A meeting of the Finance Committee was held over the Zoom platform and live streamed at FATV Studios on Tuesday, February 9, 2021. The meeting was called to order by Chairman DiNatale at 6:06 PM.

Committee Members present: Councilors Paul Beauchemin, Marcus DiNatale, and Elizabeth Walsh. Councilor Anthony Zarrelia arrived late.
Committee Members absent: None.

The chairman opened the meeting for public comment. No one had registered to speak.

Councillor Zarrelia arrived.

ORDER: that the City of Fitchburg hereby approves the expenditure of funds from the Massachusetts Executive Office of Energy and Environmental Affairs, Municipal Vulnerability Preparedness Program Action Grant in the approximate amount of $271,787.00 (TWO HUNDRED SEVENTY-ONE THOUSAND, SEVEN HUNDRED EIGHTY-SEVEN AND 00/100 DOLLARS) for the purpose of said grant, which is to begin the planning and design of green infrastructure stormwater improvements along John Fitch Highway.

Discussion: Public Works Commissioner Nicolas Bosonetto and Assistant City Engineer Nicholas Erickson were present. The chairman read a letter from Mr. Erickson dated January 21, 2021. Commissioner Bosonetto stated that the total project cost is $411,000 and is for the design of the project in preparation for the Transportation Improvement Program (TIP), which will fund the actual construction at a later date. Mr. Erickson stated that Weston & Sampson and Fuss & O’Neil are the engineer consultants for this work.

Councillors asked if MassDOT will follow through and fund the project. Commissioner Bosonetto replied that it takes about five years to go through the approval process, which then
places the project on the TIP list for funding. The question as to when depends on the project design and the goal is to design a project that avoids the pitfalls that can delay a project.

Councilors asked if this project will address the problems at the intersection of Lunenburg Street and John Fitch Highway. Commissioner Bosonetto said the goal is to make John Fitch Highway greener, lessen flooding, and improve conditions for business. They will try to resolve access issues so that MassDOT can fix that intersection. That particular project had been on the TIP list, but was removed because of access issues.

Councilors asked if the grant is just covering paperwork. Mr. Erickson said that the total allocation is for design. They will be looking at pedestrian access and hydrologic and hydraulic issues, meeting with engineers and with MassDOT. They want to be sure that MassDOT has sufficient information to move the project along.

Councilors asked if the project will be part of the Complete Streets program. Commissioner Bosonetto replied that Complete Streets is a separate grant program. Some of the concepts of Complete Streets will be used or modified. For example, bike paths will not be part of the concept for John Fitch Highway, but the design may consider shared use paths for bicycles and pedestrians.

In reply to a question, Commissioner Bosonetto said this work needs to be done by the end of the fiscal year. There is a requirement for 25% design to be submitted to Mass DOT.

Action: Motion to approve made by Councilor Beauchemin and second by Councilor Walsh. Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).

ORDER: that the City of Fitchburg hereby approves the expenditure of funds from the Massachusetts Department of Environmental Protection Asset Management Grant Program in the approximate amount of $96,600.00 (NINETY-SIX THOUSAND, SIX HUNDRED AND 00/100 DOLLARS) for the purpose of said grant, which is to begin the development of a Geographic Information System based asset management program for the Water Department.

Discussion: Commissioner Bosonetto and Mr. Erickson remained. Deputy Water Commissioner John Deline joined them. The chairman read a letter from Mr. Erickson dated January 21, 2021.

Commissioner Bosonetto said that the Public Works Department manages a lot of assets and it is done with a GIS system. Water assets are a missing piece. Mr. Erickson said that the Water Department maintains excellent paper records, but it is time for them to be digitized both for preservation and for improved access to data. The Public Works Department is the keeper of the records and worked with the engineers and the water department to apply for the grant.

On questioning by Councilors, Commissioner Deline noted that the Water Department did scan some documents in earlier years. However, the department needs to go to the next step of GIS. When asked about the funding from the General Fund, Commissioner Bosonetto noted that this work will also cover fire hydrants and water pressure zones, which is helpful to the Fire Department.

