

**Massachusetts Clean Water Trust**  
Office of the Treasurer and Receiver-General  
Executive Office for Administration and Finance  
Department of Environmental Protection



**Asset Management Grant Program**

**Guidelines for**  
**Proposal Submittal and Project Selection**

**2023**

**Department of Environmental Protection**  
**Bureau of Water Resources**  
**One Winter Street**  
**Boston, Massachusetts 02108-4747**

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## **Introduction**

Asset Management for water, wastewater, and stormwater utilities is a systematic approach to making financial decisions that are most likely to achieve long-term sustainability and deliver consistent service in a cost-efficient manner. By helping a utility manager make better decisions regarding the timing and location for asset repairs, replacements, or rehabilitation, and by developing a long-term funding strategy, the utility can ensure its ability to deliver the required level of service perpetually. It is best implemented by developing structured **Asset Management Programs (AMPs)** for sub-sections of the utility, the whole utility and/or a uniform AMP applicable to multiple water utilities. Appendix A of this document provides references to websites and documents that provide more in-depth information regarding what Asset Management means and how to implement it.

The Massachusetts Department of Environmental Protection (MassDEP), and its State Revolving Fund (SRF) partner the Massachusetts Clean Water Trust (the Trust), recognize the value of AMPs to the long-term demand for infrastructure financing. Therefore, MassDEP and the Trust are promoting AMPs by offering subsidized SRF financing for communities interested in conducting a project that will result in AMP development, maintenance, or improvements in one or more of their water-related utilities. A well-developed AMP likely includes elements of cost-benefit analysis and long-term financial planning. Therefore, this financial assistance program is also aimed at helping communities and their utilities meet the engineering plan and Financial Sustainability Plan requirements for SRF construction loans.

This AMP financial assistance program provides grants with a maximum award of \$150,000 or 60% of the total eligible project cost, whichever is less. The community is required to provide the remaining amount with in-kind services (IKS) and/or a capital contribution. The program will follow the same process and procedures of other SRF financial assistance programs. If awarded a grant, the recipient community will be required to supply documentation of a full appropriation of funding mechanisms for the entire cost of the project to qualify. The applicant will also be required to submit an “Application for Financial Assistance” (the Application) for Asset Management Planning (see Part V of this document for further information).

Since Asset Management is a process, the proposed project can be small or extensive and can include a variety of beneficial activities that are currently appropriate to meet the utility's planning requirements, including generating plans and/or necessary reports. MassDEP will favor proposals that include a clear description of the applicant's current asset management status and goals, and those that demonstrate a strong commitment to participate in their AMP. MassDEP will score and rank proposals to determine the distribution of grant awards. In order to encourage participation by small utilities, the program considers small utilities that maintain less than 3,300 service connections.

This guidance document provides information regarding:

- Activities that are eligible for grant funding
- Completing and submitting the Proposal and Project Evaluation Form (PEF)
- Description of the evaluation and scoring process MassDEP will utilize
- Information about the DRAFT and FINAL Intended Use Plan (IUP) process for 2023

| <b>Grant Schedule and Deadlines</b>   |                          |
|---|--------------------------|
| Solicitation of Proposals   | July 2022                |
| Proposal/PEF Deadline   | August 12, 2022 by 12 PM |
| DRAFT IUP Published   | November 2022            |
| Public Comment period   | 30 Days                  |
| Grant Award Announcement<br>(Final IUP Published)   | January 2023             |
| Recipient Appropriation Submittal Due   | June 30, 2023            |
| Application Submittal Deadline  | October 13, 2023         |
| Project Certificate (PAC)<br>Notice to Proceed (NTP)<br>Project Regulatory Agreement (PRA)<br>(approval documents issued by<br>MassDEP) | December 30, 2023        |
| Grant/Financing Agreement<br>(issued by Clean Water Trust)  | March 2024               |

The Asset Management Grant Program is intended for projects designed to be completed within one year of the issuance of the Grant Agreement. However, work scopes with longer schedules may be approved by MassDEP on a case by case basis if justified in the Application.

## **Part I. Eligible Asset Management Activities**

Eligible entities are those defined as Eligible Borrowers in MGL Chapter 29C, and include: any city, town, special district, or other existing municipal governmental sub-unit which owns and controls a drinking water, wastewater, stormwater or water re-use treatment or conveyance system. An eligible entity will be referred to as the “applicant”, in this document.

Asset Management is a community/utility effort usually assisted by outside expertise (see prequalified consulting firms listed in Appendix B) to initiate, refine, or expand an AMP. The most common activities that applicants may want to include in their grant proposal are listed below. If a proposal includes any additional activities not referenced below, their function in supporting the applicant’s AMP must be clearly described in the proposal narrative. Please refer to Appendix A for additional clarification of asset management terminology and links to useful websites.

Asset Inventory - All activities that expand the applicant's asset information and ability to access and organize that information for management purposes. This includes initiating an inventory, verifying available inventory information, expanding the inventory to include previously undocumented assets, expanding the depth of information and attributes assigned to inventoried assets, and mapping.

Level of Service - All activities that clarify the applicant's performance goals and means of measuring performance are eligible. The effort may be defining initial Level of Service Goals (see Appendix A) or refining existing goals based on changing conditions (such as demand, source water quality, regulatory requirements, etc.). Workshops are a common method of defining and getting support for Level of Service Goals from community stakeholders. The applicant should be striving to identify goals that are clearly defined, realistic, and measurable. Energy consumption and water conservation should be included as metrics. Other eligible Level of Service activities include analyzing performance data, communicating with the public regarding goals and performance, and communicating the relationship between system performance and user rates.

