

TOWN OF PLYMOUTH CAPITAL IMPROVEMENT PLAN REQUEST FORM
FY23 FALL TOWN MEETING REQUEST FORM

Department: Water Division	Priority #:	1
Project Title and Description: Manomet Pressure Zone Pipe Upgrades	Total Project Cost:	\$14,612,950.00

Department/Division Head: Peter Gordon

Check if project is: New Resubmitted Cost estimate was developed: Internally Externally

For project re-submittals, list prior year(s):

FTM 2021

List any funding sources and amounts already granted: \$5,100,000 Appropriated from FTM 2020, additional Funding necessary due to cost increase. - EDA grant funding will reimburse up to \$3,825,000.00 of the total cost of this project

Basis of Estimated Costs (attach additional information if available)			If project has impact on 5 Year Plan and future operating budgets, insert estimated amounts.		
Capital:	Cost	Comments	Fiscal Year:	Capital	Operations & Maintenance
<i>Planning and Design</i>	\$0.00	Engineering and design, cost is \$1,532,850.00 and includes Construction administration and resident representative services. Cost is the Weston & Sampson contract not to exceed price funded through FTM article 2020F4E	FY23		
<i>Labor and Materials</i>	\$7,806,850.00	Total Cost is \$11,374,000.00 includes items 1-13 of the Engineers Estimate.3,567,150 is funded through FTM Article 2020F4E	FY24		
<i>Administration</i>			FY25		
<i>Land Acquisition</i>			FY26		
<i>Equipment</i>			FY27		
<i>Other</i>					
<i>Contingency</i>	\$1,706,100.00	Contingency provides for Design and construction, as well as any potential material supply chain issues. Material lead times and availability continues to affect similar projects.			
Total Capital	\$9,512,950.00				

Project Justification and Objective: Upgrades to the distribution system piping throughout the Manomet pressure zone are necessary to alleviate the reduced carry capacity of the water mains. Increased flow volumes will equalize pressure spikes and deficits in Manomet improving ISO Fire flows and reducing pressure on the wells. Tanks will fill faster as a result and pressure throughout the zone will be more uniform EDA grant funding in the amount of \$3,825,000.00 has been approved for this project. The town risks losing this funding if not approved

For Capital Project Requests:

Will this project be phased over more than one fiscal year? If yes, enter it on the 5 Year Plan

Yes No

Can this project be phased over more than one fiscal year?

Yes No

For Capital Equipment Requests:

Check if equipment requested is replacement and enter the year, make & model, VIN and present condition of existing equipment

What is the expected lifespan of this new/replacement equipment? The anticipated life span of these new water mains is approximately 100 years.

Attach backup information, estimates, or justification to support this request.

MEMORANDUM

TO: Town of Plymouth

FROM: Weston & Sampson

DATE: August 25, 2022

SUBJECT: Manomet Pressure Zone Water Main Upgrades - Construction Cost Escalation

The Town of Plymouth developed a Water System Master Plan in November 2019 (pre-COVID19), which included the Manomet Pressure Zone Water Main Upgrades of approximately 20,100 linear feet of 8- and 12-inch ductile iron pipe and full-width pavement restoration. The initial opinion of the probable construction cost (OPCC) of \$5,100,000 for the design and construction was developed in February 2020. The 2020 OPCC included construction costs, pavement restoration, police details, engineering design, construction administration, resident engineer, and a 25% contingency. On October 17, 2020, the Department of Public Works included this cost in the fall Town Meeting under Article 4E Manomet Zone Pipe Upgrades. Article 4E was approved for \$5,100,000 with language stating the total sum "shall be reduced by the amount of any grants received by the Town."

On May 27, 2021, the Town received funding for this project through a U.S. Department of Commerce's Economic Development Administration (EDA) grant program. The grant award amount is 75% of the 2020 estimated construction cost of \$5,100,000. Below is a table that summarized the approved budget for the EDA grant.