Councilors asked about what will happen if the city discovers problems. Will they have to be fixed? Mr. Erickson stated that the grant is for the listing of assets and the determination of asset conditions. This information will assist with better planning of asset repair and replacement. Commissioner Deline noted that the department does a sanitary survey every four years. They have a list of projects and are obligated to disclose any problems.
Councilors asked if there will be more to the project and is there additional funding available. Mr. Erickson stated that Phase 1 will be a buildup of the water system. Phase 2 may include an update of the hydraulic model. Commissioner Deline said it would also help with other work down the road.

Action: Motion to approve made by Councilor Beauchemin and second by Councilor Zarrella. Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).

014-21 ORDER: that the City of Fitchburg hereby approves the expenditure of funds from the Massachusetts Executive Office of Energy and Environmental Affairs, Greening the Gateway Cities Municipal Grant Program in the approximate amount of $20,000.00 (TWENTY THOUSAND AND 00/100 DOLLARS) for the purpose of said grant, which is to plant trees in city parks and rights of way within the designated planting zone.

Discussion: Commissioner Bosonetto remained. The chairman read a letter from Commissioner Bosonetto dated January 21, 2021. Commissioner Bosonetto said that the city intends to rebuild the sidewalks on Summer Street and will use these grant funds to plant trees as part of the process. The project will extend from Moran Square to Harvard Street with sidewalks done in June and paving later in the summer. Councilors expressed their pleasure that Summer Street is being addressed.

Councillors expressed concern about construction around the Harper Furniture building possibly harming the new roadwork. Commissioner Bosonetto said that the department will be coordinating with the work at Harper Furniture.

Councilors asked about work in their ward, which should qualify for the grant, and about the manpower to maintain the new trees. Commissioner Bosonetto said that he has submitted a Block Grant application to do work in Parkhill Park. He also explained that the Summer Street construction will include tree pits for the new trees so that they can survive, and they will pick trees that won't get too large or buckle the sidewalk. While a large area is eligible for the tree planting, the decision was made to target Summer Street this time. A lot of streets need help and they are working on prioritizing the list.

Action: Motion to approve made by Councilor Walsh and second by Councilor Zarrella. Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).

015-21 ORDER: that the City of Fitchburg hereby approves the expenditure of funds from the Community Foundation of North Central Massachusetts grant in the approximate amount of $2,500.00 (TWO THOUSAND, FIVE HUNDRED AND 00/100 DOLLARS) for the purpose of said grant, which is to be used towards wayfinding and informational signage for the Rollstone Hill Trail.

Discussion: Commissioner Bosonetto remained. Public Works Business Manager Courtnay Lamoureux was present. The chairman read a letter from Commissioner Bosonetto dated January 27, 2021. Commissioner Bosonetto noted that Ms. Lamoureux was handling the grant. Councilors asked who would be putting up the signs. Ms. Lamoureux stated that the department will hire a contractor to install the signs.

Action: Motion to approve made by Councilor Zarrella and second by Councilor Walsh. Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).
016-21  LOAN ORDER: appropriate FOUR MILLION, FIVE HUNDRED THOUSAND DOLLARS ($4,500,00.00) to pay costs of the City’s SCADA upgrade and Falulah transmission main water projects, as outlined in the enclosed Loan Order.

Discussion: Commissioner Deline, Commissioner Bosonetto, and Mr. Erickson were joined by Jennifer Lachmayer and Alex Misiaszek from ARCADIS. The chairman read a letter from Commissioner Deline dated January 27, 2021.

Commissioner Bosonetto could not overstate the importance of this project for the city. Commissioner Deline agreed. He stated that ARCADIS is assisting in this project, which is probably the most important project for the Water Department.

