2017

Drinking Water State Revolving Fund Eligibility Handbook



Provisional Document

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DISCLAIMER: *This document was developed by the United States Environmental Protection Agency as a guide to assist with determining Drinking Water State Revolving Fund loan and set-aside activity eligibility. Nothing in this document is meant to supplant or modify requirements of the Safe Drinking Water Act, the DWSRF Interim Final Rule, Office of Management and Budget general grant guidance or generally accepted accounting principles.*

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1 Purpose of this Document

State Drinking Water State Revolving Fund (DWSRF) programs and the Environmental Protection Agency (EPA) Regional offices have asked for a consolidated, up-to-date reference manual to assist them in making project and set-aside eligibility determinations as part of ongoing DWSRF program implementation. This document is intended to respond to these requests, including addressing emerging eligibility questions related to sustainability, resiliency, emerging contaminants of concern and other contemporary issues.

This document contains a compilation of examples of funded projects that demonstrate the exceptional flexibility inherent in the DWSRF program. States may learn of new projects and set-aside activities that they had not thought to fund previously. The EPA is committed to working with the states to identify innovative approaches to maximize the return on the federal and state investment to protect the health of the American people. This will be a living document. The EPA invites states to continuously enrich the discussion as new projects are brought to the program. The EPA also welcomes additional examples of projects that states have funded, particularly those that address emerging issues that are important to drinking water utilities and that demonstrate the wide range of ways in which the DWSRF supports public health protection. Note that a state may request that the EPA consider a deviation from the DWSRF regulations for an ineligible project (or class of projects) that exclusively addresses public health concerns.

Ensuring that these funds are only spent on eligible projects and eligible costs is essential for the integrity of the program. Investments in water systems not only provide assurances of continued delivery of safe drinking water to American homes, schools, and places of business; they are key to local economies across the United States. Water infrastructure spending has an immediate impact on employment. The Council of Economic Advisers estimates 10,854 full-time jobs are created by each one billion dollars of water infrastructure spending (includes direct, indirect and induced jobs). The U.S. Conference of Mayor's Water Conference cites estimates from the U.S. Department of Commerce's Bureau of Economic Analysis that show for each additional dollar of revenue (or the economic value of the output) of the water and sewer industry, the increase in revenue (economic output) that occurs in all industries is $2.62 in that year. Further, adding one job in water and sewer creates 3.68 jobs in the national economy to support that job.[1]

[1] The U.S. Conference of Mayors. Local Government Investment in Municipal Water and Sewer Infrastructure: Adding Value to the National Economy. Richard A. Krop, Ph.D., Charles Hernick, and Christopher Frantz. The Cadmus Group, Inc. August 14, 2008.

2 The Statutory Basis of the DWSRF

The DWSRF program was created as part of the 1996 Amendments to the Safe Drinking Water Act (SDWA) (Public Law 104-182). Section 1452 of the SDWA, as amended, contains the provisions governing the DWSRF program.

Defining features of the statutory formulation of the DWSRF program are its flexibility and the mechanism it provides for supporting other key provisions of the 1996 Amendments, including water system capacity development, operator certification, source water protection, assistance for small systems and the Public Water System Supervision (PWSS) program.

The DWSRF is structured as a federal-state partnership through which a permanent drinking water infrastructure revolving loan fund has been created in every state. (Puerto Rico is defined as a state for purposes of the DWSRF.) The federal government provides capitalization grants to states. States provide a 20% match for those grants.

The principal objective of the DWSRF is to facilitate compliance with national primary drinking water regulations or otherwise significantly advance the public health protection objectives of the SDWA. States are required to give priority for the use of DWSRF project funds to:

- Address the most serious risks to human health
- Ensure compliance with the requirements of the SDWA
- Assist systems most in need on a per household basis according to state affordability criteria

States have considerable flexibility regarding the use of their capitalization grant funds. The primary use of capitalization grant funding is for assistance to water utilities for capital improvements (water infrastructure projects). This assistance can be provided as[2]:

- Planning and design loans[3]
- Construction loans
- Purchasing or refinancing debt obligations
- Insurance or guarantee for local debt
- Security reserve for leveraging
- Additional subsidization

Not all drinking water compliance problems, however, can be solved through capital financing of infrastructure improvements. States also have the option to take up to 31% of their capitalization

[2] Assistance options are discussed in more details in Appendix F
[3] Planning and design assistance is also eligible under the 2% and 15% set-asides; see Section 6: Set-Aside Programs for more information.

grant for set-asides. Set-asides can fund state programs, technical assistance and training for water utilities, and other activities that support achieving the public health protection objectives of the SDWA. The programs and activities supported by set-asides may include DWSRF administration, water system capacity development, operator certification, source water protection, small systems technical assistance and the PWSS program. Each state determines the appropriate balance between water infrastructure projects and set-asides for their unique circumstances.

3 Borrowers, Projects and Costs Eligible for DWSRF Loan Fund Assistance

3.1 Eligible Borrowers

A public water system is a system for the provision of water for human consumption to the public through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals. States can provide DWSRF financial assistance only to the following types of public water systems:

(1) Existing privately-owned[4] and publicly-owned community water systems and non-profit non-community water systems, including systems utilizing point of entry or residential central treatment.
   - A community water system is a public water system that serves at least 15 service connections used by year-round residents of the area served by the system or regularly serves at least 25 year-round residents. A community water system may be privately or publicly owned.
   - A non-profit non-community water system is a public water system that is not a community water system and is owned and operated as a non-profit entity such as a school. The non-profit entity could be government owned.

(2) New community water systems that represent cost-effective solutions to existing public health problems with serious risks caused by:[5]
   - Unsafe drinking water provided by individual wells or surface water sources, with the scope of the service area limited to the specific geographic area affected by contamination.
   - Technical, managerial, and financial difficulties that consolidation into a new regional community water system can address, with the scope of the service area limited to that of the systems involved.

To receive assistance from the DWSRF, systems must have the technical, managerial and financial (TMF) capability to ensure compliance with the SDWA. If the state determines that a system lacks technical, managerial and financial capability, that system may be eligible to receive assistance if it agrees to undertake feasible and appropriate changes in operations (including ownership, management, accounting, rates, maintenance, consolidation, alternative water supply, or other procedures). The state must determine that such changes by the system are necessary to ensure that the system has the capacity to comply with the SDWA over the long term.

[4] Some states may have law(s) that prohibit funding privately owned water systems
[5] 40 CFR 35.3520(b)(2)(vi)

Systems in significant noncompliance with any requirement of a national primary drinking water regulation are not eligible to receive DWSRF assistance unless the state determines that the assistance will ensure compliance.

Multiple community water systems can join together in a consortium to apply for a single loan for a mutually beneficial project or set of projects.

3.2 **Ineligible Systems**

The SDWA identifies the following types of water systems as ineligible to receive financial assistance from a state's DWSRF loan fund:

- Federally-owned public water systems
- For-profit non-community water systems
- Systems that lack the technical, managerial and financial capability to ensure compliance with the requirements of the SDWA, unless the assistance will ensure compliance and the owner or operator of the system agrees to undertake feasible and appropriate changes in operation to ensure compliance over the long term
- Systems that have enforcement priority with any national primary drinking water regulation or variance, unless:
    - The purpose of the assistance is to address the cause of significant non-compliance and the assistance will ensure that the system returns to compliance
    - The purpose of the assistance is unrelated to the cause of the significant non-compliance and the system is on an enforcement schedule (for maximum contaminant level and treatment technique violations) to return to compliance

3.3 **Eligible Projects**

The SDWA provides that DWSRF financial assistance may be used by an eligible public water system only for expenditures of a type or category which the EPA Administrator has determined will facilitate compliance with national primary drinking water regulations or otherwise significantly further the health protection objectives of the Act. The DWSRF Interim Final Regulation identifies six broad categories of eligible projects. The following tables identify these categories of projects and offer examples of projects that could be funded under each. These lists are not intended to represent all types of projects.

TABLE 3.1: Category 1 – Treatment
Example Projects

• New facilities or portions of facilities, including:
  o Mixers/Flocculation/Sedimentation
  o Filtration
  o Chemical addition systems and equipment
  o Disinfection
  o Filter backwash recycling
  o Residuals handling
  o On-site generation of disinfectants
  o Corrosion control infrastructure
• Upgrades, rehabilitation or replacement of facilities or portions of facilities
• Potable reuse or reuse that mitigates the need for additional potable supply
• Desalination plants
• Raw water storage that is part of the treatment process and located on the property where the treatment facility is located
• Point of access or point of use treatment devices (i.e. filters) are only eligible if the device is the compliance treatment technology and the devices are owned and maintained by the public water system

TABLE 3.2: Category 2 – Transmission and Distribution
Example Projects

• Installation, replacement or rehabilitation of infrastructure to improve water pressure to safe levels or to prevent contamination caused by non-potable liquids entering the system through leaks or pipe breaks
  o Transmission mains
  o Distribution mains
  o Meters (e.g., flow meters, customer meters, master meters)
  o Appurtenances (e.g., valves, hydrants, pipe restraints)
  o Pump stations
• Service line replacements, regardless of pipe material and ownership of the property on which the service line is located[6] (service line can be replaced up to premise plumbing[7])
• New water main extensions to serve existing residents not served by a safe supply of potable water (this includes installation of the service line up to premise plumbing)
• Reclaimed wastewater effluent and water reuse infrastructure and distribution systems (aka "purple pipe") where such infrastructure mitigates the need for additional potable supply

[6] There are many mechanisms in which a community could fund replacing the privately owned portion of a service line, such as a rebate program or directly funding construction if a temporary easement is obtained. Some states or communities may have law(s) that prohibit funding projects on private property.
[7] For more detailed explanation, please refer to U.S. EPA's May 9, 2016, memorandum from Anita Maria Thompkins, Director, Drinking Water Protection Division: "Clarification of Drinking Water State Revolving Fund Eligibility of Service Line Replacement on Private Property"

TABLE 3.3: Category 3 – Source
Example Projects
• Development of new sources to replace a contaminated drinking water source or to increase drought resilience • Raw water intakes, wells or other constructed infrastructure that allows for movement of raw water into the treatment plant or into the distribution system • Alternative supply in case of emergency or drought, such as: o Interconnections o Surface water intakes o Ground water wells • Aquifer storage and recovery (ASR) system for water storage (e.g., part of a reclaimed water system), including: o Wells o Pumps o Pipes o Wellhead structures • Riverbank filtration wells o Plugging abandoned wells when new replacement wells are drilled

TABLE 3.4: Category 4 – Storage
Example Projects
• New storage or replacement/rehabilitation of existing structures to continue to maintain compliance and protect public health by: o Preventing microbiological contaminants from entering a public water system o Equalizing water demands o Reducing pressure fluctuations in the distribution system o Providing reserves when power outages and other emergencies occur o Storing water for reclaimed water (aka "purple pipe") systems o Providing drought resiliency

TABLE 3.5: Category 5 – Consolidation
Example Projects
• Purchase of a water system and all of its assets (including land and water rights) • Interconnection of systems: o to resolve SDWA noncompliance o to achieve the technical, managerial and financial capacity needed to prevent noncompliance o to reduce the overall per household cost of service o for drought resiliency Note – consolidation projects cannot be for growth purposes

TABLE 3.6: Category 6 – Creation of New Systems
Example Projects
• Projects which upon completion will create a community water system to address existing public health problems with serious risks caused by unsafe drinking water provided by individual wells or surface water sources   o Projects to address existing public health protection problems associated with individual wells or surface water source must be limited in scope to the specific geographic area affected by contamination • Projects that create a new regional community water system to eliminate individual systems with technical, managerial and financial difficulties

In general, unless a project is expressly prohibited by statute or regulation, it is likely eligible for DWSRF assistance as long as it addresses present or prevents future violations of health-based drinking water standards. When in doubt contact your EPA Regional DWSRF coordinator. Some types of eligible projects may cut across two or more of the categories above. Examples of such eligible projects for a few select types of projects are presented below (Note: projects listed above could also fall into these categories).

TABLE 3.7: Examples of Water Security Projects

• Installation of security measures to protect infrastructure and prevent vandalism or purposeful contamination of the drinking water, such as:
  o Fencing and gates
  o Lighting
  o Cameras
  o Closed circuit television

TABLE 3.8: Examples of Energy Efficiency Projects
• Energy efficient retrofits, upgrades or new pumping systems and treatment processes • Pump refurbishment to optimize pump efficiency • Pipe projects that prevent water loss. • Projects that result from an energy efficiency related assessment • Renewable energy projects, which are a part of a public health project, such as wind, solar, geothermal and micro-hydroelectric that provide power to a utility • Utility energy management planning, including energy assessments, energy audits and optimization studies • Additional eligible energy efficiency projects are listed in Appendix B “Sustainability: Examples of Resilience and Green Projects”

TABLE 3.9: Examples of Other Capital Projects

• Purchase of spare parts in conjunction with an initial capital project, as is customary during normal course of business
• Large capital equipment purchases, such as:
  o Supervisory control and data acquisition (SCADA) systems
  o Leak detection devices and equipment
  o Stand-by power generators and associated accessories
  o Database infrastructure or software (e.g., asset management systems, inventory tracking software)
• Vehicles used solely (or funding appropriately proportioned) for the project under which they were funded
• Administration buildings for the water system (which could include billing offices, laboratories, control centers, engineering departments and other water system offices) that the water system uses solely for its own management (or the DWSRF financial contribution can be prorated for the space used by the water system), including the land on which they are situated
• Decommissioning/deconstructing old facilities to make way for new facilities
• Acquisition of existing infrastructure (e.g., purchase a finished water reservoir from another community)
• Purchase of land or other infrastructure required as part of cross-cutter mitigation implementation

In addition, other activities eligible for an assistance agreement could include planning and design, water utility audits, leak detection studies, identification of service line materials, optimization studies, drought contingency plans, and other evaluations that might results in a capital project or in a reduction in demand to alleviate the need for additional capital investment.

