4 Related Projects And Recommendations

A. Projects Related to Study Area
B. Recommendations Beyond Study Area

A. PROJECTS RELATED TO STUDY AREA

A number of projects related to the Master Plan study area are planned or underway by the MDC, abutting towns and cities, neighboring property owners and developers. The status of these projects varies. Some are very advanced in their design and/or construction, others exist only in concept. Development within the Alewife subwatershed had and will continue to have an effect on the hydrologic regime of the receiving water bodies and groundwater in the Alewife Reservation and Alewife Brook corridor (see Section 2D). Descriptions of the various projects follow.

A1. MDC Floodplain Mapping Project

For the past 20 years development activities have proceeded in the watershed without updates of the 1982 floodplain lines delineated by the Federal Emergency Management Agency (FEMA). The MDC has identified the need to verify those lines throughout the Alewife area 100- and 200-year floodplain. The MDC hired Applied Geographics to produce updated and corrected floodplain maps for all floodplains around the Alewife Reservation, Alewife Brook, the Mystic River, Fresh Pond, and Spy Pond. These new maps should advance understanding as to why so many properties "outside" the 1982 delineated floodplain regularly have flooding problems. This is one helpful step of many that are needed to thoroughly understand the complex flooding issues in this watershed. The work under this contract is expected to be completed by the end of 2003.

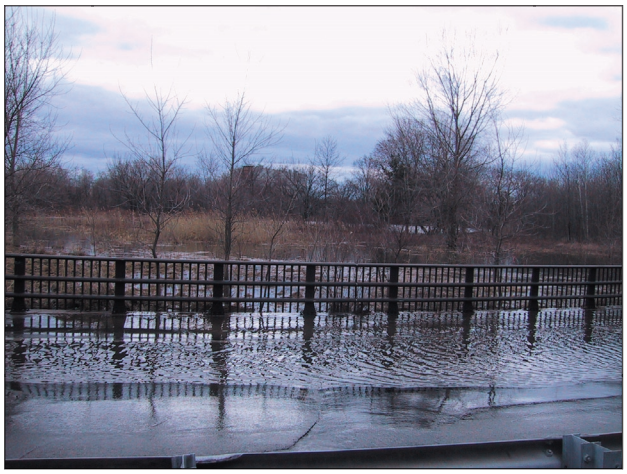

FIGURE 74. The MDC floodplain mapping project will review and adjust the existing FEMA 100-year floodplain lines for the Alewife Reservation, Alewife Brook, the Mystic River, Fresh Pond, and Spy Pond. New orthophotos allow for much greater accuracy.

A2. MDC Mystic River Hydrologic and Hydraulic Study

The MDC has contracted Camp, Dresser and McKee (CDM) for a study and conceptual design for the new Upper Mystic Lake Dam. This project includes a hydrologic and hydraulic (H&H) study of the Mystic River Watershed (Phase I) and the development of required dam safety improvements recommendations as well as the conceptual design of a fish ladder at the Upper Mystic Lake Dam (Phase II). The objectives of the study are to identify constrictions that prevent flood flows from reaching the Amelia Earhart Dam and pumping station and to establish the role of the Upper Mystic Lake Dam in flooding within the basin. Extensive hydrologic and hydraulic modeling has been conducted and findings were presented to the public in April 2003. The major conclusions presented are:

- Flood obstructions have been removed. No other identifiable constrictions on either the Mystic River or Alewife Brook exist.
- No localized constrictions exist that are cost-effective to eliminate
- Not practical to reconstruct Alewife Brook and Mystic River channels or tunnel flow to alleviate problem
- Upper Mystic Dam safety improvements can be made without adversely affecting downstream flooding levels
- Flood monitoring program is recommended to collect better data for future projects.

Any applicable findings of this study will be incorporated into the design development of the Alewife Reservation and Alewife Brook Greenway restoration.

