is made pursuant to the authority of CWA § 402(p)(2)(E) and 40 CFR 122.26(a)(9)(i)(D) and 122.26(f)(2). CWA § 402(p)(2)(E) and 40 CFR 122.26(a)(9)(i)(D) allow EPA to designate for NPDES permit coverage stormwater discharges that EPA determines are contributing to violations of WQS, but are not otherwise required to be permitted under EPA's stormwater regulations.

Details of EPA's final designation determination are available in EPA's Decision Document. EPA's Decision Document and ancillary materials may be viewed on the EPA Region 6 web page at <https://www.epa.gov/npdes/epas-residual-designation-authority>.

Issued on: Dated: December 16, 2019.

Ken McQueen,

Regional Administrator, U.S. Environmental Protection Agency, Region 6.

[FR Doc. 2020–00981 Filed 1–21–20; 8:45 am]

BILLING CODE 6560–50–P

--Agenda (as of 2/7/2020)--

U.S. Environmental Protection Agency
Environmental Financial Advisory Board
Public Meeting

Washington Marriott Georgetown
1221 22nd Street, NW, Washington, DC 20037

February 11-13, 2020

Tuesday, February 11

9:00 am **I. WELCOME AND REVIEW OF AGENDA**

- Ed Chu, EFAB Designated Federal Officer
- Joanne Throwe, EFAB Chair

9:15 am **II. DELIBERATION ON THE STORMWATER FINANCING TASK FORCE REPORT**

A. Overview of Task Force Process, Findings and Recommendations (15 minutes)

- Joanne Throwe and Rudy Chow, Task Force Co-chairs

B. Section 4: Sufficiency of Funding (Charge Q3) (30 min)

- Section Lead: Ted Henifin
- EFAB Lead Discussant: Yvette Downs

C. Section 5: Existing Sources of Funding (Charge Q1) (30 min)

- Section Lead: Pam Lemoine
- EFAB Lead Discussant: William Stannard

10:30 am **BREAK**

10:45 am **D. Section 6: Infrastructure Affordability (Charge Q2)** (30 min)

- Section Lead: Ted Chapman
- EFAB Lead Discussant: Craig Holland

E. Task Force Recommendations (Section 3) (30 min)

- Craig Holland

11:45 am **LUNCH ON YOUR OWN**

1:00 pm **PUBLIC COMMENT ON STORMWATER FINANCING TASK FORCE REPORT**

- Registered Speakers

1:15 pm **II. DELIBERATION ON THE STORMWATER FINANCING TASK FORCE REPORT (cont.)**

F. Executive Summary (30 min)

- Joanne Throwe

G. EFAB Letter to the Administrator (15 min)

- Joanne Throwe
 - Motion on Revisions (If Any)
-

2:00 pm **H. Final Disposition (30 min)**

- Motion to approve the report and letter
 - Discussion on the Motion
 - Vote on the Motion
 - Next Steps
-

2:30 pm **BREAK**

3:00 pm **III. UPDATE ON ACTIVITIES AT EPA-FUNDED ENVIRONMENTAL FINANCE CENTERS (EFC)**

- Khristopher Dodson, Syracuse University EFC
 - Medessa Burian, University of Maryland EFC
-

4:00 pm **IV. UPDATE ON OPTIONS FOR EFAB REPORT LIBRARY/WEBSITE (30 min)**

- Ed Chu and EFAB Staff
-

4:45 pm **RECESS**

- Ed Chu, EFAB Designated Federal Officer
-

Wednesday, February 12

9:00 am **RECONVENE**

- Ed Chu, EFAB Designated Federal Officer
- Joanne Throwe, EFAB Chair

9:15 am **V. SMALL COMMUNITY ENVIRONMENTAL SERVICES RESILIENCY – PANEL DISCUSSION**

- David Lloyd, Director
EPA's Office of Brownfields and Land Revitalization
- Matthew Dalbey, Director
EPA's Office of Community Revitalization
- Matthew Tejada, Director
EPA's Office of Environmental Justice
- Al McGartland, Director
EPA's National Center for Environmental Economics
- Barbara VanTil, Water Branch Chief
EPA's Office of Enforcement and Compliance Assurance

10:15 am **BREAK**

10:30 am **V. SMALL COMMUNITY ENVIRONMENTAL SERVICES RESILIENCY– PANEL DISCUSSION (cont.)**

11:30 am **LUNCH**

1:00 pm **VI. CONSULTATION ON FINANCING AND GOVERNANCE OPTIONS FOR BACKHAUL OF HAZARDOUS WASTE FROM REMOTE ALASKA COMMUNITIES**

- Summary of the Charge and Materials: Gabriela Carvalho, Region 10
- Small Group Discussions, With Report Outs and Rotations
Rapporteur/Notetaker Teams:
 - Brent Anderson/Janice Beecher
 - Chris Meister/David Zimmer
 - Eric Rothstein/Jim McGoff
- EFAB Discussion and Wrap Up

4:45 pm **PUBLIC COMMENT ON BACKHAUL ALASKA**

- Registered Speakers

5:00 pm **RECESS**

- Ed Chu, EFAB Designated Federal Officer

Thursday, February 13

9:00 am **RECONVENE**

- Ed Chu, EFAB Designated Federal Officer
- Joanne Throwe, EFAB Chair

9:15 am **VII. PRESENTATION OF PROPOSED CHARGES FOR POTENTIAL EFAB PROJECTS** (30 min each)

A. Opportunity Zones

- EFAB Leads: (TBD)
- Agency Client: Office of Policy

B. Stormwater Credit Trading

- EFAB Leads: Craig Holland, Ted Henifin
- Potential Agency Client: Office of Water

10:30 am **BREAK**

10:45 am **C. Water Affordability**

- EFAB Leads: Eric Rothstein, Ted Henifin
- Potential Agency Client: Office of Water

D. Risk and the Cost of Capital

- EFAB Leads: Jan Beecher, Ted Chapman, Ed Crooks, Richard Weiss
- Potential Agency Client: TBD

11:45 am **PUBLIC COMMENT ON PROPOSED CHARGES**

- Registered Speakers

12:00 pm **NEXT STEPS AND MEETING WRAP-UP**

- Ed Chu, EFAB Designated Federal Officer
- Joanne Throwe, EFAB Chair

12:15 pm **ADJOURN**

- Ed Chu, EFAB Designated Federal Officer

Evaluating Stormwater Infrastructure Funding and Financing Task Force

WORKGROUP UNDER THE
ENVIRONMENTAL FINANCIAL ADVISORY BOARD
DRAFT REPORT

January 2020

Contributing EFAB Members

Lori Beary
Ted Chapman ~
Rudy Chow *
Lisa Daniel
Yvette Downs
Ted Henifin ~
Craig Holland

Pam Lemoine ~
Chris Meister
Eric Rothstein
Angie Sanchez
Bill Stannard
Joanne Throwe *

* Co-Chairs
~ Section Leads

Invited Consultants

Bethany Bezak
Jerry Bradshaw
David Bulova
Janet Clements
Carrie Evenson
Matthew Fabry
Carol Haddock
Laurie Hawks
Lisa Kay
Drew Kleis

Prabha Kumar
Rebecca Losli
John Lundell
Ewelina Mutkowska
Fernando Pasquel
Mike Personett
Andrew Reese
Elizabeth Treadway
Chuck Walter

EPA Supporting Staff

Sonia Brubaker
Tara Johnson
Ellen Tarquinio
Britney Vazquez

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Table of Contents

1.0	EXECUTIVE SUMMARY	1
1.1	STORMWATER INFRASTRUCTURE FUNDING TASK FORCE REPORT AND CHARGE	1
1.2	LOCAL STORMWATER FUNDING EFFORTS	2
1.3	FEDERAL STORMWATER FUNDING SUPPORT	2
1.4	RECOMMENDATIONS	3
2.0	INTRODUCTION AND BACKGROUND	5
2.1	STORMWATER INFRASTRUCTURE DRIVERS—A NEW PARADIGM.....	6
2.2	CHALLENGES AND OPPORTUNITIES	7
2.3	REPORT OVERVIEW	8
2.4	FUNDING NEEDS NOT INCLUDED IN THIS REPORT	10
2.5	KEY TERMS	10
3.0	TASK FORCE RECOMMENDATIONS	13
3.1	RECOMMENDATION CATEGORIES	14
4.0	SUFFICIENCY OF FUNDING	21
4.1	AMERICAN SUPPORT FOR INVESTMENTS IN WATER INFRASTRUCTURE (2019)	23
4.2	BLACK & VEATCH STORMWATER UTILITY SURVEYS (2016 AND 2018).....	23
4.3	CLEAN WATERSHED NEEDS SURVEY 2012 REPORT TO CONGRESS (2016).....	24
4.4	FLORIDA STORMWATER ASSOCIATION STORMWATER UTILITY REPORT (2016 AND 2018)	25
4.5	GEORGIA STORMWATER UTILITIES REPORT (2017)	26
4.6	SOUTHEAST STORMWATER ASSOCIATION UTILITY REPORT (2019)	26
4.7	THE CHESAPEAKE STORMWATER NETWORK SELECT RESULTS OF THE MS4 NEEDS SURVEY (2016).....	26
4.8	WATER ENVIRONMENT FEDERATION MS4 NEEDS ASSESSMENT SURVEY RESULTS (MAY 2019)	27
4.9	WESTERN KENTUCKY UNIVERSITY STORMWATER UTILITY SURVEYS (2013, 2016, 2018 AND 2019)	27
5.0	EXISTING SOURCES OF FUNDING	29
5.1	THE ROLE OF THE FEDERAL GOVERNMENT IN FUNDING STORMWATER PROGRAMS.....	29
5.2	STORMWATER FUNDING—TYPES AND USES OF FUNDS	30
5.3	AVAILABILITY OF FUNDING	54
5.4	BARRIERS TO OBTAINING FUNDING.....	57
5.5	SUMMARY OF EXISTING FUNDING SOURCES	61
6.0	INFRASTRUCTURE AFFORDABILITY	63
6.1	INFRASTRUCTURE EFFICIENCY	63
6.2	FINANCIAL CAPABILITY	65
6.3	CUSTOMER HOUSEHOLD AFFORDABILITY	75
APPENDIX I: MUNICIPAL FINANCIAL REPORTING AND ASSET MANAGEMENT		77
APPENDIX II: CASE STUDIES		80
APPENDIX III: STORMWATER FUNDING DATABASE		112

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Acronym List

Acronym	Definition
AWIA	America’s Water Infrastructure Act
BMP	Best Management Practice
CBP3s	Community-Based Public-Private Partnerships
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CWA	Clean Water Act
CWNS	Clean Watersheds Needs Survey
CWSRF	Clean Water State Revolving Fund
DWSRF	Drinking Water State Revolving Fund
EFAB	Environmental Financial Advisory Board
ERU	Equivalent Residential Unit
FCA	Financial Capability Assessment
FCI	Financial Capability Index
FEMA	Federal Emergency Management Agency
FSA	Florida Stormwater Association
LIHEAP	Low Income Home Energy Assistance Program
LTCP	Long Term Control Plan
MHI	Median Household Income
MS4	Municipal Separate Storm Sewer System
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
P3	Public-Private Partnerships
PRI	Program-related Investment
RI	Residential Indicator
SRF	State Revolving Fund
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA or EPA	United States Environmental Protection Agency
WEF	Water Environment Federation
WKU	Western Kentucky University

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

1.0 Executive Summary

Stormwater Funding: A National Problem That Requires Action

Effective stormwater management is as integral to American quality of life as effective wastewater management and delivery of safe drinking water. Hence, stormwater management needs to be deemed as a true utility service on par with drinking water and wastewater utility services—and it needs equitable and reliable funding, just like drinking water and wastewater utilities.

In the United States, drinking water and wastewater management services, generally through the utility structure, have matured to become reliable and effective services to the communities, and with dedicated sources of funding. Cumulatively, Clean Water State Revolving Fund programs have provided \$133 billion in assistance, mainly in the form of low-cost financing, to a wide range of eligible borrowers. The utility structure that is conducive to effective management and dedicated funding, which has worked well in the drinking water and wastewater sectors, should be applied to stormwater, the next frontier for this nation’s water quality goals. But even a utility structure requires predictable and adequate revenues and sound governance. If these two elements are in place, effective operational capability will follow. Unfortunately, only 1,600 of the 7,550 permitted stormwater entities in the United States have dedicated revenue sources, such as stormwater user fees (also known as stormwater utilities where fees are based, for example, largely on impervious area), taxes, or established drainage districts that collect dedicated funding for stormwater.

Stormwater knows no jurisdictional boundaries and crosses state, county and municipal borders. There are no comprehensive assessments of the funding needed to construct, and adequately maintain and operate stormwater infrastructure nationally. Recent regional, limited surveys estimate stormwater management and infrastructure funding needs in the billions of dollars annually beyond current funding levels. Without question, the challenges related to stormwater funding are daunting and there is a pressing need to continue to improve estimates of the sector’s needs. The dedicated stormwater funding sources that do exist are typically insufficient for currently known stormwater needs. Given the magnitude and cross-jurisdictional nature of the stormwater challenge, local funding efforts are not enough. There is a need for federal investment in stormwater infrastructure, similar to the level of investment that federal funding programs have provided in the past to begin building our interstate highway system, upgrade our wastewater infrastructure, or deliver safe drinking water to our homes. The federal financing and funding framework that has worked so well to support the drinking water and wastewater sectors should be adapted to fund solutions to the stormwater challenge. This type of federal financing and funding will support communities with stormwater permits that serve more than 80 percent of the U.S. population. Therefore, stormwater funding is a national problem that requires action.

1.1 Stormwater Infrastructure Funding Task Force Report and Charge

This report was developed in response to Section 4101 of the 2018 America’s Water Infrastructure Act

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

(AWIA), which directed the Environmental Protection Agency (EPA) to establish a Stormwater Infrastructure Funding Task Force “to conduct a study on, and develop recommendations to improve the availability of public and private sources of funding for the construction, rehabilitation, and operation and maintenance of stormwater infrastructure” to meet the requirements of the Clean Water Act.

Specifically, the Task Force was charged with the following tasks:

- Identify existing federal, state and local public and private sources of funding for stormwater infrastructure (addressed in Section 5.0).
- Assess how the source of funding affects affordability, including costs associated with infrastructure finance (addressed in Section 6.0).
- Assess whether these sources of funding are sufficient to support capital expenditures and long-term operational and maintenance costs required to meet the stormwater infrastructure needs of municipalities (addressed in Section 4.0).

1.2 Local Stormwater Funding Efforts

Finding funding sources has become a necessary activity for local governments and utilities that are charged with managing stormwater programs. Several professional organizations have developed publications and held workshops on how to develop and implement dedicated funding mechanisms. Their advocacy efforts have also elevated the discussion on the need for funding and the importance of affordability.

Perhaps more importantly, conversations in recent years have shifted from “how to develop stormwater utilities” to the need for innovative funding strategies that include public-private partnerships, incentives for private property owners to implement stormwater controls, green bonds, and trading schemes. Innovative funding mechanisms, coupled with reliable traditional mechanisms (e.g., stormwater utilities, fees-in-lieu-of, drainage/taxing districts) provide local programs with additional alternatives to fund their stormwater needs.

1.3 Federal Stormwater Funding Support

As previously stated, local funding efforts alone are not enough. Stormwater infrastructure requires funding and it has been neglected, or inadequately funded, for far too long. There is a need for federal investment in stormwater infrastructure, similar to the level of investment that federal funding programs have provided in the past to, among other things, begin building our interstate highway system, upgrade our wastewater infrastructure, and deliver safe drinking water to our homes.

The federal government can also help by allocating funding for stormwater programs from existing related programs to ensure that infrastructure is properly maintained and that future infrastructure planning, design and capital expenditures are conducted using industry best practices.

Municipalities and local utilities need federal and state help in defining long-term reliable funding sources. Funding must be available in all states and be sufficient to support both capital expenditures and long-term operation and maintenance costs.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

1.4 Recommendations

Task Force recommendations are presented as items that are practical to implement, actionable at the federal level and understandable to the public. They present suggestions to use existing funding mechanisms, increase accessibility to those funding mechanisms, identify additional funding opportunities, and enhance public education. The Task Force's recommendations are grouped into the following categories:

- ◆ **Stormwater funding education and technical assistance.** Educating the public and elected officials on the need for stormwater funding is critical to the successful implementation of and community support for funding solutions. In addition, many communities need technical assistance related to evaluating and securing funding and financing mechanisms.

***Recommendation:** Educate elected representatives, professional administrative leaders and the general public on the need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector.*

***Recommendation:** Provide technical assistance and funding to help communities create sustainable funding sources. This could include assistance with funding need assessments, organization analysis, grant applications, and/or establishing a stormwater utility fee.*

- ◆ **Simplification and/or modification of existing federal grant and loan programs and affordability support.** Federal grants, loans (e.g., from State Revolving Funds) and support to enhance affordability are needed to maintain sustainable local funding sources.

***Recommendation:** Provide for a common application for different federal grants across all federal agencies.*

***Recommendation:** The State Revolving Fund (SRF) is an integral tool among the many infrastructure financing options available to communities. Whether stormwater receives consideration of its own through a new SRF program, or receives less restrictive eligibility considerations and larger appropriations within the existing Clean Water SRFs (CWSRF) or eligible Drinking Water SRF (DWSRF) projects, it is the view of the Task Force that stormwater would benefit from an additive – not zero-sum – recurring financial commitment from EPA. This could be achieved by the implementation of one or more of the following, each of which is outlined below:*

- Create a new SRF program exclusive to stormwater programs and projects.
- Expand the existing Water Infrastructure Finance and Innovation Act (WIFIA) program or fund the Army Corps of Engineers' Water Infrastructure Program also established in 2014.
- Create a specific stormwater set-aside in the existing CWSRF framework and increase awareness/ guidance on the CWSRF for stormwater projects, including the Green Project Reserve program.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Recommendation: Use federal funding or technical assistance to help utility customers who are financially struggling to pay their water, sewer, and stormwater utility bills (similar to Low Income Home Energy Assistance Program (LIHEAP)).

- **Dedicated federal stormwater funding assistance.** Given the magnitude of the stormwater needs described in this report, there is a need for federal investment similar to the investments in the National Interstate Highway system and historical wastewater treatment plant upgrades.

Recommendation: Build comprehensive national database that enumerates state barriers to implementation of new dedicated stormwater revenue sources such as user fees or other revenue sources, and/or any state restrictions on existing fees and charges.

Recommendation: Increase annual funding allocation for and modify the 319(h) grant program to allow and encourage local capacity building, utility fee study and implementation, asset management, and remove restrictions on use of grant funds for MS4 permit compliance.

Recommendation: Develop a new construction grant program specifically for stormwater projects, similar to the federal Municipal Construction Grants Program that funded the construction of wastewater treatment plants.

Recommendation: Given the link between agricultural pollution and mandated stormwater pollutant reduction targets for impaired streams, a Farm Bill Federal subsidy dedicated to stormwater programs would also be valuable. Require 10 percent of US federal farm subsidies (all programs) be re-directed toward stormwater/nonpoint impacts in same watershed where recipient farm is located.

2.0 Introduction and Background

Stormwater management involves diverse activities that span both operations and maintenance (O&M) and capital program. The O&M activities, to name a few, typically include the maintenance of stormwater conveyance infrastructure; good housekeeping practices; land use development and redevelopment permitting, monitoring, and inspections; public education and outreach; and management of various other stormwater programs. The capital program management typically includes asset management, capital projects planning and execution. Needless to say, holistic management of stormwater O&M and capital program services requires sustainable and dedicated funding.

Stormwater management is widely viewed as a key part of the solution to improving water quality in the nation's waterways, reducing local flooding/drainage problems, and enhancing community resiliency. However, the challenges related to funding stormwater infrastructure are daunting: the stormwater sector is still maturing and has traditionally not been funded as a true "utility" operation like wastewater and drinking water utilities. Meanwhile, EPA has identified urban stormwater runoff as the only major growing source of water pollution across much of the country. Starting in the 1990s, EPA sought to reduce pollution in U.S. waterways through regulations and a permit program under the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA). Communities with stormwater permits include more than 80 percent of the U.S. population—therefore, stormwater funding is a national problem that requires action.

Recent regional or limited surveys estimate stormwater management and infrastructure funding needs in the billions of dollars

There are no comprehensive assessments of the funding needed to construct, maintain and operate stormwater infrastructure nationally. Recent regional or limited surveys estimate stormwater management and infrastructure funding needs in the billions of dollars, ranging from \$3.3 billion over the next 10 years in Florida alone¹ to \$8.1 billion per year for only municipal separate storm sewer system (MS4) permittee activities in the United States.²

EPA estimates that \$150 billion is needed for stormwater infrastructure and program investments (MS4s and combined sewer overflows) over the next 20 years.³ The needed investment in stormwater

¹ Florida Stormwater Association. 2018. *Stormwater Utility Report*. <https://www.florida-stormwater.org/stormwater-utility-report1>

² WEF Stormwater Institute. 2019. National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

³ U.S. EPA. 2016. Clean Watersheds Needs Survey 2012 Report to Congress EPA-830-R-15005. https://www.epa.gov/sites/production/files/2015-12/documents/cwns_2012_report_to_congress-508-opt.pdf

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

infrastructure is similar to the level of investment that federal funding programs have covered in the past to initiate construction of our interstate highway system or upgrade wastewater treatment plants.

Funding needs continue to expand as the stormwater sector faces increasing challenges related to regulatory requirements, water quality degradation, flood risk reduction, community resilience, aging infrastructure, and more. Many communities have no sustainable source of funding for stormwater programs. In addition, increasing stormwater management costs at the local level exacerbate the affordability challenges that many communities face. While a more detailed analysis is needed to fully assess the funding need, it is widely acknowledged that the stormwater infrastructure sector cannot fully address these challenges at current funding levels.

This report was developed in response to Section 4101 of the 2018 AWIA, which directed EPA to establish a Stormwater Infrastructure Funding Task Force “to conduct a study on, and develop recommendations to improve the availability of public and private sources of funding for the construction, rehabilitation, and operation and maintenance of stormwater infrastructure” to meet the requirements of the CWA. AWIA stipulates that the Task Force comprise representatives of federal, state and local government and private entities (including nonprofit entities). Furthermore, EPA is required to submit a report to Congress no later than 18 months after AWIA enactment describing the results of the Task Force’s study and resulting recommendations.

The Task Force was convened under an existing Federal Advisory Committee, the Environmental Finance Advisory Board (EFAB). 14-members of the EFAB with experience and expertise in stormwater funding and financing are on the Task Force. EPA also initiated an open nomination process to identify expert consultants to advise and support the Task Force. EPA selected 19 consultants to address gaps in the Task Force’s expertise and ensure the Task Force could complete the required study and recommendations within the stipulated timeframe. Task Force members, consultants and key EPA staff who supported the preparation of this report are presented at the beginning of this report.

Task Force members and consultants participated in two in-person meetings and in regular telephone conference meetings to conduct research, develop the study and identify associated recommendations for consideration by EPA. EPA also solicited and integrated public input on stormwater funding through seven public meetings held across the country in Florida, Massachusetts, Illinois, the District of Columbia, Virginia, Georgia, and Washington.

2.1 Stormwater Infrastructure Drivers—A New Paradigm

Before the 1990s, municipal stormwater management was driven mainly by one consideration: convey stormwater away from our built environment. While federal regulations added a new focus on water quality, the Task Force recognizes the need to consider both water quality and water quantity when evaluating funding sources and needs. In fact, stormwater management is undergoing a significant paradigm shift (Figure 1): local programs often have multiple responsibilities, including water quality, water quantity, floodplain management, resilience planning and response, regulation of new and re-development, multi-objective planning, ecosystem health, environmental, and increasing community expectations. These responsibilities are relevant to stormwater management in recognition of the broader public concern for infrastructure management and environmental stewardship.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.



Figure 1. Graphic representing the current stormwater management paradigm shift.

2.2 Challenges and Opportunities

This report identifies several potential sources of funding available to most municipalities (see Section 5.0). While the length of the list may imply that it is easy to fund stormwater management activities, the opposite is true: the volume of options shows that there is no universal solution, and many types of funding must be supplemented by a baseline revenue stream like that found in other municipal-level utilities. Establishing such a baseline revenue stream for stormwater management programs—programs that themselves are undergoing such a significant paradigm shift—is extremely challenging and faces legal obstacles in many places. Garnering community support for an expanding program is difficult enough. Asking a community to pay for it in the form of user fees or taxes is an even greater challenge.

A municipal stormwater program cannot be funded in a bureaucratic vacuum and in an environment where the decision makers and the community are not fully aware of the benefits and challenges of stormwater management. It can only succeed with the support of the local community and its elected officials. One of the many barriers to gaining that support is the lack of public understanding about what a stormwater program is and how it affects quality of life for the average citizen. Municipal stormwater

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

programs have focused on infrastructure and environmental stewardship but have not always done an effective job of explaining to the community and elected officials what they are and why they are important.

At the same time, the Task Force has observed that municipalities differ significantly with respect to the distribution of stormwater management and regulatory compliance responsibilities due to variations in local and state institutional frameworks. Under a new and evolving paradigm, institutional frameworks often lag behind the functional changes brought about by the new drivers. The distribution of responsibilities can affect cost-effectiveness, funding and affordability, creating situations with overlapping responsibilities and a shortage of accountability or leadership for program implementation. In addition, providing technical assistance and public outreach/education to such a dispersed community of stormwater managers and programs is a challenge.

While these challenges are daunting, they also represent opportunities to interact with and leverage other public investments such as transportation, flood protection, public safety, recreation and other cultural endeavors that fit within the new stormwater paradigm. Municipalities have made great strides to integrate stormwater projects and programs into these other areas through multi-benefit projects. But much more must be done to move the needle on the adequacy of stormwater funding.

In summary, the local government stormwater manager is faced with multiple, costly, sometimes conflicting responsibilities across a wide spectrum of stormwater-related demands—often with little dedicated funding to accomplish necessary tasks. About 60 percent of the stormwater permittees indicate that their major challenge is the *lack of funding or availability of capital* for implementation of stormwater programs and design, construction and maintenance of stormwater infrastructure.⁴

2.3 Report Overview

The Task Force was charged with the following tasks:

Identify existing federal, state and local public and private sources of funding for stormwater infrastructure (Section 5.0).

Assess how the source of funding affects affordability, including costs associated with infrastructure finance (Section 6.0).

Assess whether these sources of funding are sufficient to support the capital expenditures and long-term operations and maintenance (O&M) costs required to meet municipalities' stormwater infrastructure needs (Section 7.0).

The report is organized based on the findings associated with these tasks, as described below.

Section 3.0: Task Force Recommendations

Section 3.0 presents the Task Force's overall recommendations. The recommendations present

⁴ WEF Stormwater Institute. 2019. National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

suggestions to enhance the use of existing funding mechanisms, increase accessibility to those funding mechanisms, identify additional funding opportunities, and measures to enhance public education. The Task Force’s recommendations are grouped into three succinct categories:

- Stormwater funding education and technical assistance;
- Simplification of existing federal grant and loan programs and affordability support; and
- Dedicated federal stormwater funding assistance.

Section 4.0: Sufficiency of Funding

Section 4.0 discusses the difficulty of assessing the capital and long-term O&M funding needed for municipal stormwater infrastructure in the United States. This section also presents information from several regional and national surveys that attempt to make these estimates and includes case studies of stormwater funding challenges in more than a dozen communities across the country. Finally, Section 4.0 describes the reasons why the funding gap exists and continues to grow, as well challenges associated with finding effective solutions to meeting stormwater funding needs.

Section 5.0: Existing Sources of Funding

Section 5.0 describes the various types of plausible funding sources such as recurring and sustainable sources, intermittent revenue sources, capital financing sources and one-time sources of funding for stormwater programs. Even though there are multiple types of funding sources, only a few can provide reliable, sustainable, and dedicated revenue for holistic stormwater management. Perhaps more importantly, without elected officials’ support, to develop such dedicated sources of funding where it currently doesn’t exist, the availability of funding will continue to be limited, leaving most programs without enough funds to meet all the stormwater community’s needs.

Section 6.0: Infrastructure Affordability

Section 6.0 describes how available funding sources and financing options affect three aspects of a municipality’s stormwater management that are directly impacted by the various types of funding and financing sources. The three aspects that this section focuses on are:

- **Effective management of Infrastructure.** Industry best practices, such as adopting proactive asset management, leveraging resources and economies of scale, building resilience, and engaging in risk mitigation, all of which can also improve affordability.
- **Financial capability,** is defined as the adequacy of a municipality’s funding to meet its annual stormwater O&M obligations and to manage its capital stormwater infrastructure needs, determined based on delivering adequate levels of service. This sub-section discusses the impact of different funding sources on building financial capacity and provides criteria for evaluating the affordability impacts of different recurring, intermittent and one-time funding sources to address capital and O&M requirements.
- **Customer household affordability,** defined as the impact that the various types of financial resources have on the users of the system. This sub-section describes traditional and emerging concepts that are used to evaluate household affordability.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Affordability can also be impacted by the public and elected officials' lack of understanding of the need for stormwater services and the benefits of stormwater programs. Therefore, the Task Force concludes that educating these stakeholders can facilitate the implementation and acceptance of reliable and sustainable funding sources.

2.4 Funding Needs Not Included in This Report

This report does not address funding needs related to the following programs or activities (which can complement the goals of local stormwater management programs, but are typically funded by other federal or local sources):

- **Addressing agricultural water pollution.** Most local stormwater programs focus on urban areas and the associated drainage, flooding, resilience and stormwater quality needs. These local programs typically do not have legislation that allows them to regulate agricultural activities. Soil and Water Conservation Districts and other U.S. Department of Agriculture programs under the Farm Bill, as well as CWA nonpoint-source regulations, address this growing source of pollution.
- **Flood risk identification and mapping.** Costs associated with the Federal Emergency Management Agency (FEMA) flood risk identification and mapping program under the National Flood Insurance Program (NFIP) are not included in this report, since these federal activities are funded by the NFIP and flood insurance policy fees.
- **Large flood risk management and ecosystem restoration programs.** Large programs to address riverine flooding navigation, and ecosystem restoration programs conducted by the U.S. Army Corps of Engineers and funded through the Water Resources Development Act are not included in this report. In some instances, local stormwater revenue is used as the local match for these large projects, but the bulk of the costs are paid by federal sources.

2.5 Key Terms

To frame and further refine the scope of the required study, the Task Force first agreed on a definition for stormwater, as well as definitions of associated environmental, technical and other considerations and drivers for stormwater services. The Task Force also determined what considerations fall outside the scope of the AWIA charge and are not addressed in this report.

The Task Force used the following key definitions related to stormwater, stormwater services and regulatory requirements for municipal stormwater services:

- **Municipal stormwater:** Surface water runoff, snow melt runoff, and drainage from public and private lands in urban areas, typically collected in MS4s consisting of drains, pipes, catch basins, outfalls, and ditches and conveyed to nearby streams, rivers, lakes, estuaries, basins, wetlands and oceans, carrying with it a variety of urban pollutants.⁵ Stormwater control measures (e.g., basins/ponds and green infrastructure—bioswales, filters, infiltrators, pollutant traps, etc.), also

⁵ Adapted from National Association of Flood and Stormwater Management Agencies. 2006. *Guidance for Municipal Stormwater Funding*. https://www.epa.gov/sites/production/files/2015-10/documents/guidance-manual-version-2x-2_0.pdf

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

known BMPs, are used to “treat” municipal stormwater by capturing pollutants to improve water quality and reducing runoff to prevent flooding.

- 💧 **Municipal Separate Storm Sewer System (MS4):** A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, artificial channels or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association or other public body and is designed or used to collect or convey stormwater, but is not a combined sewer and is not part of a publicly owned treatment works (POTW).⁶ There are 7,550 MS4 stormwater permittees in the United States, including more than 6,500 cities. Communities with MS4 stormwater permits serve more than 80 percent of the U.S. population or approximately 263 million people.⁷
- 💧 **Phase I Municipal Stormwater Regulation** (hereafter Phase I): a 1990 regulation that requires medium-sized and large cities, or certain counties with populations of 100,000 or more, to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for their stormwater discharges. There are about 855 Phase I MS4s covered by 250 individual permits.⁷
- 💧 **Phase II Municipal Stormwater Regulation** (Phase II): a 1999 regulation that requires small MS4s in U.S. Census Bureau–defined urbanized areas, as well as MS4s designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Phase II also includes non-traditional MS4s such as public universities, departments of transportation, hospitals and prisons. There are about 7,000 Phase II MS4s covered by statewide General Permits; some states instead use individual permits.⁸
- 💧 **Combined Sewer System (CSS):** A system of conveyance that carries and conveys both sanitary sewage and stormwater flows, in the same pipe, to a POTW. CSSs serve about 43 million people in about 1,100 communities nationwide.⁹
- 💧 **Infrastructure efficiency:** The ability to effectively manage the stormwater system infrastructure and improve affordability through best management practices, including adopting proactive asset management, leveraging resources and economies of scale, building resilience, and engaging in risk mitigation.
- 💧 **Integrated planning:** A voluntary approach to meeting multiple Clean Water Act requirements by identifying efficiencies from formerly distinct drinking water, wastewater and stormwater programs and sequencing investments to address the highest priority projects first. Integrated planning also encourages multi-benefit, cross-sector sustainable and comprehensive solutions to water resource challenges.

⁶ Definition from 40 CFR § 122.26.

⁷ U.S. EPA. 2019. *Stormwater Discharges from Municipal Sources*. <https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>

⁸ Ibid.

⁹ U.S. EPA. 1997. *Combined Sewer Overflows—Guidance for Financial Capability Assessment and Schedule Development*. EPA 832-B-97-004. February 1997. <https://www3.epa.gov/npdes/pubs/csofc.pdf>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- **Median Household Income (MHI):** The middle-income level earned by households in a given area, intended to represent the economic status of households in that area. Fifty percent of households in the specified area will earn above median household income, and 50 percent will earn below.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

3.0 Task Force Recommendations

The Task Force offers recommendations on how existing funding can be used and made more accessible, as well as on identifying additional funding opportunities. They are intended to be actionable and understandable to the public. The recommendations are summarized in the Executive Summary and presented in detail below.

The Task Force's recommendations fall into the following categories:

- **Stormwater funding education and technical assistance.** Educating the public and elected officials on accepting the need for stormwater funding is critical to the successful implementation of and community support for funding sources. In addition, many communities need technical assistance related to evaluating and securing funding and financing mechanisms.
- **Simplification of existing federal grant and loan programs and affordability support.** Federal grants, loans (e.g., from State Revolving Funds) and support to enhance affordability are needed to maintain sustainable local funding sources. These actions would provide communities an incentive to create dedicated funding sources to demonstrate financial capacity and capabilities, while still retaining the flexibility and local control as to the actual method for repayment.
- **Dedicated federal stormwater funding assistance.** Given the magnitude of the stormwater needs described in this report, there is a need for federal investment similar to the investments in the National Interstate Highway system and wastewater treatment plant upgrades. A Farm Bill Federal subsidy dedicated to stormwater programs would also be valuable, given the link between agricultural pollution and mandated stormwater pollutant reduction targets for impaired streams.

Several of the recommendations include direct involvement and interaction by EPA with state and local agencies. The main goal is for federal actors to help state and local agencies, but the federal actors will also learn about issues and barriers that confront local agencies. This two-way flow of information and experiences will help bridge the gap between the source of clean water regulations (federal) and the most important source of funding (primarily local). This, in turn, will also greatly benefit the overall goals of the CWA, the involved agencies, and the public at large.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

3.1 Recommendation Categories

3.1.1 Stormwater funding education and technical assistance

Recommendation: Educate elected officials, professional administrative leaders and the public on the need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector. Sustainable funding for stormwater infrastructure builds long-term financial capacity, improves operational performance—and over time produces results for citizens and residents. For over two hundred years, this has been the experience with drinking water and wastewater utilities in this country. The educational goals for these three audiences will demonstrate that stormwater management investment directly benefits the health, safety and economic opportunity for citizens and residents through the overall improvement of water quality.

Stormwater, along with drinking water and wastewater, must be approached as part of a comprehensive “One Water” solution. When stormwater management, sustainable drinking water supplies and wastewater treatment resources and goals are aligned, communities avoid costs, are financially sustainable, are safer, are better environmental stewards, and provide better economic opportunities and quality of life for their residents. FEMA’s own hazard mitigation program generally notes that investments in key stormwater infrastructure alone improve a community’s resilience; the return on investment is four times or even better, through cost avoidance and quicker return to normalcy than a do-nothing scenario.

Communities with successful water resource management strategies have generally identified financial needs over multi-year planning horizons. Implementation of “One Water” strategies supported by appropriate financial resources provide better management of public health, safety, economic and financial risks. Successful education will help reduce barriers, such as those that may exist under state law, and will build support to establish forward-looking and sustainable operational capability in stormwater management and responsible and long-term finance and capital planning. The Task Force Recommends that EPA’s Water Finance Center work with other EPA programs and Federal Agencies to address this recommendation.

Recommendation: Provide technical assistance and funding to help communities create sustainable funding sources. This could include assistance with funding need assessments, organization analysis, grant applications, and/or establishing a stormwater utility fee.

Many communities would be willing to work toward greater funding self-sufficiency but lack the support, expertise and initial resources to get started. Federal assistance can help overcome these hurdles through technical assistance and funding to support the initial activities necessary to create sustainable funding sources.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Technical assistance may include guidance documents, webinars, hands-on training and support. While technology should be leveraged to make this assistance accessible to all communities with stormwater issues, the technical assistance also needs to be proactive. Proactive programs should include reaching out to smaller communities through circuit-rider-type programs with onsite assistance. This technical assistance program could be established under the EPA Office of the Municipal Ombudsman established by AWIA Section 5006.

EPA should provide funding and in the form of grants or matching funds to support the utility capacity building, feasibility/needs assessment, grant applications and other activities needed to create sustainable funding sources.

3.1.2 Simplification of existing federal grant and loan programs and affordability support

Recommendation: Provide for a common application for different federal grants across all federal agencies.

Most of the U.S. population lives in large urban or suburban areas, generally associated with governmental units that have relatively more financial, technological and human resources. While these areas are generally associated with governmental units that have relatively more financial, technological and human resources, they do not always have sufficient resources to dedicate to securing necessary stormwater funding. In addition, most individual local governments are associated with small or very small populations (10,000 or fewer people). These communities are also often rural and often exhibit below-average income indicators. As such, they may face particular difficulty in accessing the requisite technical expertise and financial resources that are often needed to even apply for federal grants.

The Task Force believes all communities, especially small, rural and otherwise disadvantaged ones, would greatly benefit from more uniformity to the federal grant application process—perhaps some baseline commonality to all applications across the federal government irrespective of the agency or department ultimately administering the grant program. A common application could lessen barriers for communities if as much of the actual application as possible were exactly the same and not specific to any particular federal agency or department. The Task Force notes that the federal Paperwork Reduction Act (44 U.S.C. §§ 3501–3521) was established in 1980 but has not been amended since 1995, during the infancy of the Information Age. For a comparable example, The Common App¹⁰, implemented almost a generation ago, is now used by nearly 900 colleges and universities across all 50 states, benefitting more than a million prospective college students. This streamlining and simplification saves both the applicant and the associated higher education institutions significant time while breaking down barriers of access and relieving burdens of redundancy.

¹⁰ The Common App is a college admissions application that applicants may use to apply to various universities. More information available at: <https://www.commonapp.org/>.

Recommendation: The SRF is an integral tool among the many infrastructure financing options available to communities. Whether stormwater receives consideration of its own through a new SRF program or receives less restrictive eligibility considerations and larger appropriations within the existing SRFs, it is the view of the Task Force that stormwater would benefit from an additive – not zero-sum – recurring financial commitment from EPA. These would provide communities an incentive to create dedicated funding sources to demonstrate financial capacity and capabilities, while still retaining the flexibility and local control as to the actual method for repayment. This could be achieved by the implementation of one or more of the following, each of which is outlined below with the associated risks and opportunities:

- I. Create a new SRF program exclusive to stormwater programs and projects.**
 - Advantages
 - Replicates programs that have been proven successful for decades.
 - Would eliminate ‘competition’ with wastewater projects inherent within the current CWSRF program.
 - Disadvantages
 - Would require the creation and passage of new enabling legislation to establish a new SRF program.

- II. Expand the existing WIFIA program (e.g. explicit references to stormwater project eligibility, priority points for stormwater projects, lower project minimums for bundled stormwater projects) allowing funding for more stormwater projects, or fund the Army Corps of Engineers’ Water Infrastructure Program also established in 2014.**
 - Advantages
 - Would not require new enabling legislation.
 - WIFIA has already demonstrated the ability to leverage federal dollars many times over the initial appropriation.
 - The Corps’ program has a stated mission to “enable local investments in projects that enhance community resilience to flooding, promote economic prosperity and improving environmental quality” which is already consistent with the general aim of stormwater infrastructure.
 - Disadvantages
 - Bundling enough projects together to meet the scope of the WIFIA program.
 - Administrative difficulty in successfully applying to the program.

- III. Create a specific stormwater set-aside in the existing CWSRF framework and increase awareness/ guidance on the CWSRF for stormwater projects, including the Green Project Reserve program.**

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- *Advantages*
 - *Would not require new federal legislation.*
 - *Preserves each states' ability to administer the program to maximize efficiencies and effectiveness specific to each states' needs.*
- *Disadvantages*
 - *Might not improve best management practices or capability of communities if the set-aside is viewed by them as an implicit high likelihood/guarantee to get funded.*

IV. Create a “One Water” SRF with equal weighting among drinking water, clean water and stormwater.

- *Advantages*
 - *Would encourage community creativity and holistic, multi-year master planning – including resilience and integrated planning – by way of multi-purpose projects that achieve goals aligned with the One Water principles.*
 - *Might be more likely to attract private sector participation, especially if flood control and stormwater facilities are added as a private activity bond category as proposed by the Administration in February 2018’s infrastructure stimulus.*
 - *Would provide communities an incentive to create dedicated funding sources to demonstrate financial capacity and capabilities, while still retaining the flexibility and local control as to the actual method for repayment.*
- *Disadvantages*
 - *Would require amending existing enabling SRF legislation.*
 - *The CWSRF has been in place since 1987 and the DWSRF since 1997; therefore decades of policy and administrative inertia could pose an implementation barrier.*

Recommendation: *Create federal funding and technical assistance (similar to LIHEAP) to help address household affordability issues of utility customers who are economically challenged in paying their water, sewer, and stormwater utility charges.*

One of the strengths of the utility fee approach, to funding stormwater management, is that the cost of services is distributed to properties in proportion to the stormwater that properties contribute to a public stormwater system. This type of industry accepted fee for service approach is perceived to enable equitable cost recovery by establishing a reasonable nexus between the demand placed on the system and the charges that are assessed. However, the addition of a stormwater user fee, however small the fee maybe, could create an additional burden on low-income households, including the elderly on fixed incomes, that already struggle to pay the water and sewer utility charges.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

To address household affordability challenge, some local governments have established customer assistance programs to help with water, sewer, stormwater utility fees, using general funds or other non-utility resources. However, at the local level, particularly in financially stressed communities, establishing fee assistance programs becomes burdensome, even if statutes allow such programs. Further, subject to varying State and Local statutes, many utilities are unable to establish any low-income customer assistance programs, as establishing utility fee assistance programs using utility enterprise funds, is deemed to violate the fee for service concept. Due to these types of challenges, elected officials in many communities in the US are reluctant to adopt a stormwater utility fee funding mechanism.

The federal LIHEAP¹¹, in place since the 1980s, helps qualifying households offset a portion of their energy costs. Expanding LIHEAP, with additional funding, to help offset water, sewer, stormwater utility charges and/or establishing a similar distinct federal assistance program for water/sewer utilities, including stormwater, could remove a major barrier to the creation of dedicated user fee-based stormwater funding, at the local level.

3.1.3 Dedicated federal stormwater funding assistance

Recommendation: *Build comprehensive national database that enumerates state barriers to implementation of new dedicated stormwater revenue sources such as user fees or other revenue sources, and/or any state restrictions on existing fees and charges.*

As part of 2020 Clean Watersheds Needs Survey, EPA should create a state-level funding evaluation framework and request that states use that framework to identify barriers/gaps in state enabling legislation to create new stormwater user fees and/or restrictions on fee increases. Once information is received from states, EPA should post a compendium of findings from the evaluation in a publicly available forum and provide educational materials for local government officials and the public. Further, Congress should develop an incentive framework (e.g., matching 319 funds or other federal grant or funding mechanisms) to encourage removal of state-level funding barriers, where applicable.

Recommendation: *Increase annual funding allocation for and modify the 319(h) grant program to allow and encourage local capacity building, utility fee study and implementation, asset management; remove restrictions on use of grant funds for MS4 permit compliance.*

The 319(h) grant program is an important resource to many small and medium-sized local governments, but current allocation levels cannot meet demand. Increasing allocations will address critical needs at the local level. The use of the funds for general operational program costs is limited to 10 percent. The allocation, distributed to state nonpoint-source pollution programs, varies from year to year based on budget authorizations. Therefore, there is no stable platform for grant awards at the local level. There is a need to provide more funding support in an entire watershed, prioritized on financial capacity. Smaller surface water management systems and systems in disadvantaged communities have limited capacity to

¹¹ Low Income Home Energy Assistance Program (LIHEAP). US Department of Health and Human Services. More information available at: <https://www.acf.hhs.gov/ocs/programs/liheap>

address water quality protection challenges. Investment in capacity building through technical, financial and managerial support, directly by consultation or through use of grant funds, is of critical importance. Expanding the programmatic criteria for use of Section 319 Grants to address technical, managerial and financial deficiencies, along with comprehensive asset management technical and funding support, will advance local communities' ability to effectively carry out their role in partnership with federal permitting, state program guidance and local surface water system operation. The current program structure does not allow the use of these grant funds for MS4 permit compliance and consideration should be given to allow for such use, specifically targeted to allow an exception for communities with limited capacity to address water quality protection.

Recommendation: *Develop a new construction grant program specifically for stormwater projects, similar to the federal Municipal Construction Grants Program that funded the construction of wastewater treatment plants.*

A Stormwater Construction Grants Program, similar to the Municipal Construction Grants program that funded the construction of wastewater treatment plants in the 1970's and 80's, could be developed to serve as a much-needed jump start to investment in stormwater infrastructure/capital investment. Such a program could likely be managed through existing SRF programs if new funding sources are identified. However, funding stormwater management is less straightforward than funding construction of wastewater treatment plants. The program components outlined below could help to avoid some of the challenges of the original Municipal Construction Grants Program and better tailor a program to stormwater management.

- The program could require participants to demonstrate capacity or secure financial assurances to show that they can fund ongoing O&M for grant-funded projects. The technical assistance model recommended by this Task Force could be used to help evaluate and provide these assurances.
- In many communities, the greatest capital investment need is related to the renewal and/or replacement of existing stormwater infrastructure. However, communities have indicated a need for help in prioritizing stormwater asset maintenance and replacement and estimating associated costs.¹² To help meet this need, the construction grant program could fund development of an asset management plan (or require communities to have one in place that meets certain requirements) as a first tier of funding for renewal/replacement projects.
- The grant program could require, prioritize or set aside a separate "bucket" of funds for regional/watershed projects that result in cost savings and greater environmental benefits and help avoid conflicts associated with implementing different methods for stormwater management across communities. Similarly, the program could prioritize cross-sector opportunities, such as partnerships with transportation departments, that result in significant cost savings and/or bring additional matching funds.

¹² WEF Stormwater Institute. 2019. National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- The program should not require “shovel-ready projects” and should fund design, feasibility, and other upfront costs, particularly for small and medium-size communities.
- To further encourage participation of small and medium-size communities, particularly those that are economically disadvantaged, the program could waive or reduce matching fund requirements. It should also carefully evaluate the needs of these communities and set aside appropriate funds or tailor the program to better meet their needs.
- The program should fund a wide range of projects and prioritize projects that result in the greatest financial, environmental, and social benefits. Water quantity projects (flood control and mitigation) should be eligible and be prioritized in consideration of all benefits—not subordinated to water quality projects.
- Many stormwater projects result in multiple benefits, particularly green infrastructure projects. The grant program could be linked to other federal programs that provide funds for investment in projects or programs related to these co-benefits (e.g., public health, air quality, energy savings, economic development). For example, for projects that result in specific co-benefits, related federal grant programs could provide the recipients’ matching fund requirements. This would incentivize these projects and stretch public dollars toward meeting multiple goals. It would require research and coordination across relevant programs. This could also be achieved, in part, through the common application for relevant federal grant programs/agencies, as recommended by this Task Force.

Recommendation: *Require 10 percent of U.S. federal farm subsidies (all programs) to be redirected toward stormwater/nonpoint impacts in the same watershed as the recipient farm.*

Agricultural lands in watersheds throughout the United States are major contributors to water quality impairments from nutrient, sediment and bacteria runoff from farms and fields. The agricultural sector has made great strides in implementing best management practices on farms but these practices have limitations. Additionally, many of the most effective practices require taking land out of production, at the same time as worldwide demand for food grows. Federal farm subsidies total about \$20 billion per year. Dedicating 10 percent to stormwater programs would generate nearly \$2 billion annually for stormwater program funding. Limiting eligibility to programs within the same watershed would provide a rational connection between the funding source and the benefitting watershed.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

4.0 Sufficiency of Funding

Evaluate whether sources of funding are sufficient to support capital expenditures and long-term operation and maintenance costs necessary to meet the stormwater infrastructure needs of municipalities.

Determining the extent of capital and long-term O&M costs necessary to meet the stormwater infrastructure needs of municipalities in the United States is a challenging task. Many surveys and studies have been conducted over the past 30 years, each with its own limitations. The surveys and studies presented below were largely developed within the last four years and represent only a few resources from the pool. However, these resources collectively indicate the following:

- 💧 The needs are great and the funding gap is very wide—estimated to approach \$10 billion annually.
- 💧 There are no large-scale, comprehensive, nationally representative numbers on total stormwater capital and O&M needs.
- 💧 The most recent attempt to estimate the need on a national scale was conducted by the Water Environment Federation’s Stormwater Institute in 2018, with a survey of MS4 permittees that determined the total annual funding gap for stormwater programs (MS4 compliance activities only) to be \$8.1 billion nationally.
- 💧 Other existing surveys evaluated and summarized below have estimated needs ranging from:
 - A combined \$1.7 billion for the next five years and \$3.3 billion for the next 10 years for 137 stormwater utilities in Florida alone.¹³
 - An EPA-estimated total of \$19.2 billion for the nation over five years.¹⁴
 - \$9.7 billion for capital improvement over 20 years for 67 stormwater utilities in the southeastern United States.¹⁵

The limitations of these and other surveys are discussed below and point to a potentially significant underrepresentation of total national need. Many communities have not been able to quantify their long-term needs or quantifying existing spending /annual revenues, which limits the ability to fully capture funding needs.

- 💧 Needs specific to O&M are even less well captured and defined because O&M responsibilities in many communities are passed to property owners or homeowner’s associations where the

¹³ Florida Stormwater Association. 2018. *Stormwater Utility Report*. <https://www.florida-stormwater.org/stormwater-utility-report1>

¹⁴ U.S. EPA. 2016. Clean Watersheds Needs Survey 2012 Report to Congress EPA-830-R-15005. https://www.epa.gov/sites/production/files/2015-12/documents/cwns_2012_report_to_congress-508-opt.pdf

¹⁵ WEF Stormwater Institute. 2019. National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

stormwater systems or treatment facilities (best management practices or stormwater control measures) are located.

- Revenue for established stormwater programs may be largely generated from taxes or user fees, which can vary significantly across the country, and capital improvements may be more commonly cash-financed than debt-financed.
- In some communities, there is a moderate to significant gap between annual revenue and capital and O&M needs, and lack of funding and financing is a significant concern and priority for stormwater programs/utilities.
- Public perception of water infrastructure, including stormwater infrastructure, varies widely across the country and in each community. In some communities there is widespread support for investing in the water infrastructure, even if this requires moderate increases in customer charges; other communities oppose any increase in charges.

The Task Force has clearly identified the need for a national survey of stormwater needs that includes all costs related to managing stormwater, from water quality to flood control. The American Society of Civil Engineers, in coordination with the Water Environment Federation's Stormwater Institute, has been preparing report cards on the nation's infrastructure since 1998 and in the next report card will add stormwater infrastructure as a specific category. Until that time and lacking a national measure of the need, the Task Force believes—based on the many existing surveys on stormwater funding needs—that the funding gap is well into the billions of dollars per year and will continue to grow if things are left on the current course.

In addition to a review of available surveys and estimates on a broad scale, Task Force members developed illustrative case studies of stormwater programs in more than a dozen communities across the country (Appendix II). While not meant to be statistically representative of stormwater programs across the nation, these case studies highlight the funding challenges faced by both large metropolitan communities like Atlanta, Chicago and San Diego and smaller communities like Coralville, Iowa; Griffin, Georgia; and Washtenaw County, Michigan. In nearly all these communities, significant gaps exist between current funding levels for annual O&M programs as well as capital investment needs. Stormwater programs align their level of service with available funding, not typically with an asset-management-generated, data-supported program ensuring adequate maintenance levels are achieved and adequate investment is being made in renewal and replacement of stormwater infrastructure. Some communities acknowledge that their current programs do not address the impact of more intense, more frequent storms and floods. These case studies can be found in Appendix II.

There are many reasons the funding gap for stormwater infrastructure exists. While there are many federal funding programs—including the revolving loan programs, WIFIA, the various Department of Agriculture programs, and others—the total available falls well short of the need and access can be challenging, especially for small and disadvantaged communities. Attracting private capital continues to be challenging, as the expected return for third party capital is mismatched with the risk profile of most stormwater projects. Without low-cost concessionary debt, there is no compelling desire for outside, private capital to invest.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

The gap also does not appear to be related purely to affordability. Communities across the nation have implemented local stormwater fees that, in isolation, do not create undue financial burdens on the majority of their customers. Affordability is, however, an issue for lower-income segments of the population across the nation: without a safety net to ensure they can get relief from rising water costs (for all water including drinking water, wastewater and stormwater), it will be impossible to close the gap with local fees alone.

Perhaps the biggest obstacle to closing the stormwater funding gap is the lack of political will to increase revenues dedicated to stormwater investment at the local, state and federal levels. Without leadership, stormwater infrastructure investment will continue to fall short of annual needs and future generations will be burdened with failing stormwater systems.

A detailed summary of the resources and surveys evaluated to assess the funding gap is provided below.

4.1 American Support for Investments in Water Infrastructure (2019)

In February 2019, as part of the U.S. Water Alliance’s Value of Water campaign, public opinion researchers conducted a phone-based survey of 1,000 voters in 47 states (all but Hawaii, Oklahoma and West Virginia). The goal of the campaign was to raise awareness of the importance of water and water challenges facing the nation. This survey focused broadly on water infrastructure through the lens of drinking water and wastewater infrastructure and did not include an explicit stormwater component.

Of the 1,000 respondents, 79 percent ranked rebuilding America’s infrastructure as “extremely to very important,” which is consistent with information gathered during similar 2017 and 2018 surveys. In 2019, 83 percent of respondents rated the water infrastructure in their local communities as “very good” or “somewhat good” (on par with 2016 responses, accounting for reported margin of sampling error). However, only 49 percent of respondents rated the condition of the nation’s water infrastructure as “very good” or “somewhat good,” while 36 percent believe it is “somewhat bad” or “very bad.”

While public opinion of the condition of water infrastructure in their own communities remains positive, nearly four in five respondents indicated that they support developing plans to rebuild America’s water infrastructure and support an increase in federal investment to do so. Of note, 80 percent of respondents indicated that their drinking water and wastewater rates were affordable and would be willing to pay a modest amount more to improve local water infrastructure. Additionally, two-thirds of surveyed voters believe that investments in comprehensive upgrades, replacements and improvement should be made today, rather than addressed over time as the need arises. The survey did not distinguish between investments in capital improvements and O&M.

4.2 Black & Veatch Stormwater Utility Surveys (2016 and 2018)

National consulting firm Black and Veatch has been conducting biennial stormwater utility surveys for over 25 years. The 2016 online survey included 74 participants from 24 states. The 2018 online survey

included 75 participants from 21 states.¹⁶ Combined, the survey included local utilities that served populations from 86 to 1.5 million people. Respondents to the 2018 survey have a median population served of 110,500 people and 33,000 accounts. In 2018, 28 percent of respondents indicated that their stormwater operations were governed as a stand-alone stormwater utility, while 23 percent were combined with a department of public works and 20 percent each with a water and/or wastewater utility or other entities.

In the 2016 and 2018 surveys, as well as many previous surveys, respondents cited funding or availability of capital as the most important challenge to enhancing their utilities' stormwater management. In 2018, 94 percent of respondents reported that more than 75 percent of their revenue is derived from user fees. Additionally, survey results showed that the majority (87 percent, on par with 2016 and 2014 responses) of capital improvement projects are cash-financed, as opposed to debt-financed.

Respondents' 2018 annual stormwater capital improvement program budget ranged from \$1,800 to \$143.9 million, with an average of about \$7.6 million. According to the 2016 survey, 88 percent of respondents indicated that they do not have adequate funding to meet all their stormwater programs' needs, while 85 percent of 2018 respondents indicated that funding was not adequate. This aligns with survey responses to the same question from the 2010, 2012 and 2014 reports. Neither the 2016 nor the 2018 survey explicitly discussed funding and needs for O&M activities, although 2018 survey respondents indicated that stormwater utility budgets generally do capture costs for inlet and outfall maintenance and best management practice inspection and maintenance.

4.3 Clean Watershed Needs Survey 2012 Report to Congress (2016)

The EPA conducted its most recent Clean Watersheds Needs Survey (CWNS) in 2012 and published in 2016. The CWNS estimates the capital investment necessary to meet the nation's stormwater and wastewater treatment and collection needs, based on Clean Water Act requirements. Water quality improvement investments considered in the CWNS included stormwater management. This category captured costs associated with the planning and implementation of structural and non-structural measures to control runoff in Phase I, Phase II and non-traditional MS4s.

This voluntary survey captures needs across most states, Puerto Rico, the District of Columbia and U.S. Territories ("states"). While the goal of the survey is to capture 20-year need nationwide, because states had limited documentation to demonstrate needs over this longer timespan (most projects will be completed within a 5-year period), most of the needs captured in the 2016 report only reflect 2012 to 2017 needs.

Information provided by the states captured needs for over 27,000 wastewater facilities and water quality projects. Of the estimated \$271 billion required to meet documented needs, an estimated \$19.2

¹⁶ The following states did not participate in the 2016 and 2018 surveys: AK, AL, AR, AZ, CT, HI, ID, IN, LA, MA, ME, MI, MS, ND, NH, NJ, NM, NV, NY, RI, SD, UT, VT, WI, WV, and WY. The following additional states did not participate in the 2018 survey: NE, OK, and MD. In 2018, 33 respondents represented three states, Florida (16), Texas (10) and Colorado (seven).

billion was for stormwater-related needs. This represents a 60 percent decrease from the 2008 CWNS, but this decrease is due in part to lower participation in the 2012 CWNS. Three fewer states participated in 2012, and seven states reported no needs in 2012, which accounted for \$7.2 billion of the 2008 survey's needs. Additionally, EPA's estimate only included projects that had a "storm water quality benefit" and thus did not include needs associated with flood control projects in the estimates. As a result, states reported that this modification made it difficult to meet EPA's documentation criteria for stormwater in 2012. Of the \$19.2 billion for stormwater needs, 45 percent is attributed to conveyance systems, 32 percent for the treatment of stormwater runoff (e.g., ponds, manufactured devices), and the remaining 15 percent for low-impact development and green infrastructure projects.

Additionally, the CWNS only includes projects with site-specific solutions to known water quality problems and detailed cost information. Needs associated with water quality problems without known solutions and cost estimates were not captured.

4.4 Florida Stormwater Association Stormwater Utility Report (2016 and 2018)

In 1995, the Florida Stormwater Association (FSA) began performing biennial Stormwater Utilities Surveys to provide stormwater program information to state and local government managers and policy makers. The FSA provides questionnaires to the 67 counties and 410 cities in Florida. Of those 477 entities, FSA estimates, 165 local governments have established stormwater utilities. In 2016, 124 utilities responded to the questionnaire; in, 2018 FSA received 137 responses. In 2016, 88 respondents (71 percent) cited user fees as their primary approach to revenue generation. In 2018, 91 respondents (66 percent) reported the same. In both surveys, about 70 percent of respondents indicated that fees were primarily based on impervious area.

Eighty-two entities in 2016 and 89 entities in 2018 reported that their stormwater operating budgets are funded solely by their stormwater fees. The rest (42 in 2016 and 47 in 2018) indicated their budgets were covered by fees and other "non-fees" including, but not limited to, ad valorem taxes, sales tax and gas tax. The 2016 survey indicated that 44 percent of stormwater capital construction programs were funded only by fees, while the remainder was funded by fees and non-fees. Responses were very similar in 2018.

In 2016, 66 percent of respondents reported that their operating budgets are funded only through fees. Of the 34 percent for which fees and other non-fee funds fund their operating budgets, 45 percent reported ad valorem taxes as the source of non-fee revenues. Responses to these questions were nearly identical in 2018.

The 2016 report identifies the annual average revenue generated by each entity's utility fee as \$3.6 million, whereas the 2018 report lists the annual average as \$3.9 million. Respondents reported a combined projected capital improvement need of \$1.7 billion for the next five years and \$3.3 billion for the next 10 years (per-utility average of \$14 million and \$35.1 million, respectively). This represents an increase from 2016 reported total respondent needs of \$1.4 billion (five-year need) and \$3.1 billion (10-year need). Respondents were also asked whether stormwater fee revenue was sufficient to meet administration, O&M and capital improvement needs. In 2018, 33 percent of respondents indicated that fees were sufficient to meet all or most needs, while 26 percent reported that fees were not adequate

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

to meet urgent needs. In 2016, responses to the same questions were 39 percent and 37 percent, respectively. Respondents were not given the option to indicate whether fees were not adequate to meet non-urgent needs.

4.5 Georgia Stormwater Utilities Report (2017)

From August 2016 to February 2017, the University of North Carolina’s Environmental Finance Center and the Georgia Environmental Finance Authority surveyed 48 stormwater utilities in 27 Georgia counties regarding stormwater fees. Of the 48 respondents, 23 reported collecting fees through utility bills, while 20 reported collecting fees through property tax bills and five through stand-alone bills. Of the participants, 31.2 percent indicated they apply unique multi-family residential fee structures. In Georgia, flat fee structures are commonly used to apply fees for multi-family and single-family residential properties. Lastly, 93.8 percent of respondents indicated that they charge an equivalent residential unit (ERU)–based fee for non-residential properties, which is based on the amount of impervious surfaces on a property.

4.6 Southeast Stormwater Association Utility Report (2019)

The Southeast Stormwater Association conducted its seventh biennial survey of stormwater utilities in 2019, capturing information from 103 respondents representing stormwater utilities from 136 jurisdictions in Georgia, South Carolina, North Carolina, Alabama, Tennessee, Florida and Kentucky. Ninety-four percent of respondents reported generating revenue from a user fee, largely based on the amount of impervious area on a property. Annual reported revenue generated by the stormwater utility fee ranged from \$32,000 to \$71.1 million, with an average of \$4 million. Average monthly utility rates ranged from \$0.62 in Alabama to \$5.36 in South Carolina.

Across 67 respondents, the estimated total 20-year capital improvement need is \$9.7 billion, with an average of \$144.8 million in need per respondent.

4.7 The Chesapeake Stormwater Network Select Results of the MS4 Needs Survey (2016)

In 2016 the Chesapeake Stormwater Network surveyed Phase I and Phase II MS4 permittees within the Chesapeake Bay watershed (Virginia, Maryland, Delaware, West Virginia, Pennsylvania, New York and Washington, D.C.) to identify funding needs. A total of 137 respondents provided input for the survey. Seventy-three percent of respondents indicated that their stormwater program is somewhat (45 percent) or very (28 percent) underfunded. Respondents also cited resource limitations and scale of permit requirements as the most significant challenges to permit implementation.

The majority (65 percent) of Phase I permittees responded that they have an approximate annual budget of over \$1 million. The remaining Phase I permittees indicated the following: 8 percent operating on a budget of less than \$25,000, another 8 percent operating on a budget between \$25,001 and \$100,000, 5.4 percent operating on a budget between \$500,000 and \$1 million, and 13 percent unsure of their operating budget.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

The majority of Phase II permittees (36 percent) indicated that they have less than \$25,000 to implement their programs. The remaining Phase II permittees indicated the following: 21 percent operating on a budget between \$25,000 and \$100,000, 8 percent operating on a budget between \$500 and \$1 million, 7 percent operating on a budget between \$100,001 and \$500,000, and another 7 percent operating on a budget of more than \$1 million, and 18 percent not sure of their budget allotment.

4.8 Water Environment Federation MS4 Needs Assessment Survey Results (May 2019)

The Water Environment Federation’s (WEF’s) Stormwater Institute conducted a national survey of MS4 permittees in 2018 to identify permittees’ information and technical resource needs and better understand the challenges facing MS4 permittees. A total of 622 respondents represented 48 states and Washington, D.C. The sample size was statistically significant and generally representative of the distribution of MS4 programs across the United States, including municipal, non-traditional and state department of transportation permittees. The survey determined the total annual funding gap for stormwater programs in the MS4 sector to be \$8.1 billion nationally.

Phase I and Phase II MS4 respondents cited lack of funding or availability of capital, aging infrastructure, and increasing or expanding regulations as the most significant challenges to their stormwater programs. Close to 50 percent of Phase I and II municipal permittees indicated that they do not have enough money to meet program goals, and that a respective 52 percent and 136 percent annual budget increase is needed. Respondents also indicated a need for more information on methods for securing funding and financing. Specifically, respondents indicated needing additional information on “leveraging additional sources of funding based on co-benefits.”

WEF indicates that the number of MS4s with inadequate annual budgets may be underrepresented due to unwillingness to answer questions that might only raise further questions about their budgeting process or regulatory compliance.

4.9 Western Kentucky University Stormwater Utility Surveys (2013, 2016, 2018 and 2019)

Western Kentucky University (WKU) has been conducting a regular survey of stormwater utilities since 2007. The WKU team mines publicly available online data on stormwater utilities, in addition to conducting phone surveys. The survey aims to identify as many stormwater utilities as possible within the United States and Canada.

The number of identified stormwater utilities has been increasing in each survey. The 2013 survey identified 1,417 stormwater utilities in the United States, compared to 1,583 in 2016, 1,681 in 2018, and 1,716 in 2019. The 2019 survey reported that 800 of these utilities fund their programs with ERU-based user fees. These reported monthly fees have generally increased through the years from \$4.57 in 2013 to \$5.85 in 2019 (median of \$4.75), even though the average impervious area based on the ERU has varied. This is largely attributed to the application of tiered fees and the fee structure that is applied to residential and non-residential properties.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

As previously stated, the Task Force believes, based on the many existing surveys on stormwater funding needs, that a significant gap exists, well into the billions of dollars per year and left on the current course, that gap will continue to grow.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

5.0 Existing Sources of Funding

Identify existing federal, state and local public and private sources of funding for stormwater infrastructure and how funding for stormwater infrastructure from such sources has been made available, and utilized, in each state to address stormwater infrastructure needs.

Stormwater management at the local municipal level has changed significantly within the last 20 years as discussed in earlier sections of this report. The following are some of the factors that have raised the average cost of stormwater programs (adjusted for inflation) over what it was 20 years ago:

- The increased use of green stormwater infrastructure for stormwater management
- The maturation of many water quality programs and the increase in infrastructure maintenance needs
- The impacts of more intense rainfall
- The necessity for resilience planning and implementation of initiatives
- The realization that underground stormwater systems were reaching the end of their functional lives, requiring massive rehabilitation and replacement programs

This cost increase necessitates an evaluation of existing sources of stormwater funding, as well as ways to either further leverage existing funding sources or identify potential new sources of funding.

5.1 The Role of the Federal Government in Funding Stormwater Programs

To date, the role of the federal government has been to provide minimal funding for selected capital projects, often with a significant match required and for targeted and limited programs, with availability further limited by annual appropriations. For example, for flood resiliency support, federal programs include Housing and Urban Development Hazard Mitigation Grants, Community Development Block Grants, FEMA Pre-Disaster Mitigation Programs and Flood Mitigation Assistance, U.S. Army Corps of Engineers (USACE) flood risk management studies and projects, and U.S. EPA loan programs, etc. Even though these programs provide small contributions to the construction of capital projects, they do not provide funding for the bulk of the stormwater needs: compliance requirements, infrastructure operations and maintenance, and additional capital expenditures. In addition, most USACE flood risk management funding is for large projects that typically do not address the stormwater needs of small communities.

Existing funding has proven inadequate for current and anticipated future costs associated with proper stormwater management. Certainly, it is not expected that the federal government should meet all funding needs—but it has opportunities to provide leadership and increased funding to allow local communities to better address stormwater management needs. The needed federal investment in

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

stormwater infrastructure is similar to federal funding programs used in the past to begin construction of our interstate highway system and upgrade wastewater treatment plants.

Ultimately, local communities committed to raising or implementing stormwater user fees or other dedicated and sustainable funding sources to more realistic levels, in concert with the ability to repurpose the various existing federal programs, could go a long way in solving existing problems. In some cases, communities can manage and fund the local stormwater collection and water quality program. The difficulty is to find funding for communities with:

- Extreme events and large system flooding issues.
- Lack of resources to meet compliance requirements, environmental standards or consent decrees that go beyond typical water quality issues.
- Operations and maintenance needs for stormwater infrastructure (treatment and collection).
- Vast sections of very old and inadequate stormwater piped drainage systems. In many of these cases sources of the problem exist outside the boundaries of the community.

5.2 Stormwater Funding—Types and Uses of Funds

In the face of increasing costs, communities across the United States have implemented a wide range of approaches to fund stormwater programs and related capital projects—but few have the revenue capacity or one-time influx of funds to support anything beyond small capital projects or ancillary programs. Stormwater funding tends to fall into three categories:

- **Revenue**—an ongoing stable and meaningful flow of funds, including taxes of various types, franchise fees and stormwater user fees, as well as intermittent revenue from various special fees and charges.
- **Capital financing**—targeted capital funding for a specific project, such as state and federal grants, state and federal loan programs, general obligation or revenue bonds, and other short or long-term loans.
- **Other resources/approaches for funding stormwater management, including development by others**—new development and redevelopment creating stormwater infrastructure or partnership approaches, other in-kind services or volunteer programs, approaches that can shift risk or delay payment such as public-private partnerships, market-based solutions, and other innovative approaches.

The following table (

Table 1) provides a stormwater funding matrix that further outlines examples of stormwater funding currently used by communities, along with advantages and disadvantages of each. Most communities use more than one source of funding. The following sections further explain the sources and uses of each type of funding.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Table 1. Funding Type Matrix, including a Description of the Funding Source and Associated Advantages and Disadvantages.

