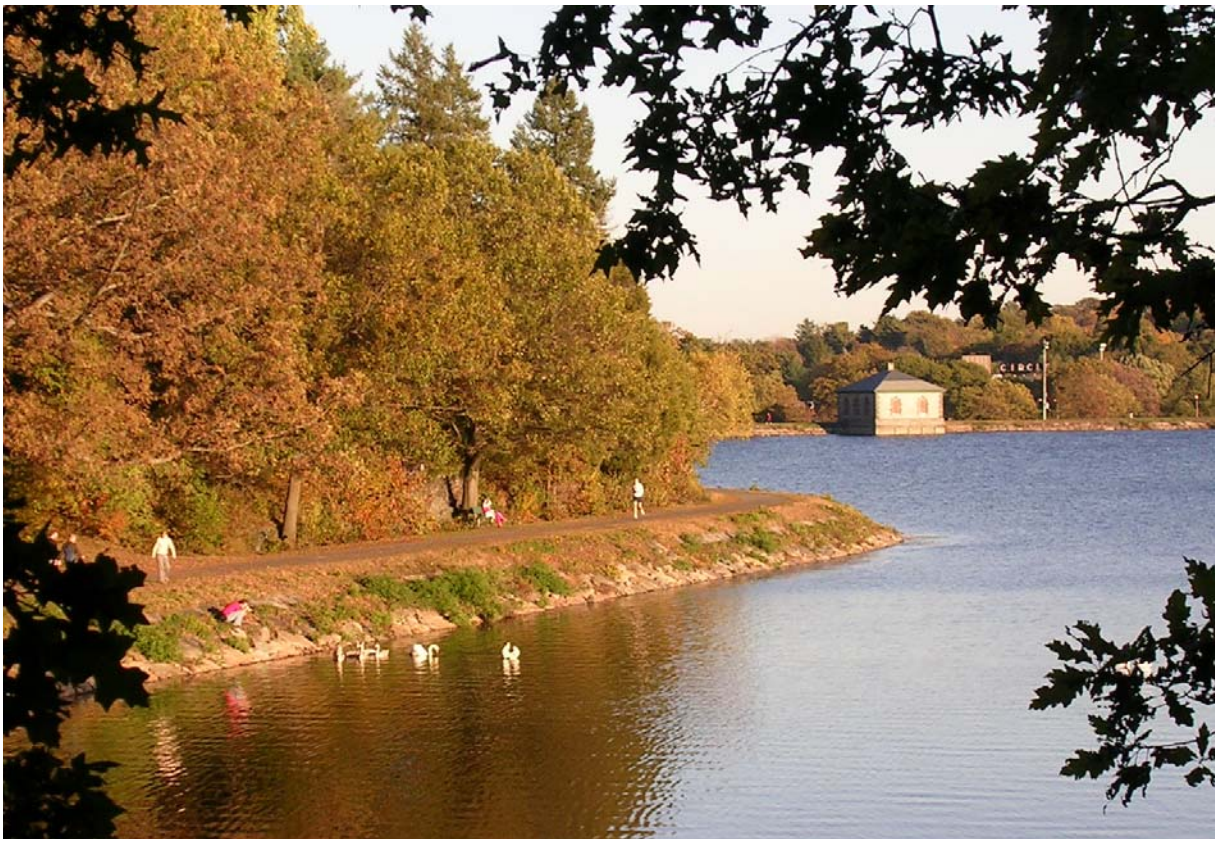
dcr
Massachusetts

Resource Management Plan

Chestnut Hill Reservation

Boston, Massachusetts



November, 2006

Massachusetts Department of Conservation and Recreation
Division of Planning and Engineering
Resource Management Planning Program

dcr
Massachusetts

RESOURCE MANAGEMENT PLAN

Chestnut Hill Reservation

November 2006

Massachusetts Department of Conservation and Recreation

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The Chestnut Hill RMP was funded through a partnership between the Executive Office of Environmental Affairs (EOEA) Office of Public Private Partnerships (OPPP), Boston College, and the Waterworks Park, LLC. Thanks to all for contributing to the completion of this RMP, which will guide the future management of this shared resource. The Commonwealth thanks its private partners for their generous contributions to the RMP, both financial and otherwise. DCR also acknowledges the work of EOEA's Office of Public Private Partnerships (OPPP) in bringing the partners together to make this plan possible.

DCR thanks the Massachusetts Water Resource Authority for their participation in developing the RMP. It is hoped that the plan will aid in the joint management and maintenance of the Reservation, reinforcing the spirit of cooperation shown during the planning process.

Finally, the Commonwealth extends special thanks to the members of the Chestnut Hill RMP Working Group, who have persevered through the planning process for over a year, proving valuable insight and guidance along the way. The group's varying perspectives and depth of knowledge brought a new level of understanding to the project and provided DCR a direct link to the active network of area residents, business owners and civic organizations sharing an interest in the future of the Reservation. A list of the Working Group members is included in Appendix B of the RMP.

We strongly encourage the Commonwealth's partners to work with us to support the management of Chestnut Hill Reservation as a significant natural, historical, cultural and recreational resource in the years to come.

Resource Management Plan

Chestnut Hill Reservation

Boston, Massachusetts

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EXECUTIVE SUMMARY

Overview

The Department of Conservation and Recreation (DCR) was created in 2003 as a merger of the former Metropolitan District Commission (MDC) and the Department of Environmental Management (DEM). The DCR is responsible for the management of 450,000 acres of land, constituting 10% of the state's landmass and including 29 campgrounds, 67 beaches, 39 pools, 2 golf courses, 60 playgrounds, and 55 ball fields. The agency also manages 500 lane miles of parkways, 187 bridges, and 338 dams, and oversees watershed and forestry management across the state.

The **DCR's mission** is to exercise care and oversight for the natural, cultural, and historic resources of the Commonwealth and to provide quality public outdoor recreational opportunities that are environmentally sustainable, affordable, and accessible to all citizens. To carry out its mission, DCR investigates, analyzes, plans, and provides stewardship of the Commonwealth's resources.

DCR undertook the preparation of the Chestnut Hill Reservation Resource Management Plan (RMP) in response to the transfer of management responsibilities for the reservoir from the Massachusetts Water Resource Authority (MWRA) to the DCR (formerly the Metropolitan District Commission) in 2002. The Reservoir (Bradlee Basin) serves as a back-up water supply for the City of Boston and other cities and towns south of the Chestnut Hill area and remains the responsibility of MWRA along with the Shaft #7 parcel, Gatehouse #2, the dam, and all associated water supply equipment. DCR is charged with the management of the surrounding landscape and roadways, as described in the joint management agreement executed in 2002. The Reservation is also a significant historic resource, with portions listed on the National Register of Historic Places, and is designated a City of Boston Landmark. The challenge of joint stewardship, combined with the sensitivity of the historic landscape and significant local support, made Chestnut Hill Reservation a prime candidate for the Resource Management Planning program.

The planning area includes the Bradlee Basin (reservoir) and surrounding landscape, pathways and woodland, Chestnut Hill Driveway, Saint Thomas More Road, and the Reilly Memorial Rink and Pool area. The Plan does not include recommendations for the operation of the Rink and Pool, nor does it address property under MWRA control per the 2002 Agreement (Shaft #7, Gatehouse #2, etc.). Please refer to Figure 1.2 for details.

The Chestnut Hill Reservation Resource Management Plan provides a framework for future management and capital investment, while also defining a common vision for property managers, volunteers, and community stakeholders. The Plan describes clear management

objectives along with prioritized recommendations for operations, capital improvements, and potential partnership opportunities. Given the historic significance of the property, all recommendations are consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* as well as the standards set forth by the Boston Landmarks Commission in their 1989 Study Report and other applicable state and local laws. All proposed work will need approval from the Boston Landmarks Commission for consistency with the Standards and Criteria outlined in their 1989 Study Report.

Planning Process

The planning process for the Chestnut Hill Reservation RMP has been designed to foster public participation from its onset. To kick off the project, DCR convened the first meeting of the Chestnut Hill Reservation RMP Working Group. The group consisted of over thirty representatives from various neighborhood groups and civic associations, non-profits, local and state government, providing guidance on the RMP process and serving as liaisons to the greater community. The Working Group first met in January 2005 to undertake a visioning exercise and a discussion of issues and opportunities. The group met again in September 2005 to help DCR and its consultants to provide feedback on preliminary findings, and to develop the agenda and logistical details for the first public meeting. With the issuance of the Draft RMP in March 2006, the Working Group met with the DCR and consultants in April 2006 to express their comments and concerns prior to the second public meeting. Following the April 2006 public meeting, the group convened again in June 2006 as a follow-up to the public comment period. This Working Group meeting was open to the public.

DCR and the consultants presented preliminary findings to the general public at the first public meeting in November 2005. A second public meeting occurred in April 2006, during the public comment period for the Draft Resource Management Plan. A final Public Meeting in Fall 2006 will include a presentation of the final RMP as well as details on early action projects and implementation. A list of Working Group members, a summary of public comment and DCR's response to comments is included in Appendix B.

The DCR Stewardship Council will vote on the Final Resource Management Plan in Fall 2006.

Management Needs and Alternatives

Current Management Capacity

Chestnut Hill Reservation is part of a group of facilities within the West District of the South Region of DCR's Division of Urban Parks and Recreation. The Supervisor for Chestnut Hill Reservation is also responsible for eleven other reservations, four pools, four playgrounds, four skating rinks, several boat ramps and canoe launches, and multiple parkways and roads. The Park Ranger, laborers and other seasonal staff and volunteers are also assigned across the district. The West District Headquarters is located on Brainard Street in Hyde Park.

Currently, the district is staffed by the West District Manager and full-time, year-round staff are assigned based on District priorities. Each year, personnel increases in May with seasonal staff. While seasonal staff are assigned to Chestnut Hill Reservation, they are often deployed elsewhere in the district as priorities shift (i.e. ball field mowing).

Given current staffing levels and funding, Chestnut Hill Reservation can be managed as a passive recreational park, with limited, irregular presence of park personnel or rangers. Capital investment in high priority projects through the EOEA Office of Public Private Partnerships will make the landscape easier to maintain, increasing the staff's ability to address special maintenance needs or plan for other capital projects. Qualified seasonal staffing can help to maintain and protect these investments and may increase DCR's presence at the reservation. The addition of regular support staff would provide a longer-term solution. Given the assignment of Park Rangers across the district, however, DCR cannot currently address the most common concern of park users regarding increased law enforcement at the Reservation.

Management Alternatives

Level 1 - Baseline

For the purposes of this RMP, Level 1 management will be defined as the management of the facility in its current condition, with no change to the visitor experience. At Chestnut Hill Reservation this includes walking and running on unimproved dirt pathways, passive use such as bird watching, but without programmed interpretive services or regular daily presence of DCR personnel. Seasonal daily maintenance includes lawn mowing, vegetation control and trash pick-up (weekly at a

minimum). Capital investment in pathways and vegetation will facilitate Level 1maintenance and improve visitor experience.