A3. Cambridge Stormwater Wetland

South of the Little River in the Alewife Reservation, the Cambridge Department of Public Works and the Massachusetts Water Resource Authority (MWRA) have proposed a stormwater wetland as part of the Long-Term CSO Control Plan for Alewife Brook. A primary function of the wetland is to receive and treat the stormwater that will be separated from the sewage that flows through Cambridge sewer pipe CAM004, thus preventing the combined sewer overflows from continuing the pollution of the Little River and Alewife Brook. The

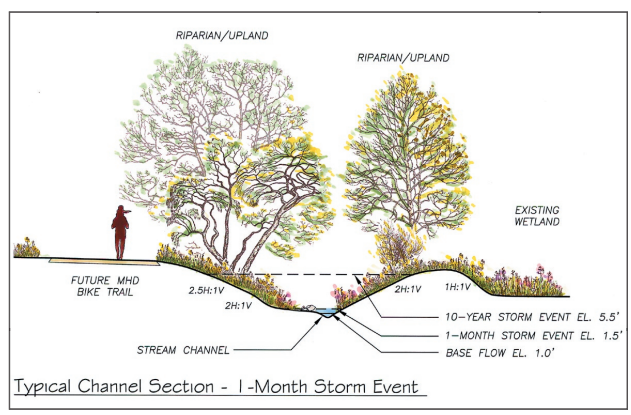

FIGURE 75. A restored natural stream channel is designed to convey stormwater to the wetland for water quality treatment and will provide habitat for wildlife.

separation project and the use of natural processes in the wetland to remove contaminants will significantly improve the quality of the stormwater that flows into these waterways.

The stormwater wetland is designed, also, to meet the goals and objectives of the Master Plan for Alewife Reservation with respect to wildlife habitat enhancement, hydrological improvements, and recreational and educational opportunities. For example, the smaller wetland cell designed for compensatory flood storage will feature a large open water area connected to the Little River to allow alewife, blueback herring, and other fish to enter this protected area for reproduction.

The projected benefits of this new wetland are described on page 64.

Benefits for Alewife Reservation from the Stormwater Wetland Project:

- Improved water quality through elimination of combined sewer overflows into the Cambridge sewer outfall CAM004 and additional water quality treatment of the remaining stormwater through a natural wetland system
- Enhanced habitat diversity through the creation of low marsh, high marsh, and upland plant communities
- Expected enhanced hydrologic conditions in the surrounding wetlands through increased resident time of stormwater in wetlands, with concomitant increased infiltration and a seasonally elevated watertable
- Recreational and educational opportunities to study wildlife and plants from boardwalks, paths, and overlook platforms incorporating signage and a public gathering space
- Connection to main gateway to the Reservation and MHD Bike Path
- Invasive species control and restoration of native plant communities
- Long-term maintenance and monitoring by the Cambridge Department of Public Works

A4. Belmont Uplands Development

The 15.6-acre Belmont Uplands site, located northeast of Little Pond, is the highest elevation in the area. Although not part of the MDC Alewife Reservation, it is contiguous to it and supports a mature silver maple forest, a habitat type not found in the Reservation. This forested area is home to many animals, including large mammals like deer and coyote. Coyote apparently use the area for daytime cover before going downstream to hunt at night. The area also likely supports vernal pools that provide breeding grounds for amphibians in the spring.

FIGURE 76. Foot trails lead through the silver maple forest.

The parcel is owned by AP Cambridge Partners II, LLC and O'Neill Properties Group. In 2002 the Town of Belmont approved a zoning bylaw that allows for the commercial development of this site. The current plans propose a commercial building and structural parking on approximately 7.8 acres. The MDC Planning Office and the Town of Belmont have negotiated a Conservation Restriction (CR) to preserve and enhance the remaining 7.8 acres of upland and wetland habitats. The O'Neill Properties Group has agreed to gift this CR to the MDC. In addition they will provide habitat enhancement, forest management that enhances biodiversity, long-term maintenance of the CR area, and a public trail that connects to the MDC Alewife Reservation trail network. (Refer to the Master Plan fold-out map in Appendix E for areas recommended for Conservation Restriction).

The development of the Belmont Uplands site will have negative effects on the habitat value of the whole Reservation given the loss of forested land and decreased habitat connectivity. However, the MDC has worked closely with the developer to define measures that protect and enhance the remaining open space and its connection to the Alewife Reservation. (See Open Space Maintenance Plan, Belmont Upland Site, by Epsilon Associates, revised May 2002 for further details.)

A5. Acorn Office Park Redevelopment

In 2001 the Bulfinch Companies and the McKinnon Company, the owners of the Acorn Office Park (formerly Arthur D. Little headquarters), developed a master plan that outlines the redevelopment of this office building complex. Currently Bulfinch Companies uses MDC land, the former ADL parking lot, to satisfy the company's parking needs. The MDC issued Bulfinch a permit for the use of the existing lot. Proceeds from that permit have helped fund a large amount of this Master Plan. The MDC plans to reclaim this land within the next five years and restore the area as described in Section 2C, Area 2 of this Master Plan.