The ultimate objective is to provide the desired level of service at the lowest possible cost.

Criticality/Risk Analysis - All activities related to asset characterization and identification of critical assets are eligible. This includes analysis that contributes to the applicant's understanding of the different ways their assets might fail and the analysis of the probability of failure based on inventory data such as age, material, expected useful life, maintenance history, operational conditions, etc. Evaluations of the consequences of failure (criticality), such as replacement costs, collateral damage, and reduction in level of service to sensitive customers are also eligible activities. Finally, when the probability of failure and the degree of consequences over a group of assets are factored together (numeric ratings are multiplied) the resulting scores are useful for prioritizing asset replacement.

Cybersecurity Risk Assessment - Activities related to Cybersecurity Risk Assessment are eligible. Activities are limited to assessment only. Proposed cybersecurity risk assessments should be based on guidance provided by the National Institute of Standards and Technology's (NIST) Framework for Improving Critical Infrastructure Cybersecurity v 1.1 (2018). Links for Supporting Cybersecurity Measures with [CWSRF](#) and [DWSRF](#).

Life Cycle Cost (LCC) Analysis - All activities that apply LCC analysis to inform decisions about capital projects are eligible. This includes asset construction, expansion, rehabilitation, or replacement. This may involve a review of pre-existing utility master plans and capital improvement plans to ascertain if LCC was considered in the planning process and to integrate plans like these in the overall AMP.

Funding Analysis - All activities that lead to creating a sustainable financial structure for the utility. This includes determining the full cost of service over the long term and creating a rate structure that is suitable for the community. In the case of stormwater utilities, this might mean using the results of asset inventory and analysis to propose a first-time utility fee structure and rates, or to inform capital planning budgets. This also includes periodically reviewing and revising existing rate structures based on up-to-date cost projections and community needs.

Preparing a report of the results of long-term funding requirements and rate adjustments is one way to satisfy SRF Fiscal Sustainability requirements for construction projects and is an eligible activity.

Asset Management Software and Training - All activities required to select, purchase, install, integrate, and successfully run AM Software are eligible. This includes associated training.

Asset Management Program Plan (AMP Plan) - The AMP Plan may include provisions for creating a written plan for continuing to operate and/or develop the AMP.

Asset Management Report (AMR) - The AMR may include provisions for generating reports of the conclusions of various asset evaluations and prioritizations, level of service goals and performance analysis, LCC analysis, and rate structure review (etc.), as needed to meet the applicant's objectives for the project.

Public Education - The AMP may include provisions for sharing the conclusions of the AMP or the status and capabilities of the AMP with the public in any format.

## **Part II. Matching Contributions and In-Kind Services**

The Trust will provide a maximum award of \$150,000 or 60% of the total estimated planning cost, whichever is less, with the applicant providing the remaining amount with IKS and/or a capital contribution. Therefore, the minimum local matching contribution (local match) that the applicant will be required to make is 40% of the total estimated cost. The IKS contribution is limited to 50% of the local match, with the exception that small systems will be allowed to increase their IKS up to 70% of the required local match. *Furthermore, small systems may request a waiver to increase the IKS contribution to cover 100% of the required local match. The waiver request must justify the increase and is subject to approval by the Trust’s Board of Trustees.*

Here are some examples of cost distributions that would be acceptable:

| Project Cost | \$260,000    |              | \$150,000    |              | \$75,000     |              |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| System Size  | Large Medium | Small System | Large Medium | Small System | Large Medium | Small System |
| Grant Funds  | \$150,000    | \$150,000    | \$90,000     | \$90,000     | \$45,000     | \$45,000     |
| Cash         | \$55,000     | \$33,000     | \$30,000     | \$18,000     | \$15,000     | \$9,000      |
| IKS          | \$55,000     | \$77,000     | \$30,000     | \$42,000     | \$15,000     | \$21,000     |

The IKS match is a contribution of the applicant’s staff time spent actively working on the proposed project’s Scope of Work (SOW) activities. To be included in the project as a valid contribution, the activities must be both planned and accounted for in detail. The proposal for the project must identify the tasks within the SOW that will use IKS. The detailed cost breakdown in the proposal must, at a minimum, provide the position and hourly wage (including benefits) of the proposed personnel. The applicant should be prepared to keep consistent and accurate records related to the IKS once the project is underway. The applicant (or their consultant) should also be prepared to justify in writing any deviations in the use of IKS from the approved SOW for inclusion with the applicable reimbursement request. More detailed instructions regarding the acceptable IKS documentation during the project will be made available to grant participants in the Application documents as described in Part V of this guidance document.

While it is highly recommended that IKS be utilized to the greatest extent possible, it is not required. The applicant may choose to provide cash contributions to fulfill any fraction of their matching contribution. The cash contributions can originate from sources of their choice including (but not limited to) a 5-year 2% interest SRF Planning Project loan, a 5-year Chapter 44 loan, or funds available from their operational or reserve accounts. Please indicate all proposed sources of the matching contribution in the Cover Letter Form (Appendix C). Be prepared to provide additional documentation regarding the source of cash contributions if the project is selected to receive a grant (see Part V).

