

Village of Marblehead

December 7, 2013

Johnsons Island Water Line Extension Conceptual Project Elements and Costs

PROJECT ELEMENTS AND PROBABLE PROJECT COSTS

SOURCE: February, 2001 Finkbeiner, Pettis, & Strout, Inc. (FPS) Water Treatment Plant (WTP) Study Report

Projects		Project Cost
12" Water Main Connector	4000ft.	\$1,350,000
10" Water Main Loop around Johnsons Island	17,000ft.	\$1,500,000
12" Water Main Loop on Alexander Pike	9,700ft	\$900,000
Total:		\$3,750,000

These conceptual costs (+/- 20%) are in 2001 dollars (ENR Index 6279). From reading the FPS Report the Project Cost includes:

- Construction Costs including Contingencies
- Engineering
- Legal, Administration, Inspection, and Testing Fees

They do not include costs for:

- The house connection,
- Excess land acquisition costs (land purchase, easements, etc.),
- legal costs for bonding and setting up the assessments,
- Excess rock excavation, etc.

FPS Costs Adjusted to June, 2013 dollars (ENR Index 9542 or a 52% increase).

Projects		Project Cost
12" Water Main Connector	4000ft.	\$2,052,000
10" Water main Loop around Johnsons Island	17,000ft.	\$2,280,000
12" Water Main Loop on Alexander Pike	9,700ft.	\$1,368,000
Total:		\$5,700,000

DETERMINATION OF JOHNSONS ISLAND PORTION OF ALEXANDER PIKE WATERLINE:

Village of Marblehead

Johnson's Island:

Lots Plated: 500

Houses as of June, 2013 250

Equivalent Dwelling Units (EDU's) September 4, 2009

Total EDU (current Village service area): 875

Johnson's Island Potential EDUs 500 (based on 500 plated residential lots)

Total EDUs 1375

Percentage of Cost of Alexander Pike Project to be assessed to the Johnson's Island Waterline Extension Project:

Ratio of Cost of Alexander Pike to be assessed to Johnson's Island waterline project: $500 \text{ Potential EDUs} / \text{Total Marblehead EDUs } (875+500 \text{ or } 1375) = 36\%$

GENERAL DISCUSSION ITEMS:

- Existing Water Treatment Plant has capacity to supply water to Johnsons Island. Currently plant is rated at 384 gpm or .553 MGD.
- The Board of Public Affairs and Council of the Village of Marblehead have developed a capital plan and have instituted a supporting rate and fee that will address needed upgrades, repairs, and replacements of the existing system (WTP and existing distribution system). The current rate structure and fees reflect this planning. This phased approach has allowed them to optimize the use of grants, etc.
- Therefore, only those costs directly attributable to the expansion of the distribution system to fully service the residents of Johnsons Island will be assessed to the project. These include:
 - a. 12" Water Main Connector (full Cost)
 - b. 10" Water Main Loop around Johnsons Island (full Cost)
 - c. 12" Water Main Loop on Alexander Pike (Portion of the Total Project Cost to be assessed to the Johnsons Island Waterline project is 36%*)

CONCLUSIONS:

Conceptual Project costs for the Johnsons Island waterline extension are the direct costs associated to the connection and the system improvements required to initiate water service to the island:

12" Water Main Connector	4000ft.	\$2,052,000
10" Water main Loop around Johnsons Island	17,000ft.	\$2,280,000
12" Water Main Loop on Alexander Pike (36% of TPC)	9,700ft.	\$ 492,480*
Total:		\$4,824,480

Notes:

1. Estimate includes total project costs based on typical estimates for engineering, construction, land acquisition, and legal costs. They do not include:
 - a. Interest on loans
 - b. Legal, bonding, easement preparation, and engineering costs required to set up an assessment
 - c. Excessive rock removal costs
 - d. Easement and/or land acquisition costs

PROJECT FUNDING:

THREE PRINCIPAL FUNDING SOURCES:

- WATER RATES
- TAP (OR CAPITAL FEES)
- ASSESSMENTS
 - COST PER FRONT FOOT
 - EQUAL BENEFIT PER PLATTED LOT:

The Village prefers to use "EQUAL BENEFIT" in this situation.

ASSESSMENT COST BY EQUAL BENEFIT APPROACH:

Note: The assessment law says that you can also assess by "EQUAL BENEFIT". Since each lot receives equal benefit, the assessment can be calculated by this method by dividing \$4,824,480 by 500 lots = \$9648.96 per lot.

FOR A \$9,648.06 PER LOT ASSESSMENT, THE COST PER YEAR WOULD BE \$482.41 (WITHOUT INTEREST).

APPROXIMATE COST TO RESIDENT/LANDOWNER:

The cost for the first year would be approximately:

Assessment:	\$483 (will be higher depending on final interest rate, bonding and legal, etc costs)
Tap Fee:	\$2,000 (available for one year post construction, after that \$3,900)
Water fee: \$30x12mo.	\$360
Total:	\$2,843 or \$236.92 per month

Cost for preceding years:

Assessment:	\$483
Water fee:	\$360
Total:	\$843 or \$70.25 per month

Note: water fee is calculated as a minimum bill of 3500 gallons per month or less.

NEXT STEP RECOMMENDATIONS:

VILLAGE OF MARBLEHEAD BPA WOULD A PRELIMINARY ENGINEERING STUDY WHICH WOULD:

- Finalize waterline alignment
 - Identify required easements and/or land acquisition needs with associated costs
- Require a subsurface investigation to estimate rock excavation costs, determine best alignment to cross bay from mainland to island, etc.
- Develop a detailed Total Project Costs which would include among other items:
 - Cost of detailed soil/geotechnical studies
 - Preparation of easements, surveys,
 - Cost of land acquisition
 - Legal costs, bonding costs, assessment expenses, etc
- Preparation of a detailed financing plan, water system income statement and balance sheet with projections, and new system cost to landowners/residents of Johnsons Island.