The office complex currently expands south of Acorn Park Drive up to the Little River and divides the Reservation land north of the river. The redevelopment plan calls for restructuring of the building complex in three phases, which would ultimately result in the demolition of all building and structures south of Acorn Park Drive. The MDC and the property owners are discussing the reclamation of this area as open space through a Conservation Restriction (similar to the agreement for the Belmont Uplands). This plan could potentially benefit the Alewife Reservation through restored floodplain, improved habitat connectivity, and increased flood storage capacity. (Refer to the Master Plan fold-out map in Appendix E for areas recommended for Conservation Restriction.)

A6. Arlington Hotel

Completed in 2002, this new hotel complex in the Town of Arlington is located off Massachusetts Avenue adjacent to the Alewife Brook Greenway. Because the hotel development required the temporary use of the abutting Parkway, an agreement between the hotel developers and the MDC Planning Office was reached requiring mitigation for the temporary

FIGURE 77. The Arlington Hotel is set right on the border of Alewife Brook Parkway. This pictures shows a view into the Alewife Brook corridor approaching from Massachusetts Avenue.

disturbance of the public open space. Mitigation measures included revegetation of the Alewife Brook corridor with native tree and shrub species, which were planted in the fall of 2002. In addition, the hotel owner agreed to take over the maintenance of a defined section of the Alewife Brook corridor adjacent to the hotel and has committed to removing invasive species in this area.

A7. Fitchburg Cutoff Bicycle Trail

The Massachusetts Highway Department (MHD) plans to upgrade the existing stone dust trail (also known as the Fitchburg Cutoff Trail) at the southern border of the Reservation. The improved trail will be a 12-foot-wide, two-way, multi-use asphalt path, including a vehicular bridge (for maintenance purposes) over Old Alewife Brook behind the Alewife subway station. This proposed path improvement project would strengthen a vital link in the regional path system and is also an important component of the Master Plan trail system. Construction of the project has been on hold for several years, although funding is in place. According to 2002 survey information, the existing trail is located partially on MHD land and partially on MDC land. Thus coordination among the MHD, MDC, and City of Cambridge (which will use portions of the path for stormwater wetland maintenance) is recommended to bring this project to fruition.

FIGURE 78. The existing, narrow stone dust path parallel to Boston-Maine Railroad tracks

B. RECOMMENDATIONS BEYOND STUDY AREA

The Alewife Reservation and Alewife Brook corridor comprise less than 4% of the total Alewife watershed, thus successful management of this site cannot occur in isolation from the surrounding cityscape. In particular, plans to develop abutting properties (e.g., the Belmont Uplands, the former skating-rink site, Acorn Office Park, Cambridgepark Drive, and the Mugar and Martignetti sites) and more distant, but still ecologically linked sites (e.g., Alewife Industrial Quadrangle area) must be carefully considered in light of their potential impacts to the Alewife Reservation and the Alewife Brook corridor.

Using the framework of recommendations established by this Master Plan, a review of proposed development plans for the surrounding areas is highly advisable. Promising elements from other existing studies and plans can be extracted. These urban planning initiatives should be oriented toward sustaining and protecting the investments of the Alewife Reservation and Greenway.

B1. Watershed Planning

It is essential to place site-specific restorative designs in both a larger landscape and a larger management context, in this case where the two are in the same watershed. From an environmental perspective, watersheds are the most appropriate units in which to manage water resources effectively in the urban landscape. Even if all the recommendations of the Master Plan are implemented, it is unlikely that the Alewife Reservation and Alewife Brook will be able to sustain long-term ecological health without additional positive changes in the watershed. An effective, comprehensive watershed management plan must be developed that will prevent, or at least reduce, the severity of the problems that necessitated the need for the

restoration effort in the first place.