Ms. Lachmayer and Mr. Misiaszek made a presentation about this Supervisory Control and Data Acquisition (SCADA) upgrade, which is attached. (During the presentation, Councilor DiNatale briefly left the meeting, during which time Councilor Zarrella presided.)

Commissioner Deline explained that the work will be done in stages, because the provision of water to the city can not be stopped. Currently there are several different systems being used; this project will make sure everything is from similar stock and there will be open architecture for ease of maintenance and replacement.

Councilors asked about how the loan will be paid. Commissioner Deline said that the Water Department is paying off a loan in FY2021 so will have some space available in debt service. There had been a plan to borrow for certain projects, so while water rate will be reviewed for a possible increase in the future, an increase is not needed for this project.

Councilors expressed support for the project as essential for maintaining the water supply. They mentioned what happened in Flint, MI. Water is a critical service. The last water rate increase was to improve water mains and infrastructure. Fixing the Falulah main is important, given that it is over 100 years old.

Councilors asked if there will be a water rate increase this year. Commissioner Deline said the department is doing a rate study, but has no present plans for an increase. Councilors asked if the Water Enterprise Fund can borrow from the City, rather than go out to the bond market. City Auditor Calvin Brooks said it can only be done as interfund borrowing which has to be paid off by the end of the fiscal year. It would not be appropriate for this project.

Councilors asked if the proposed SCADA system is a good one. Mr. Misiaszek replied that they had looked at what was available and selected good quality equipment that meets the city’s needs. Councilors asked about cellular connections rather than copper for communication. Mr. Misiaszek answered that cell systems are being upgraded to be as robust as possible and that telephone companies are moving away from copper lines. The plants will have a hard connection; cellular connections will be used for backup and for remote sites.

Commissioner Deline also noted that they have built in redundancy in the design, so that the system will not have to be shut down if there is a problem.

Action: Motion to approve made by Councilor Walsh and second by Councilor Zarrella.
Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).

020-21  PETITION: Vincent P. Pusateri, II, Esquire, to convert false alarm notification fees to a municipal charge lien, as outlined in the enclosed petition.

Discussion: Police Chief Ernest Martineau was present. He related that he had approached the City Solicitor about alternatives for collecting the false alarm fines. Currently the remedy is Small Claims Court. Last year his department took in revenue of about $10,000, but still had to
chase some in court. The false alarm fines are not automatic—first offense is a notice, second offense is a warning letter, third offense is a warning letter and $25 fine, fourth offense is a $50 fine, and additional offenses are $100 fines. He said they do want to give customers a chance to fix the problem before assessing fines. It takes two officers about twenty minutes to deal with a false alarm. Even with problem locations, the department does not want to ignore an alarm call.

Councilors asked if they are problem properties. Chief Martineau said that it is a mix of residential and commercial properties. A majority of the owners work with the department; he is just trying to get action on those who are not paying. That is why he asked the City Solicitor for assistance.

Councilors asked if the fines should be higher. Chief Martineau answered that his goal is to get compliance rather than to generate revenue. The goal is not to fine, but to educate. Councilors expressed a willingness to increase fines in the future, should the chief make such a request.

Action: Motion to approve made by Councilor Walsh and second by Councilor Zarrella. Approved: Roll call vote—Beauchemin (Yes), DiNatale (Yes), Walsh (Yes), and Zarrella (Yes).

Motion to adjourn made by Councilor Zarrella second by Councilor Walsh. Approved by unanimous consent.

The meeting adjourned at 7:39 PM.

Respectfully submitted,

Calvin D. Brooks, Clerk
January 21, 2021

Mr. Stephen L. DiNatale, Mayor
718 Main Street
Fitchburg, MA 01420

Re: Acceptance of Municipal Vulnerability Preparedness Action Grant Funds for the John Fitch Highway – Building a Resilient Road Corridor Project

Dear Honorable Mayor DiNatale:

This past September, the City was notified that it was awarded a Municipal Vulnerability Preparedness (MVP) Program Action Grant through the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) in the amount of $271,787 to begin the planning and design of green infrastructure stormwater improvements along John Fitch Highway (JFH) between Lunenburg Street and Summer Street.