### **Part III. Proposal Requirements**

The applicant may work independently or with one of the prequalified engineering firms listed in Appendix B to prepare the required project proposal documents. **The proposal must include the following:**

1. **Cover Letter Form (Appendix C).** Provide the applicant's contact information, Authorized Representative, the requested amount of grant funds, all proposed sources for the matching contribution, the identification of the prequalified engineering firm, and SRF participation information. The cover letter will need to be signed by a governing authority with the power to issue appropriate funding.
2. **Asset Management Progress Survey(s) (Appendix D).** Complete one progress survey for each type of utility (drinking water, wastewater, and/or stormwater) to be included in the proposed project. This information will be used to assist MassDEP staff in evaluating the suitability of the proposed Scope of Work (SOW), so it should be completed as accurately as possible with the assistance of the applicant's personnel familiar with current asset management and funding practices.
3. **Project Team.** Provide a list identifying individuals proposed to participate in this project by name, organization, position, and their role in the project. This list should identify both consultant and applicant members planning to participate, and include, at a minimum, those in leadership and oversight positions.
4. **Participation Surveys (Appendix E).** In order to receive credit in the proposal scoring matrix, these surveys must be completed and signed by the applicant's personnel in key positions who currently participate in AMP activities, plan to participate in the project, and/or anticipate participating in future AMP activities. Potential Key AMP team members may include:
  - Utility Department operators, engineers, workforce (including upper management)
  - Local and elected officials (e.g., mayor, council, town manager)
  - Accounting managers and staff
  - Information Technology managers and staff
  - Treasury Office management and staff

Note that up to 50% of the base score and 33% of the overall scoring used for evaluating proposals will be based on the level of community participation.

5. **Written Proposal (no more than 6 pages).** The proposal must contain the items listed below including a description and a detailed cost estimate for the IKS as applicable.
  - a. AMP Objective Statement – a **concise** statement summarizing specifically what the community hopes to accomplish with the proposed AM Planning. **DO NOT** include system description, history, or asset management history in this statement and do not exceed ½ page in length.



- b. Scope of Work (SOW) Breakdown – a list and description of AMP eligible tasks and who will likely perform them. Also include equipment/software purchases, investigative subcontractors, training, reports, plans, website development, public presentations, etc. as applicable.
- c. Detailed Cost Breakdown - assign time and rate of pay estimates to the SOW tasks so that the Detailed Cost Breakdown is organized to match the SOW (must be legible).

Note that up to 33% of the proposal score will be based on MassDEP's evaluation of how appropriate the proposed SOW and costs for the project are for meeting the needs identified through the Appendix D Progress Survey forms.

- 6. **Online Project Evaluation Form (PEF).** Before filling out the PEF, each applicant must determine if they will be filling out a Clean Water PEF or a Drinking Water PEF. If the project covers only drinking water utilities, the applicant should submit the Drinking Water PEF. If the project covers only clean water or stormwater utilities, the applicant should submit the Clean Water PEF. The applicant should also fill out the Clean Water PEF if the project covers any combination of more than one utility. Links to the forms can be found at MassDEP's SRF Website: <https://www.mass.gov/lists/state-revolving-fund-applications-forms>. Further instructions for submitting the PEF are provided in Appendix H of this guidance.

**Please do not submit more documentation than what is requested.**

## **Part IV. Project Proposal Ranking**

The scoring system is designed to favor proposed projects that have the following characteristics:

- A strong likelihood that the applicant will be using (or has recently used) the SRF to finance construction and can use information generated by the project to satisfy SRF planning and Fiscal Sustainability requirements;
- Submitted by communities classified as Tier 1, 2, or 3 based on the Trust's annual affordability calculation; (see Affordability Calculation link: <https://www.mass.gov/info-details/the-disadvantaged-community-program#disadvantaged-community-designation-and-loan-forgiveness-distribution>-

Districts should contact the Trust for a calculation of their Tier).

- Address potential loss(es) of institutional system knowledge resulting from retiring or departing personnel;
- Have a high degree of community participation in the project;
- Have a high probability of resulting in a sustainable AMP that will continue to grow and be applied after the project is completed.
- Have a strong potential to advance an applicant's AMP.

The scoring matrix for the PEF questions may be found in Appendix F. The highest possible total score to be assigned by the applicant will be 80 points. The applicant will also be using Part IV of the PEF to enter these 80 possible points. The applicant is instructed to assign scores as follows:

1. Multiply the community's Tier Classification as assigned by the Trust's Affordability Criteria calculations by 3 (assign 0, 3, 6, or 9 points)
2. Assign 2 points for each year of SRF participation for the last 5 years (up to 10 points)
3. Assign 1 point for every type of utility the project will be addressing (1, 2 or 3 points) - This is also the number of Appendix D Progress Survey forms that should be uploaded with the PEF.
4. Assign 1 point for every Appendix E Participation Survey form uploaded with the PEF (up to 10 points)

5. Assign 1 point for every community participant that answered YES to Question 3 in Appendix E (up to 10 points)
6. Assign 1 point for every community participant that answered YES to Question 6 in Appendix E (up to 10 points)
7. Assign 1 point for every community participant that answered YES to Question 7 in Appendix E (up to 10 points)
8. If the proposed Scope of Work for the proposal includes creating a new user rate system or generates a review and update of an existing user rate system, assign 8 points (new) or 4 points (updated) (0, 4, or 8 points)
9. If the applicant plans to use In-Kind Services as part of their matching contribution, assign points based on the percentage of the matching contribution as follows:
  - over 45 to 50% (10 points)
  - over 40 to 45% (9 points)
  - over 35 to 40% (8 points)
  - over 30 to 35% (7 points)
  - over 25 to 30% (6 points)
  - over 20 to 25% (5 points)
  - over 15 to 20% (4 points)
  - over 10 to 15% (3 points)
  - over 5 to 10% (2 points)
  - between 1 and 5% (1 point)
  - <1% (0 points)
  - (0 to 10 points)

An additional 40 points will be assigned by SRF staff after the proposals have been reviewed, as follows:

Evaluation of Project Objective Statement and SOW- up to 10 points

- Are the project objectives clear, practical, focused, and appropriate for the utility?
- Does the proposed SOW include activities that will achieve the objectives?