Funding Source	Description	Advantages	Disadvantages
1.0 “Revenue-Based” Funding Sources used to pay on-going Operation & Maintenance and Debt Service of the Stormwater System			
1.A Recurring, Sustainable Revenue Sources for On-going Stormwater Program Funding			
<ul style="list-style-type: none"> Provide regular, recurring revenues to fund both operating and capital related costs 			
Taxes/ General Funds	Funds raised through taxes such as property, income, and sales that are paid into a general fund.	<ul style="list-style-type: none"> Consistent from year-to-year Utilizes an existing funding system 	<ul style="list-style-type: none"> There can be significant competition for funds; Tax-exempt properties do not contribute; System is not equitable (does not fully reflect contribution of stormwater runoff)
Taxes/ Dedicated (e.g., local option sales tax, Gas Tax, drainage or special assessment district)	Funds raised through taxes such as property, income, and sales that are restricted, in part or in whole, for funding stormwater costs.	<ul style="list-style-type: none"> Consistent from year-to-year but can vary (e.g., changes in property values or rise and fall with economic cycles) Utilizes an existing funding system Can be targeted for a specific purpose (e.g. ongoing maintenance, capital, etc.) 	<ul style="list-style-type: none"> May be competition for funds if not exclusively restricted to stormwater; May require approval by vote of the local legislative body and public if a new tax Often have a “sunset” clause resulting in stable funding only for a specified period of time (e.g., 10 years) Tax-exempt properties do not contribute; System is not equitable (does not fully reflect contribution of stormwater runoff)
Stormwater Utility User Fee (Enterprise Fund)	A stormwater utility generates its revenue through user fees and the revenues from the stormwater charges will go into a separate fund (e.g. enterprise fund) that can be used only for stormwater services.	<ul style="list-style-type: none"> Dedicated funding source Directly related to stormwater impacts Sustainable, stable revenue Shared cost Equitable apportionment of costs Improved watershed stewardship Addresses existing stormwater issues All properties served pay fee 	<ul style="list-style-type: none"> Feasibility study required for implementation, fee structure, and administration of utility Requires approval by vote of the local legislative body, in some cases public vote required Perception by the public of a “tax on rain” Public acceptance for a first-time fee is difficult Some states have not yet allowed SW Utilities

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Funding Source	Description	Advantages	Disadvantages
1.B Intermittent Revenue <ul style="list-style-type: none"> To recover a portion of costs related to which fee is assessed 			
Fees	Revenue raised through charges for services such as inspections and permits. Revenue raised through developer related fees are one-time charges linked with new development.	<ul style="list-style-type: none"> Specific permit and inspection fees allow for more direct allocation of costs for services provided Fees can be set to fully recover cost Certain kinds of fees can provide funding for long-term maintenance Addresses potential stormwater impacts related to new construction 	<ul style="list-style-type: none"> Not available for larger projects or system-wide improvements Developer impact fees may be an unreliable source when development slows (due to market downturns/contractions) Requires administrative framework to assess and manage Legal limitations may constrict or restrict usage
Special Charges (e.g., impact fees, latecomer fees, system development charges, special assessments, surcharges on other utilities)	A number of different fees that attempt to shift certain program costs to provide a better cost causation match. Payees might be other local programs, development interests, other local government programs, or parties requiring a myriad of special services or penalties.	<ul style="list-style-type: none"> Improves cost causation equity match Allows special services to be paid for by recipients Provides additional funding in a manner acceptable to the general public Recovers the cost of negative impacts of other activities on the stormwater system 	<ul style="list-style-type: none"> Level of funding is unpredictable and can vary significantly year to year Can be hard to administer May be seen as discouraging development or other desirable activities May be difficult to price accurately While some sources may fund certain O&M (e.g., staff time), others, such as impact fees and SDCs are generally restricted to capital funding only
1.C Capital Financing Sources (Financing Vehicles, require repayment) <ul style="list-style-type: none"> Borrowing for capital projects 			

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Funding Source	Description	Advantages	Disadvantages
Bonds (Debt Obligations)	Bonds are not a true revenue source, but are a means of borrowing money to finance capital projects. Bonds are generally issued with a term less than the expected useful life of the assets financed. Bonds may be general obligation (GO) bonds backed by taxes, or revenue bonds, backed by a secure revenue source (most commonly a stormwater user fee). “Green” bonds are a designation of bonds dedicated to environmentally friendly projects, including clean water projects.	<ul style="list-style-type: none"> Existing sources available for stormwater-related funding Can support construction-ready projects Allows a community to complete large projects sooner than revenue cashflows become available, or a significant stormwater capital program more quickly Spreads the cost of the capital project over time, allowing beneficiaries of the improvements to pay over the life of the bonds, rather than current property owners paying up front. Mitigates the risk of construction cost escalation Accelerates ability to address important health and environmental issues 	<ul style="list-style-type: none"> May require approval for each issuance, in some cases, voter approval Requires access to funding for full repayment of principal borrowed Interest costs can vary but will add to total project cost Requires dedicated repayment revenue stream May require design-level documents to be prepared in advance of debt funding Cannot be used to fund O&M if they are tax exempt bonds. Will require additional funding for costs of issuance May require significant administrative preparation to issue and for post compliance activities and disclosures.
Loans (Debt Obligation)	Low-interest loans, for example the SRF loans, may be secured, and are generally used for planning and capital projects.	<ul style="list-style-type: none"> Existing sources available for stormwater-related funding Offers low- or no-interest financing Loan interest loan programs may offer ease of issuance relative to public offerings 	<ul style="list-style-type: none"> One-time source of funds Requires full repayment of principal borrowed Administrative requirements can be time-consuming Loan interest loan programs may come with inflexible mandates and restrictions
1.D One-time Sources <ul style="list-style-type: none"> Generally used for capital projects 			
Grants	State, federal, local and non-profit grants provide additional funding for water quality improvements.	<ul style="list-style-type: none"> Existing sources available for stormwater-related funding Does not require repayment 	<ul style="list-style-type: none"> Competitive Typically, one-time, project- specific, or time-constrained funds Often requires a funding match Does not fund post-project O&M Matching grant requirements and project needs difficult
2.0 Other Resources/Approaches for Funding Stormwater Management			

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Funding Source	Description	Advantages	Disadvantages
Public-Private Partnerships (P3)/ Alternative Service Delivery (ASD)	Contractual agreement between a public agency and a private sector—generally used for capital projects. Partnering with private enterprise can expand access to resources and capital and offer better economies of scale. P3/ASD shifts both risks and duties from the traditional procurement and project management context. Examples include: Design/Build, Design/Build/Operate/Maintain/Finance, Pay-for-Performance (also sometimes referred to as Pay-for-Success), etc. May include private financing, or a combination of public and private financing.	<ul style="list-style-type: none"> • May be structured to require minimal to no initial cash outlay for public sector, assuming the private sector partner is providing financing • Efficiency through bypassing bureaucracy or economies of scale • Flexibility & creativity of project approach, new technology adoption and contracting/procurement • Access to flexible & creative private sector financing • Significantly leverages public resources • Draws on private sector expertise • Enables transfer of compliance from one development to another • Partnerships can be with not-for-profit entities • Considers a project’s full lifecycle, potentially including O&M • Risk is shared with or passed entirely to private entity 	<ul style="list-style-type: none"> • A local revenue source is needed to fund the partnership • May be structured so as not to require new funding; may rely on underlying public revenue stream (e.g. user fees, taxes, etc.) • May require enabling legislation • Substantial education and socialization is required to manage public perceptions related to loss of control and escalated costs • Initial financing costs inherent within P3/ASD may be higher than municipal debt. • A lack of public agency experience may necessitate the need for additional resources to complete a successful contract negotiation
Private Development Sites	Private sites build distributed stormwater infrastructure (e.g. Low Impact Development, BMP’s, conveyance, etc.) that contributes to the overall municipal goals OR contribute funding in lieu of construction. Usually required by local ordinance or conditions of approval OR set up as a development impact fee. The proper construction and ongoing maintenance of these sites constitutes a major stormwater expenditure of significant importance.	<ul style="list-style-type: none"> • When well-regulated and inspected these structures and systems are the first, and most important line of defense against flooding, erosion and pollution • Inspection and enforcement costs are comparably low but with significant return on investment • Capital expenditure and permitting costs are borne by private development • Often required by regional NPDES permits and enforced by municipalities 	<ul style="list-style-type: none"> • Political will, budget, and legal capability to enforce long-term maintenance, and sometimes initial construction standards may be lacking • Funding is only triggered when regulated development occurs, which can be hard to plan around and predict – particularly in a low investment environment or with regulations that do not capture the majority of development and redevelopment activities • Development may not happen in areas of greatest need in watershed/community • Additional education of Public knowledge may be required

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Funding Source	Description	Advantages	Disadvantages
			<ul style="list-style-type: none"> • Impact of such programs is hard to measure unless a high percentage of the watershed has been constructed with modern requirements • Distributed infrastructure may not be efficient in treating and managing SW flows • Ensuring O&M is difficult and requires municipal resources • Development impact fees requires robust needs analysis and nexus findings (could also be an advantage)
Volunteer Programs	In-kind initiatives that can help support stormwater priorities	<ul style="list-style-type: none"> • No cost to stormwater program • Can help increase public awareness • Some not-for-profits come trained and ready to work • Can bolster public support for a user fee 	<ul style="list-style-type: none"> • Limited impact from overall revenue perspective • Requires coordination, training and supervision
Coordination with other Municipal Departments and State Agencies	Synergize with other city departments, agencies, etc. to leverage available community funds for stormwater needs	<ul style="list-style-type: none"> • Eliminate duplication of effort • Move toward a “water agency” that can integrate water as a single resource • Allows easier/quicker response for emergencies • Multiple funding or resources may be harmonized; the “whole being greater the sum of the parts” • Transportation projects can add SW elements for marginal costs (sometimes) • State DOTs right of way limitations often compel them to partner with municipalities to achieve SW goals 	<ul style="list-style-type: none"> • Stormwater may be seen as a secondary priority behind water and wastewater or public works focus on roads • Can lose ability to react to stormwater needs if equipment and manpower is not dedicated • May require additional education of personnel or additional resources with stormwater expertise to make stormwater decisions • Disparate-agency partnerships can be difficult to manage • Mixing funding sources (particularly with grants) can be challenging

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Funding Source	Description	Advantages	Disadvantages
Market-Based Solutions	The off-site provision of required stormwater controls on another site, or in another way, that is seen as more cost effective to a property owner or developer, but equally effective in attainment of the regulatory standard.	<ul style="list-style-type: none"> • Creates cost efficiencies in placement of stormwater controls • Can allow for aggregation for better overall control and treatment • Can shift and target controls to more critical locations 	<ul style="list-style-type: none"> • Can be complex to administer • Requires clear and enforceable policies on ownership and maintenance • Markets may be not be initially viable and may need to be jumpstarted with local funding
Newer Innovative Approaches	A wide variety of approaches that seek to exploit unique or unusual funding sources: sponsorship of stormwater or green infrastructure sites, adopt-a-road advertising, tax increment funding, use of private land for public infrastructure, shared right-of-way, seed money and expertise, leveraging user fee credits, philanthropy, etc.	<ul style="list-style-type: none"> • Can provide funds at little cost • Can motivate the private sector through name recognition • Can provide good return on seed money investment when paired with private actions 	<ul style="list-style-type: none"> • Can be hard to administer and explain • May require opinions and analysis on legality

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

5.2.1 Revenue-Based Funding Sources Used to Pay Ongoing Operation and Maintenance and Debt Service of the Stormwater System

The majority of ongoing stormwater program costs must be funded with revenue from dedicated recurring sources, making revenue-based funding the “backbone” of stormwater funding. Revenue-based funding tends to fall into two broad categories: recurring, sustainable revenue sources and intermittent funding.

5.2.1.1 *Recurring, Sustainable Revenue Sources*

Almost all activities undertaken in a stormwater program are ongoing (excluding capital costs such as construction) and therefore must have ongoing, stable, dependable sources of revenue. Activities that require recurring, sustainable revenue include ongoing services to plan, rehabilitate and maintain the stormwater system, conduct programs to meet regulatory requirements, and accomplish a variety of ancillary responsibilities related to stormwater management.

5.2.1.1.1 *Taxes/General Funds*

Taxes (of several types) are by far the largest source of revenue for local governments. Such taxes, unless dedicated, are placed into a local government’s “general fund.” While the types of taxes assessed, and the proportion of revenue generated from each, vary from state to state, the bulk of local government revenue most commonly comes from property tax and income tax assessments. This is true even though communities are increasingly looking to other revenue sources such as stormwater utility user fees.

- **Real estate/ property taxes**, also called ad valorem taxes, are charged to property owners as a percentage of the assessed value of real estate or personal property. They are administered by local governments and require voter approval. Property taxes are an important form of revenue for local governments; they are often used as a funding mechanism for parks and open space measures.
- **Individual income taxes**, also called personal income taxes, are assessed at the state and federal levels (and, in some places, also at the county or municipal levels).
- **Specialized taxes** can also be levied on a large number of parameters, including property transfer, occupancy, gambling, estate, motor vehicle sales and licensing, etc.

The primary advantage of using general fund taxes to fund stormwater programs is that they can provide a reliable (but fluctuating) revenue stream. They are also common and well understood. However, there is significant competition for such funds, with most communities finding it difficult to cover all general fund activities (e.g., police, fire, streets, general government) with available funding. As a result, communities often find that stormwater programs are prioritized lower than other municipal needs, and thus risk losing funding from year to year unless there is a dedicated source of funding for the stormwater program. Another disadvantage is that the use of general fund tax revenue as a stormwater funding source raises equity issues, as system revenue recovery generally bears no relation to use of, or benefit from, a stormwater system. This causes an inequity between the level of service provided and the cost property owners incur. In addition, tax-exempt properties do not pay general

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

fund taxes, causing further inequity as the costs they incur must be recovered with revenue from other properties.

5.2.1.1.2 Taxes/Dedicated

Beyond general fund taxes, many communities use dedicated taxes to fund stormwater program costs. These may take the form of dedicated sales taxes, motor fuel taxes or special assessments.

- **Local sales taxes** are often add-ons to state general sales and use taxes. They may also exist where there is no state sales tax. Depending on state constitutions, statutes and home rule traditions, most local governments must seek voter approval to levy local sales taxes. State authorization processes vary. States may give approval to all counties or communities or limit authorization to specific localities. Local taxes are usually limited to a specified time period (i.e., a sunset provision) or a dollar collection total, and are generally dedicated to a specific use. The dedicated revenue stream may be used for operations and maintenance costs, to back local general obligation or revenue bonds, or to pay for a specific stormwater program directly.
- **Motor fuel taxes** are imposed at the state and federal levels and are levied on gasoline and other fuels. All 50 U.S. states and the District of Columbia assess gasoline taxes. State gasoline tax rates generally range from 14.65 cents to 58.7 cents per gallon.¹⁷ State and federal motor fuel tax revenues are typically dedicated to highway construction and maintenance. Revenues from state and federal motor fuel taxes could be earmarked to fund stormwater infrastructure related to roadways, though competition for such funds is fierce—roadway resurfacing and repair are normally the top priority.
- **Special assessments or special taxing districts or service/ drainage districts** are recurring surcharges levied by local jurisdictions on subgroups of the population or even the entire population, in the case of districts that cover the entire community. Some localities levy them in the form of taxes dedicated to stormwater management; others levy them as fees. The group paying the recurring charges receives benefits from a stormwater service or improvement not enjoyed by others in the area. For example, if a community wants to finance regional stormwater improvements, residents within the protected area or the contributing area could be charged a special assessment. Special assessments are generally charged by local governments and authorized by local ordinance. They are often barred by legislation from use by some states. Special assessments are used to fund water works systems, sanitary sewer systems, installation or repair of water and sewer service lines, flood protection projects, and other purposes.

5.2.1.1.3 Stormwater Utility User Fees

Stormwater management resembles drinking water and wastewater utilities far more closely than municipal responsibilities such as police, schools and roadway maintenance, in that the cost recovery for utility services that are provided can be closely aligned with the service demands of the users.

¹⁷ As of 2018; excludes the federal excise tax of 18.4 cents per gallon (<https://taxfoundation.org/state-gas-tax-rates-july-2018/>).

This has led to the concept of a stormwater utility user fee. A stormwater user fee is similar to a wastewater user fee in that it is developed to recover the costs of the stormwater program based on each property's estimated use of the stormwater system. The first user stormwater fee systems appeared in the United States in the mid-1970s, and their apparent success in generating significant, sustainable revenue while keeping the typical homeowner's fee below a critical reactionary level led to many other communities to follow suit. Local water quality and flood control agencies/districts or utilities are typically responsible for designing, assessing and collecting user fees (or taxes, as noted above) based on a property's contribution to the stormwater management system. Today there are about 1,760 stormwater enterprise funds (stormwater utilities) employing user fees to fund their programs and to fund revenue bonds for capital construction.

A stormwater user fee falls into the municipal revenue generation mechanism called a "service charge." Service charges are not established simply to generate general fund revenue, but must be tied to the objectives of a specific program to which they are associated. A stormwater utility generates its revenue through user fees, and the revenues generated from the stormwater user fees is placed in a separate fund—called an enterprise fund—that can normally be used only for stormwater services. Stormwater user charges are designed to provide a nexus between the user fee and the service provided. As such they differ from taxes.

Stormwater user fees provide the greatest opportunity to provide communities with sustainable, recurring revenue to fund stormwater needs.

The amount each rate payer is charged must be related to the "use" of the system (rational nexus), which can be interpreted as either direct use through runoff contributions or use through protection from flooding of the property and streets by local stormwater program efforts. When a forested or grassy area is paved, a greater flow of water (runoff) is placed on the drainage system. This is the demand. The greater the demand (i.e., the more the parcel of land is paved or otherwise covered with an impervious surface), the greater the user fee should be.

While there are similarities between a stormwater utility and water/wastewater utilities, a stormwater utility differs from drinking water and wastewater utilities in several key ways:

- There is no way to remove or discontinue services for non-payment, as long as the physical property exists.
- The stormwater management service is provided within the entire jurisdiction regardless of whether one or more property deems it necessary or not. This is because stormwater management is performed as a community-wide level of service and not distinctly as an individual property level service (though mandatory water and wastewater service makes this difference less of a distinction).
- The demand placed on the system can only be roughly measured or approximated, as it is not possible to directly measure stormwater flow.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- The actual service rendered to a particular property is often difficult to quantify without the use of a reasonable and consistent approximation approach.

Despite these differences, the utility concept can be a viable and flexible revenue generation approach to stormwater funding. According to the 2019 version of an annual survey by Western Kentucky University, at least 1,716 stormwater utilities currently exist across 40 states and the District of Columbia, serving a total population of nearly 115 million (35 percent of the U.S. population).¹⁸ The authority (enabling legislation) to implement such an approach varies from state to state, and even from municipality to municipality, depending on the details of state-granted authority or home rule requirements. Of the 10 states that do not have utilities, three are either conducting feasibility studies or exploring changes in state law to allow implementation of stormwater utilities.¹⁹

Even in utilities that have a dedicated user fee, which can be used to support debt service associated with capital program financing, while a Black and Veatch 2018 biennial survey reports that most responding stormwater utilities (87 percent) use cash financing instead of long-term debt financing for funding their capital program investments.²⁰ This indicates that stormwater utilities seldom use the capital markets to augment their financial capacity, which can delay needed upgrades and/or affect the pace of compliance programs. Further, only 15 percent of respondents indicated that utility revenue is adequate to meet all needs. The median annual revenue per capita reported in Black and Veatch's survey was \$54, with the maximum annual per capita revenue reported being \$200. WKU does not provide annual revenue details for all utilities surveyed, but found roughly \$2.2 billion in utility fees, with 20 percent of that figure coming from one utility: Chattanooga, Tennessee. More research is needed to provide a full accounting of all public revenue that is raised toward stormwater management and compliance.

State statutes may prevent the creation of a stormwater user fee without a ballot measure or enabling state legislation. This is discussed in detail later in the report.

5.2.1.2 Intermittent Funding

While it is imperative that communities have in place one or more recurring, sustainable funding sources, there are other types of funding that while more intermittent, can provide some additional benefit and help recover certain costs of stormwater management.

5.2.1.2.1 Special Fees

A growing common practice is the use of fees and specific charges to help fund services by local and state government. Special fees tend to focus on specific beneficial government services, while charges

¹⁸ Campbell, C. W. 2019. *Western Kentucky University Stormwater Utility Survey 2019*. https://digitalcommons.wku.edu/seas_faculty_pubs/1

¹⁹ Campbell, C. W. 2019. *Western Kentucky University Stormwater Utility Survey 2019*. https://digitalcommons.wku.edu/seas_faculty_pubs/1

²⁰ Black & Veatch. 2018. "Stormwater Rate Structure and Billing." In *2018 Stormwater Utility Survey*. https://www.bv.com/sites/default/files/2019-10/18%20Stormwater%20Utility%20Survey%20Report%20WEB_0.pdf

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

are defined more broadly in terms of receiving special benefit or service. “When certain services provided especially benefit a particular group, then governments charge fees on the direct recipients of those that receive benefits from such services.” Often the size or level of the fee is derived from the actual cost of such provision. “However, many governments provide subsidies to various users for policy reasons, including the ability of residents or businesses to pay. Well-designed charges and fees not only reduce the need for additional revenue sources but promote service efficiency.”²¹

Special fees tend to fall into several categories:

- Fees for development-related services such as plan review, inspection, environmental permit fees, septic system inspections and other similar types of services.
- Fees to defray the cost of specific government services such as specialized disposal (e.g., oil), recycling, tolls, certification, bond issuance, licenses, etc.
- Fees for government services or land, such as franchise fees, or indirect cost allocations from other enterprise funds for general governmental purposes.

Such fees focus costs on recipients of special services and not the general public, and they address potential stormwater impacts during the critical construction phase. On the other hand, it is often difficult to set such fees at a level that recovers the full cost of the activity necessitating the fee. In addition, revenues from such fees are intermittent and, thus, when that activity is not occurring no funds are received even though local government costs (such as personnel) may be stable and ongoing.

5.2.1.2.2 Special Charges

Special charges are often not distinguished from fees in that they tend to be related to specific government services or benefits. They do tend to be more complex or related to higher government functions. Examples include connection fees, impact fees, special assessment or improvement districts, tax increment funding, developer extension fees, in-lieu fees, latecomer charges, and other exactions.

Connection Fees

Connection fees, also called hookup fees, are typically charged to property owners when they connect with existing municipal drinking water and wastewater treatment facilities. But they could be used for stormwater as well. Connection fees are generally levied by local governments or county governments.

Impact Fees

Impact fees are often assessed on the construction of new buildings. Local governments and county governments levy impact fees. The revenues are used to pay for improvements to services and amenities for the occupants of new development (including expansions of police and fire stations, wastewater and water supply systems, parks, libraries, and schools) and the building of new roads. In addition, impact fees are often assessed based on the projected environmental impacts of a construction project, with their revenues used to mitigate those impacts. The drawback of impact fees is

²¹ Government Finance Officers Association. 2018. “Establishing Government Charges and Fees.” <https://www.gfoa.org/establishing-government-charges-and-fees>

that they can only be used to improve an adequate stormwater system in the face of increased demand, and many systems cannot be shown to be adequate. As well, they typically have sunset provisions.

Exactions

Exactions, also called proffers, are conditions or financial obligations imposed on developers to aid local governments in providing public services needed to support new developments. They are administered by local governments. Exactions can take a number of different forms. They can include financing of existing infrastructure facilities or infrastructure improvements; donations of in-kind services; and donations of land, water and wastewater lines, and road and parking facilities. Exactions can also take the form of impact fees paid in lieu of the types of donations described above. Exactions allow more flexibility than strict impact fees because they are not required to be financial contributions. They may be offered voluntarily by developers; local governments often negotiate them with each developer. Most localities use exactions in some form. Some localities assign building permits competitively based on the level of exactions offered by different developers.

Special Assessments

Special assessments are recurring surcharges levied by local jurisdictions on subgroups of the population. Some localities levy them in the form of taxes; others levy them in the form of fees. The sub-group paying the recurring charges receives benefits from a stormwater service or improvement not enjoyed by others in the area. For example, if a community wants to finance stormwater quality improvements that contribute to lake cleanup, residents with waterfront property could be charged a special assessment. Special assessments are generally charged by local governments and authorized by local ordinance. Special assessments are used to fund water works systems, wastewater systems, installation or repair of water and wastewater service lines, stormwater and flood protection projects, and other purposes, and are sometimes used in conjunction with a neighborhood development to fund the construction and ongoing maintenance of a stormwater detention pond or water quality feature.

Case Study: Five San Francisco Bay Area Voter-Approved Fee Measures

Five small- to mid-sized municipalities in the San Francisco Bay Area put new stormwater fee structures out for voter approval in 2018 and 2019 (with mixed results). Each municipality followed a similar approach including developing a comprehensive needs study or master plan, conducting a scientific survey of the community's priorities and willingness-to-pay, and executing a community outreach and education process aimed at increasing awareness regarding local flooding; storm drainage infrastructure operations, maintenance and capital improvements; and water quality.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Special Assessment or Improvement Districts

Another form of local fee comes from the creation of a special assessment or improvement district. In this case, a district is designated to need stormwater management upgrades—typically green infrastructure or low-impact development—as part of a broader economic development strategy. The district then creates a special tax assessment that is paid for by the property owners within the district’s geographic boundary. State and local laws differ on how these districts are created and voted into existence, what funds are acceptable to be assessed, and how often assessments can be billed. These assessments may be a one-time or ongoing assessment depending on their purpose. One-time assessments tend to be raised for capital construction simultaneous to a broader economic development process. Ongoing assessments may pay for capital construction, administration of the entity in charge of governing the district, and operations and maintenance of district-owned projects. Most special assessment districts are subject to periodic renewal based on a vote by their members; some are mandated by state law to have a sunset clause (e.g., five, 10, 20 years).

Following are some of the advantages and disadvantages of Special Assessment or Improvement Districts:

💧 *Advantages:*

- Improve cost causation equity match.
- Allow special services to be paid for by recipients.
- Provide additional funding in a manner acceptable to the general public.
- Recover the cost of negative impacts of other activities on the stormwater system.

💧 *Disadvantages:*

- Funds flow is not generally predictable and steady.
- Can be hard to administer.
- May be seen as discouraging development or other desirable activities.
- May be difficult to price accurately.
- Typically, cover staff time only—not funding for operation and maintenance or capital improvements.
- Typically, cannot be used as leverage for raising debt capital.

5.2.2 One-Time Funding Sources for Financing of Capital Projects and/or Other One-Time Initiatives

The use of one or more recurring funding sources such as user fees and charges are necessary for any sustainable stormwater program. However, there are other types of funding sources including debt financing, grants, and other sources that are available to communities, more and are more conducive to funding of capital projects and/or help fund special capital program initiatives.

Repository of Funding Sources: The Task Force worked with the EPA to assist in developing a database of existing funding sources. Sources of funding at the federal, state and local levels as well as private

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

funding were compiled, to the extent possible. The results of the effort are found in Appendix III. While the database should not be construed to be comprehensive, it is an extensive database and the Task Force feels it is mostly complete as it relates to federal funding sources. The sources identified at the state, local and private level should be considered representative of the types of funding that may be available. This database includes multiple Federal grant programs that may be available to stormwater programs, through EPA, the US Department of Housing and Urban Development (HUD), US Department of Agriculture (USDA) Rural Utility Service (RUS), and other agencies.

This funding sources database may be available to communities that are interested in examining potential sources of funding primarily for their stormwater capital programs.

5.2.2.1 *Capital Financing Sources (Financing Vehicles, Require Repayment)*

Debt financing, with either short-term or long-term amortization, is an important capital financing instrument that is available for stormwater capital program just as it is for the drinking water and wastewater sectors.

Use of these debt financing instruments for capital program funding requires dedicated, recurring, and sustainable revenue source(s) for the repayment of principal and interest associated with the debt financing. Therefore, it is important to recognize that the capital program debt financing funding source is not just an [alternative] for recurring sources of revenue but rather a valuable complement for funding capital infrastructure investments.

Debt financing mechanisms can greatly help enhance a community's ability to complete large capital projects that would not otherwise be possible.

Debt financing mechanisms can greatly help enhance a community's ability to complete large capital projects that would not otherwise be possible with just limited cash resources (whether generated through user fees, taxes, or other sources), and enable a community to plan and execute a larger capital program. Long-term financing of capital projects provides the additional benefit of spreading the costs of projects over the life of the asset, with the principal and interest paid by those who benefit from the project.

Following are the primary types of capital financing available to communities for stormwater capital program management.

5.2.2.1.1 *Bonds*

"Municipal bonds are debt securities issued by states, cities, counties and other governmental entities to fund day-to-day obligations and to finance capital projects" including stormwater projects.

"Generally, the interest on municipal bonds is exempt from federal income tax. The interest may also be exempt from state and local taxes" in some states. General obligation bonds and revenue bonds are the most common types of municipal bonds. "General obligation bonds are issued by states, cities or counties and not secured by any assets. Instead, [they] are backed by the 'full faith and credit' of the issuer, which has the power to tax residents to pay bondholders. Revenue bonds are not backed by government's taxing power but by revenues from a specific project or source," which could include a

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

stormwater enterprise fee. “Some revenue bonds are ‘non-recourse,’ meaning that if the revenue stream dries up, the bondholders do not have a claim on the underlying revenue source.”²² “A ‘double barreled’ bond is a municipal bond in which the interest and principal payments are pledged by two distinct entities—revenue from a defined project and the issuer and its taxing power.”²³

An advantage of bonding is that projects can be constructed earlier and more rapidly; as well, the payment for the capital project better matches the life of the project, with newer residents participating in the payment according to their longevity within the municipality. Disadvantages include the potential to build up a large debt balance (limiting investment to meet other stormwater needs), the technical and legal requirements to obtain bonds, the limitations on bond capacity within a local government, the potential need for voter approval, and often the limitations on the use of the funds to capital construction but not the full suite of life-cycle costs.

There are many variations on the two general types of bonding, including anticipation notes, asset-backed securities, moral obligation bonds, special assessment bonds, and tax increment bonds.

5.2.2.1.2 Loans

There are a few Federal, State, and private loan type funding mechanisms —many of them originally targeted toward water and wastewater programs— that can be leveraged for local stormwater programs. Relative to borrowing in the bond market, Loans can often provide a lower cost debt financing as under special circumstances, Loans can be structured to include features such as zero interest, very low interest, or even in some cases principal forgiveness. Some of the loan programs are targeted at “green” objectives and programs.

In this section, an overview of the following types of loan programs are discussed.

- Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF)

²² U.S. Securities and Exchange Commission. n.d. “Municipal Bonds.” <https://www.investor.gov/introduction-investing/basics/investment-products/municipal-bonds>

²³ Chen, J. 2019. “Municipal Bond.” *Investopedia*. <https://www.investopedia.com/terms/m/municipalbonds.asp>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Green Bonds

“A green bond is a bond whose proceeds are used to fund environment-friendly projects... Green bonds provide investors with a way to earn tax-exempt income with the benefit of personal satisfaction, knowing that the proceeds of their investment are being used in a responsible, positive manner. The issuers of green bonds also benefit, since the green angle can help attract a new subset of investors, namely younger investors, whom the issuers can profit from over an extended period vs. a base of older investors... The first entity to issue green bonds was the World Bank, which began the practice in 2008 and has since issued over \$3.5 billion in debt designated for issues related to climate change. Ginnie Mae and Fannie Mae have also issued mortgage-backed securities with the ‘green’ label, as has the European Investment Bank.”

- USDA Water and Waste Disposal Loan and Grant Program
- Water Infrastructure Finance and Investment Act (WIFIA) Loan Program
- State Based Loan Programs
- Private Investments

• **CWSRF:** One of the most commonly used loan programs in the wastewater sector is the CWSRF loan. Under Title VI of the 1987 Clean Water Act, states receive federal monies to capitalize CWSRF loan programs. Through CWSRF programs, loans are made to communities to provide low-cost financing for a wide range of different projects to protect water quality. Examples of activities funded with these loans include nonpoint-source pollution control, watershed protection and restoration, estuary management, wetlands restoration, brownfields remediation, and improvements to municipal wastewater treatment infrastructure. Loans are made at low interest rates (0 percent to market rate) for terms of up to 20 years. In addition, states use CWSRF money to repurchase debt to get these loans to 30 years. States may set the criteria for determining which municipalities can access the loans each year. All 50 U.S. states and Puerto Rico operate CWSRF programs. Some CWSRF and Drinking Water State Revolving Fund (DWSRF) loan programs make short-term loans for planning, design and initial construction in localities that may later receive long-term CWSRF and DWSRF loans. In addition, state revolving fund loans may be used to pre-finance other federal or state drinking water loans or grants.²⁴

All 50 U.S. States and Puerto Rico operate CWSRF Programs.

• **USDA Water and Waste Disposal Loan and Grant Program:** This program “provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas...Funds may be used to finance the acquisition, construction or improvement of: drinking water sourcing, treatment, storage and distribution; sewer collection, transmission, treatment and disposal; solid waste collection, disposal and closure; and stormwater collection, transmission and disposal.”²⁵

• **WIFIA:** WIFIA is the latest federal loan program administered by EPA for eligible water, sewer, and stormwater infrastructure projects. The program funds development phase activities, construction/reconstruction/rehabilitation/replacement, acquisition of real property or interest in real property, environmental mitigation, construction contingencies, and equipment acquisition; capitalized interest necessary to meet market requirements, reasonably required reserve funds, capital issuance expenses, and other carrying costs during construction. Applicants must submit a letter of interest, and based upon several criteria, EPA invites qualified projects to apply for the WIFIA loan.

²⁴ U.S. EPA. 2019. “Learn About the Clean Water State Revolving Fund (CWSRF).”

<https://www.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf>

²⁵ U.S. Department of Agriculture. n.d. “Water & Waste Disposal Loan & Grant Program.”

<https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- **State Based Loan Programs:** There are also many state-based loan programs with a variety of objectives and requirements. For example, the Georgia Fund Loan Program currently “supports water, wastewater, and solid waste infrastructure improvements...[with] loans available at a low-interest rate for a maximum of 20 years.”²⁶
- **Private Investments:** Private investment can take the form of loans and/or other financial assistance originating from sources other than commercial banks and/or finance companies. Sources of private investment can include, but are not limited to, insurance companies, pension funds, venture capital funds, individual venture capitalists, corporation partners and general capital investors. Private investment funds billions of dollars’ worth of new business start-ups in the United States each year. The potential uses of private investment for supporting environmentally related businesses and/or activities are only limited by the degree of profit associated with them: if it can be shown that an idea or activity will make money, then private investment can be found to support it. Applying for private investment is typically much faster than for government loan programs. Private investors usually have no set eligibility criteria and may have no predetermined limits on the total amount of loan capital available. Private investors tend to demand a significantly higher rate of return on their money, though, than other sources of capital. Note that a private investment can develop into a public-private partnership of an operational component is added to the mix.

5.2.2.1.3 Grant Type Funding

A variety of one-time grants are available for supporting specific initiatives of capital projects from government and private foundation sources. The advantage of such grants is that there is no repayment requirement and the amounts can be substantial. The disadvantages include the competitive nature of the grants, the requirement for pre-positioned matching in-kind or funds for some grants, the limitations on the use of some grant funds, the effort required to file the applications, and the need to harmonize the grant requirements with the needs of the local government.

There are several federal and state grant programs, including both ongoing programs and one-time opportunities. Several websites provide a good source for learning about federal grants: sites for agencies that participate in the water world will present many opportunities, as will <http://grants.gov>. For example, the 1987 amendments to the Clean Water Act established the Section 319 Nonpoint Source Management Program. Under Section 319, states, territories and tribes receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint-source implementation projects. Grantees must use these funds to implement U.S. EPA–approved nonpoint-source pollution management programs. A 40 percent nonfederal match, in the form of supplies, equipment, and/or funding, must be provided by grantees. Regulatory and

²⁶ GeorgiaGov. n.d. “Environmental Loans & Tax Credits.” <https://georgia.gov/popular-topic/environmental-loans-tax-credits>

nonregulatory programs assessing the success of specific nonpoint-source pollution control projects may be eligible for these grants. Grant totals for the last few years were in the \$170 million range.²⁷

Many types of foundations and charitable organizations have begun supporting various aspects of stormwater-related needs through grant-making. Foundation and corporate grants are a significant and growing source of funding for environmental protection projects. Most grants of this type fund well-defined projects, with specified time frames, costs and deliverables that meet the immediate priorities of the funding source and are not funded by governments. Foundation and corporate grant programs tend to favor the most innovative environmental projects. Funding such things as green infrastructure strictly through grants generally is not a sustainable financing strategy, but it may be a way to fund some high-profile demonstration projects that will attract subsequent sustainable government or property-owner financial support.

5.2.2.1.4 Other Resources/Approaches for Funding Stormwater Management

In addition to more traditional funding sources discussed previously, there are new and evolving approaches to funding stormwater management that could be leveraged in many cases. These include public/private partnerships, private site stormwater development, and volunteer programs. The ability to utilize such approaches, and the impact to the stormwater program vary but are important options to evaluate in developing a comprehensive funding strategy.

5.2.2.2 One-Time Sources

A wide variety of one-time grants are available for supporting specific initiatives of capital projects from government and private foundation sources. The advantage of such grants is that there is no repayment requirement and the amounts can be substantial. The disadvantages include the competitive nature of the grants, the requirement for pre-positioned matching in-kind or funds for some grants, the limitations on the use of some grant funds, the effort required to file the applications, and the need to harmonize the grant requirements with the needs of the local government.

There are several federal and state grant programs, including both ongoing programs and one-time opportunities. A number of websites provide a good source for learning about federal grants: sites for agencies that participate in the water world will present many opportunities, as will <http://grants.gov>. For example, the 1987 amendments to the Clean Water Act established the Section 319 Nonpoint Source Management Program. Under Section 319, states, territories and tribes receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint-source implementation projects. Grantees must use these funds to implement U.S. EPA–approved nonpoint-source pollution management programs. A 40 percent nonfederal match, in the form of supplies, equipment, and/or funding, must be provided by grantees. Regulatory and

²⁷ U.S. EPA. 2019. “319 Grant Program for States and Territories.” <https://www.epa.gov/nps/319-grant-program-states-and-territories>

nonregulatory programs assessing the success of specific nonpoint-source pollution control projects may be eligible for these grants. Grant totals for the last few years were in the \$170 million range.²⁸

Many types of foundations and charitable organizations have begun supporting various aspects of stormwater-related needs through grant-making. Foundation and corporate grants are a significant and growing source of funding for environmental protection projects. Most grants of this type fund well-defined projects, with specified time frames, costs and deliverables that meet the immediate priorities of the funding source and are not funded by governments. Foundation and corporate grant programs tend to favor the most innovative environmental projects. Funding such things as green infrastructure strictly through grants generally is not a sustainable financing strategy, but it may be a way to fund some high-profile demonstration projects that will attract subsequent sustainable government or property-owner financial support.

5.2.3 Other Resources/Approaches for Funding Stormwater Management

In addition to more traditional funding sources discussed previously, there are new and evolving approaches to funding stormwater management that could be leveraged in many cases. These include public/private partnerships, private site stormwater development, and volunteer programs. The ability to utilize such approaches, and the impact to the stormwater program vary but are important options to evaluate in developing a comprehensive funding strategy.

5.2.3.1 Public-Private Partnerships

Public-private partnerships (P3s) are receiving increasing attention in the United States and internationally as an innovative way of financing a wide range of different environmental protection initiatives. The point of P3s is that partnering with private enterprise can expand access to resources and capital and offer better economies of scale. There are many types of P3s: design/build, design/build/operate/maintain, pay-for-performance (interchangeable with pay-for-success), community-based P3s, etc. They may include private financing or a combination of public and private financing. Community-based P3s have a “commitment to social goals through setting robust requirements for local jobs, and providing a platform for economic growth and revitalization associated with large-scale GI investments. Additionally, in this framework (based upon the military housing private investment model), the community benefits through the structure of the community-based public-private partnerships (CBP3) to reinvest savings through efficiencies in implementation back into more ‘greened’ acres rather than simply taking the savings as profits realized. Interest in CBP3s has been growing across the country, as there is recognition of the universal applicability of this approach.”²⁹

In some cases, it is possible to capitalize on specific private sector resources through the use of P3s. The availability of those resources depends upon the nature of the partnership arrangements, the resources

²⁸ U.S. EPA. 2019. “319 Grant Program for States and Territories.” <https://www.epa.gov/nps/319-grant-program-states-and-territories>

²⁹ California Stormwater Quality Association. 2019. “The Community-Based Public-Private Partnership Approach: A Revolution in Funding and Financing Green Infrastructure.” <https://www.casqa.org/asca/community-based-public-private-partnership-approach-revolution-funding-and-financing-green>

available to the private partners, the circumstances in the locations where they are set up, and other factors. Access to sophisticated technologies and specialized expertise often allows the private sector to provide specific types of services that the public sector may be unable to provide. In addition, private financing can reduce the burden on public debt capacity. Private sector procurement and construction methods sometimes save time and provide significant cost savings. Through P3s involving ownership transfers from government entities to private companies, responsibilities for financial risk can be transferred from the government entity to the private company.

P3s have some important limitations. Local governments may not always have the legal authority to enter into contracts with private parties. A government jointing a P3 might lose oversight opportunities—a major concern. When government officials cease to be involved with the day-to-day operations of a facility, they may have to give up opportunities to monitor things such as compliance with environmental standards and permits. In addition, public employees and unions may oppose the use of P3s due to concerns about the loss of jobs. Finally, tax-exempt and/or other low-cost financing that is available for (federal and state) government-run projects may not be available for P3s.

Thus, the appropriateness of a particular type of P3 for a given environmental protection initiative and location depends on many factors, such as the type of environmental media being protected, availability of public funding for the partnership, demographics, and the tax code.

5.2.3.2 *Volunteer Programs*

Volunteers can provide free labor for a variety of local stormwater program efforts. Examples include education, technical assistance to homeowners, inspections, cleanups, adoptions of various stormwater systems and rivers, grant writing, watchdogs, and more. Volunteers and volunteer organizations can bolster support for stormwater programs or funding approaches. Citizen groups can assist in decision-making and in selling decisions to the public. River-keeper-type groups can provide a sense of stewardship of precious water resources and can serve as great allies with local governments. Some can help run and manage programs such as rain gardens, citizen monitoring and stream cleanups.

Some volunteer groups require significant supervision and training for the perceived return on investment, and there can be safety and liability concerns when volunteers partner with local governments for activities.

An approach that can reduce or eliminate these problems is adoption of stormwater management features: cases in which a group or company adopts a street, detention facility, pond, greenway or other feature in the same way a company adopts a stadium in return for naming rights. Signage can be placed along a road or near another feature with the adopter's name and/or logo. Such has been done by Boeing and Starbucks.

While volunteer programs do not mitigate a substantial cost of the overall stormwater program, they do provide valuable services and also help to engage the community and can be helpful in gaining public understanding of stormwater management needs in the community.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

5.2.3.3 *Coordination with Other Community Departments*

Synergies can be gained among agencies that influence some aspect of stormwater management when they cooperate, when a better-funded department or agency provides funding or services to a stormwater program. Examples include:

- A solid waste agency providing household hazardous waste assistance
- A wastewater agency working to eliminate seepage of wastewater into the stormwater system as part of an I&I program
- A public affairs office helping the stormwater program implement certain activities
- An agency that bills for service providing inserts explaining some aspect of the stormwater program

A public works or transportation department can add stormwater components or green infrastructure features as a small part of a construction project. This can even work with different agencies or at different levels of government.

Outside programs or organizations can incentivize such partnerships (e.g., watershed groups spanning several local governments or DOT's) through coordination and funding efforts.

5.2.3.4 *Market-Based Solutions*

Local and state agencies, often in collaboration with EPA, have created market-based solutions to tackle various water quality challenges—including nutrient reduction, volume control and wetland mitigation, among others. These markets are designed to attract private capital, take advantage of efficiencies gained from private delivery of projects, and/or direct solutions geographically to where they are needed most. An internal EPA memo from February 6, 2019, reiterated the agency's support for market-based solutions, particularly for nonpoint-source pollution (i.e., stormwater), and provided clarity to state and local regulators and policymakers on best practices to implement locally appropriate solutions.³⁰ The most common form of market-based solution is through the creation of a credit or unit of measure that denominates and quantifies an environmental outcome against a specific regulatory mandate (e.g., Total Maximum Daily Load). The supplier of a credit is typically a non-regulated private or public entity that has the financial wherewithal to build a project or a regulated entity that can go beyond what is required of it. In both cases, this supplier generates additional environmental capacity that can be sold to offset a regulated private or public entity's regulatory requirements. A functioning market will have many buyers and sellers and a dynamic price based on what the market will bear.

Examples include wetland mitigation banking, nutrient trading, and stormwater volume trading. The last of these, stormwater volume trading, is an emerging local solution pioneered by the District of Columbia's Department of Energy and the Environment and profiled in a case study in Appendix II. It

³⁰ U.S. EPA. 2019. *Updating the Environmental Protection Agency's (EPA) Water Quality Trading Policy to Promote Market-Based Mechanisms for Improving Water Quality*. <https://www.epa.gov/sites/production/files/2019-02/documents/trading-policy-memo-2019.pdf>

involves purchase of “Stormwater Retention Credits,” seen as more cost effective for regulated property owners or developers but equally effective in attainment of the District’s regulatory standard.

💧 *Advantages:*

- Create cost efficiencies in placement of stormwater controls.
- Can allow for aggregation for better overall control and treatment.
- Can shift and target controls to more critical locations and be combined with other public incentives (e.g., grant programs) to further incentivize credit suppliers to develop projects in specific places.

💧 *Disadvantages:*

- Can be complex to administer
- Require clear and enforceable policies on ownership and maintenance.
- Markets may not be initially viable and may need to be jumpstarted with local funding.

5.2.3.5 *Newer Innovative Approaches*

Market-based solutions are just one of many new approaches that can attract new forms of funding and financing. A wide variety of approaches that seek to exploit unique or unusual funding sources are being explored in the stormwater space. Examples include:

- 💧 Sponsorship of stormwater or green infrastructure sites by private and/or public organizations, similar to adopt-a-road advertising.
- 💧 Tax increment financing that can be leveraged if a new green infrastructure facility is designed to increase surrounding property values, owners of those properties agree to a new tax levy, and an agency is designated legally to issue tax increment bonds.
- 💧 Use of private land for public infrastructure through various partnership and payment mechanisms between public agencies and private landowners.
- 💧 “Complete” or “green” street policies that mandate road repairs and include stormwater management, often combined with vegetative practices or other aesthetic improvements.

Case Study: Washington, D.C. Stormwater Retention Credit Training

The U.S.’ First Stormwater Retention Trading Market in the Nation’s Capital

In 2013 Washington, D.C. promulgated new stormwater retention regulations for new development or substantial improvement projects. Part of these new regulations was the introduction of the Stormwater Retention Credit Trading market, which allows these regulated projects to purchase up to 50% of their stormwater management requirements offsite, in the form of Stormwater Retention Credits (SRCs). This allows regulated properties to pursue more cost-effective compliance methods and provides financial incentives for properties to voluntarily install stormwater management practices.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- 💧 User fee credits that incentivize reduction in impervious area.
- 💧 Green ratio ordinances that require developers in certain zoning districts to dedicate a percentage of their property to natural area, which can manage stormwater runoff.
- 💧 Various development incentives, including floor-area-ratio bonuses, expedited permitting, and others in exchange for voluntary construction of stormwater management practices.
- 💧 Strategic partnerships between communities and philanthropic sources to enhance public spending.
- 💧 *Advantages:*
 - Can provide funds at little cost.
 - Can motivate the private sector through name recognition.
 - Can provide good return on seed money investment when paired with private actions.
- 💧 *Disadvantages:*
 - Can be hard to administer and explain.
 - May require opinions and analysis on legality.

5.3 Availability of Funding

The previous section describes the different types of funding sources for stormwater programs. Even though there are several sources of funding, it is important to recognize several challenges that exist when evaluating the overall stormwater funding aspect of stormwater management. In addition, only a few funding sources can provide reliable, sustainable, and dedicated revenue for stormwater programs. In fact, about 60 percent of the respondents to a recent survey indicate that their top challenge is the lack of funding or availability of capital for their programs.³¹

5.3.1 Key Funding Challenges by Types of Funding

- 💧 **User Fees:** User fees, as discussed earlier, can provide a reliable, sustainable and dedicated revenue mechanism for stormwater programs. However, many communities need expertise, resources, financial assistance to even plan for, develop, and launch a user fee program. Perhaps more importantly, any public initiative to enhance stormwater funding cannot happen without the engagement and acceptance of citizens within a local community and the support of local elected officials.

In addition, the level of funding, which utilities that do have dedicated user fees or dedicated stormwater tax type fees generate, is not adequate to meet all of the stormwater community needs.

³¹ WEF Stormwater Institute. 2019. National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

- **Debt Financing:** Despite the benefits of debt financing discussed earlier, the challenge that majority of the communities currently face in leveraging debt financing, is that they simply do not have the annual financial capacity to repay the debt service associated with debt financing.

Consequently, stormwater programs have not leveraged capital financing sources to the extent available. This is primarily due to the lack of a sustainable, recurring funding source to provide the funding necessary for repayment. According to the 2018 Black & Veatch Stormwater Survey, only 13% of stormwater utilities responding to the survey indicated that the majority of their capital program is debt financed. 87% indicated that the majority of the capital program was cash funded. Therefore, it seems that even where stormwater utilities (with user fees) are in place, communities are not leveraging capital financing vehicles to the extent available.

- **Grants:** Many of the grant programs are predominantly focused on specific regions (e.g., Appalachian Regional Commission, Region 1 Healthy Communities Grant Program, etc.); specific type of demographics (e.g., Special Evaluation Assistance for Rural Communities and Households, Clean Water Act Indian Set-Aside Grant Program, etc.); or specific activity (e.g., Beaches Environmental Assessment and Coastal Health Act Grants). Hence, not all communities nation-wide have access to grants.

Further, in most cases, grant allocations are much smaller in magnitude, and are also limited to a certain percentage of the overall project, with matching funds required. The qualifications for each program vary, depending upon the requirements of the specific program. In addition, normally, grants have a window of opportunity to apply for funding each year, with the total amount available dependent upon the level of appropriation for the year.

- **Public-Private Partnerships & Market Based Solutions:** Many of the capital financing sources such as Public-Private Partnerships, Market Based Solutions, and other such programs are still in their infancy or just emerging, and may not be a viable option especially for smaller and rural communities.
- **Volunteer Programs:** While programs such as volunteer programs are a beneficial tool in the overall stormwater management, those cannot contribute in any material manner to bridge the significant funding adequacy issues that many communities face.

5.3.2 Estimate of Current Dedicated Stormwater Recurring Revenue Generation

Currently, there is no robust tracking of the annual revenue that is currently generated in the United States from even the annually recurring and dedicated stormwater revenues sources discussed earlier in this section. However, there are a couple of national level surveys that have gathered information on annual revenues generated by stormwater utilities that have a dedicated stormwater user fee. Therefore, the EPA task force attempted to leverage the annual revenue information available from (i) the 2019 Western Kentucky University (WKU) survey on stormwater utilities, and (ii) the 2018 Black & Veatch Stormwater Survey of utilities that have stormwater user fees.

Out of the 1,700+ stormwater utilities from which WKU gathered user fee, population, and annual revenue information, the annual revenue data was available only for 678 of those 1,700+ utilities. Based

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy

on this available information, the median annual stormwater user fee revenue per capita was determined to be \$32.00. To the contrary, based on the annual revenue information that survey participants reported in its survey, Black & Veatch reported a median annual stormwater user fee revenue per capita of \$54.00.

As at the time of this EPA Task Force study and report preparation, only these two sources of information were available, the EPA Task Force deemed it appropriate to extrapolate the potential annual revenue generation from existing 1,700+ stormwater utilities. The 1,700+ utilities identified in the WKU survey, encompass a total population of roughly 114,850,631. So, using the median annual revenue per capita figures determined from the two surveys, the following low end and high-end range of annual revenue generation is *estimated*, at the current time, from the 1,700+ stormwater utilities nationwide:

- ◆ Low end annual revenue generation estimate: $114,850,631 * \$32 = 3.675$ Billion (rounded)
- ◆ Low end annual revenue generation estimate: $114,850,631 * \$54 = 6.202$ Billion (rounded)

This annual revenue generation range off \$3.675 to \$6.202 Billion is based on the extrapolation done on a per capita basis from the 1,700+ stormwater utilities.

However, the annual stormwater revenue generated from dedicated recurring funding source will be higher as there are also a few utilities nationwide that have dedicated stormwater taxes and other stormwater special assessments discussed earlier in this section. Currently, there is no readily available information on the revenues generated from these other dedicated stormwater revenue sources, and hence it is not feasible to estimate the aggregate annual stormwater revenues that are generated overall from the existing revenue sources that are explicitly dedicated to stormwater management.

However, it is important to note that the revenue from dedicated stormwater funding sources such as taxes, special assessments, etc is likely to be not significant as not many utilities in the country have these types of dedicated stormwater revenue generation mechanisms.

Based on the annual stormwater revenues estimated just from the user fee revenues of 1,700 stormwater utilities, it is evident that there is an enormous “funding gap” between the overall stormwater management funding needs and the level of funding that appears to be currently generated in the United States. As described in Section 4.8 of this report, the funding gap is estimated to be approximately \$ 8 to \$10 billion annually. This number is based on a national scale survey conducted by the Water Environment Federation’s Stormwater Institute in 2018. The information was obtained from MS4 permittees to determine the total annual funding gap for stormwater programs (MS4 compliance activities only) nationally.

To address this funding gap, diverse types of proactive measures including Federal, State, and Local legislative actions and policies; enhanced technical and financial assistance; significant public education and engagement; and a drive towards establishing dedicated sources of stormwater funding at the local level, are necessary.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

5.4 Barriers to Obtaining Funding

Previous sections summarize the plethora of funding opportunities for stormwater programs. However, this discussion would not be complete without mention of the many barriers to funding stormwater programs in any meaningful way. As with most public funding schemes, there is a tension between the need for funding and the access to funding—as well there should be in a public arena. Blank checks do not exist, nor should they. But the barriers are often substantial, and thus stormwater programs across the country are experiencing such a huge gap between needs and available funding.

This section focuses on barriers to funding from recurring, sustainable sources (such as taxes and user fees), because they form the backbone of any funding portfolio and can be the most difficult to secure at required levels.

5.4.1 Political Decision Making

A key principle in public governance is that it is done with the permission of those governed. Financial support for publicly funded programs and services cannot be effectively established without substantial buy-in from the members of the community, and equally important without the legislative action of local elected officials.

The most common political decision-making barrier stems from each community's local political environment. Members of local governing bodies face a wide range of competing needs and are hesitant to increase taxes and fees due to various political, economic, and constituent obligations reasons (not least the desire to be re-elected). The local decision makers typically refrain from proactive stewardship for establishing a new source of funding such a new stormwater user fee or for enhancing existing stormwater fees and charges, especially when the community has significant stormwater management needs and the associated need for significant funding. There are many drivers for political barriers including public perception, historical context of stormwater management and funding, competition from other public programs, and a general cynicism for any new proposal for taxes or fees.

To garner effective support from local decision makers, stormwater program managers must engage in extensive and timely education of its public and elected officials, and thoughtfully plan and prioritize O&M and capital program investments so as to maximize benefits community-wide over the planning horizon. community members and elected officials in the overall running of programs as well as establishing funding structures.

5.4.2 Public Perception

Across the United States, there is general fatigue from taxes, fees and charges, particularly for utility bills when water and sewer bills seem to increase much faster than other household costs. This often translates to cynicism and limits the ability to garner stakeholder support for a new user fee or tax. The lack of support intensifies when the population is not familiar with stormwater program and funding needs, and don't have a clear understanding of the potential and tangible community-wide benefits.

In addition, stormwater management is often not seen as an essential service. As with water and sewer utilities, the average citizen may not be aware of the complex network of stormwater drainage system

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

or how it enhances their quality of life, safety, and, potentially, property values. In many communities, chronic system failures may only be evident as a minor nuisance such as intersection flooding. In addition, other common property services such as water, sewer and garbage collection have been historically seen as essential public health services—but not stormwater management. The average citizen actively turns on the kitchen sink faucet, flushes toilets, or puts the garbage out at the curb once a week; stormwater services are much more passive. So it is not surprising to find a general lack of understanding about stormwater systems.

This is the setting in which a municipality or utility may ask for a new stormwater user fee or some other source of funding (e.g., a sales tax dedicated to stormwater). When the issue of stormwater funding and user fee is initiated in such an environment of limited public awareness and perception, the road to successful funding becomes challenging.

5.4.3 Competing Needs

Municipalities are one of our most potent forms of government, providing the widest array of public services to their citizens. These typically include police, fire, parks and recreation, roads, utilities, libraries and other facilities, and other general social services. Stormwater programs and facilities compete for public funds in this crowded field. Whether through strategic planning, annual budget requests or electoral politics, stormwater service is often prioritized much lower than other municipal services.

5.4.4 Legal Barriers and Enabling Legislation

Funding for public programs must comply with a variety of legal requirements, many of which are noted in previous sections of this report. In some cases, these legal requirements can be barriers to developing funding for stormwater programs.

5.4.4.1 Legal Requirements

Many states have legal restrictions that supersede a local governing body's authority for imposing a stormwater fee. For instance, until a few months ago the State of New Jersey prohibited forming a stormwater utility or imposing fees. (The state's governor has now signed legislation giving that authority to municipalities.) In 1996, meanwhile California voters approved Proposition 218, a constitutional amendment making it more difficult for local government to impose taxes, fees and assessments. One provision (clarified in a 2002 court ruling³²) requires stormwater fees to be submitted to a ballot measure requiring either a 50 percent majority of affected property owners or two-thirds majority of registered voters to impose (or increase) a stormwater fee. Since 2002 only 31 stormwater

³² California Sixth Appellate District, *Howard Jarvis Taxpayers Association versus the City of Salinas*, 2002. That decision acknowledged that Proposition 218's text is ambiguous as to whether stormwater falls under the definition of "sewer," which did not have the ballot requirement. In 2017, the California Governor signed SB-231, clarifying that definition to also exempt stormwater fees from the ballot requirement. The Salinas plaintiff has vowed to sue any municipality that sets fees accordingly. However, the threat of litigation alone has caused most cities to continue to take fees to the ballot.

ballot measures have been pursued statewide (among more than 500 municipalities); voters have approved about two-thirds of them.

Overall, 41 states and the District of Columbia have at least one stormwater utility each. The other nine states have none, and legal barriers may play a part in that.

5.4.4.2 Legal Challenges

Legal challenges of new stormwater fees are a concern to many municipalities, particularly small ones that are limited in the resources needed to sort through complex and sometimes ambiguous enabling legislation. “Such is the case in Pennsylvania where regional approaches are being pursued in the counties of Blair, York, Lancaster and Montgomery, but, even there, one of the major barriers to implementation is concern about the confusing details of the enabling legislation and fear that implementation won’t confirm and will be mired in legal challenges.”³³

Legal challenges do occur. Previously mentioned was the *Salinas* case in California, which significantly changed the stormwater funding landscape in that state. The *Western Kentucky University Stormwater Utility Survey* from 2013 summarized legal challenges across the country. “We have now identified 76 legal or political challenges to stormwater utilities in the U.S....Of the 76 challenges, 44 were decided in favor of the utility, while in 16 cases the utilities received unfavorable decisions or were struck down. Twelve of the cases are still pending or we were unable to find whether or not a court decision had been reached. Five challenges were successful political challenges. Stormwater utilities in Birmingham, Alabama, Colorado Springs, Nampa, Idaho, Manitowoc, Wisconsin, and in Cumberland County, North Carolina were repealed.”³⁴

The 2018 edition of the Black & Veatch *Stormwater Utility Survey*³⁵ asked the 75 participating agencies whether their stormwater user fees ever faced legal challenges. They found that 27 percent of the respondents said “yes.” The basis of challenge varied as follows:

- Tax and not a user fee (38 percent)
- Lack of authority to assess stormwater fees (24 percent)
- Equity and fairness (17 percent)
- Rate methodology (14 percent)
- Rational nexus between costs and user fees (3 percent)
- Constitutionality (3 percent)

³³ Environmental Financial Advisory Board. 2016. *Developing Dedicated Stormwater Revenues*.

³⁴ Campbell, C. W. 2013. *Western Kentucky University Stormwater Utility Survey 2013*.
https://www.wku.edu/seas/documents/western_kentucky_university_swu_survey_2013.pdf

³⁵ Black & Veatch. 2018. “Stormwater Rate Structure and Billing.” In *2018 Stormwater Utility Survey*.
https://www.bv.com/sites/default/files/2019-10/18%20Stormwater%20Utility%20Survey%20Report%20WEB_0.pdf

5.4.5 Equity Issues

As many as 92 percent of stormwater utilities base their fees on relative impervious surface area.³⁶ This is a well-accepted method to ensure fair distribution of costs to customers, one of the distinguishing features of a user fee (as opposed to a tax). An unintended consequence of that fee basis is the potential of a disproportionate financial burden placed on properties in disadvantaged areas. Residential densities tend to be higher, which is often accompanied by a much higher percentage of impervious surfaces (and thus a higher proportion of the fee base).

Low-income areas also tend to be in low-lying, flood-prone areas where insufficient stormwater capacity is first felt. These neighborhoods also tend to be rental properties where landlords have little incentive to invest in green spaces or low-impact development.

Rate discounts or exemptions for low-income or seniors are sometimes difficult to provide. With no rational basis for reducing rates based on impervious surface, some states do not permit such discounts unless subsidized by non-stormwater funds (such as a city's general fund).

5.4.6 Administrative

Sometimes the greatest barrier to forming a stormwater utility is the agency's internal administrative structure. This is particularly true for local municipalities where various stormwater functions have evolved within different departments or divisions. For example, infrastructure maintenance may reside in the streets or sewer departments, NPDES compliance in the environmental group, capital planning in the engineering division, and financial services in the finance department. In other words, it is all too common to find these functional units distributed throughout a municipal organization without unified leadership or cohesive functionality.

Without such leadership, it can be very difficult to champion a cause such as initiating a stormwater user fee. Support for change must often come from senior management in order to be implemented.

5.4.7 Limited Resources

Managing a complex municipal utility requires significant resources that are often lacking—particularly in small/midsize municipalities or ones that are attempting to launch a stormwater utility structure for the first time. These resources may include:

- Strategic and financial planning
- Asset management
- Technology (GIS, data)
- Public engagement (branding, outreach)

The path to a dedicated and sustainable revenue stream includes all of the above (needs analyses, financial planning, fee study, community engagement). This can cost \$300,000 to \$1 million or more and

³⁶ Ibid.

take two or more years. In addition, competing in the grant funding arena demands that a stormwater agency possess expertise in grant writing and grant administration.

Finally, basic NPDES permit compliance is a complex and time-consuming endeavor to which an MS4 must devote resources to keep abreast of changing regulations and implementing NPDES programs, public education and enforcement.

5.4.8 Lack of Public/ Policymaker Awareness and Understanding of Needs

The first step in establishing a stormwater utility is determining the needs and calculating the associated costs. Once done, the bigger challenge may be communicating this need to the municipality's policymakers and the community at large in a compelling way. "The most effective stormwater business plans recognize community expectations. In some cases, expectations must be elevated by convincing demonstrations that stormwater problems exist and can be solved. Stormwater management rarely captures public support unless problems impact the daily lives of citizens. Many drainage systems are underground and essentially invisible to the public. If they are designed, constructed, and maintained properly, most people are unaware of them. More visible problems such as potholes in roadways consistently rate higher than drainage problems. The most effective programs identify and publicize the problems they must address, seek public participation and support, and orchestrate the use of various tools and resources over time."³⁷

This can be accomplished from the technical side with engineering and financial analyses. But moving public opinion is much more difficult and requires expertise not often found in the ranks of stormwater managers. A successful utility would employ public information personnel and develop an early branding effort from which is built a full public engagement program that can begin to move the opinion of both policymakers and the public at large.

5.5 Summary of Existing Funding Sources

Stormwater programs face many challenges to developing the resources needed to deliver programs, as well as the projects that will achieve the goals of flood protection and clean water. Progress has been made on many stormwater funding fronts, including many federal and state grant programs. While primary funding remains a local municipal responsibility, it is widely recommended that any stormwater program or utility develop a portfolio approach to funding. A solid foundation for that portfolio should be a *dedicated, sustainable revenue stream* such as user fees, but it should be supplemented with a robust array of other funding and financing mechanisms such as loans and other debt tools, grants, partnerships, and multiple creative approaches using the resources of other like developers and private interests.

The role of the federal government may be limited by comparison, but its presence is invaluable in helping provide much needed capital funding for large projects, as well as in providing education,

³⁷ National Association of Flood and Stormwater Management Agencies. 2006. *Guidance for Municipal Stormwater Funding*.

offering training, and making all opportunities to meet the challenges of funding available to all local programs.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

6.0 Infrastructure Affordability

Identify how the source of funding affects the affordability of the infrastructure, including consideration of the costs associated with financing the infrastructure.

Section 5.0 of this report details the types of funding sources and financial resources that are and could be used to manage stormwater operations and infrastructure. It also presents an overview of the key barriers municipalities face in obtaining the requisite ongoing funding for effective stormwater management. This section of the report focuses on how the funding sources affect three aspects of a municipality's stormwater management capabilities and household affordability: efficient management of infrastructure, financial capability, and customer household affordability.

6.1 Infrastructure Efficiency

An integral and critical aspect of stormwater infrastructure management is how efficiently utilities manage stormwater infrastructure. Generally, infrastructure efficiency pertains to a deliberate focus on best practices such as proactive asset management, effective use and leveraging of resources, strategies that help achieve economies of scale, and risk mitigation and resiliency building efforts. An area of opportunity identified by the Task Force is the highly decentralized nature of stormwater service provision.

The types of U.S. stormwater systems and the organization of responsibilities both significantly influence infrastructure efficiency. The following subsections discuss these two issues.

6.1.1 Types of Stormwater Systems and Implications

Stormwater is discharged not only through MS4 conveyance infrastructure but also via CSS conveyance infrastructure. MS4s and CSSs have similar obligations under the federal Water Pollution Control Act of 1972 (P.L. 92-500), commonly known as the CWA, and its related amendments. However, the two systems' characteristics impose unique levels of service and infrastructure management burdens and obligations, and consequently exert differing levels of impact on infrastructure efficiency, financial capability and customer affordability.

Excessive wet weather (stormwater) flows in a CSS could trigger combined sewer overflows (CSOs), where the untreated combined stormwater and sanitary sewage is directly discharged to surface receiving waters without even primary treatment. Consequently, the environmental responsibilities and exposure to regulatory mandates such as the Long Term Control Plan (LTCP) requirements for CSS can be vastly more expensive, as measured in both operating expenses and capital commitments necessary to eliminate CSOs. Further, stormwater inflow into non-CSS wastewater collection systems can cause similar overflows conditions.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Excessive wet weather flows also affect MS4s in a number of ways, including flooding, habitat degradation, streams and channel erosion, and other significant water quality issues such as sedimentation and pollution resulting from stormwater runoff. These, in turn, create the need for stormwater treatment facilities.

Both CSSs and MS4s involve significant financial investment in the treatment and management of wet weather flows. Typically, funding for CSS management is covered by wastewater fees. Funding for MS4 management, the subject of this Task Force, is covered by a variety of sources as described in Section 5.0; however, many municipalities have no dedicated, consistent or reliable funding mechanisms in place.

Regardless of the types of systems and funding mechanisms, customer affordability and the public's understanding of the need for these services are critical.

6.1.2 Delineation of Stormwater Responsibilities

The Task Force has observed significant differences among municipalities with respect to the distribution of stormwater management and regulatory compliance responsibilities. Some of these can be attributed to the types of stormwater management systems that exist within a jurisdictional area (discussed above); largely, though, they can be attributed to the institutional framework established by the state in which the municipality is located, as well as local and regional stormwater needs. The distribution of responsibilities can affect affordability by creating situations where there are overlapping responsibilities and limited accountability for program implementation.

In some municipalities (e.g., Philadelphia, Pennsylvania, or Newark, New Jersey), the water/sewer utility—a city department—is responsible for managing all aspects of stormwater management including LTCP/ NPDES and MS4 regulatory compliance; both CSS and MS4 types of stormwater infrastructure; and all associated O&M requirements, including green infrastructure initiatives. In these cases, the management of the entire stormwater infrastructure rests within a single entity with single point of accountability.

Responsibility is divided in other municipalities. In Washington, D.C., for example, an independent authority (DC Water) manages the CSS and separate sanitary sewer systems while the municipality (specifically, the Department of Energy and Environment) is responsible for all MS4 requirements. Even in a municipality that has only an MS4 system and a separate sanitary sewer system, the stormwater management responsibilities may be distributed between a water/sewer utility, a department of public works, and for example a department of transportation. In addition, in many communities, the MS4 responsibilities for developing and implementing specific permit requirements such as stormwater pollution prevention plans or nutrient management plans are given to school districts or fire, police or parks departments. In these cases, holistic management of stormwater infrastructure requires a clear understanding of roles and responsibilities, delineation of ownership of stormwater assets, and effective coordination among the various entities to enhance infrastructure efficiency. An integrated planning framework could especially enhance efficient management of infrastructure in these situations where

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

multi-entity coordination is critical. Such a framework would put municipalities in a position to optimize capital investments—making this a concept worth the investment of grant dollars.

Such significant differences in the distribution of stormwater service responsibilities among municipal jurisdictions also directly influence the overall financial capability aspects of stormwater management (discussed in Section 5.0), as funding and cost recovery mechanisms differ significantly. Note also that, in some municipal jurisdictions, the U.S. Army Corps of Engineers may support the implementation of stormwater-management-related projects (mainly large flood risk management projects) by providing partial funding and technical assistance.

6.2 Financial Capability

Stormwater capital infrastructure investments are driven by the need to enhance and/or maintain existing drainage capacity, flood mitigation, repair and rehabilitation of aging infrastructure, coastal resilience, climate resilience, and community needs. In CSS communities with consent decree requirements to mitigate CSOs, the pressure on stormwater infrastructure investments such as tunnel or gray infrastructure, and/or the need to enhance pumping and wastewater treatment capacities, can be significant. The critical challenges for a municipal entity managing stormwater infrastructure (for CCSs or MS4s), are funding availability, funding adequacy and timeliness of funding.

Municipalities tend not to have enough funding for stormwater infrastructure, though they range on a spectrum from “no dedicated funding” to “adequate funding.” For example, the national WEF Stormwater Institute and Black & Veatch stormwater surveys³⁸ and other state-level stormwater, drinking water and clean water surveys indicate that utilities cite “lack of funding availability” as their highest-ranked challenge with respect to timely infrastructure investments. While there are many funding sources for stormwater, as described in Section 5.0, the Task Force believes the funding is inadequate and that there are significant barriers to accessing the available funding sources.

The following subsections present four factors affecting financial capability for effective stormwater management:

- Stormwater financial reporting
- Impact of various funding sources on building financial capacity
- Implications of the financial capability assessment methodology
- Customer household affordability

³⁸ WEF Stormwater Institute. 2019. *National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results*. <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>; Black & Veatch. 2018. *2018 Stormwater Utility Survey*. https://www.bv.com/sites/default/files/2019-10/18%20Stormwater%20Utility%20Survey%20Report%20WEB_0.pdf

6.2.1 Stormwater Financial Reporting

Stormwater infrastructure is, generally, an entirely municipal proposition. The footprint of publicly traded investor-owned utilities and private companies that own and operate stormwater systems is small—not a material share of the total infrastructure universe. Therein lies a major area of opportunity: there are roughly 42,158 units of local government,³⁹ and while not all are directly responsible for every category of municipal asset, they are very diverse in management and governance structures as well as financial reporting. This makes summary observations of financial capabilities as well as affordability to households more difficult. Municipalities generally do not produce independently audited financial statements with the same timeliness as publicly traded companies, nor do most publish intra-year unaudited statements such as quarterly financials.

Specifically, the differences in management and governance have direct implications for stormwater funding and financial reporting, as follows:

- **General government** (most common). When stormwater management responsibilities lie with a general government (e.g., with its public works or streets and transportation department), the primary source of funding is typically general tax revenues. There may not be any dedicated source of funding for stormwater management. This governance and funding structure is usually associated with a modified accrual basis of accounting or, worse, a cash basis. Neither includes a balance sheet with assets and liabilities. Similarly, the statement of revenues over expenditures does not have an explicit line item for depreciation for those assets that are even depreciable. The Task Force believes that without a clear correlation between dedicated funding and revenue requirements, sufficient funding for stormwater cannot be allocated through such governance structures.
- **Utility department** (varies by state, but generally less common). Some municipalities have standalone stormwater enterprise funds. However, not all local governments have state statutory authority to establish separate and discrete stormwater utilities, meaning stormwater management responsibilities lie within the purview of a larger water and sanitary sewer utility department within the municipality. The primary source of ongoing funding is typically user rates and user charges. However, the way rates and charges are levied varies from municipality to municipality. Some utilities (e.g., Philadelphia, Pennsylvania; Portland, Oregon; Wilmington, Delaware; and Chesterfield County, Virginia) levy a fee based on the property's actual or estimated impervious surface area to recover the costs associated with stormwater management. Other communities levy a flat recurring charge based on type of land use (residential, commercial, etc.). Still other municipalities—such as New York City, where the Department of Environmental Protection is responsible for water, sewer and stormwater management—recover costs through sanitary sewer user charges. Still, for transparency purposes, a rate-based funding structure typically is associated with traditional enterprise financial reporting, using an accrual basis of accounting that does include an income

³⁹ Hogue, C. 2013. *Government Organization Summary Report: 2012*. <https://www.census.gov/content/dam/Census/library/publications/2013/econ/g12-cg-org.pdf>. (This Census summary identifies 38,910 general purpose governments. It excludes special and school districts but does include 3,248 special districts categorized as “drainage and flood control.”)

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

statement, balance sheet and depreciation. This makes it less difficult to assess whether ongoing funding is sufficient to cover stormwater needs, even without uniform reporting standards.

- **Independent authority** (least common). If stormwater management responsibility lies with an independent municipal authority or separate political subdivision, stormwater funding may have to rely on either the taxing authority or its own rates and charges. Comparability and assessment of financial capacity and affordability to the household is therefore subject to financial accounting and transparency.

6.2.2 Impact of Various Funding Sources on Building Financial Capacity

The Task Force reviewed the key funding sources discussed in Section 5.0, evaluating most of those sources' potential impact on a municipal entity's overall ability to build financial capacity, for O&M and capital infrastructure investment.

In the summary below, the Task Force discuss the criteria for this review, summarize the findings and present a case study examples.

6.2.2.1 Assessment Criteria

The Task Force defined the following key criteria for evaluating the ability of various funding sources to help build a municipality's overall financial capacity:

- **Sufficiency**—measures the total annual revenue that a municipality can generate from one or more funding sources.
- **Stability/sustainability**—assesses the ability of the combination of funding sources to provide consistent and reliable levels of dedicated funding to support immediate and long-term sustained infrastructure management including capacity expansion and to meet O&M service obligations. These criteria also measure the sustainability of the revenue source.
- **Scalability**—measures the flexibility of the utility to increase funding commensurate with increases in revenue requirements.
- **Legislative requirements**—funding options including user fees, impact fees and debt issuance often require internal approval from boards, councils or commissions, and/or potentially voter approval/referenda through ballot measures. These legislative requirements and challenges can influence the ability to generate timely funding.
- **Acceptability**—evaluates the benefits and risks of the various funding sources as judged by elected officials, utility management and external stakeholders.
- **Customer equity**—evaluates the measure of equity, which can be defined in a variety of ways, in cost recovery from the customer base within the jurisdiction.

