

Attachment A
Scope of Services

Hatfield Water Loss Prevention Grant Project
Project Number 06-14/WLP

I. Purpose

The goals of this project are to promote water conservation and identify and reduce unaccounted for water loss from the Town of Hatfield ("the Grantee") drinking water works and distribution system. The Town's source of supply is located within the Connecticut River Watershed. The Town's goal is to reduce its unaccounted for water loss to 10 percent or less.

This project will implement a water audit, a leak detection survey, leak repair (presented as a match), and the evaluation of water meters. Under this project, the Grantee commits to the repair of identified leaks in accordance with the following project timeline:

Leaks of 3 gallons per minute (gpm) or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months of detection. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed.

Completed leak repair documents will be submitted to the MassDEP to enable the release of final contract retainage. Grant monies shall not be withheld for roadway repairs in c above. As outlined within the MassDEP's guidance document, the Grantee will quantify the water savings from all project related activities in gallons per year and approximate dollar value.

The Grantee must also certify that the skill level of the appropriate employee(s) and/or Grantees is adequate to perform the contracted tasks to high industry standards, and that the work conducted is done so in accordance with such standards (i.e., the AWWA standards).

II. Scope of Services

The scope of services for this contract shall consist of the following tasks and deliverables as outlined below, consistent with the Grantee's technical proposal received on November 17, 2006 and as outlined in the RFR of October 6, 2006. In order for a deliverable to be considered complete under the contract, the deliverable must be completed in accordance with the contract specifications and contract schedule, must be approved by MassDEP, and must otherwise satisfy the contract provision, as determined by the MassDEP.

Task 1: Water Audit

Conduct a water audit to balance the volume of drinking water produced with the volume billed and account for the remaining water (loss). Use the MassDEP guidance available through the Water Management Act Program – *Water Management Act Program Guidance Document for a Water Audit and Leak Detection Survey* - found in Attachment D and within the MassDEP's website (<http://www.mass.gov/dep/water/approvals/guidance.pdf>)

Tasks to be completed for the water audit will include, but not be limited to the following:

1. Review of data pertinent to the existing water system including general system information and data on source meters and metered connections.
2. Review of production and sales records in order to determine the quantity of water pumped from each source and the quantity of water sold over the past three years. Estimate quantity of unmetered sold water.

Upon completion of the survey, the Grantee shall provide a report summarizing the locations of the identified leaks, the type of leak (i.e., main, hydrant, service connection, etc.), estimated flow rates for all leaks, etc., and a written schedule by which leaks shall be repaired.

Deliverables 2:

- Completed leak detection survey as per Department guidance.
- Technical memo summarizing the method or methods by which data was collected.
- Priority system of leak repair

Task 3: Leak Repair

The Grantee will establish a priority system to implement leak repairs. Identified leaks will be repaired in accordance with their prioritized status:

Leaks of 3 gallons per minute or more shall be repaired as soon as possible and no later than within twelve months of detection. Leaks of less than 3 gpm at hydrants and appurtenances shall be repaired promptly and no later than within twelve months of detection. Leaks of less than 3 gpm in local roadways, freeway, arterial, or collector roadways shall be repaired when related work on the roadway is being performed.

Leakage repairs will be performed in conformance with industry standards and will be documented with leak repair reports including estimates of leakage rates based on visual observation once infrastructure is exposed. This task is presented as part of the Grantee's match.

After leaks are repaired, the Grantee will re-survey the repair sites to confirm that no other leaks remain. As part of the submitted leak detection report and quarterly progress, as applicable, the Grantee shall provide the Department dates leaks were found and repaired, and estimated water savings realized. The Grantee will also certify that the work was conducted in accordance with industry standards.

Deliverables 3:

- Completed leak repair forms
- Summary table of leaks detected, leaks repaired, total cost, and estimated water savings realized.
- Technical memo summarizing the method or methods by which data was collected and repairs were made.

Task 4: Conservation Education

Implement a conservation education program in the elementary school. The program will be presented to all grade four public school students. The curriculum will be focused on the water cycle and the effects of human activities on the cycle. Introduce simple water conservation techniques and provide educational materials for the students and their families. Encourage the students and their families to look at the way that they use water and look for ways to reduce their consumption. Conduct a water conservation-themed poster contest.