In the current system of regional/district allocation of staff and resources, there is no dedicated full time staff or guaranteed seasonal staff for the Reservation; the existing staffing does not support the Level 1 management of the Reservation.

Level 2 - Improved

Under the Level 2 management of Chestnut Hill Reservation, DCR staff work toward recapturing the character of the historic landscape. With additional qualified seasonal or short term staff, the Park Supervisor could plan annual projects to address the recommendations of this RMP. Annual efforts could include pathway surface repairs, vista management, and limited planting and may need capital support.

To achieve Level 2 management, skilled seasonal staff would be assigned to Chestnut Hill Reservation every year. It is essential that the park supervisor or district manager be informed of seasonal assignments well in advance to allow time for planning projects, obtaining supplies and scheduling equipment.

Level 3 - Enhanced

Chestnut Hill Reservation is a popular recreational landscape with great potential to showcase historic resources and provide opportunities for public education. Once baseline management is mastered, DCR could strive toward creating an urban gem at Chestnut Hill Reservation, with visitor services/experiences equal to the significance of the park's historic features.

To achieve Level 3 management at Chestnut Hill Reservation, DCR would commit to a program of major capital improvement, including the restoration of the dam area for interpretive purposes. As described in Chapter 5, a capital program focusing on the adaptive reuse of historic Gatehouse #1 would establish a contact point for visitors; create opportunities for interpretation, initiate possible partnerships with local organizations, and reclaim a lost historic landscape feature (entry drive). In addition, the restoration of Chestnut Hill Driveway could recapture parkland, reestablish historic plantings, and recreate the driveway experience, so integral to the original concept of the park. This level of management is dependent on the implementation of a number of capital improvements along with an increase in year-round staff; specifically a dedicated Interpretive Ranger, as well as, additional staff to maintain paths, staff Gatehouse #1, and to develop and implement the interpretive programs.
See Chapters 3 and 7 for more information about current management and operations and alternative management levels.

Management Goal

DCR's overall goal in managing the Chestnut Hill Reservation is to preserve the historic and natural features of the landscape while providing accessible recreational opportunities. Based on feedback from the Working Group, DCR developed a vision statement for Chestnut Hill Reservation that recognizes both the unique physical characteristics of the park as well as its vital role in the surrounding urban and suburban communities:

> *Chestnut Hill Reservation will be a welcoming urban oasis that provides safe access to recreation and solitude within a sustainable, natural, and historical landscape. It is a public open space connecting local communities and serving a diverse group of users.*
>
> *The management of Chestnut Hill Reservation benefits from the support and advocacy of a network of non-profit groups, volunteers, local institutions and civic organizations.*

Specific management objectives include:

1. **For most of the Reservation, preserve, protect and enhance the extant features associated with both the primary and secondary historic periods and contexts identified in this RMP, while allowing for present day use.** Treatment of the Reservation and its character-defining features will be in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* as well as approved by the Boston Landmarks Commission.

2. **Preserve, protect and enhance the historic features associated with the primary period of significance (1868-1926) within the Restoration Zone along the entire dam structure from Gatehouse #1 to west of Gatehouse #2, in order to visually illustrate the appearance of the Reservoir in 1901 as an interpretive exhibit.**

2. **Recognize the history of Chestnut Hill Reservation within the context of the greater Metropolitan Water Supply system.** Develop interpretive programming that relates the Reservoir to the Waterworks development and other sites within the system.

3. **Provide a place for passive recreation and quiet enjoyment.** Include a universally accessible pathway to serve a wide range of recreational users.

4. **Balance historic landscape preservation with recreation and natural resource protection.** Structure maintenance and vista clearing practices to avoid adverse impacts to woodland health and animal habitat.

5. **Insure that park users feel safe.** Develop and promote a program of regular DCR (or other law enforcement) staff presence; eliminate blind corners; improve egress from the inner loop (perimeter path).

6. **Strengthen and coordinate partnerships.** Cultivate and support a common vision of the Chestnut Hill Reservation, leveraging private funding for capital operations, maintenance, and programming needs; identify and explore New Models of Stewardship.

7. **Establish consistent levels of DCR custody, care and control for all areas of the Reservation under its management.** Assess permanent/long-term agreements, including the Chestnut Hill Driveway parcel.

8. **Establish formal agreements for specialized use of Reservation lands.**

9. **Clarify and promote park rules and regulations.**

DCR Priority Findings

DCR identified a number of potential issues at the onset of the RMP planning process. The Inventory and Analysis (Chapter 3) and public comment on the project confirmed that many of these preliminary issues are indeed the main findings of the RMP.

Access

The most popular feature of Chestnut Hill Reservation is the Reservoir perimeter pathway, which approximates the configuration of the historic pathway around the water's edge. The Reservoir pathway is not universally accessible due to the deteriorated surface and the fact that several of the paths leading to it are not accessible. The pathway along the south side of Chestnut Hill Driveway is not fully universally accessible due to some significant grade changes in its original design and its existing deteriorated condition. Long sections of fencing also prevent ready ingress or egress from the path system. Some panels of 1928-29 fencing have been removed to provide more entrances into the area inside the perimeter fence.

Parking

There are over 120 parking spaces along Chestnut Hill Driveway, none of which provides a visitor with direct access to the Reservoir perimeter path. Also none of the existing parking spaces are reserved for universal accessible parking. Almost all of these spaces are used by area residents, specifically those who live in the apartments that back onto Reservation lands. Historically, the Driveway was designed as a broad pleasure drive, with views toward the Reservoir. The 1977 parking design compromises the historic character of the Driveway, altering the original driveway edge and placing vehicles directly in the line of sight from several areas inside the Reservation. But the Driveway serves as an important residential parking area in this part of Boston. Data collected during this RMP reveals that the vast majority of park users live less than 0.5 miles from the facility and walk or bike there.

Deteriorating historic features

The Chestnut Hill Reservation landscape has suffered from years of low funding levels and minimal maintenance, and the current condition of landscape features are symbolic of past neglect. The deterioration of the 1928-1929 fencing is the most significant of these, although an abandoned playground and eroding pathways are also visible reminders of past management shortfalls.

Loss of landscape character

Although the primary feature of the Chestnut Hill Reservation - the Bradlee Basin - remains intact, the original landscape design has been compromised through lack of maintenance. For example, the Commonwealth has not had the capacity to maintain a manicured turf edge along the Reservoir perimeter path, vistas have become overgrown, and historic vegetation has been lost or overrun by invasive species. However, the character of

the landscape can be recaptured through targeted maintenance practices and site improvements.

Deteriorating circulation system

Both the historic Reservoir perimeter path and more contemporary paths in the wooded area behind Reilly Pool and Rink ("Chestnut Hill Park") are in poor to fair condition. Desire lines have created rutted, eroded paths, and existing paved pathways are difficult to traverse and not universally accessible. Furthermore, the existing pedestrian circulation was developed in response to limited access to the inner pathway and is not an integrated system. Visitors have created desire lines from the woodland paths to the Reservoir pathway.

Inconsistent levels of management control

Although Chestnut Hill Reservation is managed as a state recreational facility, not all of the land within the Commonwealth boundary is protected at the same level. The 17.55 acre Chestnut Hill Driveway parcel, which contains the Chestnut Hill Driveway, portions of Saint Thomas More Road and the northern wooded area behind the Commonwealth Avenue apartments, are under a 99-year lease to the DCR from the City of Boston. Two small parcels wrapping around the Shaft #7 area are under permit to Boston College, and the Chestnut Hill Reservoir Community Garden, is located along the Chestnut Hill Driveway. Private property owners have also placed cooking grills and picnic tables in this area, creating the perception that the property is not part of the public park. The Driveway, in particular, is a significant landscape feature associated with the development of the public park at Chestnut Hill Reservoir. Consistent management of the Driveway and the greater landscape is vital to the protection of the cultural resource.

Gatehouse #1 is not currently under the control of DCR, although this area has been identified as a key gateway for the Reservation, with great potential for interpretive use and for provision of universally accessible and Reservation-specific parking.

Inappropriate alterations

Chestnut Hill Reservation is a landscape that has evolved over time. Some of these changes have achieved significance in their own right as part of the history of the site. Others have radically altered the historic landscape. The 1977 changes included a playground (now abandoned), extensive parking along Chestnut Hill Driveway, lighting, paved pathways and other changes that would not be considered consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties (first developed in 1978).* Cobra head lighting and modern stone walls stand out as new features against the backdrop of the historic landscape.

Enforcement and Regulations

People use Chestnut Hill Reservation at all times of the day, despite the posted park hours of dawn to dusk. The park's proximity to well-lighted city streets and uncontrolled access points, along with the presence of light fixtures, give the appearance that the park is open at night. Nighttime use leads to visitors feeling unsafe. There is a need to better communicate park regulations and raise awareness of law enforcement procedures.

Natural Resource Values

Despite the small land area of Chestnut Hill Reservation, many people greatly value the natural resources of the park. The natural woodland was identified as a popular feature in the User Survey, and birding ranked high among the many park uses. The protection of natural resources is considered key to preserving the "urban oasis" of Chestnut Hill Reservation and should be achieved through a careful balance with historic preservation and recreational enjoyment.

Land Stewardship Zoning Guidelines

Within the framework of DCR's Land Stewardship Zoning Guidelines, Chestnut Hill Reservation has two applicable land stewardship zones and a Cultural Resource Overlay. Because the Reservation is listed on the National Register of Historic Places and a designated Boston Landmark, the majority of the facility is contained within the Cultural Resources Overlay, providing a high level of protection to the landscape as a whole. The Cultural Resource Overlay includes all parts of the property listed on either the National Register of Historic Places or designated a local landmark by the Boston Landmarks Commission (BLC). These historic designations exclude only the Reilly Rink and Pool area, the Gatehouse #1 courtyard area, and the Shaft #7 parcel (for which DCR has no control). Procedures for the protection of cultural resources, including regulatory compliance with the Massachusetts Historical Commission and the BLC, can be found in Chapter 4 of this RMP. Zone 2 guidelines are recommended for the Reservoir landscape, pathways and wooded areas, while

Zone 3 guidelines are more suitable for the more developed areas such as paved park roads and the rink/pool area. See Chapter 5 for further information about Land Stewardship Zoning Guidelines.

Recommended Preservation Treatments

The predominate treatment approach for the Reservation is **rehabilitation.** According to the *Secretary of the Interior's Standards*, rehabilitation is defined as "the act of process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. Rehabilitation is recommended when repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular period of time is not appropriate."[1]

The area from Gatehouse #1 to Gatehouse #2 will be treated as a **restoration zone,** as a living exhibit that illustrates the appearance of the Reservoir at its height of operation (1901) after much of the construction activity had ceased.

