

City of Cambridge

MASSACHUSETTS

Agenda # 13 appropriation of \$950,000 to the In City Council November 5 1990
Public Investment Fund for improvements to the
Water Treatment Plant.

	YEA	NAY	ABSENT	PRESENT	
Mr. Ed Cyr	✓				
Mr. Francis H. Cuehay	✓				
Mr. Jonathan S. Myers	✓				
Mr. Kenneth E. Reeves	✓				
Mrs. Sheila T. Russell	✓				
Mr. Walter J. Sullivan	✓				
Mr. Timothy J. Toomey, Jr.	✓				
Mr. William H. Walsh	✓				
Mayor Alice K. Wolf	✓				

9

0

Agenda # 13
CITY COUNCIL
CITY OF CAMBRIDGE

November 5, 1990

INTRODUCED BY CITY MANAGER ROBERT W. HEALY

AN ORDER CONCERNING APPROPRIATIONS FOR THE FISCAL YEAR BEGINNING JULY 1, 1990

ORDERED: That in addition to sums previously appropriated by the City Council for the fiscal period 1990-91 the following sum is hereby appropriated in the Public Investment Fund of the City of Cambridge:

		OTHER				
		ORDINARY	TRAVEL &	EXTRAORDINARY		
FUNCTION	DEPARTMENT OR PROGRAM	SALARY \$ WAGES	MAINTENANCE	TRAINING	EXPENDITURES	APPROPRIATIONS
Community Maintenance & Development	Water				\$950,000.00	\$950,000.00

BE IT FURTHER ORDERED: That the above appropriation in the Public Investment Fund to be financed by estimated revenues drawn from the following sources:

In City Council November 5, 1990.

Adopted by a yeas and nays vote:-

Yeas 9; Nays 0; Absent 0.

Attest:- Joseph E. Connarton, City Clerk.

A true copy;

ATTEST:-

Joseph E. Connarton, City Clerk

FINANCING PLAN

REVENUE

Water Fund Balance

\$950,000.00



CITY OF CAMBRIDGE

MASSACHUSETTS

WATER DEPARTMENT
250 FRESH POND PARKWAY
CAMBRIDGE, MASS. 02138

John J. Cusack, Jr.
Superintendent

617-498-9070

To: Robert W. Healy
Cambridge City Manager

From: John J. Cusack, Jr.
Water Superintendent

J. Cusack

Date: October 26, 1990

Re: Supplemental Appropriation
Interim Improvements and Long Term
Investigations
Cambridge Water Treatment Plant

The Cambridge Water Department (CWD) and the Cambridge Water Board have recently completed a Water Treatment Plant Audit. A report (August 1990) of that title was prepared at the direction of the Massachusetts Department of Environmental Protection (DEP). The DEP scope directed that:

"a report (be) prepared by a professional engineer knowledgeable in public water supply system that: (1) assesses Cambridge's current treatment processes; (2) identifies alternative methods of treatment to bring Cambridge into compliance with the MCL for total trihalomethanes, and the estimated capital expenditures associated with each alternative; and (3) includes a recommendation as to the preferred methods of treatment to bring the system into compliance and a statement as to the basis for the recommendation."

During the preparation of this report Camp Dresser & McKee (CDM), consulting engineers, worked closely with CWD staff to investigate the control of THM levels in the Cambridge Water System. These efforts resulted in maximizing the performance of the existing treatment facilities and the control of THM level since January of 1990 to just under the maximum contaminant level (MCL) of 100 parts per billion (ppb). The Water Treatment Plant Audit further investigated the likelihood of the continued performance of the existing facilities to meet the current THM MCL and investigated alternative treatment methods needed to meet the expected future lower THM MCL of 50 ppb.

In part, the Audit concludes that:

The existing plant is capable of meeting existing regulations but requires close supervision to do so.

The physical conditions of the existing facilities are poor and that major improvements would be needed to bring the plant up to present standards for long term use.

Interim improvements are necessary for the maintenance of short term use and compliance with current water quality regulations.

The initiation of chloramination as the method of secondary disinfection of the distribution system can immediately reduce the THM levels to below the expected new MCL of 50 ppb.

The Department and the Cambridge Water Board have reviewed the Water Treatment Plant Audit and are initiating steps to implement the recommendations. The CWD is continuing the close supervision of the treatment plant process to minimize THM formation. During September and October of 1990 a temporary ammonia feed system was put on line that demonstrated that chloramination of the Cambridge distribution system does reduce THM levels to below 50 ppb.

The next steps needed to implement the recommendations of the Water Treatment Plant Audit are the completion of the recommended interim improvements needed for short term operation of the treatment plant and the initiation of engineering studies to detail long term improvements or alternatives to the existing water treatment plant. The short term improvements detailed in the Audit have been reviewed and refined during discussions among CDM, the Cambridge Water Board and the Cambridge Water Department. The recommendation to proceed with the interim improvements was adopted unanimously by the Water Board at the October 11, 1990 meeting of the Board.