6.2.2.2 Summary Assessment of Funding Sources on O&M and Capital Infrastructure Investments Financial Capacity

Section 5.0 summarized the various types of funding sources, along with their advantages and disadvantages. It broke those sources into three categories:

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- Recurring and/or intermittent revenue funding
- One-time funding sources for capital projects and/or one-time initiatives
- Other resources/approaches

This section further examines the impact of the first two of those categories in building a utility's financial capacity for stormwater management.

- Figure 2 summarizes the impact of recurring and/or intermittent funding sources on a utility's ability to effectively fund O&M operations. All of the sources listed in Figure 2 and Table 2 are applicable to a municipal entity's stormwater O&M revenue requirements.
- Figure 3 summarizes the impact of the one-time sources/initiatives on a utility's ability to adequately fund capital infrastructure investments.

DRAFT

Table 2. Financial Capacity Impact of Recurring/Intermittent Funding Sources—O&M Operations.

Evaluation Criteria	Recurring or Intermittent “Revenue Based” Funding Sources				
	Taxes/General Funds	Stormwater Dedicated Taxes	Stormwater Utility User Fee	Other O&M Fees	Surcharges or Special Assessments
Revenue Sufficiency	Low: general funds typically have different priorities such as public safety	Moderate: better transparency via correlation between revenues and revenue requirements	Moderate to high: generally, the rates and charges are objectively aligned with the revenue requirements of the stormwater system	Low: don’t always have a clear correlation or justification to annual revenue requirements and may be fungible with other general government needs	Moderate: generally, have somewhat limited revenue-raising ability
Stability of Revenues	Volatile: property and sales tax bases can rise and fall with economic cycles	Volatile: property and sales tax bases can rise and fall with economic cycles	Strong: revenues are tied to either the size of the property’s impervious surface area or the category of the property, not to economic cycles	Variable: very low volatility if tied to a per-parcel fee and not subject to property valuation, very high volatility if tied to non-recurring cash flows like development	Low to moderate: special assessments often are tied to property valuation and surcharges sometimes are related to water consumption
Scalability to Meet Increasing Needs	Low: major line item increases are generally subject to political scrutiny	Very low: dedicated taxes are typically voter-approved and may not even exist in perpetuity	High: a dedicated funding source allows the user fees to be leveraged to address both O&M and capital expenditure; however, fee increases are typically not well received by elected officials or the public	Low: would mostly likely need some kind of authorization to scale up the fee structure, from a municipality or even a homeowners’ association	Moderate: limited ability to increase revenues creates finite financial capacity
Legislative Requirements	High: subject to annual appropriation, sometimes even voter approval	Very high: subject to voter approval and annual appropriation	Low: usually only requires a one-time authorization via either state general assembly or municipal ordinance	Very high: subject to voter approval and annual appropriation, perhaps public education to get buy-in from the developer community	High: likely subject to some kind of initial legal authorization
Community Acceptability	High: aside from politicization of where in the municipality to fund projects, usually not controversial	Moderately high: establishing a new tax may not be politically palatable unless a recent flood event is driving the measure	High: aside from politicization of where in the municipality to fund projects, usually not controversial	Moderately high: establishing a new tax may not be politically palatable unless a recent flood event is driving the measure, but possibly offset by a user-pay	Moderately high: establishing a new tax or fee may not be politically palatable unless a recent flood event is driving the measure
Community Financial Capability Barriers	High: many states have established and/or municipalities have self-imposed limitations related to taxation	Moderate: comparably easier to assess financial capacity and assign resources even if that capacity may be statutorily limited	Low: a dedicated, user-based, non-tax revenue stream creates dedicated financial capabilities and improves ability to do multi-year planning	Moderate: if there is a high degree of revenue fluctuation, it may be difficult to appropriate funding to retain dedicated full-time equivalent staffing; municipality could lose institutional knowledge	Moderate: comparably easier to assess financial capacity and assign resources even if that capacity may be statutorily limited
Household Affordability Impact	High: property taxes are generally deemed as regressive	High: property taxes are generally deemed as regressive	Low: User fees are still somewhat regressive but usually much smaller in actual dollars compared to water and sewer charges	Low: if tied to a “user pay” levy, would mostly likely be borne by those directly benefitting from the infrastructure	Moderate: not as regressive as a pure tax but still correlated to property valuation without explicit income recognition

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

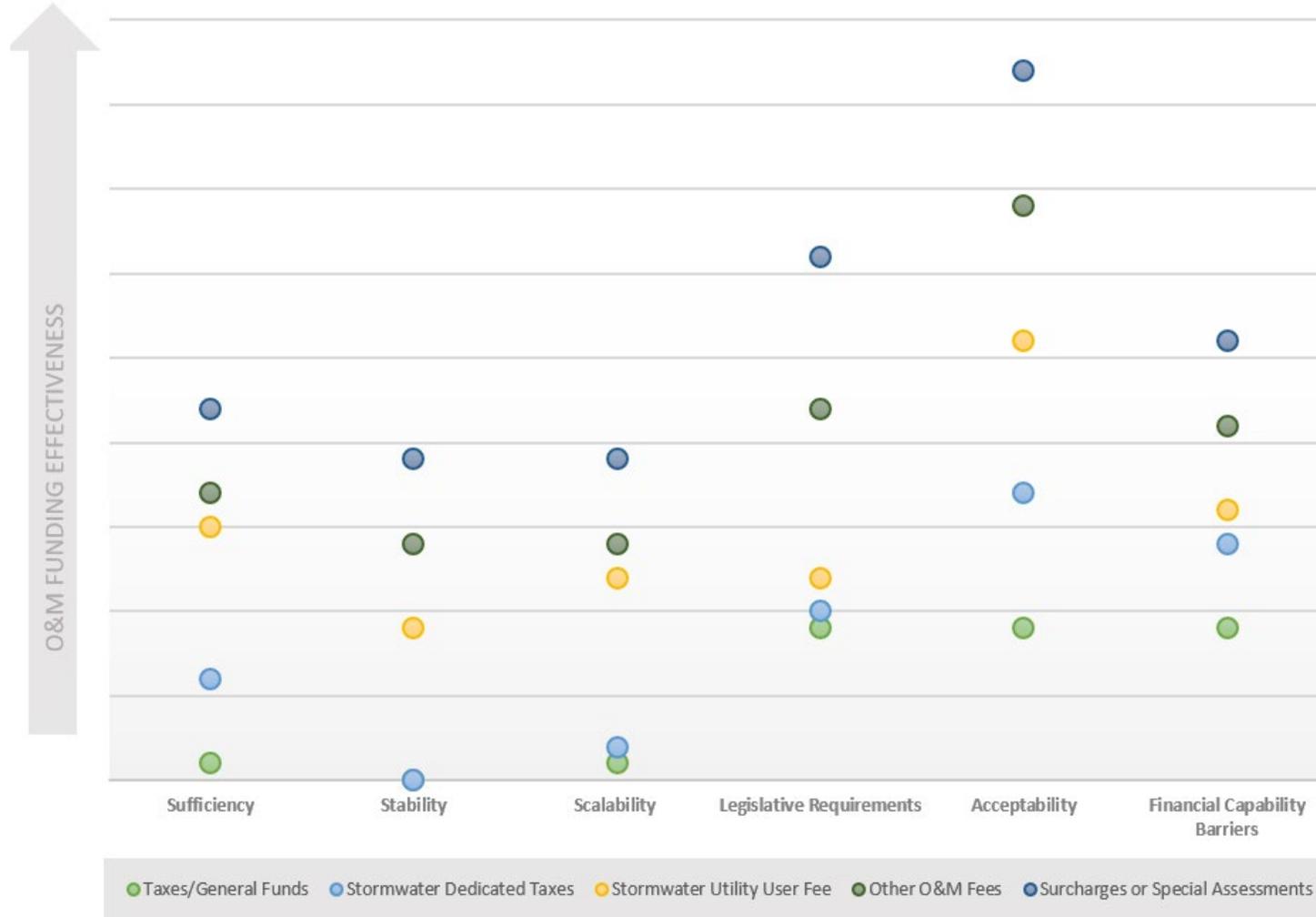


Figure 2. Impact of recurring and/or intermittent funding sources on a utility's ability to effectively fund O&M operations.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

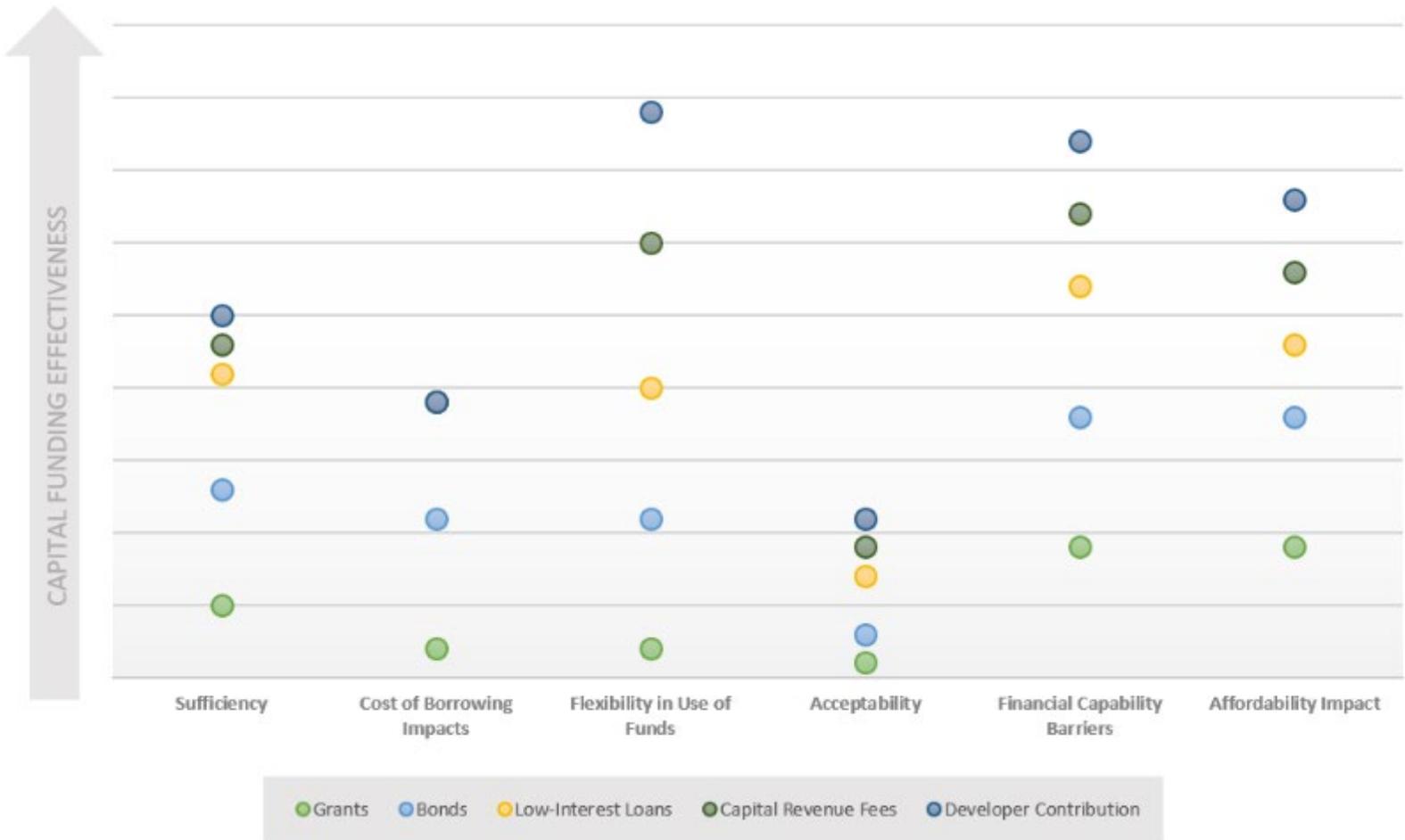


Figure 3. Impact of one-time sources/initiatives on a utility's ability to adequately fund capital infrastructure investments.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Table 3. Financial Capacity Impact of One-Time Financing Sources—Capital Infrastructure

Evaluation Criteria	One-Time Financing Sources for Capital Projects/Initiatives				
	Grants	Bonds	Low-Interest Loans	Capital Revenue Fees	Developer Contribution
Revenue Sufficiency	Moderate: will usually be sufficient for a single project but rarely for an entire system on a recurring basis	Strong: allows for payment over extended period, creating ability to pay for larger projects and still have cash flow for ongoing O&M; however, a dedicated funding source is needed to pay the bond commitments	Strong: allows for payment over extended period of time, creating ability to pay for larger projects and still cash flow for ongoing O&M; however, a dedicated funding source is needed to pay the loan	Low: generally, municipalities earmark this revenue stream for pay-as-you-go infrastructure investments, and capital plan needs in any given year may exceed that	Low: generally tied to economic development or redevelopment, which can be very volatile
Cost of Borrowing Impacts	Moderate: typically requires some financial commitment or cost share by the municipality, which is sometimes itself a barrier	High: interest expense, ongoing disclosure requirements and debt and financial management obligations recur through the life of the bonds	Moderately high: typically rates are subsidized and below market; has fewer disclosure and other recurring requirements, but still requires good debt and financial management practices	None: generally municipalities earmark this revenue stream for pay-as-you-go infrastructure investments	None: one-time cash inflow, against which municipalities generally do not borrow or pledge toward debt
Flexibility in the Use of Funds	Low: federal and maybe even state grants require single audit and related verification	High: if the bonds are tax exempt, the main restrictions are those related to IRS requirements	High: generally the only restriction is that the project must be associated with the lender agency's mission	Very high: local, internally generated revenues generally do not have restrictions	High: only restriction might be that contributions be used for growth-driven investments in the immediate area of development
Legislative Requirements	Almost none: grants are well-established tools that may only require formal approval and acceptance by the municipality	Low: while some states and many municipalities impose some guidelines or limits, generally local governments are not restricted to use bonds	Low to moderate: some lending agencies require more collateral or a pledge of a supplemental revenue stream, which may require further authorization by the municipality	Low: there may in some states be a requirement to justify based on cost of service	Low: political willingness to implement impact fees (or equivalent) is generally the only barrier
Community Acceptability	High: assuming the local match is not a barrier, municipalities generally welcome grants	Moderate to high: there may be some aversion to debt in the community but generally this does not preclude bond issuance	High: federal or state agencies may also be more willing to work with a financially distressed community than the capital market creditors	Moderate: introduction of fees may be more politically palatable than taxes	Moderate: may galvanize resistance among the developer community as being disruptive to their business model

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Evaluation Criteria	One-Time Financing Sources for Capital Projects/Initiatives				
	Grants	Bonds	Low-Interest Loans	Capital Revenue Fees	Developer Contribution
Community Financial Capability Barriers	High: many communities lack the institutional knowledge or funding for grant application writers and grant administrators	High: generally bonding relies on access to credit markets, which can be a barrier to poor or small municipalities and requires good financial management	Moderate: still requires good financial management practices but federal and especially state agencies often can provide technical and administrative assistance that small, poor or rural communities might not otherwise be able to access	Moderate: recommended best practices include segregated financial accounting and reporting to show citizens revenues are being deployed as represented—a potential barrier for small, poor or rural communities without the requisite staff	Moderate: requires financial and technical expertise to properly track and account for these non-recurring revenues
Household Affordability Impact	Low: one of the most favorable weighted cost of capital options	High: borrowing, even at favorable interest rates, is still the highest cost of capital	Moderately high: few programs offer pure “zero interest” borrowing	Low: capital-related fees are often small in absolute dollars	None: in most cases, developers typically bear the upfront costs, and many cities require “growth pays for growth” so that costs are not subsidized by the general rate base

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

6.2.2.3 Case Study Example: Flexibility in the Use of CWSRF

The Iowa SRF program has funded stormwater projects, without affecting user fees, through the Water Resource Restoration Sponsored Projects program. A CWSRF project can carve out 1 percent of the interest that would have otherwise been paid to the CWSRF program on its infrastructure loan, using that money for a nonpoint-source project. The SRF program allows about \$100,000 per \$1 million CWSRF loan to be used for water quality projects. Through this overall interest rate reduction, the utility's ratepayers do not pay any more than they would have for just the wastewater improvements.

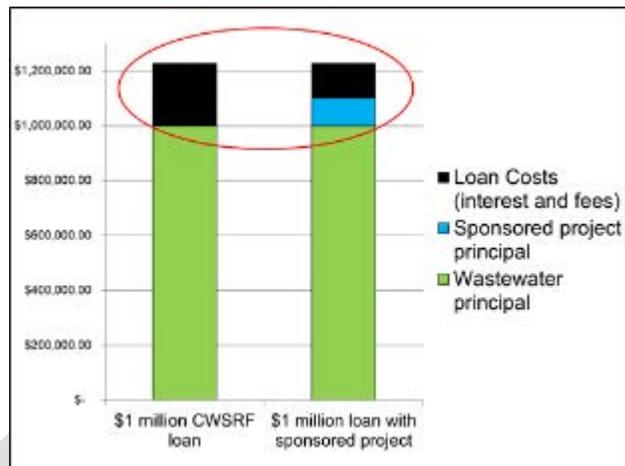


Figure 4. Graphic representing the current stormwater management paradigm shift.

Stormwater projects including permeable paving, bioswales, rain gardens, streambank restoration and soil conservation projects on agricultural lands have been funded. About \$50 million for these projects have been approved for funding.

6.2.3 Implications of Financial Capability Assessment Methodology

Financial capability assessments (FCAs) are distinct from various measures of household or individual customer affordability (discussed below) in that an FCA relates to the ability of a community (or permittee) to finance infrastructure investments. For a broad array of purposes, EPA has used a static, two-phase methodology to conduct FCAs. Phase I involves calculation of a residential indicator (RI), which examines the average per household cost of services relative to a benchmark of 2 percent of service-area-wide median household income (MHI).

Phase II involves the calculation of a financial capability index (FCI), a simple arithmetic average of scores for six economic indicators:

- Bond rating
- Net debt as a percentage of full market property value
- MHI
- Local unemployment
- Property tax revenues as a percent of full market property value
- Property tax collection rate within a service area

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

A higher FCI score suggests relative economic strength; a lower FCI indicates weak economic conditions and relatively lower financial capability. EPA’s existing FCA guidance⁴⁰ has been subject to extensive review and critique for a variety of reasons that are particularly resonant for application to stormwater related infrastructure financing. For example, the diversity of governance structures and financial reporting protocols noted above makes even baseline evaluation of current funding complicated. Financing stormwater infrastructure is often less straightforward than issuance of the revenue bonds assumed to be available in EPA guidance. And profound complexities may be involved in assigning the residential vs. non-residential flow contribution responsibilities required in EPA’s matrix methodology.

Emerging concepts to address the limitations of EPA’s current FCA methodology could also improve evaluation of community financial capabilities to fund stormwater infrastructure (though the diversity of governance configurations will continue to impose complexities). For FCAs, these concepts call for a direct evaluation of a community’s (or communities’, in cases where stormwater services involve multiple jurisdictions) financing capacity through cash-flow analyses. Current and potential new methods for funding stormwater infrastructure would require explicit recognition (rather than being subsumed within general government financial reporting). Projected tax or fee cost impacts on individual households and non-residential entities may be calculated and gauged in relation to various income metrics (e.g., median and lowest quintile, gross and disposable). Financial capabilities would be assessed in terms of the community’s ability to fund O&M expenses and capital spending given tenable annual adjustments to stormwater-dedicated tax and fees. The pace and magnitude of these tax or fee increases would be established by reference to new measures of household or individual customer affordability as discussed below.

6.3 Customer Household Affordability

In the context of water and wastewater services, customers’ hardships include various costs associated with challenges in paying service bills, including even service interruptions. For stormwater services, such customer affordability issues may manifest less explicitly or dramatically, but they nevertheless are important considerations for stormwater finance policy development. And, as with FCA, both how household affordability is measured and what constitutes burdensome levels of cost are being reconsidered as concerns rise about water (i.e., drinking water, wastewater and stormwater) affordability across all water-resource-related services.

Historically, EPA has measured water and wastewater service cost affordability largely in terms of how estimates of annual household costs compared to MHI as reported by U.S. Census data. EPA’s historically used FCA matrix methodology may render a determination of “High Burden” for communities where household costs are above 2 percent of MHI. Logically, though rarely done, the same methodology can be applied to evaluation of stormwater service costs—especially (or at least more easily) if such costs are explicitly calculable by reference to stormwater utility rates or fees rather than subsumed within general government funding sources. The historical underfunding of stormwater management costs (even if recovered through separately established fees and charges) means that stormwater management costs are unlikely to be deemed as currently imposing an undue burden using

⁴⁰ U.S. EPA. 1997. *Combined Sewer Overflows—Guidance for Financial Capability Assessment and Schedule Development*. EPA 832-B-97-004. February 1997. <https://www3.epa.gov/npdes/pubs/csofc.pdf>

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

historically applied metrics referencing MHI. In addition, the use of MHI as an affordability metric has been widely criticized.⁴¹

Emerging concepts related to household water affordability measures (like those for FCAs) offer new measures and methodologies for assessing water resource management costs beyond reference to MHI. Cost as a percentage of lowest quintile income is advocated for its focus on the economically disadvantaged; cost as a percentage of a measure of disposable incomes is advanced as a means to gauge whether households will face undue substitutions of health care, food or other essential services. Most importantly, these concepts call for inclusion of stormwater-management-related costs (incurred via separate charges or through general taxes and fees) in the pantheon of claims imposed on households for water resource management services.

DRAFT

⁴¹ AWWA. 2013. *Affordability Assessment Tool for Federal Water Mandates*.
<https://www.awwa.org/Portals/0/AWWA/ETS/Resources/AffordabilityAssessmentTool.pdf>

Appendix I: Municipal Financial Reporting and Asset Management

In 1999, in a document known as Statement 34,⁴² the Governmental Accounting Standards Board paved the way for a fairly large shift in the way public sector entities produce financial reports.

Statement 34 discussed infrastructure assets: “long-lived capital assets that are normally stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets. Examples of infrastructure assets include roads, bridges, tunnels, **drainage systems** [emphasis added], water and sewer systems, dams, and lighting systems. Buildings, except those that are an ancillary part of a network of infrastructure assets, should not be considered infrastructure assets for purposes of this statement.”

In the excerpt below, Statement 34 encourages asset management:

[Depreciation expense] may be calculated for (a) a class of assets, (b) a network of assets,ⁱ (c) a subsystem of a network,ⁱⁱ or (d) individual assets...

Infrastructure assets that are part of a network or subsystem of a networkⁱⁱⁱ (hereafter, eligible infrastructure assets) are not required to be depreciated as long as two requirements are met. First, the government manages the eligible infrastructure assets using an asset management system that has the characteristics set forth below; second, the government documents that the eligible infrastructure assets are being preserved approximately at (or above) a condition level established and disclosed by the government.^{iv} To meet the first requirement, the asset management system should:

- a. Have an up-to-date inventory of eligible infrastructure assets
- b. Perform condition assessments^v of the eligible infrastructure assets and summarize the results using a measurement scale
- c. Estimate each year the annual amount to maintain and preserve the eligible infrastructure assets at the condition level established and disclosed by the government.

ⁱ A network of assets is composed of all assets that provide a particular type of service for a government. A network of infrastructure assets may be only one infrastructure asset that is composed of many components. For example, a network of infrastructure assets may be a dam composed of a concrete dam, a concrete spillway, and a series of locks. [This footnote

ⁱⁱ A subsystem of a network of assets is composed of all assets that make up a similar portion or segment of a network of assets. For example, all the roads of a government could be considered a network of infrastructure assets. Interstate highways, state highways, and rural roads could each be considered a subsystem of that network.

⁴² Governmental Accounting Standards Board. 1999. *Basic Financial Statements—and Management’s Discussion and Analysis—for State and Local Governments*.

http://www.gasb.org/cs/ContentServer?site=GASB&c=Document_C&pagename=GASB%2FDocument_C%2FGASBDocumentPage&cid=1176160029121

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

- iii If a government chooses not to depreciate a subsystem of infrastructure assets based on the provisions of this paragraph, the characteristics of the asset management system required by this paragraph and the documentary evidence required by paragraph 24 [which leaves documentation to professional judgment] should be for that subsystem of infrastructure assets.
- iv The condition level should be established and documented by administrative or executive policy, or by legislative action.
- v Condition assessments should be documented in such a manner that they can be replicated. Replicable condition assessments are those that are based on sufficiently understandable and complete measurement methods such that different measurers using the same methods would reach substantially similar results. Condition assessments may be performed by the government itself or by contract.

The Louisiana Division of Administration spoke for the vast majority of public sector entities across the U.S. when it recommended in 1999 that the state "...choose the alternative, to depreciate the capitalized infrastructure assets. We feel that this is the most cost-effective approach for reporting since there would not be any significant burden involved in depreciating the infrastructure assets once they have been identified and capitalized. The schedules of capitalized infrastructure assets would simply include a column to compute the amount of annual depreciation. Under the modified approach, the capitalization requirements are the same as under the depreciation alternative. However, the cost and effort to follow the requirements of the modified approach would be significant and therefore more of a burden than depreciating the infrastructure assets. In addition, with the uncertainty of state funding to cover the additional costs of maintaining the state's infrastructure at specified condition levels as prescribed in the modified approach, it is possible that the state would have to revert to the depreciation alternative at some point in the future and face a qualification in the year we fail to maintain at the designated level."⁴³

To date, less than 10 percent of the roughly 42,158⁴⁴ units of government are estimated to be using the modified approach. Municipal finance officials already face burdensome reporting and financial statement preparation requirements that greatly inhibit their ability to produce independently audited financial statements much before 120 to 180 days from the end of the previous fiscal year. Assuming infrastructure assets have an expected useful life of 10 to 30 years, this completely ignores changes over time in inflation, labor, building materials and technology and potentially introduces a very material gap between "book value" and replacement cost. In a 2017 piece of research, RBC Capital Markets noted, "A comprehensive inventory of public assets is a critical prerequisite to identifying opportunities to create new value."⁴⁵ Reliance instead on a depreciation-based, historical cost reckoning of infrastructure assets

⁴³ Louisiana Division of Administration. n.d. "GASB Statement 34 Implementation Issues: Infrastructure Reporting—Modified Approach vs. Depreciation." <http://www.doa.la.gov/osrap/library/gasb34/infrastructure%20reporting.pdf>

⁴⁴ Hogue, C. 2013. *Government Organization Summary Report: 2012*. <https://www.census.gov/content/dam/Census/library/publications/2013/econ/g12-cg-org.pdf>. (This Census summary identifies 38,910 general purpose governments. It excludes special and school districts but does include 3,248 special districts categorized as "drainage and flood control.")

⁴⁵ RBC Capital Markets and HR&A Advisors. 2017. "Unlocking Value from Public Assets: Leveraging Private-Sector Expertise to Generate New Public Benefits." p. 46.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

rather than an assessment that explicitly correlates asset condition to financial value not only introduces public policy-making risk but also makes it more challenging to establish a baseline FCA.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Appendix II: Case Studies

1. Washington, D.C. Stormwater Retention Credit Trading:
The U.S.'s First Stormwater Retention Trading Market in the Nation's Capital
2. Four San Francisco Bay Area Voter-Approved Fee Measures:
Stormwater Infrastructure User Fees
3. Stormwater Utility Goodlettsville, TN:
Watershed Protection through Stormwater Management
4. Los Angeles Parcel Tax Approved by Voters in 2018 (Measure W):
Stormwater Infrastructure User Fees
5. How Operation and Maintenance Costs Effect Resiliency in Coralville, Iowa:
Managing Flooding and Quality of Life
6. Stormwater Utility, Downers Grove, IL:
Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management
7. Watershed Protection in Austin, TX:
Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management
8. Stormwater Program Implementation in Atlanta, GA:
Water Quantity (Aging Infrastructure, Flood Management, Drainage) Water Quality (Regulatory Compliance, TMDLs), Expanding Expectations (public outreach, multi-use areas)
9. Washtenaw County, Michigan:
Summary Report of Stormwater Program Needs
10. City of Raleigh, North Carolina:
Basin Master Planning
11. City of Bellevue, WA Storm and Surface Water System Plan 2015:
WQ, Flood, Infrastructure, WIPs, Drainage
12. City of San Diego:
Watershed Asset Management Plan (2013)
13. Grand Rapids, MI:
Flood Protection, Sediment Reduction, and Stormwater Quality Compliance in Water Quantity (MS4 Permit and TMDLs Compliance)
14. Griffin, GA:
Stormwater Pipe Assessment: Water Quantity (Infrastructure, Drainage)
15. Ventura County, CA:
Flood Protection and Stormwater Quality Compliance

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Water Quantity (Flood Protection) and Water Quality (MS4 Permit and TMDLs Compliance)

16. Stormwater Utility, Lawrence, KS:
Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management
17. Metropolitan Water Reclamation District of Greater Chicago:
Working hard to manage stormwater, clean wastewater and recover valuable resources.
18. Stormwater Environmental Utility, Sarasota, FL:
Control water quantity, enhance water quality, effectively manage stormwater

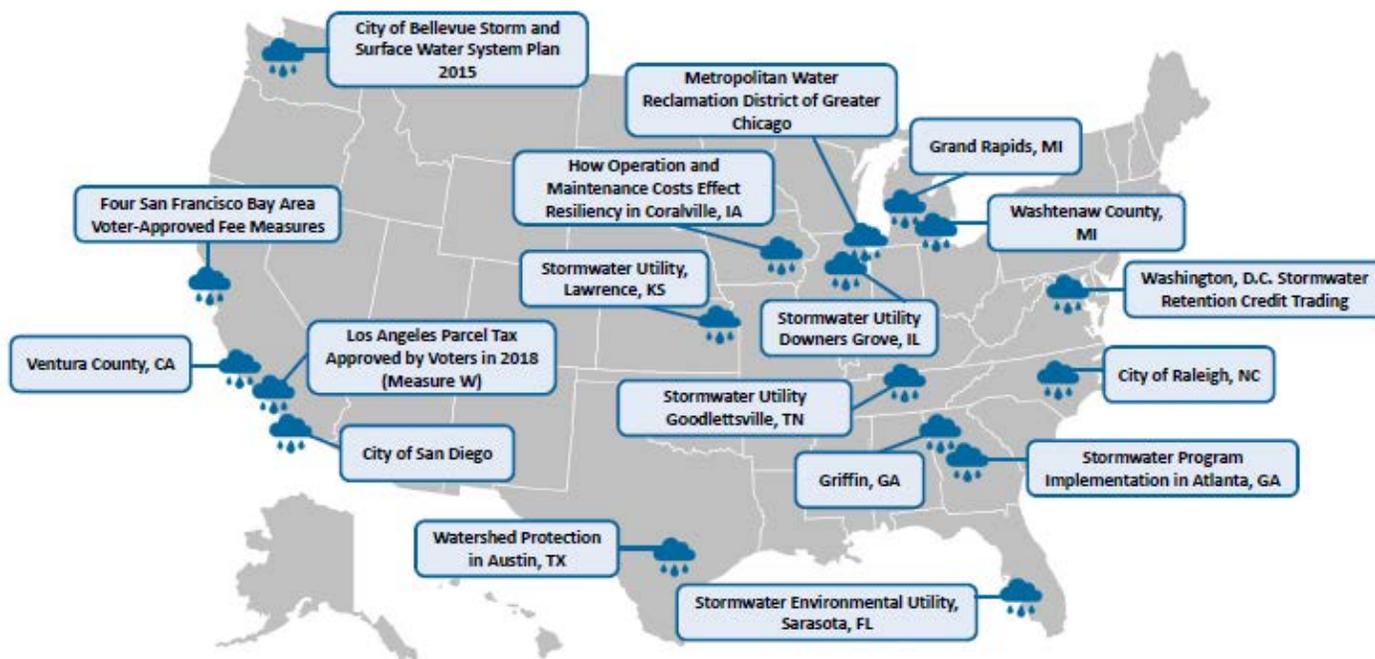


Figure 5. Map depicting the location of various utilities included in the case studies.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Washington, D.C. Stormwater Retention Credit Trading



The U.S.’s First Stormwater Retention Trading Market in the Nation’s Capital

In 2013 Washington, D.C. promulgated new stormwater retention regulations for new development or substantial improvement projects. Part of these new regulations was the introduction of the Stormwater Retention Credit Trading market, which allows these regulated projects to purchase up to 50% of their stormwater management requirements offsite, in the form of Stormwater Retention Credits (SRCs). This allows regulated properties to pursue more cost-effective compliance methods and provides financial incentives for properties to voluntarily install stormwater management practices. The underlying regulation and the new market are designed to help the District meet its MS4 permit requirements and 2025 TMDL goals in a cost-effective way, using private investment and private property.

Challenges

Polluted stormwater runoff is a primary threat to water quality nationwide and is one of the biggest threats to the Chesapeake Bay. The Chesapeake Bay is the largest and most productive estuary in North America. Economists value fishing and hunting, tourism, and shipping activities along with increased property values in the Bay at over \$1 trillion per year. Stormwater runoff represents the second largest source of nutrient and sediment pollution and is the only sector in the Chesapeake watershed growing in its impact, due to population growth and land development. At the same time, many cities are struggling to finance the water infrastructure improvements needed to prevent stormwater runoff.

Washington, D.C. is 43% impervious and is a major source of this stormwater runoff, which impacts the local Anacostia River, Potomac River and Rock Creek as the water flows out to the Chesapeake Bay. However, getting retrofits installed to serve the 43% of D.C.’s land area that is impervious is a difficult challenge. The majority of this impervious surface achieves little or no retention, is not required to retrofit, and does not have financing available to support a retrofit.

Further, Washington, D.C.’s Department of Energy and the Environment (DOEE) estimates that to meet its permit requirements and achieve its water goals, \$10 billion in investment is necessary. However, DOEE only collects ~\$10 million in revenue per year.

Solution

County or Municipality

Washington, D.C.

Population

702,445

Annual Rainfall

40.78 inches

Land Area

68.34 square miles

Poverty Level

17.4%

Total Identified Need

\$10 billion?

Annual Capital Budget

\$10 million?

Annual O&M Budget

N/A

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

DC's Department of Energy and the Environment (DOEE) has developed a first-of-its-kind in the country stormwater retention credit trading program for new development and major renovations. This program requires new projects to retain the stormwater generated from their development. However, to help land-constrained property owners meet these requirements, the city instituted a credit market for stormwater, which allows these regulated projects to purchase up to 50% of their stormwater management requirements offsite, in the form of Stormwater Retention Credits (SRCs). The SRC market was designed with two goals in mind: i) provide a cost-effective solution for developers to meet their retention requirements, while achieving significant co-benefits for the city; and ii) allow the District to meet its own green infrastructure goals at a lower cost than it could using only public land and financing. Currently, SRCs are trading at close to half the cost of public delivery of equivalent infrastructure and it is estimated that the 2013 rule and subsequent SRC activity will increase spending on stormwater mitigation by 10x historic public investment. Further, DOEE recently introduced a public purchase program, Price Lock, whereby the District purchases projects at a market rate that best meet DOEE's clean water goals. These public purchases reduce the cost of compliance for the District and help bolster development of credit supply in parts of the District where stormwater mitigation is most needed.

Mitigating runoff at the cheapest cost possible is a major hurdle for jurisdictions in the Bay and around the country. Washington, DC is using the SRC market to prove that market forces can accelerate the deployment of green infrastructure through private investment and in doing so, obviate the need for future public gray infrastructure spending to reduce stormwater runoff.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Stormwater Utility Goodlettsville, TN

Watershed Protection through Stormwater Management



Overview

The City of Goodlettsville, TN is located in the North Central area of middle Tennessee. In 2013, the City completed a Stormwater Management Master Plan identifying the city’s drainage basins and recommended the enactment of a stormwater utility fee as a dedicated funding source.

History

The Stormwater Utility Ordinance, implemented in 2013, is organized into three main sections: Capital Improvements, Capital Maintenance, and Engineering review. The utility is responsible for all activities related to the operation and maintenance of the stormwater system, including master planning, the capital improvement program, and inspections.

As one of the first stormwater utilities created in middle Tennessee, the City of Goodlettsville has been a leader among local governments in developing such a program. The City of Goodlettsville assesses its residential customers on Equivalent Residential Units (ERU’s) which are based on the effective impervious area of the average single-family parcel of \$3.67 per month. The assessment of Commercial and Industrial properties are based on the actual impervious surface with on ERU equivalent to 2900 sq. ft. at \$5.50 ea. per month.

Flooding Level of Service is intended to protect habitable structures up to the 100-year, 24-hour rain event. Water quality requirements from regulatory ordinances include all new development or re-development of greater than one acre, or less than one acre if part of a larger common plan.

Capital Needs

To-date, the City has collected \$3,200,000 in stormwater utility fees and has spent \$1,400,000.00 in stormwater flood improvements, operations and maintenance throughout the city. Since implementation of the program, a rate increase has not occurred and the program has not taken out loans to fund projects. Future projects include Drainage Basin Area Study, Box Culvert Replacement and Upgrades, Major Roadway Drainage Study, and completion of a Flood Mitigation Program

County or Municipality

City of Goodlettsville, Tn.

Population

16,859 (2018)

Annual Rainfall

62.3 inches

Land Area

14.1 sq. mi.

Poverty Level

18.1%

Total Identified Need

\$1,250,000.00

Annual Capital Budget

\$400,000.00

Annual O&M Budget

\$850,000.00

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

How Operation and Maintenance Costs Effect Resiliency in Coralville, Iowa

Managing Flooding and Quality of Life

The City of Coralville funds the operation and maintenance of stormwater infrastructure through a local stormwater utility fee, property taxes, and federal/state road use tax.

Operation and maintenance activities related to local water quality include compliance of the City’s MS4 permit, which consists of staff time, training, and maintenance of water quality practices installed as part of public infrastructure projects (roadway projects); street sweeping; and catch basin cleaning.

Operation and maintenance activities related to flood control and water quantity include staff time and training, maintenance of the flood protection system (pump stations, permanent flood walls/barriers, earthen berms, and detention basins), and maintenance of the storm sewer system (catch basins, pipes, and outfalls).

In the last 25 years, Coralville has experienced two major flooding events on the Iowa River. In 1993, a flood described as a “100 year event” devastated homes and businesses, and caused millions of dollars in damage. Of the businesses affected, 20% chose to not rebuild. In 2008, the Iowa River flooded again. This time, it was a 500 year event with costs totaling \$21 million for commercial properties, \$4 million for residential properties, and \$7 million in damages to public infrastructure. After the 2008 flood, 40% of the businesses chose to not rebuild.

Following the 2008 flood, Coralville was awarded \$65 million in federal and state grants to create a flood control system, which the City implemented. This permanent flood control system is essential to protecting our community. Maintaining the floodwall and stormwater pump stations accounts for 40% of the total stormwater budget. The remaining budget covers staff and all other operations and maintenance-related activities mentioned above, leaving a deficiency in maintenance objectives and very little funding for capital improvement projects. One of the largest deficits can be seen in the maintenance of our regional detention ponds. These ponds protect residents



County or Municipality

Coralville, Iowa

Population

21,664

Annual Rainfall

37”

Land Area

12 Sq miles

Poverty Level

14% of citizens are considered impoverished

Total Identified Need

3 Million

Annual Capital Budget

\$0

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

from localized flooding events driven by heavy rainfall. This maintenance cost is estimated at 3 million now with an annual expense of \$50,000 in continuing unmet need.

One of the largest complaints Coralville receives from residents is related to localized flooding concerns on their property. Residents expect their municipality to protect them from flooding, whether it is from the Iowa River or stormwater in the roadway or behind their home. Maintaining regional detention ponds and the local storm sewer system is essential for reducing the risk of localized flooding. The maintenance of local detention ponds is not being completed due to the deficit in the stormwater budget.

Over the past five years, the Iowa Flood Center has observed a 40% increase in the precipitation amounts of large rain events. We see that data in action. We are experiencing an increased need to protect our community during these heavy rain events. We project that the ongoing maintenance requirements of our system will increase as our storm events become larger and more destructive. None of our stormwater systems are large enough to carry the rain events we have been experiencing. The oldest sections of town, where the storm systems tend to be the most undersized also coincide with our most impoverished and vulnerable populations.

Without additional funding to support the operation and maintenance cost of our stormwater system, we will continue to fall further behind. As storm events increase in size, these systems will be essential to protecting the quality of life of our residents.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Stormwater Utility, Downers Grove, IL

Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management



Overview

The Village of Downers Grove, IL is located 22 miles west of Chicago. In 2006, the Village adopted a Stormwater Master Plan that provided information about the existing stormwater problems in the Village, the condition of the stormwater system, the adequacy of system components, and estimated costs for necessary maintenance, capital improvements and regulatory requirements at the time of publication.

A Stormwater Utility Fee was established in 2012 to provide a dedicated revenue for the identified stormwater management needs.

History

This 2006 Master Plan document provided the Village with information for establishing strategies for future infrastructure management, identifying preliminary budgetary needs, and identifying alternatives for financing an adequate stormwater program.

Prior to the Stormwater Utility, operating costs for the stormwater system were funded primarily through property taxes. Shifting the source of funding to a utility/fee-based system resulted in a reduction in the property tax levy by approximately \$2.48 million, beginning with the 2012 levy.

The Stormwater Utility Fee model represents an equitable method to collect revenue from those properties that place a demand on the system. Revenue is generated by charging all property owners a monthly stormwater fee, based on the property's impact to the stormwater system. The Village has created a plan that increases revenues over a 15-year period, allowing the Village to move from the current level of service to the recommended level within that time frame.

County or Municipality
Village of Downers Grove, Illinois

Population
49,649

Annual Rainfall
38" (Illinois)

- Land Area**
- Approximately 7,000 drainage structures
 - 315 stormwater detention facilities
 - 130 miles of storm sewer pipes
 - 12 miles of streams
 - 140 miles of roadway ditches
 - 47,000 feet of culverts.

Poverty Level
5.39%

Total Identified Need
\$340M

Annual Capital Budget
FY19 Budget includes \$7.08M for stormwater capital projects.

Annual O&M Budget
\$2M

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

The plan calls for annual increases in the stormwater utility fee of approximately 8.5% per year, which would increase the annual revenue available for stormwater management fees from the level of \$4.6 million to about \$11.4 million in 2028.

Capital Needs & Funding Sources

The 2007 Watershed Infrastructure Improvement Plan identified estimated cost of \$340 million for stormwater management projects. The more recent 2014 Stormwater Project Analysis identified 17 non-floodplain and 3 floodplain projects to provide 95% protection for the 21 areas throughout the Village that were identified as significantly impacted by the April 2013 floods. The estimated cost to complete the 17 non-floodplain projects is \$11.6M and they are planned to be completed in 2020. The annual cost for stormwater maintenance activities are \$2.0M each year. However, it would cost about \$4 million per year to perform the recommended annual maintenance activities.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Watershed Protection in Austin, TX

Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management



Overview

The mission of the City of Austin’s Watershed Protection Department (WPD) is to protect the lives, property, and environment of the community by reducing the impacts of flooding, erosion, and water pollution. The department provides services for the City of Austin and its extraterritorial jurisdiction through a combination of capital improvement projects, operating programs, and regulations. The department also serves as the City’s drainage utility—it is responsible for the operation, maintenance, renewal, and upgrade of the public stormwater infrastructure system. This includes the inspection and maintenance of assets that convey, store, and treat stormwater runoff while complying with state and federal regulatory requirements, such as the Municipal Separate Storm Sewer System (MS4) permit issued by the Texas Commission on Environmental Quality (TCEQ).

Over the years the City of Austin has received numerous awards for its watershed protection and management programs. In 2017, the Watershed Protection Department was the highest scoring Phase I MS4 program nationally among those submitting nominations for the annual Water Environment Federation / USEP MS4 awards program. Austin was also received gold-level recognition that year for innovation and for program management.

History

For more than three decades, WPD has been recognized as a national leader in watershed protection. The two most important events that helped shape the City’s watershed protection program were uncontrolled development in the late 1970s and the Memorial Day Flood of 1981. In the late 1970s, sediment from widespread construction visibly entered Lake Austin, the City’s water supply, and Barton Creek, a beloved community

City of Austin, Texas Watershed Protection Department

Population (Jan 2019)

981,035

Average Annual Rainfall

34 inches

Estimated Rainfall in 24- hour Storm Event

25-year: Up to 9 inches
100-year: Up to 13+ inches

Land Area

326 sq. mi.

Poverty Level (Jan 2018, U.S. Census)

15.4%

Total Identified Capital Need (10-Year Planning Estimate)

\$2 billion

Annual Capital Budget (FY19)

\$35 million annual transfer +
developer mitigation fees +
bonds

Annual O&M Budget (FY19)

\$104 million

Workforce (FY19)

349 full time employees
26 temporary employees

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

swimming and hiking area. Public concern led to calls for improved environmental protection through water quality and erosion controls for development. Around the same time, the Memorial Day Flood of 1981 underscored Austin’s geographic location in what is known as America’s “Flash Flood Alley”—an area of unusually intense flooding events. In response to the storm’s devastating effects and loss of life, the City implemented a Drainage Charge in 1982 to provide funding for an expanded stormwater management program. In 1991, the City established a Drainage Utility to oversee and directly fund its stormwater management programs. The Watershed Protection Department (WPD) was created in 1996 through the merging of the flood and erosion programs in Public Works with the water quality protection programs of the Environmental and Conservation Services Department.

Capital Needs and Funding Sources

To fund its capital projects, WPD utilizes a combination of funding sources, including general obligation bonds, drainage fees, payment-in-lieu developer mitigation programs, and Certificates of Obligation from tax increment financing.

The department has identified more than \$2 billion in capital needs to address the City’s most severe flood, erosion, water quality, and infrastructure maintenance needs over the next 10 years. With an estimated capital budget of approximately \$700 million over that same timeframe, the department utilizes principles defined in the department’s Watershed Protection Master Plan, Strategic Asset Management Plan, and City of Austin Long-Range CIP Strategic Plan to prioritize solution implementation within its budget.

The department continues to evaluate and update its best practices for stormwater management and CIP prioritization by incorporating community priorities, policy decisions, and the latest technical data, such as the Atlas 14 historic rainfall study.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

EFAB Stormwater Case Studies

Stormwater Program Implementation in Atlanta, GA

Water Quantity (Aging Infrastructure, Flood Management, Drainage), Water Quality (Regulatory Compliance, TMDLs), Expanding Expectations (public outreach, multi-use areas)



The City of Atlanta is a regional center located in the Southeastern United States. Situated in the headwaters of two river basins, the City provides drinking water, wastewater, and watershed management services to nearly half a million people within the City’s jurisdictional boundaries and some areas outside the boundaries. The Department of Watershed Management (DWM) is responsible for the NPDES MS4 permit in addition to state and regional requirements. DWM stormwater functions include watershed improvement planning, drainage improvements, asset management, water quality improvements, regulatory compliance, and public education and outreach. The City has a combined sewer system (CSO), which has resulted in increased emphasis on stormwater infiltration practices to reduce the stormwater runoff load to the CSO.

Stormwater Program Funding

The City of Atlanta does not have a dedicated funding source for stormwater management activities and stormwater management is currently limited to meeting regulatory mandates and addressing emergency repairs. Much of the existing stormwater drainage infrastructure within the City is nearing the expected lifespan and will need to be repaired or replaced. In addition, many customer requests for stormwater infrastructure improvements have not been addressed due to the lack of adequate funding.

Increasing stormwater-related regulatory requirements, changing weather patterns, more frequent nuisance flooding issues, and aging infrastructure needs have prompted the DWM to consider a dedicated funding source and develop annual operating and capital funding needs. An evaluation of future resource needs identified 122 full time equivalent (FTE) employees, \$12 million in annual operating costs, and \$18 million in annual capital expenditures to meet stormwater program

County or Municipality

City of Atlanta, GA

Population

498,044 (2018 US)

Average Annual Rainfall

49.71 inches (NOAA)

Land Area

136.7 sq. mi.

Poverty Level

22.4% (U.S. Census)

Total Identified Needs

FTEs – 122

Annual Operating Costs - \$12 million

Annual Capital Costs - \$18 million

Annual Total Costs – \$30 million

Current Capital and O&M Budget

FTEs – 60.5

Annual Operating Costs - \$6.6 million

Annual Capital Costs - \$12.5 million

Annual Total Costs – \$19 million

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

requirements and level of service. This is an approximately 50% increase over current resource and funding levels.

Extent of Service Area

Stormwater services will be provided for the following areas:

- Municipally owned rights of way
- Municipally owned drainage easements
- Municipally owned ponds and structural stormwater control facilities
- Rivers and streams on municipally owned property or the ROW

The City's inventory within municipally owned property or within public Right of Way includes an estimated 150 miles of stormwater pipe; 9,500 catch basins; 10,000 headwall, manholes, outfalls, culverts, and other miscellaneous stormwater structures. A significant portion of this stormwater infrastructure is not maintained on a routine basis; is reaching the normal engineering lifespan and is in need of repair or replacement. Stormwater facilities on private property are excluded from the City's Extent of Service.

The City of Atlanta is a leader in implementing green infrastructure programs and developing creative funding solutions such as MOST, grants, and an Environmental Impact Bond. However, meeting the identified funding needs gap will take additional creative planning, coordination, and communication with local and national stakeholders.

Washtenaw County Michigan

Summary Report of Stormwater Program Needs

We have completed Master Plans for some of our larger sub-systems (8 of some 550). We have an asset management plan (AMP), but no predictable means of planning capital work due our organizational structure as a special assessment agency by statute. Our current goal is to increase annual spending on minor, pro-active preventative maintenance where we have authority (we can spend \$0.97 per foot of drain without a petition). We are working to raise awareness of capital needs to achieve a goal of petitions that result in \$5-\$10M of capital projects annually. Information from our AMP suggests that we could proceed for 10-15 years in this fashion (working on whatever people are willing to ask us to work on at their expense) without compromising any logical sequence of capital improvements.

Our system replacement value is estimated at \$430M in today's dollars. Our data source is our Asset Management Plan which indicates that about 15% of our system is in immediate need of replacement due to complete lack of function. We are currently seeking to raise awareness of these and other poorly performing sections of infrastructure with those who would pay. Our only mechanism for capital project initiation is by petition, so long-range planning is a challenge. Because we can receive a petition from either a group of citizens or as a Resolution from a municipal agency, we have started a process of seeking regular approval of major maintenance on an annual basis with municipalities within our jurisdiction. We have currently done this with 6 of the 28 municipalities and hope to use this process for capital work also. We have currently done a 5-year plan with each. The idea is to annually have an approved one-year budget and acceptance of a rolling 5-year budget forecast – for most of our municipalities.

Due to having systems that pre-date current water quantity management design standards, all of our capital work focuses on improving water quality while striving to maintain the quantity management of the original system. In some cases, the water quality measures (such as extended storage) may provide an ancillary quantity benefit in smaller storms (85th percentile or smaller, so first flush to one-year storm sizes may have quantity benefit).



County or Municipality
Washtenaw County, MI

Population
360,000

Annual Rainfall
35 inches

Land Area
446 square miles

Poverty Level
14.5% population below poverty level

Total Identified Need
\$64.5 million

Annual Capital Budget
Varies by petitions received

Annual O&M Budget
\$4.1 million

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

The County does include MS4 permittees, but not the entire system as our service area includes urbanized and rural census tracts. Generally, our enclosed pipes in our urbanized area are designated MS4s and open ditches are not. Our biggest problems are in the urbanized areas but those are generally not available for federal or state funding for improvements, because we are supposed to be responsible for those through the unfunded mandate of MS4. (Incidentally, the MI State Supreme Court ruled that MS4 regulations were NOT an unfunded mandate, stating that [paraphrased] “municipalities have never been mandated to provide drainage systems, so MS4 regulations only apply to those communities who have chosen to have stormwater systems.”).

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

City of Raleigh, North Carolina

Basin Master Planning

The City of Raleigh has performed and completed a number of past drainage basin and watershed-based studies. Approximately ¾ of the city area has been covered by basin studies, although some of these were completed more than twenty years ago. The studies have looked primarily at infrastructure hydraulic capacity and flood hazard reduction needs and projects. Some studies have also reviewed water quality-related needs with projects identified including lake restoration/retrofit and stream stabilization/restoration opportunities along with other water quality-oriented projects. Recently (earlier in 2019) the City completed the first phase of a multi-phase integrated watershed master planning project. As part of this recent work, the City asked its consultant to identify and summarize stormwater projects identified from past basin studies but not yet constructed. In this context, the total of stormwater projects identified from past basin studies is approximately \$280 million, escalated to 2019 dollars.

In addition to this, the City has approximately \$60 million of projects that are assumed to be beyond what has been identified from past studies. The current CIP plan includes master planning, water quality retrofits, flood hazard reduction, lake-related projects, stream restoration, and neighborhood and street drainage system repair projects.

We have developed a preliminary estimate of citywide needs related to stream stabilization/restoration, which has not been included in past studies. The preliminary estimate for citywide stream stabilization/restoration needs is approximately \$120 million, which is beyond stream-related projects identified in the basin studies. Within the past several years, the City's Stormwater Program has also expanded its scope and assumed responsibility for City owned/operated Stormwater Control Measures (SCMs) and Dams. Approximately \$10 million in capital repair needs has been identified for dams while assessment continues for both SCMs and Dams.

In summary based upon the above, a preliminary estimate of capital improvement program needs for the City's Stormwater Management Program is approximately \$470 million.



County or Municipality

Raleigh, NC

Population

458,862

Annual Rainfall

46 inches

Land Area

145.98 square miles

Poverty Level

16.8% households under \$25K income

Total Identified Need

\$470 million

Annual Capital Budget

\$11.1 million

Annual O&M Budget

\$14.3 million

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

The planning period for this portfolio is assumed as 20 to 30 years, although implementation will be a function of future stormwater program revenues that may be available over time. (Note this preliminary planning level CIP total does not include the estimated annual needs for MS4 operation, maintenance, and MS4 repairs and rehab from a developing asset management perspective. The annual needs related to asset management are included within the response to Question #3.)



DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

City of Bellevue, WA Storm and Surface Water System Plan 2015

WQ, Flood, Infrastructure, WIPs, Drainage

The City’s Storm and Surface Water plan evaluates the operational management of the Utility, providing a “roadmap” for future planning. It is a tool to help the City meet federal, state, and regional regulations. Key focus areas include: control damage from storms (100 year, 24 hour storm event), protect surface water quality, support fish and wildlife habitat and protect the environment.

Primary challenges include **aging infrastructure, reduced forest cover, global climate change and a new class of pollutants** has emerged as a potential threat to aquatic and human health over the last decade. Pharmaceuticals and endocrine disruptors (found in some pesticides or other products applied to the landscape) are increasingly being detected in receiving water bodies. Stormwater has been identified by the Puget Sound Partnership as a primary pressure impacting the health of Puget Sound.

Bellevue does not have widespread flooding problems. The City is in 100% compliance with Phase II NPDES Municipal Permit

Rate Structure: Accounts are billed at different rates depending on the intensity of development (undeveloped, lightly developed (20%), moderately developed (40%), heavily developed (70%), very heavily developed (over 70%) and wetlands). 2019 rates include billing charge \$5.88, plus charge per 2,000 square feet depending on intensity of development noted previously, \$0 wetlands, \$.098 undeveloped, \$7.08 lightly developed, \$8.84 moderately developed, \$13.26 heavily developed and \$17.65 very heavily developed.

Bellevue has a successful and established asset management program.

The Renewal and Replacement (R&R) reserves were established by the City Council in 1995 to better position the City for the future by planning for the inevitable replacement of the utility system. The Utilities Department has assets with a replacement value of over \$3.5 billion in 2010 dollars, and about half of this aging infrastructure is past mid-life.

County or Municipality

City of Bellevue, WA

Population

147,599 (recent US census estimates)

Annual Rainfall

42 inches of rain, on average

Land Area

86.66 (33.46 square miles)

Poverty Level

7.37% of overall population. Median household income 2019 \$105,000

Total Identified Need

\$275 million next 20-years

Annual Capital Budget

\$13.5 million annual rate funded capital from operations and asset replacement account funding (average \$11.5 million 2016 – 2019). No debt funding

Annual O&M Budget

\$13.4 million (average \$12.5 2016 – 2019)

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Accumulating R&R reserves in a measured way to pay for the proactive replacement of aging systems before they fail. Managing reserves that fund the replacement of that infrastructure is critical to financial sustainability. R&R reserves ensure that the Utilities Department is financially prepared to respond to emergency events. Use of R&R reserves is governed by state law and the Utilities financial policies (established by City Council resolution in 1995; see Chapter 4 Policies).

R&R needs are projected using asset management data to determine the timing and estimated cost of replacing systems over time. Annual revenues set aside for infrastructure replacement are based on projected replacement cash flow needs over a 75-year forecast period less projected interest earnings. In 2015, the storm and surface water repair and replacement fund had a balance of \$43.8 million and projected to increase to \$70 million by 2044 (Figure 6).

Recommendations include:

Continue investing in the Flood Control Capital Program to reduce or eliminate local flooding caused by insufficient public drainage system capacity. Continue to use King County Flood Control Zone District Sub-Regional Opportunity funds. Invest in cost-effective water quality projects. Consider emerging technologies and techniques that improve water quality for pilot projects. Continue to invest in the Fish Passage Improvement Program to remove fish passage barriers created by impassable culverts, debris jams, or accumulated sediment, which opens spawning and rearing habitat for salmon populations. Continue to invest in the Stream Channel Modification Program to construct habitat improvements on stream channels. Invest in the Stream Restoration for Mobility and Infrastructure. Continue to invest in the Stormwater System Conveyance Infrastructure Rehabilitation Program to rehabilitate or replace defective storm drainage pipelines and ditches identified in the condition assessment program. Continue to invest in Minor (Small) Storm and Surface Water Capital Improvement Projects, to resolve deficiencies, improve efficiencies, or resolve maintenance problems. When possible, complete in conjunction with other Bellevue programs such as the transportation overlay program.

Description	20-Year Total	% of Total
Minor Storm & Surface Water Capital Imp. Projects	\$ 2,052,000	0.75%
Storm Water System Conveyance Infrastructure Rehabilitation	\$ 10,457,000	3.80%
Replace Coal Creek Pkwy. Culvert at Coal Creek	\$ 26,000	0.01%
Replace NE 8th St Culvert at Kelsey Creek	\$ 136,000	0.05%
Stormwater Pipeline Video Inspection Enhancement	\$ 246,000	0.09%
Long-Term R&R - Mains	\$ 97,492,738	35.41%
Long-Term R&R - Facilities	\$ 348,166	0.13%
Long-Term R&R - Additional Costs	\$ 6,852,242	2.49%
Long-Term R&R - Contingency (40% of Aging Infrastructure)	\$ 39,136,362	14.21%
Fish Passage Improvement Program	\$ 2,533,000	0.92%
Stream Channel Modification Program	\$ 3,642,000	1.32%
Flood Control Program	\$ 5,790,000	2.10%
Stream Restoration for Mobility & Infrastructure Initiative	\$ 108,000	0.04%
Lower Coal Creek Flood Hazard Reduction	\$ 6,128,000	2.23%
Storm Water Quality Retrofit in Kelsey Creek	\$ 342,000	0.12%
Long-Term Environmental Preservation Projects	\$ 36,752,063	13.35%
Long-Term Mobility & Infrastructure Projects	\$ 63,295,219	22.99%
Long-Term Mandate Compliance Projects	\$ -	0.00%
Total	\$ 275,336,791	100.00%

Figure 6. 2015 stormwater-related budget for the City of Bellevue, WA.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

City of San Diego

Watershed Asset Management Plan (2013)

In order to anticipate and justify current and projected costs of complying with federal, state, and local stormwater regulations, the City of San Diego developed an integrated Watershed Asset Management Plan (“WAMP”) for its stormwater management system. The WAMP was finalized in 2013 and aims to lay the groundwork for meeting regulatory requirements by ‘annualizing’ long-term compliance needs as well as documenting and communicating expectations of citizens regarding functions of the storm drain system and the quality of water and related services. The first element of the WAMP assesses the current inventory, costs, and condition of the City’s stormwater system. Assets are categorized as “hard,” “natural,” or “soft” and valued accordingly. After assessing the current state of City-managed assets, the WAMP goes on to quantify a long-range forecast of funding necessary to maintain a baseline level of service. The projections are calculated using a custom-built database which balances refurbishment and replacement costs to keep assets functionally above a minimum acceptable threshold. The result of this forecasting projected a 100 year need of nearly \$20 billion (in 2013 dollars); equating to about \$200 million per year, accounting for regulatory compliance, capital, and O&M costs. Lastly, the plan articulates various potential funding sources and scenarios for achieving targeted levels of service. Scenarios range from current budget to full funding attainment and lay out resulting backlog of needed infrastructure upgrades that would result from each scenario. Developing a WAMP is an iterative process requiring continual input from stakeholders, new or improved data, and updates to fiscal modelling efforts as awareness of costs becomes more sophisticated, particularly in accounting for effects of climate change. Currently, the City is undertaking a comprehensive update of its WAMP in order to reflect new regulations, assets, and cost estimates. The process of developing a WAMP can also serve to inform the regulatory process. In particular, an asset management perspective in context of a TMDL could substantiate reasonable compliance schedules for water quality attainment. In the context of stormwater permitting, an asset management plan could be used as a compliance mechanism alternative to meeting water quality-based limitations.



City of San Diego Watersheds

County or Municipality
San Diego, California

Population
1,419,845 million¹

Annual Rainfall
10.13 inches²

Land Area
325 square miles³

Poverty Level
14.5%⁴

Total Identified Need
\$3,128,424,9385 (FY2019-35)

Annual Capital Budget
\$2,666,667 (FY2020)

Annual O&M Budget
\$51,967,670 (FY 2020)

¹ E-1 Population Estimates. Demographics. California Department of Finance website.

² Western Regional Climate Center website

³ 2018 Census Gazetteer Files-Places. United States Census Bureau website

⁴ United States Census Bureau website-QuickFacts City of San Diego.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Grand Rapids, MI

Flood Protection, Sediment Reduction, and Stormwater Quality Compliance Water Quantity (MS4 Permit and TMDLs Compliance)

The Environmental Services Division (ESD) is responsible for managing stormwater within the City of Grand Rapids. The primary goals of the City's stormwater program are to reduce the impacts of flooding and erosion (water quantity) and to improve water quality in local rivers, lakes, and streams. This includes complying with the City's MS4 permit and TMDL requirements for E. coli and biota. To help meet these goals, the City developed a stormwater master plan that incorporates a 20-year asset management plan and capital improvement plan (CIP), as well as other stormwater- and sustainability-related City initiatives.

The City's asset management plan identifies four level of service scenarios for stormwater management, including three new levels of service (A, B, and C) and the existing level of service. The new levels of service were designed to meet regulatory requirements, goals for infrastructure renewal and replacement, and operations and maintenance. In addition, each scenario allocates a percentage of capital investment to green infrastructure practices. Under the City's plan, level of service A represents the highest level of service, while B and C result in subsequently lower service requirements.

Based on an evaluation of existing stormwater assets and a comprehensive risk assessment, the City developed a 20-year CIP for level of service B, which represents the mid-range level of service from the asset management plan. The City estimated that total annual funding requirements for this desired level of service would amount to \$14.7 million per year (for 20-years). However, due to funding constraints, the City is now aiming to achieve the levels of service associated with scenario C of the asset management plan, which will require \$10.4 million in annual expenditures. This compares to annual funding requirements for maintaining existing levels of service of \$3.6 million.

In Michigan, it is difficult to establish a stormwater utility because of legal circumstances. Thus, the City's stormwater program is funded from the City General Fund, as well as the Local and Major Streets, Refuse, and Vital Streets Funds. The Vital Streets program, which includes green infrastructure and other

County or Municipality
City of Grand Rapids Environmental Services
Division, MI

Population
198,829 (2017)

Annual Rainfall
37 inches

Land Area
45.3 square miles

Poverty Level
15.8% (persons in poverty, 2017 1-year
estimate)
MHI \$48,521

Annual Revenue
\$599,986 (FY 2018) – from licenses and
permits, state grants, charges for services

Annual Budget*
\$3,867,433

Total Identified Need
\$6,509,567 per year (through 2033)

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

stormwater components as part of comprehensive street improvement projects, has been funded for the last 15-years through a voter-approved income tax.

In FY 2018 the City’s budget for stormwater management and maintenance was \$2.7 million, while the capital budget amounted to \$1.2 million (including approximately \$674,00 from the General Fund and \$536,000 from Vital Streets). The total \$3.87 million budget is below the funding needed to meet the City’s level of service goals. While the City continues to make progress and has been recognized nationally for its excellence in service and innovation,⁴⁶ bridging this funding gap will require additional sources of funds and/or a longer timeline for achieving the City’s goals.

DRAFT

⁴⁶ In 2017, the City of Grand Rapids received a gold recognition in program management award through the Water Environment Federations’ National MS4 and Green Infrastructure Awards Program.

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Griffin, GA

Stormwater Pipe Assessment: Water Quantity (Infrastructure, Drainage)

The City of Griffin lies on the continental divide with watersheds draining to two different basins. Located about an hour south of Atlanta, this small MS4 Phase 2 community created the first stormwater utility in the state of Georgia and has been on the forefront of stormwater management for many years.

The City prepared a condition and risk assessment of all stormwater infrastructure within the City boundaries in 2016. The assessment included 6,792 pipes and associated infrastructure. Condition assessment was developed using a standardized approach and defined criteria. Only infrastructure in the poor category were considered for replacement estimates as a capital expense. Not included in the estimate is on-going maintenance expense associated with clearing pipes blocked with debris. Up to 30% of the stormwater infrastructure is considered blocked in some areas, reducing the effectiveness of the conveyance system and increasing maintenance costs.

Risk assessment criteria included FEMA floodzones, proximity to buildings, and road classification. Infrastructure determined to be high risk and poor condition will be prioritized for maintenance and/or replacement.

As part of this study, a replacement cost estimate was developed based on comparable construction costs and included factors such as pipe material, pipe diameters, and replacement method. Only for stormwater infrastructure determined to be in poor condition, the replacement cost is estimated to be \$23 million.



County or Municipality
Griffin, GA

Population
22,878 (US Census 2018)

Annual Rainfall
49.7 inches (US Climate Data)

Land Area
14 square miles (US Census 2018)

Poverty Level
31.4% (US Census 2018)

Total Identified Need
\$23 million

Annual Capital Budget
\$443,000

Annual O&M Budget
N/A

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Ventura County, CA

Flood Protection and Stormwater Quality Compliance

Water Quantity (Flood Protection) and Water Quality (MS4 Permit and TMDLs Compliance)



The Ventura County Public Works Agency’s Watershed Protection District (VC WPD) is the regional flood protection service provider in Ventura County in addition to local systems in ten incorporated Cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Ventura, Santa Paula, Simi Valley and Thousand Oaks. VC WPD is also leading collaborative efforts by the County of Ventura and ten incorporated Cities to implement requirements of the Ventura 2010 Municipal Separate Storm Sewer System (MS4) Stormwater Permit No. CAS004002 since 1992, when Ventura County Board of Supervisors adopted a benefit assessment levy for stormwater and flood management in Ventura County. Since passage of Proposition 218 in 1996, the assessment rates have not changed, because voter approval is required. Consequently, annual revenue of approximately \$40,499,155 has not changed, while the recent annual budget for MS4 Permit/TMDLs compliance and VC WPD’s flood control was over \$74 Million* (this amount does not include Cities’ flood control budgets). The funding gap is supported by the County and Municipal General Funds, Grant funding, and fund balance, which are highly variable sources due to competing needs for General Fund funding, competitive nature of grant programs, and short-term availability of fund balance. In addition, fees for municipal services, e.g., inspections of businesses, industrial facilities, and construction sites, help fund MS4 compliance activities.

Flood protection needs in the County are driven by aging infrastructure and flood risk reduction. It is estimated that over 50% of facilities will need to be replaced or rehabilitated within the next 30 years at a significant cost not supported by current revenues.

The Ventura MS4 Permittees are subject to 16 Total Maximum Daily Loads (TMDLs), of which 13 TMDLs

County or Municipality
County of Ventura, Ventura County Watershed Protection District, and ten incorporated Cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Ventura, Santa Paula, Simi Valley and Thousand Oaks, California

Population
850,967

Annual Rainfall
18 inches

Land Area
2,208 square miles

Poverty Level
9.5% (persons in poverty)
MHI \$81,972

Annual Revenue
\$40,499,115

Annual Budget*
\$74,129,564

Total Identified Need
\$2,305,178,303 (2021-2050 CIP)
\$87,530,290/ year (O&M after 2050)

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

are enforceable after incorporation into the MS4 Permit in 2010. Compliance with the upcoming new Permit and approaching TMDL deadlines will require for planning and implementation of costly stormwater treatment structural best management practices (BMPs).

The roughly estimated structural BMP implementation cost for Ventura MS4s are driven by the three effective and assumed two future watershed-wide Bacteria TMDLs. In particular, the wet weather compliance is very expensive undertaking for each watershed in Ventura County. Significant new CIP funding is already needed to meet upcoming 2023, 2026, and 2029 deadlines for existing Bacteria TMDLs. Past the year of 2050, anticipated as final compliance deadline for future TMDLs and completion of flood control improvements, the annual operation and maintenance (O&M) cost was estimated at approximately 3% of the total estimated CIP costs. As discussed with regulatory agencies, the current and future funding gap continues to be a significant challenge for Ventura MS4s.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Stormwater Utility, Lawrence, KS

Flood Risk Reduction, Erosion Control, Water Quality Protection, and Drainage Infrastructure Management



Overview

The City of Lawrence, KS, is located 35 miles northwest of Kansas City. In 1996, the City adopted a Stormwater Management Master Plan that analyzed the performance capability of the existing drainage system, recommended improvements to the facilities, and recommended the creation of the Stormwater Utility and corresponding stormwater fee.

History

The 1996 master plan provided a framework for the City to create and operate a Stormwater Utility. The utility is responsible for all activities related to the operation of the stormwater system, including planning, capital facility construction, street sweeping, and educational programs.

The plan also recommended the implementation of a stormwater fee to provide a dedicated source of revenue. The impervious area fee is an equitable means of collecting revenue from users in proportion to their demands on the system. In 1996, the fee was set at \$2.00 per equivalent residential unit; this fee was increased to \$4.00 by 2003 and was not adjusted again until 2016. Currently the fee is \$4.37.

The City has recently begun a comprehensive stormwater rate study and financial plan in anticipation of increasing the size of the utility's capital program and completing the capital projects identified in 1996.

Capital Needs

The initial master plan identified 41 individual projects at a total cost of approximately \$62 million (2019 dollars), while implementing a stormwater fee that would generate approximately \$1.2 million per year. Average revenue has been \$2.9 million since 2003, which has been sufficient for annual operating costs and debt service but left little for new capital facilities. The current five-year capital improvements plan

County or Municipality
City of Lawrence, KS

Population
97,286

Annual Rainfall
39.92"

Land Area
26.3 square miles
17 main watersheds

Poverty Level
21.8%

Total Identified Need
\$62 million

Annual Capital Budget
\$1.3M

Annual O&M Budget
\$1.9M

Annual Stormwater Revenue
\$3,233,000

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

identifies projects totaling \$26 million, which the utility plans to meet after paying off its outstanding debt in 2018 and establishing a program of regular rate increases.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Metropolitan Water Reclamation District of Greater Chicago

Working hard to manage stormwater, clean wastewater and recover valuable resources.



Overview

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) serves approximately 10.35 million people each day, residents of Chicago and 128 suburban communities.

Through a variety of engineered solutions, both green and gray, and flood-prone property acquisitions, MWRD's Stormwater Management Program addresses both regional and local flooding problems throughout Cook County.

In 2015, the MWRD adopted a Green Infrastructure Plan to increase the acceptance and investment of GI throughout Cook County. Since that time, the MWRD has partnered with dozens of agencies to fund GI projects such as rain gardens, bioswales/bioretention areas, permeable pavement systems, and rain water harvesting systems. These projects will provide up to 5 million gallons of stormwater runoff storage to over 1,400 benefiting structures.

History

For years, stormwater management in Cook County had been a patchwork of efforts by local, regional, state and federal agencies. In 2004, the Illinois General Assembly enacted Public Act 93-1049 allowing for the creation of a comprehensive stormwater management program in Cook County under the supervision of the Metropolitan Water Reclamation District of Greater Chicago (MWRD).

The Act required MWRD to develop the Cook County Stormwater Management Plan. The Cook County Stormwater Management Plan provides the framework for the stormwater management program, including its mission, goals, and program elements.

The MWRD's countywide Stormwater Management Program's mission is to provide Cook County with

County or Municipality

Metropolitan Water Reclamation District of Greater Chicago, Cook County

Population

10.35 Million Service Area

Annual Rainfall

38" (Illinois)

Land Area

822.1 sq. mi.

Poverty Level

15.9% (Cook County)

Total Identified Need

Annual Capital Budget

\$34.5M (FY19 Budget)

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

effective rules, regulations and capital improvement projects that will reduce the potential for stormwater damage to life, public health, safety, property and the environment.

Under the plan, the MWRD established Watershed Planning Councils and completed Detailed Watershed Plans for all six major watersheds in Cook County.

MWRD has made significant investments in developing over 140 capital stormwater projects since it assumed the authority for stormwater management in 2004. These projects, which range in both size and scope, provide flood protection for thousands of homes, businesses, and critical infrastructure.

Capital Needs & Funding Sources

Public Act 93-1049 gives MWRD the authority to levy a tax and to issue bonds for the development and administration of countywide stormwater management. Although the District's authority for the program applies to all of Cook County, the tax levy is only applicable to commercial and private property located within the District's corporate limits. The District's stormwater management program is currently funded by the stormwater tax levy.