Evaluation of Project SOW and Detailed Cost Breakdown – up to 20 points

- Does the Detailed Cost Breakdown show estimated hours for all team members?
- Does the Detailed Cost Breakdown include all activities identified in the SOW?
- Does the Detailed Cost Breakdown include costs for procurement and purchase of services from subcontractors/software suppliers needed to support the SOW?
- Does the Detailed Cost Breakdown accurately account for the total project cost?

Evaluation of Total Cost vs Degree of Potential AMP Development – up to 10 points

- Does the degree of potential AMP development resulting from this project reflect a low Cost: Benefit ratio?

## **Part V. What Comes Next - SRF Financial Assistance Process**

The final grant recipients will be listed in the Final Intended Use Plan. These recipients will submit a financial assistance application by the date listed on page 4. The Application for Financial Assistance for Asset Management Planning (the Application) will be accessible on the State Revolving Fund [website](#) as soon as the Final IUP is published. The recipients can then submit application documents in accordance with the Application instructions and wait for MassDEP approval or comment before proceeding with the project.

MassDEP reviews applications for administrative completeness and compatibility with their original proposals and will signify approval by issuing a Project Approval Certificate (PAC) and Notice to Proceed (NTP) to the recipient. MassDEP will also submit the Project Regulatory Agreement (PRA) to the Massachusetts Clean Water Trust for vote. Once the PRA is issued, the Trust will work with the financial branch of the recipient community to execute the Grant Agreement. If the recipient is borrowing their capital contribution from SRF, they will also need to execute a Financing Agreement or a joint Grant/Financing Agreement.

Once the project is underway, the recipient or their consultant will need to request reimbursement in accordance with the instructions and forms provided in the Application package. The applicant can request reimbursement no more frequently than once per month and a payment request schedule will be established for each project as part of the application process. Reimbursement requests will be submitted to MassDEP for payment approval and must include at a minimum the required forms, consultant/supplier invoices, IKS records, and cash contribution records. In addition, monthly progress reports will be required to be submitted to MassDEP for all projects (see Appendix G for an example format). These may also be submitted along with reimbursement requests if they are being submitted monthly. Disbursements will not be approved by MassDEP unless the recipient is up to date with their monthly progress report submittals.

Closeout documentation will be required at completion of the project. In order to receive the final disbursement and to be considered in compliance with Grant Agreement, the applicant is required to submit a project completion statement and Project Closeout Certificate. The project completion statement should be in a technical memorandum format. It must restate the original objective statement, discuss any changes in objectives that were made during the course of the project, and describe the degree to which objectives have been met by the project. It should be prepared by a knowledgeable community member or consultant who has been involved in the entire project. The Project Closeout Certificate is a separate form that MassDEP will supply near

the end of the project. It must be signed by a governing authority with the power to issue appropriate funding. An example of the Project Closeout Certificate form will be provided in the Application.

Once all the administrative requirements are met and the recipient has certified that the project was completed to their satisfaction through the Project Closeout Certificate process, the grant will be considered in compliance. The remainder of the project cost, if borrowed through the Trust as a loan, will be placed in repayment for a term of 5 years at 2% interest or may be paid in full by the recipient.

Please feel free to contact any of the following MassDEP staff with questions regarding the AM Planning Grant Program:

Ashraf Gabour, Program Manager – Division of Municipal Services

- [ashraf.gabour@mass.gov](mailto:ashraf.gabour@mass.gov)

Maria Pinaud, Director - Division of Municipal Services

- [maria.pinaud@mass.gov](mailto:maria.pinaud@mass.gov)

## Appendix A. Glossary and Useful Websites

### Glossary

**Asset Management Program (AMP):** A defined long-term process for identifying, monitoring, evaluating, and prioritizing the procurement, operation, maintenance, rehabilitation and replacement of assets. The process may be described to some degree in one or more Asset Management Plan(s) prepared specifically for the utility. The process requires some degree of commitment of a utility's personnel to maintain asset inventory databases and to generate appropriate periodic reports to aid in decision making and fine-tuning the AMP.

**Asset Management Progress (AM Progress):** Because Asset Management is a process and not an end point, utilities are likely somewhere on a spectrum of using sound asset management principals in their decision-making processes at any point in time. As part of this financial assistance application, utilities will be required to fill out and submit the Asset Management Progress Survey provided in Appendix D of this Guidance.

**Asset Management Planning Project (AMPP):** A defined scope-of-work for furthering the development of and/or implementing asset management tools. It may include work on any combination of the core Asset Management elements. It may or may not include tasks preparing an Asset Management Program Plan to address the gaps in the utility's asset analysis.

**Asset Management Program Plan (AMP Plan):** Documents a process of reviewing the status of the AMP and provides recommendations for continuing the program that might include changes in AMP committee organization, staffing needs to maintain the program, recommendations for software upgrades, re-evaluation of service level goals, prioritization of assets to be inventoried further, etc. An AMP Plan can be limited or expansive in scope as needed and should guide the AMP into the future.

**Asset Management Report (AMR):** A written conclusion of the results of performing one or more periodic evaluations in accordance with a developed AMP. An AMR is often a document generated by, or as a result of, running asset management software. A few examples of documents that would be considered AMRs include a prioritized list of critical assets for the fiscal year, monthly work orders generated for planned maintenance, or utility rate analysis brochures for public education purposes.