JFH is the main commercial corridor in the city with many retail, restaurants, entertainment and service based businesses. It was constructed in the 1950's to provide auto-oriented commercial strip development. Unfortunately, JFH was built within the flood plain of Baker Brook. The brook was diverted and the adjacent wetlands and farmlands were filled in to develop three major commercial plazas, which are now affected by flooding of Baker Brook to some degree during intense precipitation events.

In order to mitigate the flooding and provide for increased levels of economic revitalization of the corridor, the Department of Public Works (DPW) applied for this grant to initialize planning and design of green infrastructure stormwater improvements. The improvements will help reduce urban flooding and improve water quality in Baker Brook, create green space to beautify that area, and will help to improve pedestrian safety and facilitate pedestrian access along the corridor. The DPW has committed to provide a cash match of $139,260, which was made possible by the Mayor’s office last fall through an appropriation from free cash. This cash match demonstrates the City’s investment in the project and was no doubt instrumental in the success of this grant application.

I respectfully request that the Mayor and City Council accept the grant in the amount of $271,787 from the EOEEA and allow the expenditure of funds from the grant to complete the tasks identified in the attached Scope of Work.

In future years, the DPW will be seeking additional funding through this grant program and/or other State/Federal funding programs to move the design towards completion and construction.

Sincerely,

[Signature]

Nicholas Erickson, PE
Assistant City Engineer

City of Fitchburg, Massachusetts 01420
www.fitchburgma.gov
January 21, 2021

Mr. Stephen L. DiNatale, Mayor
718 Main Street
Fitchburg, MA 01420

Re: Acceptance of MassDEP Asset Management Grant Program Funds

Dear Honorable Mayor DiNatale:

Earlier this year, the City was notified that it was awarded a grant in the amount of $96,600 through the Massachusetts Department of Environmental Protection (MassDEP) Asset Management Grant Program to begin the development of a Geographic Information System (GIS) based asset management program for its drinking water infrastructure.

The city currently maintains detailed paper records of the water distribution system including water mains, valves, and hydrants. The city also maintains a hydraulic model (last updated approximately 10 years ago) and a 200-scale overall map of the water system showing the general divisions of the four different pressure zones within the city.

The overall goal in developing an asset management program is to begin creation of a GIS based asset management program to help understand areas where the water system is deficient, identify and prioritize needed repairs and capital improvement projects, and come up with a funding strategy. The electronic mapping will be used to optimize daily operation and maintenance activities and provide city personnel with access to asset information in the field. The fire hydrant location information will also be shared with the Fire Department so that their vehicles have GPS based information on the nearest hydrant and pressure zones. The creation of the water GIS will be the first step in implementing an asset inventory of the horizontal, below-grade assets and vertical assets included within the city’s system.

In the near term the city is seeking to digitize the paper records and gather supplementary field data to create a water GIS. Future steps include a clean-up and QC of the data, fixing of connectivity for hydraulic model creation, and development of a pipeline database or other below-grade asset inventory tool as well as a vertical asset inventory tool that can provide a condition assessment of the entire system (likelihood of failure), perform a criticality/risk analysis (consequence of failure), and allow the city to be proactive in their approach to asset failure within the water distribution system.

The DPW has committed to provide both a cash match of $32,200, which was made possible by the Mayor’s office last fall through an appropriation from free cash, and in-kind services valued at $32,200. These demonstrate the City’s investment in the project and were no doubt instrumental in the success of this grant application. I respectfully request that the Mayor and City Council accept the grant in the amount of $96,600 from MassDEP and allow the expenditure of funds from the grant to complete the Scope of Work identified in the attached Grant Agreement.

City of Fitchburg, Massachusetts 01420
www.fitchburgma.gov
In future years, the DPW will be seeking additional funding through this grant program and/or other State/Federal funding programs to move the design towards completion and construction.