The District utilizes the stormwater tax levy and additional funding mechanisms to finance the countywide program.

Stormwater Environmental Utility, Sarasota, FL

Control water quantity, enhance water quality, effectively manage stormwater



Overview

The County of Sarasota, FL, is located in the coastal plain of southwest Florida. In 1987, the County completed a Stormwater Management Master Plan that identified the county's drainage basins and recommended the enactment of a stormwater utility fee as a dedicated funding source.

History

The Stormwater Environmental Utility (SEU) was established in 1989 and is organized into four main sections: Master planning, Capital improvements, Maintenance, and Development review. The utility is responsible for all activities related to the operation of the stormwater system, including master planning, the capital improvement program, inspection and maintenance of the stormwater management system, and the proper use, storage, disposal of sediments, herbicides and other materials.

The assessment methodology has gone through several legal challenges and changes since its inception in 1989. As one of the first stormwater utilities created in Florida, Sarasota County has been a leader among local governments in developing such a program. In contrast to the engineering practice of impervious and flow rate calculations, the rate structure was changed in 1994 to a system that considers the pervious and impervious areas of each parcel as the method of assessment (all lands act like impervious surfaces during 5-yr, 25-hr rain events). The Sarasota County SEU assesses its customers based on Equivalent Stormwater Units (ESU's) that are based on the effective impervious area of the average single-family parcel.

Flooding level of Service (LOS) is intended to protect habitable structures up to the 100-yr, 24-hr rain event. Water quality expectations from regulatory pressures are significant and reach beyond the Stormwater Environmental Utility to include wastewater treatment and reuse water for irrigation.

Capital Needs

To-date, the SEU has spent about \$600,000,000 in stormwater LOS flood improvements, operations and

County or Municipality
Sarasota County, FL

Population
419,689

Annual Rainfall
52.99"

Land Area
725 square miles
6 main watersheds

Poverty Level
18.6%

Total Identified Need
\$400 million

Annual Capital Budget
Varies

Annual Stormwater Revenue
\$21,000,000

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

maintenance. Water quality expenditures for the SEU have been approximately \$20,000,000. Current Total Maximum Daily Load (TMDL) requirements are forecast to have an unmet need of \$400,000,000 that will be distributed to various sources of nutrient loading in the County over the next 20 years. Various sources of local funding are being exercised in public dialog. All typical sources are under consideration to include sales tax, ad-valorum and special assessments.

DRAFT

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

Appendix III: Stormwater Funding Database

As part of its charge, the Task Force led the development of a database of funding and financing sources commonly used by communities and municipalities to fund their stormwater infrastructure. The database is not a comprehensive list of all sources; rather, it is the most commonly used sources at the federal and state level. Local funding sources, which are often used by municipalities and communities were not captured in this effort. It was decided by the Task Force that local sources vary year to year, and from community to community so greatly that they would not be able to accurately capture local options. The complete database can be found on the EPA's Water Finance Infrastructure and Resiliency Finance Center webpage (<https://www.epa.gov/waterfinancecenter>) and has been uploaded to the Water Finance Clearinghouse.

Data Sources

This section summarizes the variety of sources used to populate the Stormwater Funding Database.

Water Finance Clearinghouse

The Water Finance Clearinghouse, which is a web-based portal that contains information and resources on drinking water, wastewater, stormwater infrastructure, and other areas within the water sector, was developed by EPA's Water Infrastructure and Resiliency Finance Center. Within the Water Finance Clearinghouse, funding sources were pulled by applying a "stormwater" filter to narrow the results to 377 sources, which were then uploaded to Microsoft Access. The data was reviewed for duplicates and all national federal programs were limited to one entry, since some federal grants were listed several times but in relation to only one state. The State Revolving Fund (SRF) grants, however, were broken down into several entries, one for each state/territory.

Federal Funding Programs – Stormwater and Green Infrastructure Projects

The EPA had previously developed this table containing all known federal funding programs that involve stormwater and/or green infrastructure project components. The sources pulled from the Water Finance Clearinghouse were cross referenced to this table and any missing data was added.

Stormwater Infrastructure Funding Task Force

The Task Force provided recommendations and documentation of potential sources to include in the database.

Technical Approach

This section summarizes the different variables, or fields, that were used in the database as well as the procedure for entering and quantifying the data.

The Water Finance Clearinghouse provided many fields of data that were narrowed down to what was relevant to the charge, as seen in the table below. A few fields were also added to directly provide

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

information to help answer some of the charges. A few of the fields were limited to the options provided in bullets below to simplify filtering the data by source type, agency, funding use, etc. For the funding amounts, if the source does not have a range and only has a fixed amount allocated each year, the amount was placed in the max field and the min field was left blank.

Program Name	Name or brief description of source
Source	Who is providing the funds?
Source Type	<ul style="list-style-type: none"> • Taxes/general funds • Fees • Stormwater utility • Grants • Bonds • Loans • Public-private partnerships
Agency	<ul style="list-style-type: none"> • Federal • State • Local • Private (including non-profit)
Website	URL
State	State or National
How Funds are Issued	<ul style="list-style-type: none"> • Application process • Fund allocation to states and localities • Competitive vs. non-competitive process • Long-term programs vs. one-time allocation • Grant vs. loan programs
How Funds are Used	<ul style="list-style-type: none"> • Capital • O&M • Compliance
How Funds are Utilized	How are funds coordinated with other sources of funding?
Funding Amount Min	What is the typical annual minimum amount of funding amount for this program?
Funding Amount Max	What is the typical annual maximum amount of funding amount for this program?
Funding Requirements	What are the requirements for receiving these funds?

Environmental Financial Advisory Board (EFAB) Draft Working Paper—Do Not Cite or Quote

This draft is a work in progress; it does not reflect consensus advice or recommendations, has not been reviewed or approved by the chartered EFAB, and does not represent EPA policy.

ENVIRONMENTAL FINANCIAL ADVISORY BOARD

Members

Joanne Throwe, Chair

Brent Anderson

Lori Beary

Janice Beecher

Theodore Chapman

Rudolph Chow

Edwin Crooks

Lisa Daniel

Marie Roberts De La Parra

Yvette Downs

Ted Henifin

Craig Holland

Daniel Kaplan

Suzanne Kim

Pamela Lemoine

James McGoff

Chris Meister

James “Tony” Parrott

Eric Rothstein

Angie Sanchez

William Stannard

Carl Thompson

Richard Weiss

David Zimmer

Designated Federal Officer

Edward H. Chu

Date

The Honorable Andrew R. Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Administrator Wheeler:

The Environmental Financial Advisory Board (EFAB) is pleased to submit our report, *Evaluating Stormwater Infrastructure Funding and Financing Task Force*. This report was developed in response to Section 4101 of the 2018 America’s Water Infrastructure Act (AWIA), which directed the EPA to establish a Stormwater Infrastructure Funding Task Force. Congress directed the Task Force “to conduct a study on, and develop recommendations to improve, the availability of public and private sources of funding for the construction, rehabilitation, and operation and maintenance of stormwater infrastructure” to meet the requirements of the Clean Water Act. This Task Force was convened under the EFAB as a workgroup and the EFAB approved this report and accompanying recommendations at our public meeting on <date>.

We believe that effective stormwater management is integral to American quality of life. The construction, rehabilitation, and operation and maintenance of stormwater infrastructure is widely viewed as a solution to improving water quality in our nation’s waterways, reducing local flooding problems, and enhancing community resiliency. More than 80 percent of the U.S. population lives in a community that has a stormwater permit and that number continues to grow.

Stormwater management costs have been steadily increasing at the local level and many communities do not have a sustainable source of funding for their stormwater programs. The limited availability of low-cost funding through debt financing, grants, and user fees exacerbates the growing affordability challenges that many communities face in paying for their stormwater infrastructure and programs. Stormwater funding is a national problem that requires action.

The Task Force was charged with the following questions to explore and develop potential solutions in improving the availability of stormwater funding:

- Identify existing federal, state, and local public and private sources of funding for stormwater infrastructure.
- Assess how the source of funding affects affordability, including costs associated with infrastructure finance.
- Assess whether these sources of funding are sufficient to support the capital expenditures and long-term operations and maintenance costs required to meet municipalities’ stormwater infrastructure needs.

Environmental Financial Advisory Board (EFAB) Draft Letter (1/28/2020) – Do Not Cite or Quote—
This draft has not been reviewed or approved by the chartered EFAB and does not represent EPA policy.

The Task Force analyzed the funding needs of communities across the country and the funding sources that can be used to meet these needs. From this information, the EFAB has six recommendations that are organized under three categories: (1) Stormwater funding education and technical assistance, (2) Simplification of existing federal grant and loan programs and affordability support, and (3) Dedicated federal stormwater funding assistance.

These recommendations are presented as actionable ways to use existing funding, increase accessibility to those funds, and identify additional funding opportunities. Several of the recommendations include direct engagement by the EPA with state and local agencies. This two-way exchange will help bridge the gap between the source of clean water regulations (federal) and the most important source of funding (primarily local). This, in turn, will also greatly benefit the overall goals of the Clean Water Act, the involved agencies, and the public at large.

EPA is required to submit a report to Congress no later than 18 months after enactment of the 2018 AWIA (by April 2020) describing the results of the Task Force's study and resulting recommendations. We hope this report is helpful to the EPA and we look forward to your report to Congress on this important matter.

Sincerely,

Joanne M. Throwe, Chair
Environmental Financial Advisory Board

Rudolph Chow, Co-Chair
EFAB Stormwater Infrastructure
Finance Taskforce

Enclosure

cc: Edward H. Chu, Designated Federal Officer, Environmental Financial Advisory Board
David P. Ross, Assistant Administrator, Office of Water
Benita Best-Wong, Principal Deputy Assistant Administrator, Office of Water
Dr. Andrew Sawyers, Director, Office of Wastewater Management
Raffael Stein, Director, Water Infrastructure Division
Sonia Brubaker, Director, Water Infrastructure and Resiliency Finance Center

**U.S. Environmental Protection Agency
Environmental Financial Advisory Board**

Consideration of the Stormwater Infrastructure Funding Task Force Report

Pre-Meeting Comments from EFAB Members

Developed in preparation for the February 11-13, 2020 meeting of the EFAB.

Table of Contents (as of 2/6/2020)

Comments from Brent Anderson:.....	2
Comments from Janice Beecher:	3
Comments from Edwin Crooks:	5
Comments from Dan Kaplan:.....	7
Comments from Suzanne Kim:	8
Comments from Richard Weiss:	14
Comments from David Zimmer:	16

Comments from Brent Anderson:

Executive Summary: I would add a brief paragraph describing what stormwater is. It will frame the rest of the Executive Summary, and for those that never read beyond the Executive Summary, context for the problem and recommendation

Page 10: Key Terms. I would clearly state that the issue is one of water quality, not to be confused with water quantity.

Page 14, Section 3.1.1: The word “utilities” is used throughout the document. This approach works in metropolitan areas, but much less so in unincorporated areas.

Regarding the Recommendation on technical assistance: I think the technical assistance should also include cooperative basin wide projects. The focus on federal and municipal funds likely results in a more ad hoc solution because projects have to follow the funding. Technical assistance that addresses problem in a coordinated basin context would likely reduce costs. It could result in additional (though more complex) funding opportunities.

Page 15, Section 3.1.2: This is a great recommendation, and to the extent we address Federal or any other state funding, we should always make it.

Page 16, regarding SRF as an integral tool: Conditioning access to SRF support on intra-basin solutions could be used to get different participants to work toward an economical common solution.

Comments from Janice Beecher:

- The report is ambitious, well-organized, and dense with information; case studies add value (although I did not review them carefully).
- It would benefit greatly from close editing by people with technical expertise in specific areas; for example, I took a swing at a paragraph on "private investment" (see below)
- The evaluation criteria (Sec. 6.2.2.1, page 67) were not entirely clear to me in terms of interpretation, and in some instances, I disagree with the "score."
- It is very important to avoid conjecture and assertions that may not be evidence-based; add a citation, a caveat, or delete.
- Be careful not to conflate sources of funding, means of financing, and organizational entity (government, utility).

Page 48: the private sector does not provide "financial assistance." Neither do finance companies. You do not "apply for private investment". Regarding the statement on private sources of capital being more expensive but more accessible than public sources: is this evidence based?

- **Private Investments:** Private investment can take the form of ~~loans and/or other financial assistance originating from sources other than commercial banks and/or finance companies. debt or equity instruments.~~ Sources of private ~~capital investment~~ can include ~~e, but are not limited to,~~ insurance companies, pension funds, ~~venture capital funds, individual venture capitalists or private equity (fund or individuals), corporation partners and general capital investors, and publicly traded companies.~~ Investor-owned utilities utilize both the ~~private equity and shareholder models.~~ Private investment ~~ment funds finance~~ billions of dollars' worth of ~~new~~ business start-ups in the United States each year. The potential uses of private investment for supporting environmentally related businesses and/or activities ~~are only limited~~ is based on perceptions of by the degree of profit associated with them profitability, which for investor-owned utilities is usually subject to state economic regulation due to their monopoly status. In fact, the creation of a privately owned utility may trigger state jurisdiction. The cost of public or private capital is based on anticipated returns relative to risk. ~~if it can be shown that an idea or activity will make money, then private investment can be found to support it.~~ Applying for private investment is typically much faster than for ~~government loan programs.~~ Private sources of capital are more expensive but, in some cases, may be less limited and more accessible than public sources. Private investors usually have no set eligibility criteria and may have no predetermined limits on the total amount of loan capital available. Private investment generally demands ~~ors tend to demand~~ a significantly higher rates of return than public sources on their money, though, ~~than other sources of capital.~~ Private investment can also be part of a public-private partnership or hybrid model. Note that a private investment can develop into a public-private partnership of an operational component is added to the mix.

Page 50: add citation

5.2.3.1 Public-Private Partnerships

Public-private partnerships (P3s) are receiving increasing attention in the United States and internationally as an innovative way of financing a wide range of different environmental protection initiatives. The point of P3s is that partnering with private enterprise can expand access to resources and capital and offer better potential economies of scale. There are many types of P3s: design-/build, design-/build-/operate-/maintain, pay-for-performance (interchangeable with pay-for-success) contracting, community-based P3s, etc. They may include private financing or a combination of public and private financing. According to [cite], Community-based P3s have a

Page 69: Table 2

Table 1. Financial Capacity Impact of Recurring/Intermittent Funding Sources—O&M Operations.

Do these eval criteria really track here? low, hi, volatile?

<p>Household Affordability Impact</p>	<p><u>HighModerate:</u> property taxes are generally deemed as regressive</p>	<p><u>ModerateHigh:</u> property taxes are generally deemed as regressive</p>	<p><u>ModerateLow:</u> User fees are <u>still somewhat regressive</u> but <u>may be</u> usually much smaller in actual dollars compared to water and sewer charges</p>	<p><u>ModerateLow:</u> if tied to a “user pay” levy, would mostly likely be borne by those directly benefitting from the infrastructure</p>	<p><u>Moderate:</u> not as regressive as a pure tax but still correlated to property valuation without explicit income recognition</p>
--	---	---	--	---	--

Household Affordability Impact: oversimplification - property taxes are not necessarily considered regressive, and are certainly less regressive than user fees.

Comments from Edwin Crooks:

In general, I think this is an excellent document - thorough, thoughtful and well-written. A couple points we might want to address include:

Section 3.1.3: I'm struggling a little with the first recommendation about building a national database. No doubt it would be good to have the info available, but it sounds like a very heavy lift and I question whether it would be very impactful to addressing the core challenges of stormwater financing. If the EFAB wants to keep this recommendation I think we need to beef up the argument for how it would make things better and give a good rationale for EPA to invest time and money in doing it.

Section 5.2: This section title should be changed to "Stormwater Funding and Financing". It might seem like semantics, but there is a big difference between funding and financing and we blur the lines here. The core problem of this entire charge is summarized in the first sentence of the "Revenue" discussion - the need for ongoing stable and meaningful funds. To the extent that funding flows can be increased and made more predictable, financing becomes cheaper and more readily available and lots of problems can be solved. But I think we need to highlight the differences in funding and financing in this section and discuss the linkage between the two.

Section 5.2.1.1.2: The subject of tax increment financing is mentioned later in section 5.2.3.5 but I think we ought to tee it up here as a subset of the universe of special taxing districts. This can be an important tool and I feel it is somewhat buried in its current location.

Section 5.2.2.1.1: The call out box about green bonds caught my eye for two reasons. First, it says these are tax exempt instruments. While they usually are tax exempt, there is no reason that a taxable bond couldn't be green as well. Then further down it says that these bonds are of interest to "younger investors", which I would dispute. Also, this appears to be a quote but there is no attribution to a source.

Section 5.2.3.1: In the first sentence we talk about P3 only as a financing mechanism, but we should describe it as a holistic approach to project delivery, including financing. In the second sentence we should add some mention of the potential for P3's to deliver more creative and efficient technical solutions to stormwater projects.

Also in this section there is no mention of another financing source used in P3 deals, which is private investor equity. I suggest we add a blurb somewhere here that says something like "Financing for P3s also typically includes private investor equity as another source of capital. Investor equity is very flexible, typically patient capital that instills a level of rigor in the private operator's management of the stormwater asset. This is relatively expensive financing, however, and typically requires that the public project sponsor cede some level of control to private investors."

Section 5.2.3.5: The second bullet on tax increment financing needs to be corrected to say: "...increase surrounding property values and the incremental tax on the increased property value is dedicated to funding the new infrastructure. In addition, owners of those properties may also agree to a new tax levy..."

Section 6.0: It seems to me that this section is missing one very important observation about how the funding sources affect affordability. When municipalities are faced with insufficient funding they will often default to a "pay as you go" approach, meaning they will only build the improvements they can afford at that time. This means that larger projects have to be split up into multiple pieces that are procured and constructed separately over many years. This is inherently more expensive than building larger projects because it requires the municipality to conduct multiple procurements, each with its own transaction costs, oversight requirements, etc. Meanwhile the municipality is left with the added risk of coordinating and integrating what may become a patchwork quilt of improvement projects. In addition, the community and environmental benefits of completing the entire project are delayed.

If the municipality's funding sources were more robust and predictable, bond financing could become an option that would enable larger, more impactful projects to move forward. These projects and their benefits could be completed earlier and with less transaction cost and residual risk for the owner. And as funding sources become more and more robust and more creditworthy, the cost of borrowing should decline.

These points are applicable to several subsections of chapter 6.0 but should probably be addressed more explicitly somewhere in the chapter.

Comments from Dan Kaplan:

The second paragraph in 1.2 of the Executive Summary gives disproportionate emphasis on innovative funding strategies relative to what is presented in the report. The body of the report is clear that the preponderance of new funding sources will be local. This Executive Summary section should discuss how local communities need technical support for the creation of stormwater utilities and revenue systems, including assistance in accessing innovative approaches. This would provide a better tie-in to the first recommendation.

The draft report is inconsistent on the role of other federal funding programs. Section 2.4 delineates funding needs not included in the report, including agricultural pollution, but the final recommendations calls for a set aside for federal farm subsidies. I agree with this recommendation, but it should be supported within the report with a section on pollution caused by agricultural runoff.

The recommendation and supporting narrative (page 18) on the national data base to enumerate state barriers for the creation of stormwater utilities and fees should be moved to the education and technical assistance section and out of funding assistance. And can it be stronger? "States are encouraged to eliminate barriers to the creation of stormwater utilities and user fees to support them." And for funding assistance, "Federal assistance programs should prioritize funding to those communities with dedicated stormwater utilities."

Section 5.0, page 29 includes green infrastructure as a factor that has increased the average cost of stormwater programs. This bullet should be deleted, as green infrastructure is a response to challenges enumerated below that bullet and not a cause per se. I would include an additional bullet: "New investments for complying with CSO consent decrees and MS4 permits."

Lost in the discussion and tables on funding sources is any mention of wastewater fees, which are used by many utilities to support stormwater operations. Rather than clutter the table, a paragraph on cross-subsidization and equity could address this.

Page references for the case studies on page 80 would be helpful.

Comments from Suzanne Kim:

There is a tremendous and laudatory amount of work accomplished in a very short period of time. My comments are focused on the **Executive Summary** as this will be the primary vehicle to communicate the contents of the report.

- 1) The Executive Summary needs to be absolutely tight. I have attached my suggested edits to the Executive Summary (I didn't include comments #4 & #5).
- 2) Funding = free money, like grants. Financing is money you have to pay back...like loans and equity capital. You need to distinguish between the two. Funding DOES NOT = Financing. This section must distinguish between the two and communicate this distinction.
- 3) Also Funding/Financing is different from Revenue... Revenue is what utilities need to access debt capital. Revenue is leveraged to access financing. IT IS NOT FINANCING. There is confusion throughout the executive summary conflating the two concepts. Revenue is not funding nor financing
- 4) At the last EFAB meeting, there was considerable discussion on whether there is enough capital out there in the current programs to support the capital needs and or whether the problem is accessibility (how it is marketed and who can access it). In the Executive Summary, we need to establish whether we want to push for additional capital, better access, or both? Let's be clear.
- 5) In the executive summary the author asserted that there has been no comprehensive national survey done to determine the magnitude of the funding and financing shortfall--if so, that survey/analysis/study absolutely needs to be in the recommendations. How can one justify that the federal government appropriate additional \$s ("billions" is vague—is it tens of billions? Hundreds of billions?) if the quantity is unknown? If there truly has been no study, someone has to do one. Therefore, it should be in the recommendations.

1.0 Executive Summary: Stormwater Funding: A National Problem That Requires Action

~~In the United States, s~~Effective stormwater management is ~~as as integral-critical to American quality of life as effective~~ wastewater management and ~~delivery of~~ safe drinking water ~~to achieving high water quality, thereby improving the basic quality of life for all Americans. To be as effective in the delivery of quality and effective drinking water and wastewater services, Hence,~~ stormwater management ~~will need comparable and equitable access to stable, reliable, and efficient funding and financing programs.~~

~~needs to be deemed as a true utility service on par with drinking water and wastewater utility services—and it needs equitable and reliable funding, just like drinking water and wastewater utilities.~~

~~I~~n the United States, ~~d~~ drinking water and wastewater management services ~~in the US, are generally largely delivered through the utility structure model and , have generally matured to become as~~ reliable ~~and effective community services to the communities, and. Critically, these services have extensive with dedicated access, noting that access is not uniform, to sources of funding (such as grants) and financing (such as low-cost loans). Cumulatively~~To date, Clean Water State Revolving Fund programs have provided \$133 billion in ~~financial~~ assistance, mainly in the form of low-cost financing, to a wide range of eligible borrowers. The utility ~~structure model, that is conducive to~~characterized by ~~effective and efficient management-governance structures and dedicated-reliable revenue streams~~ funding, which has ~~generally~~ worked well ~~in for~~ the drinking water and wastewater sectors ~~and , should be applied to adopted for the stormwater sector, which is the next frontier sector the nation should tackle in its efforts to improve for this nation's water quality goals.~~

~~A critical component of the utility model is predictable and sufficient revenue streams. But even a utility structure requires predictable and adequate revenues and sound governance. If these two elements are in place, effective operational capability will follow. Unfortunately, however, approximately only 1,600 of the 7,550 permitted stormwater entities in the United States have dedicated revenue sources. Typical stormwater revenue sources include, such as stormwater user fees (also known as stormwater utilities where fees are based, for example, largely on impervious area), taxes, or and established drainage districts that collect dedicated funding for stormwater management. In addition to stable revenue streams, the utility model requires effective governance structures guided by transparent and effective policies and procedures. And, with stable revenue streams and effective management, a utility is better equipped to access funding and financing programs.~~

~~A significant complication with stormwater services is that~~

~~But even a utility structure requires predictable and adequate revenues and sound governance. If these two elements are in place, effective operational capability will fol~~low.

~~Stormwater knows no~~does not respect conventional jurisdictional boundaries and ~~requires cooperation among crosses various local, municipal, county, state, county and municipal borders and federal entities. Therefore, meaningful cross jurisdictional partnerships underlie effective stormwater management. In addition, t~~here ~~are~~ have been no comprehensive

assessments conducted at the national level to determine the magnitude of the funding and financing capital needed to construct, operate, and, and adequately maintain and operate stormwater infrastructure across the country nationally. Recently, there have been some Recent regional, limited surveys that have attempted to estimate the funding and financing shortfall in the stormwater services sector. These limited studies concluded that the annual shortfall is somewhere in the neighborhood of billions. [Kim: “billions” is not adequate—please cite something]

~~stormwater management and infrastructure funding needs in the billions of dollars annually beyond current funding levels. Without question, the challenges related to stormwater funding are daunting and there is a pressing need to continue to improve estimates of the sector’s needs. The dedicated stormwater funding sources that do exist are typically insufficient for currently known stormwater needs. Given the magnitude and cross-jurisdictional nature of the stormwater challenge, local funding efforts are not enough. Because of the cross jurisdictional nature of stormwater management and because the amount of and access to capital via current funding and financing programs are inadequate to construct, operate, and maintain effective stormwater management across the country, the Task Force recommends that the federal government invests in stormwater infrastructure, similar to how the federal government established There is a need for federal investment in stormwater infrastructure, similar to the level of investment that federal funding and financing programs have provided in the past to begin building that have built our interstate highway system, upgraded our wastewater infrastructure, or and delivered safe drinking water to our homes. The federal financing and funding framework that has worked so well to support the drinking water and wastewater sectors should be adapted to fund solutions to the stormwater challenge. This type of federal financing and funding will support communities with stormwater permits that serve more than 80 percent of the U.S. population. Therefore, stormwater funding is a national problem that requires action.~~

1.1 Stormwater Infrastructure Funding & Financing Task Force Report and Charge

~~This report was developed in response to Section 4101 of the 2018 America’s Water Infrastructure Act (AWIA), which directed the Environmental Protection Agency (EPA) to establish a Stormwater Infrastructure Funding & Financing Task Force (“Task Force”) “to conduct a study on, and develop recommendations to improve the availability of public and private sources of funding for the construction, rehabilitation, and operation and maintenance of stormwater infrastructure” to meet the requirements of the Clean Water Act.~~

Specifically, the EPA charged the Task Force ~~was charged~~ with the following tasks:

- Identify existing federal, state and local public, and private sources of funding and financing for stormwater infrastructure (addressed in Section 5.0);
- Assess how the source of funding and financing, including the costs associated with infrastructure finance, affects affordability, ~~including costs associated with infrastructure finance~~ (addressed in Section 6.0); and
- Assess whether these sources of funding and financing are sufficient to support capital expenditures and long-term operational and maintenance costs required to meet the stormwater infrastructure needs of municipalities (addressed in Section 4.0).

The charge has culminated in the attached report.

1.2 Local Stormwater Funding & Financing Efforts

Finding funding sources has become a necessary activity for local governments and utilities that are charged with managing stormwater programs. Several professional organizations have developed publications and held workshops on how to develop and implement dedicated funding mechanisms. Their advocacy efforts have also elevated the discussion on the need for funding and the importance of affordability.

Perhaps more importantly, Recently, conversations among local governments and utilities charged with managing stormwater programs in recent years have shifted from “how to develop stormwater utilities” to the need for designing and utilizing innovative funding and financing strategies.

Undoubtedly, sourcing funding and financing capital is necessary function for local governments and utilities involved with stormwater management. Several professional organizations have developed publications and held workshops on how to develop and implement dedicated revenue streams. This has led to industry-wide discussions on the need for funding and financing and has elevated related topics such as the importance of affordability. In addition, these industry organizations have educated members on innovated funding and financing strategies that includes such as public-private partnerships, incentives for private property owners to implement stormwater controls, green bonds, and trading schemes. Innovative funding and mechanisms financing programs, coupled with reliable traditional mechanisms (e.g., stormwater utilities, fees-in-lieu-of, drainage/taxing districts) have provided some local programs with valuable additional alternatives to fund-finance their stormwater needs.

1.3 Federal Stormwater Funding and Financing Support

As previously stated, local funding efforts alone are not enough. Stormwater infrastructure requires funding and it has been neglected, or inadequately funded, for far too long. The Task Force advocates for There is a need for federal investment in stormwater infrastructure, similar to the level of investment that federal funding programs have provided in the past to, among others things, begin building build our interstate highway system, upgrade our wastewater infrastructure, and deliver safe drinking water to our homes.

The federal government can also help by also efficiently allocate ing funding and financing for stormwater programs from existing related programs to ensure that infrastructure is properly maintained and that future infrastructure planning, design, and capital expenditures are conducted using industry best practices.

Municipalities and local utilities need federal and state help in defining-identifying long-term reliable funding sources. Funding must be available in all states and be sufficient to support both capital expenditures and long-term operation and maintenance costs.

1.4 Recommendations

Task Force recommendations are presented as items that are practical to implement, actionable at the federal level, and understandable to the public. They present suggestions range from increasing accessibility to and education of existing funding and financing programs, to use enhancing existing funding and financing mechanisms programs, increase accessibility to those

~~funding mechanisms, and creating identify~~ additional funding ~~and financing opportunities~~ ~~sources, and enhance public education~~. The Specific Task Force's recommendations are ~~grouped into the following categories~~ as follows:

- 📌 **Stormwater funding education and technical assistance.** Educating the public and elected officials on the need for stormwater funding-management is critical to the successful implementation of and community support for funding and financing solutions. In addition, many communities need technical assistance ~~related to evaluating~~ and ~~securing~~ funding and financing mechanisms sources.

***Recommendation:** Educate elected representatives, professional administrative leaders and the general public on the need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector.*

***Recommendation:** Provide technical assistance and funding to help communities create sustainable funding sources. This could include assistance with funding need assessments, organization analysis, grant applications, and/or establishing a stormwater utility fee.*

- 📌 **Simplification and/or modification of existing federal grant and loan programs and affordability support.** Federal grants, loans (e.g., from State Revolving Funds) and support to enhance affordability are needed to maintain sustainable local funding sources.

***Recommendation:** Provide for a common application for different federal grants across all federal agencies.*

***Recommendation:** The State Revolving Fund (SRF) is an integral tool among the many infrastructure financing options available to communities. Whether stormwater receives consideration of its own through a new SRF program, or receives less restrictive eligibility considerations and larger appropriations within the existing Clean Water SRFs (CWSRF) or eligible Drinking Water SRF (DWSRF) projects, it is the view of the Task Force that stormwater would benefit from an additive – not zero-sum – recurring financial commitment from EPA. This could be achieved by the implementation of one or more of the following, each of which is outlined below:*

- Create a new SRF program exclusive to stormwater programs and projects.
- Expand the existing Water Infrastructure Finance and Innovation Act (WIFIA) program or fund the Army Corps of Engineers' Water Infrastructure Program also established in 2014.
- Create a specific stormwater set-aside in the existing CWSRF framework and increase awareness/ guidance on the CWSRF for stormwater projects, including the Green Project Reserve program.

***Recommendation:** Use federal funding or technical assistance to help utility customers who are financially struggling to pay their water, sewer, and stormwater utility bills (similar to Low Income Home Energy Assistance Program (LIHEAP)).*

- 📌 **Dedicated federal stormwater funding assistance.** Given the magnitude of the stormwater

needs described in this report, there is a need for federal investment similar to the investments in the National Interstate Highway system and historical wastewater treatment plant upgrades.

Recommendation: Build comprehensive national database that enumerates state barriers to implementation of new dedicated stormwater revenue sources such as user fees or other revenue sources, and/or any state restrictions on existing fees and charges.

Recommendation: Increase annual funding allocation for and modify the 319(h) grant program to allow and encourage local capacity building, utility fee study and implementation, asset management, and remove restrictions on use of grant funds for MS4 permit compliance.

Recommendation: Develop a new construction grant program specifically for stormwater projects, similar to the federal Municipal Construction Grants Program that funded the construction of wastewater treatment plants.

Recommendation: Given the link between agricultural pollution and mandated stormwater pollutant reduction targets for impaired streams, a Farm Bill Federal subsidy dedicated to stormwater programs would also be valuable. Require 10 percent of US federal farm subsidies (all programs) be re-directed toward stormwater/nonpoint impacts in same watershed where recipient farm is located.

Comments from Richard Weiss:

In general, I thought that the report was very thorough and informative. The charge questions to the workgroup were adequately addressed. It was clear and logical with recommendations supported by the body of the draft report. Following are some comments on various sections of the report for the workgroup's consideration.

Page 4 – Section 1.4 recommendation for a new construction grants program for stormwater projects similar to the federal Municipal Construction Grants Program for wastewater projects could be viewed as an inefficient way to get funding to communities. However, page 19 mentions the use of the SRFs as well as other modifications which would make the proposal more efficient than the original Municipal Construction Grants Program. Suggest modifying the recommendation to make it clear that this recommendation is not a repeat of the prior program.

The Section 1.4 recommendation to carve out 10% of US federal farm subsidies to be redirected toward stormwater/non-point impacts in the same watershed was unclear to me. See my comments on page 20.

Page 5 – First paragraph second line insert “management” after “capital program”.

Page 17 – For III, an additional Disadvantage of the specific stormwater set-aside in the existing CWSRF framework is the potential for reduced funds available for non-stormwater projects if the CWSRF grant funds are not increased to accommodate this.

For IV, what is meant by “equal weighting”? Funding for the three infrastructure needs may not be equal. Perhaps revise to say “Create a “One Water” SRF that includes drinking water, clean water and stormwater.”

Page 19 – To the extent that there is a Stormwater Construction Grants Program, it would be efficient for the federal government to provide capitalization grants to the SRFs. To affordability, there could be meaningful principal forgiveness on each loan originated by the SRFs (particularly for disadvantaged communities). This approach would eliminate the need for a local match as was the case on the wastewater Municipal Construction Grants Program.

Page 20 – For the requirement that 10% of U.S. federal farm subsidies be redirected toward stormwater/nonpoint impacts in the same watershed - how was this percentage determined? What would be the impact on farmers of this carve out in various commodities market environments? How would this impact project development to the extent that farm subsidies vary from year to year? Who would determine the projects, oversee the expenditure of these funds, and the completion of these stormwater/non-point projects?

Page 36 – In the chart for the Coordination with other Municipal Departments and State Agencies, one could also include the concept of merging stormwater functions into an existing water and/or wastewater utility to get greater coordination as well as operating and capital spending efficiencies. Stormwater could still be a separate enterprise of the utility. The concept is addressed later in Section 6.1.2.

Page 41 – “WKU’ referenced in the second full paragraph. Suggest defining it in the first full paragraph after “Western Kentucky University”. In the second paragraph, there is reference to \$2.2 billion in utility fees with 20% coming from Chattanooga. If these are annual fees, that would imply \$400 million for the City. Text here should be checked.

Comments from David Zimmer:

Overall, great paper. I have some minor additions I hope will add value. My general thought is that the paper might consider shedding a bit more light on the need to educate and help local officials with quantifying how much effective storm water management policies and their corresponding projects will save their constituents - in macro-economic terms to offset the rate costs from the SW utility's projects (e.g. savings from mitigating the occurrence and costs of flooded basement and car repairs, business interruption costs, commuter down time from flooded streets or blocked roadways).

If the narrative includes language in dollars and cents – especially if the projects become net positive for the community, it becomes an easier sell to get behind. I noticed some comments in this regard, but they seemed to be minor mentions.

Page 3: Recommendations

Should consider including the cost of inaction (i.e. relative cost of choosing to do nothing):

***Recommendation:** Educate elected representatives, professional administrative leaders and the general public on the benefits of and need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector.*

Regarding the recommendation about a new SRF program (“Create a new SRF program exclusive to stormwater programs and projects”): I know there were 2 SRFs involved in the writing of this fine paper. I would take issue with the part of this recommendation for the possibility of a 3rd separate SRF Program. There is enough infrastructure in the CWSRF to handle this already... additional segregated funds maybe, but not a new SRF program with its own division w/in EPA.

Page 14, Section 3.1.1 Stormwater funding education and technical assistance

In addition to Water Quality benefit, need to include related concept that SW Mgmt also promotes economic improvement from the mitigation of the destructive forces of floods, standing water, etc. Also, nice segue into next parag.

***Recommendation:** Educate elected officials, professional administrative leaders and the public on the need for sustainable local stormwater funding and organizational capacity through, for example, the creation of stormwater utilities or the expansion of existing utilities into the stormwater sector. Sustainable funding for stormwater infrastructure builds long-term financial capacity, improves operational performance—and over time produces results for citizens and residents. For over two hundred years, this has been the experience with drinking water and wastewater utilities in this country. The educational goals for these three audiences will demonstrate that stormwater management investment directly benefits the health, safety and economic opportunity for citizens and residents through the overall improvement of water quality and resiliency of the community.*

Page 16:

- I. Create a new SRF program exclusive to stormwater programs and projects.**
 - *Advantages*
 - *Replicates programs that have been proven successful for decades.*
 - *Would eliminate ‘competition’ with wastewater projects inherent within the current CWSRF program.*
 - *Disadvantages*
 - *Would require the creation and passage of new enabling legislation to establish a new SRF program.*
 - *Would create a new layer of bureaucracy with cross over and potential duplicity with the Clean Water SRF Program, both of which are legislated through the same, CWA.*

Page 17:

- II. Create a specific stormwater set-aside in the existing CWSRF framework and increase awareness/ guidance on the CWSRF for stormwater projects, including the Green Project Reserve program.**
 - *Advantages*
 - *Would not require new federal legislation.*
 - *Preserves each states’ ability to administer the program to maximize efficiencies and effectiveness specific to each states’ needs.*
 - *Disadvantages*
 - *Might not improve best management practices or capability of communities if the set-aside is viewed by them as an implicit high likelihood/guarantee to get funded.*

This statement (under disadvantages) seems to contradict the argument above of the outstanding need for storm water projects. If the need is great and the funding is available, the logic would dictate that there will be demand.

Page 22: “Without low-cost concessionary debt, there is no compelling desire for outside, private capital to invest.” What about the developing market for “Impact bonds”?

Page 23: Affordability is, however, an issue for lower-income segments of the population across the nation, typically the sector in each community most impacted by the lack of proper storm water management policies:

Page 47:

CWSRF: One of the most commonly used loan programs in the wastewater sector is the CWSRF loan. Under Title VI of the 1987 Clean Water Act, states receive federal monies to capitalize CWSRF loan programs. Through CWSRF programs, loans are made to communities to provide low-cost financing for a wide range of different projects to protect water quality. Examples of activities funded with these loans include nonpoint-source pollution control, watershed protection and restoration, estuary management, wetlands restoration, brownfields remediation, and improvements to municipal wastewater treatment infrastructure. Loans are made at low interest rates (0 percent to market rate) for terms of up to 20 years. In addition, states use CWSRF money to repurchase debt to get these loans to 30 years. States may set the criteria for determining which municipalities can access the loans each year. All 50 U.S. states and Puerto Rico operate CWSRF programs. States have the option to offer a portion of their annual CWSRF grants as subsidization in the form of principal forgiveness or to buy down the interest rates on their borrowers' debt. CWSRF grants may also be used to guarantee loans as a way to increase the leverage and capacity of their lending programs. Combining guarantees and interest buydowns in a low rate environment, such as exists today, can be a very effective method for States to offer additional financing to local communities at levels well below market rates. Some CWSRF and Drinking Water State Revolving Fund (DWSRF) loan programs make short-term loans for planning, design and initial construction in localities that may later receive long-term CWSRF and DWSRF loans. In addition, state revolving fund loans may be used to pre-finance other federal or state drinking water loans or grants

Page 49, Section 5.2.2.1.4

Reference Footnote: <https://www.goldmansachs.com/media-relations/press-releases/current/dc-water-environmental-impact-bond-fact-sheet.pdf> for the insert suggested below:

In addition to more traditional funding sources discussed previously, there are new and evolving approaches to funding stormwater management that could be leveraged in many cases. These include public/private partnerships, private site stormwater development, impact bonds such as the DC Water Environmental Impact Bond and volunteer programs. The ability to utilize such approaches, and the impact to the stormwater program vary but are important options to evaluate in developing a comprehensive funding strategy.

Page 76:

For the sentence, "In addition, the use of MHI as an affordability metric has been widely criticized," I also recommend footnoting a paper by one of the leading voices on the problems with MHI, Texas A&M Associate Professor, Manny Teodoro: http://mannyteodoro.com/wp-content/uploads/2017/08/MTeodoro_Affordability-Method-Working-Paper-Aug2017.pdf

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Agriculture Best Management Practices (AgBMP) Loan Program	Minnesota Department of Agriculture	Loan	State	Water quality program that provides low interest loans to farmers, rural landowners, and agriculture supply businesses. The purpose is to encourage agricultural Best Management Practices that prevent or reduce runoff from feedlots, farm fields, septic systems, and other pollution problems identified by the county in local water plans.	Application steps are found here: http://www.mda.state.mn.us/grants/loans/agbmploan/borrower.aspx	http://www.mda.state.mn.us/agbmp	Application process, Loan program, Long-term program, Non-competitive process	Other	Use local banks as lenders. Projects are managed by local soil and water conservation districts or county environmental offices.	None	Average loans between \$12,000 to \$115,000 depending on project type.	Loans for farmers, rural landowners, and agricultural supply businesses. Project must address local water quality priorities. Septic work can be funded for anyone. Water quality cooperatives are also eligible.	MN
Alabama Clean Water State Revolving Fund (CWSRF)	Alabama Department of Environmental Management (ADEM)	Loan	State	Alabama's Clean Water State Revolving Fund (CWSRF) is designed to be a perpetual source of low-cost financial assistance for the construction of public water supply facilities needed to meet compliance standards and clean water requirements.	The pre-application form is available online at http://www.adem.state.al.us/DeptForms/Form340.pdf . ADEM will evaluate the pre-applications according to the integrated priority system. All projects that score above the funding line will be invited to submit full applications. Upon final review and approval, loans will close typically within six months.	http://www.adem.state.al.us/programs/water/srfguidance.cnt	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.		\$44.8 million	"Projects must strengthen compliance with Federal and State Regulations and/or enhance protection of public health." Projects must be public water and wastewater infrastructure improvements and stormwater/non-point source projects in the state.	AL
Alabama Drinking Water State Revolving Fund (DWSRF)	Alabama Department of Environmental Management (ADEM)	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Applicants must submit a preapplication form to be listed on the Project Priority List (PPL). The application process proceeds once on the PPL. Application documents and guidance are available via ADEM's website. Application documents available at: http://adem.alabama.gov/programs/water/srfguidance.cnt .	http://www.adem.state.al.us/programs/water/srf.cnt	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, best management practices (BMPs), physical barriers or security to protect water sources, local ordinance development, and more.	AL
Alaska Clean Water State Revolving Fund (CWSRF)	Alaska Department of Environmental Conservation (ADEC)	Loan	State	The Alaska Clean Water Fund (ACWF) offers low interest loans to Alaskan municipalities and other qualified entities for financing wastewater and water quality related projects.	Additional information and materials located at: https://dec.alaska.gov/water/oasys/	https://dec.alaska.gov/water/technical-assistance-and-financing/state-revolving-fund/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayment funds future projects.	None		Eligible entities include municipalities, and other qualified entities. Must complete a Fiscal Sustainability Plan and submit with application.	AK
Alaska Drinking Water Fund (ADWF)	Alaska Department of Environmental Conservation (ADEC)	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: https://dec.alaska.gov/water/technical-assistance-and-financing/state-revolving-fund/guidance-and-forms .	https://dec.alaska.gov/water/technical-assistance-and-financing/state-revolving-fund/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, best management practices (BMPs), physical barriers or security to protect water sources, local ordinance development, and more.	AK

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Alaska Municipal Matching Grant (AMMG)	Alaska Department of Environmental Conservation (ADEC)	Grant	State	Provides partial funding and engineering support for drinking water, wastewater (sewer), solid waste and non-point source pollution projects, such as water body restoration and recovery. These state grants primarily assist the larger communities and boroughs in the State.		https://dec.alaska.gov/water/technical-assistance-and-financing/state-revolving-fund/grant-overview/	Application process, Grant program, Long-term program	Capital, Other	Grants can serve as a local match for Alaska Clean Water Fund (ACWF) and Alaska Drinking Water Fund (ADWF) programs.			Grants are primarily awarded to larger communities and boroughs in the State. Eligible projects include: drinking water, wastewater (sewer), solid waste and non-point source pollution projects.	AK
Appalachian Regional Commission (ARC) Grants	Appalachian Regional Commission (ARC)	Grant	Federal	The Appalachian Regional Commission (ARC) awards grants and contracts from funds appropriated to the Commission annually by Congress. Program grants are awarded to state and local agencies and governmental entities (such as economic development authorities), local governing boards (such as county councils), and nonprofit organizations (such as schools and organizations that build low-cost housing). ARC provides funds for basic infrastructure services, including water and sewer facilities, that enhance economic development opportunities or address serious health issues for residential customers.	Almost all program grants originate at the state level. Potential applicants should contact their state ARC program manager (https://www.arc.gov/about/StateProgramManagers.asp) to request a preapplication package. A small number of grants are awarded through requests for proposals (RFPs), sometimes as grant competitions.	https://www.arc.gov/funding/ARCGrantsandContracts.asp	Application process, Grant program	O&M, Other, Outreach	Awardee must contribute matching funds to extent practical.	50% of the cost of the project	Varies by year; visit https://www.arc.gov/publications/BudgetDocuments.asp for information on funding levels.	Targets economically distressed counties in the Appalachian Region. Must address at least one of the five goals identified by ARC. Grant recipient must contribute matching funds to the extent it is able to do so.	AL, GA, KY, MD, MS, NY, NC, OH, PA, SC, TN, VA, WV
Aquatic Ecosystem Restoration	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	The U.S. Army Corps of Engineers (USACE) can carry out aquatic ecosystem restoration and protection projects. A project is adopted for construction only after a detailed investigation determines that the project will improve the quality of the environment and is in the best interest of the public. (The website provided is an example from one USACE district.)	Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. Section 206 project requests should be directed to (309) 794-5704 or email customeroutreach@usace.army.mil .	http://www.mvr.usace.army.mil/Business-With-Us/Outreach-Customer-Service/Ecosystem-Restoration/Section-206/	Long-term program	Capital, Other	All design and construction costs are cost shared 65% Federal and 35% non-Federal.		\$10,000,000 (federal cost limit). The initial study is 100% federally funded up to \$100,000. All planning costs after the first \$100,000 are cost shared 50/50.	Projects generally include manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. An ecosystem restoration project under Section 206 can be initiated upon receipt of a request from a prospective project sponsor.	National
Arizona Clean Water State Revolving Fund (CWSRF)	Water Infrastructure Finance Authority of Arizona (WIFA)	Loan	State	Eligible projects include construction, expansion, and upgrades to wastewater treatment plants, upgrade or replacement of failing decentralized wastewater systems, septic to sewer, reclaimed water and reuse and stormwater management including green infrastructure, Low Impact Development and flood control. New project eligibilities include: watershed management, integrated water resources planning, resilience planning, forest restoration, riparian improvements, stream channel restoration and streambank stabilization.	Applications are accepted at any time. Apply online at https://applicant.azwifa.gov/ .	http://www.azwifa.gov/loan-programs/?cw	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Must have a Fiscal Sustainability Plan. Repayment of loans provides funding for future projects.		State fiscal year 2018 total available funds: \$120 million.	Eligible borrowers include: public jurisdictions such as cities, towns, special districts etc. Federally-owned systems are not eligible.	AZ

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Arizona Drinking Water Revolving Fund (DWRF)	Water Infrastructure Finance Authority (WIFA)	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: http://www.azwifa.gov/loan-programs/?dw#HA-DW . Applicants must submit a Priority Project List (PPL) application through WIFA's electronic application system. The PPL serves as a guide for funding decisions by the WIFA Board of Directors and does not determine the order in which projects are funded. AZ uses a portion of its set-aside to conduct source water assessments.	http://www.azwifa.gov/loan-programs/?dw#HA-DW	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs. Eligible projects can be found at: http://www.azwifa.gov/loan-programs/?dw#HA-DW .			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, land acquisition, and more. Ineligible activities: dam rehab, O&M, projects serving growth, etc.	AZ
Arkansas Clean Water State Revolving Fund (CWSRF)	Arkansas Natural Resources Commission (ANRC)	Loan	State	Arkansas Clean Water State Revolving Fund (CWSRF) provides low interest loans for wastewater programs. Objectives are to hasten wastewater treatment facility construction in order to meet the enforceable requirements of the Clean Water Act (CWA), emphasize non-point source pollution control and the protection of estuaries, and facilitate the establishment of permanent institutions in each State that would provide continuing sources of financing needed to maintain water quality.	Projects must apply to be on the annual priority list in the State's Intended Use Plan (IUP). Applications can be found online. Contact state office for more information.	https://www.anrc.arkansas.gov/divisions/water-resources-development	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Arkansas leverages periodically to increase the funds available for assistance. Arkansas has no plans to leverage the Clean Water program in State Fiscal Year 2020. Loan repayments provide a continuing source of funds for additional projects.	\$5,000	Varies	Funds are used for new or existing systems; generally funds are for capital improvement projects.	AR
Arkansas Drinking Water State Revolving Fund (DWRSF) Program	Arkansas Natural Resource Commission (ANRC), the Arkansas Department of Health Engineering, and the Arkansas Development Finance Authority	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. Arkansas uses a portion of its set-aside to implement a statewide source water assessment/protection program, conduct source water Harmful Algal Bloom (HAB) monitoring, update its Source Water Assessment and Protection Plan, and provide public outreach efforts on the importance of source water protection.	Funding applications are received and processed through ANRC's website via the ANRC Funding Application, available at: https://www.anrc.arkansas.gov/divisions/water-resources-development/waste-and-wastewater-funding-applications . Arkansas uses a portion of its set-aside to implement a statewide source water assessment/protection program, conduct source water Harmful Algal Bloom (HAB) monitoring, update its Source Water Assessment and Protection Plan, and provide public outreach efforts on the importance of source water protection.	https://www.anrc.arkansas.gov/divisions/water-resources-development	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	AR
Arkansas Water Development Division Programs	Arkansas Natural Resources Commission (ANRC)	Grant	State	Arkansas Natural Resources Commission (ANRC) has available funding for water and wastewater projects from both State and Federal programs. Each of these programs has its own requirements and limitations.	Each applicant fills out a general ANRC application form and ANRC staff will determine which program best fits the community's needs. Applications are accepted on a rolling basis; check the website for detailed instructions on how to begin the application process.	http://anrc.ark.org/divisions/water-resources-development/	Application process, Grant program, Non-competitive process	Capital		Has funded projects starting at \$5,000.	Has funded projects up to \$50,000,000.	Non-entitlement cities and counties, and funding projects must certify that at least 51% of the households served are low or moderate income based upon the HUB section 8 income limits. Generally funds for capital improvement not maintenance.	AR
Arkansas Water Development Division Programs	Arkansas Natural Resources Commission (ANRC)	Loan	State	ANRC has available funding for water and wastewater projects from both State and Federal programs. Each of these programs has its own requirements and limitations. These funds GO Bond, Water Development Fund, and Water, Sewer, and Solid Waste Fund.	Each applicant fills out a general ANRC application form and ANRC staff will determine which program best fits the community's needs. Applications are accepted on a rolling basis; check the website for detailed instructions on how to begin the application process.	http://anrc.ark.org/divisions/water-resources-development/	Application process, Fund allocation to states and localities, Loan program	Capital, Other	Low interest loans.	\$5,000	ANRC has funded projects up to \$50,000,000.	Eligible entities: Cities, Towns, Counties, Rural Development Authorities, Public Facilities Boards, Water Associations, Improvement Districts, Regional Distribution Districts, Levee and Drainage Districts, Conservation Districts, Regional Districts.	AR

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Ayrshire Foundation: Grant	Ayrshire Foundation	Grant	Private	The Ayrshire Foundation provides grants to 501(c)(3) nonprofit organizations that embrace people, infrastructure, values, practices and policies for organizational success. The Foundation has focused its funding in five areas: Opportunities for Youth; Science and the Environment; Healthcare; Services for the Elderly and Disabled; and Community Culture. Preference is given to organizations located in Southern California and Petoskey/Harbor Springs, Michigan. However, the Foundation welcomes inquiries from other locations.	Applications are submitted online and are reviewed at semi-annual board meetings. Applications are due by March 15 for consideration during the May/June meeting, and September 15 for consideration during the October meeting. The Foundation will respond with a request for a proposal for applications selected during the board meetings. Application instructions are available at: http://ayrshirefoundation.org/apply-for-a-grant/overview/ .	http://ayrshirefoundation.org/	Application process, Grant program	Other, Outreach	Grants can be leveraged to attract other funds and projects. Considers matching and multi-year grants.	None	\$1 million	Must be a 502(c) 3 non-profit. S. California and Petoskey/Harbor Springs Michigan Organizations are given preference.	CA
Beaches Environmental Assessment and Coastal Health (BEACH) Act Grants	U.S. Environmental Protection Agency (EPA)	Grant	Federal	The EPA's Beaches Environmental provides formula grants to eligible states, territories, and tribes to support microbiological testing and monitoring of coastal recreation waters, including the Great Lakes, that are adjacent to beaches or similar points of access used by the public. BEACH Act grants also provide support for development and implementation of programs to notify the public of the potential exposure to disease-causing microorganisms in coastal recreation waters.	Contact State, Territory, or Tribe BEACH Program Coordinator. Information found at https://ofmpub.epa.gov/apex/beam2/f?p=beam2:50:15990463087148	https://www.epa.gov/beam-tech/beach-grants	Application process, Fund allocation to states and localities, Grant program, Long-term program	Other			\$9.4 million total for FY17. Grants range from \$50,000 to \$445,000.	Eligible Coastal and Great Lakes states, territories, and tribes. Three factors impact grant: Length of beach season, number of miles of shorelines, populations of coastal counties.	AL, AK, American Samoa, CA, CT, DE, FL, GA, Guam, HI, IL, IN, LA, ME, MD, MA, MI, MS, Northern Mariana Islands, NH, NJ, NY, NC, OH, OR, PA, Puerto Rico, RI, SC, TX, VA, Virgin Islands, WA, WI
Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program	U.S. Department of Transportation (DOT)	Grant	Federal	Program replaced the Transportation Investment Generating Economic Recovery (TIGER) grant program. BUILD Transportation grants are for investments in surface transportation infrastructure and are to be awarded on a competitive basis for projects that will have a significant local or regional impact. BUILD funding can support roads, bridges, transit, rail, ports or inter-modal transportation.	Applications must be submitted to Grants.gov. Applicants are encouraged to provide quantitative information, including baseline information that demonstrates how the project will reduce stormwater runoff.	https://www.transportation.gov/BUILDgrants	Application process, Competitive process, Fund allocation to states and localities, Grant program	Capital			\$25,000,000; no more than \$150,000,000 can be awarded to a single state.	Projects should have a significant local or regional impact. Eligible entities: state, local, and tribal governments, metro planning organizations, port authorities, other political subdivisions.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Border Environment Infrastructure Fund (BEIF)	North American Development Bank (NADB)	Grant	Federal	NADB established the Border Environment Infrastructure Fund (BEIF) to administer grant resources provided by EPA for the implementation of high-priority municipal drinking water and wastewater infrastructure projects in the U.S.-Mexico border region. Only water and wastewater infrastructure projects located within 100 kilometers (62 miles) of the U.S.-Mexico border will be considered for funding. The objective of the BEIF program is to make infrastructure projects affordable for communities throughout the U.S.-Mexico border region by combining grant funds with loans and other forms of financing.	When funding becomes available, EPA Region 6 (serving Texas and New Mexico) and Region 9 (serving Arizona and California) issue a solicitation that identifies the timeframe for submitting an application, documents that need to accompany the application, ranking criteria, and information on the funding process. See http://www.becc.org/funding-programs/infrastructure-funding/beif#/tab1 for details.	http://nadbank.org/programs/beif.asp	Application process, Grant program	Capital		None	\$8 million. Funding levels vary by annual congressional appropriation; grant amounts are based on a financial analysis of the project, utility and community that takes into consideration eligible projects costs and the availability of other funding.	Only water and wastewater infrastructure projects located within 100 km of the U.S.-Mexico border will be considered for funding.	TX, NM, AZ, CA
Bring Back the Natives	National Fish and Wildlife Foundation (NFWF)	Grant	Private	Support for this program is provided by the U.S. Fish and Wildlife Service, the U.S. Forest Service, Bass Pro Shops and the Brunswick Foundation. Invests in conservation activities that restore, protect and enhance native populations of sensitive or listed fish species across the United States, especially in areas on or adjacent to federal agency lands. This funding opportunity also provides grants to implement the goals of the National Fish Habitat Action Plan.	All application materials must be submitted online through NFWF's Easy grants system. See http://www.nfwf.org/bbn/Pages/2017rfp.aspx for more information.	http://www.nfwf.org/bbn/Pages/home.aspx	Application process, Grant program, Long-term program	Capital, O&M, Other	Applicants must provide at least \$1 in matching non-federal funds for every \$1 of NFWF grant funds requested. Support of program from: U.S. Fish and Wildlife Service, the U.S. Forest Service, Bass Pro Shops and the Brunswick Foundation.	\$25,000	Up to \$1,000,000 in grant funds is available. Grant awards generally range in size from \$50,000 to \$100,000, although grants greater than \$100,000 will be considered on a case by case basis. In 2017, 15 grants totaling \$1 million were awarded.	Applicants can include: Local, state, federal, and tribal government agencies, special districts, non-profit organizations, schools, and universities.	National
Bullitt Foundation: Grant	Bullitt Foundation	Grant	Private	Focuses on infrastructure design that optimizes efficiencies among land use, transportation, energy, water, and waste systems; operates at a cost effective scale; enhances natural systems; reduces carbon emissions; and stores carbon. It advances green infrastructure alternatives to grey infrastructure. The Foundation also seeks to develop conservation finance mechanisms, metrics, and other needed tools to encourage protection and restoration of ecosystem service values related to urban, agricultural, forest, and open space lands. The Foundation funds 501(c)(3) nonprofit organizations, Municipal Corporations, Public Agencies, and Tribal Governments.	Applications are submitted through the Online Grantee Portal. Application instructions are available at: http://www.bullitt.org/grants/grantmaking-process/ . Applications are due by March 15 for the Fall and September 15 for Spring. "Sunset" grant operations in 2024.	http://www.bullitt.org/	Application process, Grant program, Long-term program	Other, Outreach		None	\$120,000	Projects must be located in the "Emerald Corridor" from Portland, Oregon to Vancouver, British Columbia. Must be a 501(c) 3 nonprofit. Final report must be in before eligible for new grant.	WA, OR

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
California Drinking Water State Revolving Fund (DWSRF)	California State Water Resources Control Board (SWRCB), Division of Financial Assistance (DFA)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.html under the "How Do I Apply?" section tab. A complete application package includes: an Environmental Package, a Technical Package, a Financial Security Package. CA's SWP program provides loans to PWSs for the purchase of land or conservation easements. PWSs may only purchase land or a conservation easement from willing parties. The purchase must be for the purposes of protecting the system's source water and ensuring compliance with national drinking water regulations.	https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	CA
California Infrastructure State Revolving Fund (ISRF)	California Infrastructure and Economic Development Bank (IBank)	Loan	State	Provides financing to public agencies and nonprofit corporations sponsored by public agencies for a wide variety of infrastructure and economic development projects (excluding housing).	Application materials are located on the website. Potential applicants are encouraged to call before applying.	http://www.ibank.ca.gov/infrastructure-state-revolving-fund-isrf-program/	Application process, Loan program, Long-term program	Capital, Other	May serve as matching funds for other projects.	\$50,000	\$25,000,000	Include, but are not limited to any subdivision of a local government, including cities, counties, special districts, assessment districts, joint powers authorities and nonprofit corporations (as deemed eligible). Max term 30 years.	CA
Chesapeake Bay Program (CBP) Grants	U.S. Environmental Protection Agency (EPA)	Grant	Federal	The EPA's Chesapeake Bay Program awards grants to reduce and prevent pollution and to improve the living resources in the Chesapeake Bay. Grants are awarded for implementation projects, as well as for research, monitoring, and other related activities.	For competitive awards, proposals are typically due within 45 days from the date a Request for Proposal (RFP) is issued. RFPs are issued throughout the year and CBP typically issues 1-5 RFPs per year. The rest of the awards are issued non-competitively to signatory jurisdictions as determined by Section 117 of the Clean Water Act. Visit http://www.chesapeakebay.net/rfps to view RFPs and https://www.epa.gov/sites/production/files/2016-01/documents/2016cbpgrantguidance.pdf to view EPA's Chesapeake Bay Program Office Grant Guidance.	https://www.epa.gov/restoration-chesapeake-bay	Fund allocation to states and localities, Grant program	Other, Outreach	Grants to the extent possible should target opportunities for public-private partnerships that increase leveraged resources.	\$15,000 (in 2014)	Varies depending on the specific funding opportunity.	Eligible entities: Nonprofits, state, and local governments, colleges, universities, and interstate agencies.	DE, MD, NY, PA, VA, WV
Chesapeake Bay Stewardship Fund: Chesapeake Bay Small Watersheds Grant Program	National Fish and Wildlife Foundation (NFWF)	Grant	Private	Provides grants to organizations and local governments to protect and improve watersheds in the Chesapeake Bay basin, while building citizen-based resource stewardship. Supports protection and restoration actions that contribute to restoring healthy waters, habitat and living resources of the Chesapeake Bay ecosystem.	All application materials must be submitted online through NFWF's Easy grants system. (www.nfwf.org/easygrants .)	https://www.chesapeakebay.net/what/grants/small_watershed_grants	Application process, Grant program	Other, Outreach	Grants have been used to leverage more than \$27 million in support of 626 projects. Grantees must have matching contributions equal to at least 25% of total project costs.	\$20,000	Grants are between \$20,000 and \$200,000.	For organizations and local governments that work on community-based projects to improve condition of local watershed.	DE, MD, NY, PA, VA, WV
Chesapeake Bay Stewardship Fund: Innovative Nutrient and Sediment Reduction Program	National Fish and Wildlife Foundation (NFWF)	Grant	Private	Partnership with EPA and Chesapeake Bay Program. The overall goal for the Program is to expand the collective knowledge on the most innovative, sustainable and cost-effective strategies - including market-based approaches - for reducing excess nutrient loads within specific tributaries to the Chesapeake Bay.	All application materials must be submitted online through NFWF's Easy grants system. (www.nfwf.org/easygrants .)	https://www.nfwf.org/chesapeake/Pages/2019-insr-rfp.aspx	Application process, Competitive process, Grant program, Long-term program	Capital, Other, Outreach	Require non-federal matching equal or greater than grant. Can be used to leverage other funds.	\$200,000	Up to \$500,000.	Project must occur entirely in the Chesapeake Bay Watershed. Projects to restore water quality and habitat in Chesapeake Bay.	DE, MD, NY, PA, VA, WV

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Clean Water Act Indian Set-Aside (CWISA) Grant Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Provides assistance to Indian tribes and Alaska Native Villages for the planning, design, and construction of wastewater treatment systems. Eligible projects include, but are not limited to, interceptor sewers, wastewater treatment facilities, infiltration/inflow correction, collector sewers, major sewer system rehabilitation, and correction of combined sewer overflows. Funding for the Set-Asides is from the Clean Water Act State Revolving Fund (CWSRF).	To be considered for CWISA program funding, tribes must identify their wastewater needs to the Indian Health Service (IHS) Sanitation Deficiency System. EPA uses the IHS Sanitation Deficiency System priority lists to identify and select projects for CWISA program funding. Contact your IHS area office and EPA regional office for more information (https://www.epa.gov/sites/production/files/2015-03/documents/cwisa-tribal-faq-highres.pdf).	https://www.epa.gov/small-and-rural-wastewater-systems/clean-water-indian-set-aside-program	Application process, Grant program	Capital, Other	Funding used for wastewater infrastructure: Planning, design, and construction of wastewater collection and treatment systems. Projects are awarded based on Sanitation Deficiency System.		Funding varies by IHS area. Total funding for all IHS areas is \$28,000,000.	Must be a federally recognized tribe, projects must be related to wastewater infrastructure.	National
Clean Water Fund Program (CWFP)	Wisconsin Department of Natural Resources (DNR)	Loan	State	Provides subsidized (low-interest rate) loans to municipalities for wastewater and stormwater infrastructure projects to protect water quality and public health. It includes projects for compliance with a municipality's Wisconsin Pollutant Discharge Elimination System (WPDES) permit. Some municipalities may also be eligible for funding in the form of principal (loan) forgiveness.	Application guidance and considerations are available under the How to Apply tab on the webpage at http://dnr.wi.gov/Aid/EIF.html#tabx3 . Pre-Application Deadline: All notices of Intent to Apply (ITAs) & Priority Evaluations and Ranking Formulas (PERFs) must be submitted online by October 31st for the following state fiscal year funding cycle.	http://dnr.wi.gov/Aid/EIF.html	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Repayment of loans provides funding for future projects.			Eligible entities include municipalities or local governments. Eligible projects must be wastewater or stormwater infrastructure based.	WI
Clean Water State Revolving Fund Program (CWSRF)	California Environmental Protection Agency - State Water Resources Control Board (SWRCB)	Loan	State	Offers low cost financing for a wide variety of water quality projects.	Applications are accepted on a continuous basis. An online application can be completed and submitted at: https://faast.waterboards.ca.gov	http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Amount and timing of additional state leveraging over and above the current limit would continue to depend on total costs of projects financed and approval timing. Loan repayments provide a continuing source of funds for additional projects.		Total annual program average is \$500,000,000; program can fund projects over \$100,000,000.	Eligible applicants include: City, Town, district, or public body created by law, Native American Tribal organization, approved management agency under section 208 CWA, and 501(c)3 and National Estuary Programs.	CA
Coastal Pollutant Remediation Grant Program	Massachusetts Office of Coastal Zone Management	Grant	State	Provides funding to municipalities located within the Massachusetts coastal watershed for projects to address stormwater runoff and boat-waste from commercial vessels. Eligible projects include assessment of stormwater pollution within the watershed, prioritization of locations for remediation, and design, permitting and construction of stormwater best management practices and commercial boat-waste pump-outs.	The requests for responses (RFR) is typically released in the spring. Interested applicants should check the CPR website to see when the RFR will be released or e-mail the contact for more information.	www.mass.gov/czm/cpr	Application process, Grant program, Long-term program	Capital, Other		None	\$175,000	Municipal program/project that characterizes and treats stormwater runoff from highways, improved and protects coastal water quality habitat and recreational use, and removes waters from the MADEP integrated list of waters.	MA
Coastal Resilience Grants Program	National Oceanic and Atmospheric Administration (NOAA)	Grant	Federal	This competitive grant program funds projects that are helping coastal communities and ecosystems prepare for and recover from extreme weather events, climate hazards, and changing ocean conditions.	All project proposals undergo a rigorous merit review and selection process by a panel of subject matter experts from across the United States that include representatives of government, academia, and private industry.	https://coast.noaa.gov/resilience-grant/	Application process, Competitive process, Grant program	Capital, O&M	Requires a non-Federal dollar match.		Since 2015, NOAA has funded 48 projects through \$35.8 million in federal funds.	Projects should save lives, protect property, reduce damage to infrastructure, and benefit ecosystems and the economy. Common project aspects include natural and nature-based infrastructure, post-disaster recovery, and assessing risk/prioritizing action.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Colorado Drinking Water Revolving Fund (DWRF)	Colorado Department of Public Health and Environment (CDPHE)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: https://www.colorado.gov/pacific/cdphe/water-quality-low-interest-loan-application . Applicants must first complete and submit a prequalification form and attend a preapplication meeting before submitting a formal loan application. CO uses a portion of its set-aside to provide technical expertise and assistance to local stakeholders for developing and implementing source water protection plans.	https://www.colorado.gov/pacific/cdphe/wq-low-interest-loans	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, land acquisition, and more.	CO
Colorado Water Quality Grants	Colorado Department of Public Health and Environment (CDPHE)	Grant	State	Grant programs are available for: planning and design and engineering, small community water and wastewater projects, and water, wastewater, and stormwater projects. Water and wastewater grants are not currently available.	Applicants must complete an Eligibility Survey, Pre-Qualification Form, and Pre-Application Meeting Form prior to applying. Application deadlines are the 15 of January, February, April, June, August, October, and November.	https://www.colorado.gov/pacific/cdphe/wq-grants	Application process, Grant program	Capital, O&M, Other	Matching required for some grants.	None	Funding is dependent on federal and state allocations and priorities.	Small communities that apply for design and engineering funds for State Revolving Fund (SRF) requirements require a 20% match.	CO
Colorado's Water Pollution Control Revolving Fund (WPCRF) Loan Program	Colorado Department of Public Health and Environment (CDPHE)	Loan	State	The Water Pollution Control Revolving Fund (WPCRF) provides low interest loans to governmental agencies for construction of wastewater infrastructure projects. This is known as Colorado's Clean Water State Revolving Fund (CWSRF).	An applicant must complete an Eligibility Survey, Pre-Qualification Form, and Pre-Application Meeting Form prior to applying. Loan application deadlines are the 15 of January, February, April, June, August, October, and November.	https://www.colorado.gov/pacific/cdphe/wq-general-srf-information	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Applicants may qualify for a planning or design/engineering grant. Loan repayments provide a continuing source of funds for additional projects.	None	Direct loans are for projects up to \$2.5 million. Leveraged loans are for governmental entity projects greater than \$2.5 million.	Must be a City, Town, County, water sanitation district, water district, or private nonprofit public water system.	CO
Communities Unlimited, Inc. Water/Waste water Loans	Communities Unlimited, Inc; Rural Community Assistance Partnership (RCAP)	Loan	Private	Offers loans with terms up to 15 years for small, rural community water/wastewater projects.	Complete application form: https://www.communitiesu.org/images/CU.W.WW.LoanApplicationForm.pdf . fEmail application to: info@CommunitiesU.org .	https://www.communitiesu.org/index.php/How-We-Help/water-waste-water-loans.html	Application process, Loan program, Long-term program	Capital, Compliance, O&M, Other		None	In 2017, Communities Unlimited's loans totaled over \$2.6 million.	Small, rural community water and wastewater projects that are needed to make repairs and improvements to maintain uninterrupted supply of safe drinking water and wastewater disposal to customers. Must be able to repay loan with system revenues.	AR
Community Assistance Program (CAP)	North American Development Bank (NADB)	Grant	Federal	Community Assistance Program (CAP) grants are available for public projects in all environmental sectors eligible for North American Development Bank (NADB) financing. Priority will be given to drinking water, wastewater, water conservation and solid waste infrastructure. The funding, construction, and operation of a proposed project must be completely independent and not depend on any other pending investment.	Application can be found online. The project must be located within 100 km (62 miles) north of the international boundary in the four U.S. states of Texas, New Mexico, Arizona and California. Projects that receive a grant through the Border Environment Infrastructure Fund (BEIF) are not eligible for CAP funding. Eligible projects must be completely independent and not depend on any other pending investment.	http://www.nadbank.org/~nadborg/index.php?acc=contest&tpl=cap	Application process, Grant program	Capital, O&M, Other	Designed to serve low-income communities in the border region. The project sponsor must contribute at least 10% of the total project cost.		Projects may receive a CAP grant for up to \$500,000.	Project must remedy an environmental and/or human health problem in US Mexico border region. Project sponsor must have legal authority to develop, must be capable of meeting criteria certification by the Board of Directors.	TX, NM, AZ, CA
Community Development Block Grant (CDBG) - Disaster Recovery (DR) Program	U.S. Department of Housing and Urban Development (HUD)	Grant	Federal	Provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. Funds MUST be used for disaster relief, long-term recovery, and restoration of infrastructure, housing, and economic revitalization.	HUD allocates funds based on unmet recovery needs. Contact a local office to see if community is eligible. https://www.hud.gov/program_offices/field_policy_mgt/localoffices	https://www.hudexchange.info/programs/cdbg-dr/	Application process, Fund allocation to states and localities, Grant program, Long-term program	Capital, O&M, Other			When the President declares a major disaster, Congress may appropriate funds to the Department of Housing and Urban Development (HUD) when there are significant unmet needs for long-term recovery.	HUD will notify eligible States, cities and counties if they are eligible to receive CDBG-DR grants. Must submit an action plan, if approved grantee must sign a grant agreement.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Community Development Block Grant Program (CDBG)	U.S. Department of Housing and Urban Development (HUD)	Grant	Federal	CDBG funds may be utilized to address a wide variety of community needs, including construction or renovation of various infrastructure projects such as water, wastewater and solid waste facilities, streets, and flood control projects. The funds must be used for activities that either benefit low- and moderate-income persons or address community development needs that have a particular urgency.	Links to program areas and their application requirements are available online.	http://portal.hud.gov/hudportal/HUD?src=/program_offices/communitydevelopment/programs	Grant program, Long-term program	Capital, Other				Eligible activities must meet one of the national objectives for the program and not less than 70% of CDBG funds must be for activities that benefit low and moderate-income persons.	National
Community Development Block Grant Program (CDBG) - General Purpose Grant Fund Planning - Only Activities (WA State)	State of Washington - Department of Commerce	Grant	State	Pending HUD CDBG Funding, the Washington State CDBG program sets aside limited funds for the following specialty grants to assist specific types of projects: Economic Opportunity, Housing Enhancement, and Public Services.	Applications must be completed and submitted by June 3, 2020. Application information for Year 2020 will be available on the webpage during March 2020. Projects must principally benefit low- and moderate-income residents in non-entitlement cities and counties (cities or towns with fewer than 50,000 people; counties with fewer than 200,000 people).	https://www.commerce.wa.gov/serving-communities/community-development-block-grants/	Application process, Fund allocation to states and localities, Grant program	Capital, Other			\$24,000 for a single jurisdiction	CDBG funding can address: sewer, water, streets, or other infrastructure; community facilities; economic development; housing rehabilitation and infrastructure; planning; and public services.	WA
Community Development Block Grant Program (CDBG) - General Purpose Grant (WA State)	State of Washington - Department of Commerce	Grant	State	Pending HUD CDBG Funding, the Washington State CDBG program sets aside limited funds for the following specialty grants to assist specific types of projects: Economic Opportunity, Housing Enhancement, and Public Services.	Eligible applicants must submit their applications by June 3, 2020. Projects must principally benefit low-to moderate income people in non-entitlement cities and counties (cities or towns with fewer than 50,000 people; counties with fewer than 200,000 people).	https://www.commerce.wa.gov/serving-communities/community-development-block-grants/	Application process, Fund allocation to states and localities, Grant program	Capital, O&M, Other			\$750,000 (construction and acquisition projects); \$500,000 (local housing rehabilitation programs); \$250,000 (local microenterprise assistance programs); and \$24,000 (planning-only activities).	Eligible projects: final design and construction of wastewater, drinking water, side connections, stormwater, streets, and community facility projects; Infrastructure for economic development or affordable housing; and specific planning activities.	WA
Community Engagement Mini Grant	Chesapeake Bay Trust (CBT)	Grant	Private	Designed to engage Maryland residents in activities that enhance communities, engage residents, and improve natural resources.	Applicants accepted starting June of each year, on a rolling basis. Details available at https://www.grantrequest.com/Login.aspx?ReturnUrl=%2fapplication.aspx%3fSA%3dSNA%26FID%3d35004%26sid%3d1520&SA=SNA&FID=35004&sid=1520 . Must have received three or fewer grants from Chesapeake Bay Trust (CBT) in the past.	https://cbtrust.org/grants/community-engagement/	Application process, Grant program	Other, Outreach		None	\$5,000	Maryland nonprofit organizations, community associations, faith based organizations, etc. Examples include: Planting trees, installing rain gardens, and stream cleanups. Enhance communities, engage residents, and improve natural resources.	MD
Community Facilities Direct Loan & Grant Program	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Loan	Federal	Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas.	Contact local office to discuss specific projects. Applications for this program are accepted year round. Program resources are available online (includes forms needed, guidance, certifications). Request a Data Universal Number System (DUNS) number online if the organization doesn't already have one. Register the organization with the System for Award Management (SAM) online. Apply online using RD Apply: https://rdapply.usda.gov	https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-program	Application process, Loan program	Capital, Other	Low interest direct loans and grants are available. These may be combined with commercial financing to finance one project if all eligibility and feasibility requirements are met.			Eligible borrowers: public bodies, community-based nonprofit corporations, and federally-recognized tribes. Funds are for purchase, construction and/or improvement of essential community facilities, purchase equipment, and pay related project costs.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Community Facilities Direct Loan & Grant Program	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Grant	Federal	This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas.	Contact local office to discuss your specific project. Applications for this program are accepted year round. Program resources are available online (includes forms needed, guidance, certifications). Request a Data Universal Number System (DUNS) number online if the organization doesn't already have one. Register the organization with the System for Award Management (SAM) online. Apply online using RD Apply: https://rdapply.usda.gov	https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program	Application process, Grant program, Long-term program	Capital	Low interest direct loans and grants are available. These may be combined with commercial financing to finance one project if all eligibility and feasibility requirements are met.			Eligible borrowers: public bodies, community-based nonprofit corporations, and federally-recognized tribes. Funds are for purchase, construction and/or improvement of essential community facilities, purchase equipment, and pay related project costs.	National
Community-Based Restoration Program - Coastal and Marine Habitat Restoration Grants	National Oceanic and Atmospheric Administration (NOAA)	Grant	Federal	The Community-based Restoration Program solicits applications for restoration projects that use a habitat-based approach to promote productive and sustainable fisheries, improve the recovery and conservation of protected resources, and promote healthy ecosystems and resilient communities.	Projects will be funded through cooperative agreements. Apply through Grants.gov. Application resources are available at http://www.habitat.noaa.gov/funding/coastalrestoration.html .	https://www.fisheries.noaa.gov/grant/coastal-and-marine-habitat-restoration-grants	Application process, Competitive process, Grant program, Long-term program	Capital, Other	No matching requirement but NOAA typically leverages its federal funding with matching contributions and/or partnerships from a broad range of sources.		\$6 million in funding is available for selected projects in 2019 ranging from \$100,000 to \$4 million over a one- to three-year project period.	Eligible applicants: Institutions of higher education, nonprofits, commercial organizations, U.S. Territories, State, Local and tribal governments.	National
Connecticut Drinking Water State Revolving Fund (DWSRF)	Connecticut Department of Public Health	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://portal.ct.gov/DPH/Drinking-Water/DWS/Forms-and-Applications Applications must include estimated project costs, project descriptions, project location, environmental considerations, and project benefits. Projects are ranked based on a point program.	https://portal.ct.gov/DPH/Drinking-Water/DWS/Drinking-Water-State-Revolving-Fund-Program	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. Program funding places an emphasis on providing loans to small water systems and communities that need it most.	CT
Connecticut's Clean Water Fund (CWF)	Connecticut Department of Energy and Environmental Protection (DEEP)	Loan	State	State's environmental infrastructure assistance program. The fund consists of five accounts, of which the federal account is designated as a qualifying State Revolving Fund (SRF). The funds include Combined Sewer Overflow (CSO), Nutrient (Nitrogen and Phosphorus) Removal, Small Community, Collection System Improvement, and Management System grants.	Funding under the Clean Water Fund (CWF) is established based upon a priority rating system with criteria regarding improvements to water quality and the protection of public health. Applications, forms, and checklists can be accessed on website. Applications are accepted all year round.	https://www.ct.gov/deep/cwp/view.asp?a=2719&q=325576	Application process, Competitive process, Loan program	Capital, O&M, Other	The Revenue Bond Program is the leveraged financing strategy implemented by the Connecticut SRF that maximizes the financing capacity of the respective federal capitalization grants.	None	Funding varies based on program. Total funds authorized for FY19 is \$16,000,000.	For municipalities in Connecticut. Eligibility requirements vary by action, e.g., Permitting, CSO Treatment Plant Projects, Road Water Restoration, etc.	CT

