

To: Town of Wellesley From: Frank Holmes, P.E.
 Boston (Causeway St) MA Office

File: Wellesley Office Park – Infrastructure Date: February 25, 2019
 Improvements Summary and Cost
 Estimate

Reference: Wellesley Office Park – Residential Redevelopment

This memorandum summarizes the order of magnitude cost associated with the infrastructure improvements proposed to support the phased redevelopment of Wellesley Office Park. Table 2 on page 2 itemizes each infrastructure improvement under consideration and the order of magnitude cost.

Water System Summary

The Wellesley Office Park is serviced by two town of Wellesley municipal water lines. The first is a 12" line crossing beneath I-95 and entering the site on the northwestern side. The second is a 6" line entering the site from Route 9 and following the William Street alignment. Within the boundary of route 9, approximately 1,700 feet to the West of the Williams Street and Route 9 intersection, these lines connect forming a loop.

The Town of Wellesley's DPW has noted that us leaks have occurred in the 6" water line in Route 9 that have required repair. Furthermore, the DPW points to the age of the 12" municipal water line under I-95 as a concern to the DPW with respect to its condition. Without upgrades, one concern that has been raised is that in the event the existing 12" water line under I-95 were to fail, the 6" service from Route 9 may be insufficient to provide adequate water pressure for fire protection service to the Wellesley Office Park.

A flow test was conducted on January 16th, 2019, to determine available pressure and flow. The results are summarized in table 1 below.

Table 1 – Flow Test Results

Location	Static Pressure (psi)	Residual Pressure (psi)	Discharge Pressure (psi)	Calculated Discharge (gpm)	Calculated Discharge at 20psi (gpm)
Wellesley Office Park	116	100	80	1,501	3,950

Proposed Improvements:

As a result of these identified concerns regarding the present condition of both municipal water lines, we are proposing to install a new 12" water line crossing I-95 parallel to the existing 12" line (See Table 2, Item 1).

It is assumed that the new 12" line would be installed and connected to the existing looped network, allowing domestic potable water and fire protection service for the site to continue by this

Reference: Wellesley Office Park - Residential Redevelopment

new line in the event either of the existing service lines failed. This scenario will require approval by MassDOT for installation of a new service line beneath I-95.

Sanitary System Summary

The Wellesley Office Park sanitary main flows by gravity through the property following the Williams Street alignment. At the rear of #80 Williams Street is an ejector pit with a duplex 200 gallon per minute pump system that pumps sanitary waste through a 4" force main crossing I-95 that connects to the Town of Wellesley municipal gravity system on the western side of I-95. Due to the increased flow resulting from the proposed phase 1 residential development, an increase of inflow exceeding the capacity of the 200 GPM pump system is expected.

Proposed Improvements:

As part of the Phase 1 residential development, the force main (Table 2, Item 2) and pump station (Table 2, Item 3) will be replaced. The force main will be upsized from 4" to 6", and the new pump station will include 350GPM pumps in a duplex configuration, new controls, 3,500-gallon pump station structure and back-up power.

Table 2 – Order of Magnitude Cost Estimates

Item	Description	Order of Magnitude Cost
1	Installation of Redundant 12" Water line crossing I-95	\$500,000
2	Installation of 6" Sanitary Force Main crossing I-95	\$500,000
3	Sanitary Pump Station	\$310,000

Cost Estimate Methodology

Cost estimates have been completed based on historical data available from Stantec projects of similar scope. The estimates are high level estimates without detailed design drawings and do not reflect site specific conditions. Projects used as a reference and assumptions for each estimate are included in the following sections.

Water and Sanitary infrastructure crossing I-95 (Items 1 and 2)

Estimates for this scope have been derived based on two projects, each utilizing an alternate method of trenchless installation. One of the projects is a water infrastructure improvement project for the Dedham – Westwood water district involving a 600' crossing of I-95 using pipe jacking. The second project was a directional drill installation across the Annisquam River in Gloucester. For each of the projects detailed cost estimates were performed based on engineered plans, and the approximate average per linear foot cost used a baseline to estimate the order of magnitude costs for the Wellesley Office Park project.

Reference: Wellesley Office Park - Residential Redevelopment*Assumptions*

- 20% contingency included
- Design / engineering costs not included
- Ledge removal / ledge drilling not included
- Assumes access for jacking pits on abutting properties
- Assumes no dewatering is required and installation will occur above ground water

Sanitary Pump Station (Item 3)

Description	Unit Cost (\$)
(2) 350 GPM Pumps	\$80,000
Controls	\$60,000
3,500 Gallon Structure	\$30,000
Interior Piping and Valves	\$30,000
Emergency Generator	\$60,000
Contingency	\$50,000
Order of Magnitude Estimate	\$310,000

Assumptions

- 20% contingency included
- Design / engineering costs not included
- Assumes electrical service is provided in the vicinity
- Annual operation and maintenance costs not included

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