EXECUTIVE SUMMARY

This Notice of Project Change (NPC) for the Alewife Brook CSO Control project documents the detailed investigations prepared by the Massachusetts Water Resources Authority (MWRA), the City of Cambridge and their respective consultants. It also reflects a concerted effort of public outreach and subsequent analysis to address important issues raised by numerous stakeholder groups.

This Executive Summary has been arranged as a series of questions, often asked during the public outreach effort, as a way of introducing the reader to this comprehensive document. Each question is followed by a brief response and directs the reader to the appropriate chapter or appendix of the report for a more detailed explanation.

1. Why are the MWRA and the City of Cambridge submitting an NPC?

An NPC is being submitted for two reasons. The first has to do with combined sewer overflow (CSO) control and the second has to do with related stormwater management. In 1994, the MWRA developed a plan for controlling CSO to Alewife Brook. For reasons presented below, the MWRA recently undertook a re-evaluation of this plan, and this NPC describes the proposed revised long-term CSO control plan for minimizing CSO discharges to Alewife Brook. Although the overall level of CSO control for the revised plan is comparable to the original plan, certain elements of the original plan have been modified (see Table 1-1 in Chapter One for a comparison of the original and revised plans). For example, sewer separation in the CAM002 area has been eliminated from the plan, but sewer separation in the CAM400 area has been added. In addition, certain localized projects such as interceptor connection relief, siphon relief, and construction of a hydraulic relief gate have been added to the plan. Refer to Chapters One, Two and Three for more information about the purpose of the NPC, relevant policies and regulations, and specifics on the proposed revised recommended plan.

Implementing the recommended sewer separation project will necessitate managing the resulting increased volume of separate stormwater. For the CAM004 area, this will require construction

of a new stormwater outfall to convey flows to a new wetland detention basin within the Alewife Reservation. This component was not included in the original recommended plan. It introduces an additional aspect to the scope of work that is substantially different from the typical pipe installation work in streets associated with the sewer separation activities. Refer to Chapter Eight and Appendix A for more information about the new stormwater outfall pipe and wetland detention basin.

2. Why did the original recommended CSO control plan change?

Early in design of the original plan, the City of Cambridge conducted field investigations that identified significant unforseen conditions in the local sanitary (sewage) and drainage (stormwater) systems. These conditions included discovery of a previously unknown CSO outfall (CAM401B), a substantial cross-connection between the sanitary and drainage system at Vassal Lane and more extensive sanitary/drainage interconnections in the CAM004 area than were anticipated. As a result, the estimated annual volume and frequency of CSO discharges was substantially increased. In addition, it became clear that the City of Cambridge needed to improve drainage service to the residential areas where sewer separation was proposed, to provide an appropriate level of drainage control beyond the existing 1-2 year storm frequency level. These changed conditions led to significant (six-fold) projected cost increases. It was clear that, because of the significant changed conditions and the projected increase in cost, a re-evaluation of CSO control alternatives was necessary to ensure that the proper technology was selected to provide an appropriate, cost-effective level of CSO control. Using an approach in accordance with federal and state CSO policies, MWRA initiated the re-evaluation of the original recommended plan . Refer to Chapter One, Project Re-evaluation section for a more detailed discussion.

3. What is the revised recommended plan?

The revised recommended CSO control plan for Alewife Brook consists of the following components:

- Separate sewers in the CAM004 tributary area to eliminate CSO discharges. Includes construction of a new stormwater outfall and wetland detention basin to attenuate flows to the Little River/Alewife Brook.
- Increase size of connections between the local sewer and the MWRA interceptor at CAM002, CAM401B and SOM01A, to reduce CSO discharges at these locations.
- Increase size and capacity of Rindge Avenue siphon to reduce CSO discharges at CAM 401B; add hydraulic control gate.
- Separate sewers in the CAM400 tributary area.
- Install floatables control at remaining CSO outfalls (SOM001A, CAM001, CAM002, CAM004 (temporarily until outfall is closed), CAM400, CAM401A, CAM401B, and MWR003).

Refer to Chapter Three for a detailed discussion of the revised recommended plan.

4. How did the MWRA and the City of Cambridge come up with the revised recommended plan?

CSO control plan

In accordance with federal and state CSO policies, MWRA conducted both technology-based and water quality-based assessments of feasible CSO control alternatives using the updated existing conditions information, including the greater volume and frequency of CSO discharges. The purpose of this re-evaluation was to compare a range of CSO control technologies and determine an appropriate level of control for the Alewife Brook receiving water to arrive at the most cost effective recommended plan. The re-evaluation concluded that targeted sewer separation remained the most cost-effective control technology, relative to other alternatives, and that higher levels of CSO control, beyond the annual 84 percent volume reduction proposed, would not yield significant water quality benefits despite a significantly higher cost. Refer to Chapter Four for an overview of the re-evaluation and Chapters Five through Seven for detailed discussion of the re-evaluation, comparison of CSO control alternatives and receiving water modeling.