Restoration is defined as "the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. Restoration is recommended when the "property's design, architectural, or historical significance during a particular period of time outweighs the potential loss of extant materials, features, spaces, and finishes that characterize other historical periods; when there is substantial physical and documentary evidence for the work; and when contemporary alterations are not planned."[2]

Recommendations

Management Recommendations

- Cultivate partnerships with active local groups to develop programs and leverage private support for capital, operations, maintenance, and programming improvements.
- Work with MWRA to facilitate DCR reuse of Gatehouse #1 and entry area while allowing for access and maintenance to water supply equipment.
- Formalize or negotiate new agreements with specialized users. Specifically, DCR should review the 99-year lease agreement with the City of Boston, the use of lands by the Chestnut Hill Community Gardens, and the permit to Boston College for lands near Shaft #7.
- Increase availability of park information, including brochures, maps and copies of park regulations.
- Ensure adequate seasonal staffing to meet baseline level of management, specifically related to trash removal.
- Increase park rangers and other law enforcement staff or develop a Park Watch program to promote safety and decrease unauthorized camping and nighttime use.

Capital Improvements

Highest Priority

High priority capital improvements are recommended to resolve public health, safety and welfare issues, and protect the historic resource:

- Stabilize and secure DCR management control of Gatehouse #1.
- Repair the Reservoir perimeter pathway.
- Remove the entire 1928-29 fence.
- Remove/prune hazardous trees.
- Remove 1977 playground.
- Remove 1977 lighting.
- Clean out and inspect catch basins.
- Repair the stone wall along Chestnut Hill Avenue.
- Install benches or implement memorial bench program.
- Remove the rumble strips and cobble crosswalks along Chestnut Hill Driveway
- Pave pathways on the south side of Chestnut Hill Driveway
- Repair of the stone walls along Chestnut Hill Driveway

- Develop and implement vegetation management plans to sensitively restore vistas, maintain existing vegetation, control invasive species, and replace missing plant features.

Medium Priorities

Medium priority capital improvements are needed to restore and enhance the prime historic and natural assets of the park:

- Rehabilitate the Chestnut Hill Driveway through the new paving, entry walls, new landscaping, and historic style lighting.
- Repave the reservoir perimeter path to a 10' width along with a combined bituminous concrete/stonedust path in the area of the existing dual pathways.
- Landscape improvements and vista clearing.

Lower Priorities

Lower priority capital improvements provide additional enhancements to natural and cultural resources and public use:

- Develop a "primary gateway" at a restored Gatehouse #1, possibly including interpretive or visitor services in the building and rehabilitation of the historic entry drive.
- Construct additional pedestrian gateways with signage, landscaping, trash receptacles and dog-mitt stations.
- Create a new accessible path system between the Reilly Memorial Pool and Rink and Commonwealth Avenue.
- Remove existing street lights on Saint Thomas More Road and replace with historic-style lights.
- Install new site amenities and landscape enhancements such as street trees, turf, and bike racks.
- Site work and landscape renovation around the Reilly Memorial Pool and Rink.
- Create a new woodland path between Chestnut Hill Driveway and the reservoir perimeter path.

Early Action Project

Vegetation Management Plan

The consultant's contract for the development of this RMP also included design work toward the implementation of an Early Action Project, concurrent with the RMP. DCR and the consultant presented a number of potential early action projects to the public and the Working Group for consideration. Based on a broad consensus, the early action project prepared in conjunction with this RMP is a vegetation management plan for the Reservation that addresses general vegetation treatment and maintenance issues throughout the Reservation as well as targeting specific areas of the site in need of immediate vegetation attention. The specific recommendations contained in a vegetation management plan are long-range planning recommendations intended to maintain and promote a healthy ecosystem of diverse native species with high habitat value. The vegetation management plan will be completed following successful adoption of the RMP.

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[1] Charles Birnbaum and Chris Capella Peters. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1996), pp. 48-49.

[2] Birnbaum and Capella Peters, *Guidelines*, pp. 89-90.

Chapter 1
INTRODUCTION

Figure 1.1: View of the Chestnut Hill Reservoir from the Overlook (2005)

Overview

Historically, the Chestnut Hill Reservoir was an important part of the City of Boston's public water supply. As reported in the 1989 Boston Landmarks Commission Report, "Chestnut Hill is among the most significant, and certainly the most highly visible, complex within the Metropolitan Water Supply System." In addition to supplying water to the city, the Reservoir and its adjacent landscape served as the first large-scale public park in Boston, pre-dating the design of the Emerald Necklace. As it exists now, the Chestnut Hill Reservation includes the Reservoir, several of the water supply structures north of Beacon Street, and the adjacent landscape. The Reservation continues to provide an important recreational, natural, cultural and historic resource to the residents of Boston, Brookline, Newton, and other communities. The Reservation is a unique and special asset to the local and Boston metropolitan area, with its large open water body and surrounding historic pathways, buildings and landscape attracting a wide range of park users.

The Reservation is located among two densely settled, mixed-use Boston neighborhoods (Aberdeen and Cleveland Circle), the heavily populated Boston College campus, and the residential areas of Brookline and Newton. On a clear spring day the Reservoir pathways are filled with runners and walkers, old and young, who walk or bike to the park from the surrounding neighborhoods. The transient student population is balanced by a stable base of long-term residents, both property owners and tenants of elderly residences. This demographic represents the park's base constituency, which is expected to remain stable or slowly increase as more existing buildings in the area are converted to condominiums. In comparison to other DCR properties in more rural or suburban areas, Chestnut Hill Reservation's visitor profile will remain relatively unchanged over the next ten years. The primary visitor management challenge is to improve the quality of the visitor experience as the level of use steadily increases. However, based on this expected residential growth for the local area, the desired uses at Chestnut Hill Reservation will remain focused on passive recreation.

1. General Site Description

The Chestnut Hill Reservation is a 133.28-acre parcel located north of Beacon Street and south of Commonwealth Avenue, within the central portion of Brighton, Massachusetts in the City of Boston and immediately adjacent to the City of Newton and Town of Brookline. The area within the boundaries of the

Reservation includes the 84.65-acre Chestnut Hill Reservoir, Chestnut Hill Driveway, Saint Thomas More Road, the Reilly Memorial Rink and Pool, and Shaft #7 (approximately 4.47 acres), a Massachusetts Water Resources Authority (MWRA) controlled parcel. The Reservoir is bounded by Chestnut Hill Driveway to the north, Beacon Street to the south, Chestnut Hill Avenue to the east, and the Boston College campus to the west.

Chestnut Hill Reservation is a historically significant property, which includes a cultural landscape and many contributing buildings, structures, and site features including the Reservoir basin and dam, perimeter path and fence, Chestnut Hill Driveway, and several gatehouses. Two historic gatehouses are located immediately adjacent to the Reservoir basin, with a third gatehouse located along the Boston College side of Saint Thomas More Road. The large earthen dam that runs parallel to Beacon Street is a visually prominent feature. A network of walking trails provides passive recreational use, including the stonedust perimeter path that encircles the Reservoir. A four foot high metal picket fence, with sections installed in both 1928-29 and 1977, surrounds the Reservoir. Several benches of different styles are located throughout the Reservation. Street lights line both Saint Thomas More Road and Chestnut Hill Driveway. Pedestrian lights also line some of the pathways, many of which are non-functioning.
The site supports several habitat types, ranging from upland forest, successional shrub upland, open grass areas, to open water habitat. Ornamental trees and plantings line Chestnut Hill Driveway and Saint Thomas More Road.

The underlying bedrock geology of the Reservation is commonly known as Roxbury Conglomerate or Roxbury "Puddingstone". There are several areas around the site where the bedrock ledge is exposed. A prominent drumlin exists in the northeastern portion of the Reservation, with a large outcropping of bedrock visible on the Reservoir side of the hill parcel. The southern slope descends moderately towards the Reilly Rink building. Alongside the Chestnut Hill Avenue sidewalk, the slope is held back by a three-foot high retaining wall. The slope descends more gently as it slopes towards Commonwealth Avenue. Between the Chestnut Hill Driveway and the Reservoir, the land slopes down steeply to the water, which likely indicates a cut slope created when the Reservoir was constructed. Glacial boulders and ledge are exposed in this wooded slope.

The landscape immediately around Saint Thomas More Road and the wooded areas north of the Chestnut Hill Driveway are relatively flat. The inner pathway remains roughly at the same elevation as it encircles the Reservoir. The shoreline abruptly drops off from just beyond the inner edge of the inner path at an approximately three to one slope. South of the Reservoir, the grass-covered dam slopes down at the same angle to meet the sidewalk along Beacon Street.

2. Surrounding Areas

The physical location of the Reservation places it adjacent to the urban area of Brighton, the campus of Boston College and the suburban areas of Newton and Brookline. The property is surrounded by a variety of commercial, institutional, and medium to high density residential land uses. The 20-acre Evergreen Cemetery is located immediately to the north of the Reservation. Also to the north are a series of apartment buildings along Commonwealth Avenue and medium-density single family homes along Wade Street. To the east lie more apartment buildings and the commercial uses around Cleveland Circle. To the southeast and across Beacon Street are the Cassidy Playground (a City of Boston park) and the new "Waterworks" private development, formerly part of the Metropolitan Water Supply system. Southwest of the Reservation, large single family homes line Beacon Street. The Lower Campus of Boston College is located west of the Reservation across Saint Thomas More Road. This part of campus is mostly composed of athletic facilities and dormitories. The total acreage of Boston College campus is approximately 128 acres.

Figure 1.2: Property Line of the Chestnut Hill Reservation (2002 MassGIS Orthophoto)

Three lines of the MBTA Green Line run immediately adjacent to the Reservation. Stops include the Reservoir Station on the "D" Line; Cleveland Circle Stop on the "C" Line; and Chestnut Hill Avenue Stop, the South Street Stop, the Greycliff Stop, and the Boston College Station on the "B" Line.

3. Issues and Opportunities

The management of Chestnut Hill Reservation must strike a balance between recreation, natural resource protection, and historic preservation. The Reservation is a unique recreational landscape, with a rich history tied to the development of public water works and early park design. Today the Reservation serves as a passive park, linking communities and serving a variety of users. Contained on all sides by dense commercial and residential neighborhoods and large institutions, the Reservation is one of the primary open spaces for the area. The Reservation is mostly open water, with less than fifty acres of parkland, concentrating walkers, joggers, birders and artists into a relatively small greenspace. The park is jointly managed by the DCR and the Massachusetts Water Resource Authority (MWRA) and contains both open parkland and an active Pool and Rink. There are both historic landscape features in need of repair as well as historic buildings with great potential for adaptive reuse. The urban setting, recreational demands, variety of user groups and sensitivity of the historic landscape make the management of the Chestnut Hill Reservation a challenge and reinforce the need for this Resource Management Plan.