The following elements should be addressed in developing a plan for the larger Alewife watershed:

Land Use Planning

- Development of a model of the watershed that identifies pervious and impervious areas
- Examination of land use management techniques and alternative future development scenarios for the entire watershed

Land Conservation

- Identification and prioritization for protection of all sites targeted for development (e.g., Belmont Uplands) to preserve important watershed hydrologic functions
- Prioritization for protection and possible acquisition by MDC of all undeveloped lands adjacent to the Reservation (e.g., Belmont Uplands, Mugar parcel, Martignetti property, portions of Acorn Office Park, Jerry's Pond, northern piece of the cattail marsh) because these sites provide key wetland and upland habitat and flood storage capacity, all of which could be enhanced following acquisition

Aquatic Buffers

- Examination of potential protective buffer strip creation and planting schemes for headwater streams and ponds

Hydrological Connections

- Improvement and maintenance of existing hydrological connections between flood storage areas and identification of additional areas suitable for this use (e.g., former MDC skating rink site, Martignetti property, Mugar parcel, Thorndike playing fields)
- Investigation of opportunities for "daylighting" or opening up now buried streams in the Alewife watershed (e.g., Alewife Brook, Upper Wellington Brook, Winn's Brook)
- Better, ecologically sustainable site and building design
- Implementation of stormwater Best Management Practices (BMPs)
- Development of guidance directives for reducing stormwater runoff by encouraging a "start at the source" BMP effort by individual homeowners
- Assessment of the potential for retrofitting low impact development stormwater BMPs such as "green parking lots" into the existing urban framework
- Discourage developers from using underground stormwater detention basins as a means to achieve a no-net discharge of runoff from their sites because these

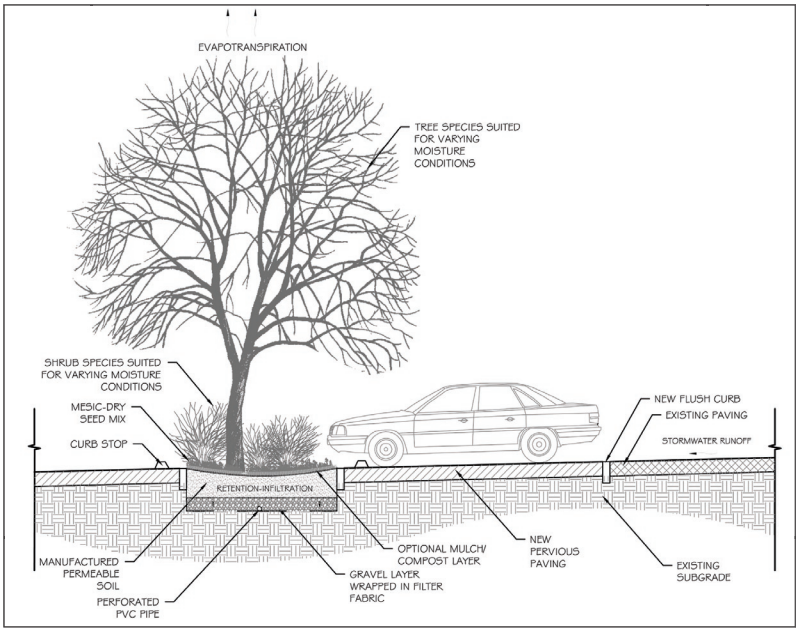

FIGURE 79. Stormwater bioretention basins as proposed for the Dilboy Field parking areas could be implemented throughout the watershed.

systems are inadequate for sustaining wildlife

- Update FEMA floodplain delineation

Erosion and Sediment Control

- Development of guidance directives for reducing erosion from abutting properties
- Assessment of the potential for retrofitting erosion control BMPs into the existing urban framework

Non-Stormwater Discharges

- Investigation of structural and non-structural controls for limiting lawn and wastewater discharges and for uncoupling illicit connections, with an accompanying management plan and detailed implementation strategy and budget

Watershed Stewardship Programs

- Outline program for public and private stewardship that helps sustain the watershed

B2. Landscape Ecology Planning

One measure of the ecological health of a landscape is the overall connectivity of the natural open spaces that are present. A fragmented landscape is generally inhospitable for wildlife, yet a network of green corridors connecting "island" habitat patches can significantly improve habitat value. Maintaining large, intact parcels is even more beneficial as certain species require interior habitats far from any edges.

Unfortunately, land use planning often occurs at the scale of individual development sites, with little understanding about the implications of those projects upon the larger ecological context of the landscape or region. Land use planning must shift from its reactive mode — merely responding to existing environmental constraints — to a more proactive mode, whereby green open spaces are prioritized first and human developments fitted into, not against, the ecological landscape. The Alewife Reservation and Greenway are urban wilds within a sea of suburban sprawl and generally unrestrained development. The long-term viability of healthy populations of terrestrial animals located within the Reservation and Alewife Brook corridor needs to be considered when undertaking planning efforts. Emphasis should be put on maintaining a resident population of a sufficient size to ensure genetic diversity and facilitating the genetic exchange with other distant populations.

