

MEMORANDUM

TO: T. Holtwijk, Town Planner DATE: January 25, 2017
FROM: Jeff Musich PE PROJECT No.: 13409
SUBJECT: Middle Road Water Main in Falmouth

As requested, we have revisited the cost estimate and assumptions included in our report for extension of the water main from its terminus on Middle Road near the intersection of Deer Run Road in Falmouth to the Cumberland town line. A brief review of the assumptions included in our original analysis follows.

Initial Middle Road Project Assumptions

The Water System Planning Report completed by Wright-Pierce estimated the cost to extend a 12-inch water main in the Portland Water District (PWD) system from the Cumberland town line to the terminus of the PWD system at Deer Run Road to be \$750,000. This estimate was based on the following assumptions:

- A 20% allocation for complete engineering design and construction administration was included, assuming that the project would be funded with public funds. These costs are not included in the recent Cumberland bids.
- A project length of 3,000 feet was assumed including service pipe from the new 12-inch water main to the edge of the right of way plus pipe extensions for hydrant branches. Since the final location of the water main was not known, the length of service pipe to the right of way at each house was estimated to be 50' x 15 homes for a total length of 750-feet.
- Minimal pavement repairs were included. Pavement repairs assumed that the pipe would be located in a paved shoulder and temporary replacement pavement would be needed until the road reconstruction was initiated at some later date.
- The water main would be constructed as a separate standalone project and would not see cost benefits from incorporating the work into a large road reconstruction project. This is likely the case with the Middle Road bids in Cumberland.
- Since no public mains exist in this area, extra cost to visit specific homes, understand how the new service pipe would connect with internal plumbing and abandonment of existing wells was included. This cost is not required for a project which has an existing public water main.

- *We did not include the private cost the homeowners would have to bear for work from the edge of the public right-of-way to the interior of the home, installation of a meter, modifications to the plumbing system to accommodate the new service pipe, and abandonment of the private wells.*

We have also recently constructed two 12-inch water main projects in Yarmouth with full trench repairs and engineering which cost approximately \$250 per foot total when all of these costs were included in the project, the same cost we included in the Falmouth plan.

Revised Assessment Based on Recent Bids

We are always caution against using specific bid prices from prior projects because most often these values are unbalanced within the bid to take advantage of timing for the work. Items scheduled first in the project are assigned higher bid values to help the general contractor's cash flow and to minimize short-term borrowing. We always look at similar projects and specific circumstances unique to a project when we prepare estimates.

On this basis, we rechecked the distance between the end of the PWD system and the Cumberland town line in our GIS system and measured this length to be approximately 2,170 feet. Assuming about 750 lineal feet of 1-inch copper service pipe and curb boxes at each service, 6 fire hydrants, 4 gate valves and tapped connections at each pipe end to maintain service to local customers, the cost estimate for construction and engineering only could be as low as \$400,000 using unit process from the recently bid Cumberland project. This revised estimate is based on the following:

- Use of the 3rd low bidder for the water main portion of the work obtained from the Middle Road project bid tab in Cumberland
- No cost is included for private work that will be required on the homeowner side of the service connection. This cost can often exceed \$10,000 per home and may require reconfiguration of the internal house plumbing to accommodate water service from the public road side of the dwelling.
- Cost for trench restoration only up to the bottom of the road subgrade. Bituminous pavement and subbase aggregates were not included and assumed to be part of the road project.
- We retained a 20% allocation for engineering and construction oversight.
- A 3% construction cost escalation if the work is constructed in 2017.
- Bedrock quantity similar to the Cumberland project
- No contingencies were included

Recommendation

Now that more specifics are known about the project, we would recommend budgeted a planning level estimate of \$500,000 for the project including a 25% contingency. This value does not include obligations by individual homeowners for work outside of the public right-of way. This can be included in the engineering documents for construction of the water main if a mechanism is created for reimbursement to the town. Homeowners can also opt to retain a contractor for this work separately. We should consult with the Portland Water District to understand any recommendations they can offer on structuring and contracting for the private work.

Again, it is important for the homeowners to understand, there will be significant cost for the private service work and modifications to internal plumbing systems which will be over and above the cost of the work in the public roadway.

I hope this meets your needs. Please let me know if you or the Portland Water District have any questions. Thanks