Approved EDA Grant Budget:

EDA approved grant	\$3,825,000
Town contribution	\$1,275,000
Total project cost	\$5,100,000

A condition of the EDA grant requires the Town to adhere to a specific project development time schedule from the date of financial assistance award set by EDA. The financial assistance award form CD-450 was signed by EDA on May 27, 2021 and requires construction of the EDA portion of the project to be completed by August 27, 2024.

In August of 2021, the Town issued a request for qualifications for the Manomet Pressure Zone Water Main Improvements Engineering & Design Services. On November 9, 2022, the Town awarded the contract to Weston & Sampson Engineers, Inc. (Weston & Sampson). The total contract agreement was for the sum not to exceed \$1,532,850, including design, bid, construction administration, and resident representative services.

The water main design has been completed and the design plans and specifications are awaiting approval from EDA. The project will be bid as soon as EDA approval is received.

Weston & Sampson prepared an Engineer's Opinion of Probable Construction Cost (OPCC), dated July 19, 2022, based on discussions with several vendors, bid tabulations from recently bid water main replacement projects, and current trends within the construction industry, which includes material and labor shortages and long material lead times leading to escalated construction costs, from even a couple of years ago. These construction trends are further discussed below.

The total 2022 OPCC is approximately \$13,100,000 and includes construction costs, police details, pavement restoration (trench width permanent pavement and full-width mill and overlay pavement), and a 15% contingency. The OPCC prepared by Weston & Sampson also includes an additional 2,500 linear feet of water main work above what was presented in 2020. The following table compares the 2020 and 2022 project limits and pipe length estimates.

2020 vs 2022 pipe length estimates

Location	From	To	2020 Est. Length (ft)	*2022 Est Length (ft)	Notes
Bartlett Rd	State Rd	Rya Rd	4,100	4,400	
Bartlett Rd	Ray Rd	Earl Rd	-	400	Added to the project
Brook Rd	State Rd	State Rd	4,450	4,440	
Manomet Point Rd	State Rd	Kevin Ave	4,350	4,980	
White Horse Rd	Robbins Hill Rd	State Rd	3,700	4,070	
Beaver Dam Rd	State Road		-	140	Added to the project
Pricilla Beach Rd & Robins Hill Rd			1,700	2,020	
Rocky Hill Rd at White Horse Rd.	White Horse Rd	Guide Board Rd	900	1,020	
Manomet Elementary School Loop	Manomet Point Rd		900	1,130	

*2022 estimated length includes hydrant laterals and side street tie-ins.

Total 20,100 22,600

As previously stated, since the beginning of 2020, the US construction industry has seen an unprecedented increase in material and labor costs. This increase can be directly related to the COVID19 pandemic and the recent conflict between Russia and Ukraine, among other factors. Per the Associated General Contractors of America, AGC, the post-producer price index (PPI) for steel mill products rose 124% in 26 months, and copper and brass indexes increased by 68%. In addition, transportation costs increased by 40%.

The ongoing COVID restrictions in China and the blockage of cargo ships due to the conflict between Russia and Ukraine have impacted the supply chain here in the USA and across the world, affecting contractors' ability to acquire building materials. Supply chain issues have increased lead times for construction items like steel, copper, and brass. For example, the average lead time for steel-related items, including ductile iron pipe, hydrants, gate valves, and copper pipe, is approximately 20 to 40 weeks, which impacts a contractor's ability to meet specific demands written in contract documents, such as project completion dates. Also, suppliers can no longer own their quotes as the prices fluctuate weekly, in part due to long lead times, making it so contractors can no longer hold their bid price for the mandatory timeframe after bids are opened. Therefore, contractors are forced to add additional markups to their bids to offset potential material cost escalation.

The current labor shortage has also negatively impacted the construction industries, requiring construction firms to raise pay and improve benefits, which translates into higher business costs and elevated construction costs.

While preparing the OPCC, Weston & Sampson contacted several vendors for quotes for material and lead times and confirmed the material shortage and long lead times noted above. Weston & Sampson also spoke to contractors and reviewed bid tabulations for recent water main replacement projects, all of which show an increase in construction costs, as noted above.