The following elements should be addressed in developing a landscape ecology plan for the Alewife area:

Habitat Patches

- Prioritization for protection and possible acquisition of all undeveloped and vacant lands adjacent to the Reservation (e.g., Mugar and Martignetti properties, sections of Acorn Park) and the Greenway (e.g., W.R. Grace property) as potential sites to increase the size of the contiguous wildlife habitat
- Identification and characterization (e.g., overall size and ability to sustain populations, ratio of interior to edge dimensions, habitat diversity and edge structure, resilience to disturbance, and recolonization potential) of isolated habitat patches proximal to the Reservation and Greenway
- Prioritization for protection of those patches deemed most beneficial for augmenting and sustaining wildlife within the MDC managed lands

Corridors and Connectivity

- Identification and characterization (e.g., corridor width and length dimensions, gap isolation between patches, "stepping stone" connectivity of patches)

of those areas that can be connected to the Alewife Reservation and Greenway through creation of wildlife corridors

- Prioritization for protection of those locations deemed most suitable for creating wildlife corridors to the MDC managed lands (e.g., the existing corridor provided by the Mystic River to the Mystic Lakes, the potential corridor along the Mystic River to Boston Harbor, the potential corridor through the future developed Alewife Industrial Quadrangle that will link the Alewife Reservation via Blair Pond and Rafferty Park to the Fresh Pond Reservation, and the potential corridor from Little Pond to Spy Pond beneath Route 2)
- Investigation of stream daylighting opportunities in the Alewife watershed (e.g., Alewife Brook, Upper Wellington Brook) and incorporation in regional planning concepts to create open stream corridors.
- Improve fish passage at the Amelia Earhart Dam at Boston Harbor by managing the dam operation to allow for fish to pass during the spawning season or by installing a fish ladder that allows for passage at all times.

B3. Regional Trail Network and Environmental Education Planning

Outdoor recreation has become as popular within cities as it has always been in the countryside. One outcome resulting from this urban increase in recreational activity is the accelerated construction of regional trail networks. In terms of public circulation and pedestrian and cycling use, connecting the newly designed trail systems within the Alewife Reservation and Alewife Brook Greenway to the larger network of trails throughout the