3.4 **Ineligible Projects**[8]

The following projects are ineligible for DWSRF assistance. Deviations are possible for any except those projects explicitly prohibited by statute, as discussed further below.

- Construction or rehabilitation of dams
- Purchase of water rights, unless the water rights are owned by a system to be purchased for consolidation as part of a capacity development strategy

[8] 40 CFR 35.3520(e)

- Construction or rehabilitation of reservoirs, except for finished water reservoirs and those reservoirs that are part of the treatment process and are on the property where the treatment facility is located
- Projects needed primarily for fire protection
- Projects needed primarily to serve future population growth (prohibited by statute -- see below for further explanation)
- Projects that have received assistance from the national set-aside for Indian Tribes and Alaska Native Villages under the SDWA §1452(i) *(prohibited by statute)*

3.4.1 Growth-Related Projects

The DWSRF is meant to serve the public health needs of the existing population. Congress specifically directed in the SDWA that the DWSRF program avoid the use of funds to finance the expansion of any public water system in anticipation of future population growth. [9] The EPA specified in the DWSRF Interim Final Rule that a project which is intended primarily to address public health and/or regulatory compliance issues for the existing service population may be sized for a "reasonable" amount of population growth over the useful life of the project.

3.4.2 Deviations to Allow Funding for Certain Ineligible Projects

A state may request that the EPA consider a deviation from the DWSRF regulations for an ineligible project (or class of projects) that addresses public health concerns. A water system may request that the state evaluate whether to fund an ineligible project that is expected to resolve a public health issue associated with drinking water. The state should submit the deviation request to its EPA Regional Office. The Region will forward the deviation request to EPA Headquarters for a determination of whether to approve the request. Deviation requests are approved by the Office of Grants and Debarment based on recommendations from the Office of General Counsel and the Director of the Office of Ground Water and Drinking Water. Approved deviations will be posted on the EPA's DWSRF website.

3.5 **Emergency Use of Project Loan Funds**[10]

A state may fund projects which require immediate attention to protect public health on an emergency basis if the state's Intended Use Plan (IUP) addresses conditions under which the state can fund emergency projects. Each state may define the conditions that constitute an emergency in its IUP. The state must report to the EPA the projects that it funded on an emergency basis in the state's biennial report and during the EPA's annual review. Projects funded on an emergency basis do not have to be on the state's Intended Use Plan nor do they require ranking using a state's

[9] Environmental Protection Agency. August 7, 2000. Federal Register, Volume 65, Number 152, pages 48286-48312.
[10] 40 CFR 35.3555(c)(2)

priority system or have to go through a public review process prior to receiving assistance. The emergency projects must still meet DWSRF eligibility criteria and other requirements, such as the Davis-Bacon wage requirements. States are not allowed to fund equipment and other capital acquisitions to address emergency conditions through set-aside funds.

TABLE 3.10: Examples of Emergency Projects
• Generator to provide power to a water system that has lost power • Interconnection to another water system during an extended drought • Installation of a new well to draw water from a different or deeper zone in an aquifer or from another aquifer during an extended drought • Rehabilitation of an existing well and/or installation of a new pump to obtain water from a deeper zone in an aquifer during drought • Repair/replacement of a drinking water system due to a natural or man-made disaster • Limited infrastructure that may be required for trucked-in water (i.e., storage, piping or tap stands) during a "do not drink" order or other emergency situation [Note: the cost of the trucked-in water is not eligible, nor is providing bottled water]

3.6 **Eligible Project Costs**[11]

A wide range of costs and expenditures associated with a construction project are eligible as part of a project budget. The federal government pays for eligible costs on a reimbursement basis – i.e., the costs must have already been incurred. The water system must document eligible costs, typically through engineering cost reports, at the time that it requests reimbursement.

Eligible costs include actual pre-construction (planning and design, including costs associated with obtaining project authorization and issuance/execution of the loan) and construction costs that are directly associated with the project and issuance of the loan. If a borrower has already completed planning and design for a project when they seek DWSRF assistance for construction, the DWSRF may reimburse the borrower for the cost of the planning and design of that project as long as it meets program requirements.

Costs for acquiring land are eligible only if the land is needed to locate eligible project components and the land is acquired from a willing seller. (Loans for acquisition of land or conservation easements for protection of source water may be provided out of the Local Assistance and Other State Programs set-aside authorized by the SDWA §1452(k), as discussed later.)

[11] 40 CFR 35.3520(c)

Costs for restructuring systems that are in significant noncompliance or that lack the technical, managerial and financial capability to ensure compliance are eligible if the restructuring addresses the underlying noncompliance or lack of capability.

Examples of eligible project costs are provided in the table below.

TABLE 3.11: Eligible Construction and Non-Construction Project Costs

Example Eligible Project Costs	*General Limitations or Conditions*
Non-Construction Activities	
• Costs associated with obtaining project authorization and issuance/execution of the loan o Administrative and legal counsel o Preliminary engineering report/feasibility report o Obtaining permits • Planning and design costs o Project design (plans and specifications) o Environmental review documentation • Project start-up costs o If included as part of the construction contract or engineering services provided, such as: ▪ Software and software training ▪ Training for equipment operation ▪ Warranty for equipment	• Costs must be directly associated with the project receiving the loan • Non-construction activities only eligible if included as part of the loan's project budget o May be incurred prior to issuance of the loan • Note: assistance for non-construction costs can also be provided through set-aside activities (See Section 6)
Construction Costs	
• Construction costs incurred after the eligible project has received approval, authorization to proceed or any similar action by the state (e.g., binding commitment) • Engineering/construction project management • Budgeted construction contingency expenditures	• Pre-payment for work is not allowed • Reimbursement of incurred costs is subject to all other DWSRF program requirements applicable to a recipient of funds, including an environmental review which must consider the impacts of the project based on the preconstruction site conditions .

3.7 **Ineligible Project Costs**

Ineligible project-related costs are expenditures that do not facilitate compliance with the national primary drinking water regulations or do not otherwise significantly further the public health protection objectives of the SDWA. Additionally, the state cannot use the DWSRF to prepay anticipated costs of future activity. The cost of trucked-in water or purchasing bottled water are also not eligible project costs. Other ineligible costs specifically cited in the SDWA include:[12]

- Water system operation and maintenance expenses
- Routine compliance monitoring expenses

Water system operation and maintenance activities are not capital expenditures and are not eligible for loan funds under the DWSRF.[13] Capital expenditures are defined as "expenditures to acquire capital assets or expenditures to make additions, improvements, modifications, replacements, rearrangements, reinstallations, renovations or alternations to capital assets that materially increase their value or useful life."[14]

Operations enable a facility to perform its intended function, while maintenance is the act of keeping fixed assets in usable condition. These activities are usually part of a utility's annual operating budget, not the capital improvement plan, and are usually not debt financed. Operations and maintenance costs typically include salaries, benefits, supplies, rent, utilities (e.g., electric, gas), vehicle maintenance, communication, computers, chemicals, pump/valve parts, tools, and other activities or items purchased for the ongoing functioning of a water system.

Operating materials and supplies consist of "tangible personal property to be consumed in normal operations."[15] Products purchased for O&M activities generally are considered "consumables," as they are used up or discarded once their function has been completed. An example is a membrane filter cartridge. Membrane cartridges are replaced every few years once the filtration functionality is exhausted. When the useful life of the cartridge is reached, the water system disposes of the cartridge and replaces it with a new one. Membrane filter cartridges would typically be considered an O&M cost. (Initial cartridges are eligible for inclusion as part of a new or substantially renovated membrane system).

Routine compliance monitoring is an O&M cost, not eligible for financing under the DWSRF. A state may finance one-time monitoring associated with newly-installed equipment to ensure that the equipment is operating properly and meets equipment specifications as part of the equipment delivery and installation process. Ongoing compliance monitoring is a revenue expenditure, not a

[12] SDWA §1452(a)(2)
[13] 40 CFR 35.3520(f)
[14] 2 CFR Part 200.13
[15] Federal Accounting Standards Advisory Board. June 30, 2014. Handbook of Federal Accounting Standards and Other Pronouncements.

capital expense. In certain limited circumstances, special purpose monitoring may be eligible as a set-aside expense, as explained more completely in Section 6.

The descriptions here of O&M costs are generalized. States should evaluate determinations regarding O&M costs versus capital expenditures on a case by case basis. When reporting costs, water systems and states should use generally accepted accounting principles, the standard framework for financial accounting.

3.8 **Alternative Sources of Financial Assistance**

If a water system, project or project cost is not eligible under the DWSRF, it may be eligible under other programs. These might include the U.S. Department of Agriculture's Rural Development program, the U.S. Department of Housing and Urban Development's Community Development Block Grant program, the Clean Water State Revolving Fund, the newly authorized Water Infrastructure Finance and Innovation Act (WIFIA) funding, or other federal, non-federal or state funding sources.

Public water systems benefit when state DWSRF programs foster cooperation with other funding sources. A coordinated effort among federal financial assistance programs can aid states in addressing the affordability of a project and achieving improved financial outcomes for water systems, despite the different eligibility requirements among federal funding sources (e.g., the U.S. Department of Agriculture's Rural Development program and the U.S. Department of Housing and Urban Development's Community Development Block Grant program). Many states have funding agency coordination teams (FACTs). More information about these groups can be found on the Small Community Water Infrastructure Exchange (SCWIE) website.

4 Sustainability as a Project Development and Ranking Factor

Sustainability and resiliency are important concepts for the DWSRF. Sustainability in a water infrastructure context refers to the design, construction and operation of water infrastructure such that it consistently delivers a desired level of service in a manner optimizing environmental, social and economic well-being. Resilience refers to the ability of water infrastructure systems to withstand and recover from natural and man-made disturbances to their functioning.

The EPA's 2010 "Clean Water and Drinking Water Infrastructure Sustainability Policy" supports planning for infrastructure investments that protect public health and water quality, account for extreme weather events, have clear service objectives, conserve natural resources, incorporate alternatives using or simulating natural systems, consider decentralized and innovative approaches and evaluate life-cycle costs.[16] Recent federal policies[17] direct federal agencies to incorporate sustainability objectives and practices into projects to which the federal government provides financial assistance, including assistance through state revolving funds.

4.1 **Resilience Projects**

The EPA encourages states to consider incorporating resilience to extreme events into their project priority ranking criteria to address sustainability. As noted above, resilience refers to the ability of water infrastructure systems to withstand and recover from natural and man-made disturbances to their functioning. Design for resilience should be incorporated upfront in project planning and built into a project at the outset. This should become a routine part of water system planning and design.

Resilience criteria or factors relating to project planning and design may address:

- Vulnerability of a water system to disruption of safe water delivery, whether natural or of human origin
- Capability to recover from disruption of safe water delivery
- A range of natural events capable of disruption, including flooding, long-term drought and earthquakes

[16] Environmental Protection Agency. 2010. EPA's Clean Water and Drinking Water Infrastructure Sustainability Policy.
[17] Council on Environmental Quality. 2013. "Principles and Requirements for Federal Investments in Water Resources" (based on the Water Resources Development Act of 2007); Department of Homeland Security. 2013. "Partnering for Critical security and Resilience; Supplemental Tool: Incorporating Resiliency into Critical Infrastructure Projects."

Examples of ranking criteria or factors are included in Appendix B, Part A. States may also provide technical assistance through set-aside funding to support water systems' project planning and design for resilience.

4.2 Green Projects

DWSRF funding of green projects has been discretionary since FY 2012. The annual appropriation legislation since then has included the following "funds made available…to each State for Drinking Water State Revolving Fund capitalization grants may, at the discretion of each State, be used for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities." From a comprehensive life-cycle analysis perspective of water system functioning, green and resilient aspects of projects may be complementary for water system sustainability purposes. For example, reducing water loss from pipe leaks may extend the use of a water source, lessening the water system's vulnerability to drought. For projects that states fund from DWSRF grants after FY 2011, the EPA does not ask for business cases for green projects; states have discretion in whether to fund DWSRF green projects after that fiscal year. Appendix B includes a detailed list of example projects and criteria for green projects and components.

4.3 Water System Partnerships

Water system partnerships help systems deal with limited resources, water infrastructure challenges and compliance issues. Partnerships can take a wide variety of forms, including complete merging of two systems, an interconnection in cases of emergency, or sharing an operator or equipment. From 2009 to 2016, 265 DWSRF assistance agreements have addressed projects for voluntary system consolidation or regionalization involving two or more water system. Eighty percent of these agreements included small systems serving 10,000 or fewer people. DWSRF set-aside funds can also be used to support planning and analysis needed for partnerships that do not involve physical interconnection, such as evaluating and developing shared billing or system management.

5 Innovative and Sustainable Projects Funded by States

This section highlights innovative and sustainable projects that state DWSRF programs have funded. To learn more about these projects, please contact the appropriate EPA Regional Office. Contact information can be found on the EPA's DWSRF website: https://www.epa.gov/drinkingwatersrf.

5.1 Treatment

- **Relocation out of Floodplain in Iowa:** Columbus Junction relocated its treatment plant out of the 100-year floodplain and modified wells to ensure source capacity during flooding.
- **Reverse Osmosis in Minnesota:** To replace an aging treatment facility, Redwood Falls Water System constructed a new facility which includes iron and manganese removal and reverse osmosis membrane treatment for sulfate and total dissolved solids removal. This facility is designed to reduce the amount of salt needed for water softening in homes and to reduce the amount of chlorides discharged into the Minnesota River. Other green aspects include backwash water reclamation, high efficiency boiler and pump motors and low energy reverse osmosis membranes. More information about this project can be found here.
- **LEED Plant in Alabama:** Dauphin Island Water and Sewer Authority constructed a new reverse osmosis water treatment facility which will be LEED certified[18]. The facility incorporates a low-impact design, reuse of gray water for flushing toilets, use of filtered stormwater runoff as an additional non-potable water source, and low-maintenance vegetation that requires minimal irrigation and no fertilizers or pesticides.