Sincerely,

Nicholas Erickson, PE
DPW Assistant City Engineer

Attachment

cc: Calvin Brooks, City Auditor
    Nicolas Bosonetto, Commissioner of Public Works
    Courtney Lamoureux, DPW Business Manager
January 21, 2021

Mr. Stephen L. DiNatale, Mayor
718 Main Street
Fitchburg, MA 01420

Re: Acceptance of Greening the Gateway Cities Municipal Grant

Dear Honorable Mayor DiNatale:

The Department of Public Works (DPW) respectfully requests that the Mayor and City Council accept a grant in the amount of $20,000 from the Executive Office of Energy and Environmental Affairs (EOEEA) Greening the Gateway Cities Municipal Grant Program and allow the expenditure of funds from the grant towards the planting of trees in areas as indicated in the grant application. All work reimbursable under this grant must be completed by June 30, 2021.

The City of Fitchburg, led by the Department of Public Works, recently completed the Municipal Vulnerability Preparedness (MVP) Planning Grant process with a focus on both hazard mitigation planning and climate adaptation. In June 2020, the City submitted a joint Hazard Mitigation Plan and Municipal Vulnerability Preparedness Plan (HMP-MVP Plan) to the Executive Office of Energy and Environmental Affairs (EOEEA) for review and approval that outlines a strategy to reduce the impacts of natural hazards and climate change within the community and the region. Throughout the MVP Planning Grant Process, the City engaged both key stakeholders and the public to prepare an assessment of existing environmental risks and vulnerabilities and develop a hazard mitigation and climate adaptation strategy. One of the Priority Action Items identified through the MVP Planning Process is to plant more trees in areas with minimal urban tree canopy to help address extreme temperature related hazards. This Priority Action Item is listed as Item "N" with a "High" priority and an implementation timeframe of 1-3 years.

Funds received from this grant will allow us to plant between 2-4 trees within City parks and between 4-16 trees within the right-of-way in the designated planting zone. The City of Fitchburg has selected the Planting Zone (see attached) specifically to target environmental justice ("EJ") populations. The Planting Zone encapsulates the areas of Main Street, South Street, Water Street and Lunenburg Street that meet the Census 2020 classification for one or more of the EJ criteria for Minority, Low Income, and English Isolation.

The grant application and proposed planting zones accompany this request.

Sincerely,

Nicolas H. Bosonetto, PE
Commissioner of Public Works/City Engineer

Attachments

CC: Calvin Brooks, City Auditor

City of Fitchburg, Massachusetts 01420
www.fitchburgma.gov
January 27, 2021

Mr. Stephen L. DiNatale, Mayor
718 Main Street
Fitchburg, MA 01420

Re: Rollstone Hill Trail- Grant from Community Foundation of North Central MA

Dear Honorable Mayor DiNatale:

The Department of Public Works (DPW) respectfully requests that the Mayor and City Council accept a grant in the amount of $2,500 from the Community Foundation of North Central Massachusetts as described in the attached letter, and allow the expenditure of funds from the grant towards wayfinding and informational signage for the Rollstone Hill Trail, also known as the Rock Walk. We gratefully acknowledge the assistance of the Fitchburg Greenway Committee in obtaining this grant, as well as several other grants for the trail.

As presented to the City Council in 2018, the Rollstone Hill Trail ("Rock Walk") will be a 2-mile loop trail connecting downtown Fitchburg with the summit of Rollstone Hill. The plan is to perform the work in phases, but it is important to note that Phase I by itself will result in a complete and high quality trail that can be enjoyed by the public. Phase I will be fully funded by the various grants we have received.

The grant application and award notification accompany this request.