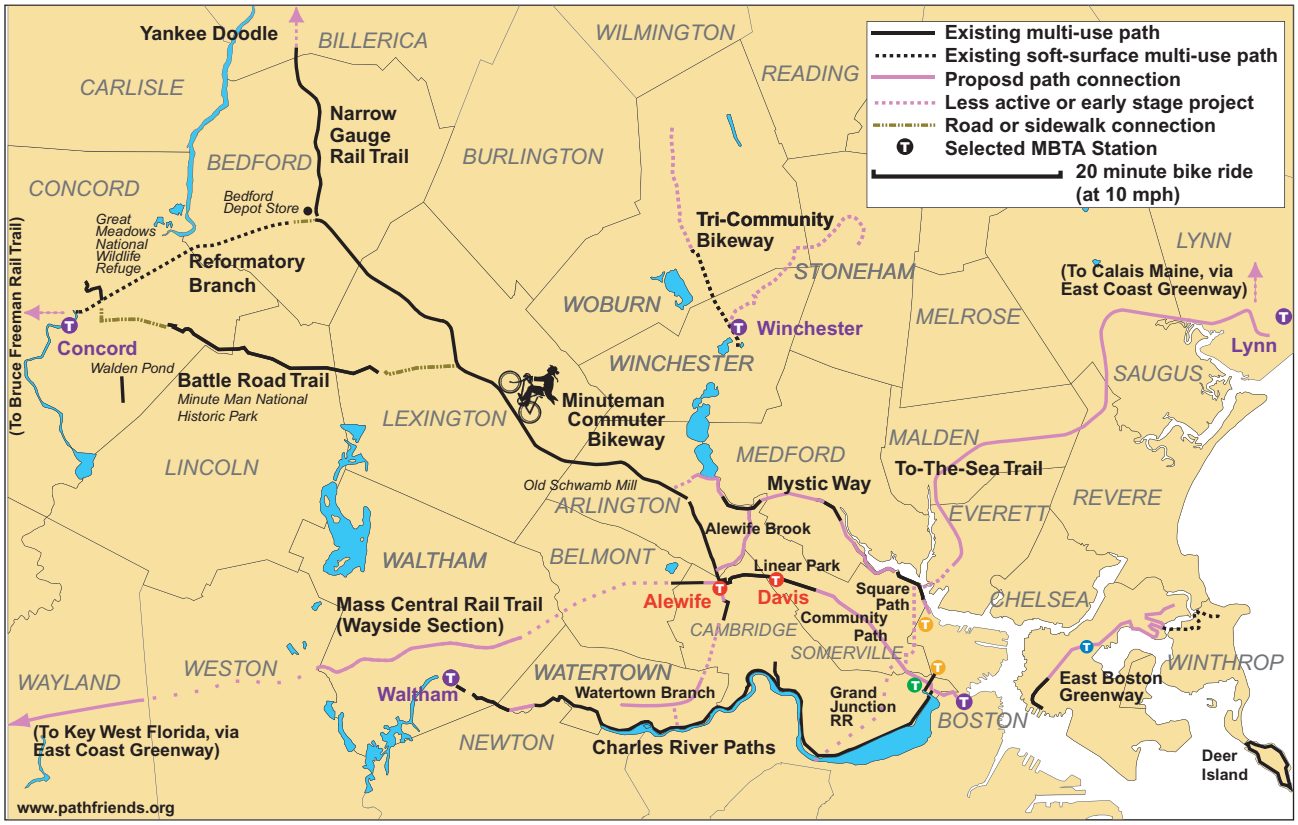

FIGURE 80. Evolving Multiuse Path Network, Boston North (map by Bryce Nesbitt).

surrounding region is essential. Opportunities for such connections exist with the Minuteman Path (which runs from the Alewife subway station, past the Reservation and northwest to Lexington), the Mystic River Greenway (from the confluence of the Alewife Brook north to the Mystic Lakes and south to the Amelia Earhart Dam), and the Fitchburg Cutoff Bicycle Trail (a section of the Mass Central Rail Trail which will run east from the Alewife subway station into Belmont and will connect east to the Linear Path and Danehy Park).

In addition, potential exists for establishing new trails that would link with the Alewife Reservation and Greenway. One such possibility would be a trail alongside a newly daylighted Alewife Brook creating a new greenway link from the Alewife subway station south to the Fresh Pond Reservation.

Transportation has always been a serious and recurring planning problem facing the Alewife area. Although the acrimony of the debates of several decades ago in relation to the widening of Route 2 have subsided, questions about how best to manage automobiles moving through this area are very much at the forefront of present-day planning concerns. Such heated discussions include, but are not limited to:

- how the proposed future development slated for the Belmont Uplands will affect vehicular flow along Lake Street and access off Route 2
- whether the Mugar site in Arlington will receive permission to build an off-ramp from Route 2
- the poorly designed intersection from Route 2 to the Alewife Brook Parkway formerly known as the Dewy traffic circle
- the number of lanes of the Alewife Brook Parkway and its merging with the Mystic River Parkway
- proposals to create a crossing from Cambridgepark Drive into the Alewife Industrial Quadrangle area

The mandate of this Master Plan is to focus on the parklands of the MDC. The planning team recognizes, however, that the successful restoration and maintenance of the Alewife Reservation and the Alewife Brook corridor (particularly the latter) should be considered in the context of a new regional traffic management plan.

Another effort that is linked to traffic planning in the Boston metropolitan area is the Historic Parkways Initiative launched in 2002 by the Executive Office of Environmental Affairs. The initiative's slogan "A Parkway is not a road. It's a park with a road in it." stresses the importance of parkways as valuable historic open spaces and not solely as transportation corridors that they are often reduced to. It was developed through an interagency effort including Metropolitan District Commission, the Department of Environmental Management's Historic Landscape Preservation Program, the Massachusetts Highway Department, and the Massachusetts Historical Commission. The project's goal is to protect the historic parkways in Massachusetts. So far, 13 MDC-controlled parkways have been identified and nominated for inclusion in the National Registry of Historic Places and are expected to be accepted, including the Fresh Pond Parkway and Fellsmere Park Parkways. It is recommended that both the Mystic Valley Parkway and the Alewife Brook Parkway be included in the next round of nominations to protect them from further development and infringement.