5.2 Distribution

- **Automated Meter Reading System in Oklahoma:** The Sand Springs Public Municipal Authority installed a new automated meter reading system throughout the city. Due to the hilly terrain, the Authority decided to use radio transmitters with a Federal Communications Commission license throughout the system with a backhaul to the utility's billing office for improved customer service. The AMR system will help to improve water system management, account for and thereby reduce water losses, resulting in conservation of water and decreased energy usage qualifying this project for the Green Project Reserve.
- **Lead Service Line Replacement in Wisconsin:** Wisconsin created a funding program within their DWSRF to help disadvantaged municipalities replace lead service lines, including the portion on private property. Municipalities can receive a certain amount of principal forgiveness based on population ($1 million for population 500,000 and greater; $500,000 for

[18] LEED certification is the US Green Building Council's recognition of sustainable "best-in-class" building strategies and practices. LEED is the acronym for "Leadership in Energy and Environmental Design." See: www.usgbc.org/LEED.

population between 50,000 and 500,000; and $300,000 for population less than 50,000). More information about this project can be found here.

- **Leak Detection in Louisiana:** The City of Ville Platte was losing approximately 67 percent of its water through leaks in the distribution system. Through the loan fund, the community conducted a leak detection study that found 90 leaks in 81 different locations, most of which were flowing directly into storm sewers. Reducing this water loss will enable the community to continue to serve as a back-up source of water for several other neighboring systems.
- **Meters with Leak Detection in Rhode Island:** The City of Cumberland installed new radio-read water meters, which also include leak detection equipment, throughout the municipality, enabling the water department to respond to leaks in a timely and efficient manner.
- **Reclaimed System in Texas:** Fort Worth installed a reclaimed water pump station and pipeline at its Village Creek Wastewater Treatment Plant to deliver reclaimed water to three commercial customers for irrigation and cooling tower use. This reduced the city's potable water demand.
- **Reducing Water Loss in Colorado:** Arabian Acres Metropolitan District replaced shallow service lines and water mains. This upgrade will help to address cold weather freezing and breaking, which had caused significant water loss.
- **Satellite Controlled Booster Pump Station in West Virginia:** The Town of Capon Bridge constructed a new booster pump station to replace an existing station and installed a satellite controlled telemetry system to monitor and operate the new booster station more effectively.

5.3 Storage

- **Aquifer Storage and Recovery in Oregon:** The City of Cornelius designed and constructed an ASR pump station and chlorination structure in lieu of more expensive above ground storage.
- **Floating Reservoir Cover in California:** The Los Angeles Department of Water and Power installed a floating cover over the existing Santa Ynez Reservoir to comply with the Long-Term Enhanced Surface Water Treatment Rule. The cover also prevents algal growth and guards against contamination entering the finished drinking water supply.
- **Solar Mixers in North Carolina:** Several communities in North Carolina installed solar-powered mixers in tanks and reservoirs to control nutrient levels and algal growth in surface water reservoirs and to reduce disinfection byproducts in finished water storage tanks.

5.4 Power

- **Emergency Generator Program in Connecticut:** The Department of Public Health Drinking Water Section used a streamlined process to purchase and install emergency power generator systems.
- **Hydroelectric System in Wyoming:** The Culinary Water System in Afton developed a partnership with the local electric power provider to build a hydroelectric facility at its site that will harness the power of gravity flow using a Pelton turbine and generator.

- **Wind Power in Texas:** Mountain Peak Special Utility District installed a 100-kilowatt wind turbine generator at one of its water plants, generating sufficient energy to power all buildings and equipment on that site.

5.5 Water System Partnerships

- **Water System Interconnection in Pennsylvania:** The Hazleton City Authority received an assistance agreement to install a two-mile, 12-inch water distribution main connecting 40 homes in the Village of Stockton in Hazle Township. This water main will allow the Village, Pennsylvania's top violator of federal and state drinking water laws, to abandon its current water system and provide a safe, reliable source of drinking water for its residents. The Village's water system had no operator or responsible ownership since it was discovered as a water system about five years ago, and source ponds were found to be contaminated with giardia, bacteria and iron. The Department of Environmental Protection was instrumental in coordinating the partnership.

5.6 Planning

- **Sustainable Infrastructure Planning Projects (SIPP) in Oregon:** The state of Oregon piloted the SIPP in 2015 and, based on its success, has since made the program permanent. The SIPP provides financing for water system planning and related activities that promote sustainable water infrastructure. Currently water systems can receive up to $20,000 per project and priority is given to water systems that have fewer than 300 connections. There has been significant interest in this program, as many small systems need initial startup funds to get their eligible projects moving. Currently, the program is funded out of the loan fund; however, this assistance could also be an eligible set-aside activity as well. For more information, visit the SIPP website.

6 Set-Aside Funds

Set-aside funds from DWSRF capitalization grants complement states' ability to provide financial assistance for capital projects. States may use set-aside funds to: (1) administer the DWSRF, (2) support PWSS program management, (3) support capacity development, operator certification and wellhead protection programs and (4) finance local source water protection and provide water systems with technical assistance (and financial assistance related to a state capacity development strategy).

The set-aside funds are a powerful tool unique to the DWSRF program, which give states the flexibility through a wide range of activities to help public water systems address compliance challenges that do not require capital investment. States can tailor and balance the use of the grant funds for capital investment and other activities funded with set-asides that support the reliable delivery of safe drinking water to protect public health. Systems that receive assistance from the state must be public water systems, unless the result of the assistance will be a new public water system. This could include assistance in the watershed serving a public water system.

6.1 **Overview of Key Features**

There are many ways that a state may use the DWSRF set-asides:[19]

- *Use of multiple set-asides.* A state may use funding from several different set-asides at the same time to assist an individual water system or to broadly assist public water systems in the state.
- *Augmentation of assistance to address water system needs.* A state may provide technical assistance using DWSRF set-aside funds to complement PWSS compliance assistance.
- *Use of third-party assistance providers.* States can provide technical assistance to water systems directly or through third-party contractors.
- *Support for getting projects ready to proceed to DWSRF financing and construction*. A state can use set-aside funds to provide technical assistance in the form of engineering, environmental and other services to prepare plans and designs to get water systems' projects ready to proceed to construction and to enable systems to qualify for construction financing.
- *Support for developing water system TMF capacity (a pre-requisite for DWSRF project financing).* States may use set-aside funds to develop and implement technical, managerial and financial capacity development strategies. As part of its capacity development strategy, a state may provide technical, managerial and/or financial capacity development assistance to an individual water system or group of water systems.

[19] For more detailed explanation, please refer to U.S. EPA's July 7, 2008, memorandum from Steve Heare, Director, Drinking Water Protection Division: "Clarification of Certain Eligible Uses of DWSRF Set-Asides."

- *Support for water system sustainability.* State set-aside funds can be used for activities to improve sustainability at water systems, including:
    - Promoting effective utility management practices
    - Conducting water system life-cycle assessments of capital replacement and operation and maintenance costs as inputs to planning
    - Encouraging front-end, comprehensive planning to ensure that projects are sustainable over their full life cycle
    - Assisting with rate evaluations and project development
    - Planning for resilience, including hardening of systems against extreme events such as flooding, wildfires, tornados, hurricanes and earthquakes
    - Developing and distributing tools, information and best practices for sustainability planning
    - Educating local decision makers on the value of sustainable water infrastructure
    - Funding state-wide or regional water supply master plans
    - Promoting collaborative and partnership relationships between water systems

6.1.1 Coordination Is Essential

Some set-aside activities, such as those which support the PWSS program, may be managed in a different office or agency than the state's DWSRF program. Coordination between the EPA, the state DWSRF program and the state PWSS program is vital to achieve the objectives of the SDWA and to prevent overlapping efforts. The state DWSRF and PWSS programs should work together to ensure that the programs have common goals and a shared understanding of the purpose of the DWSRF and the options it offers to support the delivery of safe drinking water.

6.1.2 Ineligible Activities

The SDWA and the DWSRF Interim Final Regulation prohibit set-aside funding for certain activities:

- Operations and maintenance,[20] such as:
    - Purchase of chemicals
    - Water meter reading
    - Lubricating pumps and motors
    - Oil changes for vehicles used for set-aside activities
- Routine compliance monitoring and sampling[21]
- Projects or related costs that are eligible for funding under the DWSRF loan program, with two exceptions:
    - Planning and design costs for small systems

[20] 40 CFR 35.3520(f)
[21] 40 CFR 35.3520(f)

- Costs associated with restructuring a system as part of a capacity development strategy[22]

6.1.3 Annual Workplans

States must prepare an annual workplan for each requested set-aside, except the administration set-aside (a workplan is only required for this set-aside if it is used for technical assistance to public water systems). Set-aside workplans must include a thorough description of planned activities.[23] The development of the workplan gives the state an opportunity to propose innovative uses of set-aside funds that can further the goals of the program. The EPA reviews the workplan to ensure that the state's proposed activities are eligible and address the public health objectives of the SDWA.

States may use the PWSS grant and DWSRF set-aside funds to implement similar and complementary activities, such as small system technical assistance. To ensure that funding from these two sources is not duplicative, the state DWSRF set-aside and PWSS programs must coordinate when developing their respective workplans and document the separate but coordinated use of funds in each other's workplans.

Set-aside workplans must follow the procedures identified in 40 CFR 35.3540 and summarized below, with the modification of the workplan term of funds use addressed below.

- *Term of Funds Use*. A state must submit a detailed annual or multi-year workplan to the EPA for approval describing how set-aside funds will be expended. In order to ensure that funds are expended expeditiously, the set-aside amounts taken each year for a multi-year workplan should be negotiated with the EPA. Workplan terms for funds use should be two years or less to achieve timely use of DWSRF funds.
- *Submitting workplans*. A state must submit workplans in accordance with a schedule negotiated with the EPA. If a schedule has not been negotiated, the state must submit workplans no later than 90 days after the capitalization grant award. If a state does not meet the deadline for submitting its workplans, the set-aside funds for the activities that were required to be described in the workplans must be transferred to the Fund for the state to use for project loans or other financial assistance. The EPA considers the best practice to be submitting workplans with the capitalization grant application, or, at the least, prior to grant award.
- *Content*. Workplans must at a minimum include:
  - The annual funding amount in dollars and as a percentage of the state allotment or capitalization grant
  - The projected number of work years needed for implementing each set-aside activity
  - The goals and objectives, outputs and deliverables for each set-aside activity
  - A schedule for completing activities under each set-aside activity

[22] 40 CFR 35.3535(a)(2)
[23] Outlined in 40 CFR 35.3540(c)(3)

  - Identification of and responsibilities of the agencies involved in implementing each set-aside activity, including activities proposed for conduct by a third party
  - A description of the evaluation process to assess the success of work funded under each set-aside activity
- *Amending workplans*. If a state changes the scope or amount of work because activities have changed in scope or timing from that originally described in its workplans, the state must amend the workplans and submit them to the EPA for approval. The state can make simple workplan amendment proposals through "pen-and-ink" changes by email for EPA Regional Office approval. More extensive workplan changes may necessitate a typed text document for submission.

6.1.4 Reserving Set-Aside Funds

A state may reserve set-aside funds from a capitalization grant and take them in a future year in addition to that year's set-asides, provided that the state identifies in its IUP the amount of funds reserved and describes the use of the funds in workplans for EPA approval. With the exception of the local assistance and other state programs set-aside, a state may reserve the authority to take from future capitalization grants those set-aside funds that the state has not included in prior or current years' workplans. The amount of reserved funds that a state may take in a future year is limited by the unused set-aside funds in the capitalization grant of the past year in which the state reserved the funds. For example, if a state chooses to take $300,000 from an available $400,000 in administrative (4 percent set-aside) funds in a particular year and reserves authority for the other $100,000 (or 1 percent), the state may take that unused reserved amount of $100,000 in a future year from that future year's capitalization grant (i.e., the limit is the reserved dollar amount, rather than being calculated as 1 percent of the amount of the future year's capitalization grant).

6.1.5 *Fund and Set-Aside Account Transfers*

A state may transfer funds among set-aside categories (Administration, Small Systems Technical Assistance, State Program Management and Local Assistance set-asides) and among activities within these categories, provided that set-aside ceilings are not exceeded. Set-aside ceilings, expressed as percentages of DWSRF capitalization grant amounts, are:

- 4 percent for Administration and Technical Assistance
- 2 percent for Small Systems Technical Assistance
- 10 percent for State Program Management
- 15 percent for Local Assistance and Other State Programs

6.2 Administration and Technical Assistance Set-Aside

A state may reserve up to 4 percent[24] of a capitalization grant for the administration and oversight of its DWSRF project loan fund and set-aside programs and to provide technical assistance to public water systems. Uses of this set-aside include:

- Administration
  - Actions and expenditures associated with administration and implementation of the DWSRF program (including set-aside programs) such as salaries for state program employees, travel and office expenditures
- Technical Assistance
  - Actions and expenditures associated with providing technical and financial assistance to public water systems,
  - Includes contracting with third parties for technical services

Attribute

- Technical assistance is not restricted to PWSs serving 10,000 or fewer persons

Types of technical assistance activities that may be funded include, but are not limited to:

- Direct technical assistance to systems (of any size) with contamination and treatment problems (which could lead to a loan application)
- Development of multimedia products such as printed materials, public service announcements, videos or other media
- Direct technical assistance to borrowers through face-to-face meetings
- Assistance to applicants to ensure the detailed loan application is complete and accurate
- Assistance to small and rural communities that are unfamiliar with the funding and application process

States are not required to submit a workplan for this set-aside, unless technical assistance is provided. If technical assistance is provided under this set-aside, a workplan is required for the technical assistance activities.

[24] On December 16, 2016, the Water Infrastructure Improvements for the Nation (WIIN) Act was signed into law, which amended the SDWA to provide additional options for calculating the amount of Administrative Set-Asides that can be taken (the greatest of: $400,000, 1/5 percent of the current valuation of the fund, or an amount equal to 4 percent of all grant awards to the fund for the fiscal year).