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Conservation Initiative Grants (CIG) Program	U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)	Grant	Federal	Competitive grant process to stimulate the development and adoption of innovative conservation approaches and technologies in conjunction with agricultural production. Includes a national and state competition.	Applicants must complete and submit an application, which is then uploaded to Workspace (the grants.gov electronic submission interface). For national grants, A CIG funding notice is announced each year. Funds for single- or multi-year projects, not to exceed three years, are awarded through a nationwide competitive grants process. Projects may be watershed-based, regional, multi-state or nationwide in scope. The natural resource concerns eligible for funding through CIG are identified in the funding announcement and may change annually to focus on new and emerging, high priority natural resource concerns. The CIG state component emphasizes projects that benefit a limited geographical area. Participating states announce their funding availability for CIG competitions through their state NRCS offices.	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/	Application process, Competitive process, Grant program		Grantees must match the CIG investment at least one-to-one.	\$150,000	\$2 million	All non-Federal entities and individuals are eligible to apply. All CIG projects must involve EQIP-eligible producers.	
Conservation Partners Programs (CPP) Grant	National Fish and Wildlife Foundation (NFWF) and U.S. Department of Agriculture's Natural Resources Conservation Services (NRCS)	Grant	Federal	Provides grants on a competitive basis to support field biologists and other habitat conservation professionals (ecologists, foresters, range cons, etc.) working with Natural Resources Conservation Service (NRCS) field offices in providing technical assistance to farmers, ranchers, foresters and other private landowners to optimize fish and wildlife habitat conservation on private lands.	Applications can be submitted online. Competitive proposals will be focused on one of the nine priorities: Pacific Salmon, Grassland Bird Habitat, Great Lakes, Mississippi River Basin, and/or the Gulf Coast Plain States Working Lands Conservation.	http://www.nfwf.org/ConservationPartners	Application process, Competitive process, Grant program, Long-term program	Other, Outreach	Match of at least 1:1 non-federal cash or in-kind is required, and will be considered in application review.	\$50,000	Approximately \$5.1 million in NRCS funds are available. Typical grant awards will range from \$50,000 to \$300,000. Projects may be funded for up to three years from the completion of a grant agreement.	Eligible applicants: nonprofit 501(c) organizations, farmer and commodity-led organizations, educational institutions, tribal governments, and state or local units of governments. Cannot be used for political support, to comply with legal requirements.	National
Construction Loan	Rural Community Assistance Corporation (RCAC)	Loan	Private	RCAC's loan fund is a financial source for rural communities in the west. Projects must be located in rural areas with populations of 50,000 or less in RCAC's service region.	Applications are located online. Eligible applicants: Nonprofit organizations, public agencies, tribes, and low-income rural communities with a population of 50,000 or less, or 10,000 or less if proposed permanent financing is through U.S. Department of Agriculture (USDA) Rural Development (RD).	http://www.rcac.org/lending/environmental-loans/	Application process, Loan program	Capital, Other	Requires commitment letter for permanent financing. Term matches construction period 1% loan fee.		\$3 million	Eligible projects: Water, wastewater, solid waste and stormwater facilities that primarily serve low-income rural communities. Can include pre-development costs.	Rural Western US
Cooperative Funding Program	South Florida Water Management District	Grant	State	The District has provided funding to local governments, special districts, utilities, homeowners associations, water users and other public and private organizations for stormwater, alternative water supply and water conservation projects that are consistent with the District's core mission. The Cooperative Funding Program combines these funding programs into one streamlined program to provide partnership opportunities and financial incentives to implement local projects that complement regional flood control, restoration, water quality and water supply efforts.	Program offered based on District allocation of funding. The Application processes closed on August 16, 2019.	http://www.sfwmd.gov/coopfunding	Application process, Grant program	Capital	50% cost share for projects with FLDEP. Florida Legislature approved \$40 million in statewide funding for developed water supply and water resource development.		From Fiscal Years 1997 to 2016, AWS projects totaling approximately \$1.5 billion in construction costs received partial funding from the South Florida Water Management District.	Projects must be construction-ready alternative water supply projects or ready-to-implement water conservation technology.	FL

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Cooperative Watershed Management Program: Phase I	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	Provides financial assistance to locally led watershed groups to encourage diverse stakeholders to form local solutions to water management needs. Through Phase I, the Bureau of Reclamation provides financial assistance for the establishment and further development of watershed groups. A watershed group is a self-sustaining, non-regulatory group that addresses water availability and quality issues within the relevant watershed, represents a diverse group of stakeholders, and can promote the sustainable use of water resources within the watershed. As part of Phase I, entities may perform outreach to stakeholders and develop bylaws and articles of incorporation, a mission statement, watershed management project concepts, and a watershed restoration plan. Eligible applicants include states, tribes, local and special districts (e.g., irrigation and water districts), local governmental entities, nonprofit organizations, and established watershed groups in the western United States and capable of supporting the sustainable use of water resources within the watershed.	Information is available at https://www.usbr.gov/watersmart/ . Funding Opportunity Announcements will be posted at www.grants.gov .	https://www.usbr.gov/watersmart/cwmp/index.html	Application process, Competitive process, Grant program	Other	Cost-sharing financial assistance to watershed groups.		Up to \$50,000 per year for a period of up to two years with no non-Federal cost-share required.	Must be a watershed group. Has Phase I and Phase II requirements. Phase I: geographic area, critical watershed needs, implementation results.	Western US
Cooperative Watershed Management Program: Phase II	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	Through the Cooperative Watershed Management Program (CWMP), the Bureau of Reclamation provides financial assistance to locally led watershed groups to encourage diverse stakeholders to form local solutions to water management needs. Through Phase II, the Bureau of Reclamation provides cost-shared financial assistance to watershed groups for the implementation of on-the-ground watershed management projects that address critical water supply needs, water quality, and ecological resilience of the watershed. Eligible applicants are established watershed groups that represent a diverse group of stakeholders, have completed a watershed restoration plan, and are capable of promoting the sustainable use of water resources. A watershed group is a self-sustaining, non-regulatory group that addresses water availability and quality issues within the relevant watershed, represent a diverse group of stakeholders, and can promote the sustainable use of water resources within the watershed.	Check the WaterSMART website at https://www.usbr.gov/watersmart/ for information. Funding Opportunity Announcements will be posted at www.grants.gov .	https://www.usbr.gov/watersmart/cwmp	Application process, Competitive process, Grant program, Long-term program	Capital	Phase II project, applicants must contribute at least 50%.		For Phase II Reclamation will award up to \$100,000 per project over a two-year period.	Phase II: Benefits, restoration planning, stakeholder support, readiness to proceed, performance measure, and DOI Priorities met.	Western US

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Cumberland Plateau Stewardship Fund	National Fish and Wildlife Foundation (NFWF)	Public-private partnership	Federal	Dedicated to restoring native forests to conditions that will improve associated wildlife species and the health of freshwater systems, while advancing strategies to support working forests. Five Priority areas: establishing shortleaf pine, enhancing shortleaf pine ecosystem, restoring and enhancing riparian forest and watersheds, coordinating technical assistance, facilitating conservation easements.	The 2018 application deadline was February 15, 2018. All application materials must be submitted online through NFWF's Easy grants system: www.nfwf.org/easygrants .	http://www.nfwf.org/cumberland/Pages/home.aspx	Application process, Competitive process, Grant program, Long-term program	Other, Outreach	Public-private partnership with federal funding. Requires a minimum of 1:1 non-federal match, but larger match ratios and matching fund contributions from a diversity of partners are encouraged and will be more competitive.		Grant awards will range from \$50,000 to \$200,000, depending on the overall scale of the project.	Projects within the Cumberland Plateau in eastern Kentucky, central Tennessee and northern Alabama and Georgia are eligible.	AL, GA, KY, TN
Cynthia and George Mitchell Foundation: Water Grant	Cynthia and George Mitchell Foundation	Grant	Private	Funds high-impact projects in the State of Texas at the nexus of environmental protection, social equity, and economic vibrancy administered by 501(c)(3) nonprofit organizations. Current strategic grantmaking programs focus on: Clean Energy; Galveston; Land Conservation; Shale Sustainability; Sustainability Education; and Water. The Foundation believes that ensuring sufficient and clean water for both economic growth and the environment may be the most significant and urgent concern facing Texas in the next generation.	A Letter of Inquiry (LOI) is submitted online. If the Foundation is interested in learning more about the project the applicant will be contacted to submit a grant application proposal. The proposed project must align with a specific foundation program, focus on the state of Texas, and clearly demonstrate how the project supports the relevant foundation grantmaking strategy. Application instructions are available at: http://cgmf.org/p/grantmaking.html	http://cgmf.org/p/home.html	Application process, Competitive process, Grant program	Other, Outreach		None	Grants have ranged from \$2,000 to \$300,000.	501(c)3 Nonprofits. Research must contain explicit and practical policy application. Does not fund candidates, lobby in support of or against legislation, does not fund research, development, commercialization or demonstration of technology.	TX
David and Lucile Packard Foundation: Conservation and Science Grant	David and Lucile Packard Foundation	Grant	Private	The Packard Foundation's Conservation and Science Program invests in action and ideas that conserve and restore ecosystems while enhancing human well-being.	Project descriptions are submitted online. If the Packard Foundation is interested in learning more about the project the applicant will be contacted to submit a grant application proposal. Application instructions are available at: https://www.packard.org/grants-and-investments/for-grantseekers/grant-inquiry/?program-area=Conservation%20and%20Science	https://www.packard.org/grants-and-investments/for-grantseekers/	Application process, Grant program	Other, Outreach		None	Grants range from \$50,000 to \$2,250,000.	Only for charitable, educational, or scientific purposes, primarily from tax-exempt charitable organizations. Will not fund: individuals, lobbying activities, conference fees and tuition, religious organizations.	CA
David and Lucile Packard Foundation: Impact Investing	David and Lucile Packard Foundation	Loan	Private	While the Packard Foundation primarily provides grants, mission investing can help to drive social and environmental change by seizing time-sensitive and higher-risk opportunities, tackling large-scale projects, attracting new sources of capital, and scaling efforts for maximum impact. The Packard Foundation has dedicated up to \$180 million of endowment for mission investments "including loans and equity investments" which serve as a flexible tool for non-profit and for-profit organizations to tackle the world's most pressing problems, sometimes on a much larger scale than we are able to do with grants alone.	Before submitting an application, review the program areas on the website: https://www.packard.org/grants-and-investments/for-grantseekers/ . If the project aligns with a program's strategy, applicants can submit a funding request to that program.	https://www.packard.org/grants-and-investments/mission-investing/	Application process, Loan program	Other, Outreach	Can be used as a means to attract new sources of capital.		The Foundation has invested \$760 million in 290 total investments since its inception in 1964.	Lender must be reasonably confident that the loan can be repaid. For Social and Environmental Impact projects.	CA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Delaware Drinking Water State Revolving Fund (DWSRF)	Delaware Department of Health and Social Services	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	For more information on the DWSRF application process, contact the state DWSRF program at 302-744-4817.	https://dhss.delaware.gov/dhss/dph/hsp/dwsrf.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	DE
Delaware Water Pollution Control (Clean Water) State Revolving Fund (WPCSRF)	Delaware Department of Natural Resources and Environmental Control (DNREC)	Loan	State	Provides planning, engineering and financial assistance in the form of low-interest loans, as well as grants to eligible applicants that request assistance to promote water quality projects, including all types of non-point source, watershed protection, restoration, and estuary management projects, as well as more traditional municipal wastewater treatment projects.	Project Notice-Of-Intent (NOIs) are solicited twice per year, due by the end of January and August. Applications can be accessed on website.	https://dnrec.alpha.delaware.gov/environmental-finance/revolving-fund/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.	None	Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Funds available for water quality improvement projects completed by municipalities, private organizations, nonprofit organizations, and private individuals.	DE
District of Columbia Clean Water Construction (CWC) Grant Program	District of Columbia Department of Energy & Environment	Grant	Federal	The program receives funding from EPA's Clean Water State Revolving Fund (CWSRF) and can cover up to 55% of a project's total cost. Project applicants must provide at least 45% of their project's costs using any non-Federal funding source. This is referred to as a local match, which means that it can be contributed from any non-Federal funding source. The District of Columbia's Clean Water Construction (CWC) Grant Program may provide funding for design and construction of projects that contribute towards the District of Columbia's compliance with the Clean Water Act (CWA).	Request to be added to the CWC Stakeholder list so that notice of the funding opportunity is emailed as soon as the opportunity opens. Determine whether the proposed project would be categorized as Stormwater Green Infrastructure, Stormwater Grey Infrastructure Project, or Sewage Infrastructure. Obtain written permission to perform work from property owner. This could be DDOT, DPR, NPS, DCHA, etc. Calculate the total project cost, federal funding request (up to 55% of the total project cost) and local match requirement (at least 45% of the total project cost). Secure a source of local match funding. Write proposal to directly address scoring criteria found in the Project Priority Rating system (PPRS) and include all elements and documents required by the Request for Applications.	https://doee.dc.gov/service/clean-water-construction-grant-program-resources-funding-applicants	Application process, Fund allocation to states and localities, Grant program	Capital, Compliance, Other	Applicants must provide at least 45% of their projects cost using any non-Federal funding source, "local matching."			Eligible projects: (1) Sewage Infrastructure Projects, (2) Stormwater Grey Infrastructure Projects, and (3) Stormwater Green Infrastructure Projects.	DC

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Districtwide Cost-Share Funding	St. Johns River Water Management District	Grant	State	Offers several cost-sharing programs throughout the year for projects that assist in creating sustainable water resources, provide flood protection and enhance conservation efforts. Funding may be available for local governments, agricultural interests and other entities. In general, projects considered for funding shall benefit one or more of the four district core mission areas, including: water supply, water quality, natural systems restoration, and/or flood protection. Funding is limited exclusively to construction-related costs. The District will fund up to 33% of the construction costs for selected alternative water supply, water quality, flood protection, and natural systems projects and up to 50% for water conservation projects.	Detailed guidance on completing an application can be found online.	https://www.sjrwmd.com/localgovernment/funding/#FY2018-2019-general	Application process	Capital	Cost sharing program for construction project related to alternative water supply, water quality, flood protection, and natural systems projects and up to 50 % for water conservation projects.		Projects are eligible for a maximum district cost-share of \$1.5 million per project or per applicant.	Construction costs. Must start by June 30, 2019 or completed by Sept 30, 2020. Up to 33% of cost of construction, 50% for construction of water conservation projects, and 100% for REDI.	FL
Emergency Streambank and Shoreline Protection	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	The U.S. Army Corps of Engineers (USACE) is authorized to construct bank protection works to protect endangered highways, highway bridge approaches, and other essential, important public works, such as municipal water supply systems and sewage disposal plants, churches, hospitals, schools, and nonprofit public services and known cultural sites that are endangered by flood-caused bank or shoreline erosion. (The website provided is an example from one USACE district.)	Requests can be made by a sponsoring agency empowered under State law to provide local partnership. Identify your USACE district and point of contact at http://www.usace.army.mil/Locations/ .	http://www.mvr.usace.army.mil/Business-With-Us/Outreach-Customer-Service/Flood-Risk-Management/Section-14/	Long-term program, Non-competitive process	Capital, Other	Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. All PDA costs after the first \$100,000 are cost shared 50/50. All construction costs are cost shared 65% Federal and 35% non-Federal.		The first \$100,000 of the Planning Design Analysis (PDA) phase (normally limited to 12 months) is a Federal expense. Each project is limited to a total Federal cost of \$5 million.	Project limit to total federal cost of \$5 million. Complete and deliver a "request from a sponsoring agency empowered under State law to provide local partnership." Private property and facilities not eligible for protection.	National
Energy Efficiency and Solar Grants Program	State of Washington - Department of Commerce	Grant	State	Energy efficiency and solar grant funds projects result in energy and operational cost savings at state public higher education institutions, local government facilities, state agencies and K-12 public school districts. This program is awarded through a competitive process.	Eligible applicants include Washington State public entities, such as municipalities and districts. 20% of funds are reserved for projects in small towns or cities with populations of 5,000 or fewer. Applicants who have not received funding previously will be prioritized. No funding rounds are currently open.	https://www.commerce.wa.gov/growing-the-economy/energy/energy-efficiency-and-solar-grants/	Application process, Competitive process, Grant program	Capital, Other	Minimum matching applies. Other State funds cannot be used as match.		\$500,000	Eligible projects include those that will result in reduced energy (electricity, gas, water, etc.) and operational cost savings; installation of grid-tied solar PVs (additional points awarded for "Made in Washington" components).	WA
Environmental Education (EE) Grants Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Under the Environmental Education (EE) Grants Program, EPA seeks grant proposals from eligible applicants to support environmental education projects that promote environmental awareness and stewardship and help provide people with the skills to take responsible actions to protect the environment. This grant program provides financial support for projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques.	No proposals solicited for FY 2019. Check https://www.epa.gov/education/environmental-education-ee-grants for updates.	https://www.epa.gov/education/environmental-education-ee-grants	Application process, Competitive process, Fund allocation to states and localities, Grant program	Other, Outreach	Environmental education		Between \$2 and \$3.5 million total in grant funding per year.	Must be an eligible organization, located in the United States or territories and the majority of the educational activities must take place in the US. Application must be completed in accordance with the request for proposal (RFP).	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Environmental Justice Small Grants Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Supports and empowers communities working on solutions to local environmental and public health issues. The program is designed to help communities understand and address exposure to multiple environmental harms and risks.	EPA requires applications for Environmental Justice (EJ) grants to be submitted electronically through the Grants.gov website. Hardcopy mailed or delivered applications are only accepted if the applicant has a waiver on file. For more information, see Grants.gov.	https://www.epa.gov/environmentaljustice/environmental-justice-small-grants-program	Application process, Grant program	Other, Outreach	Applicants are added to EJ Grants Applicant Database to help EPA EJ program ID and work with additional underserved communities outside of the context of the grants.		Approximately 40 one-year projects will be awarded at \$30,000 each.	Grants for a one year community-driven projects designed to engage, educate, and empower communities. Grants for tribal organizations, nonprofit organizations, federally-recognized tribal governments.	National
Environmental Workforce Development and Job Training (EWDJT) Grants	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Funds are available for Environmental Workforce Development and Job Training (EWDJT) programs that recruit, train, and place local, unemployed and under-employed residents with the skills needed to secure full-time employment in the environmental field.	See application online (https://www.epa.gov/grants/how-apply-grants).	https://www.epa.gov/grants/fy-2018-environmental-workforce-development-and-job-training-ewdjt-grants	Application process, Grant program	Other, Outreach			\$200,000	Must be an eligible entity, cannot have received the grant the previous year. Eligible: local government, land clearance authority, state government, nonprofit organization, Alaska Native Village, tribe, redevelopment agency, regional council, and more.	National
Feasibility and Pre-Development Loans	Rural Community Assistance Corporation (RCAC)	Loan	Private	Loans provide the early funds small rural communities need to determine project feasibility and to pay pre-development costs prior to receiving state and federal funding. Projects must be located in rural areas with populations of 50,000 or less in RCAC service region.	Application forms are provided online. Eligible applicants: Nonprofit organizations, public agencies, tribes, and low-income rural communities with a population of 50,000 or less, or 10,000 or less if proposed permanent financing is through U.S. Department of Agriculture (USDA) Rural Development (RD).	https://www.rcac.org/lending/environmental-loans/	Application process, Loan program	Other			\$50,000 (feasibility loan), \$35,000 (pre-development loan).	Eligible projects: Water, wastewater, stormwater, and solid waste planning; environmental work; and other work to assist in developing an application for infrastructure improvements.	Rural Western US
Federal Highway Administration (FHWA) National Highway Performance Program (NHPP)	U.S. Department of Transportation (DOT)	Grant	Federal	Provides support for the National Highway System to construct new facilities and ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the performance targets in a State's asset management plan. States may transfer up to 50% of NHPP funds the Surface Transportation Program, Highway Safety Improvement Program, and the Congestion Mitigation and Air Quality (CMAQ) Program.	FHWA apportions funding as a lump sum for each State then divides that total among apportioned programs. Within this process, a State's NHPP apportionment is calculated based on a percentage specified in law. 2% of a State's NHPP funding is to be set aside for State Planning & Research.	https://www.fhwa.dot.gov/fastact/factsheets/nhppfs.cfm	Fund allocation to states and localities	Capital				Eligible activities include: installation of vehicle-to-infrastructure communication equipment, reconstruction, resurfacing, restoration, rehabilitation, or preservation of a bridge on non-NHS Federal-aid highway, project to reduce risk of failure.	National
Federal Highway Administration (FHWA) Surface Transportation Block Grant - Transportation Alternatives Set-Aside	U.S. Department of Transportation (DOT)	Grant	Federal	Provides funding for transportation alternatives, including off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation. TAP funding could be used to pay for green infrastructure components of trails and sidewalks such as permeable pavements.		https://www.fhwa.dot.gov/environment/transportation_alternatives/	Application process, Competitive process, Grant program, One-time allocation	Capital				Eligible projects include: on and off road pedestrian and bicycle facilities, infrastructure projects for improve non-driver access to public transportation, and historic preservation and vegetation management.	National
Federal Highway Administration (FHWA) Congestion Mitigation and Air Quality (CMAQ) program	U.S. Department of Transportation (DOT)	Grant	Federal	Allocates federal funding for infrastructure projects that reduce congestion and improve air quality. Bicycle transportation and pedestrian walkways are eligible uses of the money, and can be designed to include green infrastructure features, such as permeable surfaces for trails, and bioswales and bioretention for areas adjacent to trail surfaces.	FHWA apportions funding as a lump sum for each State then divide that total among apportioned programs. Once each State's combined total apportionment is calculated, funding is set-aside for the State's CMAQ Program.	https://www.fhwa.dot.gov/environment/air_quality/cmaq/	Application process, Grant program, One-time allocation	Capital	Includes non-federal share requirements.			Funds may be used for a transportation project or program that is likely to contribute to the attainment or maintenance of a national ambient air quality standard, with a high level of effectiveness in reducing air pollution.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Five Star and Urban Waters Restoration Grant Program	National Fish and Wildlife Foundation (NFWF)	Grant	Federal	Seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships focused on improving water quality, watersheds and the species and habitats they support.	All application materials must be submitted online through NFWF's Easy grants system, https://easygrants.nfwf.org .	http://www.nfwf.org/fivestar/Pages/home.aspx	Application process, Grant program, Long-term program	Other, Outreach	Major funding for the grants is provided by NFWF partnerships with EPA, US Forest Service, US Fish and Wildlife Service, South Company, FedEx, and Shell Oil Company. Leverage other funds or donation services.		Range from \$20,000 to \$50,000; average is \$30,000	Urban and Rural Communities. Focuses on stewardship and restoration of coastal, wetland and riparian ecosystem across the country. Must include: on-the-ground restoration, environmental outreach, community partnerships, measurable results, sustainability.	National
Flood Mitigation Assistance Program (FMA)	U.S. Federal Emergency Management Agency (FEMA)	Grant	Federal	Authorized by Section 1366 of the National Flood Insurance Act of 1968, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, Federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP. FMA funding is also available for management costs.	The Notice of Funding Opportunity (NOFO) is posted on www.Grants.gov . Sub-applicants submit mitigation planning and project sub-applications to their State during the open application cycle. After reviewing project and planning applications to determine if they meet the program's requirements, the States, territories, or Federally-recognized tribal governments prioritize and forward the applications to their FEMA Regional Office. Contact your FEMA regional office: https://www.fema.gov/fema-regional-office-contact-information .	https://www.fema.gov/flood-mitigation-assistance-grant-program	Application process, Grant program	Capital	Funding is appropriated to Congress annually. Federal funding is available for up to 75% of the eligible activity costs the rest must be non-federal funds.		\$160,000,000 total available in FY18. Of this, \$70,000,000 was prioritized for community flood mitigation proposals leaving an estimated \$90,000,000 available for other FMA priorities. FEMA will select remaining eligible applications once all priorities are met based on benefits to the NFIP.	Funding for State, U.S. Territories, Federally recognized tribes, and local communities. For projects and planning to reduce flood risk.	National
Florida Clean Water State Revolving Fund Loan Program (CWSRF)	Florida Department of Environmental Protection (DEP)	Loan	State	Funds are made available for Planning Loans, Design Loans and Construction Loans. Small, disadvantaged communities may also be eligible for grants, which, once qualified, can significantly reduce the amount owed on the loan.	Submit the appropriate Request for Inclusion (RFI) Form. For a planning loan, the RFI is all that is needed to be eligible to compete for funding. For a design loan, the sponsor must submit a RFI for design and the planning process must be complete. For a construction loan, all readiness to proceed requirements must be complete and the RFI for construction must be submitted 45 days prior to the quarterly priority list meeting. Application forms and guidelines can be accessed on website.	http://www.dep.state.fl.us/water/wff/cwsrf/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	The program is funded by federal grants, state matching funds, loan repayments and interest earnings. Loan repayments provide a continuing source of funds for additional projects.	None	As of 2017, the CWSRF Program has awarded approximately \$1.1 billion in funding for over 120 wastewater and stormwater improvement projects during the past five years.	Municipalities or local government, planning, design, and/or construction of water pollution control facilities.	FL
Florida Drinking Water State Revolving Fund (DWSRF) Program	Florida Department of Environmental Protection (DEP)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://floridadep.gov/wra/srf/content/drinking-water-program-manual . Applicants must first complete Request for Inclusion on Drinking Water Priority List, to determine project eligibility and priority scoring. Projects placed on the fundable portion of the priority list are eligible for funding and can complete the full application process.	https://floridadep.gov/wra/srf/content/dwsrf-program	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	FL
Florida Water Quality Restoration Grants	Florida Department of Environmental Protection (DEP)	Grant	State	Annually, the state legislature provides funding for the implementation of best management practices, such as regional stormwater treatment facilities, designed to reduce pollutant loads to impaired waters from urban stormwater discharges.	The grant applications may be submitted at any time throughout the year and are reviewed and ranked in March, July, and November annually. Deadline for submittal of applications is the first business day of each review period. To apply for a grant, submit a TMDL Water Quality Restoration Grant Application Form. Forms are online.	https://floridadep.gov/wra/319-tmdl-fund	Application process, Grant program	Capital	The applicant must provide a minimum of 50 percent of the total project cost in matching funds, of which at least 25 percent is provided by the local government.	None	Exact funding availability varies.	Must be a local Florida government, and projects must be non-point source related such as evaluation of BMPs, non-point source pollution reduction in the watershed, etc.	FL

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Funding Assistance for the U.S. Virgin Islands under the Clean Water Act Title II Construction Grants Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Provides grant funds to improve the infrastructure of wastewater systems located in the U.S. Virgin Islands (USVI). It is a set-aside of the Clean Water State Revolving Fund (CWSRF) allotment. Eligible applicants must be located within USVI and be a public body created under jurisdiction law having authority for treatment, transport, or disposal of domestic wastewater within USVI or be a designated and approved management agency authorized in a Water Quality Management plan.	Applications must be submitted through the State water pollution control agency to the appropriate EPA Regional Office. The standard application forms as furnished by the Federal agency must be used for this program. Applicants, except in limited circumstances approved by the Agency, must submit all initial applications for funding through http://www.grants.gov .	https://www.cfda.gov/index?s=program&mode=form&tab=step1&id=dc61dc54f9305bcb9ce7117edae505e6	Application process, Fund allocation to states and localities, Grant program, Non-competitive process	Capital, Other	Eligible entity is required to pay not less than 45% of the total costs of the project or activity, which may include services, materials, supplies, or other in-kind contributions. Exceptions on webpage.		\$4,113,000 total for FY2017	Eligible: States, Puerto Rico, USVI, Guam, American Samoa, Commonwealth of the Northern Mariana Islands (CNMI), and tribes within the US. For small and disadvantaged communities. Eligible projects listed on webpage.	USVI, American Samoa, CNMI, Puerto Rico, Tribes
Georgia Clean Water State Revolving Fund Loan Program (CWSRF)	Georgia Environmental Finance Authority (GEFA)	Loan	State	Eligible CWSRF projects include: 1) Water quality, water conservation and wastewater treatment projects, such as constructing new wastewater treatment plants; 2) Repairing and replacing sewer and stormwater control projects; 3) Implementing water conservation projects and programs.	Applications are received year-round. Prior to starting an application, review the Application Part I Instructions. Applications can be accessed on website.	http://gefafa.org/clean-water-state-revolving-fund	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.	None	Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Local governments looking to develop environmental infrastructure, preserve natural resources, and promote economic development.	GA
Georgia Drinking Water State Revolving Fund (DWSRF)	Georgia Environmental Finance Authority	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://gefafa.org/water-resources/application-process . SWP activities identified in the FY19 IUP include: continue comprehensive data and information management systems including instream flow and source water quality data and operate, maintain, and collect flow and quality data from surface waters for evaluating impact to and protecting public water supply sources.	https://gefafa.org/water-and-sewer-financing/drinking-water-state-revolving-fund	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs. Eligible projects identified at: https://gefafa.org/water-and-sewer-financing/drinking-water-state-revolving-fund .			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	GA
Georgia Equity Fund	Georgia Department of Community Affairs (DCA)	Grant	State	Provides financial assistance including grants, loans and any other forms of assistance to finance activities that will assist applicants in promoting the health, welfare, safety, and economic security of the citizens of the state through the development and retention of employment opportunities in areas of greater need as defined by the Georgia Business Expansion and Support Act of 1994, as amended.	Applications are received year round. Pre-applications and applications can be accessed on website. Check official eligibility at: https://dca.ga.gov/sites/default/files/onegeorgia_official_map_12_2014_0.pdf	https://dca.ga.gov/community-economic-development/funding/onegeorgia-authority/equity-fund	Application process, Grant program, Loan program, Long-term program	Capital, Other	Funds for public activities require local investment and must demonstrate potential return on investment impact.	None	Award limits are based on the number of counties supporting a particular project. One county - maximum of \$200,000 per project. Two Counties - maximum of \$300,000 per project. Three or more counties - maximum of \$500,000 per project	No other forms of funding can be available. For general-purpose local governments, local government authorities, and joint or multi-county development authorities in rural counties with high poverty rates.	GA
Georgia Equity Fund	Georgia Department of Community Affairs (DCA)	Loan	State	The purpose of the Georgia Equity Fund is to provide a program of financial assistance that includes grants, loans and any other forms of assistance to finance activities that will assist applicants in promoting the health, welfare, safety, and economic security of the citizens of the state through the development and retention of employment opportunities in areas of greater need as defined by the Georgia Business Expansion and Support Act of 1994, as amended.	Applicants encouraged to use Georgia Equity Fund monies only when no other funding is available.	https://dca.ga.gov/community-economic-development/funding/onegeorgia-authority/equity-fund	Application process, Grant program, Loan program	Capital, Other	Financial underwriting of sub-recipient company is required.		Award limits are based on the number of counties supporting a particular project: One County " Maximum of \$200,000 per project; Two County" Maximum of \$300,000 per project; Three or more County" Maximum of \$500,000 per project.	Eligible entities: local governments, local governments, local government authorities, and joint or multi-county development authorities in rural counties suffering from high poverty rates. Sub-recipients may be for-profit or nonprofit.	GA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Georgia-Pacific Foundation: Environment Grant	Georgia-Pacific Foundation	Grant	Private	Funds and supports community-based programs, volunteer service projects, disaster relief and other initiatives to improve the quality of life in communities where Georgia-Pacific operates. The Foundation invests resources in: education, environment, community enrichment, and entrepreneurship. Core contributions include projects for workforce development and environmental initiatives. Environment focus areas include resource conservation, clean air, clean water, recycling, and environmental education.	Charitable contribution requests are reviewed on a rolling cycle throughout the calendar year. Due to limited funding at year-end, submission by October 31 is encouraged. Applications are submitted online.	https://www.gp.com/community	Application process, Grant program	Other, Outreach		None	Varies	Applicants must be 501(c)3 nonprofit organizations, public schools, or other qualified state or local governmental entities. Must be located within 30 miles of a Georgia-Pacific manufacturing community.	GA
Great Lakes Grant Programs	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Funded activities under the program will advance protection and restoration of the Great Lakes ecosystem in support of (i) the Great Lakes Restoration Initiative (GLRI) as described in the Great Lakes Restoration Initiative Action Plan II (http://www.greatlakesrestoration.us/actionplan/index.html), (ii) the Great Lakes portion of Objective 2.02 (Protect and Restore Watersheds and Aquatic Ecosystems) of EPA's 2014-2018 Strategic Plan, and/or (iii) the Great Lakes Regional Collaboration Strategy to Protect and Restore the Great Lakes (http://www.glr.us/strategy.html).	Schedules are established in Requests for Proposals or Applications and in individual solicitations and are published on the program's website (https://www.epa.gov/great-lakes-funding/great-lakes-rfas). To be added to the mailing list for announcements of funding opportunities, register at https://www.epa.gov/great-lakes-funding/great-lakes-news-email-list .	https://www.epa.gov/great-lakes-funding	Application process, Competitive process, Fund allocation to states and localities, Grant program	Capital, Other	Combining GLRI resources with agency base budgets, work with nonfederal partners to implement protection and restoration projects.		For FY17: GLRI total: \$300 million; Grants: \$65 million estimated; GLLA: \$40 million estimated.	Must meet focus areas and categories listed on webpage. Grants for planning, research, monitoring, outreach and implementation projects in furtherance of the Great Lakes Restoration Initiative (GLRI) and the Great Lakes Water Quality Agreement (GLWQA).	IL, MI, OH, NY, WI, MN, IN, PA
Greater Minnesota Public Infrastructure Grant Program	Minnesota Department of Employment and Economic Development (DEED)	Grant	State	Helps stimulate new economic development, create new jobs, and retain existing jobs through investments in public infrastructure. Provides grants to cities of up to 50% of the capital costs of the public infrastructure necessary to expand or retain jobs in the area, increase the tax base, or expand or create new economic development.	Applications are accepted on an open basis. Forms are available online. Contact local representatives for more information (https://mn.gov/deed/government/financial-assistance/community-funding/small-cities.jsp#5).	http://mn.gov/deed/government/financial-assistance/business-funding/infrastructure/	Application process, Grant program	Capital, Other	City must provide a match of at least 50% of the project capital cost. Can be cash or in-kind.		\$2,000,000	Must be a county outside of the seven-county metropolitan area or statutory or home rule city outside of the seven county metro area. Projects: publicly owned infrastructure that support economic development.	MN
H2O Pennsylvania - Water Supply, Sanitary Sewer and Storm Water Projects	Pennsylvania Department of Community & Economic Development (DCED)	Grant	State	Provides single-year or multi-year grants to municipalities or municipal authorities to assist with the construction of drinking water, sanitary sewer and storm sewer projects.	Submit the on-line Department of Community and Economic Development Single Application for Assistance located at www.esa.dced.state.pa.us .	http://dced.pa.gov/programs/h2o-pa-water-supply-sanitary-sewer-storm-water-projects/#.WH6XqfzWUk	Application process, Competitive process, Grant program, Long-term program	Capital	Matching funds of not less than 50% required. Single or multi-year grants (cannot exceed 6 years).	\$500,000	\$20,000,000	Eligible: Municipalities and Municipal Authorities.	PA
Hawaii Clean Water State Revolving Fund (CWSRF)	State of Hawaii Department of Health (DOH), Environmental Management Division (EMD)	Loan	State	Assists in financing the construction of water pollution control projects necessary to prevent contamination of our groundwater and coastal water resources and to protect and promote the health, safety and welfare of the citizens of the State of Hawaii. Provides low interest loans to county and state agencies to construct point source and non-point source water pollution control projects.	Projects must apply to be on the annual priority list. Applications can be found online.	http://health.hawaii.gov/wastewater/home/cwsrf/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	By partially funding projects, states can leverage the CWSRF funding to assist a greater number of eligible projects. Loan repayments provide a continuing source of funds for additional projects.		No maximum funding level. Funds are distributed based on the priority, number of applicants, and total funds available.	Loans for county and state agencies: Eligible projects include: construction of publicly owned treatment works, non-point source, national estuary program projects, decentralized wastewater treatment system, stormwater, water conservation, efficiency.	HI

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Hazard Mitigation Grant Program (HMGP)	U.S. Federal Emergency Management Agency (FEMA)	Grant	Federal	Helps communities implement hazard mitigation measures following a Presidential major disaster declaration. Hazard mitigation is any action taken to reduce or eliminate long-term risk to people and property from natural hazards. Mitigation planning is a key process used to breaking the cycle of disaster damage, reconstruction, and repeated damage.	Sub-applicants apply for funding. Consult State and FEMA website for application information (https://www.fema.gov/hazard-mitigation-grant-program-guide-state/local-governments). Contact your Local Mitigation Planner of State Hazard Mitigation Officer (SHMO) (https://www.fema.gov/state-hazard-mitigation-officers) to learn more about the application process.	https://www.fema.gov/hazard-mitigation-grant-program	Application process, Grant program, Long-term program	Capital, Other	FEMA provides up to 75% of the funds with the remaining 25% coming from various sources.		Depends on the federally recognized disaster and current appropriations.	Eligible applicants include: individuals, businesses, and private nonprofits via local governments. Individuals may not apply directly but must be sponsored by either a local government, state agency, tribe, or private nonprofit.	National
Housing and Urban Development (HUD) Title I Home Improvement Loan	US Department of Housing and Urban Development (HUD)	Loan	Federal	Loans on single family homes may be used for alterations, repairs and for site improvements. Loans on multifamily structures may be used only for building alteration and repairs. Title I can be used in conjunction with a 203(k) Rehabilitation Mortgage. For additional information on that program, call (800) 767-7468 and request item number 2571.	HUD's Homeownership Centers do not process Title I loans. A property owner may apply at any lender (bank, mortgage company, savings and loan association, credit union) that is approved to make Title I loans. See a list of participating financial institutions at https://www.hud.gov/program_offices/housing/sfh/lender/lenderlist . The applicant must be able to repay the loan in regular monthly payments. Any loan over \$7,500 must be secured by a mortgage or deed of trust on the property. New homes must have been occupied for 90 days.	https://www.hud.gov/program_offices/housing/sfh/title/ti_about	Application process, Loan program	Capital, Other	Must be used in conjunction with a 203(k) Rehabilitation Mortgage. Interest rate is fixed.		Single family house - \$25,000 Manufactured house on permanent foundation (classified and taxed as real estate) - \$25,090; Manufactured house (classified as personal property) - \$7,500; Multifamily structure - an average of \$12,000 per living unit, up to a total of \$60,000	Must be able to repay loan in a regular monthly payment. Both large and small improvements can be financed. Not for property improvements. Improvements must protect or improve the basic livability of or utility of the property. Occupied for 90 days.	National
Hurricane and Storm Damage Reduction Projects	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	Section 103 of the 1962 River and Harbor Act authorizes the U.S. Army Corps of Engineers (USACE) to study, design, and construct small coastal storm damage reduction projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government.	Identify USACE district and point of contact for requesting assistance at http://www.usace.army.mil/Locations/ .	https://www.usace.army.mil/Missions/Public-Services/Continuing-Authorities-Program/Section-103/	Long-term program	Capital, Other	Costs for preparation of plans and specifications and construction are shared at 65% Federal/35% non-Federal.		The maximum Federal cost for planning, design, and construction of any one project is \$10,000,000. The Feasibility Study is 100% federally funded up to \$100,000. Costs over \$100,000 are shared equally with the non-federal sponsor.	Initial appraisal in Feasibility Study. Solution must be economically feasible and environmentally acceptable. Projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government.	National
Idaho Public Wastewater System Construction Loans	Idaho Department of Environmental Quality	Loan	State	Provides below-market-rate interest loans to help build new or repair existing wastewater treatment facilities. Eligible wastewater facilities include treatment plants, interceptor sewers, and collector sewers. Loans of up to 100% of project costs may be awarded for facility design and/or construction projects. Loans also may be awarded to address non-point source pollution control activities. Eligible non-point source activities include projects such as effluent trading, upgrading or replacing individual septic tanks, restoring wetlands, treating and controlling stormwater, and reducing pollutants from agricultural runoff.	Application process is outlined in the State of Idaho's loan handbook (http://www.deq.idaho.gov/media/1117872/www-loan-handbook.pdf) and begins with a pre-application conference. Application includes six components.	https://www.deq.idaho.gov/water-quality/grants-loans/wastewater-system-construction-loans/	Application process, Loan program, Long-term program	Capital, Other	Loan repayments and interest earnings provide resources for new water pollution loans.			Eligible entities: Counties, cities, special service districts, governmental entities, and nonprofit corporations with authority to collect, treat, or dispose of sewage or industrial wastewater.	ID

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Idaho Public Water System Construction Loans	Idaho Department of Environmental Quality (DEQ)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. In FFY 2019 the DEQ reserved \$1,100,400 of the capitalization grant for SWP. Funds were identified for use to assess public drinking water sources to characterize the water source and determine its susceptibility to contamination and assist with developing and implementing SWP plans; implement SWP projects and develop tools and resources to facilitate SWP implementation efforts; and provide SWP education, outreach, training, and technical assistance to owners and operators of public water systems, staff at local governments, schools, businesses, and the public.	Funding applications and forms are available at: http://www.deq.idaho.gov/media/1117871/dw-loan-handbook.pdf and http://www.deq.idaho.gov/media/1118137/2-a-dw.pdf Interested parties must submit a Letter of Interest (LOI) to the DEQ indicating a desire for funding. The LOI is evaluated using a rating and ranking system and are found eligible for placement on the State's priority list are placed on the Intended Use Plan (IUP).	https://www.deq.idaho.gov/water-quality/grants-loans/water-system-construction-loans/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	ID
Illinois Public Water Supply Loan Program (PWSLP)	Illinois Environmental Protection Agency	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Applicants must submit a Funding Nomination Form to be included on the Intended Funding List. Application documents available at: https://www2.illinois.gov/epa/topics/grants-loans/state-revolving-fund/Pages/state-revolving-fund-forms.aspx .	https://www2.illinois.gov/epa/topics/grants-loans/state-revolving-fund/Pages/default.aspx	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	IL
Illinois Water Pollution Control Loan Fund Program (WPLCP)	Illinois Environmental Protection Agency (EPA)	Loan	State	Funds wastewater and stormwater projects.	The yearly cycle is based on the state of Illinois fiscal year, which starts July 1st and ends June 30th. Because funding is limited, projects with approved planning are scored and ranked to prioritize which ones will receive loan program resources during a specific fiscal year. See online instructions and forms for guidance.	https://www2.illinois.gov/epa/topics/grants-loans/state-revolving-fund/Pages/default.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.	None		Must have an enforceable water or sewer ordinance, a user charge ordinance, a certified local debt authorization ordinance, and a dedicated revenue stream to assure repayment.	IL
Indiana Clean Water Act Section 205(j) Grants	Indiana Department of Environmental Management (IDEM)	Grant	State	The Clean Water Act (CWA) Section 205(j) program provides for projects that gather and map information on non-point and point source water pollution, develop recommendations for increasing the involvement of environmental and civic organizations in watershed planning and implementation activities, and develop and implement watershed management plans. Indiana's priorities for funds are developing watershed management plans and restoring ecosystems critical to water quality.	Applications must be typed and submitted using the approved application form. The application form (53970) can be found on the IDEM Forms page (http://www.in.gov/idem/5157.htm#owq_watershed). Applications must be submitted electronically (email or disk) and in signed, hard-copy format.	https://www.in.gov/idem/nps/2525.htm	Application process, Competitive process, Loan program	Capital, O&M	Federal pass-through grant program for water quality management planning.	None	Averages \$350,000 total annually. Up to \$80,000 per project typically.	Must be sponsored by municipal government, county government regional planning commission, or other government agency, must work on water quality management planning & design. Used to determine the nature, extent and causes of point & non-point pollution.	IN

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Indiana Drinking Water State Revolving Fund (DWSRF)	Indiana Finance Authority	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Applicants must submit a loan application and then participate in a Project Planning Meeting and subsequently submit a Preliminary Engineering Report (PER) to be ranked and scored on the Project Priority List (PPL). Application information and documents available at: https://www.in.gov/ifa/srf/2387.htm .	https://www.in.gov/ifa/srf/2387.htm	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	IN
Indiana Wastewater State Revolving Fund (WWSRF) Loan Program	Indiana Finance Authority (IFA)	Loan	State	Provides low-interest-rate financing to construct water quality protection projects. Stormwater projects that have no water quality benefits are not eligible for WWSRF financing. The Program has provided more than \$1.84 billion in financing to Indiana communities since the program's first loan closing in 1991.	Applicants' projects must be ranked on annual priority list in the state Intended Use Plan (IUP). Applications can be found online. Contact your state office for more information.	https://www.in.gov/ifa/srf/2386.htm	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	WWSRF Loan receives capitalization grants and uses these grants and repayments and leveraging in open market to allow more money to be available at a low interest rate for eligible projects.	None		Must be a political subdivision (cities, town, or county), regional sewer/water district, and conservancy district, with a water quality project that could include: Treatment plant upgrade and improvement, sewer line extension, combined sewer correction.	IN
Infrastructure Financing	Border Environment Cooperation Commission (BECC)	Loan	Federal	BECC's Technical Assistance fund supports the development of water and wastewater projects ineligible to receive Project Development Assistance Program (PDAP) funding, as well as all other BECC-North American Development Bank (NADB) eligible project types. Finances projects that prevent, control or reduce environmental pollutants, improve drinking water supply, or protect flora and fauna.	Online application: http://www.becc.org/certification-process/apply-for-certification-financing .	http://www.becc.org/funding-programs/technical-assistance/ta-fund	Application process, Loan program	Capital		None	Varies (funds are derived from BECC's operating budget). See http://www.becc.org/applications/technical-assistance-approved-for-examples-of-approved-ta-agreements .	Project must be located within 100 km (62 miles) north of the international border between Mexico and US or 300 KM south. Cannot finance more than 85% of project cost. Funding from other sources is required.	TX, NM, AZ, CA
Insular Areas Community Development Block Grant (CDBG) Program - Insular Areas	U.S. Department of Housing and Urban Development (HUD) Field Offices in Puerto Rico and Hawaii	Grant	Federal	CDBG funds may be utilized to address a wide variety of community needs, including construction or renovation of various infrastructure projects such as water, wastewater and solid waste facilities, streets, and flood control projects. The funds must be used for activities that either benefit low- and moderate-income persons or address community development needs that have a particular urgency.	In order to receive CDBG funds, insular areas must submit a Consolidated Plan or an abbreviated Consolidated Plan to their HUD field office. U.S. Virgin Islands: San Juan (Caribbean) Field Office; All others: Honolulu Field Office. Contact Information: https://www.hudexchange.info/programs/cpd-field-office-directory/ https://www.hudexchange.info/pr ograms/cpd-field-office-directory/	https://www.hudexchange.info/programs/cpd-field-office-directory/	Fund allocation to states and localities, Grant program, Long-term program	Capital, O&M, Other			Under Section 106 of the Housing and Community Development Act of 1974, \$7 million of the Title I CDBG appropriation is allocated for grants to insular areas. Funds for Section 107 grants are allocated to the insular areas and other programs as directed by the present year's appropriations act.	Grants fund four designated areas: American Samoa; Guam; Northern Mariana Islands; and the U.S. Virgin Islands. Not less than 70% of CDBG funds must be used for activities that benefit low- and moderate-income persons.	American Samoa, Guam, Northern Mariana Islands, U.S. Virgin Islands
Intermediate Term Loan	Rural Community Assistance Corporation (RCAC)	Loan	Private	RCAC's loan fund is a financial source for rural communities in the west.	Applications are located online. Eligible applicants: Nonprofit organizations, public agencies, tribes, and low-income rural communities with a population of 50,000 or 10,000 or less if proposed permanent financing is through U.S. Department of Agriculture (USDA) Rural Development (RD).	http://www.rcac.org/lending/environmental-loans/	Application process, Loan program	Capital			\$100,000 for smaller capital needs (up to 20-year term).	Eligible projects: Water, wastewater, solid waste and stormwater facilities that primarily serve low-income rural communities.	Rural Western US

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Investments for Public Works and Economic Adjustment Assistance Programs	U.S. Department of Commerce - Economic Development Administration (EDA)	Loan	Federal	Empowers distressed communities to revitalize, expand, and upgrade their physical infrastructure, and generate or retain long-term, private sector jobs and investment. EDA invests in traditional public works projects, including water and sewer systems improvements, industrial parks, business incubator facilities, expansion of port and harbor facilities, skill-training facilities, and brownfields redevelopment.	Applications will be accepted on an ongoing basis until the publication of a new Economic Development Assistance programs (EDAP) Federal Funding Opportunity (FFO). More information can be found in the Notice of funding opportunity here: https://www.eda.gov/funding-opportunities/ . More information here: https://www.grants.gov/web/grants/search-grants.html?keywords=EDA%E2%80%99s%20Public%20Works%20and%20Economic%20Adjustment%20Assistance%20programs	https://www.eda.gov/programs/eda-programs/	Application process, Loan program	Capital, Other		\$100,000	\$3,000,000	For state and local entities.	National
Iowa Clean Water State Revolving Fund (CWSRF)	Iowa Department of Natural Resources (DNR)	Loan	State	Provides financing for publicly owned wastewater treatment, sewer rehabilitation, replacement, and construction, and stormwater quality improvements.	Projects must apply to be on the annual priority list. Applications can be found online. Contact state office for more information.	http://www.iowasrf.com/program/clean_water_loan_program/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan interest payments provide a continuing source of funds for additional projects.	None		Initial meeting prior to planning process, public construction project. Funding for: publicly owned wastewater treatment, sewer rehabilitation, replacement, and construction, and stormwater quality improvements.	IA
Iowa Drinking Water State Revolving Fund (DWSRF) Program	Iowa Department of Natural Resources (DNR) and the Iowa Finance Authority (IFA)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. SWP activities authorized include coordination and administration of the SWP program, contracts for services to develop SWP plans and review implementation of Best Management Practices, development of data for Phase 1 SWP assessments for all new systems and new wells at existing public water supply systems, technical assistance for well siting, and maintenance of the Source Water Mapper and Tracker online database.	Application documents available at: https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Supply-Engineering/State-Revolving-Loan-Fund . Applicants must first submit an Intended Use Plan (IUP) application to request inclusion on the IA DWSRF IUP before submitting an application for a SRF loan.	http://www.iowasrf.com/program/drinking_water_loan_program/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	IA
Iowa Watershed Improvement Fund	Iowa Department of Agriculture and Land Stewardship (DALSS)	Grant	State	The Watershed Improvement Review Board (WIRB) was established to provide grants to improve water quality and flood prevention. See FAQs for more information: https://www.iowaagriculture.gov/IWIRB/iwirbQandA.asp .	A Request for Applications (RFA) will be announced periodically. The frequency of RFA announcements will vary with the availability of funds and the number of applications received and funded previously from the same appropriation. A news release will be submitted to statewide media outlets.	http://www.iowaagriculture.gov/IWIRB/iwirbWhoAreWe.asp	Application process, Grant program, Long-term program	Capital, Other			10% of the annual appropriation to the fund from the legislature.	For watershed and water quality projects.	IA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Kansas Public Water Supply Loan Fund (KPWSLF)	Kansas Department of Health and Environment (KDHE)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: http://www.kdheks.gov/pws/loansgrants/applications.html . In order for the municipality to be eligible for a Kansas Public Water Supply Loan Fund loan it must first be listed on the Project Priority List. A project submittal form must be submitted to KDHE to receive consideration for the Project Priority List. All Public Water Supply Section funding programs require the municipality to adopt and implement a Water Conservation Plan consistent with guidelines developed by the Kansas Water Office.	http://www.kdheks.gov/pws/loansgrants/loansgrants.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. Projects that are needed solely for future growth or fire protection cannot be considered for funding.	KS
Kansas Small Systems Planning Grants	Kansas Department of Health and Environment (KDHE)	Grant	State	Provides funding towards the development of a preliminary engineering report for public systems serving a population below 3,300 and with a score of 11 or more on EPA's Enforcement Response Policy List.	Application and guidelines can be found online.	http://www.kdheks.gov/pws/loansgrants/applications.html	Application process, Grant program	Capital, Compliance	Dollar for dollar matching for preliminary engineering studies to identify solutions to resolve compliance issues for small public systems.		50% cost-share match up to a maximum of \$5,000.00 to the small water system for development of a preliminary engineering study.	Population served must be 3,300 or less, have a score of 11 or more on EPA's Enforcement Response Policy List, a current or sporadic MCL violation or infrastructure improvement related to deficiency, willing to correct deficiencies.	KS
Kansas Water Pollution Control Revolving Loan Fund (KWPCRF)	Kansas Department of Health and Environment (KDHE)	Loan	State	Finances water pollution control construction projects through low interest loans to local governments and also provides technical assistance.	A project submittal form must be submitted to KDHE prior to submitting a final loan application. Project submittal forms and applications can be accessed at www.kdheks.gov/muni/index.htm .	http://www.kdheks.gov/muni/index.htm	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	In some years, the KWPCRF has leveraged the program by issuing additional revenue bonds. Loan repayments provide a continuing source of funds for additional projects.		Total current funding level is estimated at \$100,000,000 but will vary based on cash flow demand.	Project must be on the Project Priority List. If project exceeds \$10,000,000, a value engineering study must be completed.	KS
Kentucky Clean Water State Revolving Fund (CWSRF)	Kentucky Infrastructure Authority (KIA)	Loan	State	The CWSRF, also referred to as Fund A, is a 20-year loan program for planning, design and construction of wastewater infrastructure projects, stormwater projects and non-point source projects. Fund A1 provides assistance to small communities in financing the preliminary costs prior to construction. It is a five-year loan for planning, design and sanitary sewer evaluation study (SSES). If a community applies for a loan for the construction portion of the project under Fund A, the Fund A1 can be rolled over to the Fund A loan.	Contact the Kentucky Infrastructure Authority (KIA). To be considered for SRF funding, the project must be included on the Project Priority List. The open Call for Projects is conducted annually in October of each year.	http://water.ky.gov/Funding/Pages/CleanWaterStateRevolvingFund.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.		\$50,000,000	Loan for planning, design, and construction of wastewater infrastructure, stormwater, and non-point source projects.	KY
Kentucky Drinking Water State Revolving Fund (DWSRF)	Kentucky Department for Environmental Protection	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	A public water system (PWS) submits a project profile to its local Area Development District who then sends a prioritized list of projects to the state. Application documents available at: https://eec.ky.gov/Environmental-Protection/Water/Funding/srfforms/Pages/default.aspx .	https://eec.ky.gov/Environmental-Protection/Water/Funding/DWSRF/Pages/default.aspx	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	KY

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Land Acquisition Loans	Maine Department of Health and Human Services Center for Disease Control and Prevention Drinking Water Program	Loan	State	Provides low interest loans to community and nonprofit, non-community public water systems for the purchase or legal control of land in drinking water source protection areas. Land acquisition is a key component of safe and secure drinking water and the protection of public health. Shoreline and direct watershed land use and development have major impacts on the quality of water available to a water system and control of those lands is an extremely cost-effective way of managing future water treatment costs.	Applications available on the Maine CDC Drinking Water Program website, www.medwp.com .	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/pws/financialResources.shtml	Application process, Loan program, Long-term program	Capital, Other		None	No project limit; based on available funds at time of loan application.	Community, nonprofit, non-community public water system. Federal agencies not eligible. Purchase of land and/or conservation easements for source water protection.	ME
Long Island Sound Futures Fund	National Fish and Wildlife Foundation (NFWF), U.S. Environmental Protection Agency (EPA), Long Island Sound Study (LISS), and U.S. Fish and Wildlife Service (USFWS)	Grant	Federal	Supports projects that restore and protect the health and living resources of Long Island Sound. The Clean Water and Healthy Watersheds program theme focuses on improving water quality by delivering projects that reduce Combined Sewer Overflows, stormwater runoff, and non-point source loading into Long Island Sound.	All application materials must be submitted online through NFWF's Easy grants system (www.nfwf.org/easygrants).	http://www.nfwf.org/lisff	Application process, Grant program	Capital, O&M	Matching at least 40% of project budget.	\$3,000 (education grants)	\$2 million is available. Funding amount varies based on project type but ranges from \$3,000 to \$100,000.	Must be a 501(c), state government, local government, municipal government, Indian tribe, or educational institution. Local projects that aim to protect and restore Long Island Sound (LIS). Must have a Quality Assurance Project Plan (QAPP) before start.	NY
Louisiana Clean Water State Revolving Fund (CWSRF)	Louisiana Department of Environmental Quality (DEQ)	Loan	State	Offers low-interest loans to communities for construction or upgrade of wastewater treatment works and other water quality improvement projects. Eligible projects include: Construction of publicly owned treatment works; implementation of a non-point source pollution management program; and implementation of an estuary improvement program.	To apply, a pre-application and Louisiana Water/Wastewater Joint Funding Committee Intent to File Application must be completed prior to submitting a CWSRF application. Forms and additional information can be accessed from links on website.	https://deq.louisiana.gov/page/clean-water-state-revolving-fund	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, O&M, Other	Interest and loan repayments provide a permanent source for funding in future Louisiana projects.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Project must be a construction of publicly owned treatment works, implementation of non-point source pollution management program and implementation of an estuary improvement program.	LA
Louisiana Drinking Water Revolving Loan Fund (DWRLF)	Louisiana Department of Health (LDH) Office of Public Health (OPH)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. LA also uses its 2% Small System Technical Assistance set-aside to review source water problems and identify/evaluate technical options.	Specific documents must be completed and submitted to the DWRLF Program any time a water system intends to seek DWRLF assistance. The application package is available at: http://ldh.la.gov/index.cfm/page/1333 .	http://ldh.la.gov/index.cfm/page/431/n/285	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. LA also uses 2% set-aside to fund SWP technical assistance and other related activities.	LA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Maine Clean Water State Revolving Loan Fund (CWSRF)	Maine Department of Environmental Protection (DEP) and Maine Municipal Bond Bank (MMBB)	Loan	State	The primary purpose of the fund is to acquire, plan, design, construct, enlarge, repair and/or improve publicly-owned sewerage collection systems, interceptor sewers, pumping stations, and wastewater treatment plants. In addition, the program also funds public and private non-point source water quality protection and improvement projects.	To apply for a loan without an additional subsidy, complete the CWSRF Notification of Intent to Borrow form, submit it to the Department as instructed, complete the SRF Financial Application located on the MMBB website, and submit it to the MMBB. Applications are accepted on a rolling basis. Forms can be found online.	http://www.maine.gov/dep/water/grants/srfparag.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loans repayments fund additional water quality projects or improvement projects.	None	Varies. Program can offer up to a maximum of \$4,969,200 in additional subsidy.	Must be a municipality or quasi-municipal corporation. Must be for planning, design, and/or construction of municipal wastewater treatment works and other water pollution control facilities or practices including non-point source pollution control.	ME
Maine Drinking Water State Revolving Fund (DWSRF)	Maine Division of Environmental and Community Health	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications are available at: https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/pws/srf.shtml#Forms Applicants must hold a meeting with DWSRF Staff and other project members prior to the start of project.	https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/pws/srf.shtml	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.		Source Water Protection Grant max is \$10,000.	Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. SWP efforts are not eligible for funding with project funds.	ME
Marine Debris Program	National Oceanic and Atmospheric Administration (NOAA)	Grant	Federal	Offers several nationwide, competitive funding opportunities for marine debris projects. Provides funding to support locally-driven, marine debris prevention, assessment, and removal projects that will benefit coastal habitat, waterways, and NOAA trust resources.	Visit https://marinedebris.noaa.gov/funding/funding-opportunities .	https://marinedebris.noaa.gov/	Application process, Grant program, One-time allocation	O&M, Other		\$50,000	For FY17, funding of up to \$2,000,000 was available for Community-based Marine Debris Removal Project Grants, with individual awards expected to range from \$50,000 to \$150,000. In 2016, there were 12 recipients of Marine Debris Prevention, Education and Outreach Partnership Grants totaling \$684,264.	Pre-proposal NOI. Must take place within the United States or territories, federal agencies are not eligible.	National
Maryland Drinking Water Revolving Loan Fund (DWRLF)	Maryland Department of the Environment	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application process information and documents not available on website.	https://mde.maryland.gov/programs/Water/WQFA/Pages/drinking_water_fund.aspx	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MD
Maryland Water Quality Revolving Loan Fund (WQRLF)	Maryland Department of the Environment (DOE)	Loan	State	Provides financial assistance for a wide variety of projects to protect or improve the quality of Maryland's rivers, streams, lakes, the Chesapeake Bay and other water resources.	Projects must apply to be on the annual priority list. Applications are accepted by MWQFA from December 1 through January 31.	https://mde.maryland.gov/programs/Water/WQFA/Pages/water_quality_fund.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Public entities: Point source pollution prevention; Pubic and Private entities: Non-point source pollution prevention.	MD

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Massachusetts Clean Water State Revolving Loan Fund (CWSRF)	Massachusetts Department of Environmental Protection (DEP)	Loan	State	Provides a low-cost funding mechanism to assist municipalities in complying with federal and state water quality requirements. The program emphasizes: Watershed management priorities, Stormwater management, and Green infrastructure.	The applicant must be able to file a complete loan application no later than October 15. Applications and guidelines can be accessed on the website.	http://www.mass.gov/eea/agencies/massdep/water/grants/clean-water-state-revolving-fund.html	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan interest payments provide a continuing source of funds for additional projects.		The current subsidy is provided via a 2% interest loan. In recent years the program has operated with \$400 to \$450 million per year, representing the financing of 50 to 70 projects annually.	Planning and construction projects for CSO, New Wastewater treatment facilities, wastewater collection systems, Infiltration/Inflow (I/I) correction, non-point source abatement projects, green infrastructure, certain waste nutrient management projects.	MA
Massachusetts State Revolving Fund (SRF) Loan Program	Massachusetts Department of Environmental Program (DEP)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://www.mass.gov/lists/state-revolving-fund-applications-forms . To be considered for the program the public water supplier must complete a Project Evaluation Form (PEF) and submit it by May. Information required includes: showing significant benefit to public health or drinking water quality, local funding, and a commitment that the loan application can be filed in a timely manner. The project is then ranked based on set criteria and funded accordingly.	https://www.mass.gov/services/srf-drinking-water-program	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MA
Michigan Clean Water State Revolving Fund (CWSRF)	Michigan Department of Environmental Quality (DEQ)	Loan	State	Low interest loan financing program that assists qualified local municipalities with the construction of needed water pollution control facilities. The Green Project Reserve is for projects with components that address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.	Applications and guidance forms can be accessed on website. Applications must be submitted by July 1.	https://www.michigan.gov/deq/0,1607,7-135-3307_3515_4143---,00.html	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan interest used to fund future projects.		As of October 1, 2017, the SRF program has provided low interest loans for 582 projects, totaling \$4.8 billion.	In FY 2020 projects must address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities. Design and construction activities.	MI
Michigan Drinking Water State Revolving Fund (DWSRF)	Michigan Department of Environment, Great Lakes, and Energy	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://www.michigan.gov/egle/0,9429,7-135-3307_3515_3517-10784--,00.html The application must be completed and submitted to EGLE-WIFS@michigan.gov and a Water Infrastructure Financing Section (WIFS) project manager will follow-up. Projects will be ranked and placed on the Project Priority List (PPL). May 1 each year is the annual cutoff date for submissions for a new project. In 2019 the State set-aside approximately \$400,000 from the set-aside to provide 50/50 match grants for local communities to increase source water protection.	https://www.michigan.gov/egle/0,9429,7-135-3307_3515_3517---,00.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MI

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Michigan Nonpoint Source Pollution Control Grants - Clean Michigan Initiative	Michigan Department of Environmental Quality	Grant	State	Provides funding to implement the physical improvements in approved watershed management plans intended to restore impaired waters and protect high quality waters. Practices must address specific sources of non-point source pollution identified by Michigan's Non-point Source Program Plan. Physical improvements are structural and vegetative best management practices.	A request for proposals is announced with a deadline for application. Eligible applicants can contact DEQ Non-point Source staff for grant application assistance. Prior to application, locally developed watershed management plans should be submitted to the DEQ for review and approval.	http://www.michigan.gov/deq/0,4561,7-135-3307_3515-314499--,00.html	Application process, Grant program	Capital	Grants required a 25% match. Funding for physical improvements in approved watershed management plan.	\$25,000	Approximately \$1-\$2 million has been available most funding rounds. There is no maximum for proposals submitted.		MI
Michigan Stormwater, Asset Management and Wastewater (SAW) Program	Michigan Department of Environmental Quality (DEQ)	Grant	State	Provides grants for the development of plans to identify and manage stormwater or wastewater assets, stormwater treatment management plans, planning and design of sewage, stormwater, or non-point source pollution reduction projects, and the testing and demonstration of innovative water quality improvement projects. Additionally, low interest loans are available for construction activities that protect water quality and are identified in an asset management program or and approved stormwater management plan.	Applications information can found online. Information was last updated in 2018, stating no new applications have been accepted since March 21, 2014.	http://www.michigan.gov/deq/0,4561,7-135-3307_3515_4143-294952--,00.html	Application process, Grant program, Non-competitive process	Capital	Matching may be required.	None	Up to \$2 million per municipality with match of 10% for the first million and 25% for the second million.	Any municipality as defined by MCL 324.5301(i) is eligible to apply. Planning, design, and construction. Construction must start within three years of award.	MI
Michigan Stormwater, Asset Management and Wastewater (SAW) Program	Michigan Department of Environmental Quality	Loan	State	The Stormwater, Asset Management and Wastewater program provides grants for the development of plans to identify and manage stormwater or wastewater assets, stormwater treatment management plans, planning and design of sewage, stormwater, or non-point source pollution reduction projects, and the testing and demonstration of innovative water quality improvement projects. Additionally, low interest loans are available for construction activities that protect water quality and are identified in an asset management program or and approved stormwater management plan.	Applications information can be found online.	http://www.michigan.gov/deq/0,4561,7-135-3307_3515_4143-294952--,00.html	Application process, Grant program, Loan program, Long-term program	Capital, Other	For grants, match of 10% for the first million and 25% for the second million.		For fiscal year 2018, \$62 million was appropriated for SAW award. Grants are available up to \$2 million per municipality.	Eligible applicants are municipalities as defined in MCL 324.5301(i). Eligible projects are construction activities that address water quality issues.	MI
Minnesota Clean Water State Revolving Fund (CWSRF)	Minnesota Public Facilities Authority (PFA), Minnesota Pollution Control Agency	Loan	State	Helps communities build or upgrade wastewater treatment plants to comply with discharge standards in the federal Clean Water Act.	Projects must apply to be on the annual priority list. Applications are accepted within six months after the intended use plan is approved using the PFA's loan application forms. The IUP is compiled once a year but may be amended.	https://mn.gov/deed/pfa/funds-programs/cleanwaterrevolvingfund.jsp	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loans can be used for bond issuance, and certain fees and contingency costs.		No maximum funding level. Amount of funds given is determined by project priority level and total available funds that fiscal year.	Cities, counties, townships, sanitary districts or other governmental subdivisions responsible for wastewater treatment are eligible. Land costs not allowable.	MN