Stormwater management

The City of Cambridge conducted a detailed evaluation of alternatives for the stormwater management issues associated with the CAM004 sewer separation project. This evaluation included assessing alternatives for alignment of the proposed new stormwater outfall and siting options and other considerations for stormwater retention/detention to attenuate the flows to the Little River/Alewife Brook. The outcome of these evaluations confirmed that the proposed new stormwater outfall and wetland detention basin are the optimal alternative for conveyance, attenuation and treatment of the separate stormwater. Refer to Chapter Eight, Cambridge Park Drive Area Drainage Project section, and Appendix A for further information about stormwater management alternatives.

5. What are the water quality benefits of the revised recommended plan?

CSO control

The revised plan provides an 84 percent reduction in annual CSO volume to Alewife Brook, a level of control comparable to the original plan. In a typical year, the Alewife Brook would meet Class B (fishable/swimmable) standards approximately 98 percent of the time, considering CSO pollutant sources only. That is, CSO discharges would result in violations of Class B standards only about 2 percent of the time. Other pollutant sources, such as illegal sanitary connections and stormwater contribute to Class B violations beyond this level. Refer to Chapters Six and Seven for a detailed discussion of water quality benefits of the revised plan and the relative impacts of non-CSO pollutant sources.

Stormwater

The City of Cambridge's plan for managing the additional stormwater resulting from sewer separation goes beyond typical efforts. The plan includes certain upstream Best Management Practices (BMPs), such as hooded catch basins with deep grit sumps, connected to stormwater interceptors equipped with flushing gates and grit chambers. These measures will reduce

pollutant loads, including total suspended solids (TSS), before discharging to the wetland detention basin. The basin will also provide significant removal of TSS and bacteria. Due to these efforts, despite an increase in the annual volume of stormwater flows to the Little River/Alewife Brook, the associated annual pollutant loads will decrease slightly. Refer to Chapter Five, Table 5-24.

6. What are the potential environmental impacts/mitigation and benefits of the revised recommended plan?

Sewer separation related impacts

The construction impacts from sewer separation and three of the interceptor connection relief projects are comparable to those identified in the original recommended plan – noise, dust and traffic associated with construction in local streets. The sewer separation projects received a Phase 1 Waiver from further environmental review during the Facilities Planning process. The City of Cambridge will implement mitigation measures as outlined in the 1998 Draft Mitigation Guidelines for Phase 1 Waiver Projects. Refer to Chapter Eight and Appendix D for further discussion of impacts and mitigation.

Stormwater management related impacts (refer to Chapter Eight and Appendix A for further discussion of the following topics)

Downstream flooding

The volume of stormwater discharged to the Little River/Alewife Brook annually will increase and may result in marginal increases in water surface elevations between Perch Pond and the Massachusetts Avenue bridge. The proposed wetland detention basin will mitigate this marginal increase by attenuating stormwater flows both by dampening the peak flow and delaying the timing of the peak. The proposed low earthen berm, above Massachusetts Avenue on the Arlington side of the Alewife Brook, offers mitigation for both existing flooding and from the potential marginal increase in water surface elevation resulting from the project. The berm also

provides a public health benefit by preventing floodwaters containing CSO from reaching properties currently impacted during flooding up to the 25-year storm event.

Upstream flooding

The Cambridge residential neighborhoods tributary to CAM004 will have improved drainage service from the 1-2 year storm level to the 10-year storm level.

Impacts to the Alewife Reservation

- Wetlands: Construction of the wetland detention basin will require wetland modification, but there will be a five-fold net increase in wetland area when construction is complete.
- Habitat: There will be temporary disruptions to wildlife habitat during construction, which will be minimized by concentrating construction during the late fall and winter months. When construction is complete, there will be additional wetland habitat created and maintained, while the upland habitat will be enhanced to support a greater diversity of wildlife.
- Public Access: There will be temporary disruptions to the existing trails network during construction. When construction is complete, trail connectivity will be preserved and enhanced through creation of waterway vistas and improved trail surfaces.

7. What are the next steps for the Alewife Brook CSO control project?

MEPA process

At the close of the 30-day public comment period for this NPC, MEPA will consider public input and, within approximately one week, issue a Secretary of Environmental Affairs Certificate for this project. The Certificate may approve the project to move forward with no further MEPA review, it may approve it conditionally, or it may require MWRA and the City of Cambridge to conduct additional evaluations subject to further MEPA review.

Variance Process

DEP issued a Variance for the Alewife Brook/Upper Mystic River that requires MWRA to implement the CSO control plan (which this NPC proposes to modify) and MWRA, along with certain municipalities, to gather additional CSO and stormwater information. At the end of the Variance period, in March 2002, and after conducting a public process, it is anticipated that DEP will use this information to make a determination of whether Class B or Class Bcso water quality standards need to be met for this receiving water. The revised recommended CSO control plan presented in this NPC is being substituted as a requirement of the Variance in place of the original plan.

Construction

While certain elements of the recommended plan along Fresh Pond Parkway are already under construction, construction for the remaining component contracts of the revised recommended plan is scheduled to begin December 2001 and be complete in August 2008. Upon receiving the Secretary's Certificate from MEPA, the City of Cambridge will resume all necessary permit and approval processes.