TABLE 6.1: Examples of Eligible Administration and Technical Assistance Activities and Expenditures (4%)
General DWSRF Program Implementation
• Employee salaries and travel and office expenses • Preparing program documents, such as a capitalization grant application, Intended Use Plan and annual/biennial report • Preparation of materials and conducting public outreach and education • Financial audits • Staff training • Loan portfolio management including contracting with financial advisor, bond or legal counsel • On site meetings with potential loan applicants • Using third-party contractors
Loan Program Implementation
• Technical review of preliminary engineering reports and/or plans and specifications • Assistance to loan applicants to ensure applications are complete and accurate • Holding meetings with potential borrowers • Monitoring construction progress

6.3 Small System Technical Assistance Set-Aside

A state may reserve up to 2 percent of a capitalization grant to provide technical assistance to public water systems serving 10,000 or fewer persons. This set-aside is geared toward small systems that are not able or eligible to apply for a loan due to lack of technical, managerial and financial capacity or that have limited resources to obtain technical assistance on their own. States may provide technical assistance through state program employees or a third-party contractor. Assistance may take the form of:

Attribute

- Funding is not capped for a single type of activity

- Outreach and training
- Technical consultation to a water system to improve their technical, managerial and/or financial capacity and achieve a compliance level required for a loan
- Water/energy audits
- Financial assistance for planning and design of water system facilities

TABLE 6.2: Examples of Eligible Small System Technical Assistance Activities and Expenditures (2%)
Outreach and Training
• Training for system staff and board members on the importance of TMF capacity and how to achieve compliance • On-site visits to systems experiencing compliance challenges • Outreach programs explaining the DWSRF program and types of assistance available
Technical Assistance
• Completion of an engineering feasibility study to highlight operational areas of improvement • Operator certification training to qualifying systems • Completion of environmental reviews • Preparation of Consumer Confidence Reports • Developing cost estimates for project planning • Rate evaluations and project development • Completion of an application for DWSRF funding • Drafting of source water protection ordinances
Financial Assistance through In-kind Services
• Services provided for planning and design of infrastructure improvements

6.4 State Program Management Set-Aside

A state may reserve up to 10 percent of a capitalization grant to develop and implement its drinking water protection, capacity development, operator certification and source water protection programs. The additional 1:1 state funds match is no longer required.[25]

Attribute

- Broad range of eligible activities for assistance to water systems and implementing the State PWSS Program

6.4.1 *Capacity Development under the State Program Management Set-Aside*

A state may use funds under the State Program Management set-aside to develop and implement its Capacity Development Strategy. Such costs may include salaries of staff working on development or implementation of the strategy, equipment and supplies needed specifically for the implementation of the strategy, and travel costs to meet with systems and stakeholders as part of strategy development and implementation.

[25] On December 16, 2016, the WIIN Act was signed into law, which amended the SDWA to remove the 1:1 state match required for the State Program Management Set-Aside.

States can also use funds under the Local Assistance and Other State Programs (15%) set-aside to provide direct assistance to PWS's as part of a state capacity development strategy. This is discussed later in more detail.

TABLE 6.3: Examples of Eligible State Program Management Activities and Expenditures – Capacity Development

Staff/Program Activities

- Preparing guidance documents, work plans, standard operating procedures and long-term strategies
- Targeting efforts by identifying water systems that would most benefit from collaboration or regionalization
- Preparing contracts and using consultants to assist states in capacity development efforts
- Implementing Area-Wide Optimization programs
- Revising approval processes, sanitary surveys and other regulatory mechanisms to better address concerns
- Obtaining stakeholder input through public participation mechanisms on developing a capacity development program
- Developing evaluation processes to assess the success of capacity development efforts
- Conducting State-wide or regional water supply planning

Technical, Managerial and Financial Assistance

- Pilot studies on improving PWS operation
- Rate increase analysis/assistance
- Site visits
- Security inspections and exercises (including physical infrastructure and cybersecurity assessments)
- Promotion of energy efficiency, through
  - Energy management planning
  - Energy assessments or audits
  - Optimization studies
  - Sub-metering
- Promotion of water efficiency, through
  - Developing water conservation plans
  - Developing and implementing water conservation ordinances or regulations
  - Drought monitoring
  - Developing and implementing incentive programs or public education programs on conservation
  - Water audits/leak detection

6.4.2 Operator Certification under the State Program Management Set-Aside

The State Program Management set-aside can assist the state in ensuring that water systems have properly trained operators to operate and maintain drinking water infrastructure to supply safe water to consumers. This set-aside can, for example, fund state operator certification staff and the development of operator certification databases and data management programs to track operators' certification status.

6.4.3 Source Water Protection under the State Program Management Set-Aside

A state can conduct source water protection activities under the State Program Management set-aside to help water systems prevent contamination of drinking water sources. In addition, these funds can support state personnel who manage source water protection programs. States cannot use the State Program Management set-aside to cover costs associated with UIC enforcement actions.

6.4.4 PWSS Program Administration under the State Program Management Set-Aside

Eligible expenditures under this set-aside include funding for personnel within the state drinking water/PWSS program to implement activities that promote the SDWA goals. Appendix D provides a more extensive list of eligible activities that states may fund under the State Program Management set-aside.

6.5 Local Assistance and Other State Programs Set-Aside

A state may reserve up to 15 percent of a capitalization grant for capacity development and source water and wellhead protection activities using the Local Assistance and Other State Programs set-aside. Of the 15 percent available, no more than 10 percent of the grant may apply toward any single type of activity. As previously noted, funding for implementation activities related to capacity development strategies and source water protection is also available under the State Program Management set-aside.

Attribute

- Source Water/ Wellhead Protection activities are more broadly defined

6.5.1 Capacity Development under the Local Assistance Set-Aside

A state can provide technical or financial assistance to cover costs and services that are consistent with and are reflected in the state's Capacity Development Strategy and that develop or enhance a system's ability to respond to current conditions or future changes with increasing self-sufficiency.

TABLE 6.4: Examples of Eligible Local Assistance and Other State Programs Activities and Expenditures (15%)

Direct Assistance to Water Systems

- Outreach and training to keep water system personnel informed of new issues and to promote public awareness of source water and wellhead protection

Capacity Development

- Pair public water systems in need of help with water systems that can provide technical advice and assistance
- Contract with 3rd party providers for training courses to keep water system personnel abreast of new issues
- Develop source water and wellhead protection plans
- Contract with third-party providers for TMF assistance (can include on the job training)
- Conduct security assessments and exercises (including physical infrastructure and cybersecurity assessments)
- Develop and implement asset management plans for communities
- Carry out state-wide or regional water supply planning
- Provide grants to systems that are considering public water system regionalization and consolidation
- Obtain test kits/laboratory equipment for systems to test for newly recognized contaminants of concern and training to use that equipment
- Conduct initial, special (non-routine) monitoring to establish a baseline understanding of a contaminant of concern or operation of newly-used technology (e.g. lead testing in schools that are a public water system or are served by a public water system)
- Promote the use of new and innovative technologies, particularly easily operated treatment technologies for small systems
- Foster comprehensive, integrated water system planning and management related to delivery of safe and affordable water, such as:
  - Examine source water protection options
  - Train workforce in contingency or emergency response planning
  - Evaluate asset management results
  - Conduct financial planning and management (including water rate analysis)
  - Provide customer education and involvement
- Provide grants for planning and design to support TMF capacity
- Develop water supply/demand management plans
- Perform scoping studies to determine type of treatment needed
- Demonstrate monitoring technology and techniques for training purposes over a limited well-defined timeframe (such as for assessment and capacity development in response to harmful algal blooms and other contaminants in source water)
- Develop cybersecurity effective practices or measures

6.5.2 Source Water Protection under the Local Assistance Set-Aside

In addition to providing technical assistance, a state may choose to provide loans from the Local Assistance and Other State Programs set-aside to support various source water protection activities related to local land use controls and management tools. Loans for land acquisition and conservation easements and loans for incentive-based source water protection measures and partnership petition programs are available to community water systems and non-profit non-community water systems for the purposes of protecting source water from contamination.

Types of incentive-based source water protection measures that help prevent contamination in surface and ground water may include:

- Building fences that keep agricultural animals away from the water's edge.
- Sealing off abandoned ground water wells and underground injection wells
- Creating or protecting riparian buffers (e.g., strips of vegetation) along streams and around reservoirs
- Public outreach and education on issues
- Management of chemical storage and use

If a state issues loans for source water protection the state must create a priority setting process for EPA approval similar to that created for the loan program.

States must offer loans at or below market interest rates that water systems can repay over a loan term of up to 20 years. Each loan must be secured by a dedicated source of repayment. A state can offer principal forgiveness or negative interest rates for these loans if given authority in an annual federal appropriations law; however, this would count towards any additional subsidization requirements and capped amounts. Additional subsidy authority under the disadvantaged community program cannot be used.

6.5.3 Wellhead Protection under the Local Assistance Set-Aside[26]

The state may use funds under the Local Assistance and Other State Programs set-aside to establish and implement a Wellhead Protection Program; thus, funds cannot be used to support surface water activities, except to the extent that certain surface waters have been defined as part of a Wellhead Protection Area within a state program under the SDWA §1428(e). Assistance may not be used to support activities authorized by the Federal Water Pollution Control Act, Solid Waste Disposal Act or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (such as constructing treatment facilities or discharge permits) or bring individual sources of contamination into compliance.

A state can use Wellhead/Source Water Protection set-aside funds for any activity described in a state's Wellhead Protection Program adopted under the SDWA §1428. Examples of those types of activities are:

- Building fences to prevent unauthorized access to a well pump house

[26] SDWA §1452(k)(1)(D)

- Purchasing land or land easements from a willing seller to protect against the contamination of source waters
- Decommissioning abandoned wells
- Implementing educational efforts
- Implementing other best management practices that are part of a water system's state-approved Source Water Assessment or Source Water Protection Plan

TABLE 6.5: Additional Examples of Eligible Local Assistance and Other State Programs Activities and Expenditures (15%)

Source Water Protection Loans

- Implement voluntary incentive-based source water protection measures, such as fencing, capping or abandoning wells and riparian buffers that prevent contamination reaching sources of drinking water (only available to community water systems)
- Implement source water quality protection partnership petition programs (only available to community water systems)
- Acquire land and conservation easements (at or below fair market value) necessary for protecting drinking water sources
- Removal of septic systems for source water protection, voluntary incentive-based [Note: also CWSRF eligible]

Wellhead Protection Program

- Develop wellhead protection plans for ground water systems
- Develop contingency plans in the event of well or well field contamination
- Develop local source water protection ordinances and land purchasing plans and implementation of public outreach programs
- Delineate ground water/source water areas for updated wellhead protection
- Conduct assessments and modeling of ground water sources
- Provide technical or financial assistance and implement control measures

6.6 Emergency Use of Set-Aside Funds

States should indicate in their IUPs their intention to use set-aside funds for emergency purposes, if necessary. If the emergency purposes are for non-structural activities and are within the scope and approved funding limits of the set-aside account that the state wishes to designate for emergency use, the state can request the Regional office to approve "pen and ink" changes to the workplan by email. To move the funds to the loan fund for emergency purposes to address structural capital needs, the state can also request the EPA Regional Office to amend the applicable capitalization grant agreement by simple "pen and ink" changes, rather than redoing the entire agreement. In both of these cases, the EPA Regional Office will notify the EPA Finance Office of the changes so that

accounts can be quickly adjusted and funding limits not exceeded by the newly approved amount(*s*).

7 Innovative and Sustainable Set-Aside Activities Funded by States

This section highlights innovative and sustainable activities that states have funded through DWSRF set-aside assistance. To learn more about these projects, please contact the appropriate EPA Regional Office. Contact information can be found on the EPA's DWSRF website: https://www.epa.gov/drinkingwatersrf.

7.1 Capacity Development

- **Partnering with County Health Departments in Wisconsin:** Under the Local Assistance (15 percent) set-aside, Wisconsin contracts with county and local health departments to assist with transient non-community water system inspection services. These services included 1) conducting annual site visits, 2) collecting drinking water quality samples, and 3) conducting inspections (sanitary surveys) at least once every five years. By having county and local health employees conduct these site visits in conjunction with their own inspections, monitoring and reporting violations are greatly reduced and water systems are more likely to meet SDWA requirements.
- **Public Water System Switchboard in Idaho:** Utilizing the Local Assistance (15 percent) set-aside, Idaho created a web-based "one-stop shop" that provides resources and training materials to system owners and operators, as well as information to the public. The website provides quick links to rules, monitoring schedules, plans and specifications, public notification templates, sanitary survey forms, drinking water system classification requirements, operator licensing, and sample results. Visit the website here.
- **TMF Capacity Assessments in Pennsylvania:** Through the Small System Technical Assistance (2 percent) set-aside, Pennsylvania conducts technical, managerial and financial assessments for small water systems, including documenting identified weaknesses and identifying available assistance to make improvements.

7.2 Managerial and/or Financial Capacity

- **Auto-dialer Reminder System in Idaho:** In 2010, using the Local Assistance (15 percent) set-aside, Idaho implemented an automated telephone and email reminder system to public water system owners and operators that informs them of upcoming sampling deadlines. This low cost, high impact activity resulted in its first year in a 47 percent reduction in violations for failure to monitor.
- **Financial and Managerial Capacity Building in Washington:** Under the Small System Technical Assistance (2 percent) set-aside, Washington's Department of Health contracts with the State's Department of Commerce Small Communities Initiative and with the Rural Community Assistance Corporation to assist small systems with developing improved financial and managerial capacity. In addition, SCI and RCAC staff assess water systems to determine if they are candidates for restructuring.