Project Methodology

1. Composition of Consultant Team

The DCR is developing this RMP for the Chestnut Hill Reservoir property in association with Pressley Associates and their sub-consultants, LEC Environmental Consultants, Inc., Ocmulgee Associates, Inc, Judith Nitsch Engineers, Inc. and landscape historian Jill Sinclair. With the management and enhancement of this historic and recreational resource as the guiding principle, the RMP proposes to develop short and long-term goals, programming, and management strategies that will enhance the historic, recreational, ecological, cultural, and visual resources within the Chestnut Hill Reservation.

Pressley Associates utilized available documentation and resources, as well as a boundary survey prepared by Judith Nitsch Engineers and additional mapping information from the MassGIS system, to produce scaled plans of the Reservation used to record information related to existing site resources and conditions. Data related to current features was collected through supplemental field inventory and from primary and secondary published materials. LEC Environmental Consultants provided additional natural resource and habitat inventory and analysis and recommendations for treating invasive plants species and enhancing the natural habitats. Ocmulgee Associates provided an analysis and recommendations of several of the site structures including Gatehouse #1 and the retaining walls along Chestnut Hill Avenue and Chestnut Hill Driveway. Landscape historian Jill Sinclair prepared the historic chronology for the Reservation based on an extensive survey of primary and secondary historical documents and images.

2. Planning Area

The Chestnut Hill Reservation has a total of 133.28 acres based upon the 2005 boundary survey prepared by Judith Nitsch Engineers, Inc. It should be noted that this total area includes the 84.65-acre Chestnut Hill Reservoir, the 4.47-acre Shaft #7 (officially managed by the MWRA), and two parcels immediately adjacent to Shaft #7 (total of 1.37 acres) which are licensed from the Commonwealth to Boston College. As noted on the survey plan contained herein, the two parcels of land around Shaft #7, the 0.77-acre parcel along Campanella Way and the 0.60-acre parcel along Edmond Roadway and the west side of Saint Thomas More Road (including the Cochituate Gatehouse), were licensed to Boston College in 1962. A small 0.39-acre parcel of land at the end of Edmond Roadway was sold by the MWRA to Boston College and is not within the boundaries of the Reservation. These aforementioned parcels of land within the Reservation boundaries, plus the Reilly Memorial Rink Building and Pool (approximately 1.17 acres), are not part of the planning area of this RMP.

Excluding the previously mentioned areas and the Reservoir itself, the total planning area covered by this RMP is approximately 41.62 acres. This acreage includes Chestnut Hill Driveway and Saint Thomas More Road.

3. Public Process

The research, inventory, and analysis work completed for this RMP resulted in a common knowledge base for understanding the historic, natural, recreational, and

cultural resources and prevalent uses of the Reservation. Issues identified through the evaluation of current condition were then tested and developed in partnership with the DCR and through separate meetings with the project's Working Group and the general public. The management and treatment recommendations and an early action project were identified and developed for the Reservation based on the public input and prioritization of issues.

Appendix B contains an overview of the public participation process, including a summary of public comments on the Draft Resource Management Plan and DCR response, substantive revisions to the RMP based upon additional DCR staff review, and summaries of the first and second public meetings. A third public meeting to present the final RMP is planned for early December 2006.

Chapter 2

SUMMARY HISTORY AND SIGNIFICANCE

Figure 2.1: The eastern section of Bradlee basin, 1891 (Historic New England).

Historical Overview

In 1865, Massachusetts legislature authorized the [Cochituate] Water Board's plan to construct the Chestnut Hill Reservoir, which was needed to increase Boston's water storage capacity. The City purchased over two hundred acres of land by 1867, based on the recommendations of the City Engineer. The site consisted of marsh and meadows and was well-situated between Lake Cochituate and the city center, with a natural basin that afforded positive gravitational flow. In 1866, work began in earnest and included a 2000-foot embankment and a vast brick sewer to drain the marsh. Since the Cochituate Aqueduct was already located under the site, the Water Board recommended two irregularly shaped basins with a dam between them that ran over the Aqueduct. The smaller [Lawrence] basin measured 37.5 acres and was named for the first president of the Water Board, Amos A. Lawrence. The larger [Bradlee] basin measured 87.5 acres and named for the then current president of the Water Board, Nathaniel J. Bradlee.

Between 1868 and 1870, the City constructed three buildings in the Renaissance Revival style. They included an Influent Gatehouse (razed by Boston College around 1951), the Intermediate Gatehouse, and the Effluent Gatehouse (#1). A pleasure drive or carriageway was also proposed around the Reservoir and received immediate, enthusiastic public support.[1] During construction of the basins, the Water Board also took steps to turn the site into the first large-scale rural park in Boston, well in advance of later decisions by the City related to a municipal park system.[2] The landscape included a footpath along the water's edge and an extensive carriageway that wound around both basins and followed the natural "rise and descent of the ground and except when it passes through groves or around rocks, lies upon the margins of the reservoir or keeps the water in sight thus… affording beautiful for the whole distance."[3] At the highest point of the new driveway, the City also built a triumphal granite Entrance Arch to commemorate the Water Works, located approximately ten feet west of the current intersection of Commonwealth Avenue and Chestnut Hill Avenue.[4] In 1876, the City planted Centennial elms around the Reservoir along Beacon Street and the Chestnut Hill Driveway. In 1886, the City began work on the High Service Pumping Station on land southeast of Beacon Street. Designed by Arthur Vinal, City Architect, the building was constructed of Milford granite in the Richardsonian Romanesque style and complete by 1887.

The 1875 Park Act, approved by Boston voters, created a municipal commission to consider a park system for the City. The commission informally consulted with landscape architect Frederick Law Olmsted, designer of New York's Central Park. Shortly after relocating to Brookline, Massachusetts, the Olmsted firm completed a

plan for Commonwealth Avenue in 1884, connecting Brighton Avenue with the Chestnut Hill Reservoir. Only the first section was actually constructed, and consisted of a formal, wide boulevard with three parallel drives. Olmsted's 1887 plan for the Boston Park System shows "The Chestnut Hill Loop" connecting the Reservoir to other park areas in Boston. With the construction of Commonwealth Avenue complete, and a redesign of Beacon Street as it passed through Brookline underway, Olmsted saw this loop of roads leading to the pleasure grounds at the Chestnut Hill Reservoir as a part of the municipal park system he was creating for Boston. By 1891 (Figure 2.1), the broad curvilinear drive of Beacon Street along the southeast of the Reservoir with its maturing elms and adjacent walkways is evident, along with a manicured strolling path along the top of the embankment.

With the creation of the Metropolitan Park Commission in 1893, the Chestnut Hill Reservoir was identified as public open space "controlled by local authority."[5] In 1895, the state legislature proposed a multi-municipality Metropolitan Water District, resulting in the 1895 Metropolitan Water Act, which created the Metropolitan Water Board. The new board proceeded to make improvements to the Chestnut Hill pumping structures, beginning in 1898 by expanding the High Service Pumping Station and constructing a new Low Service Pumping Station designed by Shepley, Rutan and Coolidge and completed by 1901 to increase water pressure to high rise buildings in the city. The new Water Board also began work on the Renaissance Revival Effluent Gatehouse (#2) designed by Wheelwright and Haven in 1898, located on the embankment across from the High Service Pumping Station. The Olmsted Brothers, successors of Frederick Law Olmsted, Sr., produced plans for a courtyard in front of the Low Service Pumping Station and the layout and grading plan for the proposed pipe yard site adjacent to the pumping station.

Although the buildings and structures associated with the Chestnut Hill Reservoir became part of the metropolitan system, much of the land remained in the ownership of the City of Boston and was only transferred to the Commonwealth during the second half of the twentieth century. In 1896, the City of Boston removed the Entrance Arch, which served as a grand gateway to the park at Chestnut Hill Avenue, to make way for a further extension to Commonwealth Avenue.

Throughout the early part of the twentieth century, the parkland at Chestnut Hill continued to be well-maintained with clearly defined paths and manicured lawns and landscaping. According to a description published in 1916, "All around the winding outlines of the basin runs a trim driveway and besides it a smooth gravel footpath. On all sides of the lake are symmetrical knolls, covered with flowered shrubs; and the stonework, which in one place carries the road across a natural chasm, and the great natural ledges, are mantled over with clinging vines, and in autumn are aflame with the crimson of ampelopsis and the Virginia creeper."[6]

Figure 2.2: A view of the waterworks buildings on Beacon Street, looking southeast, 1901 (Massachusetts State Archives).

The Metropolitan District Commission (MDC) was established by the Massachusetts legislature in 1919, expanding the responsibilities of the former Metropolitan Park Commission and consolidating three distinct regional agencies into one organization. The new MDC assumed responsibility for the Chestnut Hill Reservoir, buildings, and some of the parkland.

In 1928 and 1929, the MDC surrounded the Reservoir and the perimeter path with 8,180 linear feet of decorative steel picket and chain link fence in an effort to protect the water supply system from pollution and dumping. The granite columns and metal gates at both Gatehouses were also erected at that time. As a result, public access to the Reservoir and perimeter path was restricted.

The trustees of Boston College acquired the remains of the former Amos Lawrence farm in 1908 and moved to the new campus by 1913. By 1948, the Lawrence Basin was removed from active use as a reservoir, and in 1949,

the MDC conveyed the water body to Boston College, who eventually filled it in to create additional land area for the college. The area now serves as recreational playing fields and dormitories.

In 1959, the City of Boston transferred control of the eastern part of the Reservoir land to the MDC, specifically the area dominated by the hill along Chestnut Hill Avenue. This area also includes the land area now occupied by the Reilly Memorial Rink and Pool, constructed by the MDC in 1961.

In 1977, the MDC undertook a $1.5 million program of landscape improvements including a new playground, entrance sign walls, new trees and shrubs, new pathways, a scenic overlook, and paving improvements, with granite cobble crosswalks on the remaining portion of the Chestnut Hill Driveway. This also included replacement of some of the steel picket fence enclosing the Reservoir, primarily in the areas north of the Reservoir. Most of these improvements occurred on the land outside of the fence protecting the Reservoir. In addition, landscape improvements were made around the High Service and Low Service Pumping Stations, located across Beacon Street from the Reservoir.

