

Cambridge Water Purification Plant

Comparison of Project Costs by Site

Cost Factors	Existing Site *	Lusitania Field*	Kingsley Park*
A Base Facility Cost	\$39,000	\$41,000 ⁽¹⁾	\$41,000 ⁽²⁾
B Demolition of Existing WTP	\$1,300	\$1,500 ⁽³⁾	\$1,500 ⁽³⁾
C Interim Improvements to the Existing WTP		\$1,500 ⁽⁴⁾	\$1,500 ⁽⁴⁾
D Existing Plant Site Restoration		\$2,000	\$2,000
E WTP Operations During Construction		\$3,100	\$3,100
F WTP Operations During One Year Delay ⁽⁵⁾		\$1,300	\$1,300
G Cost to Purchase MWRA Water During Construction	\$13,400	\$2,000	\$2,000
H Major Pipeline Construction	\$400	\$1,800	\$600
I Permitting	\$100	\$500	\$500
J Escalation in Construction Cost Due to Delays i.e., EIR, additional permits, public acceptance, etc.		\$3,000 ⁽⁵⁾	\$3,000 ⁽⁵⁾
K Remediation of Contaminated Soils	\$300 ⁽⁶⁾	\$300 ⁽⁶⁾	\$300 ⁽⁶⁾
L Fresh Pond Reservoir Improvements	\$2,000	\$2,000	\$2,000
TOTAL PROJECT COST	\$56,500	\$60,000	\$58,800

* Cost Presented in 1,000s of Dollars

Notes:

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| (1) Additional cost due to expected poor soil conditions.
(2) Additional cost due to increased earthwork and foundation design.
(3) Increase in demolition cost is due to 2 year demolition delay.
(4) Interim improvements needed to maintain existing plant.
a. Residuals handling and disposal facilities.
b. Replace fluoride system.
c. Replace High Lift Pump rotating elements.
d. Construct new remote aqua ammonia facility.
e. Replace filter effluents valves.
d. Seal the clearwell roof. | e. Upgrade plant instrumentation.
f. Upgrade the alum feed system.
g. Replace electrical switchgear.
h. Upgrade the sodium hypochlorite feed system.
(5) Implementation delays include:
a. Time needed to obtain wetlands permits.
b. Time needed for public comment.
c. Additional time needed due to design complexities.
(6) This is a preliminary estimate and is subject to change based on findings during remediation. |
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Net Additional cost by site:

	Existing Site	Lusitania Field	Kingsley Park
Base facility cost	\$0	\$2,000	\$2,000
Demolition	\$0	\$200	\$200
Interim Improvements to existing WTP	\$0	\$1,500	\$1,500
Existing plant site restoration	\$0	\$2,000	\$2,000
Operate Existing Plant During Construction	\$0	\$3,100	\$3,100
Operate Existing Plant During One Year Delay	\$0	\$1,300	\$1,300
Cost to Purchase MWRA Water During Construction	\$11,400	\$0	\$0
Additional piping costs	\$0	\$1,400	\$200
Permitting costs	\$0	\$400	\$400
Costs due to delays	\$0	\$3,000	\$3,000
Net Additional Cost	\$11,400	\$14,900	\$13,700

Disadvantages to Use of Kingsley Park for New WTP:

- Kingsley Park is a prime recreational resource for the City of Cambridge. WTP construction would result in the permanent loss of this resource.
- According to the MA Historical Commission, the archaeological potential of the park is high, resulting in the need to conduct an archaeological survey. If artifacts are found, data recovery would likely be required, resulting in schedule delays and additional costs.
- Even with the assurance of a new park area at the existing site (after construction), strong public resistance is anticipated. MEPA may exercise its discretionary authority to require an EIR if there is strong public opposition. An EIR would add to the project schedule and cost.
- A WTP on this site would be more visually intrusive than on the existing site. For the 2- to 3-year construction period, the WTP operations would appear more expansive to park users and nearby residents due to the continued operation of the existing plant and ongoing construction of the new plant.
- Construction access and circulation would be difficult since vehicles would have to enter through the existing plant, without causing disruption to the plant operation.

Disadvantages to Use of Lusitania Field for New WTP:

- Plant construction would impact wetlands, as well as unique upland wildlife habitat. This is one of the most undisturbed areas of the Reservation. Significant clearing of vegetation would be required.
- Archaeological potential of the site is high, according to the MA Historical Commission, resulting in the need to conduct an archaeological survey of the site. If artifacts are found, which is likely, they may have to be recovered before plant construction could begin.
- Due to the environmental issues at this site, the permitting requirements are expected to be more rigorous than at the existing WTP site, including the potential need for an EIR and a Variance from the Wetlands Protection Act. These additional approval requirements will add to the project schedule ($\pm$ 2 years) and cost.
- Construction would be disruptive to the residents of Neville Manor (traffic, noise and air quality).
- Construction issues such as high groundwater and potentially unsuitable soils add to the design and construction costs, and/or require special construction methods.
- Extension of the raw water (Stony Brook Conduit) and finished water (high-lift force main) pipelines may result in significant tree removal, shoreline disruption and short-term impacts to Reservation users. Additional utility connections would also be required, which would cause additional disruption.



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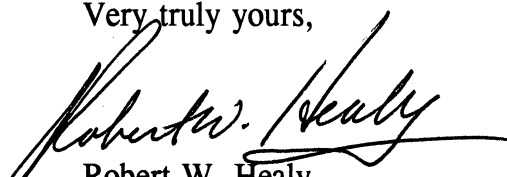
RICHARD C. ROSSI
Deputy City Manager

May 13, 1996

To The Honorable, The City Council:

Please find attached information previously requested by the City Council, relative to comparisons of project costs for the new Cambridge Water Treatment Plant.

Very truly yours,


Robert W. Healy
City Manager

RWH/mec
attachment

U11
Consent Agenda #3

S-272

Relative to information on cost
comparisons for the new Cambridge
Water Treatment Plant.

In City Council May 13, 1996

Placed on file