- **Legal Entity Formation Assistance in California:** Under the Local Assistance (15 percent) set-aside, California has a pre-planning and legal entity formation assistance program that assists communities in forming a legal entity eligible for DWSRF financial assistance to solve an existing drinking water-related health problem. The maximum grant amount per community is $250,000 annually. The program does not bind the community to a subsequent construction project through the DWSRF.
- **Rate Setting in South Dakota:** Using the Small System Technical Assistance (2 percent) set-aside, South Dakota provides grants to small systems for implementing rate analysis using the Rate Maker software, as well as funding for a technical assistance provider to conduct on-site assistance for rate analysis.
- **Restructuring in North Carolina:** North Carolina implemented a Disadvantaged Community Program under the State Program Management (10 percent) set-aside to assist systems lacking capacity by consolidating with another water system or through some other form of partnership.

7.3 Resilience

- **Extreme Weather Impacts and Vulnerability Model in Rhode Island:** Rhode Island utilized the Local Assistance (15 percent) set-aside to implement a state-wide extreme weather impact and vulnerability model. This activity resulted in the identification of water system facilities at risk of flooding, sea level rise, drought, storm surge and hurricanes.
- **Emergency Response Plans in Oregon:** Oregon uses the Local Assistance (15 percent) set-aside to assist public water systems with preparing a written document establishing procedures and actions to minimize the impact or potential impact of a natural disaster, accident or intentional act and return the system to normal operating condition.
- **Mobile Water Treatment Training in Alaska:** Using an already purchased large-scale mobile drinking water treatment unit[27], drinking water program staff and operations assistance program staff attended a training session on its use. Both the Small Systems Technical Assistance (2 percent) and the Local Assistance (15 percent) were used to administer the state's operator certification program, which included training.

7.4 Source Water Protection

- **Leaching Model in Hawaii:** Using the Local Assistance (15 percent) set-aside, Hawaii utilized the Comprehensive Leaching Risk Assessment System (CLERS) Model, a leaching model for contamination, to assist in determining the potential risk of contaminants in ground water associated with land applied chemicals. The model examines chemical leachability to ground water based on soil and chemical properties, recharge and distance traveled.
- **River Alert Information Network (RAIN) in West Virginia:** Through the Local Assistance (15 percent) set-aside, West Virginia continues to participate in RAIN and has ten source water

[27] While this equipment was purchased with other funding, it would have been an eligible set-aside expense.

monitoring panels installed in the Monongahela River Basin that serve as early detection and warning of degradation of source water.

- **Wellhead and Source Water Protection Education in Oklahoma:** The Oklahoma Environmental Complaints and Local Services Office developed and disseminated a variety of educational materials including a quarterly newsletter, the "Wellhead Word," which the State directed to communities to help them focus on wellhead and ground water source protection.

7.5 Technical Assistance

- **Asset Management in Delaware:** Each year, using the Local Assistance (15 percent) set-aside, Delaware assists some small systems with developing an asset management plan using the Check Up Program for Small Systems (CUPSS). A technical assistance provider helps the water system set up CUPSS with its data and then trains the staff on use of the software.
- **Engineering Services in New Jersey:** Through the Small System Technical Assistance (2 percent) set-aside, New Jersey provides small systems with a pool of consulting engineering firms that the systems can use free of charge for project planning and design.
- **Planning and Design Grants in Virginia:** Through the Local Assistance (15 percent) set-aside, in 2014 Virginia provided grants of up to $50,000 per project for small, rural, financially-stressed communities serving 10,000 or fewer people. Eligible costs included preliminary engineering reports, design, plans and specifications, performance of source water quality and quantity studies, drilling test wells to determine source feasibility, or other similar technical assistance projects.
- **Purchasing Cyanotoxin Monitoring Equipment in Ohio:** Since 2015, Ohio has used the Local Assistance (15 percent) set-aside to provide reimbursement to communities with surface water treatment plants for the purchase of cyanotoxin investigative monitoring equipment. Having the capacity to analyze samples at the water supply instead of sending samples to an outside laboratory will allow flexibility in monitoring and timely response to any potential finished water detection of cyanotoxins caused by harmful algal blooms. Approximately 70 of 120 surface water systems in Ohio have received grants, with most fully utilizing the $30,000 maximum allotted per water system.
- **SCADA Training in Delaware:** Delaware's Environmental Training Center created a supervisory control and data acquisition (SCADA) demonstration panel and installed it at the State's training lab. The panel simulates the basics of water system control and is modeled after a water treatment plant in operation in Delaware. The State has offered training courses that address SCADA and include use of this demonstration panel.
- **Security Inspections in New York:** Using the State Program Management (10 percent) set-aside, New York conducts security inspections at drinking water systems to ensure that facilities and operations are not vulnerable to threats that could disrupt the delivery of safe drinking water to their customers.
- **Statewide Water Loss Control Program in Georgia:** In 2010, Georgia embarked on comprehensive water loss control training and annual reporting using American Water Works Association (AWWA) Free Audit Software. The State validated audits, developed an audit

certification program and provided technical assistance to communities. A combination of the Small System Technical Assistance (2 percent) set-aside and the Local Assistance (15 percent) set-aside, along with DWSRF loan fees, was used for this activity.

8 Summary

The DWSRF program is a powerful tool to assist states and community drinking water systems of all sizes with meeting the critical public health protection goals of the Safe Drinking Water Act. The SDWA and the implementing regulations provide an extraordinary level of flexibility for the states to work with the EPA to tailor assistance through both the loan and set-aside portions of the fund to ensure the implementation of sustainable system improvements to protect the public health of communities. The EPA is committed to working with the states to identify innovative approaches to maximize the return on the federal and state investment to protect the health of the American people. This document will be a living document and updated periodically. The EPA welcomes suggestions for example projects to add to the handbook, particularly those that address emerging issues or innovative ways to protect public health.

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Appendix A – Incorporating Resilience into Projects Receiving Financial Assistance from DWSRF

(Source: Department of Homeland Security. 2013. "Partnering for Critical Security and Resilience." This information is also consistent with the infrastructure resilience guidelines contained in: Hurricane Sandy Task Force. 2013. "Hurricane Sandy Rebuilding Strategy.")

Steps for Promoting Resilient Infrastructure Investments

As defined in Presidential Policy Directive 21: *Critical Infrastructure Security and Resilience* (PPD-21), resilience is "the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents or naturally occurring threats or incidents." Resilient infrastructure systems are flexible and agile and should be able to bounce back after disruptions.

Incorporating resilience is not a new concept for investors. For example, when planning new investments, it is standard practice for investors to perform analyses to support well-informed decisions that lead to smart, profitable investments. Critical infrastructure investors also have an incentive to be forward-looking, since the lifespan of many types of infrastructure can be 50 to 100 years. Prior to funding a project, investors and project managers will generally try to identify the impacts of demographic and population trends so they can determine whether the critical infrastructure they develop will retain its usefulness.

Incorporating Resilience into Critical Infrastructure Projects

Building on the positive actions investors have taken toward developing and maintaining resilient critical infrastructure, the following steps can be used as a guide to promote resilience in infrastructure development and investment. The list is not exhaustive, but equips decision makers with some of the best practices and implementable ideas for how to incorporate resilience into infrastructure design. When making investment decisions and selecting infrastructure projects, decision makers are encouraged to use these recommended steps to the fullest extent applicable and possible:

- Incorporating **projected extreme weather impacts** into the decision-making process
- Measuring both the **direct and indirect costs and benefits** of developing the project to gain a holistic picture of the impact of the project (e.g., the financial and opportunity cost of losing infrastructure functions and services, the societal impacts of developing the project, environmental costs and benefits)
- Examining **demographic trends** and using the anticipated demographics to predict the future demand for infrastructure

- Consulting with the Federal Emergency Management Agency (FEMA) on the **best available data pertaining to flood risk** (e.g., the FEMA Map Service Center to access current flood maps)
- Referring to available **science and predictive tools** on future trends and risks when selecting a location (e.g., the National Oceanic and Atmospheric Administration Sea Level Rise and Coastal Flooding Impacts Viewer tool)
- Considering applicable **standards and best practices** for incorporating resilience into asset and system design
- Conducting **vulnerability assessments** that can identify where the infrastructure is vulnerable to known and future risks
- Utilizing available **risk assessment and scenario planning tools** to make risk-informed decisions (e.g., the Department of Homeland Security-sponsored Owners Performance Requirements tool, which enables owners to develop several scenarios for a project to help select the optimal combination of performance levels for energy, environmental, safety, security (including blast; ballistic; and chemical, biological and radiological protection, sustainability, durability, operational and cost-effectiveness attributes to meet their needs))
- Identifying key **dependencies and interdependencies** and ways in which this critical infrastructure asset, system or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors
- Mapping potential **cascading effects** from potential infrastructure disruptions
- Working with partners to develop a picture of how this infrastructure investment will fit into the **regional landscape** of critical infrastructure
- Developing a comprehensive **incident response plan** that includes such components as **scenario planning** for the most likely risks and clearly articulated **roles and responsibilities** for all partners
- Building **redundancy** into an infrastructure system so it can handle a localized failure
- Budgeting for infrastructure **mitigation** during the development of a project to ensure the resilience of the infrastructure to threats and hazards
- Developing a **business continuity plan** to ensure rapid recovery from disasters or other disruptions
- Planning to conduct **periodic updates** for the infrastructure asset that can **incorporate new technologies** and/or **upgrades** that could enhance mitigation
- Determining whether **environmental buffers** (e.g., dunes or wetlands) can be incorporated into the infrastructure design to mitigate the effects of natural disasters
- Ensuring there are **manual overrides and physical backups** built into automated systems

Appendix B – Sustainability: Examples of Resilience & Green Projects

The EPA supports sustainable water infrastructure in water systems and communities, as described in the Clean Water and Drinking Water Infrastructure Sustainability Policy (2010). Federal policies related to infrastructure investment encourage sustainable practices and the incorporation of "green" and "resilient" aspects into projects that federal programs fund. Congress has promoted sustainability in recent years with green project requirements added to appropriations acts, specifically stating that "funds made available…to each State for Drinking Water State Revolving Fund capitalization grants may, at the discretion of each State, be used for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities." The additional appropriation for Hurricane Sandy that promoted resilient projects created an expanded focus for sustainability in drinking water infrastructure.

A sustainable drinking water system may be both "green" and "resilient." Resilience means addressing vulnerabilities from risk of damage to infrastructure, whether natural or man-made. Resilience looks to the future rather than the immediate delivery of assistance to a system following an extreme event. "Green" projects as defined by Congress translate to active conservation of resources. States should consider incorporating additional project priority ranking criteria and/or providing financial incentives to encourage borrowers to incorporate sustainable practices into their projects.

This Appendix is in two parts that provide background and examples of eligible projects for both resilience and green projects. Part A provides a list of example resilience projects. Part B provides a list of example green projects.

PART A – RESILIENCE PROJECTS

After Hurricane Sandy, Congress appropriated targeted funding to the DWSRF for resilience projects, specifically to reduce or mitigate the impact of rapid hydrologic change or other natural disasters. The DWSRF can fund most projects that will assist a water system to be more resilient. A resilience project is one that enables a water system to better withstand an extreme event (e.g., natural disasters, accidents and deliberate attacks) and/or recover rapidly from disruptions to service. Design for resilience should be incorporated upfront in project planning and built into a project at the outset – or at least at an opportune time for making changes to the facility. This should become a routine part of water system planning and design, not an add-on to be addressed separately. Some resilience activities may also be funded through DWSRF set-asides.

States can consider incorporating resilience to extreme events into their project priority ranking criteria or factors relative to maintaining compliance. If a water system is out of service because it is not sufficiently resilient to extreme events, it may not be able to maintain compliance which then affects public health. Priority lists should provide adequate consideration of resilience as an

element to maintain compliance in their ranking criteria or factors. Examples of ranking criteria or factors might include:

- Supports a water system's ability to withstand natural disasters, accidents and deliberate attacks (or extreme events of natural or human origin) that would otherwise disrupt service causing the system to fail to comply with the SDWA and state drinking water standards and requirements
- Provides for prompt recovery from a service disruption from a natural disaster, accident or deliberate attack (or extreme events of natural or human origin) and would facilitate the system returning quickly to compliance with the SDWA and state drinking water standards and requirements
- Supports redundancy in obtaining power and other functions critical for water system operation or delivery of water to consumers to protect public health

The following sections provide examples of potential DWSRF projects or project components that make a water system more resilient to an extreme event. These projects allow a water system to adapt to a changing climate or respond more rapidly to a disaster. The two biggest concerns for drinking water systems are flooding and drought.

Part A.1 *– Flooding*

Flooding is one of the most common hazards in the United States, accounting for 85 percent of all federal disaster declarations,[28] and will continue to be an ongoing challenge for drinking water systems. It can occur from tropical storms, hurricanes, swollen rivers, heavy rains, tidal surges, spring snowmelt, levee or dam failure, local drainage issues, water distribution main breaks, and sea level rise. Impacts to drinking water systems can include physical damage to assets, loss of power and communication, loss of access to facility, salt water intrusion, and dangerous conditions for personnel.

Examples of Flooding Mitigation Projects:

- Physical hardening (e.g., waterproofing electrical components, dry floodproofing/sealing of structures to prevent floodwater penetration, installing wind resistant features)
- Relocation/elevation of treatment plants
- Physical flood barriers
- Flood attenuation at publicly owned facilities for green or gray water
- Backup generators (new or replacement)
- Redundant equipment/infrastructure

[28] Federal Emergency Management Agency. April 30, 2015. Federal Flood Risk Management Standard. URL: www.fema.gov/federal-flood-risk-management-standard-ffrms.

- Regionalization/interconnections/partnerships
- Communications/telemetry
- Energy efficient equipment upgrades
- Salt water resistant equipment/tanks
- Larger capacity water storage tanks
- Backflow prevention (including backsiphonage or backpressure)
- Relocation or deepening of wells/new water source
- Planning and assessment activities

For additional information about becoming more resilient to flooding, refer to the EPA's "Flood Resilience: A Basic Guide for Water and Wastewater Utilities" released in 2014 (https://www.epa.gov/sites/production/files/2015-08/documents/flood_resilience_guide.pdf).