**Asset Categorization:** The process of prioritizing the types of assets to be the focus of further analysis. Water, wastewater, and stormwater utilities typically include thousands of assets in the form of materials, equipment, facilities, software, human resources, and property. It is important to make an initial determination of which types of assets to include in an AMP (e.g., assets with a certain value threshold, assets that are critical to the system, etc.). The AMP should be designed to accommodate the inclusion of additional asset types and attributes as needed.

**Asset Management Software:** Computer programs that assist utilities with on-going asset useful life and performance tracking, maintenance schedules and work orders, criticality ranking, pricing tools, budgeting, etc. The complexity of the software can range from a simple spreadsheet to GIS based system that integrates data from multiple utility tracking and O&M programs. In 2016, the Water Finance Research Foundation published a comparative study applying uniform rating criteria to 14 popular asset management software systems: Accela, Agile Assets, Azteca System's Cityworks, Cartegraph, Cityview, Energov, IBM's Maximo, Infor/Hansen, Lucity/GBA, Maintenance Connection, Novotx's Elements, Oracle, Pubworks and Vueworks. The top 5 scores were awarded to Cityworks, Oracle, Cartegraph, Maximo, and Infor/Hansen (see Useful Websites). When selecting software, the applicant may want to consider factors such as:

- current and projected size of the utility's asset database
- compatibility with existing asset management tools and practices
- asset inventory format
- data collection capability
- condition inspection results integration capability
- prioritizing capability
- report generation capability
- work order generation capability
- service request generation capability
- valuation and budgeting capability
- user friendliness
- technical support
- flexibility
- cost (purchase, development, training, and on-going technical support)

**Critical Assets:** Assets that sustain a utility's performance/level of service.

**Criticality/Risk Analysis:** Measurement of the relative risk of failure and severity of consequences of failure. Considerations/attributes of an asset that determine risk of failure include age, condition, operating environment, failure history, and maintenance history. Consequences can range from potential loss of life and financial disaster to short-lived inconvenience and minor expenses. Consequences for horizontal assets are often driven by the location or service area of the asset. Consequences for equipment are often driven by function and redundancy provisions. Repair and replacement costs and collateral damage costs should be factored into the evaluation of consequences.

**Cybersecurity Risk Analysis:** Proposed cybersecurity risk assessments should be based on guidance provided by the National Institute of Standards and Technology's (NIST) Framework for Improving Critical Infrastructure Cybersecurity v 1.1 (2018).

- **Asset Inventory.** Create a comprehensive inventory of digital and physical assets related to cyber risk and catalog their official uses, data processes, and connections. This inventory should document both authorized and unauthorized digital assets that will later be used in a risk assessment.
- **Risk Assessment.** Classify all systems, assets, and personnel regarding their cybersecurity risk.
- **Cybersecurity Risk Management and Facility Security Plan.** Develop a practical cybersecurity program that mitigates the risk assessed during the inventory and that follows best

practices. This program should include an implementation plan with recommendations for immediate implementation and for future investment.

**Institutional Knowledge:** Refers to system knowledge stored in experienced staff. Knowledge transfer was traditionally transferred verbally by experienced staff while supervising the work. This method of knowledge management may be unsustainable for some utilities facing:

- Increased frequency in staff changes due to retirement and organizational changes
- Increased complexity of processes and systems
- Increased use of technology and linkages between technologies
- Increased regulations and oversight
- Continued growth of infrastructure



The asset management project can be designed to develop and implement a competency-based technical training program that includes facilitating the development and updating of online, classroom and field-based training materials, operational procedures, equipment lists and drawings and Maintenance that captures and preserves institutional knowledge.

**Level of Service Goals:** These are the utility's objectives for quality, quantity, reliability, cost efficiency and regulatory compliance that set the framework for spending decisions. They must be specific and have measurable performance attributes. As part of the AMP, they should be periodically reviewed and revised to reflect the current community demands, regulatory requirements, energy consumption, etc.

**Life Cycle:** The life cycle of an asset consists of the complete time frame covering acquisition, useful life, and disposal.

**Life Cycle Cost (LCC):** (synonym: whole-life cost) The sum of all recurring and one-time (non-recurring) costs over the full life span or a specified period of a good, service, structure, or system. It includes purchase price, installation cost, operating costs, maintenance and upgrade costs, and remaining (residual or salvage) value at the end of ownership or its useful life. The LCC can be expressed as a sum total of costs for the entire life cycle or graphically over time as a spending rate. The LCC should be considered when evaluating new purchase or replacement options and when deciding when to undertake replacement and should especially be evaluated for critical assets. An asset's life cycle cost includes the following expenses:

- Purchase/Design
- Installation/Construction
- Operation (including energy)
- Maintenance (including rehabilitation)
- Financing (e.g., interest)
- Depreciation
- Disposal

**Small Systems (for this program):** Utility systems that provide 3,300 or fewer service connections.

**Useful Life:** An asset's condition of service in performing its intended purpose. An asset is still within its useful life if it is functioning properly. If the asset is not functioning and cannot be repaired, it has reached the end of its useful life. If an asset is functioning properly, but operations have changed, and the asset no longer meets its intended use, it is no longer within its useful life (for example Combined Sewers). The useful life should be evaluated for all assets.