Sincerely,

Nicolas H. Bosonetto, PE
Commissioner of Public Works/City Engineer

Attachments

CC: Calvin Brooks, City Auditor
Courtney Lamouroux, DPW Business Manager

City of Fitchburg, Massachusetts 01420
www.fitchburgma.gov
January 25, 2021

Mayor Stephen L. DiNatale  
City of Fitchburg  
718 Main Street  
Fitchburg, MA 01420

Subject: 2021 SCADA System Upgrade and Falulah Transmission Main Projects

Mayor,

I am writing to request authorization to borrow up to $4,500,000.00 (four million five hundred thousand dollars) for the purpose of funding the following projects that need to be completed this calendar year:

- SCADA Upgrade Project: The Water Division’s water treatment plants, pump/PRV stations, and water storage tanks are in need of a complete upgrade/replacement of the SCADA (Supervisory Control and Data Acquisition) systems, essentially the computer and logic controller systems that are used to operate and monitor all treatment/distribution systems. Much of the existing equipment is 20+ years old and is now obsolete and vulnerable, in terms of reliability and their security against cyber/hacking threats. The total project cost is projected to be $3,200,000.00.

- Falulah Transmission Main Upgrade Project: The existing 16-inch transmission main between the Falulah Treatment Plant and the Falulah Water Storage Tanks needs to be upgraded to a 24-inch diameter main. The carrying capacity of the transmission main is not adequate to pass the full design capacity (6 MGD) of the Falulah Treatment Plant and, due to its age (+/- 100 years old), is due for replacement to ensure that no catastrophic failures occur that would impact the ability to convey water to the city from this treatment plant. The total project cost is estimated to be $1,300,000.00

Your assistance in this important matter is greatly appreciated.

Sincerely,

John M. Deline, Jr.
Deputy Comm. of Water Supply

cc: Anne Cervantes, City Treasurer  
Calvin Brooks, City Auditor  
Nicolas Bosonetto, Commissioner of Public Works

City of Fitchburg, Massachusetts 01420  
www.fitchburgma.gov
CITY OF FITCHBURG SCADA UPGRADE
CITY COUNCIL FINANCE COMMITTEE MEETING | FEB. 9, 2021

ARCADIS Design & Consultancy for natural and built assets
Introductions – Who We Are

Jennifer Kelly Lachmayr, PE, BCEE
Vice President / Area Leader
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Jennifer.Lachmayr@arcadis.com
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Alexander Misiaszek, PE
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500 Edgewater Drive, Suite 511
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T. 781 267 7411
Local Presence = Responsive Team

LOCAL EXPERIENCE
Providing environmental services in New England for more than 55 years

LOCAL WORKFORCE
222 engineers, planners, architects, geologists, ecologists, safety specialists and support staff in New England offices

NEARBY SUPPORT
White Plains, New York offices include more than 760 staff. These resources that have other Boston-based projects are here often

More than 5,000 support resources nationwide

220+
SCADA

Supervisory Control And Data Acquisition

The control systems that run Fitchburg's water system & maintains all the system data
Components of a SCADA System

MCP – Master Control Panel – Connects everything in the plant together.

FCP – Filter Control Panel – Runs the Filter equipment.

PLC – Programmable Logic Controller – Makes decisions, runs equipment, collects data for reporting to Mass DEP (chemical levels, flows, etc.).
Water sites managed through Fitchburg SCADA

Fitchburg

Westminster

Hubbardston
Agenda

Topics

1. SCADA Overview / Critical Systems
2. Treatment Plants
3. Remote Sites
4. New Equipment
5. Staging
6. Construction Cost Estimate / Total Project Cost Estimate
7. Schedule Summary
8. Open Discussion
Why upgrade the water system SCADA?

- Antiquated Equipment
  - Exceeded useful service life
  - Spare parts hard to find
  - Copper phone lines - issues during storms

- No Redundancy Currently
  - Redundancy is critical for water systems

- Provide Security for Remote Sites
SCADA - Overview
SCADA – Critical Systems

Can the water system be operated manually in an emergency?
SCADA – Critical Systems

Can the water system be operated manually in an emergency?