Note on new Federal Flood Risk Management Standard. In 2014, a federal interagency task force developed new Federal Flood Risk Management Standards for federally-funded projects, published as Presidential Executive Order 13690, revising standards in Executive Order 11988, Floodplain Management. These federal flood risk management standard has two main improvements: 1) encourage, but not mandate, the use of natural features and nature-based approaches in development of alternatives and 2) provide a higher vertical elevation and corresponding floodplain, where appropriate, to address current and future flood risks. For the second improvement, any construction or substantial improvements in or affecting a floodplain must use one of three approaches for determining the elevation and corresponding flood hazard area: a) "Climate-Informed Science Approach" – using models and data that incorporate forecasting based on climate science, b) freeboard (base flood elevation + X) – where X is 2 feet or 3 feet if deemed a critical action (a critical action being any activity for which even a slight chance of flooding would result in significant impact) or c) 500-year floodplain.

Part A.2 – Drought/Loss of Water Supply

During any given year, drought conditions are occurring in at least one region of the country. The start, severity and duration of drought for a particular area is not disposed to forecasting. Impacts to drinking water systems can include a reduced or lack of raw water source, lack of system pressure, pipe breaks from soil shrinkage and land subsidence, and loss of recharge capability or capacity for recovery. In general, water management practices, techniques and equipment that use less water will help reduce demand on existing supplies before drought conditions even occur, making drought conditions to some degree more manageable.

Examples of drought mitigation projects:

- Drought related assessment and planning efforts

- Drought contingency plans
- Wells – additional, replacement, deepening and rehabilitation; new pumps for deeper wells
- Intakes – reposition, relocation, elevation, alternative, backup
- Interconnection to other water systems
- Integrate water and wastewater utilities (restructure utility for viability)
- Water recycling and water reuse (including storm water reuse) – includes projects that replace potable sources with non-potable sources, reclaimed wastewater effluent systems (treatment, distribution and storage), filter backwash recycling
- Source water protection – purchase recharge area, implementation of protective measures, including permeable surfaces
- Water audits, Leak detection studies
- Pipe replacement/repair
- Booster pumping – to move water to where it is needed (e.g., from new source, from another system or from another pressure zone)
- Finished water storage
- Failing equipment replacement (such as pumps)
- Treatment for alternative sources with differing water quality

Part A.3 – Other Extreme Events

In addition to flooding and drought, there are other extreme events that resilience projects would protect or mitigate the effects of, including tornados, earthquakes, forest fires, sea level rise, accidents and deliberate attacks. Many of the examples of resilience projects listed above would be applicable in other such situations.

Examples of Other Mitigation Projects (not previously listed):

- Integrated water resources management planning – life cycle costs are minimized which enables communities to adopt more efficient and cost-effective infrastructure solutions
- Renewable energy supply
- Vulnerability assessments, adaptation plans, extreme weather mitigation plans
- Strengthening facility and operational security – fencing, cameras
- Harden control facilities, transmission mains, pump stations and storage facilities
- Install/replace earthquake shutoff valves and other pertinent valves

PART B – GREEN PROJECTS

States were required under the ARRA and FY 2010 and FY 2011 Appropriations Acts to apply a percentage of that year's DWSRF appropriation to "green" projects or "green" components of projects, called the Green Project Reserve (GPR). GPR projects are defined as green infrastructure,

water efficiency, energy efficiency and environmentally innovative. While a green program has been discretionary under the DWSRF since FY 2012, states can develop their own green programs and include the criteria for "green" projects in the state's Intended Use Plan. States can also choose to utilize the EPA's previous GPR guidance, created for FY 2010 and FY 2011 funds. Please note that the EPA has refined its green project framework so that:

(1) Business cases are no longer required for projects beyond meeting FY 2010 and FY 2011 grant requirements.
(2) Any water loss reduction or energy savings in DWSRF projects that a state or water system determines is significant to be addressed will serve to characterize those projects or project components as "green."

DWSRF funds may be used for various green projects, including assessments and equipment that promote conservation of water or energy resources. These may be stand-alone projects or may be aspects incorporated into a larger infrastructure project. Common DWSRF core projects often already include green elements and states can identify these elements to count them toward their green program. Green elements should be incorporated into projects from their inception and evaluated during the planning and design phases.

A detailed list of example projects and criteria for green projects and project components is provided below.

Part B.1 – Green Infrastructure

Definition: Water management techniques that protect, restore or simulate the natural hydrology. Green infrastructure can range in scale from site design approaches such as green roofs and pervious pavement to regional planning approaches such as conservation of large tracts of open land.

Criteria:

- Improvement in source water quality and/or quantity
- Maximization of reliance on natural hydrologic functions

Examples of Wet Weather Management Projects:

The following types of projects, done at a utility-owned facility or as part of a water infrastructure project, are considered "green" if they are a part of an eligible DWSRF project:

- Pervious or porous pavement
- Bioretention
- Green roofs

- Rainwater harvesting/cisterns
- Gray water use
- Xeriscape or drought resistant landscaping
- Landscape conversion programs
- Retrofitting or replacing existing irrigation systems with moisture and rain sensing equipment

Part B.2 – Water Efficiency

Definition: The EPA defines water efficiency as the use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources for the future.

Criteria:

- Water efficiency can be accomplished through water saving elements or reducing water consumption. This will reduce the amount of water taken out of rivers, lakes, streams, ground water or from other sources.
- Water efficiency projects should deliver equal or better services with less net water use as compared to traditional or standard technologies and practices.
- Efficient water use often has the added benefit of reducing the amount of energy required by a drinking water system, since less water would need to be treated and transported; therefore, there are also energy and financial savings.
- Proper water infrastructure management should address where water losses could be occurring in the system and fix or avert them. This could be achieved, for example, by making operational changes or replacing aging infrastructure.
- Note: Many of these project types can also be funded by the Clean Water SRF, such as water meters, water efficient fixtures and reclaimed water systems.

Examples of Water Efficiency Projects:

- Any distribution pipe replacement or rehabilitation that will reduce water loss and prevent water main breaks (see AWWA M28 *Rehabilitation of Water Mains*)
- Water meter replacement with traditional water meters (see AWWA M6 *Water Meters – Selection, Installation, Testing and Maintenance*)
- Storage tank replacement/rehabilitation to reduce water loss
- New water efficient landscape irrigation system (where there currently is not one)
- Installing or retrofitting water efficient devices such as plumbing fixtures and appliances
    (a) For example – showerheads, toilets, urinals and other plumbing devices
    (b) Implementation of incentive programs to conserve water such as rebates
    (c) WaterSense labeled products

- Installing any type of water meter in previously unmetered areas:
    (a) If rate structures are based on metered use
    (b) Can include backflow prevention devices if installed in conjunction with water meter
- Replacing existing broken/malfunctioning water meters with:
    (a) Automatic meter reading systems (AMR), for example:
        (i) Advanced metering infrastructure (AMI)
        (ii) Smart meters
    (b) Meters with built in leak detection capability
    (c) Water meters in conjunction with backflow prevention devices
- Retrofitting/adding AMR capabilities or leak equipment to existing meters (not replacing the meter itself)
- Conducting water utility audits, leak detection studies and water use efficiency baseline studies, which might result in a capital project or in a reduction in demand to alleviate the need for additional capital investment
    (a) Funded through set-asides: Small Systems Technical Assistance, State Program Management – Capacity Development or Local Assistance & Other State Programs – Capacity Development; where consistent with the state capacity development strategy
    (b) For standard practices, see AWWA M36 *Water Audits and Loss Control Programs*
    (c) Free Water Audit Software, Version 4.1 (2010)
- Developing conservation plans/programs which might result in a water conserving capital project or in a reduction in demand to alleviate the need for additional capital investment
    (a) Funded through set-asides: Small Systems Technical Assistance, State Program Management – Capacity Development or Local Assistance & Other State Programs – Capacity Development; where consistent with the state capacity development strategy
    (b) For standard practices, see AWWA M52 *Water Conservation Programs – A Planning Manual*
- Reclaimed wastewater effluent, recycled water and water reuse projects that replace potable sources with non-potable sources
    (a) Gray water, condensate and rainwater reuse systems (where local codes allow the practice)
    (b) Reclaimed wastewater effluent systems
    (c) Distribution systems and storage associated with water reuse and recycling
- Retrofit or replacement of existing landscape irrigation systems that use potable water to more efficient landscape irrigation systems, including moisture and rain sensing controllers
- Projects that result from a water efficiency related assessments (such as water audits, leak detection studies, conservation plans, etc.) as long as the assessments adhered to the standard industry practices referenced above
- Distribution system leak detection equipment (portable or permanent)

- Automatic flushing systems (portable or permanent)
- Pressure management
    (a) Pressure reducing valves (PRVs) in areas with excessive pressures
    (b) Pressure management studies/projects to reduce leaking pipes, pipe failures and impacts of pressure surges
- Internal plant water reuse (such as backwash water recycling)
- Educational activities and demonstration projects for water or energy efficiency (such as rain gardens)

Part B.3 – Energy Efficiency

Definition: Energy efficiency is the use of improved technologies and practices to reduce the energy consumption of water projects, use energy in a more efficient way and/or produce/utilize renewable energy to reduce water system expenditures.

Criteria:

- Projects should include products and practices which will decrease environmental impacts, such as reducing greenhouse gas emissions and provide financial savings.
- Projects should include approaches to integrate energy efficient practices into daily management and long-term planning (https://www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities).
- Operator training in conjunction with any energy savings project is strongly encouraged in order to maximize the energy savings potential.

Examples of Energy Efficiency Projects:

- Energy efficient retrofits, upgrades or new pumping systems and treatment processes (including variable frequency drives (VFDs))
- Pump refurbishment to optimize pump efficiency (such as replacing or trimming impellers if pumps have too much capacity, replacing damaged or worn wearing rings/seals/bearings, etc.)
- Projects that result from an energy efficiency related assessments (such as energy audits, energy assessment studies, etc.), that are not otherwise designated as categorical
- Projects that cost effectively eliminate pumps or pumping stations
- Projects that achieve the remaining increments of energy efficiency in a system that is already very efficient
- Upgrade of lighting to energy efficient sources (such as metal halide pulse start technologies, compact fluorescent, light emitting diode, etc.)

- Automated and remote control systems (SCADA) that achieve substantial energy savings (see AWWA M2 *Instrumentation and Control*)
- Renewable energy projects, which are part of a public health project, such as wind, solar, geothermal and micro-hydroelectric that provide power to a utility (micro-hydroelectric projects involve capturing the energy from pipe flow)
    (a) Locate utility-owned renewable energy projects can be located on-site or off-site
    (b) Includes the portion of a publicly owned renewable energy project that serves the utility's energy needs
    (c) Must feed into the grid that the utility draws from and/or a direct connection exists
    (d) For more information, visit EPA's clean energy website.
- Utility energy management planning, including energy assessments, energy audits, optimization studies and sub-metering of individual processes to determine high energy use areas, which might result in energy efficiency capital projects or in a reduction in demand to alleviate the need for additional capital investment
    (a) Funded through set-asides: Small Systems Technical Assistance, State Program Management – Capacity Development or Local Assistance & Other State Programs – Capacity Development; where consistent with the state capacity development strategy
    (b) For standard energy management practices, see *Ensuring a Sustainable Future: An Energy Management Guidebook for Wastewater and Water Utilities*, located at http://efcnetwork.org/wp-content/uploads/2013/08/Ensuring-a-Sustainable-Future.pdf
    (c) Energy Efficiency Step-By-Step Guide
    - National Electric Manufacturers Association (NEMA) Premium energy efficiency motors
- Educational activities and demonstration projects for water or energy efficiency (such as rain gardens)
- Using existing tools such as Energy Star's Portfolio Manager or Check Up Program for Small Systems (CUPSS) to document current energy usage and track anticipated savings

Appendix C – Summary of Principles and Requirements for Federal Investments in Water Resources (March 2013)

(Note: For more information on these principles and requirements, the full document can be found here).

1.0 Guiding Principles

A. **Healthy and Resilient Ecosystems -** Protect and restore the functions of ecosystems, recognize important services and mitigate any unavoidable damage
B. **Sustainable Economic Development -** Create and maintain conditions under which humans and nature can coexist in the present and into future, contributing to the Nation's resilience
C. **Floodplains -** Avoid the unwise use of floodplains and flood-prone areas and minimize adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used
D. **Public Safety -** The impact and reliability of alternatives on threats to people from disasters must be evaluated and shared with the public and decision makers
E. **Environmental Justice -** Ensure that federal actions identify any disproportionately high and adverse public safety, human health or environmental burdens of projects on minority, Tribal and low-income populations
F. **Watershed Approach - C**onsider the cumulative effects and benefits of water resources for a wide range of stakeholders within and around the source water

2.0 General Requirements

For federal investments in water resources, the NEPA process should be integrated with the processes developed to implement these Principles and Requirements to facilitate the production of a single decision document that fulfills the requirements of both processes.