Deliverables 4:

- Education program curriculum outline
- Poster contest documentation

Task 5: Evaluate Water Meters

Review water usage records for the five largest water users and evaluate the existing meter application for appropriateness of type, sizing, and configuration relative to usage. Estimate water losses associated with the large water user meters and recommend additional steps for meter analysis and replacement. Meter evaluation, testing, replacement, repair, or calibration work conducted as match must include documentation to support this match. Describe the meter inspection process and how the decision is made whether to replace or rehab an existing meter, how meters are tested, calibrated, and/or replaced. Document the make, model, type (i.e., 4-inch meter),

3. Review of operation and maintenance records to estimate costs (i.e., energy, chemical, and fuel costs.) for pumping and treating the water for the past three years.
4. Review of billing and accounting procedures, including meter reading, printing of billing statements, and calculation of total water use for sources of error. Adjust water sales records to reflect any error found in billing and accounting procedures.
5. Review of the latest master meter calibration test results and adjustment of the source quantities to reflect inaccuracies. Observe existing flow measurement equipment (i.e., master meters) at the source, including wells, treatment plants, and inter-municipal connections. Determine if accuracy of equipment and data is representative of the finished water delivered to the distribution system.
6. Review of the Grantee's past meter testing results.
7. Review of the most recent leak detection survey. Utilize acquired information to determine the amount of unaccounted-for water in the system or the quantity of water that is potential leakage and estimate the cost per year due to the water losses.
8. Complete water audit worksheet with calculated water losses.
9. Provide recommendations for improvements to the system including billing and accounting procedures, maintenance programs, and water usage.

Deliverables 1:

- Completed water audit survey and reporting forms as per Department guidance including items listed above.
- Technical memo summarizing the method or methods by which data was collected, schedule by which master meters are calibrated, and recommendations needed to improve recording of water flows for sources of supply and distribution system measurement systems.

Task 2: Leak Detection Survey

The Grantee will submit a thorough documentation of the methodology to be employed in the survey. Once the methods and Standard Operating Procedures (SOPs) have been approved in writing by the MassDEP, the Grantee will conduct a leak detection survey of all water mains and appurtenances of the water distribution system network that may include source of supply transmission lines. Use the MassDEP guidance in Attachment E to document the leak detection survey. Grantee personnel engaged in leak detection work must be proficient in leak detection methods and the equipment used, or if a subcontractor is to be utilized, each individual subcontracted must possess a minimum of one year of experience in conducting leak detection surveys. All subcontractors are subject to approval by the MassDEP.

Assemble existing maps of distribution system and information on the age and type of existing distribution pipes, pressure zones, booster stations, tanks, and river crossings. Locate cross-country portions of the transmission and distribution system where the alignment through farmed fields and wooded or swampy areas is unknown. Locate all system piping using magnetic pipe location methods, ground penetrating radar, or other methods in areas where pipe location and routing can not be determined otherwise from maps or surface features. As part of the funding match, record the location of these newly located mains on maps, and with monuments and GPS-coordinates.

Conduct a comprehensive leak detection survey of 37.5 miles of main, hydrants, gate valves, and service connections. Use a correlator and other instruments as needed to detect, record, analyze, and pinpoint the sound created by underground water leakage. Where the effectiveness of acoustical survey and leak correlators is limited or where pipe materials and system configuration are not conducive to acoustical or correlation methods, alternative methods may be employed. Areas where these alternative methods may be employed include transite transmission mains with limited numbers of hydrants and valves, or extended valve and hydrant spacing, cross country areas and wetland or river crossings.

and number of particular meters addressed. Summarize the requisite savings from accurate billings' statements as the result of calibrated, repaired, and/or replaced meters. Document the names and qualifications of the personnel who will inspect, replace, repair, or rehabilitate meters. This task is presented as a match only.

Deliverables 5:

- Document number of meters tested and evaluated, the locations and the dates of testing/calibration, and recommended water conservation measures, and water savings as a result of this Task.
- Recommendations for future such efforts.

Task 6: Reporting

The Town will submit the following Deliverables to the Department in accordance with the Milestone schedule.

Deliverables 6:

- The Grantee shall provide quarterly progress reports to the Department no later than January 15th, April 15th, July 15th, and October 15th for the October 1 to December 31, January 1 to March 30, April 1 to June 30, and July 1 to September 30 reporting periods, respectively. These reports shall be submitted via email (Word 6.0 or other suitable software as determined by the Department) on a standard form provided by the Department and shall contain a summary and percentage of all work completed by task during the reporting period and planned activities for the next quarter. Progress reports shall be provided to the Department's Project Coordinator identified in the Notice to Proceed letter.
- The Grantee shall provide fiscal spending reports on the same schedule as the progress reports. The fiscal reports should list the spending for the quarter, itemized by the expense categories listed in Attachment B-Budget. All fiscal spending reports, including required M/WBE reporting on the Department's Payment Voucher Attachment Form, shall be provided to the Department's Contract Manager identified in the Notice to Proceed letter.

Task 7: Submit a Draft and a Final Project Report.

Deliverables 7:

- Two paper copies of a draft final report shall be provided to the Department's Project Coordinator for review and comment at least two months prior to the milestone schedule end date. The report will include a summary of the entire project, including methods, results and conclusions as well as recommendations on actions that should be taken to further reduce water losses and comment on the effectiveness of the project.
- The Final Report must calculate the environmental results of the project and quantify the water savings in both gallons of water and dollar value per year.
- Upon receipt of comments on the draft report from the Department, the Grantee will address these comments in the final report. The draft final report and final report will contain all project deliverables.
- One camera ready copy (unbound) and three printed copies of the final report, and two CDs with electronic versions of the final report which are compatible with the Department's systems (Word or a searchable Adobe .pdf format) must be submitted to the Department's Project Coordinator by the project end date.