The recommended interim improvements to the water treatment plant include:

- 1) Installation of a permanent ammonia storage and feed system for chloramination of the distribution system.
- 2) Replace High Lift Pump No. 3 with a new variable speed pump.
- 3) Replace the alum feed pumps and provide instrumentation to pace these pumps to influent flow.
- 4) Renovate or replace the plant influent flow meters.
- 5) Continue to investigate the use of polymers at the plant to optimize pretreatment.

- 6) Recondition the valves in the MWRA connection chambers.
- 7) Renovate and/or replace filter controls, valves, and valve actuators.
- 8) Repair the baffles in the coagulation basins.
- 9) Make improvements to the flushing system in the sedimentation basins.
- 10) Replace the existing liquid chlorine feed system with a sodium hypochlorite feed system to eliminate the extreme hazard of chlorine gas handling and transport within the City.
- 11) Replace the existing atomic absorption spectrophotometer in the laboratory with a new unit.

Of the improvements listed above items 1,4,7,8,9, and 10 are unfunded. Item 11 was recently funded with a supplemental appropriation. The remainder (items 2,3,5, and 6) are included in the current Water Department Budget.

The projected cost of the unfunded interim improvements totals \$1,950,000 for the design, bidding, and construction phases. The implementation schedule for these projects extends to June of 1992. The Cambridge Water Department recommends initiating these projects immediately with items 1 and 10 separated for completion before June of 1991. The requested funding for implementation of this portion of the Water Treatment Plant Audit recommendations is a supplemental appropriation from the Water Fund Balance of \$800,000 for activities through June of 1991. The remainder of the funds will be included in the Cambridge Water Departments Capital Improvements Budget request for FY 92.

The second phase of implementation of the Water Treatment Plant Audit recommendations is to initiate the engineering studies to detail the long term improvements or alternatives to the present water treatment plant. These activities include:

Treatability studies: Literature, laboratory, and pilot plant scale investigations of alternative water treatment processes suitable for inclusion in long term alternatives to the existing facilities to meet present and future Safe Drinking Water Act(SDWA) requirements. The scope of work for these studies has received close scrutiny by the CWD and the Cambridge Water Board and will require DEP approval.

Detailed evaluation and concept design development for long term facilities improvements: Detailed engineering review based on the recommended treatment alternatives identified in the above study that will lead to a final recommended design concept for long term water treatment facilities. This review will include development of design criteria, a detailed evaluation of the existing facilities to determine its maximum

utilization, site evaluation and selection studies, in-depth evaluations of construction and operating costs associated with rehabilitation of the existing facility and that of a new facility which will assist in the final facilities recommendation.

The Cambridge Water Department and the Cambridge Water Board recommend initiating these long term investigations immediately. The projected schedule to complete these activities extends to June of 1992. The projected costs for the two phases totals \$645,000 (\$240,000 - Treatability Studies and \$405,000 - Evaluation and Concept Design). As with the interim improvements, the requested funding for these projects is a supplemental appropriation from the Water Fund Balance of \$150,000 for activities through June of 1991. The remainder, \$495,000, will be included in the Water Department Capital Improvements Budget request for FY-92.

In summary, the Cambridge Water Department requests a supplemental appropriation from the Water Fund Balance of \$950,000 to initiate the recommendations of the Water Treatment Plant Audit. The projection of these costs are summarized below:

Phase	Supplemental Appropriation (Nov. 1990)	Projected FY-92 Capital Budget Request	Total
Interim Improvements	\$800,000	\$1,150,000	\$1,950,000
Engineering Studies: Long Term Improve- ments	\$150,000	\$495,000	\$645,000
On going Capital Improvement Program		\$1,100,000	\$1,100,000
Total Cost During Project Period	\$950,000	\$2,745,000	\$3,695,000

The Cambridge Water Department request the immediate approval of a supplemental appropriation for the projects outlined above. These improvements are needed to: 1) ensure short term compliance with current water quality standards, 2) to ensure the short term continued operation of the existing treatment plant, and 3) to initiate long term planning to develop facilities for long term use and the continued delivery of safe drinking water to the citizens of Cambridge.

13.



CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139

TEL. 498-9011

EXECUTIVE DEPARTMENT

ROBERT W. HEALY

City Manager

RICHARD C. ROSSI

Deputy City Manager

November 5, 1990

To The Honorable, The City Council:

Attached is an order requesting the appropriation of \$950,000.00 from the Water Fund Balance to the Public Investment Fund Water Extraordinary Expenditure Account to provide funds for the first phase of interim improvements to the Water Treatment Plant (\$800,000.00) and engineering studies for long term improvements to the system (\$150,000.00). Please see the attached letter for a detailed description of this project.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Robert W. Healy", is written over a horizontal line.

Robert W. Healy
City Manager

RWH/mev
attachment

Agenda # 13 F-603

Appropriation of \$950,000 to the Public
Investment Fund for improvement to the
Water Treatment Plant.

In City Council,

November 5, 1990

Order adopted
9-0-0.