A. **Evaluation Framework -** Apply an ecosystem services approach in order to appropriately capture all effects (economic, environmental and social) associated with a potential federal water resources investment
B. **Best Available Science and Commensurate Level of Detail –U**tilize the best available science, data, analytical techniques, procedures, models and tools in hydrology, engineering, economics, biology, ecology, risk and uncertainty and other fields to the extent that sufficient funding is available
C. **Collaboration -** Collaborate fully on water resources related activities with other affected federal agencies and with Tribal, regional, state, local and non-governmental entities, as well as community groups, academia and private land owners (stakeholders) to realize more comprehensive problem resolution and better informed decision making

D. **Risk and Uncertainty -** Identify, describe and consider areas of risk and uncertainty, including:
    a. **Climate Change.** Account for and address significant challenges for water resources planning and prospective conditions resulting from a changing climate
    b. **Future Land Use.** Assess and analyze future land use patterns as part of the evaluation process using best available data and forecasts
    c. **Adaptive Management.** Reduce uncertainty and maximize one or more goals over time through a deliberate, iterative and scientific-based process of designing, implementing, monitoring and adjusting an action, measure or project
E. **Water Use –** Account for **t**he efficient use of water, analysis of water quality needed and the consideration of multiple uses and competing demands on water resources when designing solutions to water resources problems
F. **Nonstructural Approaches –** Consider nonstructural approaches to water resources problems to alter the use of existing infrastructure or human activities to generally avoid or minimize adverse changes to existing hydrologic, geomorphic and ecological processes
G. **International Concerns -** Consider treaty and other international obligations and develop alternatives that are consistent with meeting such obligations
H. **Design of Alternatives –** Formulate alternative plans, strategies or actions in a systematic manner to ensure that a range of reasonable alternatives are evaluated, considering: completeness, effectiveness, efficiency and acceptability with the final array of alternatives to include:
    a. changes in existing statutes, implementation authority, administrative regulations and/or policies
    b. effective response to a problem through the use of nonstructural approaches
    c. action that is preferred by a local interest with oversight or implementation responsibilities
    d. environmentally preferred alternative
    e. mitigation of unavoidable adverse effects
I. **Transparency in Decision Making -** Increase the transparency of and consistency in the planning and implementation process for federal investments in water, including monetized and non-monetized effects, when comparing and evaluating alternatives
J. **Plan Selection –** Justify needs by comparing the public benefits to costs, fully reported and documented, including the criteria and considerations used in the selection and the extent of both monetized and non-monetized effects

Appendix D – Eligible Set-Aside Activities Related to Implementation of the State PWSS Program

As mentioned earlier in the discussion of the State Program Management Set-Aside, the SDWA public health protection framework consists of interdependent programs. For example, as a statutory condition of receiving the full Drinking Water State Revolving Fund grant, the state PWSS program must implement the Capacity Development and Operator Certification programs. Failure to implement these two programs requires a 20 percent withholding of the full DWSRF capitalization grant. In addition, State PWSS agencies must implement and maintain primacy for the PWSS program as a condition of receiving the PWSS grant. (The State Program Management category of the DWSRF set-aside is interrelated with the PWSS grant because the PWSS grant can be used to partially meet the match requirements of this set-aside category.)

When states utilize DWSRF and PWSS grant funding, state workplan activities must be relevant to meeting the EPA's Strategic Plan Goal: "Protect America's Waters" and Objective: "Protect Human Health." Furthermore, when Congress authorized the DWSRF program, these funds were intended to make available loans or other financial assistance to support the financing of infrastructure costs and related projects that are necessary for the eligible water systems to achieve or maintain compliance with the SDWA. These funds are important in meeting the EPA's Strategic Plan goal because water systems have the most direct role in protecting human health through the production and delivery of safe drinking water.

Within the SDWA framework, the DWSRF and PWSS programs each have core activities which support water systems' delivery of safe drinking water. In general, these core program activities are related to:

- Increasing the number of systems with technical, managerial and financial capacity
- Decreasing the number of systems in significant noncompliance
- Increasing water system sustainability
- Providing information about the DWSRF or financial application support to eligible water systems
- Providing state oversight for public water systems to ensure they comply with drinking water regulations and requirements
- Ensuring the state PWSS program meets federal requirements to maintain primacy

Appendix E provides examples of eligible DWSRF set-aside project activities based on their importance to 1) maintaining primacy for the PWSS program, 2) implementing program activities as a condition of receiving the full DWSRF grant and 3) meeting targets and measures listed in the EPA's Strategic Plan. For each of the project activity categories, this handbook identifies the eligible DWSRF set-asides that can be used to fund the project.

Construction Project Readiness

- Scoping problem
- Developing and evaluating options
- Preparing planning and design

Eligible Drinking Water State Revolving Fund Set-Aside Types for Construction Project Readiness: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Sanitary Surveys

- Conducting sanitary surveys at water systems
- Providing technical assistance to water systems in correcting identified problems (including any deficiencies found at the water systems' sources or wellheads)
- Training state staff or water system personnel to improve competency about the sanitary survey elements and how to identify and prevent deficiencies related to the sanitary survey

Eligible Drinking Water State Revolving Fund Set-Aside Types for Sanitary Surveys: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Certified and/or Qualified Operator

- Implementing State Operator Certification program, including tracking of public water systems in violation of these requirements
- Providing technical assistance to employ a certified/qualified operator for those water systems that do not have any operator or that do not have an operator with the appropriate certification level
- Training water operators on new and existing drinking water regulations
- Providing technical assistance to water operators in response to man-made or natural disasters, including climate change risks

Eligible Drinking Water State Revolving Fund Set-Aside Types for Certified and/or Qualified Operator: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Emergency Planning, Preparedness, Response

- Implementing state activities related to the adoption, implementation and improvement of the PWSS primacy agency capabilities for responding to man-made incidents and natural disasters/climate change impacts
- Providing technical assistance to water systems related to massive flooding, severe drought or intentional breach of water systems' facilities or computer systems and other man-made incidents or natural disasters/climate change impacts

Eligible Drinking Water State Revolving Fund Set-Aside Types for Emergency Planning, Preparedness and Response: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Permitting and Review of Water System Design/Modification/Construction

- Reviewing permits or other required information supporting a project submitted by a water system regarding proposed changes to: treatment processes, plant facility, water distribution system improvements and/or consolidation of water systems as water treatment facilities are upgraded and/or treatment processes evaluated
- Evaluating permits related to obtaining alternative drinking water sources
- Reviewing construction and design permits for water systems according to state standards to help them remain in compliance or achieve compliance with health-based standards
- Approving water system consolidation of systems to help customers receive improved and safer drinking water quality and/or to help water systems with drought contingency
- Evaluating and reviewing other water system data (that can include inspection reports, days of remaining supply, water sample results or notifications from water systems) to make recommendations on adequate or optimal design, construction and modifications for water treatment facilities
- Reviewing and assessing water systems' water source capacity, quality and sustainability in meeting adequate water demand as part of new or alternative drinking water source permits to help them remain in compliance or achieve compliance with health-based standards
- Providing financial assistance to water systems as a part of restructuring/consolidation of water systems that is part of a capacity development strategy

Eligible Drinking Water State Revolving Fund Set-Aside Types for Permitting and Review of Water System Design/Modification/Construction: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Drinking Water Laboratory Certification and Capacity

- Reviewing and approving the certification of in-state and/or reciprocal laboratories
- Reviewing and approving laboratory protocols at laboratories to ensure these laboratories meet new/existing drinking water analytical method requirements
- Evaluating and ensuring sufficient laboratory capability to manage drinking water analytical workload for existing and future drinking water rules for the water systems in the State
- Developing projections of analytical workload to ensure a sufficient number of laboratories certified to address workload issues
- Improving timeliness and accuracy of analytical results for drinking water contaminants/parameters at certified laboratories
- Providing technical assistance to laboratories related to data management and timely delivery of drinking water quality results
- Conducting on-site audits of certified drinking water laboratories
- Acquiring laboratory equipment for conducting drinking water sample tests

Eligible Drinking Water State Revolving Fund Set-Aside Types for Drinking Water Laboratory Certification and Capacity: State Program Management (10%)

Development, Revision and Implementation of Drinking Water Regulations

- Developing state regulations that are at least as stringent as the federal regulations. This includes changing state regulations that are not as stringent and changing state regulations to implement federal regulations that have not yet been adopted
- Proposing the drinking water regulations and requirements for state adoption
- Developing and submitting a primacy application package for the federal regulations that have not yet been adopted or that are not as stringent
- Updating the primacy application package for the federal regulations that have not yet been adopted or that are not as stringent
- Developing state regulations and/or policies to address water supply/demand management (for states in drought regions, state regulations and policies related to water supply and demand management can address the lack of a sufficient quantity of water to meet demand (i.e., State-wide water restriction and/or water conservation policies))
- Developing state regulations and policies to increase water source redundancy among water systems so that water systems have an alternative water supply source in case a man-made or natural disaster occurs that would compromise the source of one or more water systems
- Creating regulations limiting the amount of specific pollutants that enter into drinking water sources
- Integrating the national pollution discharge elimination system and drinking water program

- Developing and proposing regulations to ensure adequate funding to support the state's PWSS program
- Implementing the requirements of the SDWA, National Primary Drinking Water Regulations and/or National Secondary Drinking Water regulations
- Managing the PWSS program for primacy agencies to handle and interpret a large volume of data, including inventory elements, sample results, violations, sanitary survey results and other information
- Determining whether: 1) water systems that are currently in compliance have remained in compliance, 2) water systems that previously had violations are currently meeting drinking water standards and 3) any new, existing or modified water systems must update their compliance with new drinking water regulations

Eligible Drinking Water State Revolving Fund Set-Aside Types for Development and Revision of Drinking Water Regulations: State Program Management (10%)

Enforcement

- Developing enforcement case development and track for noncompliant water systems
- Issuing formal enforcement actions for high Enforcement priority noncompliant water systems that have not returned to compliance within six months of a public water system reaching priority status in accordance with the EPA Enforcement Response Plan
- Conducting follow-up inspections at noncompliant water systems that have current enforcement orders to ensure return-to-compliance in accordance with the compliance plan and schedule contained in formal enforcement actions

Eligible Drinking Water State Revolving Fund Set-Aside Types for State PWSS Enforcement: State Program Management (10%) and Small Systems Technical Assistance (2%)

Source Water/Wellhead Protection and Assessments

- Providing loans to community water systems to acquire land or conservation easements from willing sellers for protection of source waters[29]
- Providing loans to community water systems to assist in implementing voluntary, incentive-based source water protection measures in areas delineated under a source water assessment program under section 1453 of the SDWA and for source water petitions under section 1454 of the SDWA
    - A state must develop a list of systems that may receive loans, giving priority to activities that facilitate compliance with national primary drinking water regulations applicable

[29] For loans under the SDWA §1452(k)(1)(A)(i) and (ii), at state discretion and within allowable statutory subsidy limits, these loans may be forgiven under appropriations acts from 2010 to the current time, unless the appropriations acts indicate otherwise.

to the systems or otherwise significantly further the health protection objectives of the SDWA

- A state must seek public review and comment on its priority setting process and its list of systems that may receive loans

- Expending funds to establish and implement wellhead protection programs under section 1428 of the SDWA
- Providing assistance under the SDWA §1452(k)(1)(D) for activities as prescribed in a duly adopted state wellhead protection program (WHPP)
- Developing comprehensive source water protection activities to minimize waterborne contaminants
- Conducting source water assessments to incorporate climate change/extreme weather risks (e.g., flooding, harmful algal blooms or high runoff)
- Assessing source water protection versus treatment at the plant and associated costs

Eligible Drinking Water State Revolving Fund Set-Aside Types for Source Water/Wellhead Protection and Assessments: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%) (but with no more than 10 percent in any one activity); EXCEPTION: Loans under 1) and 2) above can only be funded through the Local Assistance and Other Programs Set-Aside (15%)

Appendix E – Previously Approved Use of DWSRF Set-Asides by Type of Activity[30]

Administrative Activities

1. **DWSRF program administration and loan tracking**

- Development and maintenance of DWSRF database for project tracking

Eligible Drinking Water State Revolving Fund Set-Aside Types for Program Administration and Loan Tracking: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%, only for activities related to source water protection and capacity development of public water systems)

Project Development

2. **Assistance with developing Preliminary Engineering and Design Reports**

- Assistance with project design review meetings
- Development of the Preliminary Engineering Report (PER), including environmental report, plans and specifications and special testing
- Contract with the state Rural Water Affiliate to help small systems prepare projects for funding request
- Evaluation of the water system to recommend improving the system's capacity to provide safe drinking water and comply with regulations

Eligible Drinking Water State Revolving Fund Set-Aside Types for Developing Preliminary Engineering Reports: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

3. **Assistance to borrowers to get projects ready for loans**

- Assistance for small systems to submit proper financial assistance application information
- Support for water system in preparing projects for preliminary design or construction financing application
- Development of a web-based Letter of Interest (LOI) for "OPEN" IUP process in which water systems apply and can receive funding year-round in coordination with by-pass process for planning and design and construction financing if ready to proceed

[30] Based in part on an Association of State Drinking Water Administrators Survey of States, 2014.