In 1985, the Massachusetts Water Resources Authority (MWRA) was formed and became the independent government agency responsible for all of Boston's water resources, which had previously been managed by the MDC. While the Commonwealth still retained ownership of Chestnut Hill Reservoir, the MWRA was responsible for the maintenance and management of the Reservoir and all land immediately adjacent within the perimeter fence. The MDC still retained maintenance authority for the surrounding open space outside the fence. In the 1980s, the Reservoir was formally taken out of active service and was to only serve as an emergency water supply and for fire protection purposes at the discretion of the MWRA. In 2002, the MWRA declared the High Service and Low Service Pumping Stations surplus, with proposals for future development coordinated by the Department of Capital Asset Management (DCAM). This eventually led to the mixed-use private development currently under construction, known as the Waterworks.

Portions of the current Reservation were nominated as a City of Boston Landmark in 1989 and the Reservoir and many of its associated structures were listed on the National Register of Historic Places as part of the larger Water Supply of Metropolitan Boston thematic nomination in 1990.

Operation and maintenance responsibility for the area within the perimeter fence was passed from the MWRA back to the MDC through an interagency agreement in 2002.[7] Prior to that agreement, the MDC maintained control of all of the land outside the perimeter fence and inside the boundary of the current Reservation, while the MWRA controlled all of the land inside of the perimeter fence and Shaft #7. The Reservation is now composed of several different parcels of land that were once controlled by the MWRA, the former MDC, and the City of Boston. According to the 2002 agreement, the MDC assumed management responsibility for the Reservoir, the perimeter fence and the surrounding Commonwealth land and agreed to develop, implement, and manage a public access plan and program for the Reservation.

In 2003, the Massachusetts Department of Conservation and Recreation (DCR) was created by combining the MDC with the Department of Environmental Management (DEM). Since then, the DCR has made significant strides in opening up the entire Reservation to the public. The fence that once enclosed and protected the Reservoir is now open and the scenic perimeter pathway again serves as a popular running and walking path. In addition, the DCR has started to make general improvements to the landscape. The overgrown vegetation on the shoreline has been cut back and other measures have been taken to thin out the overgrown vegetation in other parts of the Reservation.

Prehistoric Site Potential

Although there are currently no prehistoric archaeological sites recorded in the Massachusetts Historical Commission's files for Chestnut Hill Reservoir, there is good reason to believe that sites may have existed prior to the construction of the Reservoir, and that if they did exist they may have even survived the transformation of the former wetland into a water-holding reservoir. The presence of Native Americans in this portion of Greater Boston is conclusively demonstrated by the presence of a large prehistoric site (19-MD-179) which incorporates nearby Hammond Pond and Hammond Pond Reservation.

In the 1860s, the proponents for a new water source for Boston found what they thought was a perfect location: one hundred acres on the Brighton/Newton borders. Although historic maps are not consistent in depicting

whether or not there was standing water or a significant wetland present in this location, two maps do show a brook running across the site, and it was described as marsh and meadow.

Such a natural feature would have been attractive to Native Americans, because it would have been a valuable natural resource base for plants and animals. Furthermore, well-drained level ground around the wetland would also be attractive for human habitation. It is believed that the prehistoric sites within the present day Arnold Arboretum in nearby Jamaica Plain were probably the result of short term recurrent fall/winter occupation. It is probable that locations around the future reservoir site were also utilized during the fall/winter, as locations along the Charles River, its tributaries and its estuaries were the focus of subsistence activities during the spring/summer.

Historical Significance

This section summarizes the current historic status of Chestnut Hill Reservation, and proposes potential new areas of landscape significance that have emerged as a result of the research conducted for this RMP. This analysis, including potential new areas of landscape significance, illustrates how the historic character of the Reservation changed and developed during its long history. It helps identify features that can be considered historically significant, even though they may have been installed after the primary period of significance defined by the National Register nomination had ended, and provides a new context for those features as part of the evolution of the landscape from rural park in the 1860s to part of the metropolitan (MDC) park system from 1919. As such, the analysis below can inform decisions about the future management of the landscape at Chestnut Hill Reservoir.

1. Current Designations

Chestnut Hill Reservoir has been designated as a City of Boston Landmark[8] and is listed as part of the overall "Water Supply System of Metropolitan Boston" thematic nomination on the National Register of Historic Places.[9] The Boston Landmark report does not give a period of significance for the Reservoir. For the National Register, the thematic nomination ascribes a period of significance for the water supply system of the Commonwealth beginning in 1845 and ending in 1926.[10] The individual Chestnut Hill Reservoir MHC inventory forms give a period of significance of 1868 to 1926, although 1900 is also given as the last date for architectural activity at Chestnut Hill.[11]

Chestnut Hill Reservoir was determined to meet all four criteria for Boston Landmark designation. The National Register nomination listed the Reservoir as significant at the state and local level in the areas of government, architecture, and engineering and meeting National Register Criteria A (event) and C (design).

Figure 2.3: Boston Landmark boundary.

The exact boundaries of the Boston Landmark, National Register nomination, and RMP project area vary slightly from each other. For example, the eastern portion of the Reservation (containing the hill, the old playground, the parking area in front of Gatehouse #1, and the area around the Reilly Rink and Pool), the Intermediate Gatehouse and the northern stretch of Saint Thomas More Road are part of the RMP area but are not included within the Boston Landmark boundary. Neither the RMP nor the Boston Landmark designation include the small plot of land in Newton that houses the Sudbury terminal chamber, although it does appear to be included in the Chestnut Hill Reservoir Historic District (the exact boundaries of the National Register nomination are, however, difficult to interpret). The RMP project area also includes the MWRA-managed area to the west of the Reservoir (known as Shaft #7) although only to note its legal status and restrictions regarding its access and development.[12] Figure 2.3 shows the location of the boundary of the Boston Landmark designation.

These designations are important for the management of the Reservation for a number of reasons. First and foremost, they officially recognize that the Reservation is

historically important, a conclusion that has been supported by the City of Boston, Massachusetts Historical Commission, and the National Park Service. By designating the Reservation as a historic property, the Commonwealth assumes stewardship responsibility for a cultural landscape with historic buildings and structures associated with Boston's water supply system.

2. Contributing Resources

The National Register and Boston Landmark nominations identify specific buildings, structures and landscape features associated with the history of the Chestnut Hill Reservoir. These features are called contributing resources because they represent cultural resources that are significant in scale or size, which contribute to the significance of the property. Smaller features, such as specimen trees, light fixtures, or fencing, are not typically identified by the National Register, but are, never-the-less, significant character-defining features of the landscape.

Contributing resources identified in the National Register nomination, which also fall within the boundary of this RMP, include:

- Reservoir/Chestnut Hill Driveway/ landscaping[13]
- Effluent Gatehouse (#1)
- Intermediate Gatehouse[14]
- Effluent Gatehouse (#2)

Neither the Boston Landmark report nor the National Register nominations gave detailed descriptions of the landscape around the Reservoir, or fully assessed its significance. The Boston Landmark report did include the Driveway and landscaping as a significant resource, and acknowledged its importance as the first "large-scale rural park-like setting" developed by the City of the Boston.[15] The focus of the National Register nomination was on the Reservoir's role in the water supply system and as a result, the nomination includes the Reservoir itself as a contributing resource, but does not mention the surrounding landscape, nor the Driveway or path, presumably because they played no direct role in water supply.

3. Potential New Areas of Landscape Significance

The research and analysis conducted for this Resource Management Plan, included as Appendix C, sheds some new light on the significance of the landscape at the Chestnut Hill Reservoir. The previous NR documentation considers the Reservation as an integral part of Boston's water supply system, with an associated period of significance of 1845-1926 for the entire system, and 1868-1926 for Chestnut Hill Reservoir in particular. A related but distinctly different historic context is the importance of the Reservoir and its associated landscape as a public park with scenic and recreational values, both as an early Boston park and later as part of the Metropolitan Park System. This, combined with a new evaluation of potential archaeological sensitivity by the DCR Archaeologist (based on recent experience from Spot Pond in the Fells), provides evidence of important new historic contexts for the Reservation.

Chestnut Hill is likely significant in its own right as the first large-scale rural public park in Boston. As early as 1869, before the Reservoir was completed, the Chestnut Hill landscape had "already become a favorite place of resort." The park thus pre-dates Boston's 1875 Park Act, which created a municipal commission to consider a park system for the city and which led to the work to create the Emerald Necklace beginning in 1878. Thus, the secondary period of significance associated with early rural park begins in 1865 when the Water Board began developing the land. In the following year, the idea of a pleasure drive or carriageway around the Reservoir won immediate, enthusiastic public support.

The landscape is also likely significant for its association with Frederick Law Olmsted Sr., who in 1887 conceived the 'Chestnut Hill Loop' to join the Reservoir to the pleasure grounds he was designing elsewhere in the city. The Chestnut Hill Driveway remained one of the most popular pleasure drives in the city in the late nineteenth and early twentieth centuries, inspiring other cities, such as Cambridge, to create pastoral landscapes and pleasure drives around their municipal reservoirs. During this secondary period of significance, the Water Board carried out two major plantings of elm trees around the Reservoir (in 1876 and 1887), resurfaced at least some of the Driveway to make it suitable for automobile use (1916), and continued to meticulously maintain the landscape. The development of the area around the Reservation and the arrival of street cars on Beacon Street (1889) and

Commonwealth Avenue (1909) no doubt added to the number of people able to enjoy the Reservation's attractions.

A secondary period of significance for the Chestnut Hill landscape as an early public park, pre-dating the Boston park system likely ends in 1919 when the Metropolitan District Commission was created by an act of the legislature and the new organization assumed responsibility for Chestnut Hill Reservoir and its landscape.

Figure 2.4: Photograph from the early 1930s showing the new fence around the Lawrence Basin (University Archives, John J. Burns Library, Boston College).

Another related historic context for the Chestnut Hill Reservation is its importance as part of the Metropolitan Park System. This context begins in 1919 when the MDC assumed responsibility for the Reservoir. This secondary period includes the erection of the decorative iron picket and chain link fence around both basins and its accompanying gates (1928-29), to protect the quality of the water supply. It also includes the creation of the new outer path around the water to allow continued public access to the site. This secondary period of significance comes to an end as the creation of the Quabbin Reservoir results in the Lawrence Basin being declared inactive in 1948. This smaller reservoir was sold to Boston College; the basin was filled in, the Influent Gatehouse razed, and the Driveway and its surrounding landscape became the site of the College's Lower Campus. Defining the end of the secondary period of significance for the Chestnut Hill landscape as c.1948 also reflects the National Park Service guidance that properties achieving significance within the past 50 years are not generally considered historic or eligible for inclusion on the National Register of Historic Places unless they demonstrate transcendent importance.[16] However, the MDC, and later the DCR, have continued to manage the Reservoir landscape as a public park up to the present day.

4. Integrity

Integrity is the ability of a property to convey its historic identity, or the extent to which a property evokes its appearance during a particular historic period, usually the period of significance. While the evaluation of integrity is often a subjective judgment, particularly for a landscape, it must be grounded in an understanding of a property's physical features and how they relate to significance through an evaluation of seven aspects of integrity (location, design, setting, materials, workmanship, feeling, and association). Retention of these qualities is essential for a property to convey its significance, though all of the seven qualities need not be present to communicate a sense of past time and place.