The report should be authored in Word as an accessible document (refer to Microsoft's Web site on creating accessible Office documents at <http://www.microsoft.com/office/system/accessibility.msp>) and also provided both in a accessible/tagged PDF (refer to Mass.Gov's site on creating accessible PDF files at

<http://mass.gov/Aitd/docs/presentations/adobe/Acrobat%207.0%20Accessibility%20Tutorial/Acrobat%207%20Tutorial/HTML%20Files/AdobeAccessCover.html>) and finally output to RTF.

The Americans with Disabilities Act requires that alternate formats of public documents be made available upon request. The Grantee will be required to make provisions to supply reports and other materials in alternative formats (including Braille or tape), upon request.

III. Method of Compensation under the Contract

- The method of compensation under the contract will be cost reimbursement based on the Grantee's completion of the deliverables listed in the Scope of Services (Section II), as approved by the Department and in accordance with the Contract, up to **\$27,300**. Advanced payments shall not be made. Reimbursement reports/payment vouchers can be submitted to the Department's Contract Manager on a quarterly basis. Payment vouchers during any one fiscal year (July 1 through June 30) *must* be submitted no later than July 30 of the next fiscal year or sooner, or as determined by the Department. Reimbursement is generally made within 30 days subsequent to a Grantee submitting a correctly executed invoice with appropriate backup.
- No payment shall be made for Massachusetts' sales tax.
- The Department shall retain ten percent (10%) of the total maximum obligation for the Contract or the final invoice submitted by the Grantee, whichever is greater, until all contract provisions are satisfied and final products are delivered and accepted by the Department. This 10% retainage (**\$2,730**) shall be reflected on each invoice submitted by the Grantee and will be cumulative.

IV. Additional Conditions

- The award of this Grant by the Department does not constitute a permit or any other approval that may be required for the implementation of the project funded by the Grant. The Grantee shall timely obtain, and comply with, all federal, state, and local permits and approvals required for the project.
- An Acknowledgement of Support must be made in connection with the publishing of any material based on or developed under this Contract. The acknowledgement will be in the form of a statement substantially as follows: "This project has been financed with Federal Funds from the Environmental Protection Agency (EPA) to the Massachusetts Department of Environmental Protection (the Department) under a Safe Drinking Water Act State Revolving Loan Fund Set-aside Grant. The contents do not necessarily reflect the views and policies of the EPA or the Department, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use."
- Prior written approval from the Department is required before project materials are printed and distributed.
- Changes in the Scope of Work require prior review and written approval by the Department, and may require an amendment to the contract. Changes in Scope must be requested in writing and include justification for the change.
- Statements to the press are authorized as long as proper acknowledgement is given to the Department and EPA.
- All materials, software, maps, reports, and other products produced through this contract shall be considered in the public domain and thus available at the cost of production.
- The Department reserves the right to approve all subcontractors.
- Grantees must immediately notify the Department if the loss or reassignment of any key employee or subcontractor identified in the proposal, and the Department requires that a replacement employee or subcontractor be assigned within 60 days. The Department reserves the right to terminate the contract if the Grantee fails to replace a key employee or subcontractor within this time frame or substitute appropriately qualified key employee.
- The overall duration of the project is twelve months.

**Attachment B
Budget**

**Hatfield Water Loss Prevention Grant Project
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Expense Items	Grant Amount	Cost Share (Cash)	Cost Share (In-house)	Total Project Amount
Salaries Superintendent @ \$30-35/hr Operator @ \$20-28/hr Laborer @ \$20-28/hr Technician @ \$20-28/hr			\$4,100	\$4,100
Subcontractual Water Audit Leak Detection Survey Leak Repair Water Conservation Education	\$27,300	\$750		\$30,200
Evaluating Water Meters		\$2,150		
Supplies				
Equipment				
Other				
Total Amounts	\$27,300	\$2,900	\$4,100	\$34,300

The Department will retain 10% (\$2,730) of the total maximum obligation of the SRF set-aside grant funds or the final invoice submitted by the Grantee, whichever is greater, until all contract provisions are satisfied and final reports and other products are delivered and accepted. This 10% retainage shall be reflected on each invoice submitted by the Grantee and will be cumulative in the amount, 10% of the total grant amount. Leaks found and repaired during the contract period can also be counted toward the match.

The Grantee must certify that they will follow all municipal procurement regulations as per Chapter 30B of the Massachusetts General Laws, the Uniform Procurement Act.

The "Fair Share" utilization goals for this proposal will incorporate 'Services' rates of 4.65% of the total amount subcontracted for MBE and 16.03% for WBE. **To comply with M/WBE participation goals it is anticipated that at the very minimum \$1,404 for MBE and \$4,841 for WBE will be adhered to.**

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