- Every minute thousands of readings are collected, and thousands of adjustments are being made. It is not something that a single person or a team could collectively do.

- No option to fall back and manually run the system or collect data that goes to Mass DEP.
SCADA – Critical Systems

Service Modes:
In Service (On-Line)
Out-of-Service (Off-Line)
Rinse
Backwash
Rinse Required & Backwash Required
SCADA – Critical Systems
SCADA – Critical Systems

Water In:
Inlet valve is adjusted continuously to share the workload across the online filters.
SCADA – Critical Systems

**Water In:**
Inlet valve is adjusted continuously to share the workload across the online filters.

**Water Out:**
Outlet valve is adjusted continuously to maintain the level in the online filters.
SCADA – Critical Systems

Water In:
Inlet valve is adjusted continuously to share the workload across the online filters.

Water Out:
Outlet valve is adjusted continuously to maintain the level in the online filters.

2 Clarifiers and 4 Filters Online. Normal "In Service Mode" would have 12 Flow Control Valve changing position automatically.
Can the water system be operated manually in an emergency?

**NO**

- Every minute thousands of readings are collected, and thousands of adjustments are being made. It is not something that a single person or a team could collectively do.

- No option to fall back and manually run the system or collect data that goes to Mass DEP.
Existing Equipment - Treatment Plant and Remote Sites
Regional - MCP

- Communicates to the remote sites through copper lines leased from the phone company. Not proactively maintained.
- Fiber Optic doesn't extend to the different areas.
- No Redundancy
SCADA System - Falulah
## Existing Site Conditions – Remote Sites

<table>
<thead>
<tr>
<th>Facility/Building</th>
<th>PLC</th>
<th>Monitored at SCADA</th>
<th>Communication</th>
<th>Equipment / Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oak Hill Pump Station</td>
<td>MicroLogix 1500</td>
<td>X</td>
<td>Leased Line</td>
<td>Pumps (2), Pressure, Flow</td>
</tr>
<tr>
<td>Lacava Pump Station</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>Pumps (2), Fire Pump (1), Pressure, Flow</td>
</tr>
<tr>
<td>Montachusett Industrial Park Pump Station</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>Pumps (3), Fire Pump (1), Pressure, Flow</td>
</tr>
<tr>
<td>Scott Pump Station / Falulah Tanks</td>
<td>MicroLogix 1500 (2)</td>
<td>X</td>
<td>Leased Line</td>
<td>Tanks (2), Pumps (2), Flow (2), Level (2), Pressure (2), Chlorine, pH, Fluoride</td>
</tr>
<tr>
<td>Narrows Road PRV Station</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>PRV, Pressure, Flow</td>
</tr>
<tr>
<td>Marshall PRV Station</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>PRV, Pressure, Flow</td>
</tr>
<tr>
<td>Overlook Storage Tank and Controls/Valve Building</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>Tank, Level</td>
</tr>
<tr>
<td>Oak Hill Tank and Controls/Valve Building</td>
<td>-</td>
<td>(via Oak Hill PS)</td>
<td>Radio</td>
<td>Tank, Level</td>
</tr>
<tr>
<td>Scott Storage Tank and Controls/Valve Building</td>
<td>SLC 5/03</td>
<td>X</td>
<td>Leased Line</td>
<td>Tank, Level</td>
</tr>
<tr>
<td>Mare Meadow Pump Station</td>
<td>Idec Micro-1</td>
<td>-</td>
<td>Alarm Dialer</td>
<td>Pumps (3), Pressure and Flow</td>
</tr>
<tr>
<td>Meetinghouse Reservoir Gatehouse</td>
<td>MicroLogix 1100</td>
<td>-</td>
<td>Alarm Dialer</td>
<td>Gate, Traveling Screen</td>
</tr>
<tr>
<td>Rollstone Road Pump Station</td>
<td>Pressure/Timer Controller</td>
<td>-</td>
<td>-</td>
<td>Pump, Pressure</td>
</tr>
<tr>
<td>Bickford Pump Station</td>
<td>-</td>
<td>-</td>
<td>Alarm Dialer</td>
<td>Pumps (2), Flow</td>
</tr>
</tbody>
</table>
Lacava (Great Wolf Lodge)

VFDs control the speed of the pumps to maintain the water pressure for the Great Wolf Lodge.
Controllers to support - Existing
Controllers to support – New Design

PLANTS

STATIONS
Copper leased lines are problematic, fiber optic doesn't extend to the different areas.