Eligible Drinking Water State Revolving Fund Set-Aside Types to Get Projects Ready for Loans: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

Capacity Development

4. **Technical capacity building: training and technical assistance**

- Facilitation of workshops on drinking water engineering (technical capacity) for PWS owners and operators, consulting engineers and technical assistance providers
- Contract with technical assistance provider for circuit riders to provide on-site technical assistance and training, including assistance to new operators with understanding how the water system operates, dosing and other treatment problems, completing required operational reports and sampling requirements and asset management
- Facilitation of video teleconference training for water system staff, technical assistance providers and consulting engineers
- Development of online training calendar
- Development and provision of asset management and energy efficiency training
- Support of the Area-Wide Optimization Program--voluntary program designed to improve compliance and operations through non-capital means
- Support for staff time and travel expenses for Sanitary Surveys as technical assistance to water systems
- Development of an auto-dialer program to apprise PWSs of their sampling schedules to avoid monitoring and reporting violations
- Contract with a GIS company to locate and map the infrastructure of small water systems to support response to leak repairs and flushing
- Contract with university to undertake evaluation and provide guidance small water systems for providing adequate contact time from existing or new tanks

Eligible Drinking Water State Revolving Fund Set-Aside Types for Technical Capacity Building: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

5. **Managerial capacity building: training and technical assistance**

- Facilitation of workshops on development of managerial capacity for PWS owners, operators and technical assistance providers
- Contract with technical assistance providers to support to and train water system board or governing organization
- Development and upkeep of a training calendar

- Initiation of a Capacity Development Assistance program to provide funds to PWSs in order to address managerial and financial recommendations noted in a sanitary survey
- Assessment of water system deficiencies of technical, managerial and financial capacity to meet existing and future SDWA regulations
- Support for technical assistance through third-party providers to give on-site and small group training on management issues to public water system personnel and financial and managerial training to municipal officials
- Support for projects conducted by the state Environmental Finance Center
- Development of facility management plans
- Assistance with training and access through a Web portal

Eligible Drinking Water State Revolving Fund Set-Aside Types for Managerial Capacity Building: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

6. **Financial capacity building: training and technical assistance**

- Contract with a technical assistance provider to assist with budgets and rate studies, long range plans, asset management plans and financial management issues
- Rate review and capital improvement plan training
- Address managerial and financial recommendations noted in a sanitary survey as part of a Capacity Development Assistance program
- Projects through the state's Environmental Finance Center
- Provision of free financial and managerial training to municipal officials

Eligible Drinking Water State Revolving Fund Set-Aside Types for Financial Capacity Building: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

7. **Operator certification activities**

- Support for training on basic and intermediate treatment and distribution, basic and intermediate math, state compliance and training materials
- Enhancement of sanitary survey participation by operators
- Support to technical assistance provider to provide operator certification training
- Assistance with voucher program for operators of small water systems for operator training classes and certification fees
- Support to technical assistance provider to assist in Area-Wide Optimization Program (AWOP) and develop operator capacity to undertake this program

Eligible Drinking Water State Revolving Fund Set-Aside Types for Operator Certification Activities: Administration and Technical Assistance (4%), Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

8. **Non-community water system initiatives**

- Contract with technical assistance providers to support to and train nonprofit non-community water system staff and governing organizations

Eligible Drinking Water State Revolving Fund Set-Aside Types for Non-Community Water System Initiatives: Small Systems Technical Assistance (2%), and Local Assistance and Other State Programs (15%)

9. **Private well training, education and outreach**

- Support for workshops, databases and fact sheets relative to private well training, education and outreach to ensure the management of private wells so that are not operated in a manner as to present a source of contamination to an underground source of drinking water for a public water system

Eligible Drinking Water State Revolving Fund Set-Aside Types for Private Well Training, Education and Outreach: State Program Management (10%) and Local Assistance and Other State Programs (15%)

10. **Promoting water system partnerships (both managerial and physical consolidation)**

- Study of consolidation (managerial and physical) potential
- Contract with technical assistance providers to assist water systems in physical and/or managerial restructuring, including rate studies
- Development of preliminary engineering report for regionalization assessments between two or more systems
- Development of targeted outreach to small systems for capacity, source protection, asset management and emergency planning
- Assessment of regional water supply to evaluate options for meeting the long-term water supply needs of under-served areas of a state
- Development of state guidance on purchase contracts

Eligible Drinking Water State Revolving Fund Set-Aside Types for Promoting Water System Partnerships: Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%)

Data Management

11. **Development of special or enhanced state data management systems**

- Development of data collector for customizable web surveys of water systems
- Development of a rational benchmarking database for collection and analysis of data from 150 PUC regulated community and nonprofit non-community water systems
- Development of SDWIS add-on tools for CCRs, sanitary surveys, enforcement tracking, permit tracking and other data management needs
- Development of electronic lab reporting, emergency event tracking system and e-MORs
- Development of databases on private well quality supporting their management to ensure protection of underground sources of drinking water of public water systems
- Support for public access to SDWIS information

Eligible Drinking Water State Revolving Fund Set-Aside Types for Development of Special or Enhanced State Data Management Systems: Administration and Technical Assistance (4%) (only for activities that support screening water systems that might utilize financial assistance from the DWSRF), State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

12. **Facilitation of state reporting to EPA**

- Support for state staff's annual attendance at the annual Data Managers Users Conference

Eligible Drinking Water State Revolving Fund Set-Aside Types for Facilitation of State Report to EPA: Administration and Technical Assistance (4%) (only for activities that support screening water systems that might utilize financial assistance from the DWSRF), State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

13. **Facilitation of reporting by PWSs and labs (using e-reporting)**

- Support for electronic lab reporting module and e-MORs

Eligible Drinking Water State Revolving Fund Set-Aside Types for Facilitation of Reporting by PWSs and Labs: Administration and Technical Assistance (4%) (only for activities that support screening water systems that might utilize financial assistance from the DWSRF), State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

Drinking Water Rule Implementation

14. **Training for particular rules**

- Purchase of vehicles dedicated to use for performing technical assistance site visits, training, sanitary surveys, and capacity development services and activities
- Contract with technical assistance provider for training on particular rules

Eligible Drinking Water State Revolving Fund Set-Aside Types for Training for Particular Rules: Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

Source Water Assessment & Protection

15. **Assistance in regional or statewide water resource plans**

- Support for drinking water regulatory workshops for drinking water program staff, PWS owners and operators and technical assistance providers
- Development of regional water supply assessment to evaluate options for meeting the long-term water supply needs of an under-served area of state
- Support for the state's Source Water Collaborative

Eligible Drinking Water State Revolving Fund Set-Aside Types for Assistance to Regional or Statewide Water Resource Plans: State Program Management (10%) and Local Assistance and Other State Programs (15%)

16. **Extreme weather adaptation and planning**

- Support for disinfection byproducts-related activities, such as study of the impact of forest fire on a source water; assistance to public water systems with techniques for compliance with disinfection byproduct regulations, including byproduct precursor and formation control training, assessment, and technical support services; partnering with another organization to conduct such activities
- Development of a statewide extreme weather model and recommendations based on the results
- Development of extreme event adaptation plans for water systems

Eligible Drinking Water State Revolving Fund Set-Aside Types for Extreme Weather Adaptation and Planning: State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

17. **Activities related to source water assessment and protection (both ground water and surface water)**

- Development and implementation of source water protection activities
- Revision/enhancement of state's source water assessment model
- Creation of currently unavailable mapping of karst features, such as sinkholes, springs, fractures and lineaments
- Development of a three dimensional models of the state's geological formations
- Collection of PSOC locational data to be used in source water and wellhead protection analyses and plans
- Planning and implementation of surface and ground water drinking water source assessment and protection activities, including source water management plans, buffer establishment and upkeep, road and storm water management and reconstruction activities, plugging abandoned wells, developing public outreach and educational programs and materials
- Development of interactive source water assessment website
- Development of online database/guide of source water protection activities
- Development and implementation of source water protection ordinance template for city and county governments
- Facilitation of source water protection workshops (including CEUs for water system operators)
- Support to small systems to protect source waters such as well closure and public education
- Contract with a technical assistance provider to maintain a source water website that shows source water assessment delineations, possible contaminant sites near public water system sources and related information
- Update for state's source water protection reports on an ongoing basis
- Support for staff time and travel to identify and geo-locate potential contaminant sources for new wells
- Facilitation of source water protection education and workshops
- Assistance with source water area delineations
- Development of source water protection plans and supporting GIS information

Eligible Drinking Water State Revolving Fund Set-Aside Types for Source Water Assessment and Protection: Administration and Technical Assistance (4%), State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

Drinking Water Security

18. **Security training for water systems**

- Support for on-site technical assistance for vulnerability assessments

Eligible Drinking Water State Revolving Fund Set-Aside Types for Security Training for Water Systems: Administration and Technical Assistance (4%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water system)

19. **Support for state-wide Water/Wastewater Agency Response Networks (WARNs)**

- Participation in meetings for and establishment of the state's WARN program
- Development of WARN websites
- Support for drinking water staff participation on the state's all response advisory committee

Eligible Drinking Water State Revolving Fund Set-Aside Types for State-Wide WARNs: State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

20. **Preparation for and participation in exercises (tabletop or field)**

- Development of an emergency response guidance manual and table top exercise guidance manual

Eligible Drinking Water State Revolving Fund Set-Aside Types for Tabletop or Field Exercises: State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

21. **Enhancing system resilience**

- Development and implementation of electronic sanitary surveys
- Establishment of a mass notification system in case of extreme event

Eligible Drinking Water State Revolving Fund Set-Aside Types for Enhancing System Resilience: State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

22. **Cybersecurity initiatives and protocols**

- Support for contractor-led cybersecurity initiative

Eligible Drinking Water State Revolving Fund Set-Aside Types for Cybersecurity: State Program Management (10%) and Local Assistance and Other State Programs (15%) (only for activities related to source water protection and capacity development of public water systems)

23. **Assistance to systems during emergencies and disasters, including collaboration/coordination with emergency management agencies**

- Facilitation of emergency preparedness training for state's drinking water program emergency response team
- Support for online posting of an event tracking system
- Contract with the state water association for assistance to systems during emergencies and disasters

Eligible Drinking Water State Revolving Fund Set-Aside Types for Assistance during Emergencies: Small Systems Technical Assistance (2%), State Program Management (10%) and Local Assistance and Other State Programs Set-Aside (15%)

Appendix F – Project Loan Funds: Types of Assistance Available

A state's DWSRF project loan fund offers various financial tools to assist public water systems with financing for eligible capital projects, including:

- Planning and design loans
- Construction loans
- Purchasing or refinancing debt obligations
- Insurance or guarantee for local debt
- Security reserve for leveraging
- Additional subsidization

Planning and Design Loans

These loans cover the cost for planning and design of a DWSRF-eligible construction project and are commonly short-term (e.g., one to three years). At the end of the loan term, planning and design costs may be rolled into a subsequent DWSRF construction loan. Water systems that borrow from the DWSRF for planning and design loans are encouraged, but not required, to obtain a construction loan from the DWSRF. Funding for planning and design can be provided as a loan or as a grant or in-kind services through the use of set-aside funds for technical assistance.

Construction Loans

The most common use of the DWSRF capital program is to finance construction of a water infrastructure project. These projects can be for the repair, replacement or rehabilitation of existing infrastructure or the construction of new infrastructure. A loan can be issued to fund the entire project or phases of a project, including planning and design. Funding projects, particularly large projects, in phases often provides for a more efficient use of a state's financial resources and limits the need to obligate funding for the full project cost at the outset of the project, thus allowing the state to fund additional projects.

Purchasing or Refinancing Debt Obligations

A state DWSRF program may purchase or refinance a capital project debt obligation of a publicly-owned system, which may reduce a community's borrowing costs. The purchase of a system's debt must be through the direct state DWSRF acquisition of municipal bonds issued for project construction. Any project for which the state DWSRF purchases or refinances the system's debt

obligations must be included in the state's project priority list and meet all eligibility criteria. The term of a DWSRF municipal debt obligation purchase or refinancing may be up to 30 years.[31]

Insurance or Guarantee for Local Debt

A state DWSRF program may purchase local debt insurance or a debt guarantee for a DWSRF-eligible project in an effort to improve a water system's credit market access or reduce the interest rate applicable to the obligation. To safeguard against the possibility of default by the assistance recipient, the state must have procedures that require, before the state provides the guarantee, an assistance recipient to demonstrate its ability to repay the local debt obligation.

Security Reserve for Leveraging

A state may use project loan fund assets as a source of revenue or security reserve for the payment of principal and interest on revenue or general obligation bonds issued by the state in order to increase the total amount of funds available for providing assistance. The net proceeds of the sale of the bonds must be deposited into the loan fund and must be used for providing loans and other assistance to finance eligible projects.

Additional Subsidization

Since the American Recovery and Reinvestment Act, annual federal appropriations laws have required states to provide a minimum amount of additional subsidization for DWSRF projects. Prior to ARRA, a state could, and still can, establish at its discretion disadvantaged community criteria and provide additional subsidization in the form of principal forgiveness or negative interest rate loans to a water system that the state designates as serving a disadvantaged community. A state may use those same criteria in determining priority for additional subsidy to a water system as required by annual federal appropriations laws.

A state may use its additional subsidy authority under the disadvantaged community program in combination (additively) with additional subsidy authority provided through annual federal appropriations law. Additional subsidization can take the form of principal forgiveness (the most commonly used form), negative interest rate loans or grants (except for designated disadvantaged community programs).

[31] Environmental Protection Agency. April 14, 2014. "Financing Terms Greater Than 20 Years in the Drinking Water State Revolving Funds." Policy Memorandum from Peter Grevatt, Director, Office of Ground Water and Drinking Water.

Appendix G – General Considerations Related to Projects Receiving DWSRF Assistance

Small Systems Loan Assistance

The SDWA requires that, of the total amount available for assistance each year, a state must make at least 15 percent available solely for providing loan assistance to small systems (i.e., water systems with a population of 10,000 or less) to the extent such funds can be obligated for eligible projects. States not able to find a sufficient number of ready-to-proceed small system projects should explain in their Intended Use Plan why the provision was not met and what they are doing to ensure that this provision is met in future years. This is an annual provision and States should meet the provision each year. While the regulations do allow for performance in excess of the 15 percent to be considered in future years when a state may be unable to meet the provision, states should strive to meet the 15 percent.

Social, Economic and Environmental Cross-Cutting Policy Review of Proje*cts*

A state must select from its Intended Use Plan a number of projects equivalent in dollar value to the amount of its DWSRF grant for review under equivalent (to federal) state environmental review procedures. This SERP review represents compliance with federal social, economic and environmental cross-cutting laws and regulations and is required before the selected projects can receive financial assistance through the DWSRF. (See 40 CFR 35.3550(o) and annual grant terms and conditions.) The state cannot "bank" any reviews in excess of the equivalent amount to count toward future review requirements.

Davis-Bacon Wage Rates

A state must follow Davis-Bacon wage rate review requirements for personnel working on DWSRF financed projects for all loans and other project financial assistance provided through its Fund. (See annual grant terms and conditions.)

American Iron and Steel Requirement

Since 2014, the U.S. Congress has added the American Iron and Steel requirement to the DWSRF though annual appropriations bills. Currently, this requirement needs to be renewed each year and is not yet a permanent requirement. All public water system projects funded by a DWSRF assistance agreement must use iron and steel products that are produced in the United States or otherwise obtain a waiver. The AIS requirements apply to the entirety of the project, regardless of whether other sources of funding are also used. (See annual grant terms and conditions.)