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Minnesota Drinking Water Revolving Fund (DWRF)	Minnesota Public Facilities Authority (PFA) and the Minnesota Department of Health (MDH)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: https://mn.gov/deed/pfa/funds-programs/drinking-water.jsp . Projects must be included on the MDH's Project Priority List and the Public Facilities Authority's Intended Use Plan. In addition, projects must be certified by the MDH before the PFA may approve a loan.	https://mn.gov/deed/pfa/funds-programs/drinking-water.jsp	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MN
Mississippi Capital Improvements Revolving Loan (CAP)	Mississippi Development Authority (MDA)	Loan	State	Provides loans to municipalities and counties for the improvement of public facilities and infrastructure to assist with business locations and expansions with community based projects.	Applications are accepted on a rolling basis. CAP forms can be found online.	https://www.mississippi.org/home-page/business-services/community-development/community-services/cap/	Application process, Loan program, Long-term program	Capital, Compliance, Other	Loan interest used to fund other loans.	\$30,000	\$1,000,000 per calendar year	County and municipal governmental authorities may apply for the loans for improvement of public facilities and infrastructure to assist with business locations and expansions with community-based projects.	MS
Mississippi Development Infrastructure Grant Program (DIP)	Mississippi Development Authority (MDA)	Grant	State	Funds publicly-owned infrastructure. Funding can be used by municipalities and counties to assist with the location or expansion of businesses. Usage of the funds must be directly related to the construction, renovation or expansion of industry. The primary goal is Job creation.	Applications are accepted on a rolling basis. Municipalities and counties interested in applying for DIP funding for new or expanded industry projects should contact MDA's Community Services Division at 601-359-3552. Municipalities and counties must apply on behalf of a new or expanded industry based on the public infrastructure needs of the project.	https://www.mississippi.org/home-page/business-services/community-development/community-services/dip/	Application process, Grant program	Capital, Other		None	\$150,000	Usage of the funds must be directly related to the construction, renovation or expansion of industry.	MS
Mississippi Drinking Water Systems Improvements Revolving Loan Fund (DWSIRLF)	Mississippi State Department of Health	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://msdh.ms.gov/msdhsite/_static/44,0,127,62.html .	https://msdh.ms.gov/msdhsite/_static/44,0,127,62.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MS

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Mississippi Water Pollution Control (Clean Water) State Revolving Loan Fund (WPCRLF)	Mississippi Department of Environmental Quality (MDEQ)	Loan	State	Provides low interest loan funding for water pollution control projects, including construction of wastewater treatment and transportation facilities, non-point source and stormwater pollution control programs and estuary conservation and management programs.	Application information is available online. The process begins with eligible recipients hiring a consulting engineer registered in Mississippi.	https://www.mdeq.ms.gov/about-mdeq/grants-loans-and-trust-funds-available-through-mdeq/water-pollution-control-clean-water-revolving-loan-fund-wpcrlf-program/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loans repayments fund additional water quality projects or improvement projects.		Funding level determined by priority, number of applicants, and total WPCRLF amount to loan.	Must be a municipality, public sewer district, or public entity.	MS
Missouri Clean Water State Revolving Fund (CWSRF)	Missouri Department of Natural Resources (DNR)	Loan	State	Traditional uses of this program are to build or improve wastewater treatment plants for municipalities; however, new and emerging conservation, agricultural and urban projects can also be funded.	Projects must apply to be on the annual priority list. Applications can be found online.	http://www.dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loans repayments fund additional water quality projects or improvement projects.	None	Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Applicants must demonstrate fiscal sustainability and an ability to repay. Political subdivision and privately-owned and not-for-profit organizations are also eligible depending on the type of project.	MO
Missouri Drinking Water State Revolving Fund (SRF) Loan Program	Missouri Department of Natural Resources	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://dnr.mo.gov/env/wpp/srf/drinkingwater-assistance.htm . Projects that are prioritized for available funding will be listed in the annual SRF Intended Use Plan. Listing indicates a non-binding commitment to fund the project pending successful progress through the SRF process by the applicant. MO uses a portion of its set-aside to fund subawards to community water systems to plug abandoned wells that threaten or may threaten the water system's source of supply, contract with the University of Missouri for maintenance of public water system source water assessment and delineation information, development of source water protection plans, development of brochures and signage to promote awareness of sensitive well recharge and watershed area.	https://dnr.mo.gov/env/wpp/srf/drinkingwater-assistance.htm	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. Ineligible activities include: dam rehab, reservoirs, fire protection, projects serving growth.	MO

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Montana Drinking Water State Revolving Fund (DWSRF) Loan Program	Montana Department of Environmental Quality (DEQ) and Department of Natural Resources and Conservation (DNRC)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. MT uses a portion of its set-aside to implement a SWP program, which maintains and updates spatial datasets and web-based services describing significant potential contaminant sources to drinking water supplies, conducts outreach and education efforts pertaining to protecting source waters, reviews preliminary source water assessments, and tracks/advises on groundwater contamination investigations posing a risk to source waters in the state.	Application documents available at: http://deq.mt.gov/Water/SurfaceWater/DesignApprovals#collapseThree . All entities must request that their project(s) be added to the Priority List and Intended Use Plan. Early notification by the applicant is essential to get on the priority list, and a project remains on the list until it has been completed regardless of the funding source(s) used to finance the project.	https://deq.mt.gov/Water/Councils/DrinkingWater	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	MT
Montana INTERCAP Loan Program	Montana Department of Commerce, Montana Board of Investments	Loan	State	Provides low-interest loans for a wide variety of needs to Montana local governments. Use of loan funds has significant flexibility, e.g. new and used equipment and vehicles, real property improvements, cash flow, preliminary engineering costs, grant writing.	Application form online. Loan requests in excess of \$1,000,000 must receive Loan Committee approval. Loan requests in excess of \$5,000,000 must receive Board approval.	http://investmentmt.com/INTERCAP	Application process, Loan program, Long-term program	Capital, O&M, Other	No upfront cost or matching required. Variable rate loan program. Interest rate through February 15, 2019 was 3.15%.			Eligible government units as defined under 17-5-1604. Eligible projects include those for water, wastewater and solid waste, energy retrofits, new and used equipment and vehicles, preliminary engineering costs, and grant writing.	MT
Montana Water Pollution Control State Revolving Fund (WPCSRF)	Montana Department of Environmental Quality	Loan	State	Provides at or below market interest rate loans to eligible Montana entities for water pollution control projects.	Applications are available from the MT Department of Environmental Quality (DEQ). All entities must request that their project(s) be added to the Priority List contained in the Intended Use Plan. This annual process typically begins in May to identify projects which may need SRF funding for their project in the upcoming year.	http://deq.mt.gov/Water/TFA/SRF/WPCSRF	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	The SRF loan programs are designed to provide a perpetual source of financial assistance to Montana communities.		No maximum funding level. Funds granted based on project priority and total available funds.	Government agency, for stormwater, non-point source or wastewater system improvement needs excluding operation, maintenance and growth development.	MT
Montana Water Pollution Control State Revolving Fund (WPCSRF)	Montana Department of Environmental Quality	Loan	State	The Water Pollution Control State Revolving Fund (WPCSRF) Program was established for water pollution control projects. The program provides at or below market interest rate loans to eligible Montana entities.		http://deq.mt.gov/Water/SurfaceWater/DesignApprovals	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other				Municipal wastewater projects and municipal and private entities non-point source projects are eligible for funding. Borrower must show ability to repay the loan.	MT
National Rural Water Association (NRWA) Rural Water Loan Fund	National Rural Water Association (NRWA)	Loan	Private	Provides low-cost loans for short-term repair costs, small capital projects or replacement costs, or pre-development costs associated with proposed water and wastewater projects. Also includes a 90-days, no interest, disaster area emergency loans with immediate turnaround.	Applications are online. Information can be emailed or submitted by mail. Applicants may also contact any State Rural Water Association for assistance in preparing and submitting the required documents.	http://nrwa.org/initiatives/revolving-loan-fund/	Application process, Loan program	Capital, O&M	Established through a grant from the USDA/RUS, and repaid funds are used to replenish the fund and make new loans.	None	Loan amounts may not exceed \$100,000 or 75% of the total project cost, whichever is less.	Eligible projects: Pre-development cost for infrastructure, replacement equipment, upgrades, maintenance and small capital projects, energy efficiency projects, disaster recovery or emergency.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
National Urban and Community Forestry Challenge Cost-Share Program	U.S. Forest Service	Grant	Federal	Seeks to establish sustainable urban and community forests by encouraging communities to manage and protect their natural resources. Grants are intended to address national issues or opportunities related to urban and community forestry.	Visit https://www.fs.fed.us/managing-land/urban-forests/ucf/nucfac/cost-share to check the status of the next application period. Website says closed in 2017 check back in 2018.	https://www.fs.fed.us/managing-land/urban-forests/ucf/nucfac/cost-share	Application process, Grant program	Other	All grant funds must be matched at least equally (dollar for dollar) with non-federal source funds.		Five proposals were funded in 2015, for a total of \$795,447.		National
Natural Resources Conservation Service (NRCS), Conservation Title Programs (2018 Farm Bill)	U.S. Department of Agriculture (USDA)	Grant	Federal	The 2018 Farm Bill requires that 10% of spending on Conservation Title programs be directed to source water protection.	Only eligible organizations interested in partnering with NRCS on conservation projects can develop applications for the RCPP competition. The lead partner for an RCPP project is the entity that submits an application, and if selected for an award is ultimately responsible for collaborating with NRCS to successfully complete an RCPP project. Interested partners must apply through the RCPP portal (nrcs.my.salesforce.com). Once RCPP projects are selected, producers and landowners can apply to participate in projects that cover their geographic area. Interested producers should visit their local USDA Service Center to see if their land is included in the scope of any existing RCPP projects.	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/			The 2018 Bill requires source water protection and matching is provided for some projects.				
Nebraska Clean Water State Revolving Loan Fund (CWSRF)	Nebraska Department of Environmental Quality (DEQ)	Loan	State	Provides low interest loans and small community matching grants to municipalities for construction of wastewater treatment facilities and sanitary sewer collection systems to alleviate public health and environmental problems.	To begin planning a wastewater system project, the first step is to contact the NDEQ Financial Assistance SRF Section. For more detailed guidelines visit the DEQ website.	http://deq.ne.gov/NDEQProg.nsf/OnWeb/CWSRLF	Application process, Fund allocation to states and localities, Grant program, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.	None	Maximum funding amount varies based on grant type. For grants, Project Planning grants can be up to \$15,000 and Small Town grants can be up to \$250,000.	Municipalities. Maximum term of loan is 20 years. Communities must comply with planning requirements and have an engineer's report prepared by a professional engineer.	NE
Nebraska Drinking Water State Revolving Loan Fund (DWSRF) program	Nebraska Department of Environmental Quality (NDEQ), Nebraska Department of Health and Human Services, and Nebraska Investment Finance Authority (NIFA)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. NE uses a portion of its set-aside to fund its Source Water Assessment Program (SWAP), which works with PWSs to develop protection actions for their drinking water supplies, maintain Wellhead Protection Area maps, develop of Drinking Water Protection Management Plans, implement BMPs aimed at reducing groundwater nitrate levels, and public education and outreach.	Application documents available at: http://deq.ne.gov/NDEQProg.nsf/OnWeb/DWSRLF . Applicants must first complete and submit the annual NE DWSRF Needs Survey, which the state uses this information to develop an Intended Use Plan, which is a detailed prioritization of projects. Applicants then submit a joint water/wastewater pre-application for state and/or federal assistance to NDEQ or the Department of Health and Human Services and develop an engineering report showing that present and future conditions and environmental impacts have been reviewed, alternative design approaches have been identified and assessed, and the best affordable alternative has been selected.	http://deq.ne.gov/NDEQProg.nsf/OnWeb/DWSRLF	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs. The state asks that possible alternative financing sources be identified to use in conjunction with state loan funds.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	NE

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Nevada Clean Water State Revolving Fund (CWSRF)	Nevada Division of Environmental Protection (DEP)	Loan	State	Provides loans for infrastructure construction to publicly and privately owned wastewater systems in Nevada. Loans can also be used to control non-point sources of water pollution.	To apply, submit two copies of facility plan to the Office of Financial Assistance for review. Following review, applicants must submit CWSRF loan application.	https://ndep.nv.gov/water/financing-infrastructure/state-revolving-fund-loans/clean-water-wastewater	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other			Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Municipalities and interstate agencies. Project must support the following goals: Elimination of surface and groundwater pollution, protection of health, attainment of water quality standards.	NV
Nevada Drinking Water State Revolving Fund (DWSRF)	Office of Financial Assistance (OFA) and the Nevada Division of Environmental Protection (NDEP)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. NV uses a portion of its set-aside to revise and implement SWP programs, develop and perform technical assistance outreach and develop a strategy for dealing with threats including pathogens, inorganics, and nutrients.	Application documents are available at: https://ndep.nv.gov/water/financing-infrastructure/state-revolving-fund-loans/how-do-i-apply . Applicants must first submit a DWSRF Priority List pre-application, which will then be evaluated for inclusion on the Priority List before the applicant submits a Loan Application Form.	https://ndep.nv.gov/water/financing-infrastructure/state-revolving-fund-loans/drinking-water	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	NV
New Hampshire Clean Water State Revolving Fund (CWSRF)	New Hampshire Department of Environmental Services (NHDES)	Loan	State	Low-interest loan program that assists communities with the planning, design and construction of eligible water pollution control infrastructure projects. Borrowers are typically municipal or other local government entities.	Must complete a pre-application. Projects must apply to be on the annual priority list. Applications can be accessed on website. Pre-applications are typically due in June; final applications are due the following spring.	http://des.nh.gov/organization/divisions/water/wweb/grants.htm	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other		None	Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Must be municipal, nonprofit other local government. For collection system and wastewater treatment plant plans, non-point source, watershed protection and restoration, and estuary management projects.	NH
New Hampshire Drinking Water State Revolving Fund (DWSRF)	New Hampshire Department of Environmental Services	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. The State provides Local Source Water Protection Grants to develop and implement programs to protect existing sources of public drinking water. Source protection projects include: watershed planning, delineation of protection areas, assessment of threats to water supply sources, implementation, source security and conservation.	Funding applications and forms are available at: https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/dwsrf.htm Application are accepted annually and Final Application Checklists are provided for various types of applicants. Pre-application must be submitted to the State by a designated date for that year and pre-applications are ranked based on relative impact of the project eligible applicants selected for funding must than submit a full application.	https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/dwsrf.htm	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.		Source Water Protection Grant max of \$20,000 (in 2017).	Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	NH

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
New Jersey Drinking Water State Revolving Fund (DWSRF)	New Jersey Department of Environmental Protection (NJDEP): Division of Water Supply and Geoscience	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://www.njib.gov/ Interested parties must first file a Letter of Intent online and be placed on the Project Priority List for potential funding prior to applying for the funds at the New Jersey Infrastructure Bank - New Jersey Environmental Infrastructure Trust for H2LOans.	https://www.State.nj.us/dep/watersupply/dws_loans.html and https://www.njib.gov/njeit	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs. Project sponsors can receive a loan for a portion of project cost from NJEIT at market rate and portion at 0% from NJDEP.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. The applicant can request Engineering Services from the NJDEP and one will be assigned as funds allow.	NJ
New Jersey Environmental Infrastructure Financing Program (NJEIFP)	State of New Jersey Department of Environmental Protection (NJDEP)	Loan	State	Partnership between the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Environmental Infrastructure Trust (Trust) to provide low cost financing for the design, construction, and implementation of projects that help protect and improve water quality and help ensure safe and adequate drinking water.	Submit applications through H2LOans, the State's online loan management system.	http://www.nj.gov/dep/dwq/mface_njeifp.htm	Application process, Loan program, Long-term program	Capital	Utilizes two funding sources: revenue bonds, and combination of state funds including state revolving fund (SRF).			For municipalities and local governments. Water and environmental infrastructure projects.	NJ
New Jersey Environmental Infrastructure Financing Program (NJEIFP)	State of New Jersey Department of Environmental Protection (NJDEP)	Bond	State	Partnership between the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Environmental Infrastructure Trust (Trust) to provide low cost financing for the design, construction, and implementation of projects that help protect and improve water quality and help ensure safe and adequate drinking water.	Submit application through H2LOans.	http://www.nj.gov/dep/dwq/mface_njeifp.htm	Application process, Loan program, Long-term program	Capital, Other	Funding is a combination of Federal State Revolving Fund (SRF) capitalization grants, as well as the State's matching funds, loan repayments, State appropriations and interest earned on such funds.			Eligible projects include design, construction, and implementation of water quality projects. Eligible applicants include municipalities and local government utilities.	NJ
New Markets Tax Credit (NMTC) Program	U.S. Department of the Treasury	Grant	Federal	Encourages private investment in a range of project types in distressed areas (e.g., real estate or business development projects). Awards are allocated to nonprofit and private entities based on their proposals for distributing the tax benefits.		https://www.cdfifund.gov/programs-training/Programs/new-markets-tax-credit/Pages/default.aspx	Application process, Competitive process, One-time allocation	Capital	Community Development Entities (CDEs) make loans and investments to businesses operating in low-income communities on better rates and terms and more flexible features than the market.			Community Development Financial Institutions (CDFI) Fund allocates tax credit authority to CDEs through a competitive allocation process. NMTC Program applicants must be certified as CDEs by the CDFI Fund.	National
New Mexico Clean Water State Revolving Fund Loan Program (CWSRF)	New Mexico Environment Department	Loan	State	Provides a source of low-cost financing for a wide range of wastewater or stormwater drainage projects that protect surface and ground water. Funds may also be used for projects that control non-point source water pollution, such as a solid waste and septic tank installations.	Applications accepted each spring.	http://www.nmenv.state.nm.us/cpb/CWSRFPage.htm	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Repayments are cycled back into the fund and used to pay for future clean water projects.		Varies annually	Eligible borrowers: municipalities, counties, water & sanitation districts, mutual domestic water associations, Pueblos & Tribes. Private entities are eligible for limited projects.	NM

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
New Mexico Drinking Water State Revolving Loan Fund (DWSRLF)	New Mexico Environment Department's (NMED) Drinking Water Bureau (DWB) and the New Mexico Finance Authority (NMFA).	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. NM uses a portion of its set-aside to organize and provide classroom trainings and individual assistance to PWS board members and operators which, in part, increase PWS capacity to plan and protect the quantity and quality of source waters. In addition, NM uses a portion of its set-aside to implement its Source Water and Wellhead Protection Program, which supports an internal team that inventories assessments and protection plans already in place and targets assistance to water systems that are out of compliance with maximum contaminant levels, are threatened by actual contaminant sources, or are experiencing sustainability challenges, and have an out of date plan or no source water protection plan.	Application documents available at: https://www.env.nm.gov/drinking_water/wifunding/ . Applicants must first submit a Project Interest Form and Project Interest Form supplemental documentation to be considered for inclusion on the Fundable Priority List. If your project is included on a Fundable Priority List, NMFA will invite you to submit a DWSRLF Application.	https://www.env.nm.gov/drinking_water/wifunding/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	NM
New York Clean Water State Revolving Fund (CWSRF)	New York State Environmental Facilities Corporation (EFC)	Loan	State	Provides interest-free or low-interest rate financing for wastewater and water quality improvement projects to municipalities throughout New York State. A variety of point source, non-point source, and national estuary projects are eligible for financing, including construction or restoration of sewers and wastewater treatment facilities, stormwater management, landfill closures, as well as habitat restoration and protection projects.	To be considered for CWSRF financing, a Project Listing Form must be completed. If the project is listed in the Annual List of the Intended Use Plan, a complete CWSRF Financing Application can be submitted. Applications can be accessed on website.	https://www.efc.ny.gov/CWSRF	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	EFC provides both short and long-term financing. As borrowers repay their loans, repayments of principal and interest earnings are recycled back into the CWSRF program to finance new projects.		Varies	Municipalities are eligible, including Indian nations or tribes wholly or partly within the BYS boundaries. Non-Municipal entities can apply for some financing. Must be a water quality project.	NY
New York Drinking Water State Revolving Fund (DWSRF)	New York Department of Health and Environmental Facilities Corporation	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. The State considers protection of water quality as an eligible project.	Funding applications and forms are available at: https://www.efc.ny.gov/DWSRFApply . Both applicants and project must meet eligibility requirements and applicants must be mailed into the State by the submission deadlines. Prior to applying for the loan applications must be listed on the Annual Project Priority List in the current Intended Use Plan (IUP).	https://www.efc.ny.gov/drinkingwater and https://www.health.ny.gov/environmental/water/drinking/water.htm	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more. Projects that protect water quality are considered eligible.	NY

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
New York Integrated Solutions Construction (ISC) Grant Program	New York State Environmental Facilities Corporation (EFC)	Grant	State	Grants for projects that incorporate green infrastructure into Clean Water State Revolving Fund (CWSRF) projects. Successful applicants will construct projects that remove stormwater from combined, sanitary, or storm sewers. The proposed project should demonstrate the value of integrating green practices into traditional gray infrastructure projects to provide water quality benefits, as well as the advantages of natural systems.	Applicants may apply for the ISC grant through the traditional CWSRF application process, by indicating that they are interested in the ISC grant when they complete the CWSRF finance application. See eligibility requirements online.	https://www.efc.ny.gov/ISC	Application process, Grant program	Capital, Other	Awarded projects will receive 50% of the construction cost of eligible green stormwater practices.		Total funding amount is \$8 million.	ISC grant funding is available only in conjunction with CWSRF financing. Project must include: engineering report, demonstrate site conditions are suitable, include green infrastructure that provides runoff reduction, comply with EPA Green Project Reserve	NY
New York Local Government Efficiency (LGe) Grant Program	New York Department of State (DOS)	Grant	State	Provides technical assistance and competitive grants to local governments for the development of projects that will achieve savings and improve municipal efficiency through shared services, cooperative agreements, mergers, consolidations and dissolutions.	Potential applicants should contact the Department of State (DOS) for application information. Applications can be found online.	https://www.dos.ny.gov/lge/grant.html	Application process, Competitive process, Grant program, Long-term program	Capital, Other			Varies	Local municipal government entities. Project Topics include: General Government, Government Reorganization, City & County Charter Revisions, Education, Municipal Utilities, Public Safety, and Transportation.	NY
New York Sewage Pollution Right to Know Combined Sewer Overflow (CSO) Grant	New York State Department of Environmental Conservation (DEC)	Grant	State	Funding for communities to purchase and install detection, monitoring and reporting devices on Combined Sewer Overflows (CSOs) to fulfill reporting requirements of the Sewage Pollution Right to Know (SPRTK) Law. This grant program provides funds for municipalities to purchase and install different types or levels of CSO detection and notification.	Application details can be found online. Submit questions about applications via email.	http://www.dec.ny.gov/pubs/105337.html	Application process, Grant program	Capital, Other			Individual grants are capped at \$50,000. Total funding is \$500,000.	Municipalities with CSOs. Municipal wastewater systems must serve less than 200,000 people, registered with NY-ALERT, agree to use NY-ALERT to report CSO. Funds to purchase and install detection, monitoring and reporting devices of CSO.	NY
New York Wastewater Infrastructure Engineering Planning Grant (EPG)	New York State Department of Environmental Conservation (DEC) and Environmental Facilities Corporation (EFC)	Grant	State	The goal of the EPG program is to advance water quality projects to construction and future implementation funding through the Clean Water State Revolving Fund (CWSRF) program, Water Quality Improvement Project grants, or other funding entities.	Municipalities can apply for the funding through the Consolidated Funding Application (CFA): https://apps.cio.ny.gov/apps/cfa/ .	http://www.dec.ny.gov/pubs/81196.html	Application process, Grant program	Other			Either \$30,000, \$50,000 or \$100,000 grant amounts are available based on population size.	Funds planning only, not design or construction. Eligible applicants are municipalities with median household income equal or less than \$70,000 or \$90,000 depending on location.	NY
New York Water Quality Improvement Project Program (WQIP) Grants	New York State Department of Environmental Conservation (DEC)	Grant	State	Competitive, reimbursement grant program that funds projects that directly address documented water quality impairments. There are seven programs: wastewater treatment improvement, general wastewater treatment improvement, non-agricultural non-point source, land acquisition for source water protection, salt storage, and aquatic habitat restoration.	Applications are typically available online each spring through the Consolidated Funding Application. Contact regional officer for more information: http://www.dec.ny.gov/pubs/45166.html .	http://www.dec.ny.gov/pubs/4774.html	Application process, Competitive process, Grant program, Long-term program	Capital, Other	Reimbursement program. Match requirements amount vary depending on projects types, range 25% to 60%.		Up to \$79 million is available. Each program has different grant/match ratios.	Eligible for all project types: Municipal and Soil and Water Conservation Districts. Not-For-Profit corporations are eligible for Aquatic Connectivity Restoration and Land Acquisition for Source Water Protection only.	NY

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
New York Water Quality Management Planning Programs: Clean Water Act, Section 604(b) Funding	New York State Department of Environmental Conservation (DEC)	Grant	State	Funding is available to implement regional comprehensive water quality management planning activities as described in Section 604(b) of the federal Clean Water Act. 604(b) funds are to be used for water quality management planning activities, including tasks to determine the nature, extent and causes of point and non-point source water pollution problems, and to develop plans to resolve these problems. Baseline Planning and Statewide Planning Coordination Programs are available for funding.	Complete applications must be submitted in November through the New York State Grants Gateway Grant Opportunity Portal: https://grantsgateway.ny.gov/IntelliGrants_NYSGG/module/nysgg/goportal.aspx . Check online for each program eligibility.	http://www.dec.ny.gov/lands/53122.html	Application process, Grant program, Long-term program	Other	Next RFA expected for 2022.	\$15,000 per year (baseline planning)	Baseline Planning maximum is \$100,000 per year. Actual amounts for grants each year will depend on Congressional appropriations. Statewide Planning Coordination: Up to \$25,000 will be available annually from 2019-2023.	Eligible applicants: NYS Regional Planning organizations and interstate organizations.	NY
Non-point Source (NPS) Implementation Grants (319 Program)	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Under Section 319 of the Clean Water Act (CWA), states, territories and tribes receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific non-point source (NPS) implementation projects.	Section 319(h) funding decisions are made by the states. States submit their proposed funding plans to EPA. If a state's funding plan is consistent with grant eligibility requirements and procedures, EPA then awards the funds to the state. For state-specific application information, please contact your state NPS coordinator (https://www.epa.gov/nps/state-contacts-nps-programs-your-area).	https://www.epa.gov/nps/319-grant-program-states-and-territories	Fund allocation to states and localities, Grant program, Long-term program	Capital, O&M, Other	50% set aside for as watershed projects funds and 50% for NPS program funding. (from 2013 guidelines).		\$168 million total available in FY 2017.	Funding for states and tribes. NPS management program developed using the required guidelines to develop.	National
North American Development Bank (NADB) Loans	North American Development Bank (NADB)	Loan	Federal	NADB is authorized to make loans to both public and private sector borrowers, operating within the United States and Mexico. Any project, regardless of community size or project cost, is eligible for financing and other forms of assistance from NADB, if it meets all three of the following eligibility criteria: (1) The project must be located within 100 km (62 miles) north of the international boundary in the four U.S. states of Texas, New Mexico, Arizona and California. (2) It must remedy an environmental and/or human health problem. (3) It must pass through the Border Environment Cooperation Commission (BECC) certification process.	Online application is available at: http://www.becc.org/certification-process/apply-for-certification-financing	http://nadbank.org/programs/loans.asp	Application process, Loan program	Capital, O&M, Other	Provides financing for the development, execution and operation of environmental infrastructure projects located in the U.S.-Mexico border region and certified by the Border Environment Cooperation Commission (BECC).			Both public and private borrowers, operating within the US and Mexico if criteria are met.	TX, CA, NM, AZ
North Carolina Clean Water State Revolving Fund (CWSRF)	North Carolina Department of Environmental Quality (DEQ)	Loan	State	Provides low interest loans to local government units to fund wastewater collection and treatment facilities as well as programs associated with estuary and non-point sources.	There are two funding cycles per year, typically in March and September. Applications and guidelines concerning the funding process can be accessed on the website.	http://portal.ncdenr.org/web/wi/cwsrf	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Low-interest loans, limited amount of principal forgiveness loans, and 0%. Loan repayments are used to provide funding for future loans.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	For local government units. Projects: wastewater treatment, wastewater collection, reclaimed water, stormwater BMPs, stream restoration, energy efficiency at treatment works or collection systems. Construction must start within 24 months.	NC

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
North Carolina Drinking Water State Revolving Fund (DWSRF)	North Carolina Department of Environmental Quality (DEQ)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application information and documents available at: https://deq.nc.gov/about/divisions/water-infrastructure/i-need-funding/application-forms-and-additional-resources#common-forms . NC offers in-person training for applicants.	https://deq.nc.gov/about/divisions/water-infrastructure/i-need-funding/drinking-water-state-revolving-fund	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	NC
North Carolina Economic Infrastructure Program	North Carolina Department of Commerce (NCDC), Rural Economic Development Division (NCDC-RD)	Grant	State	Funds are available to local governments to assist with infrastructure projects that will lead to the creation of new, full-time jobs. Projects include upgrades or repair of drinking water or wastewater treatment plants or upgrades, extensions, or repair of public water or sewer lines.	Rankings can be found on the NCDC website. See website for application.	https://www.nccommerce.com/rd/rural-grants-programs/economic-infrastructure	Application process, Grant program	Capital			Funding varies based on county priority (available online).	Eligible applicants are units of local government with priority given to the counties that have the 80 highest rankings under N.C.G.S.143B-437.08.	NC
North Dakota Clean Water State Revolving Fund (CWSRF)	North Dakota Department of Public Health (DPH)	Loan	State	Low interest loan program designed to assist communities with a wide range of water quality infrastructure projects.	Proposed projects must be identified on the Project Priority List. To be included on these lists, notify the Department of Public Health (DPH) of intent as soon as possible. Application packets can be obtained online at: http://www.nd.gov/pfa/srf.html	https://deq.nd.gov/MF/CWSRF/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Jointly managed by the North Dakota Department of Environmental Quality (NDDEQ) and the North Dakota Public Finance Authority (PFA). Bond counsel fees are the only cost of issuance expense.		Varies	Must be a political subdivision (city, county, township, water resource district, etc.). Cannot be used for O&M costs, collection lines to serve new subdivisions, projects primarily to serve future growth, for systems that lack capacity, etc.	ND
North Dakota Drinking Water State Revolving Fund Program (DWSRF) and the North Dakota Public Finance Authority (PFA)	North Dakota Department of Environmental Quality (NDDEQ) and the North Dakota Public Finance Authority (PFA)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: http://www.nd.gov/pfa/srf.html . Applicant projects must be included on the Project Priority List (PPL). In the spring of each year, a letter of interest is sent to all potential DWSRF loan recipients asking for information regarding new drinking water projects for which they may be interested in pursuing DWSRF assistance. Systems that respond are provided a project ranking questionnaire. Eligible projects for which ranking questionnaires are returned are ranked and included on the PPL as part of the IUP development process. In the fall of each year, following public review and comment, the IUP is finalized and subsequently included in the grant application to the EPA. Once the IUP is finalized, systems with projects on the PPL may apply for DWSRF assistance.	https://deq.nd.gov/MF/DWSRF/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	ND
Northern Border Regional Commission Area Development Fund	Northern Border Regional Commission (NBRC)	Grant	Federal	Federal-State partnership for economic and community development in northern Maine, New Hampshire, Vermont, and New York. The NBRC provides federal funds four areas: Economic and infrastructure development investments, comprehensive planning for states, local development districts, and general planning.	Potential applicants should contact their state NBRC program manager to request a pre-application package. http://www.nbrc.gov/content/contact . Please contact your local office for each grant type. Information is available online. No Appropriations for 2019.	http://www.nbrc.gov/content/program-areas	Grant program	Capital, Other	For economic and infrastructure development.		Funding varies by project type but ranges from \$200,000-\$500,000 per project.	Applicants: State governments, county and municipal government, Indian tribes, public and nonprofit organizations.	NH, ME, NY, VT

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Ohio State Capital Improvement Program (SCIP)	Ohio Public Works Commission (OPWC)	Grant	State	The OPWC provides financing for local public infrastructure improvements through the State Capital Improvement Program (SCIP), a grant/loan program for roads, bridges, water supply, wastewater treatment, stormwater collection, and solid waste disposal.	Application information is available at: http://www.pwc.state.oh.us/Application.html?m=	http://www.pwc.state.oh.us/OPWCOview.html?m=	Application process, Grant program, Long-term program	Capital	Grants will cover up to 90% of project total costs for repair/replacement, and up to 50% for new/expansion costs. Loans can be provided for up to 100% of project costs.		There is no maximum or minimum loan amount.	Districts may have specific requirements. Must be government entity. Funding for all infrastructure programs including SCIP, LTIP, Emergency, Small Government and Loan Assistance/Credit Enhancement.	OH
Ohio State Capital Improvement Program (SCIP)	Ohio Public Works Commission (OPWC)	Loan	State	Provides financing for local public infrastructure improvements through the State Capital Improvement Program (SCIP), a grant/loan program for roads, bridges, water supply, wastewater treatment, storm water collection, and solid waste disposal.	Application information: http://www.pwc.state.oh.us/Application.html?m=	http://www.pwc.state.oh.us/OPWCOview.html?m=	Application process, Loan program	Capital	Grants will cover up to 90% of project total costs for repair/replacement, and up to 50% for new/expansion costs. Loans can be provided for up to 100% of project costs.	None	None	Eligible applicants: counties, cities, villages, townships, and water and sanitary districts.	OH
Ohio Water Pollution Control Loan Fund (WPCLF)	Ohio Water Development Authority (WDA)	Loan	State	Offers financial and technical assistance to public or private applicants for the planning, design, and construction of a wide variety of projects to protect or improve the quality of Ohio's rivers, streams, lakes and other water resources.	Application resources can be found at: https://epa.ohio.gov/defa/ofa#1696510029-wpclf	https://epa.ohio.gov/defa/ofa#169558732-water-pollution-control-loan-fund-wpclf--wastewater-collection-and-treatment	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other			Amount of funding varies based on priority, number of applicants, and total funds available on a given year.	For planning, design, and construction, stormwater projects if they improve water quality. WPCLF can be used by public and private applicants for wastewater collection and treatment, stormwater activities, non-point source water pollution.	OH
Ohio Water Supply Revolving Loan Account	Ohio Environmental Protection Agency: Division of Drinking and Ground Waters	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://epa.ohio.gov/defa/ofa#1696510030-wsrla in the Rules/Documents section then under WSRLA. Parties interested in a loan should submit a project nomination which is not a formal application but helps the State ensure funds will be available for the project. Nominations are accepted during the month of August.	https://epa.ohio.gov/defa/ofa#169544610-whats-new	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	OH
Oklahoma Clean Water State Revolving Fund (CWSRF)	Oklahoma Water Resources Board (OWRB)	Loan	State	Low-interest loan program to assist communities with municipal wastewater/stormwater infrastructure construction projects and other pollution control projects.	Applications are accepted at any time during the year. Must submit fee, loan application, engineering report/planning documents, and any necessary environmental information documents.. Applications are available online.	http://www.orwb.ok.gov/financing/loan/cwsrflans.php	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Can be used for previously incurred engineering expenses if cost is directly associated with engineering study or report.		2019 Fundable projects amounts range from \$100,000 to \$11,000,000.	For local government agencies, school districts, and districts formed under title 82.	OK

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Oklahoma Drinking Water State Revolving Fund (DWSRF)	Oklahoma Department of Environmental Quality (DEQ) and Oklahoma Water Resources Board (OWRB)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents can be found at https://www.owrb.ok.gov/financing/loan/dwsrfloans.php . Applicants must first submit a Request for Placement Letter, which is used to establish a project's eligibility for funding, and priority score which is then used for placement on the Project Priority List (PPL). Projects are ranked, in order of their priority score, but funded based on the readiness to proceed as defined in the Intended Use Plan (IUP). OK uses a portion of its set-aside to conduct source water assessments and to complete Source Water Assessment and Protection Plans (SWAPs) for drinking water suppliers in the state.	https://www.deq.ok.gov/water-quality/division/public-water-supply/dwsrf/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	OK
Oklahoma Financial Assistance Loan Program	Oklahoma Water Resources Board (OWRB)	Loan	State	A low-interest loan program to assist eligible entities with projects related to water and/or sewer system improvements or for the refinancing of existing debt obligations incurred by an eligible entity for these projects. Eligible projects include water/wastewater facility expansion, replacement, improvement, and/or repair, dams, reservoirs, and other water storage projects, floodplain restoration and stream bank stabilization, storm sewer and drainage improvements.	Applications are accepted at any time during the year. Applicants must submit a Loan Application and fee. Applications are available online at: http://www.owrb.ok.gov/financing/faforms.php	http://www.owrb.ok.gov/financing/loan/bondloans.php	Application process, Loan program, Long-term program, Non-competitive process	Capital, O&M, Other	Loan may be issued up to 30 years, specifically for water project assistance. Funding can be used to refinance debt.			Eligible entities: Counties, towns and municipalities, Public Works Authorities, School Districts, Districts formed under title 82.	OK
Oklahoma Rural Economic Action Plan (REAP) Grant	Oklahoma Water Resources Board (OWRB)	Grant	State	To assist eligible entities with a population of 7,000 or less. Eligible projects include sewer line construction or repair, storm or sanitary sewer projects, water line construction or repair, water treatment systems, water acquisition, water distribution or recovery systems, and other water or wastewater projects. Entities with a population less than 1,750, unincorporated areas of less than 525 taps or school districts with less than 525 students are given priority.	Closed funding cycle program. Application and pertinent attachments must be received by the first business day in September to be scored, ranked and placed on a priority list. Applications are available online at: http://www.owrb.ok.gov/forms/FAforms/REAPGrantPacket.pdf	http://www.owrb.ok.gov/financing/grant/reapgrants.php	Application process, Grant program, Long-term program	Capital	No matching requirement. This is a point-based program.	None	\$150,000	For cities or townships with a population less than 7,000. Rural water districts with less than 525 non-pasture customers. Entities: Counties, towns, municipalities, Public Works Authorities, School districts, districts from Title 82.	OK
Oregon Clean Water State Revolving Fund (CWSRF)	Oregon Department of Environmental Quality (DEQ)	Loan	State	Provides below-market rate loans for the planning, design and construction of various water pollution control activities. Eligible projects include: planning and design, wastewater treatment facilities, recycled water distribution, interceptors, force mains, and pumping stations, I/I correction, overflow correction, sewer replacement/rehabilitation, stormwater management, planning.	Applications are accepted on a rolling basis. To apply, contact DEQ's regional project officers at 503-229-LOAN, or visit the website.	http://www.oregon.gov/deq/wq/cwsrf/Pages/default.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other			\$37,256,625 total was provided in project assistance for state fiscal year 2017.	All public agencies and tribes are eligible.	OR

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Oregon Safe Drinking Water Revolving Loan Fund or Drinking Water State Revolving Fund	Oregon Health Authority	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. The set-aside allows for up to \$100,000 loans for source water assessment (SWA) implementation activities, including SWP land acquisition. The State may also provide grants up to \$30,000 or technical support in the area of SWP. Funds must be spent within 2 years of contract execution.	Interested parties must submit a Letter of Interest (LOI) that includes details about the drinking water projects including water supply, water quality problem(s), water system's finances and readiness-to-proceed, project solution and cost. The LOI is evaluated and prioritized and added to a Project Priority List (PPL). LOI can be submitted at any time and the online guide is available at: http://www.orinfrastructure.org/LOI-Form/ . The State may also provide grants up to \$30,000 or technical support in the area of SWP. Funds must be spent within two years of contract execution.	https://www.oregon.gov/oha/PH/HealthyEnvironment/DrinkingWater/SRF/Pages/index.aspxhttps://www.oregon.gov/oha/PH/HEALTHY ENVIRONMENTS/DRINKING WATER/SRF/Documents/SP-Info.pdf	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.		Drinking Water Source Protection Fund (DWSPF): \$100,000 per project loan and \$30,000 per eligible system in the form of a grant.	Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	OR
Oregon Water/Waste water Financing Program	Oregon Infrastructure Finance Authority (IFA)	Loan	State	Funds the design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act. Projects: construction improvement or expansion of drinking water, wastewater, or stormwater systems, water source treatment, stormwater systems, etc.	Contact IFA regional coordinator to begin the application process; project proposals are accepted throughout the year. Locate Regional Development Officer based on the county location of the project: http://www.oregon4biz.com/directory.php?id=1 .	http://www.orinfrastructure.org/Infrastructure-Programs/WW/	Application process, Grant program, Loan program, Long-term program, Non-competitive process	Capital	Loans and grants are determined by financial analysis. Loans may be issued for up to 25 years.	None	\$10,000,000 per project through a combination of direct and/or bond funded loans. Grant awards up to \$750,000 may be awarded based on a financial review.	Eligible: Public entities including ports, and special districts as defined in ORS 198.010.	OR
Partners for Fish and Wildlife	U.S. Fish and Wildlife Service	Public-private partnership	Federal	Provides technical and financial assistance to private landowners to restore fish and wildlife habitats on their lands via cooperative agreements.	Contact the Fish and Wildlife Service directly; contact information is available at https://www.fws.gov/partners/ .	https://www.fws.gov/partners/		Other			Estimated \$52 million in FY2017 (funding levels indicate total program funding; about one half is available for project funding).		VA
Pennsylvania Clean Water State Revolving Fund (CWSRF)	Pennsylvania Infrastructure Investment Authority (PENNVEST), Pennsylvania Department of Environmental Protection	Loan	State	Offers low interest loans with flexible terms to assist a variety of borrowers that include local governments, municipalities, and privately owned entities and to establish partnerships to leverage other funding sources. Projects: construction and maintenance of wastewater treatment facilities, stormwater management projects, non-point source pollution controls, and watershed and estuary management.	Online Funding Request is a fully automated on-line system that allows applicants to electronically process data and perform required actions during the application process for requesting funds from PENNVEST. Apply at: http://www.pennvest.pa.gov/Services/Pages/Apply-Online.aspx	http://www.pennvest.pa.gov/Information/Funding-Programs/Pages/Clean-Water-State-Revolving-Fund.aspx#.Vzs5qeSgbsl	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Low interest flexible term loans. Repayments may be used to fund future projects.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Entities: Local government, municipalities, privately owned entities.	PA
Pennsylvania Drinking Water State Revolving Fund (DWSRF) Program	Pennsylvania Infrastructure Investment Authority (PENNVEST) and Pennsylvania Department of Environmental Protection (DEP)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. PA uses set-aside to fund GW monitoring networks, source water GIS, data management, river alert network, and regional SWP plan.	Funding applications are received and processed through PENNVEST's on-line system, available at: https://www.pennvest.pa.gov/Services/Pages/Apply-Online.aspx . Applicants must have a consultation with DEP and PENNVEST staff before completing or submitting an application.	https://www.dep.pa.gov/Business/Water/CleanWater/Infrastructure/Finance/Pages/State-Revolving-Fund.aspx	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	PA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Pennsylvania Industrial Development Authority (PIDA)	Pennsylvania Department of Community & Economic Development (DCED)	Loan	State	Provides low-interest loans and lines of credit for eligible businesses that commit to creating and retaining full-time jobs and for the development of industrial parks and multi-tenant facilities.	Loan applications are packaged by a CEDO that services the county the business is or will be located in. The CEDO will work with the applicant to determine whether or not the PIDA loan program can assist with financing the needs of the business and will discuss with the applicant in detail how the application process works.	http://www.n ewpa.com/pr ograms/penn sylvania-industrial-development-authority-pida/#.Vzs9q OSgbsl	Application process, Loan program, Long-term program	Capital, Other	Generally a 50% match is required. Loan approval is contingent on meeting program underwriting and collateral requirements.		Maximum Machinery and equipment loans is \$1,500,000. Maximum working capital term loans and lines of credit is \$100,000.	Variety of industries are eligible, projects can be land and building acquisitions; construction and renovation, machinery and equipment, accounts receivable lines of credit, industrial parks, multitenant facility projects.	PA
Pisces Foundation: Water Grant	Pisces Foundation	Grant	Private	Responds to water supply and quality challenges by supporting innovative approaches to durably protect the nation's water resources. The Foundation's goal is to help spur a transition from a system that manages quality and supply in isolation with a more powerful, integrated paradigm. This new, modern approach will place water at the center of community "leveraging it to green communities, support nature, and sustain farms and business."	The Pisces Foundation does not accept unsolicited grant proposals.	https://pisces foundation.org/what-we-do/water/	Application process, Grant program, Long-term program	Capital, Other	Seek out collaborations with other funders to increase collective impact and accelerate work. Leverage for other funding.		Funding varies but water grants awards range from \$25,000 to \$255,000.		CA
Planning Assistance to States (PAS)	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	The U.S. Army Corps of Engineers (USACE) can provide states, local governments, other non-Federal entities, and eligible Native American Indian tribes assistance in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. Typical studies are only at the planning level of detail; they do not include detailed design for project construction. The program can encompass many types of studies dealing with water resources issues. Types of studies conducted in recent years under the program include the following: water supply/demand, water conservation, water quality, environmental/conservation, wetlands evaluation/restoration, dam safety/failure, flood damage reduction, coastal zone protection, and harbor planning. The study sponsor has the option of providing in-kind services for its share of the study cost.	The process for PAS investigations begins after a state, regional, local government, or Native American Indian tribe requests USACE assistance under the program. The USACE will work with the requesting organization to develop a scope of work and assemble the appropriate study team for the effort being requested. Once a scope of work has been developed, a cost sharing letter agreement will be prepared and sent to the sponsor for their signature. Once the both parties have signed the agreement, the study may begin, subject to the availability of both Federal and local funding.	http://www.n ae.usace.arm y.mil/Mission s/Public-Services/Plan ning-Assistance-to-States/	Application process, One-time allocation	Other	Efforts under this program are cost shared on a 50% Federal – 50% non-Federal basis. The study sponsor has the option of providing in-kind services for its share of the study cost.			USACE will work with the requesting organization to develop a scope of work.	National
Planning Program and Local Technical Assistance Program	U.S. Economic Development Administration (EDA)	Grant	Federal	Assists eligible recipients in developing economic development plans and studies designed to build capacity and guide the economic prosperity and resiliency of an area or region. The Local Technical Assistance program strengthens the capacity of local or State organizations, institutions of higher education, and other eligible recipients to undertake and promote effective economic development programs through projects such as feasibility studies and impact analyses.	Applications are accepted on a continuing basis and processed as received. Contacts vary by region.	https://www. eda.gov/fundi ng-opportunities /	Application process, Grant program, Long-term program	Other, Outreach	EDA seeks to fund applications that use public and private sector resources, and/or leverage complementary investments by other government/public entities and/or nonprofits.		\$300,000 with a matching requirement.	Eligible recipients include, but are not limited to, district organizations and tribes.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Pre-Disaster and Flood Mitigation Assistance Grant Programs	California Office of Emergency Services	Grant	State	Funds are provided from FEMA to California's Office of Emergency Services. Applications will only be considered based on FEMA-approved methodology to demonstrate cost-effectiveness.	NOI must be completed and applicants must have a FEMA approved mitigation plan.	https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/pre-disaster-flood-mitigation	Application process, Fund allocation to states and localities, Grant program	Capital, Compliance, Other			\$160 million total (FY2019)	States and tribes are eligible to apply for funding.	CA
Pre-Disaster Mitigation Program (PDM)	U.S. Federal Emergency Management Agency (FEMA)	Grant	Federal	Designed to assist States, U.S. Territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and infrastructure from future hazard events, while also reducing reliance on Federal funding in future disasters.	Local governments are eligible subapplicants and can sponsor applications on behalf of homeowners to submit to the Applicant. Sub-applicants submit mitigation planning and project sub-applications to their State during the open application cycle. After reviewing planning and project applications to determine if they meet the program's requirements, the Applicants (i.e., States, U.S. Territories, or Federally-recognized tribal governments) prioritize and forward the planning and project applications in a PDM grant application to FEMA. Locals should contact their State Hazard Mitigation Officer (SHMO) or Federally-recognized tribal/local government official to obtain detailed information on the PDM application process.	https://www.fema.gov/pre-disaster-mitigation-grant-program	Application process, Competitive process, Grant program	Capital, Other	Federal funding is available for up to 75% of the eligible activity costs. Small, impoverished communities may be eligible for up to a 90% Federal cost share.		\$50 million total. Each State and Territory receives \$575,000. \$15 million is set aside for Federally-recognized tribes to receive \$575,000 per tribe. No applicant may receive more than 15%, or \$37,380,000 of the appropriated PDM funding.	Eligible: States, US Territories, Federally Recognized Tribes, Local governments.	National
Project Development Assistance Program (PDAP)	U.S. EPA / Border Environmental Cooperation Commission (BECC)	Grant	Federal	Provides grant funds, for project development and design. Funds public water and wastewater infrastructure projects identified through a program-specific prioritization process.	Online application: http://www.becc.org/certification-process/apply-for-certification-financing .	http://www.becc.org/funding-programs/technical-assistance/pdap	Application process, Fund allocation to states and localities, Grant program	Capital	Can be combined with NADB loans to meet funding. If received the grant are eligible to receive technical assistance through PDAP to support development activities aimed at facilitating successful implementation.		Varies.	Must be high-priority municipal drinking water and wastewater infrastructure projects located within 100 Km of the US -Mexico Boarder.	TX, NM, AZ, CA
Project Modifications for Improvement of the Environment (CAP Section 1135)	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	This program provides for modifications in the structures and operations of water resources projects constructed by the U.S. Army Corps of Engineers (USACE) to improve the quality of the environment. Additionally, the USACE may undertake restoration projects at locations where an existing USACE project has contributed to the degradation. Additional program information: http://www.lrl.usace.army.mil/Portals/64/docs/Outreach/Information/1135.pdf	Go to http://www.usace.army.mil/Locations/ ; look for your state and district to find your local contact person. State or local government officials should consult the nearest USACE District Engineer regarding specific problems and the possibility of remedial action under this program.	http://www.usace.army.mil/	Long-term program, Non-competitive process	Capital, Other	Formal assurance of local cooperation must be furnished by a local sponsoring agency. The local sponsor must be a public agency or a nonprofit environmental organization. Private interests may also qualify. Sponsors must agree to items on webpage.		Initial study is 100% federally funded up to \$100,000. The remainder of the study phase is cost shared 50% Federal and 50% non-Federal. The design and implementation of the project are cost shared on a 75% Federal, 25% non-Federal basis. The non-Federal portion may be made up of a mixture of cash, in-kind contributions, and Lands, Easements, Rights of-way, Relocation, and Disposal areas (LERRDs). Each project is limited to a Federal Cost of no more than \$10,000,000, and the national program limit for these projects is \$25,000,000 per year.	A study of a prospective Section 1135 will be initiated after receipt of a written request from an authorized sponsoring agency & provided Federal funds are available. Primary objective is to modify existing USACE projects to restore ecosystem habitat.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Proposition 1 (Water Quality, Supply, and Infrastructure Improvement Act of 2014)	California Department of Water Resources (DWR)	Grant	State	Funds are allocated throughout 12 hydrologic region-based Funding Areas in the state of California. The various grant programs under Proposition 1 include: Disadvantaged Communities, Planning, and Implementation Programs.	Proposals are accepted via the website.	https://water.ca.gov/Work-With-Us/Grants-And-Loans/IRWM-Grant-Programs/Proposition-1	Application process, Competitive process, Grant program	Capital, Other	An average local cost share of not less than 50% of the total project costs in a proposal is required.		\$510 million	The Integrated Regional Water Management (IRWM) region must have been accepted into the IRWM Grant Program through the Region Acceptance Process. Funding can be allotted to: public agencies, NGO, utilities, tribes, and municipal water companies.	CA
Public Assistance (PA) Grant Program	U.S. Federal Emergency Management Agency (FEMA)	Grant	Federal	Provides federal assistance to government organizations and certain private nonprofit (PNP) organizations following a Presidential disaster declaration. Through the program, FEMA provides supplemental federal disaster grant assistance for debris removal, life-saving emergency protective measures, and the repair, replacement, or restoration of disaster-damaged publicly owned facilities, and the facilities of certain PNP organizations. The PA Grant Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.	If a State, Territorial, Tribal, or local government entity or PNP wishes to seek PA funding, it must first submit a Request for Public Assistance (RPA) to FEMA, through the Recipient, within 30 days of the respective area being designated in the declaration. The RPA (FEMA Form 90-49) is the form to apply for the PA Program; FEMA also refers to it as a pre-application.	https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit	Application process, Fund allocation to states and localities, Grant program	Capital, Other	25% non-Federal share. May not duplicate benefits with insurance. The Recipient determines how the non-federal share (up to 25%) is split with the sub-recipients (eligible applicants).			For state, tribal, territorial, and local governments and certain types of PNP organizations. For response and recovery from major disasters or emergencies.	National
Public Works Board – Emergency Loan Program	State of Washington - Department of Commerce	Loan	State	Funds the repair, replacement, rehabilitation, or reconstruction of eligible systems to bring them up to current standards for existing users.	Eligible applicants: Counties, cities, special purpose districts, and quasi-municipal organizations (water, sanitary sewer, stormwater, roads, streets, bridges, solid waste, and recycling facilities). School districts, port districts, or tribes are ineligible, per statute. Application cycle is open until appropriated funds are exhausted.	http://www.pwb.wa.gov	Application process, Loan program	Other	20-year loan term or life of the improvement, whichever is less. Interest rates vary.		\$1 million per jurisdiction per biennium.	Eligible project: A public works project made necessary by a natural disaster or an immediate and emergent threat to the public health/safety due to unforeseen or unavoidable circumstances. Must demonstrate financial need through inadequate local budget.	WA
Public Works Board Construction Loan Program	Washington State Department of Commerce	Loan	State	Low-interest loans for local governments to finance public infrastructure construction and rehabilitation. Eligible projects must improve public health and safety, respond to environmental issues, promote economic development, or upgrade system performance.	Contact: Cecilia Gardener rExecutive Director cecilia.gardener@commerce.wa.gov 360-725-3166	http://www.pwb.wa.gov	Application process, Loan program	Capital, O&M			Program on hold until capital budget is passed.	To be eligible must be a public infrastructure project/local government.	WA
Puerto Rico Drinking Water Treatment Revolving Loan Fund	Puerto Rico Department of Health (DOH)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for SWP activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures.			Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach					PR

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Region 1 Healthy Communities Grant Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	EPA Region 1's main competitive grant program to work directly with communities to reduce environmental risks to protect and improve human health and the quality of life.	Apply online. If an applicant is located in Maine, New Hampshire, or Rhode Island and is selected to submit a full proposal under the Healthy Communities Grant Program, the applicant must submit one copy of their complete application to their State contact at the same time of submission to EPA. For more information on the process a particular State requires to be followed, an applicant should contact the office or official designated in their State. Connecticut, Massachusetts, and Vermont have chosen not to participate in the intergovernmental review process.	http://www3.epa.gov/region1/eco/uep/hcgp.html	Application process, Competitive process, Grant program	Other, Outreach			\$25,000; total available funding is \$250,000.	Must be located in New England.	MA, CT, NH, RI, ME, VT
Regional Conservation Partnership Program (RCPP)	U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS)	Grant	Federal	Regional Conservation Partnership Program (RCPP) provides an opportunity for partners to scope a five year project in partnership with NRCS to enhance and accelerate conservation efforts, innovation and locally-driven solutions. Partnering organizations design, promote, implement, and evaluate the project outcomes in partnership with NRCS programs. RCPP projects areas include agricultural conservation easement program (ACEP), environmental quality incentives program (EQIP), conservation stewardship program (CSP), and health forests reserve program (HFRP).	Application forms available online.	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/	Application process, Grant program, Long-term program	Other	Federal resources should be leveraged to at least double the total investment. RCPP funding is split between two funding pools - Critical Conservation Areas and state/multistate. Applicants must match or exceed the federal award.		In all, NRCS plans to invest approximately \$220 million in projects across the country. See list of RCPP projects by state (available online).	Eligible partners: Agriculture or silviculture producer associations, farmer coops, or other producers, state or local government, tribes, municipal water entities, water and irrigation districts and conservation-driven nongovernmental organizations, etc.	National
Regional Water Plan Seed Grant Funds	Georgia Environmental Protection Division (EPD)	Grant	State	Georgia EPD has developed a grant program to provide funding to eligible recipients for projects related to water quality and nutrient management, with a focus on the implementation of Regional Water Plans.	Interest parties must complete and submit the application form available at https://epd.georgia.gov/regional-water-plan-seed-grant-funds .	https://epd.georgia.gov/regional-water-plan-seed-grant-funds	Application process, Competitive process, Grant program	Capital, Other, Outreach	Award recipient must provide a minimum match amount of 40% of the total project cost. Of that 40%, a minimum of 10% of the total project cost must be in the form of a cash expenditure with the remaining amount in in-kind services.	None	\$75,000	Applicants may include local governments, regional commissions, resource conservation districts, and schools. Applicants must have a Qualified Local Government Status. The application is available online.	GA
Rhode Island Clean Water State Revolving Fund (CWSRF)	Rhode Island Infrastructure Bank (RIIB), Rhode Island Department of Environmental Management (RIDEM)	Loan	State	This program provides below market rate loans for the construction and upgrade of wastewater collection systems & treatment facilities, stormwater pollution prevention & treatment facilities, non-point source pollution best management practices and other water pollution abatement/water quality protection activities.	Projects must apply to be on the annual priority list. Applications can be found online.	http://www.dem.ri.gov/programs/water/finance/state-revolving-fund.php	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	RIDEM is partnered with RIIB for the CWSRF. The Interceptor Bond Fund provides 50% matching grants up to \$500,000 for the construction of interceptor sewers.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Must be a municipality or quasi-public agency.	RI

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Rhode Island Drinking Water State Revolving Fund (DWSRF)	Rhode Island Department of Health (DOH)	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Funding applications and forms are available at: https://www.riib.org/dwsrf . In order to receive a loan, the interested party must submit a proposal to the State and be placed on the RI DOH Project Priority List.	http://health.ri.gov/programs/detail.php?pgm_id=127	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	RI
Rhode Island Water Pollution Control Revolving Fund (RIWPCRF)	Rhode Island Infrastructure Bank (RIIB)	Loan	State	The fund has been used to finance projects not meeting the requirements of federal programs. Eligible projects include purchase of watershed lands, property surveys and appraisals, water supply system management plans, and other physical improvements that directly protect public drinking water supplies.	Applications for funds must first be submitted to the Rhode Island Water Resources Board, which verifies project eligibility, and then a written request for funds can be submitted to the Rhode Island Infrastructure Bank.	https://www.riib.org/RIWPCRF	Application process, Loan program, Long-term program	Capital, Other	Loans are repaid over time and the recycled funds are used to make additional loans.		Loan amounts vary.	Eligible applicants: public drinking water suppliers.	RI
Rivers, Trails and Conservation Assistance (RTCA) Program	U.S. Department of the Interior – National Park Service (NPS)	Grant	Federal	Assists community-led natural resource conservation and outdoor recreation initiatives. RTCA staff provide guidance to communities on conserving waterways, preserving open space, and developing trails and greenways.	Consult with community partners to build a broad base of support for the project idea. Review the application (https://www.nps.gov/orgs/rtca/upload/RTCA_Application_2019_Final.pdf). Contact NPS prior to the application deadline to inform them of intent to apply and obtain assistance. Application must include commitment letters from three or more project partners, site location map, completed form, and optional supplemental information.	https://www.nps.gov/orgs/rtca/apply.htm	Application process, Competitive process, Grant program	Other, Outreach	Assistance includes defining project vision and goals, setting priorities, identifying funding strategies, designing outreach strategies, and more.			Eligible entities: State and local agencies, tribes, nonprofits, organizations, or citizen groups. National Parks and Federal Agencies may apply in partnerships with other local organizations.	National
Rockefeller Foundation Environmental Impact Bond (EIB)	Rockefeller Foundation	Bond	Private	An Environmental Impact Bond (EIB) is an innovative financing tool that uses a Pay for Success (PFS) approach to provide up-front capital for environmental programs, either to pilot a new approach whose performance is viewed as uncertain or to scale up a solution that has been tested on a small scale. In its most basic form, private investors participating in a PFS model pay the upfront costs for deploying these environmental solutions. Following deployment and program evaluation, the payor, the public agency or private institution that benefits from these solutions, makes a repayment to investors linked to the achievement of agreed-upon outcomes of the program (such as avoided stormwater runoff).	https://neighborly.com/issuers/profile/project-type . The Request for Proposal is now closed.	http://www.quantifiedventures.com/rockefeller-eib	Application process, Competitive process, One-time allocation	Capital	Partnered with Rockefeller Foundation, Quantified Ventures, and Neighborly. Issues EIB. This effort aims to demonstrate the scalability of the EIB model and develop the EIB market.		Varies by project.	Funds are for green infrastructure and resilience projects. For two municipalities. Must be a County or municipal government, utility, water or sewer authority, or private sector serving in a function related to infrastructure. Must have good credit.	National
Rural Business-Cooperative Service - Community Economic Development	U.S. Department of Agriculture (USDA)	Loan	Federal	USDA's Community Development Programs include programs, technical help and that help rural cities and areas to realize their strategic, long-term economic development goals.		https://www.rd.usda.gov/about-rd/agencies/rural-business-cooperative-service	Loan program, Long-term program	Capital, Other, Outreach	Promotes partnerships to provide "must needed" money to rural areas.			Projects that help provide capital, training, education, and entrepreneurial skills that can help those in rural areas start and grow businesses or find jobs in agricultural markets.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
S.D. Bechtel Jr. Foundation: Environment Grant	S.D. Bechtel Jr. Foundation	Grant	Private	The Foundation seeks to advance the transition to more sustainable and effective approaches to water and land management by investing in grantees that develop and scale innovative models; expand the knowledge base; ground resource management in best practice; and support sound policies.	Proposals are accepted by invitation only. Foundation sunsets in 2020, have developed grant resources to be used when close.	http://sdbjrfooundation.org/environment/	Application process, Grant program	Capital, Other			Projected program investment budget for 2017 was \$148 million.	Foundation sunsets in 2020. Only accepts and responds to invited proposals. Financial Analysis Template is required for all capital, core support, and scaling proposals.	CA
Sanitation Facilities Construction (SFC) Program	U.S. Department of Health and Human Services (DHHS)- Indian Health Service (IHS)	Public-private partnership	Federal	Provides engineering, technical, and financial assistance to Native tribes and Alaska Native villages for cooperative development and continued operation of safe water, wastewater, and solid waste systems and related support facilities.	More information on technical and financial assistance is available at https://www.ihs.gov/dsfc/resources/ General criteria scoring criteria includes eight factors.	https://www.ihs.gov/dsfc/	Long-term program	Other	Technical assistance can be enhanced by the ability of the IHS O&M technical assistance provider to find and leverage available resources to satisfy identified requirements.		Varies annually	Must be a recognized tribe.	National
Section 108 Loan Guarantee Program	U.S. Department of Housing and Urban Development (HUD)	Loan	Federal	Allows future Community Development Block Grant (CDBG) allocations to be used to guarantee loans for neighborhood revitalization projects, including construction and installation of public facilities and infrastructure. Section 108-guaranteed projects can incorporate green infrastructure into their design and construction.	Public entities wishing to apply for Section 108 Loan Guarantee Program assistance are advised to contact HUD in advance for guidance in preparing an application. Public entities may contact either the Community Planning and Development staff at the appropriate local HUD Field Office or the Section 108 office in Washington at (202) 402-4202.	https://www.hudexchange.info/programs/section-108/	Application process, Loan program, Long-term program	Capital, Other	Leverage CDBG Grants.		Loans typically range from a few hundred thousand to several million dollars.	Eligible applicants include state and local governments. Projects can include: economic development, housing rehabilitation, public facilities, and other physical infrastructure projects, including those to increase resilience to natural disasters.	National
Small Community Wastewater Treatment Program	Minnesota Public Facilities Authority (PFA)	Loan	State	Administered by the Minnesota Public Facilities Authority (PFA), the program provides technical assistance grants and construction grants and loans for public subsurface sewage treatment systems.	Contact PFA staff before submitting an application.	https://mn.gov/deed/government/public-facilities/funds-programs/smallcommunitywastewatertreatmentprogram.jsp	Application process, Loan program, Long-term program, Non-competitive process	Capital, Compliance		None	\$60,000	For communities to replace non-complying septic systems and straight pipes with new individual or cluster subsurface sewage treatment systems (SSTS) that will be publicly owned, operated and maintained.	MN
Small Flood Damage Reduction Projects	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	Section 205 of the 1948 Flood Control Act authorizes the U.S. Army Corps of Engineers (USACE) to study, design, and construct small flood control projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government. (The website provided is an example from one USACE district.)	Identify USACE district and point of contact for requesting assistance at http://www.usace.army.mil/Locations/ .	http://www.nae.usace.army.mil/Missions/Public-Services/Continuing-Authorities-Program/Section-205/	Long-term program	Capital, Other	Cost sharing over \$100,000 or for preparation of plans and specifications and construction. 65% Federal/35% non-Federal for cost of plan prep and specifications and construction.		The Feasibility Study is 100% federally funded up to \$100,000.	Projects must be economically justified, environmentally sound, and technically feasible. Not limited to any particular type of improvement.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Small Flood Damage Reduction Projects (CAP Section 205)	U.S. Army Corps of Engineers (USACE)	Public-private partnership	Federal	Provides funding for local protection from flooding by the construction or improvement of structural flood damage reduction features such as levees, channels, and dams. Non-structural alternatives are also considered and may include measures such as installation of flood warning systems, raising and/or flood proofing of structures, and relocation of flood prone facilities. Additional information about this program: http://www.lrl.usace.army.mil/Portals/64/docs/Outreach/Information/Section205.pdf	Requests for assistance should be in the form of a letter describing the location and nature of the problem and requesting assistance under the program. The request should be submitted by a state or local government agency. State or local government officials should consult the nearest USACE District Engineer regarding specific problems and the possibility of remedial action under this program. Each project must be economically justified, environmentally sound, and technically feasible.	http://www.usace.army.mil/	Long-term program	Capital, Other	Remainder of the study phase is cost shared 50/50. Sponsor must contribute 35% (min. 5% cash) of total project design and construction cost as cash, in-kind services or Lands, Easements, Rights-of-way, Relocation, and Disposal areas.		Initial study is 100% federally funded up to \$100,000.	Conservation districts, local governments, nonprofit organizations, state/territorial agencies, water and wastewater utilities.	National
Solid Waste Management Grants	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Grant	Federal	Reduces or eliminates pollution of water resources by providing funding for organizations that provide technical assistance or training to improve the planning and management of solid waste sites. The Program statutes: Closed Dec 31, 2018.	Available online. Applications for this program are accepted annually through the local Rural Development (RD) office from Oct. 1 to Dec. 31. Contact local RD office for more information: https://www.rd.usda.gov/contact-us/state-offices	https://www.rd.usda.gov/programs-services/solid-waste-management-grants	Application process, Competitive process, Grant program	Other, Outreach	Competitive grants			Applicants: State and local government entities, nonprofits, federal recognized tribes, academic institutions. Applicants must have ability, background or experience to successfully complete a similar projects. Legal authority & tech assistance, training.	National
Source Reduction Assistance (SRA) Grant Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Supports pollution prevention through source reduction and resource conservation work. As authorized under the statutory authorities for this grant program, proposals must carry out project activities using one or more of the following methods "surveys, studies, research, investigation, experimentation, education, training and/or demonstrations."	Applicants, must apply for SRA grant funding electronically through Grants.gov based on the Grants.gov instructions in the announcement.	https://www.epa.gov/p2/grant-programs-pollution-prevention#sra	Application process, Competitive process, Grant program	Other, Outreach	5% matching required.	\$20,000. Some EPA regions may have different award minimums.	Total individual grant awards may potentially be in the range of \$20,000 - \$260,000 issued over a two-year funding period. However, some EPA regions may have different award caps.	Eligible: States, DC, territory of US, local governments, schools, nonprofits, community-based grassroots, tribes.	National
Source Water Protection Grant Program	State of Washington - Department of Health	Grant	State	Grants are available for projects that protect public drinking water sources (Group A). Projects can benefit drinking water quality, quantity, or both.	To be eligible, must be either: A nonprofit Group A water system or local government proposing a regional project. The project must be reasonably expected to provide long-term benefits to drinking water quality or quantity.	https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection	Application process, Grant program	Capital, Other	Water quantity projects may be restricted to 50% of total annual funding available.		Typically does not exceed \$30,000, but is dependent on the project.	Eligible projects include: Source water protection studies: watershed, hydrogeologic, feasibility studies. Eligible activities lead to reducing the risk of contamination and must contribute to protecting one or more public water supply sources.	WA
South Carolina Clean Water State Revolving Fund (CWSRF)	South Carolina Rural Infrastructure Authority (RIA) - Office of Local Government (OLG), South Carolina Department of Health and Environmental Control (DHEC)	Loan	State	The program provides low-interest rate loans for building or repair to wastewater plants or distribution systems and stormwater quality improvement projects. Eligible projects include qualified water or energy reduction component, low impact development or other environmentally innovative "green" practices. Must be on state's Comprehensive Priority List.	Submit project questionnaire to DHEC; Contact RIA OLG to determine what preliminary financial information needs to be submitted; Consult with DHEC for guidance on preparing a Preliminary Engineering Report (PER) and the plans and specifications. Submit loan application to RIA OLG about 30 days prior to sending plans & specs to DHEC. Applications found online.	http://www.scdhec.gov/srf/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital	Low interest rate loans. Loan repayments pay for more loans.		\$207,000,000 total has been approved for FY19.	Municipalities, counties, and special purpose districts can apply.	SC

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
South Carolina Drinking Water State Revolving Fund (DWSRF)	South Carolina Department of Health and Environmental Control (DHEC)	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Applicants must submit a DWSRF Project Questionnaire to SC DHEC to be placed on the State's Comprehensive Priority List. Application information and documents available at https://www.scdhec.gov/environment/businesses-and-communities-go-green/environmental-loans-grants-businesses-communities-4 .	https://www.scdhec.gov/environment/businesses-and-communities-go-green/environmental-loans-grants-businesses-communities-3	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	SC
South Carolina Rural Infrastructure Authority Grants	South Carolina Rural Infrastructure Authority	Grant	State	The South Carolina Rural Infrastructure Authority offers multiple options for financing critical community infrastructure improvements that will help maintain a safe and healthy environment for residents, support economic development and contribute to a more sustainable future.	Rural Infrastructure Authority (RIA) Board of directors reviews all qualified projects and makes the funding decisions. Application instructions: https://ria.sc.gov/grants/how-to-apply/	http://www.ria.sc.gov/	Application process, Competitive process, Grant program, Long-term program	Capital	Whenever possible, RIA will leverage additional resources to maximize impact of the projects statewide. Grantees must cover non-construction costs, and Tier I and II counties must provide 25% of total project construction cost.		The maximum grant award is typically \$500,000.	Local governments, special purpose and public service districts, public work commissions may apply.	SC
South Carolina Rural Infrastructure Authority Loans	South Carolina Rural Infrastructure Authority	Loan	State	Offers multiple options for financing critical community infrastructure improvements that will help maintain a safe and healthy environment for residents, support economic development and contribute to a more sustainable future.	Application instructions available at: https://ria.sc.gov/grants/how-to-apply/	http://www.ria.sc.gov/	Application process, Loan program	Capital	Low interest loans.		Typically \$500,000.	Loans are available to: municipalities, counties, and special purpose districts for a variety of clean water and drinking water projects.	SC
South Dakota Clean Water State Revolving Fund (CWSRF)	South Dakota Department of Environment & Natural Resources (DENR)	Loan	State	Provides low interest loans to governmental entities for clean water and non-point source pollution control projects.	Applications must be postmarked or received on or before the first day of January, April, July, and October. DENR will present applications to the board after the required technical review and financial analysis have been completed. DENR will notify applicants of the date for the board meeting at which applications will be considered. Applications can be found online.	https://denr.sd.gov/dfta/wf/cwsrf/cwsrfprogram.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other			The amount of funds available is dependent upon the amount of appropriations from the U.S. Congress and the amount of repayments from funds previously loaned.	Must be a government entity with the authority to generate revenue and to repay. Project must be on the State Water Plan prior to submitting funding application. Must be a Intended Use Plan. For: wastewater projects and non-point source mgmt. activities.	SD
South Dakota Consolidated Water Facilities Construction Program	South Dakota Department of Environment & Natural Resources (DENR)	Grant	State	Provides grants and loans for water-related projects.	An applicant must submit an original application to the DENR, which can be accessed on the website. Applications must be postmarked or received on or before the first day of January, April, July, or October.	https://denr.sd.gov/dfta/wf/consolidated/consolidated.aspx	Application process, Grant program, Long-term program	Capital, O&M			The amount of funds available is dependent upon the amount appropriated by the Legislature and the amount of funds previously awarded. Interest rates are available online.	Must be on the State Water Facilities Plan, be sponsored by one of the following: special purpose district, state agency or general purpose government, federally recognized Indian Tribe, or nonprofit corporation. Water related project.	SD