New Design includes:
- Cellular for all sites.
- Redundancy for PLCs and SCADA.
- Cyber Security.
- Remote Sites security.
MCP-R
Master Control Panel
At
Regional Water Filtration Facility
FCP-R
Filter Control Panel
At
Regional Water Filtration Facility
Upgrade - 1

Running Plant:
Old MCP
Old FCP

Offline:
New MCP

CONTROL ROOM

MCP-R

MCP

30 February 2021
Upgrade - 3 - Move MCP

Running Plant:
- New MCP
- Old FCP

Offline:
- Old MCP
Upgrade - 4 - Move 50% FCP

Running Plant:
New MCP
Old FCP

Offline:
Old MCP
Upgrade – 4 - Replace FCP

Running Plant:
New MCP

Offline:
Old MCP
Old FCP

MCP

CONTROL ROOM

MCP-R

FCP-R
Upgrade - 5 - Move 50% FCP back

Running Plant:
New MCP
New FCP

Offline:
Old MCP

05 February 2021
## Total Project Costs

**City of Fitchburg - SCADA System Upgrade**  
100% Design - Engineer's Estimate of Probable Cost

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Falubah Treatment Plant</td>
<td>$261,556</td>
</tr>
<tr>
<td>3</td>
<td>Regional Treatment Plant</td>
<td>$295,032</td>
</tr>
<tr>
<td>4</td>
<td>Remote Sites</td>
<td>$325,522</td>
</tr>
<tr>
<td>5</td>
<td>Instrumentation Improvements</td>
<td>$46,050</td>
</tr>
<tr>
<td>6</td>
<td>Electrical Construction Cost</td>
<td>$209,925</td>
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<tr>
<td>7</td>
<td>Contract General Requirements</td>
<td>$170,600</td>
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<tr>
<td></td>
<td><strong>Cost of Work Subtotal</strong></td>
<td><strong>$1,324,685</strong></td>
</tr>
<tr>
<td>9</td>
<td>Construction Contingency</td>
<td>15%</td>
</tr>
<tr>
<td>10</td>
<td>General Contractor Costs</td>
<td>$207,275</td>
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<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>$2,206,482</strong></td>
</tr>
<tr>
<td>12</td>
<td>Low Limit</td>
<td>0%</td>
</tr>
<tr>
<td>13</td>
<td>High Limit</td>
<td>1.4%</td>
</tr>
<tr>
<td></td>
<td><strong>Construction Total</strong></td>
<td><strong>$2,238,360</strong></td>
</tr>
<tr>
<td>14</td>
<td>Engineering and Configuration</td>
<td>$958,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total Project Cost</strong></td>
<td><strong>$3,196,360</strong></td>
</tr>
</tbody>
</table>

Date: 2/8/2021  
AACE CLASS: 1
Fast Track Schedule

January 2021

ESDC

PLC and SCADA configuration (by Arcadis)

Jan 2021 – Sep 2021

March 2021

NTP

High Seasonal Demand

Apr 2021

Submittals, Network Buildout, Falulah – Network Installation

May 2021 – Aug 2021

Falulah Cutover

Sep 2021 – Oct 2021

Oct 2021 – Dec 2021

Remote Sites Installation and Testing

Dec 2021

Dec 2021 – Feb 2022

Regional Installation & Cutover

Feb 2022

END

May 2022

Falulah Water Transmission Line Project (by the City)