## **Useful Websites**

<https://waterfm.com/asset-management-software-really-help-water-industry/>  
about asset management software

<https://www3.epa.gov/region9/water/npdes/asset-mgmt/pdf/Overcoming-Barriers-to-Development-and-Implementation-of-Asset-Management-Plans.pdf>

about implementing AMPs

<https://efcnetwork.org/wp-content/uploads/2016/02/Inventory-and-Risk-Reference-Guide.pdf>  
about asset inventory and prioritization

<https://www.camcode.com/?s=asset+management>

about asset management basics

<https://www.awwa.org/Portals/0/AWWA/ETS/Resources/LevelofProgressinUtilityAssetManagementv4.0.pdf>

about asset management progress

<https://www.epa.gov/sites/production/files/2015-10/documents/assetmgt101.pdf>

about asset management basics

<https://nepis.epa.gov/Exe/ZyPDF.cgi/20017JTZ.PDF?Dockey=20017JTZ.PDF>

about sustainable pricing

<http://nebula.wsimg.com/1b8145ffad13aab182afcbf0ac52f037?AccessKeyId=DF69894A76F3CC680B3C&disposition=0&alloworigin=1>

about asset management software evaluation





# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix C: Program Application Cover Letter

| General Information: Eligible Applicant |  |
|---|--|
| Name                                    |  |
| Location                                |  |
| Contact Person                          |  |
| Phone                                   |  |
| Email                                   |  |
| Mailing Address                         |  |

| Consulting Engineering Firm |  |
|-----------------------------|--|
| Engineering Firm            |  |
| Contact Person              |  |
| Phone                       |  |
| Email                       |  |

| Overall Project Cost Breakdown |  |
|--------------------------------|--|
| Grant Amount Requested:        |  |
| Proposed Funding Match (cash): |  |
| Proposed SRF Loan Amount:      |  |
| In-Kind Services Estimate:     |  |
| <b>Total Project Cost:</b>     |  |

System(s) involved in this project:  Stormwater  Wastewater  Drinking Water

Year(s) appearing on Clean OR Drinking Water Intended Use Plan(s):

To the best of my knowledge and belief, the information provided in this proposal and accompanying forms and attachments is true, correct, and complete; and I, am authorized to file this proposal on behalf of

Name

Title

Date



# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix D: Asset Management Progress Survey Form

| <b>General Information: Eligible Applicant – complete one form per Utility Type</b> |  |
|---|--|
| Borrower  |  |
| Utility Type (DW, WW, SW)   |  |
| Person Completing Survey  |  |
| Phone /Email  |  |

| <b>Asset Inventory Description (check all that apply)</b>  |  |
|--|--|
| No formal asset inventory has been developed.  | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL  |
| The developed inventory includes basic attributes (ID, description, size, material, location, installation date, etc.)   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> some<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> most<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> all |
| The developed inventory includes advanced attributes (probability of failure, criticality, useful life, replacement cost, energy consumption, etc.)                          | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> some<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> most<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> all |
| The developed inventory is mapped with a geographical information system (GIS), or some other tool   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> some<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> most<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> all |
| The developed inventory is organized as a defined asset replacement hierarchy  | <input type="checkbox"/>   |
| There is a process established for staff/contractors to evaluate and record distribution/collection asset condition when incidental work is done in the system. (HORIZONTAL) | <input type="checkbox"/>   |
| There is a process established for staff/contractors to evaluate and record facility asset condition when incidental work is done in facilities. (VERTICAL)                  | <input type="checkbox"/>   |
| <b>Level of Service (check all that apply)</b>   |  |
| No formal Levels of Service have been established.   | <input type="checkbox"/>   |
| Some Levels of Service have been recognized but they are not well documented or tracked.   | <input type="checkbox"/>   |
| Levels of Service have been developed, have targets, and are tracked, but more need to be added, and/or the tracking history is brief.                                       | <input type="checkbox"/>   |
| Levels of Service have been developed all significant aspects of service, have targets, and have tracked for a sufficient period of time to establish trends.                | <input type="checkbox"/>   |
| Level of Service targets and performance are periodically communicated with the customer base.   | <input type="checkbox"/>   |
| Level of Service targets include regulatory compliance.  | <input type="checkbox"/>   |



# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix D: Asset Management Progress Survey Form

| <b>Consequence Assessment (check all that apply)</b>   |  |
|--|--|
| No systematic evaluation (such as a 1 to 5 rating) of the consequences of failure of any particular assets has been conducted.   | <input type="checkbox"/>   |
| Consequences of Failure have been developed and ratings applied to some key assets.  | <input type="checkbox"/>   |
| Consequences of Failure have been developed and ratings applied to most key assets.  | <input type="checkbox"/>   |
| Consequences of Failure have been developed and ratings applied to all assets.   | <input type="checkbox"/>   |
| Consequences of Failure evaluation includes triple bottom line cost analysis (Financial, Social, Environmental consequences)   | <input type="checkbox"/>   |
| <b>Failure Analysis (check all that apply)</b>   |  |
| No process has been established for staff/contractors to assess the probability of asset failure.  | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL  |
| A process for determining Probability of Failure has been developed and ratings applied to some assets   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL  |
| A process for determining Probability of Failure has been developed and ratings applied to most assets   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL  |
| A process for determining Probability of Failure has been developed and ratings applied to all assets.   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL  |
| The process for assessing the probability of asset failure based on asset age and useful life only.  | <input type="checkbox"/>   |
| The process for assessing the probability of asset failure is based on asset age, useful life, and supplemental data such as failure history, maintenance history, testing, performance monitoring, etc. | <input type="checkbox"/>   |
| <b>Criticality Analysis (check all that apply)</b>   |  |
| No assets have been systematically identified as critical based on failure analysis and consequence assessment.  | <input type="checkbox"/>   |
| Failure analysis and consequence assessment have been used to rank assets by Criticality for assets.   | <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> some<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> most<br><input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL <input type="checkbox"/> all |
| The Critical Asset hierarchy has been developed and communicated to staff/customers and is being used to operate and manage the system.  | <input type="checkbox"/>   |