For the historic context related to the metropolitan water supply system (1865-1926), Chestnut Hill Reservation possesses integrity of location, setting, materials and workmanship, with diminished design, feeling and association. For the additional historic contexts associated with the Reservation as a public park (1865-1919 and 1919-1948), it possesses integrity of location, setting, workmanship and association, with diminished design and some reduction in feeling, especially from the period as an early public park.

The Reservoir and water supply buildings that lie within the current Reservation have already been assessed as meeting National Register Criterion A in illustrating or representing important events in the development of the public water supply system for the Boston metropolitan area; and as meeting National Register Criterion C as possessing aesthetic or design values characteristic of or notable in public works engineering and architecture of their time. In addition, the landscape may meet National Register Criterion C as an early example of a nineteenth century public park developed by the City for the residents of Boston. Resources associated with the property such as the Bradlee Basin, its embankment and original path, the parkland and Driveway, and Effluent Gatehouses #1 and #2 contribute to the landscape's significance. Areas of significance likely include architecture, landscape architecture, industry, engineering, recreation, politics/government and social history.

5. Non-Historic Additions

A number of features have been added within the boundaries of the current RMP study area since the end of the primary period of significance (1926) and the end of the proposed secondary period of significance (1948). They include the parking spaces located north and south of the Chestnut Hill Driveway, the single and double head light fittings on the Driveway, the picnic tables and grilles north of the Driveway, the Chestnut Hill Reservoir Community Gardens and the scenic overlook. In addition, the Reilly Memorial Pool and Rink and their associated walkway and service driveway, the parking lot adjacent to Effluent Gatehouse #1, the children's playground and some box-style pedestrian lights have been added on land to the east of the Reservation, which lies outside the boundary of the Boston Historic Landmark designation and appears be outside the Chestnut Hill Reservoir Historic District. Some of this land to the east was not acquired from the City by the Commonwealth until 1959, and so was technically outside the boundary of the Reservation during its secondary period of significance as part of the Metropolitan Park System. The original iron fence, installed 1928-29 was introduced after the primary period of significance. Sections of the iron fence around the Reservoir were replaced in 1977, when the MDC added additional fencing at the playground and community gardens.

Identifying non-historic additions to the landscape should not automatically lead to their removal. Change is inherent in cultural landscapes such as the Chestnut Hill Reservoir; it results from both natural processes and from human activities. This dynamic quality inherent in landscapes is balanced by the continuity of distinctive characteristics.[17] In terms of managing the site, it may be desirable to identify and remove or adjust any later additions that are judged to be substantially detracting from its essential historic character or to meet specific interpretive or recreational access objectives.

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[1] William P. Marchione, "A History of the Chestnut Hill Reservoir, Part 1: Building the Reservoir, 1866-70."

[2] Boston Landmarks Commission, *Report on the Potential Designation of the Chestnut Hill Reservoir and Pumping Stations as a Landmark* (City of Boston, 1989), 35.

[3] Nathaniel J. Bradlee, *History of the Introduction of Pure Water into the City of Boston* (Boston: Alfred Mudge & Sons, 1868), 223.

[4] William P. Marchione, interview with Jill Sinclair by email, October 4, 2005. He located the arch from an examination of Plate 17 of the 1890 Bromley Street Atlas.

[5] Charles W. Eliot, *Charles Eliot, Landscape Architect* (Boston: Houghton Mifflin, 1902).

[6] *A Guide Book to Boston,* as cited in the Boston Landmarks Commission report.

[7] Agreement Between the Metropolitan District Commission and the Massachusetts Water Resources Authority Regarding Chestnut Hill Reservoir and Surrounding Lands Held By or On Behalf of the Commonwealth, May 2002.

[8] Boston Landmarks Commission.

[9] As set out in the 1989 "National Register of Historic Places Water Supply System for Metropolitan Boston" thematic nomination. This is based on (and refers the reader to) the 1984 individual MHC inventory forms for each property. Sometimes the information varies between the two sources: where this seems significant, both versions are given here.

[10] The beginning date corresponds with the date of the first Water Act, with the end date signifying that the nomination only covers water supply systems created before the Quabbin Reservoir, authorized by the 1926 Ware River Supply Act and 1927 Swift River Act.

[11] The 1868 date given for the start of the period of significance of the Chestnut Hill Reservoir in the MHC inventory forms is defined by the initiation of building construction. In fact, acquisition and development of the land began in 1865. The end of architectural work was actually 1901, which is described in further detail in the Annotated Chronology, Appendix C.

[12] DCR, "Request for Response."

[13] The Boston Landmarks Commission list uses the title 'Chestnut Hill Driveway and Landscaping;' the National Register simply says 'Chestnut Hill Reservoir.' See Appendix C for more information on what this term includes.

[14] Not within the scope of the Boston Landmarks report.

[15] Boston Landmarks Commission, 38.

[16] National Register *Bulletin 15*.

[17] National Park Service, *The Secretary of the Interiors Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* http://www.cr.nps.gov/hps/hli/introguid.htm

Chapter 3

PROPERTY INVENTORY AND ANALYSIS

Figure 3.1: Chestnut Hill Reservation with pedestrian path around the Reservoir (2005)

Introduction

The location, character and condition of existing site features within the Chestnut Hill Reservation reflects information gathered through a series of field surveys conducted by Pressley Associates between August and October 2005 with an additional site visit in early March 2006, supplemented by specific plans and reports completed by the RMP sub-consultants. Pressley Associates inventoried and evaluated the overall site conditions including structures, vegetation, vehicular and pedestrian circulation, and site furnishings and small-scale features. DCR staff contributed substantial information related to the inventory and analysis of management resources, surrounding land uses, and park operations and maintenance. Judith Nitsch, Inc. prepared a property survey delineating the land officially owned by the Commonwealth of Massachusetts. LEC Environment Consultants, Inc. carried out site evaluations in August and September 2005, which included an inventory of wildlife habitats and plant communities within the Reservation. Ocmulgee Associates visited the site in August and September 2005 and prepared a structural report on Gatehouse #1, the perimeter fence, freestanding walls, and retaining walls. The analysis of current conditions in relation the Reservation's history is based on primary and secondary historical research conducted by landscape historian Jill Sinclair, included as Appendix C. Each of the subconsultants' independent reports and DCR sections have been excerpted and included along with the inventory and analysis data to form this property inventory and analysis section of the RMP.

This resource inventory and analysis is a critical component of the Resource Management Plan, because it helps DCR focus on the areas, features, and resources that are most important or which need urgent attention. Identifying areas and features that are significantly deteriorated will help guide decisions related to items addressed both in the RMP recommendations as well as those identified as Early Action Items in Chapters 5 and 6 respectively.

Natural Resources

LEC conducted two site evaluations on August 24, 2005 and September 7, 2005 to assess existing natural resource conditions, inventory habitat communities, and evaluate their potential as wildlife habitat. LEC also reviewed appropriate topographic and resource maps and scientific literature to compare existing site conditions with wildlife habitats and ecological relationships documented under similar conditions throughout New England. While an actual wildlife inventory was not a component of the study, wildlife observations are noted below. Based on the results of the site evaluation, LEC has preliminarily determined that the Reservation provides fragmented wildlife habitat resources for a variety of mammals, birds, reptiles, amphibians, and invertebrates adapted to urban environments.

Figure 3.2: Rock outcropping on the west side of the drumlin (2005)

1. Surficial Geology

The Reservation's topography in relation to the surrounding landscape is depicted on the USGS Topographic Map (Figure 3.2). As depicted, the site contains the man-made Chestnut Hill Reservoir while a prominent drumlin occurs within the northeastern portion of the Reservation. Boulder outcroppings and ledge adjacent to Chestnut Hill Driveway descend steeply toward the walkway encircling the Reservoir. Saint Thomas More Road and the wooded areas north of Chestnut Hill Driveway are comparatively flat. The hill within the northeastern corner of the site descends moderately from all sides, and soils within this area consist of exposed bedrock on hills and ridges where the relief is affected by the underlying bedrock. These Hollis and Charlton soils consist of excessively drained soils atop rock outcrops and within low pockets. The remainder of the site is mapped as Udorthents, or areas where the original soils have been cut away and/or consist of filled areas that were previously tidal marshes or river floodplains, and is a common soil designation within urbanized areas. This fill consists of mixed soil material including sand and gravel.

2. Habitat Types

A variety of regionally common, but botanically diverse vegetated habitats are contained within the Reservation. A brief description of each of these is outlined below.

a. Upland Forest

An upland forest vegetates the drumlin and the steep slope south of Chestnut Hill Driveway. Maturing stands of Northern Red Oak (*Quercus rubra*) and Eastern White Pine (*Pinus strobus*) dominate the canopy with scattered inclusions of Black Cherry (*Prunus serotina*), White Ash (*Fraxinus americana*), tree of heaven (*Ailanthus altissima*), white oak (*Quercus alba*), Norway Maple (*Acer platanoides*), and American Beech (*Fagus grandifolia*). The moderately dense shrub layer contains clusters of Multiflora Rose (*Rosa multiflora*), Red raspberry (*Rubus idaeus*), and European Buckthorn (*Rhamnus frangula*) with individual apple (*Malus* sp.) and sapling canopy species. Groundcover species include seedlings of Norway Maple, Poison Ivy (*Toxicodendron radicans*), Wild Sarsaparilla (*Aralia nudicaulis*), Garlic Mustard (*Allaria officinalis*), False Solomon's Seal (*Smilacina racemosa*), Wood Anemone (*Anemone quinquefolia*), Aster (*Aster* sp.), Deer Tongue (*Panicum clandestinum*), and clover (*Trifolium repens*). Several of these woody and herbaceous plants are invasive plants including Norway Maple, Multiflora Rose, European Buckthorn, and Garlic Mustard.

Red Oak, Norway Maple and grassed areas occur within the northern portions of the Reservation, north of Chestnut Hill Driveway and south of a series of residential apartment buildings. The Red Oak and Norway Maple maintain limited habitat connectivity to the forested upland described above and offer reduced wildlife habitat due to their lack of species diversity and locations within the surrounding urban landscape. As Chestnut Hill Driveway winds toward Saint Thomas More Road, the canopy of major shade trees thins out and lawn grass dominates the landscape. Manicured lawn grass and various herbaceous species, including clover, aster, and Common Plantain (*Plantago major*), vegetate either side of Saint Thomas More Road.