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
South Dakota Consolidated Water Facilities Construction Program	South Dakota Department of Environment & Natural Resources (DENR)	Loan	State	The Consolidated Water Facilities Construction Program was established to provide grants and loans for water-related projects. To be eligible for this program, a project must: be included on the State Water Facilities Plan prior to the application deadline; and be sponsored by one of the following entities: a special purpose district that has the authority to construct a water resources project; a state agency or general purpose government such as a municipality, county, or township; a federally recognized Indian tribe; or a nonprofit corporation.	An applicant must submit an original application to the department, which can be accessed on the website. Applications must be postmarked or received on or before the first day of January, April, July, or October.	https://denr.sd.gov/dfta/wf/consolidated/consolidated.aspx	Application process, Grant program, Loan program	Capital			The amount of funds available is dependent upon the amount appropriated by the Legislature and the amount of funds previously awarded. Interest rates are available online.		SD
South Dakota Drinking Water State Revolving Fund (SRF) Program	South Dakota Department of Environment and Natural Resources	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. SD uses a portion of its set-aside to provide assistance to water systems to acquire land or a conservation easement for source water, protection, provide assistance to a community water system to implement voluntary, incentive-based source water quality protection measures, and to provide funding to delineate and assess source water protection areas.	Application documents available at: http://denr.sd.gov/dfta/wwf/dwsrf/E2126LDV6-DWFundApp.pdf . Applications must include must include the entity's most recent audited financial statements or unaudited annual reports. Applications must also include a Drinking Water Facilities Plan must be prepared and submitted as part of the Drinking Water SRF application.	http://denr.sd.gov/dfta/wwf/dwsrf/dwsrfprogram.aspx	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.		Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.		SD
Southeast Rural Community Assistance Project (SERCAP) Individual Assistance Water Well, Septic Tank, and Home Improvement Loan and Grant Program	Southeast Rural Community Assistance Project (SERCAP)	Grant	State	Low interest loans and grants available to construct, refurbish, or replace individual water well systems, septic systems, or home improvements. Eligible applicants live in eligible rural areas in SERCAP's seven state service area. Applicants must own and occupy the home being repaired. New home construction and community water systems are not eligible. Household income may not exceed the state median income limit. Contact a SERCAP staff for further information at (540)-345-1184.	Application is available at: http://www.vdh.virginia.gov/content/uploads/sites/20/2016/05/SERCAP-Universal-App.-02.17p.pdf Mail application to: Southeast Rural Community Assistance Program (SERCAP) 347 Campbell Avenue, SW Roanoke, VA 24016	http://www.vdh.virginia.gov/content/uploads/sites/20/2016/05/SERCAP-Universal-App.-02.17p.pdf	Application process, Grant program, Loan program	Capital, Other			Individual Well Loan maximum is \$11,000; Septic Loan and Home Improvement Program (Households in VA and DE only): Up to \$9,000 for construction of new septic tank, up to \$6,000 for repairs or upgrades to an existing septic tank, up to \$6,000 for repairs or modifications to a home that increases the health, or safety standard of living; Miscellaneous Grant Program (Households in VA only): \$600 towards water/wastewater repair projects, \$1000 towards installation of a new well, \$1,000 towards a tap fee for water/wastewater, \$1,500 towards installation of new septic system, \$2,000 towards a new alternative septic system, \$3,500 maximum towards laterals for water/wastewater.	Must live in an eligible location, applicants must own and occupy the home being improved, new home construction and community water systems are not eligible, household income may not exceed the state medium income.	VA, DE, MD, NC, SC, GA, FL

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Southeast Rural Community Assistance Project (SERCAP) Individual Assistance Water Well, Septic Tank, and Home Improvement Loan and Grant Program	Southeast Rural Community Assistance Project	Loan	State	Low-interest loans and grants available to construct, refurbish, or replace individual water well systems, septic systems, or home improvements. Eligible applicants live in eligible rural areas in SERCAP's seven state service area. Applicants must own and occupy the home being repaired. New home construction and community water systems are not eligible. Household income may not exceed the state median income limit. Contact a SERCAP staff for further information at (540)-345-1184.	Application is available at: http://www.vdh.virginia.gov/content/uploads/sites/20/2016/05/SERCAP-Universal-App.-02.17p.pdf Mail application to: Southeast Rural Community Assistance Program (SER) 347 Campbell Avenue, SW Roanoke, VA 24016	http://www.vdh.virginia.gov/content/uploads/sites/20/2016/05/SERCAP-Universal-App.-02.17p.pdf	Application process, Loan program	Other			Individual Well Loan: \$11,000; Septic Loan and Home Improvement Program (Households in VA and DE only): \$9,000 for construction of new septic tank, up to \$6,000 for repair, up to \$6,000 for repairs or modifications to a home that increases the health, or safety standard of living; Miscellaneous Grant Program (Households in VA only): \$600 towards water/wastewater repair projects, \$,000 towards installation of a new well, \$1,000 towards a tap fee for water/wastewater, \$1,500 towards installation of new septic system, \$2,000 towards a new alternative septic system, \$3,500 maximum towards laterals for water/wastewater.	Residence must be in an eligible rural area, town, or community in SERCP seven state area. Applicants must own the home being improved, new homes are not eligible, household income must not exceed the state median income limit.	VA, DE, MD, NC, SC, GA, FL
Southeast Rural Community Loan Fund Program	Southeast Rural Community Assistance Project (SERCAP)	Loan	Private	Offers low-interest loans to low-income, rural communities, and businesses for water/wastewater, housing, and community development activities.	Applications are received year round. Application forms can be accessed on website.	http://www.sercap.org/	Application process, Loan program	Capital, O&M		None	Individual loans maximum is \$15,000. Community Development loan maximum is \$250,000.	Project must be in the SERCAP (Southeastern US) Region. \$30 application fee.	DE, MD, VA, SC, NC, GA, FL
Special Evaluation Assistance for Rural Communities and Households (SEARCH)	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Grant	Federal	Helps very small, financially distressed rural communities with predevelopment feasibility studies, design and technical assistance on proposed water and waste disposal projects.	Contact your Rural Development (RD) Office for more application information: https://www.rd.usda.gov/contact-us/state-offices . Apply online: https://rdapply.usda.gov . Applications are accepted through out the year.	https://www.rd.usda.gov/programs-services/search-special-evaluation-assistance-rural-communities-and-households	Application process, Grant program, Long-term program	Capital, Other				Eligible: Most states and local governmental entities, nonprofits, federally recognized tribes. Areas served must be rural and financially distressed. Populations of 2,500 or 80% less of metro area.	National
Sponsorship Program	Chesapeake Bay Trust	Grant	Private	Designed to support events that will increase awareness within the targeted audience about issues pertaining to restoration and protection of the natural resources of the Chesapeake and/or Maryland's other watersheds. The Chesapeake Bay Trust will entertain requests to sponsor events, such as conferences, festivals, and forums that allow the Trust to advance its mission. The Trust will also entertain requests that promote the two major sources of revenue for the Trust, the Treasure the Chesapeake license plate program and the Chesapeake and Endangered Species Tax Check-off on the Maryland State income tax.	https://www.grantrequest.com/SID_1520?SA=SNA&FID=35174 ; applications are accepted on a rolling basis. Requests for the Sponsorship Program are accepted on an ongoing basis until funds are fully expended for the fiscal year.	https://cbtrust.org/grants/sponsorship-program/	Application process, Grant program	Other, Outreach	Matching encouraged but not required.	None	\$5,000, though to enable the Trust to consider a wide range of sponsorships throughout our fiscal year, most sponsorships will be limited to \$1,000 for programmatic support and \$500 for marketing support.	Eligible entities include nonprofits, community association, faith-based organizations, etc. Sponsorship must serve a Maryland audience but can be anywhere within the Chesapeake Bay watershed. For: conferences, festivals, forums, events, etc.	DE, MD, NY, PA, VA, WV

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
State of Hawaii Drinking Water State Revolving Fund program (DWSRF)	State of Hawaii Department of Health (DOH), Environmental Management Division (EMD), Safe Drinking Water Branch (SDWB)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://health.hawaii.gov/sdwb/drinking-water-state-revolving-fund/ . Applicants must first submit a "Proposed Project for SRF Funding" form and a Capacity evaluation checklist. HI uses a portion of its set-aside to create local SWP advisory committees, develop SWP plans and strategies, conduct source water assessments, and implement protection activities including outreach and educational programs.	https://health.hawaii.gov/sdwb/drinking-water-state-revolving-fund/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	HI
Storm Water Grant Program (SWGP)	California State Water Resources Control Board (SWRCB)	Grant	State	Funds storm water and dry weather runoff projects that best advance the SWRCB's policy goals of improving water quality and realizing multiple benefits from the use of storm water and dry weather runoff as a resource.	Applicants are encouraged to have their plans reviewed in advance of the solicitation. Must submit SWRP or FE-SWRP, a completed self-certification checklist, and a cover letter explaining the approach used to arrive at a functionally equivalent document (if applicable) to swgp@waterboards.ca.gov to obtain SWRCB concurrence review.	https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/	Application process, Grant program	Capital, Other		None	Varies	Public agencies, nonprofit organization, public utilities, federally recognized tribes, and mutual water companies. Beneficial use of stormwater and dry weather runoff. Improve water quality.	CA
Sustainable Agriculture Research and Education (SARE)	U.S. Department of Agriculture (USDA)	Grant	Federal	The Sustainable Agriculture Research and Education (SARE) program of the U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) works to advance farming systems that are productive, profitable, environmentally sound and good for communities through a regional grants program.	SARE's four regions offer an array of competitive grants for researchers, agricultural educators, students, farmers and ranchers in the United States. Visit http://www.sare.org/Grants/Apply-for-a-Grant to identify your SARE region and view grant opportunities.	http://www.sare.org/	Application process, Competitive process, Grant program, Long-term program	Other	Grants are regionally administered with different requirements for each.		Varies based on region and grant type.	For: researchers, agricultural educators, students, farmers and ranchers. Grants are for innovative research and education projects.	National
Tennessee Clean Water State Revolving Fund Loan (CWSRF)	Tennessee Department of Environment and Conservation (DEC)	Loan	State	Provides loans for the Planning, Design, and Construction Phases of wastewater facility projects. The funds may be used for all three phases in any combination. Eligible projects include new construction or the upgrading/expansion of existing facilities and may encompass wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and/or non-point source pollution remedies.	Submit a Letter of Request and complete a questionnaire to have project reviewed for placement. Projects must be on PRL to be eligible to receive financial assistance. Applications can be found online. Contact state office for more information.	https://www.tn.gov/environment/program-areas/water-resources/water-quality/state-revolving-fund-program/state-revolving-fund/wr-srf-clean-water-state-revolving-fund-loan-program.html	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Principal repayments and interest payments sustain the revolving fund.		Varies		TN

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Tennessee Drinking Water State Revolving Fund (DWSRF)	Tennessee Department of Environment and Conservation	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Applicants must submit a Letter of Request and Questionnaire to be placed onto the Priority Ranking List (PRL). Application documents available at: https://www.tn.gov/environment/program-areas/wr-water-resources/srfp/srf-home/i-need-funding.html .	https://www.tn.gov/environment/program-areas/wr-water-resources/srfp/srf-home/drinkin-g-water-state-revolving-fund.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose how to use the 15% set-aside annually. Funds can be used to coordinate with other programs. Green projects may have subsidies. State encourages protection of source water using green infrastructure, and correct water loss issues.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	TN
Texas Clean Water State Revolving Fund (CWSRF)	Texas Water Development Board	Loan	State	Provides low-cost financial assistance for planning, acquisition, design, and construction of wastewater, reuse, and stormwater infrastructure.	CWSRF financing is available year round. In order to be invited to apply for funding, entities must submit a completed Project Information Form. Apply online.	http://www.twdb.texas.gov/financial/programs/CWSRF/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Entities receiving assistance greater than \$500,000 must adopt a water conservation and drought contingency plan.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan. Total funds available is approximately \$525,000,000	Must be a political subdivision, Indian tribal organization, private entities for non-point source or estuary projects.	TX
Texas Drinking Water State Revolving Fund (DWSRF)	Texas Water Development Board (TWDB)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. TX DWSRF uses a portion of its set-aside to implement Source Water Protection Program activities, including: (1) evaluations of sources (surface and wellhead) to determine vulnerability to contamination, (2) implementation of SWP programs, (3) BMP development, and more.	Application documents available at: https://ola.twdb.texas.gov/ . Applicants must first submit a Project Information Form to the current TX Intended Use Plan and attend a pre-application meeting before submitting a financial assistance application.	http://www.twdb.texas.gov/financial/programs/DWSRF/index.asp	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	TX
Texas Water Development Fund (DFund)	Texas Water Development Board	Loan	State	State-funded loan program that does not receive federal subsidies and is not subject to federal crosscutters. The DFund enables the Board to fund multiple eligible components in one loan to borrowers, e.g., an application for funding of water and wastewater components can be processed in a single loan. Eligible projects: water supply and wastewater projects for planning, design, and construction. Financial assistance for flood control.	Online Loan Application System: https://ola.twdb.texas.gov ; Download Paper Application: http://www.twdb.texas.gov/financial/applications/index.asp	http://www.twdb.texas.gov/financial/programs/TWDF/index.asp	Application process, Loan program, Long-term program	Capital	Entities receiving assistance greater than \$500,000 must adopt water conservation and drought contingency plans.		\$6 billion evergreen bonding authority.	Eligible: political subdivisions of the state and nonprofit water corporations.	TX

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
The Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement Program	U.S. Environmental Protection Agency (EPA)	Grant	Federal	Provides financial assistance to eligible organizations working on or planning to work on projects to address local environmental and/or public health issues in their communities, using EPA's "Environmental Justice Collaborative Problem-Solving Model."	Request for an application online. Applicants must be located within the state, territory, commonwealth, or tribe where the project is located.	https://www.epa.gov/environmental-justice/environmental-justice-collaborative-problem-solving-cooperative-agreement-0	Application process, Competitive process, Grant program	Other, Outreach			Funding of \$120,000 per award. Two year-project period. Ten awards.	Must be a local community-based organization, tribe, or tribal organization.	National
The George Gund Foundation: Economic Development and Community Revitalization Grant	The George Gund Foundation	Grant	Private	Sustaining uniquely urban assets such as vibrant neighborhoods and a thriving downtown is a key part of a successful regional strategy to promote economic growth. The Foundation devotes considerable attention to these dynamics, in particular by supporting collaborative efforts that leverage resources. As a result, the highest priority is given to initiatives that bolster the impact of Foundation-supported intermediary organizations working to improve the competitiveness of Cleveland's neighborhoods and its metropolitan region. Examples of such initiatives include quality urban planning and design, improvements to urban parks and public spaces, promotion of equal opportunity and diversity in housing and the workplace and proposals to redevelop Cleveland's downtown, neighborhoods and first-ring suburbs.	Applications are submitted online and considered three times a year by the Foundation's Trustees. Applications are due March 15 (for summer meeting), July 15 (for fall meeting), and November 15 (for winter-spring meeting). Applicants must provide a list of other funding received or funding they are seeking. More information can be found at: https://gundfoundation.org/how-to-apply/proposal-deadlines/ .	https://gundfoundation.org/	Application process, Grant program, Long-term program	Capital, Other	Collaborative efforts as leverage. Rarely funds 100% of a project.		The Foundation's Board of Trustees have made 236 grants (for all program areas) totaling \$22,445,348 in 2017.	Must be a federally tax-exempt charitable organization on file with the IRS, a government unit or agency, a local education agency or library.	OH
The George Gund Foundation: Environment Grant	The George Gund Foundation	Grant	Private	Makes grants to organizations that address environmental issues in Northeast Ohio. Supports efforts to restore and preserve the Lake Erie ecosystem. Within the broad range of environmental issues, the Foundation focuses on promoting alternatives to urban sprawl, decreasing energy consumption and waste, conserving ecosystems and biodiversity, reducing environmental health hazards, increasing public awareness of environmental issues and building the skills of nonprofit environmental leaders.	Applications are submitted online and considered three times a year by the Foundation's Trustees. Applications are due March 15 (for summer meeting), July 15 (for fall meeting), and November 15 (for winter-spring meeting). Applicants must provide a list of other funding received or funding they are seeking. More information can be found at: http://gundfoundation.org/what-we-fund/program-guidelines/ .	https://gundfoundation.org/	Application process, Grant program, Long-term program	Other, Outreach	Collaborative efforts as leverage. Rarely funds 100% of a project.		The Foundation's Board of Trustees have made 236 grants (for all program areas) totaling \$22,445,348 in 2017.	Eligible Applicants: federally tax-exempt charitable organization on file with the IRS, a governmental unit or agency, a local education agency or a library. Must be in Northeastern Ohio or benefit Lake Erie.	OH
The McKnight Foundation: Midwest Climate & Energy Grant	The McKnight Foundation	Grant	Private	Engages the region's public and private leaders, decision makers, and citizens in building low-carbon communities and economies that are vibrant, equitable, and resilient. The Foundation achieves these goals through grants, investments, convening and community engagement.	Uses a closed application process; proposals for funding are accepted only from organizations that are invited by McKnight Foundation staff to apply.	https://www.mcknight.org/grant-programs/midwest-climate-and-energy	Application process, Grant program	Other, Outreach	The program leverages its limited philanthropic funding by supporting efforts that address systemic and structural barriers to a clean energy transition.		In 2017, The McKnight Foundation awarded 70 grants totaling \$15 million.	Must be a tax-exempt, nonprofit. Organizations must be invited to apply.	MN

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
The McKnight Foundation: Region and Communities Grant (R&C)	The McKnight Foundation	Grant	Private	The goal of the McKnight Foundation's Region and Communities (R&C) grant program is to increase efficient and sustainable regional metropolitan development that creates livable communities and expands opportunities. Program strategies include sustainable regional development, affordable housing, and economically vibrant neighborhoods. Primary geographic focus is the Twin Cities metropolitan region.	Applications for the Region and Communities (R&C) grant program are submitted online on a quarterly basis. The online application system opens approximately two weeks prior to each initial inquiry deadline. The inquiry submission date will determine when a full proposal, if invited, is considered by the board. Deadlines are: October 15 for February consideration; January 15 for May consideration; April 15 for August consideration; and July 15 for November consideration. Application instructions are available at: https://www.mcknight.org/grant-programs/region-and-communities .	https://www.mcknight.org/grant-programs/region-and-communities	Application process, Grant program, Long-term program	Other, Outreach	Leverage for public, philanthropic, and private resources.		In 2017, issued 124 grants totaling \$21 million.	Must be tax except nonprofit. For planning, operating, and project grants. Consider capital grants only in exceptional circumstances.	MN
The Rockefeller Foundation: Grant	The Rockefeller Foundation	Grant	Private	The Rockefeller Foundation works to achieve meaningful and measurable impact for poor and vulnerable communities through smart globalization. A portfolio of work structured around core issue areas include: health, food, power, jobs, resilient cities, innovation and co-impact.	During 2018, The Rockefeller Foundation is reviewing and assessing their areas of focus and grant-making to ensure that they are most effectively delivering on our mission to promote the well-being of humanity throughout the world. Therefore, the Foundation is not accepting or reviewing unsolicited proposals at this time (unless requested to do so by a Foundation staff member). Unsolicited proposals are not being accepted at this time.	https://www.rockefellerfoundation.org/	Grant program, Long-term program	Other, Outreach		\$10,000	\$3 million	Not accepting or reviewing unsolicited proposals at this time. Projects must fall within one of the Current Initiatives. Must address more than one of the funding areas.	NY
Title XVI Water Reclamation & Reuse Program	US Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	The Bureau of Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for feasibility studies and research, and the construction of water recycling projects on a project specific basis, in partnership with local governmental entities.	Three Funding Opportunity Announcements (FOAs) are offered under the Title XVI Program: (1) planning, design, and construction of Congressionally Authorized Title XVI Projects; (2) Feasibility Studies; and (3) Research. FOAs are expected to be posted in October and November. To receive email updates, send a blank email to watersmart@usbr.gov with Title XVI in the subject line.	http://www.usbr.gov/WaterSMART/title/index.html	Application process, Fund allocation to states and localities, Grant program	Capital	Coast sharing/matching is required.		In 2017, six projects received a total of \$20,980,129 for planning, design and/or construction activities; 13 projects received a total of \$1,791,561 to develop new water reclamation and reuse feasibility studies; and four projects received a total of \$847,701 for research to establish or expand water reuse markets, improve or expand existing water reuse facilities, and streamline the implementation of clean water technology at new facilities.	Must be an eligible organization. Project must be water reclamation and reuse authorized for funding under Title XVI Act. Cannot go to federal entities, research institutions, nonprofits, and individuals.	National
Treasure State Endowment Program (TSEP)	Montana Department of Commerce - Community Development Division	Grant	State	State-funded program designed to help address the affordability of local infrastructure projects by lowering the cost of constructing public facilities. Grant categories include Planning, Projects, and Emergency.	Application and guidelines can be found online.	http://comdev.mt.gov/programs/TSEP	Application process, Grant program, Long-term program	Capital, Compliance, O&M, Other	State funded grant program.		Maximum grant values depend on the grant type. Projects average \$600,000.	Eligible applicants include cities, towns, counties, special purpose districts, and tribal governments.	MT
Tribal Environmental Regulatory Enhancement Program	U.S. Department of Health & Human Services (DHHS)	Grant	Federal	Grants provide tribes with resources to develop legal, technical and organizational capacities for protecting their natural environments. Grants build tribal capacity, allowing involvement in all aspects of each project, including: Environmental issue identification, Planning, Development, and Implementation.	Visit https://ami.grantsolutions.gov/index.cfm?switch=searchresult&type=office&param=ANA&page=ANA to view and apply for current funding opportunities.	https://www.acf.hhs.gov/ana/programs/environmental-regulatory-enhancement	Application process, Competitive process, Grant program	Other	Leveraged Resources: The total dollar value of all non-ANA resources that are committed to a proposed ANA project and are supported by documentation that exceed the 20% non-federal match required for an ANA grant.		Estimated \$1.75 million total in FY2016.	Applicants must describe a land base or other resource over which they exercise jurisdiction as part of their application.	National

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Urban and Community Forestry Program	U.S. Forest Service	Grant	Federal	Cooperative program of the U.S. Forest Service that focuses on the stewardship of urban natural resources, providing grants for urban forestry projects.		https://www.fs.fed.us/management/land/urban-forests/ucf	Fund allocation to states and localities, Grant program	Capital, Other, Outreach	Funds can be used to leverage and diversify funding, expand collaboration between urban forestry and related fields, agencies, and sectors.			Projects must align with the seven goals in the Ten-Year Urban Forestry Action Plan (2016 -2026).	National
Urban Waters Small Grants (UWSG)	U.S. Environmental Protection Agency (EPA)	Grant	Federal	The objective of the Urban Waters Small Grants (UWSG) is to fund projects that will foster a comprehensive understanding of local urban water issues, identify and address these issues at the local level, and educate and empower the community. In particular, the UWSG seek to help restore and protect urban water quality and revitalize adjacent neighborhoods by engaging communities in activities that increase their connection to, understanding of, and stewardship of local urban waterways.	Grants are awarded every other year. Currently no open RFPs.	https://www.epa.gov/urbanwaters/urban-waters-small-grants	Application process, Grant program	Other, Outreach	Currently no open RFPs; Promotes successful collaborative partnerships.		\$60,000	Grants are awarded every two years. Should meet four program objectives. Eligible: States, local governments, tribes, universities/colleges, nonprofits, intertribal consortia, interstate agencies.	National
Utah Clean Water State Revolving Fund (CWSRF)	Utah Department of Environmental Quality	Loan	State	The CWSRF funds water quality and wastewater infrastructure projects in Utah including green infrastructure, water and energy efficiency, and environmentally innovative projects.	Projects must apply to be on the annual priority list. Applications can be found online. Contact Utah Division of Water Quality for more information.	https://deq.utah.gov/water-quality/financial-assistance-programs-water-quality	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments are used to fund additional water quality projects.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Must be on the annual priority list. Municipalities are eligible to receive loans for wastewater treatment or collection system infrastructure.	UT
Utah Drinking Water State Revolving Fund (DWSRF)	Utah Department of Environmental Quality	Loan	State	Provides finance assistance to eligible public water systems for infrastructure projects, administration, technical assistance, and source water protection aimed at improving drinking water quality.	To initiate the process, complete and submit the combined application form. Application is evaluated by Division of Drinking Water (DDW) staff, assigned priority points, and placed on a Project Priority List.	https://deq.utah.gov/drinking-water/federal-state-revolving-fund-srf-program-drinking-water	Application process, Loan program, Long-term program	Capital, Compliance, Other	Low interest loans.		Funding level determined by priority, number of applicants, and total DWSRF amount to loan.	For publicly- and privately-owned and nonprofit non-community water systems.	UT
Utah State Revolving Fund (SRF): Drinking Water	Utah Department of Environmental Quality (DEQ)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents are available at: https://deq.utah.gov/drinking-water/state-revolving-fund-srf-drinking-water . Applicants must submit the most recent audit or financial statement of the applicant along with their loan application. Further, an engineering report needs to accompany the application. The report must: describe the need for a project; list the various project alternatives which were examined; and justify the selection of the project which is being proposed.	https://deq.utah.gov/drinking-water/state-revolving-fund-srf-drinking-water	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	UT

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Vermont Clean Water State Revolving Loan Fund (CWSRF)	Vermont Department of Environmental Conservation (DEC)	Loan	State	Provides loans to municipalities or municipally-sponsored privately-owned systems for facilities planning, final design, and construction.	Projects must apply to be on the annual priority list by submitting an Intended Use Plan. To be compliant with NEPA, environmental reviews are required as well. Applications and forms can be accessed on website.	http://dec.vermont.gov/facilities-engineering/water-financing/cwsrf	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments are used to fund additional water quality projects.		Funding terms vary based on loan type. Planning Loans: Term of 5 to 15 years with 0% interest. Final Design Loans: Terms of 5 to 15 years with 0% interest. Construction Loans: Terms of 20 to 30 years with 2% administrative fee, annually. Terms need to be less than or equal to asset life.	Eligible projects: Wastewater and stormwater; full list of examples on webpage.	VT
Vermont Community Development Program (VCDP)	Vermont Agency of Commerce & Community Development	Grant	State	Assists communities on a competitive basis by providing financial and technical assistance to identify and address local need. VCDP funds must primarily benefit persons of low and moderate income. In addition, assistance is provided to communities for threats of health and safety issues as urgent needs and slums and blight projects.	Applications can be completed online at: https://grants.accd.vermont.gov/	http://accd.vermont.gov/community-development/funding-incentives/vcdp	Application process, Grant program, Long-term program	Capital, Other			Accessibility Modification Grants: \$5,000 to \$75,000. Implementation grants: \$50,000 to \$1,000,000. Planning Grants: \$3,000 to \$60,000. Scattered Site Grants: \$50,000 to \$1,000,000.	Must be a VT town, city (except Burlington), incorporated village chartered to function as a general purpose unit of local government or a consortium of such entities. Can be coordinated efforts between municipalities, community groups, and nonprofits.	VT
Vermont Drinking Water State Revolving Fund (DWSRF)	Vermont Agency of Natural Resources, Department of Environmental Conservation	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. State Source Protection Loans require the water system to demonstrate how the project will directly promote public health protection or compliance with national drinking water regulations.	Funding applications and instructions on how to apply are available at: https://dec.vermont.gov/water-investment/water-financing/srf/how-to-apply . Applications require several attachments including a Engineering Services Agreement, draft Level of Effort, any subcontractors' proposals, small equipment purchases, or other reimbursable costs.	https://dec.vermont.gov/water-investment/water-financing/dwsrf	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can be used to coordinate with other programs, e.g., plans to meet CWSRF and Section 319 grant application requirements. Also offer Planning, Source Protection, and Const. Loans.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	VT
Vermont Municipal Planning Grants	Vermont Agency of Commerce & Community Development	Grant	State	Funding available for a variety of municipal planning and revitalization projects, including those that improve flood protection, protect natural resources, and promote efficient growth and development.	The Program Description, including competitive criteria for the upcoming grant round will be issued annually in early June. Applications are due first of October. They can be completed online here: https://grants.accd.vermont.gov/ .	http://accd.vermont.gov/community-development/funding-incentives/municipal-planning-grant	Application process, Competitive process, Grant program, Long-term program	Capital, Other	10% cash match required. Projects with match amounts greater than 10% receive additional points in the competitive criteria.		\$22,000 for individual municipalities and \$35,000 for consortia.	Eligible: Municipalities with confirmed local planning process or municipalities without a local planning processes may apply for funding to develop a municipal plan. Must be located in VT. Projects must be completed in 18 months.	VT
Virginia Clean Water State Revolving Fund (CWSRF)	Virginia Resources Authority (VRA)	Loan	State	Funding is available for improvements to publicly-owned wastewater collection and treatment facilities; installation of publicly-owned stormwater best management practices; projects for the remediation of contaminated brownfield properties; land conservation projects and living shoreline projects.	There is an annual solicitation and ranking of applications. Funding is usually issued by a Request for Proposal (RFP) June 1 with applications due mid July. Applications can be accessed on website.	https://www.virginiaresources.gov/page/clean-water-revolving-loan-fund/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Low interest rate loans that provide funding for future projects as they are repaid. Virginia Resources Authority (VRA) serves as the financial manager of the fund.		Approximately \$100 million in total funds available, annually.	Local governments eligible.	VA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Virginia Drinking Water State Revolving Fund (DWSRF)	Virginia Department of Health	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: http://www.vdh.virginia.gov/drinking-water/financial-construction-assistance-programs/drinking-water-funding-program-details/ .	https://www.virginiaresources.gov/page/drinking-water-revolving-loan-fund/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	VA
Virginia Stormwater Local Assistance Fund (SLAF)	Virginia Department of Environmental Quality (DEQ)	Grant	State	Supports Non-Point Source Nutrient Credit purchases and stormwater projects including: i) new stormwater best management practices; ii) stormwater best management practice retrofits, iii) stream restoration; iv) low impact development projects, v) buffer restorations, vi) pond retrofits, and vii) wetlands restoration.	To be considered for this funding, three completed applications and one Commonwealth of Virginia substitute W-9 form must be submitted. These forms can be found online. Applications are due in October.	https://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/StormwaterLocalAssistanceFund(SLAF).aspx	Application process, Grant program, Long-term program	Capital, Other	Provides 50% of project costs.		Approximately \$20,000,000 is available.	Projects that reduce non-point source pollution from stormwater. To be eligible must be a local government agency in Virginia.	VA
Washington Clean Water State Revolving Fund (CWSRF) Loans	State of Washington Department of Ecology (DOE)	Loan	State	Provides low interest and forgivable principal loan funding for wastewater treatment construction projects, eligible non-point source pollution control projects, and eligible green projects.	Apply via the current Combined Funding Cycle process. Apply here: https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-Combined-Funding-Program/WQC-funding-cycle . Guidelines can be found here: https://fortress.wa.gov/ecy/publications/SummaryPages/1810030 Hardship Assistance: Jurisdictions listed with a population of 25,000 less.	https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Issues loans for terms of 5, 20, or 30 years with the limitation that the term cannot be longer than the useful life of the project being financed.		Varies Stormwater grant: maximum award per jurisdiction: \$5 million, with a required 25% match.	For wastewater treatment construction projects, eligible non-point source pollution control project and eligible green projects. Pre-construction set-aside (Distressed Communities) 50% forgivable principal loan and 50% loan.	WA
Washington Community Economic Revitalization Board (CERB)	Washington State Department of Commerce	Grant	State	The Community Economic Revitalization Board (CERB) provides funding to local governments and Federally-recognized tribes for public infrastructure which supports private business growth and expansion. Eligible projects include domestic and industrial water, stormwater, wastewater, public buildings, telecommunications, and port facilities.	Contact staff when ready to apply for CERB funding, and obtain a link to the application. To help with the application process, and learn more about different funding programs, review the information on our Applicant/Client Resources page (https://www.commerce.wa.gov/building-infrastructure/community-economic-revitalization-board/cerb-application-page/). Board meets six times a year.	http://www.commerce.wa.gov/building-infrastructure/community-economic-revitalization-board/	Application process, Grant program	Capital, Other	Projects encourage private and local investments.		CERB has invested \$163 million in communities across the state. Up to \$50,000 per application. Requires 25% match for Project Specific Planning. Construction Program: 20% match for private and 50% match for prospective partners.	Funds are awarded to local governments for public infrastructure projects.	WA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Washington Drinking Water State Revolving Fund (DWSRF)	Washington State Department of Health	Loan	State	States can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. The 2019 Intended Use Plan (IUP) indicated that 5% of the Local Assistance and Other State Programs set-asides will be used to work with system to improve source water protection and implement important wellhead and watershed protection projects. To achieve this the State will continue to improve the program by engaging other State and federal agencies, local governments, and nongovernmental organizations for collaboration.	Funding applications and forms are available at: https://www.doh.wa.gov/Portals/1/Documents/4200/19WALTAppWorksheet(1).pdf . The State recommends that the applicant read and understand the DWSRF Construction Guidelines prior to completing the worksheet. Worksheets must be mailed to the State and postmarked by the set date for that year.	https://www.doh.wa.gov/communityandenvironment/drinkingwater/watersystemassistance/drinkingwaterState revolvingfund/dwsrf	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.		\$3 million per jurisdiction.	Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	WA
Water & Environmental Programs (WEP)	U.S. Department of Agriculture (USDA) - Rural Development (RD)	Grant	Federal	WEP is exclusively focused on the water and waste infrastructure needs of rural communities with populations of 10,000 or less. The programs provide technical assistance and financing for development of drinking water, waste disposal, and stormwater systems in rural areas.	Applications must be submitted via RDApply.	https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs	Application process, Competitive process, One-time allocation	Capital, Other, Outreach				Eligible projects include construction of water and waste facilities in rural communities. Funds can also be used for technical assistance and training in rural communities in relation to water and waste activities.	National
Water & Waste Disposal Grants to Alleviate Health Risks on Tribal Lands and Colonias	U.S. Department of Agriculture (USDA) - Rural Development (RD)	Grant	Federal	Provides access to safe reliable drinking water and waste disposal facilities and services to low-income communities that face significant health risks.	Applications for this program are accepted through the local RD office year round.	https://www.rd.usda.gov/programs-services/water-waste-disposal-grants-alleviate-health-risks-tribal-lands-and-colonias	Application process, Grant program, Long-term program	Capital	Matching is not required but encouraged if other partnerships exist. Partnerships with other federal, state and local entities are encouraged.		Congressional appropriation varies annually.	Eligible: State and local governmental entities, nonprofit organizations, utility district serving colonias, federally recognized tribes. Areas eligible: Tribal lands, Colonias recognized prior to Oct 1, 1989, rural areas and towns with pop less than 10K.	National
Water & Waste Disposal Loan & Grant Program	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Loan	Federal	Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas.	Apply online using Rural Development (RD) apply: https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program Applications are also accepted through your local RD office: https://www.rd.usda.gov/contact-us/state-offices	https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program	Application process, Grant program, Loan program	Capital	Long-term, low-interest loans, if funds are available, grant may be combined with a loan if necessary.		\$30,000 in WA	Must be a state or local government entities, private nonprofit, federally recognized tribes in a rural area or town with pop. less than 10K tribal lands, Colonias.	National
Water & Waste Disposal Loan & Grant Program in Pennsylvania	U.S. Department of Agriculture (USDA) Rural Development (RD)	Loan	Federal	Provides funding for water, wastewater, and stormwater systems in rural areas and towns with a population not in excess of 10,000. Funds are available to public bodies, nonprofit corporations, and Indian tribes	Applications are accepted on a rolling basis. Paper applications are accepted or applicants can register for and use RD APPLY	https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program/pa	Application process, Loan program	Capital	Up to 40 year loan with fixed interest rate.		Appropriations each fiscal year.	Eligible: State and local government entities, private nonprofits, and Federally-recognized tribes in a rural area with populations 10K or less with. Funding must be used for acquisition, construction, or improvement of the items listed on the website.	PA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Water & Waste Disposal Loan Guarantees	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Loan	Federal	Helps private lenders provide affordable financing to qualified borrowers to improve access to clean, reliable water and waste disposal systems for households and businesses in rural areas.	Lenders: Contact a representative in local Rural Development (RD) office for details on how to become an approved lender. Borrowers: ask private lender if it participates in USDA loan guarantee programs. Questions should be directed to local RD office: https://www.rd.usda.gov/contact-us/state-offices	https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-guarantees	Application process, Loan program, Long-term program	Capital	Loan guarantees are serviced through private lenders.		The maximum guarantee is typically 90% of the loan amount. Interest rates may be fixed or variable as negotiated between the lender and the borrower, subject to USDA approval. Up to 40-year payback period, based on the useful life of the facilities financed. Balloon payments are prohibited.	Eligible: Most state and local governmental entities, nonprofit organizations, and federally-recognized tribes in rural areas and towns with populations 10K or less.	National
Water & Waste Disposal Predevelopment Planning Grants	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Grant	Federal	Assists low-income communities with initial planning and development of applications for USDA Rural Development Water and Waste Disposal direct loan/grant and loan guarantee programs.	Contact your Rural Development (RD) Office for more application information: https://www.rd.usda.gov/contact-us/state-offices . Apply online: https://rdapply.usda.gov Applications are accepted throughout the year.	https://www.rd.usda.gov/programs-services/water-waste-disposal-predevelopment-planning-grants	Application process, Grant program, Long-term program	Other	At least 25% percent of cost must come from the applicant or third-party source. In-kind contributions do not count toward this minimum.		\$30,000 or 75% of predevelopment planning costs.	Grants to pay part of the cost of developing a complete application for USDA Rural Development Water & Waste Disposal direct loan/grant and loan guarantee programs. Eligible: Most state and local government entities, nonprofits, Tribes.	National
Water & Waste Disposal Technical Assistance & Training Grants	U.S. Department of Agriculture (USDA) Rural Utility Service (RUS)	Grant	Federal	Helps qualified, private nonprofits provide technical assistance and training to identify and evaluate solutions to water and waste problems; helps applicants prepare applications for water and waste disposal loans/grants; and helps associations improve the operation and maintenance of water and waste facilities in eligible rural areas.	Single-state applications are accepted annually through local Rural Development (RD) office from October 1 - December 31. Multi-state or national applications are accepted through the RD national office. Program resources are available online (forms, guidance, certifications, etc.). Guide: https://www.rd.usda.gov/files/ApplicationGuideTAT_SWMGrantsFY2018-FINAL.pdf . Contact local RD office: https://rdapply.usda.gov . Closed at the end of 2018.	https://www.rd.usda.gov/programs-services/water-waste-disposal-technical-assistance-training-grants	Application process, Grant program, One-time allocation	Other, Outreach	Grant status is currently closed, funding is a reimbursement grant, can be used to cover grant application costs.		This is a reimbursement grant. Grants are subject to the availability of funds.	Nonprofit, using funds in rural areas and towns with populations < 10K or tribal lands in rural areas. Must be used to either identify or evaluate solutions to water storage treatment, distribution, collection, and disposal or tech assistance.	National
Water and Waste Disposal Guaranteed Loan Program	U.S. Department of Agriculture (USDA) - Rural Development (RD)	Loan	Federal	Private lenders may apply for a loan guarantee on loans they make to eligible borrowers who are otherwise unable to obtain commercial credit on reasonable terms.	Applications are accepted on a rolling basis. Paper applications are accepted, or applicants can register for and use RD Apply. Contact your local RD office for more information: http://www.rd.usda.gov/contact-us/state-offices .	http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-guarantees	Application process, Loan program, Long-term program	Capital	Loans serviced through private lenders. Borrower must have legal authority to construct & maintain.		The maximum guarantee is typically 90% of the loan amount. Interest rates may be fixed or variable as negotiated between the lender and the borrower, subject to USDA approval. Up to 40-year payback period, based on the useful life of the facilities financed.	Eligible: Most state and local governmental entities. Nonprofit organizations, Federally-recognized tribes. Eligible areas are Rural and Towns with populations less than 10,000; tribal lands in rural areas; colonias.	National
Water Foundation: Grant	Water Foundation	Grant	Private	The Water Foundation works to transform how water is managed in the West. The Foundation helps grantees identify and act on opportunities to better manage water and engage in thoughtful, strategic grantmaking to nonprofit partners to drive change.	Proposals are accepted by invitation only.	http://waterfdn.org/	Grant program, Long-term program	Capital, Other			Funding levels varies based on need.		CA

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Water Infrastructure Finance and Innovation Act (WIFIA) Program Loans	U.S. Environmental Protection Agency (EPA)	Loan	Federal	Federal credit program administered by EPA for eligible water and wastewater infrastructure projects. Funds development phase activities; construction/reconstruction/rehabilitation/replacement; acquisition of real property or interest in real property, environmental mitigation, construction contingencies, and equipment acquisition; capitalized interest necessary to meet market requirements, reasonably required reserve funds, capital issuance expenses, and other carrying costs during construction.	Interested parties submit letter of interest, which EPA evaluates for eligibility, creditworthiness, technical feasibility, ability to meet WIFIA strategic objectives, and readiness to proceed. EPA scores eligible projects using identified criteria and develops ranked list. Projects above threshold are invited to apply.	https://www.epa.gov/wifia	Application process, Competitive process, Loan program	Capital, Other	Low cost-supplemental loans. Federal assistance cannot exceed 80% of project's eligible cost.		\$20 million: Minimum project size for large communities. \$5 million: Minimum project size for small communities (population of 25,000 or less). 49%: Maximum portion of eligible project costs that WIFIA can fund.	Eligible entities: local, state, federal, tribal government; partnerships and joint ventures; corporations and trusts: Clean Water (CW) and Drinking Water (DW) State Revolving Fund (SRF) programs.	National
Water Infrastructure Fund (WIF)	Minnesota Public Facilities Authority (PFA)	Grant	State	Provides supplemental grants based on affordability criteria to help communities build wastewater and drinking water treatment projects that replace aging infrastructure and meet permit requirements.	Applicants eligible for Rural Development funding must apply directly to Rural Development. Non-Rural Development projects must request placement on the Clean Water Revolving Fund Intended Use Plan for wastewater projects or on the Drinking Water Revolving Fund Intended Use Plan for drinking water projects and follow the PFA's loan application process.	https://mn.gov/deed/government/public-facilities/funds-programs/wastewater.jsp	Application process, Grant program, Long-term program, Non-competitive process	Capital	Provide matching grants to communities that meet affordability criteria and receive PFA loans or water financing from U.S. Department of Agriculture (USDA).		For municipalities receiving funding from USDA Rural Development (RD), the WIF grant may be up to 65% of the total grant need determined by USDA RD. Municipalities not receiving funding from Rural Development may receive a WIF grant in conjunction with a CWRF or DWRF loan when the average per household system costs exceed 1.4% of median household income for Clean water or 1.2% of median household income for Drinking water projects. The maximum WIF grant may not exceed \$5 million or \$20,000 per connection, whichever is less.	Cities, counties, townships, sanitary districts or other governmental subdivisions responsible for water treatment are eligible. Must meet USDA RD eligibility or apply directly to PFA as part of the application for the CWSRF.	MN
Water Resources Research National Competitive Grants Program	U.S. Geological Survey (USGS) and National Institutes for Water Resources (NIWR)	Grant	Federal	Supports research on the topic of improving and enhancing the nation's water supply, including (but not limited to) enhancement of water supply infrastructure, development of drought impact indicators, evaluation of the dynamics of extreme hydrological events and associated costs, development of methods for better estimation of the physical and economic supply of water, integrated management of ground and surface waters, the resilience of public water supplies, and the evaluation of conservation practices. Proposals are sought in not only the physical dimensions of supply, but also the role of economics and institutions in water supply and in coping with extreme hydrologic conditions.	Download the grant application at https://water.usgs.gov/wrri/national-competitive-grants.php .	https://water.usgs.gov/wrri/national-competitive-grants.php	Application process, Competitive process, Grant program	Other	Successful applicants must match each dollar of the Federal grant with one dollar from non-Federal source.		\$6.5 million in FY17; applicants must match each Federal dollar with not less than one dollar from non-Federal sources, and states may have different guidelines as to the sources of matching funds.	Projects must be for one to three year duration. Focus on water problems and issues that are of a regional or interstate nature. Accredited higher learning institutions may apply.	VA
Water Supply and Water Quality Grant Funding Programs	Northwest Florida Water Management District	Grant	State	Supports projects from local governments and nonprofit utilities that help communities across northwest Florida meet local and regional water supply development needs. Funding may also be available to implement water quality improvement projects for springs and surface water protection.	Visit the website for more information.	http://www.nfwater.com/Water-Resources/Funding-Programs/	Application process, Grant program		Funding was matched with more than \$9.4 million from grantees and partner agencies, totaling more than \$30 million of water supply investment in communities across northwest Florida.		Annual amount varies.	Projects of interest must benefit one or more of the District's core mission areas: water supply, water quality, natural systems, flood protection.	FL

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
WaterSMART Drought Response Program: Drought Contingency Planning	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	Applicants are invited to request funding to develop a new drought plan or to update an existing drought plan. Applicants may also request technical assistance from the Bureau of Reclamation for the development of elements of the Drought Contingency Plan.	See the WaterSMART website at https://www.usbr.gov/watersmart/ for information. Funding Opportunity Announcements will be posted at www.grants.gov . Projects must meet one of the program goals on webpage. Must develop within two years of receiving funding.	https://www.usbr.gov/drought/planning.html	Application process, Competitive process, Grant program, Long-term program	Other	50% non-Federal cost share contribution is required (including non-Federal funds, donations, contributions, and/or in-kind services). In limited cases, a cost-share reduction or waiver may be granted.		FY17 funding amount: Up to \$200,000 per agreement for a project that can be completed within two years.	States, Indian tribes, irrigation districts, water districts, and other organizations with water or power delivery authority located in the 17 Western United States and Hawaii are eligible for this funding opportunity.	Western US, HI
WaterSMART Drought Response Program: Drought Resiliency Projects	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	Applicants are invited to request funding to implement projects that will increase the reliability of water supply; improve water management; implement systems to facilitate the voluntary sale, transfer, or exchange of water; and provide benefits for fish, wildlife, and the environment to mitigate impacts caused by drought. Projects that are supported by an existing drought planning effort are prioritized.	See the WaterSMART website at https://www.usbr.gov/watersmart/ for information. Funding Opportunity Announcements will be posted at www.grants.gov . Projects must meet one of the four goals of the program.	https://www.usbr.gov/drought/projects.html	Application process, Grant program	Capital	A 50% non-Federal cost share contribution is required (including non-Federal funds, donations, contributions, and/or in-kind services). Two years to complete the project once grant awarded.		FY17 funding amounts: up to \$300,000 per agreement for a project that can be completed within two years or up to \$750,000 per agreement for a project that can be completed within three years.	States, tribes, irrigation districts, water districts, and other organizations with water or power delivery authority located in the 17 Western United States and United States Territories are eligible for this funding opportunity.	Western US, Territories
WaterSMART Grants: Small-Scale Water Efficiency Projects	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	This funding opportunity is for small-scale water efficiency projects that have been prioritized through planning efforts led by the applicant. Projects eligible for funding include installation of flow measurement or automation in a specific part of a water delivery system, lining of a section of a canal to address seepage, small rebate programs that result in reduced residential water use, or other similar projects that are limited in scope. Those eligible to apply are states, tribes, irrigation districts, water districts or other organizations with water or power delivery authority located in the western United States or United States Territories.	See the WaterSMART website at https://www.usbr.gov/watersmart/ for information. Funding Opportunity Announcements will be posted at www.grants.gov . FY18 applications are due July 31, 2018.	https://www.usbr.gov/watersmart/swep/index.html	Application process, Competitive process, Grant program	Capital	50/50 Cost sharing. Projects must be completed within two years of awarding grant.		Applicants must provide a 50% non-Federal cost-share. Award ceiling: \$75,000 (total project construction cost shall be no more than approximately \$150,000 to \$200,000).	Eligible entities: water districts, tribes, states and other entities. Small water efficiency projects only.	Western US
WaterSMART Grants: Water and Energy Efficiency Grants	U.S. Department of the Interior (DOI) - Bureau of Reclamation	Grant	Federal	This program invites states, Indian tribes, irrigation districts, water districts, and other organizations with water or power delivery authority to leverage their money and resources by cost sharing with the Bureau of Reclamation on projects that seek to conserve and use water more efficiently, otherwise support water sustainability strategies, and prevent any water-related crisis or conflict. Used to increase the production of hydropower, mitigate conflict risk, other benefits to contribute to water supply in the western US.	See the WaterSMART website at https://www.usbr.gov/watersmart/ for information. Funding Opportunity Announcements will be posted at www.grants.gov .	https://www.usbr.gov/watersmart/weeg/index.html	Application process, Competitive process, Grant program	Capital	Applicants must provide a 50% non-Federal cost-share. Focus on projects that can be completed in two to three years.		FY18 funding amounts: up to \$300,000 for smaller projects or up to \$1 million for larger projects.	Must be an entity with water or power delivery authority.	Western US

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Weatherization and Intergovernmental Program (WIP)	U.S. Department of Energy	Grant	Federal	WIP is made up of two programs focused on state and local governments, the Weatherization Assistance Program (WAP) and the State Energy Program (SEP), and two teams that develop and deliver targeted technical assistance and strategic initiatives to state and local governments. Provides grants, technical assistance, and information tools to states, local governments, community action agencies, utilities, Indian tribes, and U.S. territories for their energy programs. The funding can be used to encourage installation of green infrastructure—such as green roofs—as part of the weatherization process.	Funding is provided to states, which contract competitively with local agencies.	https://www.energy.gov/ere/wipo/weatherization-and-intergovernmental-programs-office	Fund allocation to states and localities, Grant program	Capital, Other, Outreach	Community action agencies, other nonprofits, and local governments use in-house employees and private contractors to deliver services to low-income families.			WAP funding is awarded to all 50 states and territories, which contract with local agencies nationwide.	National
West Virginia Clean Water State Revolving Fund (CWSRF)	West Virginia Department of Environmental Protection (DEP)	Loan	State	Provides funding to address water quality problems through wastewater facility construction, upgrades, or expansions. Available funding options are Low Interest Loan Program (for construction of municipal wastewater treatment works), Agriculture Water Quality Loan Program, or On-site Systems Loan Program.	Projects must apply to be on the annual priority list. Pre-bid and post-bid checklists can be accessed on website.	http://www.dep.wv.gov/wwe/programs/srf/pages/default.aspx	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Repayment of loans provides funding for future projects. Low interest long-term loans.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Eligible projects must address water quality problems. Eligible applicants include municipalities and public service districts.	WV
West Virginia Drinking Water Treatment Revolving Fund (DWTRF)	West Virginia Department of Health and Human Resources	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. WV allocates portions of the 15% set-aside for its river alert and stream gage networks.	Applicants must first send a complete preliminary application to the Infrastructure and Jobs Development Council requesting a DWTRF loan and then be approved to pursue the proposed funding. The applicant then applies to be included on the Project Priority List (PPL). Application documents are available upon request.	http://www.wvdhhr.org/oe/ehs/eed/iandcd/DWTRF.asp	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	WV
West Virginia Infrastructure Fund	West Virginia Infrastructure & Jobs Development Council (WVIJDC)	Grant	State	Provides low-interest loans and grants to eligible project sponsors to pay for engineering, construction, and related soft costs for water and sewer infrastructure projects.	Project sponsor must submit a preliminary application for feedback prior to submitting a request for preconstruction engineering services advance funding assistance. Private companies may apply if they have a public partner to accept the funding on their behalf. More information can be found at: http://www.wvinfrastructure.com/project-dashboard/pdf/policiesGuidelines/Revised%20Policies.pdf	http://www.wvinfrastructure.com/pc/policy-procedures.php	Application process, Grant program	Capital, O&M, Other	Grants to the measure of 50% of costs, or \$5,000. Funds given \$100,000 must be in the form of a loan. Repayment of loans provides funding for future projects.			Eligible projects must be located in West Virginia and be for wastewater and water infrastructure.	WV

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
William Penn Foundation: Watershed Protection Grant	William Penn Foundation	Grant	Private	Focuses on watershed protection using a science-driven approach that is combined with data collection, research and metrics to measure impact. The Foundation's goal is to better understand the baseline data, progress over time, emerging threats, policies, and practices that can advance private and public watershed-protection efforts, with an emphasis on protection of forests; reduction of agricultural run-off and polluted stormwater; and protection of critical aquifers. The Foundation supports projects that protect and restore the Delaware River watershed's natural environment to ensure there is an adequate supply of clean water for generations to come.	Applications are submitted online. Potential applicants submit an initial inquiry and if the William Penn Foundation is interested in learning more about the project the applicant will be contacted to submit a formal proposal. Application instructions are available at: http://www.william penn foundation.org/how-apply .	http://www.william penn foundation.org/	Application process, Grant program, Long-term program	Capital, Other, Outreach			Grants range from \$80,000 to \$11 million.	Parties interested in the grant must submit an initial inquiry and then be invited to submit a full proposal. Entities must be located in the greater Philadelphia Region.	PA
Wisconsin Clean Water Fund Program (CWFP)	Environmental Improvement Fund (EIF)	Loan	State	Provides financial assistance to municipalities for wastewater and stormwater infrastructure projects, including those for compliance with a municipality's Wisconsin Pollutant Discharge Elimination System (WPDES) permit.	Identify and define the wastewater treatment or drinking water "problem" that needs to be corrected or prevented. This process generally involves a joint effort of the municipality, a consulting engineer, and the Department of Natural Resources (DNR) engineer in your area. Pre-Application - A notice of Intent to Apply (ITA) & a Priority Evaluation and Ranking Formula (PERF) must be submitted online to DNR for each project seeking EIF loan. The deadline for all ITAs/PERFs is October 31 for the following state fiscal year (SFY) funding cycle. All ITAs/PERFs must be submitted annually online because they will only be valid for one state fiscal year (July 1st through June 30th). Projects will be ranked on the Priority List (PPL) and are eligible to apply for funding.	https://dnr.wisconsin.gov/aid/eif.html	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Loan repayments provide a continuing source of funds for additional projects.	None	Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Municipalities or local governments can apply for infrastructure project funding.	WI
Wisconsin Municipal Loan Program	Wisconsin Board of Commissioners of Public Lands (BCPL)	Loan	State	BCPL has invested in loans to municipalities and school districts for public purpose projects including economic development, local infrastructure, capital equipment and vehicles, building repairs and improvements, and refinancing existing liabilities to reduce future borrowing costs.	Applications are accepted and funded continuously. The loan process begins with the borrower submitting a one-page Loan Application Request Form available on the website. Funding can usually occur within 30-45 days.	http://bcpl.wisconsin.gov/section.asp?linkid=1438&locid=145	Application process, Loan program, Long-term program, Non-competitive process	Capital, Other			Invested over \$1 billion in communities throughout Wisconsin over the past 10 years.	Eligible entities include Wisconsin school districts and municipalities.	WI

Program Name	Source	Source Type	Agency	Description	How To Apply	Website	How Funds are Issued	How Funds are Used	How Funds are Utilized	Funding Amount Min	Funding Amount Max	Funding Requirements	State
Wisconsin Safe Drinking Water Loan Program (SDWLP)	Wisconsin Department of Natural Resources (DNR) and Department of Administration (DOA)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures. WI uses a portion of its set-aside for implementation of wellhead protection programs, including: workshops; maintenance and redesign of data management and mapping applications; and implementation of a community watershed intervention approach to protecting drinking water systems in priority geographic areas. In addition, WI uses a portion of its set-aside to conduct large volume source water assessment monitoring.	Application documents are available at: https://dnr.wi.gov/Aid/EIF.html . Applicants must first submit a notice of Intent to Apply (ITA) and a Priority Evaluation and Ranking Formula (PERF) before submitting a loan application. Applicants will then be scored and placed on a Project Priority List (PPL) and are then eligible to apply for funding.	https://dnr.wi.gov/Aid/EIF.html	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	WI
Wisconsin Urban Non-point Source and Stormwater Management (UNPS&SW) Grant Program	Wisconsin Department of Natural Resources (DNR)	Grant	State	Offers competitive grants to local governments. Grants reimburse costs of planning or construction projects controlling urban non-point source and stormwater runoff pollution.	Applications must be submitted by April 15 of the calendar year prior to the awarded grant start year. Application material can be found online.	https://dnr.wi.gov/Aid/UrbanNonpoint.html	Application process, Competitive process, Grant program	Capital, Other			Funding levels vary. For Urban Stormwater Planning grants, DNR withholds 50% of eligible state cost-share reimbursements until final grant settlement. This withholding amount is automatically calculated and deducted in the Reimbursement Request Form (Form ID 8700-336) based on the grant cost-share rate and total project costs claimed in the reimbursement request.	Eligible applicants: Cities, villages, towns, counties, regional planning commissions, tribal governments and special purpose lake, sewage or sanitary districts. List of eligible projects on webpage. For urban non-point source and stormwater management.	WI
Wyoming Clean Water State Revolving Fund (CWSRF)	Wyoming Department of Environmental Quality (DEQ)	Loan	State	Loans and grants given to eligible applicants (governmental entity or a nonprofit corporation) to improve water quality.	Complete and submit three copies of the CWSRF loan application forms to the Office of State Lands and Investments. State recommends beginning the loan application process at least 6 to 12 months prior to bidding the project. The State Loan and Investment Board has final loan approval authority; it considers loans at its regular meetings held every two months.	http://deq.wyoming.gov/wqd/state-revolving-loan-fund/resources/2-clean-water-state-revolving-fund/	Application process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other	Long term interest loans. Repayment of loans provides funding for future projects.		Funding level determined by priority, number of applicants, and total CWSRF amount to loan.	Applicant must show they can repay the loan and adhere to federal environmental, social, and economic cross-cutting requirements. Eligible applicants are state agencies, counties, municipalities, joint powers, and other political subdivision.	WY
Wyoming Drinking Water State Revolving Fund (DWSRF) Program	Wyoming Department of Environmental Quality (DEQ), the Water Development Office (WDO), and the Office of State Lands and Investments (OSLI)	Loan	State	State can use 15% program set-aside for loans or grants to public water systems or service providers for source water protection (SWP) activities including: purchase land or conservation easements; implement SWP petition programs or incentive-based measures; delineate, assess, or update SWP areas; establish and implement wellhead protection programs; and other SWP measures.	Application documents available at: https://lands.wyo.gov/grants-loans/loans/drinking-water-state-revolving-funds .	http://deq.wyoming.gov/wqd/state-revolving-loan-fund/resources/3-drinking-water-state-revolving-fund/	Application process, Competitive process, Fund allocation to states and localities, Loan program, Long-term program	Capital, Compliance, Other, Outreach	State can choose whether and how to use the 15% set-aside annually. Funds can also be used to coordinate with other programs, e.g., develop assessments, appraisals, and plans to meet CWSRF and Section 319 grant application requirements.			Eligible activities can include outreach, BMPs, physical barriers or security to protect water sources, local ordinance development, and more.	WY



National Ground Water Association

Comments to

Environmental Protection Agency Environmental Financial Advisory Board

Regarding Stormwater Infrastructure Funding Task Force Recommendations to Improve the Availability of Public and Private Sources of Funding for Stormwater Infrastructure (Section 4101, America's Water Infrastructure Act of 2018)

Submitted: November 7, 2019; Updated December 16, 2019

Summary of Action

The USEPA Environmental Financial Advisory Board is preparing a report to improve the availability of public and private sources of funding for the construction, rehabilitation and operation and maintenance of stormwater infrastructure to meet the requirements of the Federal Water Pollution Control Act, as required under Section 4101, America's Water Infrastructure Act of 2018. The Task Force plans to deliver to USEPA a report in February 2020 on this matter.

Comments of the National Ground Water Association

NGWA supports affordable financing availability to communities to assist them in responding to managing stormwater impact. NGWA's main concern is to adequately protect groundwater beneath proposed stormwater infiltration facilities and, in doing so, we suggest that financing for any strategies that consider or incorporate infiltration be conditional on designs and their implementation that address adequate protection of groundwater quality. Each site's soil zone and geology possess unique characteristics and value to communities, and the uses of groundwater from beneath each site may be different and, as such, these circumstances must be taken into account in engineering natural degradation of pollutants and protection of groundwater. Our comments below elaborate on this concern. Attention to groundwater-protective design will affect cost of facilities which in turn will affect financing capacity and affordability.

Stormwater as a Resource

Stormwater is a resource for capture, use and groundwater recharge that can be managed in much of the arid western United States and elsewhere in the nation for water supply. To use stormwater for aquifer recharge and safe water supply, federal, state and local governments and the private sector should continue collaboration to protect groundwater and improve total water management. NGWA appreciates EFAB's consideration of the need of communities, in particular small communities, to obtain financing for infrastructure to properly manage stormwater. Given that 62 percent of community water systems serving 10,000 or fewer people are groundwater supplied,¹ it is crucial that stormwater reuse methods used in these communities be proven protective of groundwater supplies. Additionally, nearly 42 million people live in communities relying on private wells.² Groundwater is a water source needing

¹ U.S. Environmental Protection Agency. 2019. Drinking Water Government Performance and Results Tool. <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-performance-and-results-report> (Accessed December 10, 2019).

² U.S. Geological Survey. 2018. Estimated Water Use in the United States in 2015. Circular 1441. <https://pubs.er.usgs.gov/publication/cir1441> (Accessed December 10, 2019).

protection for them and these systems. Small communities have few resources or expertise to protect their groundwater sources of water supply.

Response to Urban Runoff

Uncontrolled stormwater discharges contain a variety of pollutants such as sediment, nutrients, chlorides, pathogens, metals, petroleum hydrocarbons, and trash, and are a significant cause of water quality impairment for surface waters.³ EPA has promoted green stormwater infrastructure as a principal method to respond to urban runoff to be controlled under the Clean Water Act National Pollutant Discharge Elimination System (NPDES) permitting. EPA has identified a range of methods to mimic the hydrologic cycle in nature including: reduction of impervious areas, downspout disconnection, rainwater harvesting, rain gardens, planter boxes, bioswales, permeable pavements, green streets and alleys, green parking, green roofs, urban tree canopy, and land conservation.⁴

Effects of Stormwater Practices on Groundwater Quality

The National Research Council did a thorough review in 2008 of urban stormwater practice. The report raised concerns about stormwater quality impacts on groundwater quality. While no specific research recommendation was made relative to groundwater quality, it noted “To ensure that groundwater is not compromised when surface water is routed through infiltrative practices, municipalities must establish where appropriate conditions do and do not exist and spot infiltration opportunities accordingly”⁵, pointing to a need for sound guidance. The Center for Watershed Protection’s 5-year research agenda focused on actions to protect surface waters needing attention relative to pollutants from stormwater and did not include groundwater quality concerns.⁶ The International Stormwater Best Management Practices Database Final Report maintained by the Water Environment and Reuse Foundation contained minimal information on groundwater quality as a result of stormwater management.⁷ In general, there is a lack of microbial removal performance for green stormwater infrastructure. The fecal indicator pollutant summary noted “Where infiltration is used, it is important to recognize that groundwater pollution can also occur, if adequate sorption and filtration do not occur prior to the infiltrated flows reaching groundwater.” While some studies of permeable pavement suggest that additional performance reporting would be useful, other studies have shown improvement in their water quality performance.⁸

³ U.S Environmental Protection Agency. 2017. Municipal Separate Storm Sewer System Permits Compendium of Clear, Specific & Measurable Permitting Examples. EPA-830-S-16-002.

https://www.epa.gov/sites/production/files/2017-01/documents/final_compendium_intro_document_508.pdf;

⁴ U.S Environmental Protection Agency. 2017. What is Green Infrastructure? <https://www.epa.gov/green-infrastructure/what-green-infrastructure>.

⁵ National Research Council. 2008. Urban Stormwater Management in the United States. The National Academies Press, Washington, D.C., www.nap.edu.

⁶ Center for Watershed Protection. 2017. Five-Year Research Agenda https://www.cwp.org/~cwporg/Oldsite/wp-content/uploads/2015/09/cwp_researchagenda_10.18.16.1.pdf

“The goal of our research is to synthesize the best available science to develop tools that work to protect and restore our streams, rivers, lakes, wetlands and bays.”

⁷ Water Environment and Reuse Foundation. 2017. International Stormwater BMP Database Final Report: 2016 SUMMARY STATISTICS 2017. <http://www.bmpdatabase.org/Docs/03-SW-1COh%20BMP%20Database%202016%20Summary%20Stats.pdf>

⁸ Roseen, Robert M., Thomas P. Ballesterro, James J. Houle, Joshua F. Briggs, Kristopher M. Houle, 2012, Water Quality and Hydrologic Performance of a Porous Asphalt Pavement as a Stormwater Treatment Strategy in a Cold Climate, ASCE Journal of Environmental Engineering, vol. 138, no. 1, pp. 81-89.

A review of the database results found for the more than 400 studies included that groundwater was mentioned in summary results 30 times, while retention ponds/basins/cells were mentioned 440 times and wetlands, 583 times. Retention structures and wetlands are typically associated with groundwater. Even in hydrologic soil group C (sandy clay loam), infiltration can be significant.⁹ This observation reflects that groundwater protection has received less attention in design and testing, while methods for removal of pollutant loads from surface water has commanded stormwater management efforts.

Guidance to States and Communities

A review of stormwater guidance of selected federal, state and municipal governments¹⁰ with significant groundwater and stormwater challenges found that the major concern relative to groundwater quality was checking for “hotspots” that were already contaminated. In these “hotspot” locations, caution should be exercised not to infiltrate stormwater to them since additional subsurface water could cause the contamination to spread to groundwater users and to streams. Nearly all the references included setbacks for infiltration sites to ensure that wells or other subsurface conditions or structures were not adversely affected. Some references importantly cited the need for precautions in wellhead protection areas to protect water supply safety. State documents provided direction on hotspots and areas of high water tables to avoid or be setback from and on special steps to take in areas of karst and permeable geology. Two state documents indicated that soils may exist at sites or be amended to adjust organic matter and pH to provide pretreatment for infiltrated water that may have metals and organic contaminants that could be adsorbed.

⁹ Houle, James, T. Ballestero, and T. Puls, 2018, Stormwater Runoff Study helps Determine Sizing Criteria of Control Measures, Stormwater Management, WEF, V. 6, No. 1, Alexandria, VA.

¹⁰ City of Los Angeles (California). 2011. Development Best Management Practices Handbook; Low Impact Development Manual. http://www.lastormwater.org/wp-content/files_mf/lidhandbookfinal62212.pdf; Maryland Department of the Environment. 2009. Maryland Stormwater Design Manual , Volumes I and II. http://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/stormwater_design.aspx; Minnesota Pollution Control Agency. 2016. Minnesota Stormwater Manual https://stormwater.pca.state.mn.us/index.php?title=File:Contamination_screening_checklist_for_stormwater_infiltration_July_2016.xlsx and Stormwater and Wellhead Protection. https://stormwater.pca.state.mn.us/index.php?title=Stormwater_and_wellhead_protection; New York City Department of Environmental Protection. 2012. Guidelines for the Design and Construction of Stormwater Management Systems. http://www.nyc.gov/html/dep/pdf/green_infrastructure/stormwater_guidelines_2012_final.pdf; Philadelphia Water. 2017(accessed online). Stormwater Retrofit Guidance Manual. <https://www.phila.gov/water/PDF/SWRetroManual.pdf>; US Environmental Protection Agency. 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. www.epa.gov/owow/nps/lid/section438 and https://www.epa.gov/sites/production/files/2015-08/documents/epa_swm_guidance.pdf; US Environmental Protection Agency. 2003. When Are Storm Water Discharges Regulated As Class V Wells? https://www.epa.gov/sites/production/files/2015-08/documents/fs_storm.pdf; West Virginia Groundwater/UIC Program. 2006. Stormwater Management Structure Guidance Document. https://dep.wv.gov/WWE/Programs/gw/Documents/14469_gw_Stormwater_Management_Structure_Guidance_Combined.pdf; Wisconsin Bureau of Watershed Management. 2017. Site Evaluation for Storm Water Infiltration Technical Standard 1002. <http://dnr.wi.gov/news/input/documents/guidance/TS1002Final.pdf>; Wisconsin State Legislature. 2017. Chapter NR 151, Runoff Management https://docs.legis.wisconsin.gov/code/admin_code/nr/100/151/III/12/5/c.

Generally, the stormwater management guidance provided significant detail on stormwater capture, infiltration and facility development and relatively little focus on long-term considerations for groundwater quality which would require significant resources to deal with if degraded over time. One state guidance specifically provided the option for monitoring groundwater that receives stormwater infiltrate and would be used as a source of drinking water – a significant acknowledgement that the larger hydrologic cycle being intervened with needs attention. Additionally, “EPA has set minimum standards to address the threats posed by all injection wells, including stormwater drainage wells [which may include dry wells, bored wells and infiltration galleries]. Stormwater injection is a concern because stormwater may contain petroleum or other organic compounds that could harm USDWs [Underground Source of Drinking Water]. Other potential harmful contaminants include: sediment, nutrients, metals, salts, microorganisms, fertilizers, and pesticides.”¹¹

While drainage wells are regulated, they must be registered with the state to provide for control of stormwater, but could potentially be a pathway for stormwater contaminants if regulations are not adequately enforced. These wells could exist in rural areas as well as in urban and suburban locations.

Research on the cumulative effect of stormwater infiltration on groundwater quality is needed to protect the resource for the future and provide further guidance to states and communities, including: stormwater pollutant effects on groundwater in a range of subsurface environments, engineering studies of stormwater facility hydraulics, development of monitoring approaches, and modeling stormwater pollutant infiltration, migration and degradation. Communities should avoid moving society’s contaminants from one water source to another to avoid paying the full cost of today’s water use for near-term benefit, but potentially resulting in negative long-term consequences. We should understand the effects and the costs and incorporate that understanding in guidance to communities.

EPA’s report “The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science”¹² indicates that effects of stormwater infiltration on groundwater quality are largely not understood and need research, but the EPA research program has been reduced in funding to track groundwater quality at only three existing stormwater infiltration sites that do not reflect the complexity of the subsurface environment and its geologic matrix across the nation. Ten research were identified in the original EPA research plan. The intent of this research program is to provide guidance to states and communities to protect groundwater from effects of stormwater infiltration. The subsurface environment is complex and different from place to place, even within the same watershed.

Regulatory Process as a Basis for Incentives

In the absence of concerted efforts to protect groundwater resources when implementing stormwater management strategies, EFAB should be encouraging stormwater BMPs that deal directly with the source of contamination through positive financial incentives. While UIC standards in practice are relatively limited as applied to stormwater management, disposal to shallow groundwater through Class V "wells" should only be incentivized if the disposal by Class V wells receives authorization via the UIC Class V program (either EPA or delegated state) using UIC standards on the quality of the injected water so that the USDW is not "endangered."

¹¹ U.S. Environmental Protection Agency. 2016. Stormwater Drainage Wells. <https://www.epa.gov/uic/stormwater-drainage-wells> (Accessed December 10, 2019).

¹² Brumley, J., C. Marks, A. Chau, R. Lowrance, J. Huang, C. Richardson, S. Acree, R. Ross, AND D. Beak. The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-18/227, 2018.

If a community is using UIC standards for its storm water disposal and cannot meet the nonendangerment standard, financing should be contingent upon the USEPA granting an aquifer exemption for the impacted aquifer/groundwater. If a delegated UIC program is in place, that program would also review and, if appropriate, approve the aquifer exemption request and submit it to USEPA where it will go through the aquifer exempting process laid out in 40 CFR 144.7 and 146.4. The use of an aquifer exemption would only be appropriate if a large scale/regional Municipal Separate Storm Sewer System (MS4) permit is involved due to the expense to the permittee and the amount of time involved for the review and approval by the delegated authority and USEPA, which may include modeling flow, inventorying wells that are using the same aquifer, and other key steps. If the aquifer is currently in use or is potentially usable, the granting of the aquifer exemption would not only be in question, but unlikely.

Stormwater Infiltration Design Approach

The vast majority of stormwater infiltration systems are not regulated under the UIC program. In general, it is not prudent or wise to discharge polluted waters to any of our natural systems. So whether it be stormwater discharge to surface water or to groundwater, some minimum amount of treatment should occur first. Treatment becomes complex because some pollutants, such as chloride, are not removed by green stormwater infrastructure. For each site and setting, a conscious effort to understand the consequences to all receiving natural resources should occur and design the stormwater collection, treatment and infiltration process accordingly. Ideally, this design should stem from regulatory guidance, but in general this guidance is incomplete and mainly focuses on volume rather than quality. A more effective approach is to reduce and/or eliminate the sources of pollution, but this may not always be practical.

The importance of the soil zone for stormwater infiltration treatment is considerable. EPA's State of the Science report states on pages 69 and 70¹³:

"The chemical interactions between surface water and groundwater are controlled by the type of geologic materials present and the amount of time the water is in contact with these materials. The various chemical reactions that affect the biological and geochemical characteristics of the basin are acid-base reactions, precipitation and dissolution of minerals, sorption, ion exchange, oxidation-reduction reactions, biodegradation, and dissolution and exsolution of gases. It is concluded that when implementing green stormwater infrastructure for infiltration, the properties of the unsaturated and saturated zones interacting with the infiltrating water need to be considered. These considerations encompass the understanding of the native soil texture, structure, and organic matter content of the unsaturated zone, as well as considering the porosity and permeability of the saturated zone and the flow of the groundwater. Kinetics and mixing relationships also require examination. Colloidal transport also needs to be considered as a mechanism that can transport contaminants through the soil, by either being a contaminant itself or having a contaminant sorb to a benign colloid. Colloids

¹³ Brumley, J., C. Marks, A. Chau, R. Lowrance, J. Huang, C. Richardson, S. Acree, R. Ross, AND D. Beak. The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-18/227, 2018.

can be restricted by capture, sorption and static interaction. . . . [C]olloid-facilitated transport could be an important mechanism for the movement of contaminants into groundwater.”

Any design that does not incorporate an adequate soil zone for some level of natural treatment and bypasses this zone enables contaminants to move into the lower unsaturated zone with minimal mitigation, potentially contaminating groundwater.