## The Massachusetts Clean Water Trust Asset Management Grant Program



### Appendix D: Asset Management Progress Survey Form

| <b>Life Cycle Cost Considerations (fill in the blanks and check if known to be applicable)</b>                                  |   |
|---|---|
| Our Maintenance Efforts are            % preventative and            % reactive.  |   |
| Replacement costs have been determined for            % of the assets in the system.  |   |
| Operational costs have been determined for            % of the assets in the system.  |   |
| Maintenance costs have been determined for            % of the assets in the system.  |   |
| A Computerized Maintenance Management System is used to assist with            % of the planned system maintenance activities.  |   |
| Life Cycle Cost Analysis is part of the evaluation process applied when selecting, designing and/or procuring new assets.       | <input type="checkbox"/>  |
| Life Cycle Cost Analysis is part of the evaluation process applied to deciding when to replace assets.                          | <input type="checkbox"/>  |
| <b>Funding Considerations (check all that apply)</b>  |   |
| No user rate system has been developed for this utility   | <input type="checkbox"/>  |
| This utility has a user rate/fee structure that is evaluated every:   | <input type="checkbox"/> Fiscal year<br><input type="checkbox"/> 2 to 5 years<br><input type="checkbox"/> Unknown |
| A portion of revenues for this utility are dedicated to reserve funds.  | <input type="checkbox"/>  |
| This utility anticipates seeking State/Federal funding assistance to finance a utility construction project the next 36 months. | <input type="checkbox"/>  |



# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix D: Asset Management Progress Survey Form

| Completed Asset Management or Asset Management-Related Projects and/or Reports:              |      |
|--|------|
| Title  | Date |
|  |      |
|  |      |
|  |      |
|  |      |
|  |      |
|  |      |
|  |      |
| <b>Additional Asset Management Program Progress Information not captured by survey form:</b> |      |
|  |      |

Acknowledgements:

This Progress Survey was developed based on the AWWA "Level of Progress in Utility Asset Management v4.0" which in turn used the "Asset Management IQ Process" developed at the Southwest Environmental Finance Center for the Kansas Department of Public Health and Environment. Modifications have been made by MassDEP staff to accommodate the Asset Management Grant Program.





# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix E: Asset Management Participation Survey Form

| General Information:     |  |
|--------------------------|--|
| Person Completing Survey |  |
| Organization             |  |
| Position                 |  |
| Contact Information      |  |

1. Do you have an active role in  
 making decisions regarding funding or budgets?  Y  N  
 making decisions regarding maintenance or purchasing?  Y  N

If yes to any of the above, please provide brief description:

2. Do you currently use or maintain any of the following Asset Management tools on a periodic basis as part of your job?

- Asset Inventory  Y  N  Unknown  
 System Performance Tracking  Y  N  Unknown  
 Criticality Analysis Results  Y  N  Unknown  
 Life Cycle Cost Analysis  Y  N  Unknown  
 Utility Rate Review & Adjustment  Y  N  Unknown

3. Have you reviewed the scope of work for this proposed Asset Management project?  Y  N

If yes, please provide date reviewed:

4. Will you take an active role providing in-kind-services for this Asset Management project?  Y  N

If yes, please describe:



# The Massachusetts Clean Water Trust Asset Management Grant Program



## Appendix E: Asset Management Participation Survey Form

5. Do you supervise staff that will be providing in-kind-services for this Asset Management project?  
 Y    N

If known, please list staff position(s), tasks to be assigned and anticipated duration of their effort (hrs)

6. Do you anticipate you or your staff using the tools developed in this Asset Management project to fulfil your asset related responsibilities in the future?       Y    N

If yes, please provide brief description:

7. Are you participating in this project partially or in whole because you will be retiring or changing positions with uncaptured valuable knowledge about system assets?       Y    N

If yes, please provide brief description:

I certify that I have answered the questions above truthfully and to the best of my knowledge.

Signature

Print Name

Date



## The Massachusetts Clean Water Trust Asset Management Grant Program



### Appendix F: Asset Management Proposal Scoring Matrix

| Required Submittals:   | Included?                |
|--|--------------------------|
| 1. Cover Letter (Appendix C)   | <input type="checkbox"/> |
| 2. Asset Management Progress Survey (s) (Appendix D)   | <input type="checkbox"/> |
| 3. Project Team List   | <input type="checkbox"/> |
| 4. Participation Surveys (Appendix E)  | <input type="checkbox"/> |
| 5. Written Proposal – a. Project Objective Statement   | <input type="checkbox"/> |
| b. Scope of Work   | <input type="checkbox"/> |
| c. Detailed Cost Breakdown   | <input type="checkbox"/> |
| 6. Project Evaluation Form (PEF)   | <input type="checkbox"/> |
| Base Score (up to 80 points possible)  | Points                   |
| 1. Multiply this Community/Utility’s Affordability Tier by 3 = (0, 3, 6, or 9)   |                          |
| 2. Multiply the number of IUP year boxes checked on Appendix C by 2 = (0, 2, 4, 6, 8, or 10)   |                          |
| 3. How many Appendix D forms are submitted for this proposed project = (1, 2, or 3)  |                          |
| 4. How many Appendix E forms are submitted for this proposed project = (up to 10 counted)  |                          |
| 5. How many participants answered “Yes” to Appendix E question 3.? = (up to 10 counted)  |                          |
| 6. How many participants answered “Yes” to Appendix E question 6.? = (up to 10 counted)  |                          |
| 7. How many participants answered “Yes” to Appendix E question 7.? = (up to 10 counted)  |                          |
| 8. Does the proposal include using full-cost analysis to create a new user rate system ( 8 points) or to review and revise an existing user rate system (4 points) = (0, 4, or 8)  |                          |
| 9. In-Kind Services are proposed to be used to cover over 45 to 50% (10 points), over 40 to 45% (9 points), over 35 to 40% (8 points), over 30 to 35% (7 points), over 25 to 30% (6 points), over 20 to 25% (5 points), over 15 to 20% (4 points), over 10 to 15% (3 points), over 5 to 10% (2 points), between 1 and 5% (1 point), or <1% (0 points) of total project cost = (0 to 10 points) |                          |
| MassDEP Evaluation Scores:   | Points                   |
| 1. Project Objective Statement and Scope of Work (SOW) = (up to 10 points)   |                          |
| 2. Project SOW vs. Detailed Cost Breakdown = (up to 20 points)   |                          |
| 3. Degree of AMP Development vs. Project Cost = (up to 10 points)  |                          |