Figure 3.3: Specimen beech tree (2005)

LEC visually observed Downy Woodpecker (*Picoides pubescens*), Black Capped Chickadee (*Poecile atricapilla*), and a male and female pair of American Goldfinch (*Carduelis tristis*) during the August 24 and September 7, 2005 site visits. These species typically breed within successional scrub and forested habitats and often nest within tree cavities. Auditory calls by the Gray Catbird (*Dumetella carolinensis*) were also confirmed in the field during this site evaluation. The Gray Catbird typically returns from the Gulf States and Central America in the spring to breed and nest within forested areas and dense thickets of vegetation, such as those contained within the Reservation. The open water may also serve as stopover point for other migratory species that make their way further north during the breeding and nesting season. Additional species observed by LEC include Eastern Chipmunk (*Tamius striatus*) and Gray Squirrel (*Sciurus carolinensis*) sightings while Pressley Associates, Inc. observed a Muskrat (*Ondatra zibethica*) at the site.

Figure 3.4: Upland forest vegetation on drumlin (2005)

Figure 3.5: Trees and grass along Chestnut Hill Driveway (2005)

Figure 3.6: Upland successional vegetation growing in rip-rap (2005)

b. Successional Shrub Upland

A narrow band of various successional saplings, shrubs, and groundcover species occur between the circular walkway and the open water, sprouting up-gradient of and between the granite lined embankments. Several of the wetland species occur between the granite embankments, rip rap slope, and along the water's edge, in closer proximity to the open water. These wetland species include individual White Willow (*Salix alba*), Purple Loosestrife, and Poison Ivy. Successional shrubs and saplings also occur along the top of granite embankments but inside of the perimeter path, including scattered patches of sapling trees and shrubs, such as Black Locust (*Robinia pseudoacacia*), Tree of Heaven (*Ailanthus altissima*), White Willow, Meadowsweet (*Spiraea alba*), and Slippery Elm (*Ulmus rubra*). Groundcover species include Poison Ivy, Purple Loosestrife (*Lythrum salicaria*), Cow Vetch (*Vicia cracca*), seedling Gray Birch (*Betula populifolia*), golden rod (*Solidago* sp.), Smartweed (*Polygonum caespitosum*), Common Milkweed (*Asclepias syriaca*), Virginia Creeper (*Parthenocissus quinquefolia*), Indian Tobacco (*Lobelia inflata*), Common Tansey (*Tanacetum vulgare*), Butter and Eggs (*Linaria vulgaris*) and various grasses. Several of these plants are invasive species within the sapling and groundcover layers, including Black Locust, Tree of Heaven, and Purple Loosestrife.

While several invasive species occur around the perimeter of the Reservoir, the density of the shrubs afford potential wildlife cover habitat and bolster the site's habitat value. During the August 23, 2005 site evaluation, LEC encountered dragonflies and bees (Hymenoptera) perched

within and feeding on the shrubs and observed numerous grasshoppers (Orthoptera) resting within the grasses and groundcover species. Although sparse, overhanging White Willow and Purple Loosestrife along the water's edge may moderate water temperatures and provide cover habitat for amphibian and reptilian populations utilizing the Reservoir.

Figure 3.7: Canada Geese (*Branta canadensis*) and Cormorant (*Phalacrocorax auritus*) resting on boulder rock outcropping (2005)

c. Open Water Reservoir

The open water provides a water source for wildlife, particularly for Double-crested Cormorant (*Phalacrocorax auritus*), Mallard Duck (*Anas platyrhynchos*), Canadian geese, and gulls (*Larus* sp.) which were observed in abundance. These avian species were observed diving and surface feeding within the Reservoir and basking on several emergent rock outcroppings within the Reservoir. Based on these observations of aquatic wading birds, likely fish populations within the Reservoir may include freshwater bass (*Micropterus* sp.), sunfish (*Lepomis* sp.), perches (*Perca* sp.), and sculpins (*Cottus* sp). The open water may also serve as a feeding and resting stopover point for migratory species traveling north to breed and nest or south during winter months.

LEC also visually observed a juvenile turtle swimming within the Reservoir, most likely an Eastern Painted Turtle (*Chrysemys picta*) according to the momentary glimpse of distinctive red bands on either sides of the turtle's head. Other potential wildlife include aquatic amphibians such as Green Frog (*Rana clamitans melanota*), and macro invertebrates including mollusks, aquatic worms and the immature forms of aquatic insects such as stonefly and mayfly nymphs.

3. Invasive Exotic Plant Species

Invasive exotic species are generally defined as non-native plants that have aggressively invaded naturally occurring plant communities.[1] Virtually every habitat within the Reservation contains one or more invasive plant species, including Oriental Bittersweet (*Celastrus orbiculatus*), Black Locust (*Robinia pseudoacacia*), Norway Maple (*Acer platanoides*) European Buckthorn (*Rhamnus frangula*), Multiflora Rose (*Rosa multiflora*), Purple Loosestrife (*Lythrum salicaria*), and Garlic Mustard (*Alliaria officinalis*). Poison Ivy, although not considered an invasive species, presents a management challenge within the site as it occurs as a low-growing groundcover and as a climbing vine that winds around trees and shrubs within the upland portions of the site.

A brief description of each of these species is outlined below. Details on the control and treatment of tree of heaven (*Ailanthus altissima*) will be included in the Vegetation Management Plan, under development as a companion piece to this RMP.

a. Oriental Bittersweet (*Celastrus obiculatus*)

Oriental Bittersweet is a deciduous invasive non-native woody vine that has a twining or trailing growth pattern. Native to eastern Asia, Japan, Korea and China, Oriental Bittersweet was first introduced into the United States in the 1860s. Oriental Bittersweet typically prefers roadsides, hedgerows and thickets, but its shade tolerance has allowed it to spread into forested areas. It reproduces by seeds, stolons, rhizomes and root suckers. Dense stands of vines can shade and suppress native vegetation.[2] Tree and shrub stems are weakened and killed by the twining and climbing growth which twists around and eventually constricts solute flow. Trees with girdled stems and large amounts of vine biomass in their canopies are more susceptible to damage by wind, snow and ice storms.[3] Oriental Bittersweet was observed entwined amongst the upland mature and sapling trees throughout the site. LEC observed a moderate amount of Oriental Bittersweet within the upland trees and saplings located in the northeastern corner of the Reservation.

b. Black Locust (*Robinia pseudoacacia*)

Black Locust is a rapidly growing, early successional, deciduous tree native to the southeastern United States. Once introduced into an area, Black Locust expands rapidly, creating dense stands of clones that shade native ground vegetation. The large, fragrant blossoms of Black

Locust compete with native plants for pollination by bees and other insects. Although abundant seeds are produced, few actually germinate.[4] Black Locust is intolerant of shade and is not found in dense woods except as a dominant tree.[5] Scattered Black Locust saplings were observed within the successional shrub habitat.

c. Norway Maple (*Acer platanoides*)

Acer platanoides is a fast-growing tree, highly tolerant to variations in environmental conditions, including soil type and moisture regime. It is often overlooked due to its resemblance to Sugar Maple (*Acer saccharinum*). Its thick foliage tends to over-shade the understory and groundcover layers, stressing native shrubs and herbs. Native to continental Europe, this tree spread south from Norway, and was likely introduced to North America in the mid 1700s. Despite its aggressive nature, Norway Maple is still widely planted as a landscape tree, particularly in the urban and suburban landscape. Scattered Norway Maple trees were observed on the hill and particularly within the lawn area located between Chestnut Hill Driveway and the residential apartment buildings.

d. European Buckthorn (*Rhamnus frangula*)

European Buckthorn is an invasive, deciduous shrub native to Eurasia and first introduced into the United States prior to 1800 as a hedge planting. European Buckthorn is well established in New England and rapidly spreading westward. European Buckthorn is an aggressive invader of wet soils, capable of growing in both full sun and heavily shaded conditions. In addition, this species also grows well in a wide variety of upland habitats, including old fields and roadsides. European Buckthorn is a nuisance species growing mainly in thickets, hedgerows, pastures, abandoned fields, roadsides and rocky sites. It aggressively out-competes native flora, mainly on well-drained soils. Under full-sun conditions, individual plants can produce seed in only a few years. In heavily shaded habitats, seed production may be significantly delayed. The fruit of *R. frangula* is effectively dispersed by a variety of birds and mice. Common and Glossy Buckthorns readily invade natural communities. Once established, exotic buckthorns crowd or shade out native shrubs and herbs. Clusters of European Buckthorn were frequently observed along the embankment to the Reservoir and within the forested upland habitats, with scattered individuals observed within the successional shrub habitat.

e. Multiflora Rose (*Rosa multiflora)*

Rosa multiflora is a prolific shrub with thorny, arching stems known as canes. This shrub was introduced to the east coast of the United States from Japan for use as an ornamental landscape plant in the mid 1800s. *R. multiflora* tolerates a variety of soil and light conditions and spreads primarily through seeds consumed by birds (An individual plant may produce up to 1 million seeds per year which can remain dormant in the soil for up to 20 years), but can also root from the canes that contact the soil surface. Multiflora rose has historically been planted for a number of uses, including: wildlife cover for game birds; 'living fences' to confine livestock; and within highway median strips to reduce headlight glare. LEC observed Multiflora Rose within the successional shrub habitat, along forest edges, and intermittently within forested uplands.[6]

f. Purple Loosestrife (*Lythrum salicaria)*

L. salicaria is a perennial, herbaceous species native to much of the world, including Europe and Asia that was introduced to the northeastern United States and Canada in the 1800s for ornamental and medicinal purposes. This species aggressively out-competes and displaces native wetland vegetation, reducing biological diversity, and degrades the quality of wildlife habitats.[7] This species has quickly invaded much of North America and has no natural predators or diseases that would normally limit its success in the northeast region.[8] *L. salicaria* produces copious amounts of seeds, up to 250,000 seeds per plant annually, and possesses a strong taproot that continues to provide food to the plant when it is mowed, sprayed with herbicides, or damaged by insects. Purple loosestrife is one of the dominant plants vegetating the banks of the Reservoir.

g. Garlic Mustard (*Alliaria officinalis*)

Native to Europe, this biennial wildflower (seeding over-winter prior to germination) tends to grow in woodlands and floodplains, where it out-competes native herbaceous plants. The plant can self-pollinate, and seed germination is prolific, starting earlier in the Spring (late February/early March) than most native wildflowers. Plant growth may extend into the winter months provided temperatures are above freezing and there is no snow cover. Seeds often spread to new areas via stream flooding events, and tend to germinate in disturbed, open areas and forest edges. Garlic Mustard aggressively has invaded numerous natural forests and is capable of

dominating the ground layer in many areas. It is a severe threat to many natural habitats where it occurs because of its ability to grow to the exclusion of other herbaceous species. Scattered patches of Garlic Mustard were observed throughout the forested portions of the property.

h. Poison Ivy (*Toxicodendron radicans*)

Initial establishment of Poison Ivy is generally by seed that is transported by birds. The single-seeded fruit are eaten by a variety of birds and the fruit is dispersed by birds after passing through their digestive tract. Once established, the plant continues to spread by producing shoots from its extensive underground stems (rhizomes). The plant is spread by creeping rootstocks that extend from the parent plant. New plants can sprout from a small, buried root section that escapes attempts to control it. Poison Ivy is often a nuisance to Reservation visitors and employees. LEC observed groundcover species of Poison Ivy around the perimeter of the Reservoir along with climbing vines within the upland portions of the site.