Monitoring and Modeling

Predictive methods followed by monitoring groundwater quality at stormwater infiltration sites is important to establish groundwater quality and safety, similar to monitoring surface water effects of discharges. Monitoring demonstrates the efficacy of the stormwater infiltration at any location. Monitoring also provides the basis for determining if another stormwater management approach should be considered. Monitoring is not included in most research on stormwater quality impacts to groundwater.¹⁴ Groundwater quality effects have a significant lag time to be observed at distances away from the stormwater infiltration site and therefore long-term effects need to be observed over decades.¹⁵ Long-term monitoring is a necessary investment to understand the effects and how stormwater infiltration should be modified to deal with them. Monitoring is also needed to determine whether remediation is required for safe groundwater use. Data from monitoring can be used for modeling stormwater effects on groundwater quality and potential costs on receptors at risk. Modeling is a cost-effective approach for groundwater impact assessment.¹⁶

As an example, monitoring in Delaware identified eleven groundwater-supplied water systems with wells between 75 and 450 feet deep receiving stormwater in their groundwater capture area to have statistically significant trends of increasing chloride. Four systems have radionuclide problems due to the high chloride concentrations. At current rates of increase, groundwater serving two systems will reach the 250 mg/L SMCL for chloride in about 10 years. With no suitable alternative sources of supply, these systems will need expensive treatment to remain viable.¹⁷ While policies relating to deicing may need attention, this example points to the interactive nature of chemicals carried by stormwater infiltrated to the subsurface with the ability to change groundwater chemistry adversely.

Conclusions about Current Understanding of Stormwater Infiltration

- Small communities need significant attention and support for stormwater management with most small communities relying on groundwater for domestic water supply.
- The focus of most federal and state guidance to communities is primarily on reducing the volume of stormwater runoff, not on the effect of infiltrating stormwater on groundwater quality.
- EPA’s State of Science report on green stormwater infrastructure effects on groundwater quality indicates that effects largely are not understood and need research, but the EPA research program has been reduced. Other research avenues should be pursued.

¹⁴ Brumley, J., C. Marks, A. Chau, R. Lowrance, J. Huang, C. Richardson, S. Acree, R. Ross, AND D. Beak. The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-18/227, 2018.

¹⁵ *Ibid.*

¹⁶ Anderson, M.P.; Woessner, W.W.; and Hunt, R.J. 2015. Applied Groundwater Modeling. Academic Press/Elsevier Publishing, London, UK. P. 468.

¹⁷ Communication from Delaware Geological Survey, October 21, 2019.

- Infiltration facilities do not all provide treatment and do not all use natural soil zone treatment.
- Due to potential long-term effects on groundwater, stormwater management is an intergenerational equity and environmental justice issue; if groundwater becomes contaminated, it is more costly to remediate, affecting affordability of facilities to water systems already having limited fiscal resources.
- Training and education are needed for both communities and consultants on contaminant treatment to be addressed in design, cost and affordability of stormwater infiltration options.
- The Underground Injection Control (UIC) program under the Safe Drinking Water Act provides one regulatory process for managing stormwater; states may have other standards that apply.
- Research is still needed on stormwater infiltration effects on large areas over the long term which may affect types of facilities needed and their cost to be financed that in turn affects affordability.
- Surface and ground waters are one shared natural resource that deserve all the protections that can be provided, including monitoring to ensure that intended uses can be met.
- Regardless of funding options for stormwater disposal, the approaches need to ensure that we protect groundwater resources when implementing stormwater solutions to provide safe water supply to communities and aquatic life relying on groundwater and its interaction with streams.

Implications for Financing Options

Financing arrangements should be conditioned on addressing design of stormwater facilities that is protective of groundwater quality and reference the following points that will affect stormwater facility costs that may need to be financed:

- (1) Guidance to communities for engineering stormwater infiltration should clearly address, and be revised if necessary to address, groundwater quality effects and their mitigation. Guidance must recognize and incorporate the complexity of the subsurface and the differences in geology from location to location, even within a community.
- (2) Existing regulatory processes for underground injection control, where applicable, should be drawn on as a first step in design if wells are used for stormwater disposal to the subsurface.
- (3) Groundwater modeling can provide a view of the subsurface and the affected aquifers for communities evaluating stormwater infiltration alternatives to project effects of stormwater on groundwater quality.
- (4) Monitoring must be a part of any stormwater infiltration project to ensure that groundwater quality is safe for its intended use.

Basis for the Interest of the National Ground Water Association (NGWA) in Stormwater Infrastructure Financing

NGWA, the largest trade association and professional society of groundwater professionals in the world, represents over 10,000 groundwater professionals within the United States and internationally. NGWA represents four key sectors: scientists and engineers, employed by private industry, by the consulting community, by academic institutions, and by local, state, and federal governments, to assess groundwater quality, availability, and sustainability; water-well contractors responsible for developing and constructing water-well infrastructure for residential, commercial, and agricultural use; and the manufacturers and the suppliers responsible for manufacturing and providing the equipment needed to

make groundwater development possible. NGWA's mission is to advocate for and support the responsible development, management, and use of groundwater.

Over 42 million people in the United States rely on private wells and nearly 90 million people are served by groundwater from community water systems. Seventy-one percent of groundwater withdrawn is for irrigated agriculture. Additionally, forty percent of baseflow of streams is contributed from groundwater discharge through streambeds.

NGWA views groundwater and the subsurface as a significant natural resource that should be sustainably managed for current and future use. The subsurface environment should be considered from an integrated resource perspective. The resources extant in the subsurface environment with proper management can provide fresh groundwater for drinking, industrial and manufacturing applications, food production, and ecosystem support.

A concise summary of the position of the National Ground Water Association on groundwater protection related to potential sources of contamination is:

- Control of potential and active sources of contamination should be a national objective, reducing the need for remediation of groundwater.
- Aquifers should be protected from degradation recognizing that nondegradation may not be economically and technically practical in many circumstances.
- Groundwater quality should be protected for existing or potential beneficial uses.
- Methods available to control point source contamination include land-use controls while remediation approaches should be flexible and practical to recognize different situations.
- Waste reduction, education, and technology transfer are important to protect groundwater.
- Increased scientific research can provide the basis for land-use control decisions.

The NGWA appreciates the opportunity to comment on financing alternatives, capabilities and adequacy for stormwater infiltration.

For further information, please contact:

Charles Job, Regulatory Affairs Manager
National Ground Water Association
601 Dempsey Road Westerville,
OH 43081 cjob@ngwa.org
202-660-0060



Address 601 Dempsey Road, Westerville, Ohio 43081-8978 U.S.A.
Phone 800 551.7379 • 614 898.7791 **Fax** 614 898.7786
Email ngwa@ngwa.org **Websites** NGWA.org and WellOwner.org



Address 601 Dempsey Road, Westerville, Ohio 43081-8978 U.S.A.
Phone 800 551.7379 • 614 898.7791 **Fax** 614 898.7786
Email ngwa@ngwa.org **Websites** NGWA.org and WellOwner.org

**National Ground Water Association
Comments to the
USEPA Environmental Financial Advisory Board Stormwater Financing Task Force
December 18, 2019**

The National Ground Water Association supports federal and state financial assistance to communities needing stormwater infrastructure.

1. Response to EFAB/Stormwater Financing Task Force Recommendations: Of the EFAB Stormwater Financing Task Force recommendations addressed on the December 18, 2019, conference call, #2 (Educating public officials and the public on stormwater infrastructure need), #7(g) (multiple benefits including green infrastructure projects), and #9(B) (green project reserve) could be modified to include wording to the effect that “the design and implementation of stormwater infiltration projects should provide adequate protection and monitoring of groundwater quality to protect human health and minimize future remedial costs and financing needs.”
2. Factors Contributing to the Response
 - a. The MS4 permit program under the Clean Water Act allows infiltration of stormwater as one technology approach using collection drains, dry wells, infiltration basins, LID and other means to reduce discharges to surface waters, but potentially impacting groundwater quality because there are no groundwater discharge standards or treatment required and may result in changed groundwater chemistry and release of contaminants to groundwater. The UIC Class V regulations might apply in some circumstances but are not often used for municipal stormwater control. Stormwater may be used as an important source of water for managed aquifer recharge projects.
 - b. The EPA review of research by EPA/Office of Research and Development has concluded that the effects of stormwater infiltration on groundwater quality are not well understood. EPA’s own research program on this subject only started in 2015, is incomplete and has been cut to the point of monitoring at 3 infiltration sites not representative of the variable and complex subsurface conditions that may exist within a community nor across the country.
 - c. 80 percent of community water systems serving 10,000 or fewer people and nearly all nontransient and transient noncommunity water systems are groundwater supplied with larger surface water systems often having backup groundwater wells as an alternate source.
 - d. Designing and implementing stormwater infiltration projects to protect groundwater quality may affect their cost for contaminant degradation and reduction and their affordability. Impacts to groundwater quality may not be observed more immediately as in surface water but, if they occur, the impacts will be costly to remediate in the longer term.

For followup, contact: Charles Job, NGWA Regulatory Affairs Manager., cjob@ngwa.org, 202-660-0060

Stormwater Management: When Is Green Not So Green?

by A. Scott Andres¹, Thomas P. Ballesteros², and Mary L. Musick³

Current national stormwater policy may have adverse effects on public and private water supplies. Shallow groundwater, which is increasingly being relied on for drinking water, irrigation, stream baseflow, and drought relief, is now becoming a sink for unwanted stormwater contaminants to avoid direct discharge to surface water. This policy of infiltration without properly considering implications for groundwater quality should be improved so that society's contaminants are not transferred from one water resource to another just to avoid paying the full cost of today's stormwater management.

Stormwater regulatory programs and green infrastructure practices focus first on reducing pollutant loads to surface water, with minimal consideration of pollutant load diverted to groundwater. Best management practices, which provide direct recharge, such as porous pavement, retention ponds, shallow injection wells, as well as agricultural and roadway drains, are commonly used. Frequently the only design criterion for stormwater infiltration is the infiltration rate. Infiltrated stormwater can carry pollutants (nitrogen; pesticides; metals, oil, and grease from road surfaces and gas stations; hazardous waste spills; and salts used in road deicing) as well as cause hydraulic problems (mounding, slope stability, and subsurface flooding of infrastructure).

Governmental and professional organizations, including the National Research Council (<https://doi.org/10.17226/12465>), USEPA Underground Injection Control Program, and Water Environment & Reuse Foundation (www.werf.org), have examined the groundwater impact issue, but issued often vague, general cautions about the risks. For instance, the guidance for the

Underground Injection Control program only notes that infiltration through stormwater drainage wells has the potential to adversely impact groundwater supplies. State and local stormwater infiltration guidance typically focuses on avoiding "hotspots" already contaminated so as not to move contaminated groundwater in unanticipated directions.

Most guidance documents recommend fixed-distance setbacks for infiltration sites instead of empirically determined or engineered structures to preclude adverse subsurface effects. While these structures may initially function as designed, without guidance and implementation of routine maintenance, they will not continue to do so. Guidance and regulation rarely include mention of groundwater monitoring. We understand that USEPA is starting to identify some key concerns regarding groundwater impacts. These include recognizing aquifer complexity and long-term groundwater monitoring needs near stormwater facilities.

Finally, using shallow groundwater for the disposal of today's stormwater problems may only be delaying a problem rather than solving it. Hydraulic loading by managed stormwater infiltration can overload natural treatment processes. Impacted groundwater can ultimately discharge to surface waters resulting in long-term degradation, especially under low flow conditions. This concept was recently addressed in a U.S. Ninth Circuit Court of Appeals decision (February 1, 2018, *Hawaii Wildlife Fund v. County of Maui*). The panel found that the disposal wells were "point sources" that discharged "pollutants" into groundwater, that eventually entered surface water and therefore these wells fell under the purview of the National Pollutant Discharge Elimination System. On February 20, 2018, the U.S. Environmental Protection Agency issued a request for comment regarding the adequacy of its regulatory programs under the Clean Water and Safe Drinking Water Acts addressing stormwater discharges to groundwater "in direct hydrologic connection to surface water" (83 FR 7126 comments due May 21, 2018).

¹Delaware Geological Survey, University of Delaware, Newark, DE 19716.

²University of New Hampshire Stormwater Center, 238 Gregg Hall, Durham, NH 03824.

³Corresponding author: Consulting Geologist, Ground Water Protection Council, 1605 Flite Acres Rd., Wimberley, TX 78676; mmusick@gwpc.org

© 2018, National Ground Water Association.
doi: 10.1111/gwat.12653

With the complexity of the subsurface, a single approach to managing stormwater infiltration and protecting groundwater quality will not be appropriate. Most guidance documents do note that additional research into groundwater contamination is warranted. Scientific research is needed to identify less risky stormwater infiltration practices, quantify impacts on groundwater quality

and quantity, develop appropriate monitoring practices, improve pollutant removal prior to infiltration, and discern sound hydrogeologic and engineering design practices in the siting and design of stormwater facilities. Research is also needed to understand the future effects and costs of stormwater disposal practices and to develop a more advantageous and desirable policy for all water users.

The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science

Contact

National Risk Management Research Laboratory
<https://www.epa.gov/aboutepa/about-national-risk-management-research-laboratory-nrmrl>

Citation:

Brumley, J., C. Marks, A. Chau, R. Lowrance, J. Huang, C. Richardson, S. Acree, R. Ross, AND D. Beak. The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-18/227, 2018.

Impact/Purpose:

Green infrastructure (GI) is increasingly being used to manage urban stormwater runoff. How the soils and subsurface geology/sediments interact with the stormwater runoff constituents has received little attention and the possible risks of groundwater quality impairment is poorly understood. The goal of literature review is to provide the current understanding of potential impacts or impacts to groundwater quality that could result from the use of GI to manage stormwater runoff. The results of the literature review were mixed; in some cases, there were impacts or potential impacts, and in other cases there were no impacts found. Many of the studies' results were problematic. In most cases, the results—reflected only what occurs in the vadose zone or the infrastructure—were extrapolated to predict what may occur to the groundwater. This extrapolation ignores other processes that could facilitate the transport of contaminants to the groundwater, such as preferential flow. In other cases there was no attempt made to measure concentrations of contaminants in aquifers or deeper in the vadose zone, and therefore, no definitive evidence for changes in groundwater quality. These results indicate that more research is needed to address potential risk of groundwater contamination that could result from the use of GI. These results will

inform decision makers in EPA Office of Water, EPA Regional Staff, States and Local Governments of the potential for groundwater impacts resulting from the use of GI for stormwater management.

Description:

Green infrastructure (GI) technologies applied to stormwater are developed to mimic natural infiltration and hydrologic processes. GI is a design strategy that enhances runoff storage volume, infiltrates runoff, and contributes to groundwater recharge. Urban development often leads to the removal of vegetation and soil, and replacing them with large stretches of impervious surfaces. This disturbance of the natural hydrologic cycle due to urbanization is closely connected to deteriorating urban water quality and enhanced flood risks. When GI is used for urban runoff, there are concerns as to how the soils and subsurface geology/sediments interact with the stormwater runoff constituents, thus providing possible risks of groundwater quality impairment. Groundwater can be contaminated by many constituents: nutrients, metals, dissolved minerals, pesticides, other organics, and pathogens. This review provides insight into the current state of knowledge of the influence of GI on the subsurface environment and groundwater. All types of GI were assessed, both surface and subsurface infiltration infrastructures from peer-reviewed literature, published reports, and conference proceedings. Issues addressed include: 1) pollutant risks that need further research, 2) new infrastructure that has not been researched in depth, and 3) determining local considerations when planning for green infrastructure. When managing water resources, the tendency for contaminants to move between the ground and surface water needs to be considered. This requires an understanding of the native soil characteristics in the unsaturated zone and saturated zone as well as the hydrology. The primary geochemical processes that need to be considered as stormwater infiltrates are dissolution and precipitation, redox, ion exchange, adsorption/desorption, complexation/chelation, kinetics, mixing relationships, and colloid-facilitated transport. Simulation models are a potentially affordable way to predict risk as well as provide a decision-making tool for implementing GI. While many models are used to assess surface water and groundwater transport, few integrate GI; those that do integrate GI do not address groundwater contaminant transport. The biology of the system can have various impacts. Microorganisms such as bacteria, viruses, and parasites can be a contamination risk depending on the unsaturated and saturated zone conditions, incubation time, and native microbial populations. Macrobiological organisms can enhance or cause complications for green infrastructure, but research on these is limited. Riparian zones do not have any studies specific to urban GI, but previous studies on riparian zone restoration show they could restore denitrification to urban streams, induce recharge, and serve as a less manipulative approach for enhancing infiltration into alluvial groundwater. Overall, a better understanding of the risks associated with GI is needed to recognize the implications of GI on a longer temporal scale and wider spatial scale. When implementing GI, the local geology, climate, hydrology, biology, geochemistry, type of infrastructure, and contaminant loads need to be carefully considered to reduce risks to groundwater.

URLs/Downloads:

ORD-027426 EPA600R18227_508.PDF (PDF,NA pp, 6350.325 KB, [about PDF](#))

Record Details:

Record Type: DOCUMENT (PUBLISHED REPORT/REPORT)

Product Published Date: 08/31/2018

Record Last Revised: 10/09/2018

OMB Category: Other

Record ID: 342610

[Show Additional Record Data](#)

The Influence of Green Infrastructure Practices on Groundwater Quality: The State of the Science

by

Jessica Brumley , Christopher Marks , Alexis Chau ,
Richard Lowrance , Junqi Huang , Cassie Richardson ,
Steven Acree , Randall Ross , and Douglas Beak

NRC Post Doctoral Research Associate
Ada, OK 74820

U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Ada, OK 74820

ORAU Student Contractor
Ada, OK 74820

Environmental Research Apprenticeship Program
Ada, OK 74820

8.0 Conclusions/ Future Research Needs

8.1 Conclusions

Stormwater reclamation for eventual reuse is triggering a paradigm shift from stormwater seen as a contaminant and a flood risk to a resource that can solve these risks. GI design strategy retains storage, infiltrates runoff, and contributes to the renewed groundwater recharge to more closely resemble the hydrology before urban development. The disturbance of the natural hydrologic cycle due to urbanization is closely connected to deteriorating urban water quality. This creates an increased risk to groundwater quality because of new pathways for contaminant introduction into groundwater, chemicals associated from anthropogenic activities, and wastewater exposure. This literature review determined what research that has been done on GI practices with respect to groundwater quality and the risks and impacts to the subsurface environment. The issues addressed include: 1) contaminant risks that need further research, 2) new infrastructure that has not been researched in depth, and 3) determination of local considerations when planning for green infrastructure.

Any pollutant found in stormwater could be a potential groundwater contaminant when used with GI infiltration technology. GI can return the urban hydrology to a more natural hydrologic cycle through retention and infiltration methods. Surface and subsurface infiltration can influence the impact the infiltrating stormwater has on the groundwater chemistry. Retention techniques can influence the water table depth through mounding, which have been seen in restoration projects, bioretention cells, and regenerative stormwater conveyance systems. Concern with GI for stormwater infiltration include fluctuations in groundwater levels, limitations with large precipitation events, clogging, and soil limitations. The infiltration is dependent on the clogging rate of the infrastructure.

Depending on the water's chemical, biological, and physical conditions, there is the risk of potential contaminants leaching from native soils and geology. When it comes to managing water resources, the tendency for contaminants to move between the ground and surface water needs to be considered. Urbanization can introduce contaminants that are otherwise not an issue in natural stormwater hydrology. Groundwater can be contaminated by many constituents: nutrients, metals, dissolved minerals, pesticides, other organics, and pathogens; the sources of which include residues from automobiles, lawn treatments though fertilizers and pesticides, sewer overflows, and road deicing salts. Due to risks affecting groundwater quality, it is suggested that infiltrating GI not be implemented in areas with potentially high contaminant loading, i.e. recycling centers, gas stations, and brownfields. When infiltrating devices are installed and used for urban runoff, there are concerns as to how the soils interact with the stormwater runoff pollution while infiltrating into the subsurface, thus providing possible risks of groundwater quality impairment from areas with potentially high contaminant concentrations.

The chemical interactions between surface water and groundwater are controlled by the type of geologic materials present and the amount of time the water is in contact with these materials. The various chemical reactions that affect the biological and geochemical characteristics of the basin are acid-base reactions, precipitation and dissolution of minerals, sorption, ion exchange, oxidation-reduction reactions, biodegradation, and dissolution and exsolution of gases. It is concluded that when implementing green stormwater infrastructure for infiltration, the properties of the unsaturated and saturated zones interacting with the infiltrating water need to be considered. These considerations encompass the understanding of the native soil texture, structure, and organic matter content of the

unsaturated zone, as well as considering the porosity and permeability of the saturated zone and the flow of the groundwater. Kinetics and mixing relationships also require examination. Colloidal transport also needs to be considered as a mechanism that can transport contaminants through the soil, by either being a contaminant itself or having a contaminant sorb to a benign colloid. Colloids can be restricted by capture, sorption and static interaction. As discussed previously, colloid-facilitated transport could be an important mechanism for the movement of contaminants into groundwater (de Jonge et al., 2004).

The potential and actual impacts to groundwater quality as the results of GI practices were reviewed. The results presented were mixed; in some cases, there were impacts or potential impacts, and in other cases there were no impacts found. Many of the studies' results were problematic for several reasons. In most cases, the results—reflecting only what occurred in the vadose zone or the infrastructure—were extrapolated to predict what may occur to the groundwater. This extrapolation ignores other processes that could facilitate the transport of contaminants to the groundwater, such as preferential flow. Since there was no attempt made to measure concentrations of contaminants in aquifers or deeper in the vadose zone, there is no definitive evidence of changes in groundwater quality.

In studies that did include groundwater monitoring, it is unknown in some cases if the sampling strategy would detect changes in groundwater quality. Information on groundwater flow direction was not included, therefore the relationship of monitoring points to the potential transport of contaminants could not be ascertained. Another potential problem was that the studies did not account for lag between the time of water infiltration and the time it takes to transport the infiltrated water to the aquifer. In most studies, that sampling occurred at or very close to the precipitation event. Because lag time was not considered, transient changes to groundwater quality were not accounted for, even in systems that were monitored for decades.

The only system that consistently showed impacts to groundwater quality was ASR. The ASR impacts fell into one of two categories: unintended consequences, or the mixing of two waters with different composition and characteristics.

Simulation models can be an affordable way for predicting quality and quantity changes, as well as a decision-making tool for implementing green infrastructure. While there are many models in use for surface water and groundwater transport, there are few that integrate green infrastructure, and those that have do not address groundwater contaminant transport. Green infrastructure models have been implemented in various formats, but none specifically addressed groundwater contamination from this infrastructure. Problems associated with implementing models for assessing green infrastructure technologies and influence on groundwater include the amount of data available for calibration and validating these models, indicating a need for more field research to obtain this data.

Microbiological organisms such as bacteria, viruses, and parasites can be a contamination risk depending on the unsaturated and saturated zone conditions, incubation time, and native microbial population behavior. Microbial contaminants are a concern primarily if they present a public health threat from consuming contaminated groundwater, with the most common waterborne disease being acute gastrointestinal illness. While gut-associated microbial contaminants are not expected to grow and thrive within the groundwater environment, their rates of removal are affected by several, often interdependent, environmental factors. Research has shown there is a general trend of differential survival for the various contaminant organism types. Viruses tend to have the longest persistence times within any groundwater environment; enteric eukaryotes (*Cryptosporidium* spp. and *Giardia* spp.) and enteric bacteria typically have die-off rates of five to ten times, and over one hundred times larger than enteric viruses, respectively. Pathogen removal or die-off rates are typically reported based upon first

order decay models; however, field and laboratory experiments have shown that biphasic models better approximate the removal behavior of fecal eukaryotes and viruses within groundwater systems. Hence, these studies have shown that there is an initial rapid removal phase for the first few days after introduction, followed by a slower phase two to hundreds of times less than the initial phase that can lead to months or years of persistence.

In saturated zones, factors influencing pathogen survivals in groundwater are temperature, water chemistry, and biological processes. Aquifer hydrogeology can influence the mechanical filtration, adsorption, wedging, and straining processes that can remove pathogens. There is also the potential of competition for nutrients and predation by indigenous microorganisms can play a significant role in the removal of introduced enteric pathogens. In unsaturated zones, the same processes from the saturated zone can apply but the air phase within the unsaturated zones can create two new interfaces, air-water and air-sediment that do not exist in saturated conditions which can both adsorb and entrap organisms. The decreased moisture can subject microorganisms to die-off or inactivation through desiccation. The highest native microbial populations are going to be in the rooting zone of the soil profile. Below the rooting zone, microbial populations and activity decrease with depth.

Macrobiological organisms can enhance or cause complications with green infrastructure. Vegetation is often used to retain nutrients and metals, enhance ecosystem service, increase filtration, and mimic the natural hydrology. The selection of the plants is important because they need to survive potentially toxic contaminants and the perturbations of the GI systems. There are few studies on how various macroorganisms can influence the green infrastructure. Bioturbator species that live in the sediment can increase the possible risk of nutrient contamination, and burrowing activity of worms can increase the macropores in the sediment and influence the infiltration. Macrobiological organisms can enhance or cause complications for green infrastructure, but research on these effects is limited.

Urban riparian zones can function as green infrastructure, but few studies have been done on their influence on groundwater. Previous studies on riparian zone restoration show that they could be useful to restore denitrification to urban streams. By serving as “natural filtration,” the practice may have beneficial effects on surface water if the water is discharged back to surface sources. This induced recharge can also be used for either drinking water supply or to re-water floodplains. This is also a less manipulative, more feasible way to create opportunities for filtration into alluvial groundwater.

8.2 Future Research

Analogous to what the Pitt et al. (1999) and the recent Kabir et al. (2014) reviews concluded, we concur that more research is required to understand the potential groundwater quality impacts that can result from the implementation of GI. Apart from conservative chemical species such as chloride, a more complete understanding of what conditions are likely to cause groundwater quality impairment is necessary to mitigate or prevent these potential impacts. This review also indicates there is an apparent risk to the vadose zone “quality.” Stormwater infiltration is causing the soil and vadose zone sediments to degrade, and the potential future impacts and risks to groundwater quality because of this are unknown—making long-term GI studies crucial.

Since land use and environmental conditions are likely to change, future groundwater risks are possible at many current GI sites if the infrastructure is not properly maintained. Further research is needed to determine the best monitoring methods for groundwater at these sites throughout their lifetime. Changing conditions will likely change the chemical and physical properties which can alter the retention properties in the soil/vadose zone. These potential land use changes and maintenance problems

need to be addressed in future research. Another issue encountered is that, once the GI system is no longer functional or is “decommissioned,” what practices should then be implemented to mitigate the potential environmental issues created by trapping the contaminants in the vadose zone. This emphasizes the need for long term monitoring methods that addresses placement of sampling points and timing of sampling to determine the long-term impacts to the subsurface. Currently GI performance standards are not included into the National Pollutant Discharge Elimination System (NPDES) permits, including impacts on groundwater. Including this into the NPDES system may be beneficial to protection groundwater quality.

Additional research is needed to understand the impacts and benefits that various macrobiological organisms have on GI, and how these affect the hydrology, fate, and transport of contaminants in GI systems. Vegetation is the most common addition to GI, but there is an inadequate understanding as to how this vegetation influences groundwater quality over time. Addressing whether preferential flow increases over time or if nutrient and metal concentrations change over time is a necessity. Previous studies on riparian buffer zones have shown various benefits to restoring these in non-GI situations, but further studies are needed to determine the benefits and potential issues with implementing them as part of urban GI.

Simulation modeling of GI systems needs to be addressed to help users understand the potential groundwater impacts. Further research of simulation models is needed to address the location and spacing of GI stormwater practices to determine if there are diminishing returns on the quantity of stormwater controls. Simulation models are necessary to determine how large GI projects can be designed to effectively reduce runoff and have the least environmental impact (Brown et al., 2012; Eckart et al., 2017). Research on the use of models to demonstrate how GI performs under different temporal scales, spatial scales, and climatic conditions is needed since there is a lack of data on the performance of these technologies. Simulation research and improvements in modeling techniques are also needed so that they can assist in understanding the role of GI in restoring the water balance, reducing contaminants over the long term, evaluating various GI performance, as well as acting as decision support tools (Dietz, 2007; Ahiablame et al., 2012; Fletcher et al., 2013; Eckart et al., 2017).

Overall, there are several research areas necessary for a better understanding of the risks of a GI infiltration technology that have been proposed as the result of this effort. There needs to be more investigations looking at the GI interactions on a longer temporal scale and wider spatial range. When implementing GI, the local geology, climate, hydrology, biology, geochemistry, type of infrastructure, and contaminant loads need to be carefully considered to reduce the risk to groundwater quality.

February 7, 2020

TO THE MEMBERS OF THE U.S. HOUSE OF REPRESENTATIVES:

RE: Alternative Compliance and Stormwater Innovation Coalition Principles

Communities and industry are facing significant challenges in complying with water quality requirements related to stormwater management. Stormwater infrastructure is aging, and in many cities, maintenance has been deferred. EPA estimates that funding needs for stormwater management and projects to correct sewers that overflow will total \$106 billion over the next 20 years.¹ As investments in modernizing water infrastructure are made, there are opportunities to capitalize on the multiple benefits of combining green and gray infrastructure that often costs less while accomplishing more.

The U.S. Chamber of Commerce Business Task Force on Water Policy has established a multi-stakeholder coalition of companies, water sector associations, open space and parks organizations, municipalities and public utilities holding NPDES permits, and environmental NGOs dedicated to the following principles:

- *Recognize stormwater as a water sector category at the same level as drinking water and wastewater.* This approach should be reflected in all funding and policy decisions. The American Society of Civil Engineer's (ASCE) decision to include stormwater as a new category in its 2021 Public Infrastructure Report Card underscores this priority. The value proposition includes:
 - Ensuring public and private investment in stormwater infrastructure and management.
 - Recognizing the significant water quality and quantity impacts.
 - Promoting positive environmental and economic outcomes from advancements in stormwater management.
- *Promote the use of green infrastructure.* Green infrastructure uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and provide multiple benefits to create healthier urban environments.² It should be made an explicit alternative to meet stormwater requirements and receive federal funding (e.g., CWSRFs, WIFIA, and LWCF). The group suggests evaluating barriers and opportunities to encourage the use of these federal programs for this purpose.
 - Established and early-stage equipment and technology companies are rapidly innovating new approaches to manage stormwater flow that can often be deployed more rapidly and are less expensive than traditional approaches, especially when combined with green infrastructure. Federal, state, and local laws should promote the

¹ <https://fas.org/sgp/crs/misc/R43131.pdf> ² <https://www.epa.gov/green-infrastructure/what-green-infrastructure>

² <https://www.epa.gov/green-infrastructure/what-green-infrastructure>

use of such smart or digital solutions. The federal government should also explicitly support the export of such products and services into international markets.

- Rainwater harvesting systems, structural soil systems, and permeable pavements, among other technologies, should be incentivized, especially in urban and densely populated areas.
 - Parks and open space should be included as essential infrastructure options to implement green infrastructure.
 - Provision of an additional source of secondary or tertiary treated water through rainwater harvesting and other green infrastructure solutions is increasingly important as water resources become more constrained. Green infrastructure systems, including parks and open spaces, that hold and slow stormwater surges also allow for extra water storage during big storm events, increase resilience, reduce flooding, and lower risks for companies and communities.
- *Incentivize alternative compliance approaches.* Partnerships between businesses that need stormwater solutions to meet their industrial permit requirements and cities that often lack funding to maintain and modernize infrastructure provide an opportunity for innovative approaches to alternative compliance and still meet water quality standards. Market-based mechanisms and community public-private partnerships should serve as examples. More programs like these should be encouraged and clarified through regulatory guidance and legislative language and collaboration with state and local governments.
 - *Allow and promote innovative funding.* Businesses that do not have adequate space or capacity to capture and treat stormwater before discharge could pay into a mitigation bank fund that would leverage public resources. These pooled resources would create regional green infrastructure and/or water reuse projects to benefit multiple stakeholders and improve overall water quality and/or water supply in a location that could have significant environmental impact.

Another funding approach is to expand partnerships to address multiple benefits of green stormwater projects and reduce the capital costs to individual partners by attracting more sources of funds. Multiple partners reduce costs to all involved, including utility districts that can keep rates lower for ratepayers. Various governance structures to promote neighborhood-scale solutions, including community-based public-private partnerships³, management districts, and Opportunity Zones, should be included and leveraged.

- *Increase funding for stormwater infrastructure and diversify funding options.* Historically, less than 5% of CWSRF assistance goes toward urban stormwater

³ <https://www.epa.gov/G3/financing-green-infrastructure-community-based-public-private-partnerships-cbp3-right-you>

infrastructure.⁴ With a recently estimated funding gap in the stormwater sector of \$7.5 billion annually⁵, and considering the rising significance of urban runoff impacts, additional funding avenues are needed at all levels of government to adequately address current and future investments in the stormwater sector. Fewer than one-third of regulated MS4s in the U.S. have a dedicated funding source for needed and ongoing stormwater infrastructure investments.⁶ Even for the majority of those agencies with dedicated funding sources, that funding is insufficient to address all needs.⁷ This lack of annual revenue limits the potential for needed maintenance programs in stormwater. Funding targeting long-term operations and maintenance in stormwater would help address the greatest need in the sector.

- *Foster the use of certified professionals for green infrastructure operations, maintenance, and monitoring.* Consideration should be given to green infrastructure projects applying for federal funding, including a plan for operations and maintenance and the use of certified professionals (e.g., Envision, SITES, and Water Environment Federation NGICP). Monitoring provides a feedback loop to verify results.
- *Support the use of tested and verified stormwater products and practices.* State, regional, and national programs have been established to provide a forum to test and verify the performance of stormwater technologies and products. Today, two states (New Jersey and Washington) have testing and verification programs that are used across the country. A national program, such as the Stormwater Testing and Evaluation for Products and Practices program⁸, to expand these efforts would benefit state and local programs, permitted entities, and land developers that can make informed judgments on the use of tested/verified technologies. This program is targeting both proprietary, manufactured devices and public domain solutions, including green infrastructure.
- *Recognize good neighbors:* Dischargers, whether cities or businesses that meet water quality permit limits within a specified time, implement agreed-to alternative compliance approaches, and engage the public, should receive certain protections from citizen lawsuits.
- *Integrate early and often.* By supporting policies that encourage cities to integrate their work across the public and private sectors, more comprehensive, effective, and less costly green infrastructure systems can be implemented.
- *Invest in research on stormwater infrastructure program effectiveness.* Considering the potential impacts on health and human life, as well as continued environmental degradation,

⁴ http://stormandstream.com/wp-content/uploads/2016/10/BNA_Green_Infrastructure_Financing_October_2016.pdf

⁵ <https://wefstormwaterinstitute.org/wp-content/uploads/2019/08/MS4-Survey-Report-2019.pdf>

⁶ https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1000&context=seas_faculty_pubs

⁷ https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1000&context=seas_faculty_pubs

⁸ <https://wefstormwaterinstitute.org/programs/stepp/>

further research is needed to address the many challenges in reducing runoff-driven pollution. Establish national funding standards for stormwater research that are commensurate with accepted standards relative to the total public and private investment in stormwater management.

- *Focus on efforts to enhance community and business resilience.* Credit rating agencies are starting to consider lack of resiliency planning when determining the creditworthiness of communities. This trend reflects the concern associated with predictions suggesting that the total annual cost to 136 of the world’s largest coastal port cities owing to coastal flooding could reach \$1 trillion by 2050.⁹ Losses to public infrastructure and economic activity in the private sector will likely continue to grow if resiliency planning is not adopted. Support to enable multidimensional stormwater infrastructure and for planning through resilience-focused funding programs and technical guidance should be considered.
- *Support programs that capture shifting precipitation patterns.* The frequency and intensity of precipitation patterns and extreme weather events are shifting in many regions across the U.S. More funding should be provided to NOAA for programs, including Atlas 14 and the National Water Model, to offer companies and communities more accurate and consistent precipitation and impact data.

Thank you for your attention to these principles. We stand ready to assist Congress in its important work of modernizing and building more resilient and sustainable stormwater approaches for communities and companies nationwide.

Sincerely,

American Council of Engineering Companies
American Society of Civil Engineers
City Parks Alliance
Ecological Restoration Business Association
National Municipal Stormwater Alliance
U.S. Chamber of Commerce
Water Environment Federation

⁹ <https://www.climatecentral.org/news/floods-may-cost-coastal-cities-60-billion-annually-by-2050-16356>

Consultation on Financing and Governance Options for Backhaul of Hazardous Waste from Remote Alaska Communities

Environmental Finance Advisory Board

February 12, 2020

EFAB Charge Questions - Phase 1

- 1. Fee-based Programs:** What are the best metrics to assess a service fee knowing the unique circumstances and constraints of the backhaul program? Are there other factors that should be considered when designing a fee-based program such that we minimize program administrative costs and maximize village contributions?
- 2. Financing and Funding Options:** Are there other financing or funding options that should be considered beyond a fee? This can include exploring recycling as a commodity, creating a business model or a shared cooperative system.
- 3. Involving Outside Entities:** Are there opportunities to involve outside entities, such as the federal government, industry, or product producers, in paying for backhaul? What might these opportunities look like?

Phase 2 Backhaul Alaska Consultation

Desired Outcome

EFAB will provide financial and organizational advice to ensure the Backhaul Alaska organization is both fiscally sound and resilient to financial and other challenges.

Discussion on finance and governance in three key areas:

1. Structure
2. Organization and Administration
3. Finance and Sustainability

Product

Summary of consultation discussion



January 30, 2020 Briefing Webinar Topics

Background

- Rural Alaska
- Government and Key Entities
- Cost of Living
- Why is Hazardous Waste Backhaul in Rural Alaska Important?

Program Information

- Alternative Options
- Backhaul Program Basics
- Potential Funding Sources



Questions Raised

- What is EPA's role?
- For the problem, is solution too top down?
- What is the role for native organizations?
- Why are admin costs high, shipping costs low?



Collaborative Effort

Solid Waste Alaska Taskforce

Alaska Department of Environmental Conservation

Alaska Native Tribal Health Consortium

Kawerak, Inc.

Zender Environmental Health and Research Group

Funding

BIA

EPA

US DOT PHMSA

Denali Commission

Engagement

Tribes, municipalities, regional tribal organizations

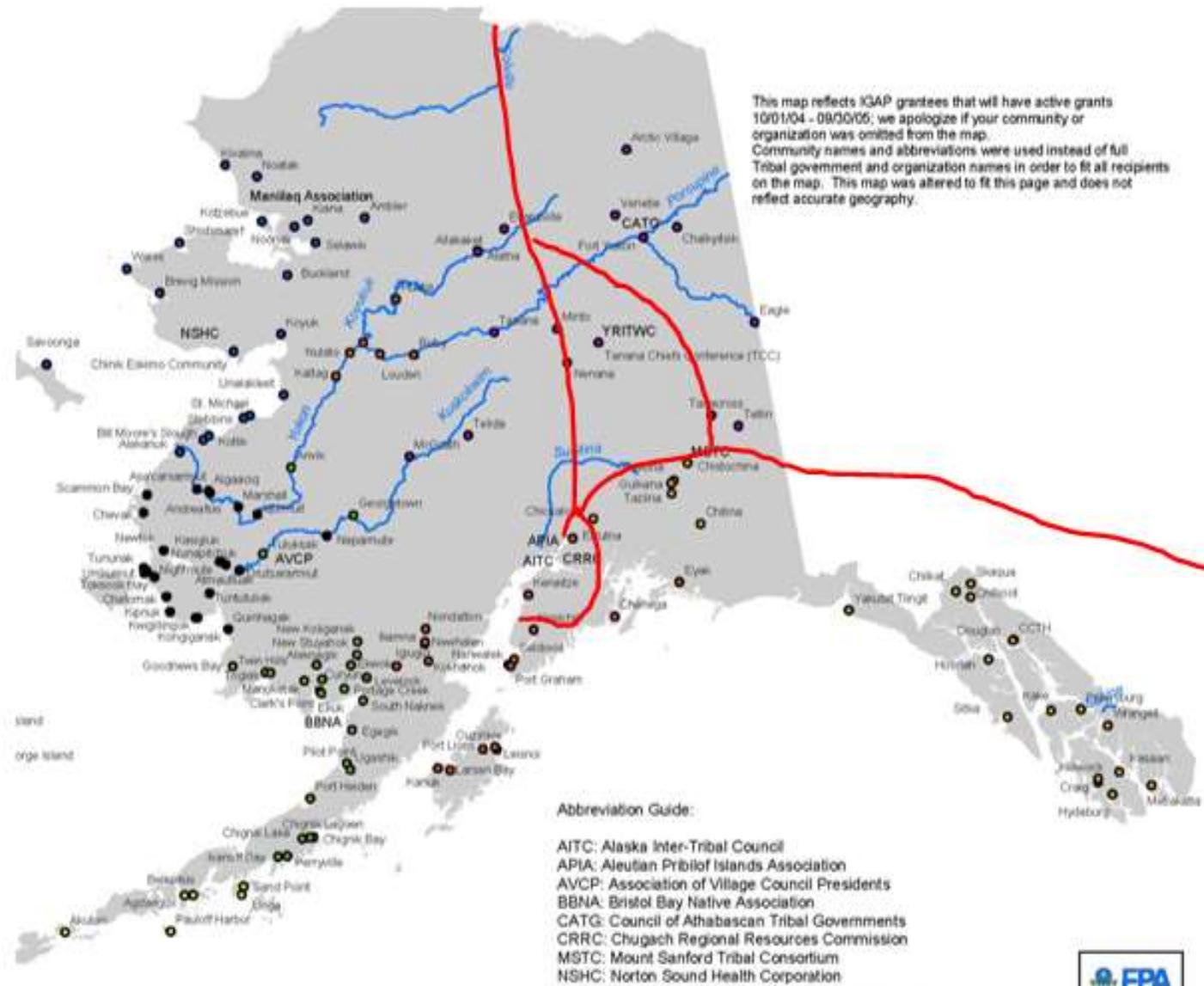
Air carriers, barge companies, recyclers, associations

University of Alaska

State and Federal agencies

Over 200 Alaskan Tribes and Tribal Consortia have funding through EPA's Indian Environmental General Assistance Program (GAP)

Funding per tribe is inadequate to cover needs



About 75% of dump sites are within one mile of the village and water sources

An aerial satellite photograph of a village. The village consists of numerous small, rectangular buildings with various colored roofs (red, blue, grey) scattered across a green, forested area. A network of dirt roads and paths connects the buildings. In the lower-left quadrant, a white circle highlights a specific area of land that appears to be a landfill, characterized by its irregular, light-colored, and somewhat barren appearance compared to the surrounding greenery. A small rectangular box is also visible within this circled area. The text 'Landfill' is written in white below the circle. Several roads are labeled with text: 'Atsak Way' on the left, 'Ayak Rd' in the upper center, 'Post Office Rd' on the right, and 'Nunvochuk Lake Access Rd' at the bottom. A dark, winding river or stream is visible on the right side of the image.

Landfill

Entities in Alaska

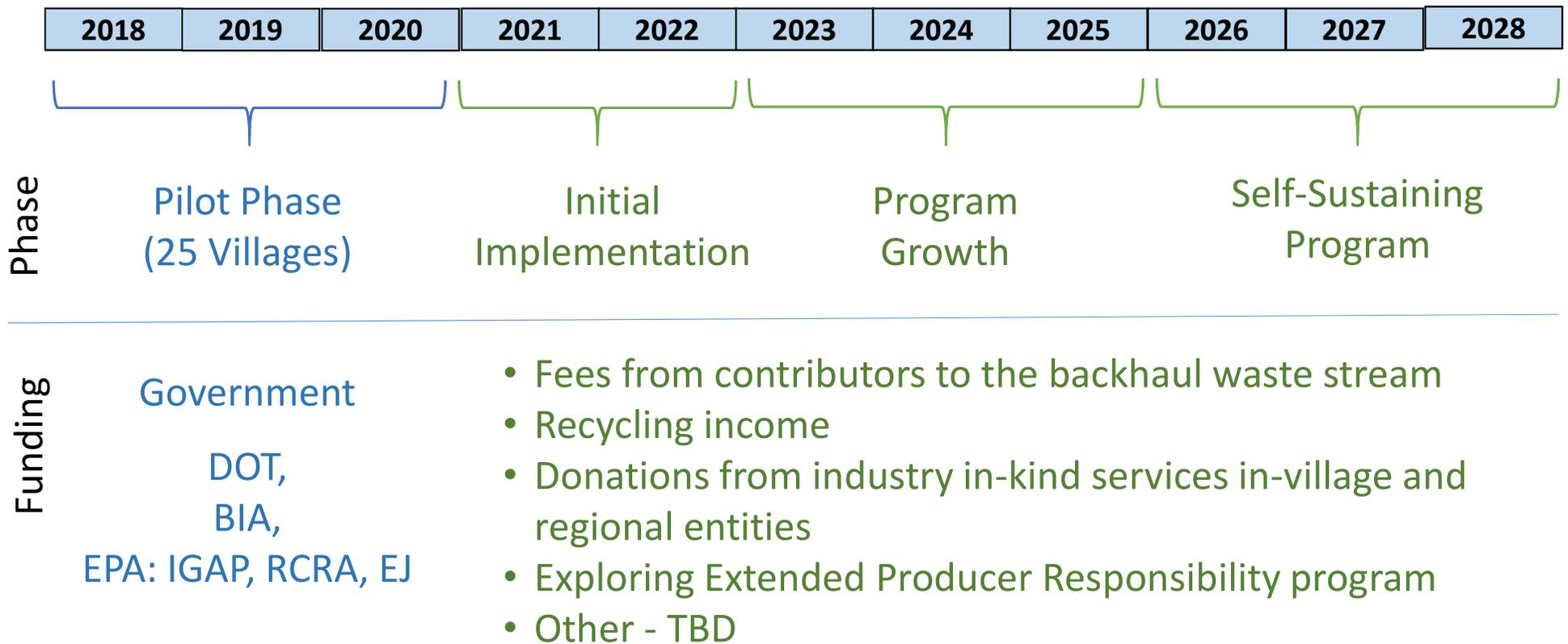
Layers of Government

- 114 Municipal Governments
- 229 Federally Recognized Tribes
- 19 Boroughs
- State: Legislative, Judicial, and Executive Branches

Alaska Native Claims Settlement Act (ANCSA)

- 12 Alaska Native Regional Corporations
- 12 Alaska Native Regional Non-profit Organizations
- 200 Alaska Native Village Corporations

Implementation Plan



Pilot 1 Complete

Pilot 1 Communities

Interior

- 1) Arctic Village
- 2) Venetie
- 3) Nulato

Norton Sound

- 4) Golovin
- 5) Unalkeet
- 6) Alakanuk

Western

- 7) Chefornak

Bristol Bay/Lake & Penn

- 8) Ekwok
- 9) New Stuyahok
- 10) Koliganek

Aleutians

- 11) Unalaska



Total for 2019

Category	Lbs
E-scrap	27,180
Lead Acid	45,108
UW Lamps	956
TOTAL	73,244

Removed from Environment

21,000 lb plastics containing flame retardants and PFAS
 32,000 lb Lead
 71 lb Mercury
 1 lb Arsenic
 7 lb Cadmium
 5 lb Chromium
 24 lb Barium
 12 lb Beryllium

Pilot 2 Backhaul Summer 2020

Pilot 2 Communities

Northwest Arctic

- 1) Noorvik

Norton Sound

- 2) Shaktoolik
- 3) St. Michael

Western

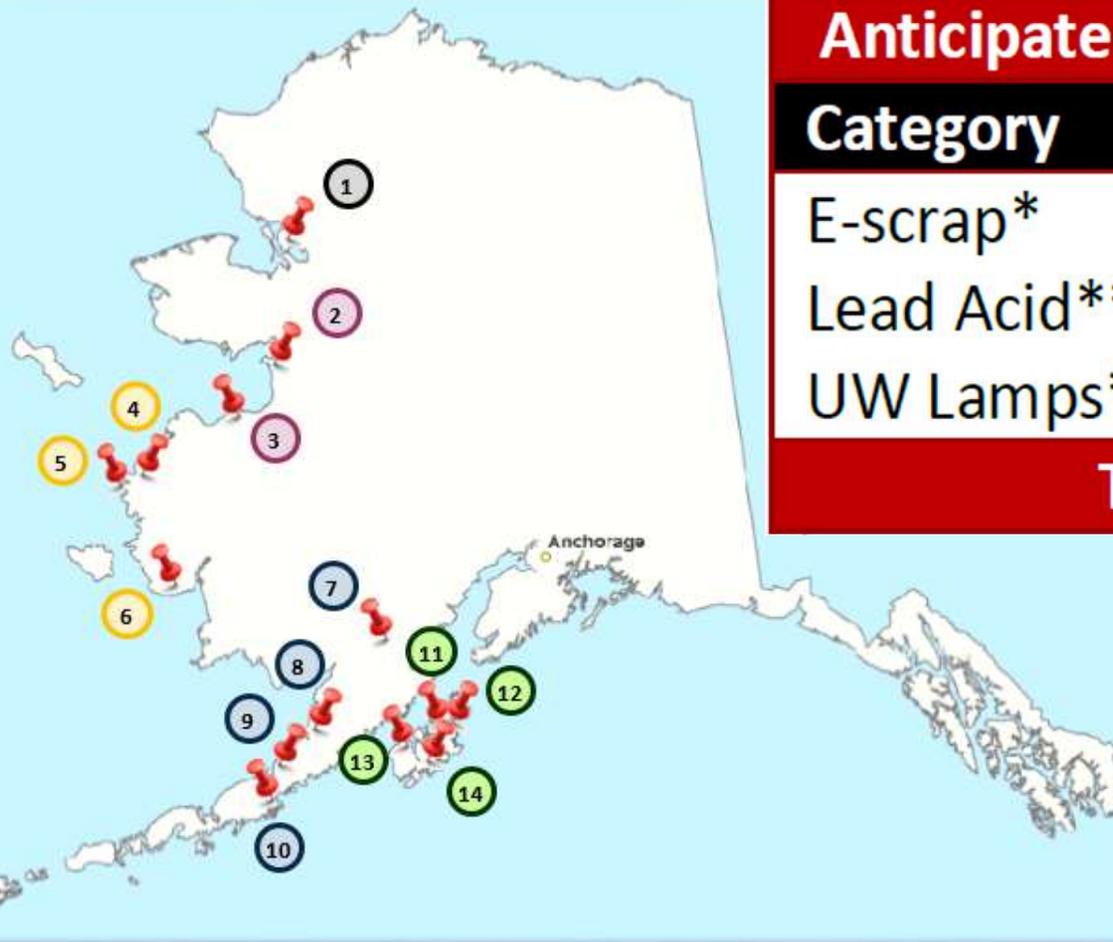
- 4) Scammon Bay
- 5) Hooper Bay
- 6) Kwigillingok

Bristol Bay/Lake & Penn

- 7) Iliamna
- 8) Ugashik
- 9) Port Heiden
- 10) Chignik Lagoon

Kodiak

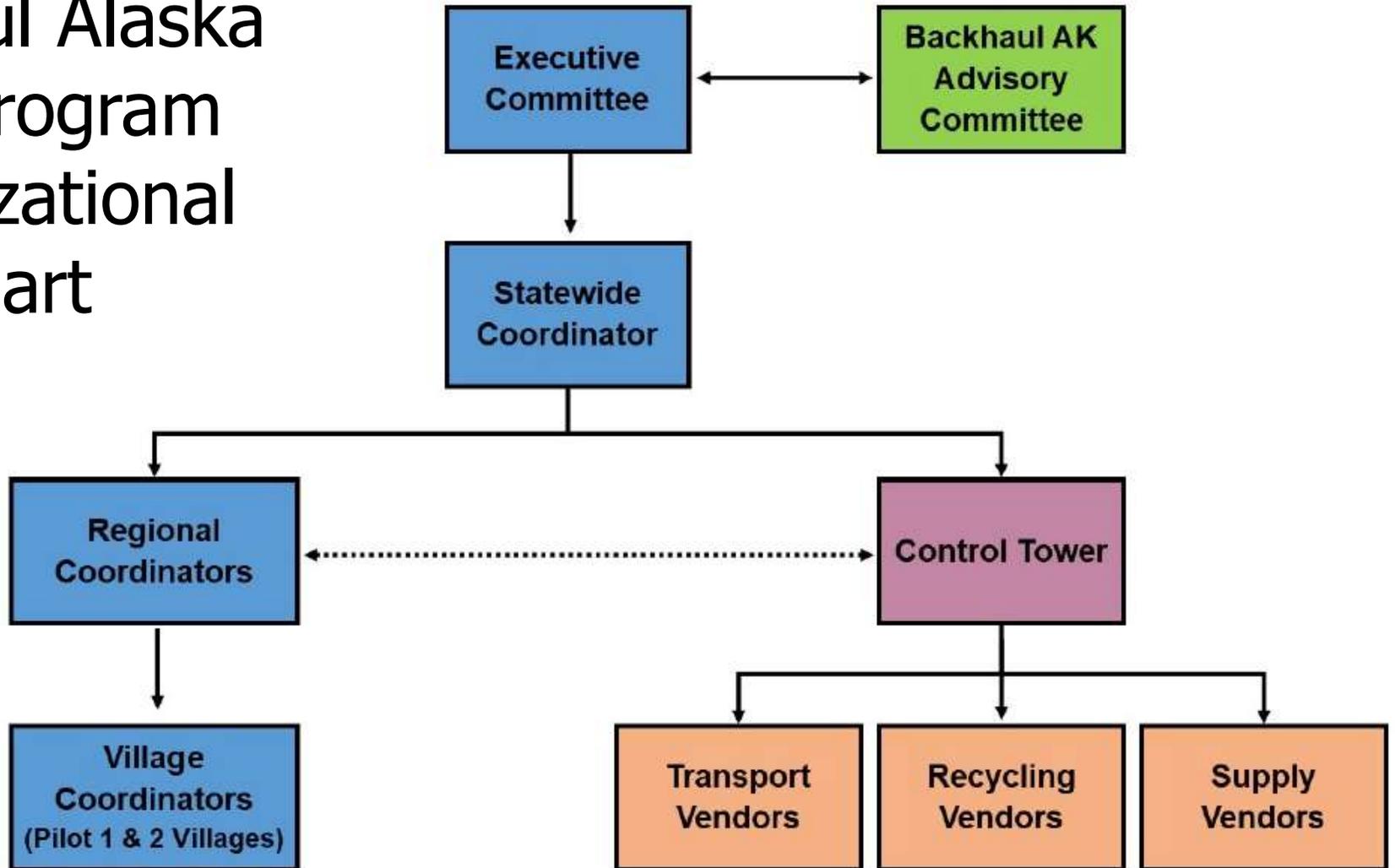
- 11) Port Lions
- 12) Ouzinkie
- 13) Larsen Bay
- 14) Old Harbor



Anticipated Total for 2020

Category	Lbs
E-scrap*	61,695
Lead Acid**	84,760
UW Lamps***	2,740
TOTAL	149,195

Backhaul Alaska Pilot Program Organizational Chart



Projected Costs (preliminary estimates)

Program Operations	\$ 785,825	\$ 1,136,169
Recycling, shipping	\$ 51,107	\$ 557,869
Direct village investment	\$ 181,752	\$ 1,673,716
Administration Indirect	\$ 101,868	\$ 336,775
Total	\$ 1,120,552	\$ 3,704,529
Number of villages	17	162
Per village backhaul costs	\$ 65,915	\$ 22,867
Per person backhaul costs	\$ 218	\$ 66

Note: Program operations include state and regional coordination, training, outreach.
Village investment includes supplies, labor, O&M

Pilot Program Feedback

“Good afternoon, I just wanted to let you know the trailers that arrived were the best we have ever seen...Thank you for all what a difference you have made!!” – Recycling Vendor



Extended Producer Responsibility (EPR) in Alaska?

- Solid Waste Alaska Taskforce (SWAT) convened a workgroup to develop an Extended Producer Responsibility Program white paper
- Would likely require state legislation
- Generally EPR programs are developed product by product
- SWAT's program proposal focuses on e-waste
- Could bring in new funding for e-waste recycling not only for rural community backhaul, but also for recycling industry in urban centers



ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM



KAWERAK, INC.



Consultation

Agenda

Agenda Item	Duration	Time
Introduction	5 min	1:00 pm
Session Orientation	10 min	1:20 pm
Round 1 Small Group Discussion	30 min	1:30 pm
Report Out	25 min	2:00 pm
Break	15 min	2:25 pm
Round 2 Small Group Discussion	20 min	2:40 pm
Report Out	15 min	3:00 pm
Round 3 Small Group Discussion	20 min	3:15 pm
Report Out	20 min	3:35 pm
Discussion	40 min	4:05 pm
Public Comment	15 min	4:45 pm

Thank you



Attachment K. EPA Webinar Briefing Materials on Backhaul Alaska Program (1/30/2020)

The briefing materials used at the January 30, 2020 webinar for the EFAB on the Backhaul Alaska are available on the EFAB web page, at:

<https://www.epa.gov/waterfinancecenter/efab-webinar-backhaul-alaska>

Environmental Finance Advisory Board Backhaul Alaska Consultation

Overview

On February 12, 2020, the Environmental Finance Advisory Board (EFAB) will engage in a consultation with EPA on financing options for the Backhaul Alaska program. Prior to this consultation, the EFAB prepared an advisory report in 2019 on revenue options for a waste service backhaul program in rural Alaska, called Backhaul Alaska. At the request of EPA Region 10, the EFAB has agreed to engage in further discussions on financing and governance options for the Backhaul Alaska program. A consultation is a form of advisory activity that provides oral advice and feedback from the EFAB members at a public meeting.

Product

The product of the Backhaul Alaska consultation will be a summary of the consultation discussions. During the consultation, EPA seeks recommendations for the Backhaul Alaska program in each of the following areas: (1) Structure, (2) Organization and Administration, and (3) Finance and Sustainability.

Session Framework

During the Backhaul Alaska consultation session, EFAB members will be presented with a scenario and then the board will be broken into small groups to discuss tailored questions for each topic area.

Scenario:

The Backhaul Alaska program will be fully functional in March of 2021 (one year from now). It is estimated that operations will cost approximately \$1,000,000 per year to backhaul materials initially. At full capacity, the program will cost about \$3,700,000 per year. There will be an estimated \$500,000 available for startup costs which will be funded through government grants. For the purpose of this scenario, assume there will be an estimated \$500,000 available for startup costs, funded through government grants. Also assume that the first two years need to be funded via grants. Past that, the ongoing funds will be a combination of (1) Government Funding (federal, state, tribal, or local grants or appropriations), (2) Other funding, such as income from other Backhaul Alaska services (including EPR support¹), donations, and/or foundation grants, and (3) Program fees, collected from villages for backhauling services. For purposes of this exercise, assume the below source funding ratio:

- 40% government
- 50% other funding and
- 10% program fees

Unless EFAB recommends differently, the organization will be set up as a non-profit with a Board of Directors with advisory committees for each stakeholder group. Administration would be centralized with possible contracting/sub-awarding of all or some program functions.

¹ The Solid Waste Alaska Taskforce is pursuing a statewide Extended Producer Responsibility (EPR) initiative that will legislate electronic manufacturer support of e-waste recycling. If successful, funding supplementation could be significant.

Task:

EFAB members are tasked with helping Backhaul Alaska partners design an organization that maximizes the usefulness of each of the funding sources, is run efficiently within known legal constraints, and leverages the opportunities inherent in having a multi-stakeholder funded organization.

Process:

EFAB members will be divided into three groups to each discuss one of the consultation's three focus areas, using a set of structured questions. Each EFAB member will be assigned to a section to work on for the first 30 minutes. After the first 30 minutes, each group will report out then EFAB members will rotate to another group. One EFAB member will stay to be the "history". There will be a total of three rotations so that all members have an opportunity to consider questions in all three topic areas.

Group report outs will answer the following questions:

1. What did you discuss?
2. What questions did you not get to?
3. What should the next rotation focus on first?

During the third and final group report out rotation, Groups will provide:

1. Summary of what was discussed by the group **with recommended next steps**
2. Recommendations for further information gathering.
3. Key take-aways especially related to opportunities or obstacles.

Group 1: Structure

- A. Should Backhaul Alaska be organized as a not-for-profit or quasi-governmental authority (in the latter case, with responsibilities delegated to it by the state)?
- B. How do the structure and governance of Backhaul Alaska expand or limit alternative models for long-term sustainability?
- C. What not-for-profit (or hybrid) models might be appropriate for Backhaul Alaska and what tradeoffs are involved?
- D. What are the advantages/disadvantages of different corporate forms in funding Backhaul Alaska? E.G. quasi-governmental, special districts, for profit, etc.
- E. Should Backhaul Alaska be structured within or affiliated with an existing governmental or nongovernmental organization in order to share capacities and improve effectiveness?
- F. What other key issues should be addressed in this area?

Group 2: Organization and Administration

- A. What technical and administrative capacities should Backhaul Alaska maintain internally, and what functions might be contracted out?
- B. How would an oversight board for Backhaul Alaska be organized to ensure stakeholder representation as well as organizational accountability?
- C. What external linkages will be critical for Backhaul Alaska and how can they be cultivated and maintained over time?
- D. How would Backhaul Alaska communicate and interact with its stakeholders and constituents?
- E. How should Backhaul Alaska prioritize its work and what challenges and risks are likely to arise?
- F. How should Backhaul Alaska monitor and evaluate program performance?
- G. What other key issues should be addressed in this area?

Group 3: Finance and Sustainability

- A. How should capital expenses be funded by Backhaul Alaska, particularly startup expenses?
- B. How should operational expenses be funded by Backhaul Alaska?
- C. What combination of existing and innovative tax instruments, grants (governmental and nongovernment), and fees should be used to support and sustain Backhaul Alaska, initially and over time?
- D. How should fee assessments in support of Backhaul Alaska be structured given locational and resource disparities among villages?
- E. Should Backhaul Alaska build an invested endowment fund in support of operations?
- F. Can financial incentives for industry (positive or negative) be built into the Backhaul Alaska program?
- G. Can Backhaul Alaska transition from governmental support to be financially independent and sustainable, and if so, how?
- H. What other key issues should be addressed in this area?

Desired Outcome

EFAB will provide financial and organizational advice to help ensure that the Backhaul Alaska organization is both fiscally sound and resilient to financial and other challenges.

Backhaul Alaska
Preliminary Cost Projections
for
Environmental Finance Advisory Board February 2020 Meeting

Comparison of Program Costs

Component	2020	2030
Program Operations	\$ 785,825	\$ 1,136,169
Recycling, shipping	\$ 51,107	\$ 557,869
Direct village investment	\$ 181,752	\$ 1,673,716
Administration Indirect	\$ 101,868	\$ 336,775
Total	\$ 1,120,552	\$ 3,704,529
Number of villages	17	162
Per village backhaul costs	\$ 65,915	\$ 22,867
Per person backhaul costs	\$ 218	\$ 66

Note: Program operations include state and regional coordination, training, outreach. Village investment includes supplies, labor, O&M

Dollar Investment per Village

Component	2020	2030
Administration	\$ 52,217	\$ 17,345
Recycling and Shipping	\$ 3,006	\$ 3,444
Investment	\$ 10,691	\$ 10,332

Note: At full program, the median village size is larger and more difficult logistics (costlier) villages are added, so the recycle and shipping costs are higher

EPA Environmental Financial Advisory Board

February 11-13, 2020

Draft Proposed Charges for EFAB Discussion (as of 2/6/2020)

Stormwater Credit Trading 101: Advice for Permit Writers and their Permittees

Problem Statement

As many cities in the United States continue to experience growth, the increase in stormwater runoff associated with impermeable surfaces has presented challenges for many municipal water utilities trying to keep pace with increasingly stringent Clean Water Act (CWA) permitting requirements.

To address these challenges, municipalities across the United States are implementing strict stormwater management requirements for new and existing properties throughout their jurisdictions. These requirements mandate a certain volume of stormwater be managed on those properties. The goal of these programs is to reduce the volume of stormwater entering existing storm- and wastewater infrastructure, which improves overall water quality at the point of discharge from municipal sewer systems.

While in some cases the costs of stormwater best management practices (BMPs) can be high, one of the key obstacles facing building owners is the opportunity costs related to siting BMPs. For example, roof space for high value amenities such as pools, bars, and decks, or underground space for parking can be limited if that same space is used instead for BMPs. Further, the optimal location of a BMP from a watershed benefit standpoint might not be where development is occurring. As such, cities and states throughout the country are exploring the development of innovative market-based mechanisms that would allow private sector developers to finance offsite projects with the sale of credits, which are used by property owners to meet their regulatory obligations under new stormwater management standards. Similar to cap and trade markets for carbon dioxide emissions, the advent of a credit against these standards creates a marketplace that drives competition and ultimately provides the lowest-cost solutions to stormwater mitigation, thereby reducing costs of compliance.

EFAB Mission Fit

EFAB's mission is to explore ways to lower costs and increase investments in environmental protection. Environmental markets are often designed to achieve both facets of this mission. Stormwater credit trading is a new and exciting tool that CWA permittees might want to have at their disposal. With thoughtful market design, it may be possible for those communities to drive low cost compliance, incentivize and increase economic development by offering private developers an alternative compliance pathway, and drive investment in environmental services to traditionally underserved/underinvested neighborhoods. EFAB may be able to provide guidance and advice on how to structure these markets so that they can achieve these goals.

EPA Mission Fit

EPA's mission is to protect the environment through the enforcement of the nation's environmental regulations, scientific research, and public education. Often this means working with communities to determine the best pathways to achieve compliance in a cost-effective manner. In a February 6, 2019 memo¹ Assistant Administrator Ross reiterated EPA's support for market-based water quality programs, including water quality trading and offsets, and encouraged regional offices to find opportunities to promote market-based programs within its regulatory mandates.

Type of EFAB Engagement

EFAB could assist EPA through a written report that would provide guidance to permit writers and their permittees on how to implement stormwater credit trading. This may include market design, incentives design, market administration, among others.

¹ <https://www.epa.gov/sites/production/files/2019-02/documents/trading-policy-memo-2019.pdf>

Environmental Finance Advisory Board

Addressing Affordability Challenges to Equitable Water Service Delivery

As water service rates have risen faster than inflation and income growth, addressing water affordability has become a central policy issue. This focus has prompted a number of studies and research efforts that offer alternative measures of household burdens, delineate geographical distributions of water service cost burdens, and outline potential revisions to methods for assessing community financial capabilities (including EPA's ongoing review of its 1997 methodology guidance).

In the last two decades, EFAB has developed two related charges that addressed: (1) potential rate design (and complimentary customer account management) options to address water affordability,¹ and (2) how the EPA's Water Infrastructure and Resiliency Center could assist local governments with affordability challenges.² In subsequent years, particularly after the Flint Water Crisis and various reports on water access challenges in the United States,³ the water service sector is redefining its services in terms that challenge historical pricing through measures of billable volumes and customer account management practices. This more explicit recognition of the importance of water affordability to fulfill the water sector's public health protection responsibilities has complementary implications for regulatory, financial, and technical support initiatives.

Problem/Question Statement

This proposed EFAB charge is to develop recommendations for how EPA's enforcement practices and financial and technical assistance programs may be modified to enhance and amplify the ongoing refinement of water service definitions that highlight the importance of assuring water affordability and access. These refinements recognize that water services are more than management of drops measured through water meters and impervious area measures. They more explicitly recognize the public health protection value conveyed, and the attendant imperatives to assure access and affordability. The charge is to address how EPA can help ensure that the costs of compliance with environmental regulations do not impose inequitable burdens on economically disadvantaged households while also advancing water quality improvement and utility system reinvestment. The charge is to gauge the extent to which EPA-sponsored financial and technical assistance programs may be modified to address community access and affordability challenges to render more equitable outcomes.

EFAB Mission Fit

The charge is oriented toward providing recommendations related to EPA's approaches to enforcement of environmental regulations that may have acute impacts on community financial capabilities and household affordability, and on how EPA could modify its financial and technical assistance programs to enhance support to communities with affordability and access challenges.

EPA Mission Fit

The proposed charge is intended to provide recommendations primarily to enhance existing EPA programs and practices established to serve EPA's mission.

Type of EFAB Engagement

- EFAB workgroup written report
- EFAB-sponsored workshop

¹ *Affordable Rate Design for Households*, EFAB report dated February 2006.

² *Household Affordability Challenges in the Water Sector*, EFAB report submitted February 26, 2016.

³ *Closing the Water Access Gap in the United States: A National Action Plan*, Dig Deep and US Water Alliance, 2019.

Risky Environmental Business: Impact on Cost of Capital for Utilities

EFAB members: J. Beecher, T. Chapman, E. Crooks, R. Weiss

Problem/Question Statement

Capital and insurance markets are increasingly recognizing environmental factors in their assessment of risk profiles and credit quality. The relevant risks factors are also expanding in the context of complex systems encompassing both the natural and built environments. Risk relates to interrelated aspects of utility operations, including reliability, resilience and regulatory compliance. In addition, there is growing recognition that environmental risks, including those associated with natural or humanmade disasters, are affecting the cost of capital. Managing and mitigating risk is a priority of utility managers. Environmental, resource, and economic regulators are increasingly risk aware.

The following key questions are of interest:

- What risk factors (including environmental risks) are affecting utilities and how are they being addressed? Examples of risk impacts include cost (increased capital or operations scope, reporting and administrative effort, etc.), schedule (delays due to required environmental permits/approvals), and increased uncertainty about project viability (affecting cost of capital and increasing contingencies).
- How can utilities more effectively manage risk, and which tools are most cost-effective for which risks?
- Which categories of risk have been the most challenging for utilities to manage effectively, and why?
- How are utility credit ratings and insurance products affected by risk?
- How is changing risk affecting utility capital costs and revenue requirements?
- How does utility ownership affect risk management?
- For the private sector, how are risks shifted between shareholders and ratepayers?
- How does risk-bearing relate to issues of environmental justice?
- What practices and products can utilities use to manage or mitigate risk?
- How are various types of risks disclosed and reported?
- What tools are available for evaluating risk, including scorecards?

EFAB Mission Fit. Risk is a natural topic for the EFAB due to its implications for the financial health and viability of utilities. EFAB members have considerable expertise in how financial markets perceive and process risk, and how this in turn affects utilities.

EPA Mission Fit. EPA's interest in risk relates its roles as the nation's environmental health regulator but also as a source of capital financing. Better risk management has implications for the financial health of utilities and thus public health over the long term.

Type of EFAB engagement. We recommend an EFAB consultation at a public meeting or an EFAB-sponsored educational workshop with a written summary. We view this topic as an opportunity to share knowledge about financial risk and its implications with stakeholders in the environmental policy community.

Attracting Private Investment to Opportunity Zones: A Role for EPA

EPA Efforts in Opportunity Zones

In December 2018, the White House Opportunity and Revitalization Council (WHORC) was established by Executive Order 13853 to implement administrative reforms and initiatives to target, streamline, and coordinate Federal resources in economically distressed communities. EPA is a member of the Council and is included in two separate work streams: Safe Neighborhoods and Economic Development. In addition to tax incentives for development in designated Opportunity Zones (OZ) provided by the Tax Cuts and Jobs Act of 2017, a new feature on grants.gov beginning in March 2020 will enable applicants to search for available grants/programs across the federal government that benefit OZs. This will benefit OZ stakeholders by increasing general awareness of federal programs with OZ benefits.

Problem/Question Statement: Maximizing the Impact of EPA Investment in Distressed Communities

The OZ initiative creates incentives for equity investments in real estate and infrastructure projects as well as new or expanded businesses located in the designated OZs. It is principally an economic development initiative that is designed to support the revitalization of communities to address chronic and acute problems that result from economic decline. Many of these problems relate to the environment and human health.

Our experience with community-focused programs suggests that economic investments from the private sector are far more likely and attractive when environmental quality is maintained at healthy levels. Potential environmental liability and uncertainty about environmental quality can also discourage private sector investment in a community. We believe that additional environmental infrastructure and improvement is a necessary condition for attractive private sector investment in many communities, even with OZ incentives.

Investing in distressed communities is not new for EPA. The agency has historically provided support to communities through mechanisms that have included grants, tools, training, education, and technical assistance. Despite these efforts and investments, EPA cannot always determine, in advance, whether its limited resources will be effectively leveraged to make a measurable environmental and public health improvement for these communities.

The EPA would appreciate any strategic advice from the EFAB on ways to encourage private investment in OZs. Specific questions include:

- 1) First, which specific federal/EPA incentives (monetary or otherwise) are most likely to increase public/private investment in OZs?
- 2) Looking at existing EPA incentives, including funding programs such as environmental justice, or brownfields grants which incentives, programs or approaches are better suited to achieve desired community outcomes while reducing risk, liability and/or

regulatory uncertainty for investors in OZs?

- 3) Does the EFAB have recommendations on readily implementable adjustments to existing Agency programs to make them more effective in reducing risk, liability and/or regulatory uncertainty? Are there more complicated adjustments that should be also considered by the Agency?
- 4) What regulatory/liability/risk data could be provided to allow investors to compare OZs and determine which OZ might be a best fit for their investment?
- 5) Does the EFAB have any recommendations on how we share information and resources in a way that would ensure that the programmatic resources we leverage for OZ purposes lead to improvements in local health and environmental outcomes for the existing community.

EPA Mission Fit:

The EPA Office of Policy (OP), located in the Office of the Administrator, is the primary policy arm of EPA. Among other duties, OP is responsible for coordinating all of EPA's Opportunity Zone (OZ) work across the agency. OP has extensive experience in working in economically distressed communities across the country to support locally led, community-driven strategies that improve economic development and environmental and human health outcomes. OP uses this expertise in coordinating across EPA programs and in collaboration with other federal agencies to assist communities' efforts to ensure that public and private sector investments support community goals.

Type of EFAB Engagement: to be determined