# Appendix G Asset Management Project Monthly Status Report

MONTHLY PROGRESS REPORT, through \_\_\_\_\_ (DATE)

City/Town of \_\_\_\_\_, MA

Project: *Project Name*

**Project Objective(s) Statement:**

  
  
  
  

The following activities were completed since the last Project Monthly Status Report:

- 
- 
- 
- 
- 

The following summarizes the status of all SOW activities performed through current invoice period:

| Task         | Description | Fee | Invoice Through (Date) | Fee to Date | Progress (%) |
|--------------|-------------|-----|------------------------|-------------|--------------|
| 1            |             |     |                        |             |              |
| 2            |             |     |                        |             |              |
| 3            |             |     |                        |             |              |
| 4            |             |     |                        |             |              |
| 5            |             |     |                        |             |              |
| 6            |             |     |                        |             |              |
| 7            |             |     |                        |             |              |
| 8            |             |     |                        |             |              |
| 9            |             |     |                        |             |              |
| 10           |             |     |                        |             |              |
| <b>TOTAL</b> |             |     |                        |             |              |

## Appendix H – Project Evaluation Form Instructions

### CLEAN WATER (CWSRF) or DRINKING WATER (DWSRF)

Before filling out the PEF, each applicant must determine if they will be filling out a Clean Water PEF or a Drinking Water PEF. If the project covers only drinking water utilities, the applicant should submit the Drinking Water PEF. If the project covers only clean water or stormwater utilities, the applicant should submit the Clean Water PEF. The applicant should also fill out the Clean Water PEF if the project covers any combination of more than one utility. Links to the forms can be found at MassDEP's SRF Website: <https://www.mass.gov/lists/state-revolving-fund-applications-forms>.

### **Part I - Applicant and Project Identification and Certification**

Provide the following applicant information:

- Name of the **Local Governmental Unit (LGU)** including name; mailing address; telephone number; Federal Employer Identification Number (This number is used by MassDEP in its SRF project tracking database); and the Public Water Supplier (PWS) identification number (as applicable);
- **Authorized Representative** information including name; mailing and email address; and telephone number;
- Project LGU Primary Contact information (if different from above);
- Engineering/Consultant Firm information including name; mailing address; telephone number; and Federal Employer Identification Number;
- Engineer or Engineering Consultant Contact information including name; mailing and email address; and telephone number; and
- Project Identification which provides how the name of the project will appear on the IUP (limited to 50 characters) and whether it's a previously submitted project before the current IUP year. Also in the space provided for "Project Brief Description", insert the Project Objective(s) Statement (see item 5a. on page 8 of the guidance).

### **DEFINITIONS for PART I**

*(for both DWSRF and CWSRF Asset Management PEF's)*

**Local Government Unit or Local Governmental Unit** - Any town, city, district, commission, agency, authority, board or other instrumentality of the Commonwealth or of any of its political subdivisions, including any regional local governmental unit defined in M.G.L. c. 29C, which is responsible for the ownership or operation of a water pollution abatement project and is authorized by a bond act to finance all or any part of the cost thereof through the issue of bonds.

**Authorized Representative** - List the name, title, complete address, e-mail address, and telephone and fax numbers of the authorized representative. At the loan application stage a resolution or authorization is required,

designating by title the official (Mayor, City or Town Manager, Chair of the Board of Sewer Commissioners, Chair of the Select Board, etc.) to act as the representative of the applicant to sign for, accept, and take whatever action is necessary relative to the project. In the city form of government, the City Council will generally name the authorized representative. If the community is governed by Town Meeting, then the Town Meeting action will name the appropriate group, such as the Select Board or Board of Public Works. The appropriate governing body will then name the authorized representative. If the authority to file statement names an office, then a certified statement is required specifically identifying the individual currently holding that office. For wastewater districts, provide the requisite authorization of the governing board.

## **Part II – Project Schedule and Cost**

Provide the following project information:

- Project scheduling information to include when the final project Scope of Work for the project will be submitted (if earlier than the Application for Financial Assistance submittal); when the applicant estimates beginning and ending the project; and when the full Application for Financial Assistance will be submitted to MassDEP – Boston office.
- The total project cost should reflect the costs associated with completing all eligible items in the event that the project includes activities that are not deemed eligible by MassDEP.
- Local Funding Authorization which asks if the funding has been voted and approved by the LGU and, if not, when is it estimated to be voted.
- Other Assistance, which asks if the LGU is seeking additional funding sources or not. This question is not applicable to the Asset Management Grant Program. The answer should be **NO**.

## **Part III – Proposal Documents**

See “Part III Proposal Requirements” on pages 8 and 9 of this guidance for a description of what files need to be uploaded in accordance with the file upload instructions included in the PEF form.

## **Part IV – Applicant Scoring Section**

See “Part IV Project Proposal Ranking” on page 10 of this guidance and Appendix F for point assignment information.