4. Habitat Diversity and Value

Two primary characteristics contribute to a property's ability to provide wildlife habitat both locally and regionally: habitat diversity and the site's context in the landscape. While each of these characteristics is important individually, their benefit to wildlife is compounded when occurring within the same parcel.

a. Habitat Diversity

As discussed above, the Reservation contains three main wildlife habitats ranging from successional shrub uplands and maturing forest to open water habitat. This habitat heterogeneity provides a variety of feeding, breeding, migratory, over wintering, and cover resources for wildlife. Habitat diversity is directly related to species diversity, and contributes to complex arrangements of species interactions and relationships, as well as community stability. For example, the diversity of herbaceous plants contained within the successional shrub upland provides a varied array of resources for a host of herbivorous insects, including butterflies and moths (Lepidoptera), grasshoppers, beetles (Coleoptera), and ants, wasps, and bees. This variety of herbivorous insects provides a range of prey options for predatory insects, amphibians, reptiles, and birds. Species diversity at these lower trophic levels adds complexity to the food web and gives rise to community stability. Forested areas and the open water both provide breeding, feeding, nesting, migratory, over wintering and cover habitat for a variety of amphibians, mammals, and birds.

b. Habitat Site Context

The Brighton section of Boston is densely developed with mixed use, residential, and commercial structures occurring in close proximity to the Reservation. Chestnut Hill Driveway, Beacon Street, Commonwealth Avenue, and Chestnut Hill Avenue surround the Reservoir and separate it from the surrounding urban landscape. The Boston College campus, stadium and associated athletic fields and Cassidy Playground occur west and east of the Reservation, respectively, and lawn grass within these areas provides reduced wildlife habitat. The urban landscape surrounding the Reservation also offers minimal wildlife habitat. However, the open water, forested upland, successional shrub upland and the rock outcroppings contained within the Reservation provide some limited wildlife habitat. The Reservation provides feeding, breeding, nesting, migratory, over wintering, and cover habitat for a variety of wildlife. LEC observed many of these species during site evaluations, including chipmunks, squirrels, birds, reptiles, and invertebrates. The open water likely functions as a local stopover point for migrating birds, providing necessary food and cover resources as well as habitat for resident species. Forested areas within the Reservation offer cover habitat for mammalian species, including Eastern chipmunk and gray squirrel that likely den in mature trees year round, using natural cavities or leaf nests. Acorns provide a food source for these mammals throughout the year. Overall, the site provides habitat for those species adapted to urban environments.

Cultural and Recreational Resources

The following section is an inventory and assessment of the main cultural and recreational landscape features at the Reservation. They all reflect, to a greater or lesser extent, the human impact on this landscape. Many of the features contribute directly to the historic character of the Reservation; some are later, non-historic additions. For each feature in turn, this section provides a historical overview and information on any subsequent modifications, derived from the detailed chronology included as an appendix to this RMP. The text then provides an assessment of the feature's current condition (and, where appropriate, use), based on field surveys conducted by Pressley Associates and its sub-consultants and on other relevant documentation as indicated.

1. Cultural Landscape

The cultural landscape is dominated by the Chestnut Hill Reservoir, the central part of the Reservation. Other important landscape features are the Reservoir dam, the heavily vegetated slope at the northern edge of the Reservoir, Chestnut Hill Driveway north of the Reservoir, Saint Thomas More Road, the non-historic Reilly Memorial Pool and Rink, and the wooded hill in the northeastern corner. The area known as Shaft #7 is also a heavily wooded hill. A stonedust path encircles the Reservoir with other paved paths connecting to other parts of the Reservation. Gatehouses #1 and #2, both historic structures, provide an historic connection to the original function of the Reservoir as a major water source. Scenic views of the Reservoir can be seen all around the Reservation, especially all along the perimeter path and from the overlook along the Chestnut Hill Driveway. Several large specimen trees, particularly oak and weeping beeches, are found throughout the northern part of the Reservation, with prominent ledge outcroppings along the northeastern edge of the Reservoir. The perimeter fence is another character defining feature of the Reservation, especially as seen from Beacon Street.

2. Reservoir and Dam

The Reservoir was built between 1866 and 1870. Originally it consisted of two irregularly-shaped basins separated by an earth and stone dam that ran over the Cochituate Aqueduct, installed under the site some twenty years earlier. The site had a natural watershed of 428 acres in Newton and Brighton but, when the Reservoir was constructed, much of the natural drainage was diverted into a storm drain system. A large earth dam (historically described as an embankment) was constructed to enclose the larger, Bradlee Basin to its south and east. The two reservoir basins had a stone lining of dry rubble masonry, which extended down to a berm with riprap reinforcement. This lining was capped with granite blocks. In 1948 the smaller, Lawrence Basin was declared surplus following the introduction of the Quabbin Reservoir. It was conveyed to the adjoining Boston College for educational purposes, and gradually filled in. The remaining Bradlee Basin was changed from an active water supply to an emergency reservoir in 1979 after completion of the Dorchester Tunnel, which runs directly underneath the Reservoir.[9]

The existing Bradlee Basin has a surface area of approximately 85 acres, with a maximum depth of 32 feet and a mean depth of 19 feet. The typical water level is a maximum of 134 feet and minimum of 130 feet (Boston City Base). The location of the Reservoir places it near the upstream end of the Village Brook drainage area, a tributary to the Muddy River. Only a small portion of the DCR Reservation currently drains through stormwater runoff into the Reservoir. The water level is controlled by the lowest sluice gate at Gatehouse #2.

The MWRA still maintains jurisdiction on the use of the Reservoir, dam, Shaft #7, and Gatehouses #1 and #2. Gatehouse #1 no longer functions for water conveyance purposes, but is part of the dam structure. The gates of Gatehouse #1 have been decommissioned, while Gatehouse #2 was recently upgraded with new gates and operators. The Reservoir will only be activated as a last resort such as a break, rupture, or rehabilitation of the existing main water supplies. (See also the section on Management Resources later in this chapter.)

The Reservoir basin is defined by a shoreline composed of broad sweeping curves and roughly occupies a circular area. The approximate length of the shoreline is 8,105 linear feet (1.5 miles). Rip-rap composed of monolithic granite stones line the entire shoreline. The stones occupy roughly two-thirds of the exposed shoreline at average water level. Overall, the rip-rap is fairly well intact and shows no visible signs of failure despite the fact that woody vegetation has taken a foothold in the cracks between the stones. Currently most of this vegetation is cut back on a regular basis, but the residual woody stumps continue to sprout throughout the growing season.

The Reservoir dam or embankment is located along the south-eastern edge of the Reservation property and parallel to Beacon Street. It is approximately 2,000 linear feet and occupies approximately three acres of land. The crest elevation is at approximately 137 feet.[10] According to a November 2005 emergency inspection report prepared by GZA GeoEnvironmental, Inc. for the DCR, the dam is in good condition. GZA assessed current maintenance levels as adequate, but observed eroded areas, depressions, and animal burrows along both the upslope (reservoir) and down slope (inland) sides of the dam and localized displacement of rip rap. Gatehouse #1 and #2 are along the top of the dam with the gatehouses' piping and pumping operations systems located within the structure. A new thirty inch iron overflow pipe is located along the upslope side approximately halfway between the two gatehouses. The pipe discharges into the storm drain system.

This RMP did not call for an extensive assessment of the Reservoir, analysis of the structural integrity of the dam, or for management recommendations. For further information on the Reservoir and dam, please see "Chestnut Hill Reservoir Dam, MA01113 Emergency Dam Inspection Summary Report" prepared by GZA GeoEnvironmental, Inc. for the Department of Conservation and Recreation in 2005 and the "Task 5.2 Chestnut Hill Reservoir Final Management Plan" prepared by CDM, Inc. in 2002 for the Massachusetts Water Resources Authority.

3. Gatehouse #1 Area

Gatehouse #1 was constructed between 1868 and 1870 and contained the major control gates for the Reservoir. Designed by Edward R. Brown in the Renaissance Revival style, it is located on the rim of the embankment or dam at the end of the original route of Beacon Street, and thus provided the first view of the new Reservoir complex for many visitors. It is a two-level granite structure, three bays wide, with a shingled, hipped roof. Originally built on quicksand, Gatehouse #1 has substantial foundations with rubble piers and brick arches that rested on bedrock. On the first level, the entrance to the gate chamber and two flights of stairs lead to an elevated pathway, which in turn provides access to a central set of steps up to the second story and the level of the Reservoir.

Figure 3.8: Gatehouse #1 upper structure (2005)

Historically, the Beacon Street spur entry drive terminated in front of the Gatehouse in a wide circular driveway that swept past the gate chamber entrance and around a circular ornamental fountain. Beacon Street was planted with two formal rows of elms in 1876, which framed the view of the gatehouse. A centered cupola was removed from the building in 1909 and replaced with a brick chimney and wooden cornice.[11] Effluent Gatehouse #2 took over the building's operations as part of the water supply system but it served as an outlet works until the 1970s.[12]

a. Entry Road

By 1977, the Beacon Street spur was no longer a straight formal avenue, the elms had disappeared, and the area was being used as an informal grassy parking lot. As part of the 1977 MDC improvements, the area became a paved parking lot with a central island planting bed and, adjacent to the stairs, two curb-edged planting beds. The original fountain was relocated in front of the Low Service Pumping Station with new plumbing. This area is under the care and control of the MWRA and covers water supply pipes originating from Gatehouse #1. The 1977 parking lot has subsequently been demolished and used as a construction staging area up until Fall 2005 when it was resurfaced as a bituminous concrete parking area. This parking area use was only temporary. At the end of 2005, MWRA advertised the "Heath Hill Section 52 Phase 2 Rehabilitation Project" and received bids from a number of qualified contractors. In January 2006, MWRA awarded a construction contract to J. D'Amico, Inc. The contract has an overall duration of 630 calendar days with an estimated completion in October of 2007. The Contractor has agreed to assist the MWRA in stabilizing the Gatehouse #1.

b. Gatehouse #1 Structure

Gatehouse #1 is of random ashlar granite stone masonry construction. It has an approximately forty by fifty feet footprint and is three window bays wide. The hipped roof is covered with slate shingles and is topped with a small stone masonry chimney. The ridges of the roof are covered with copper flashing. The structure has an upper and lower level. Access to the upper structure is from the pedestrian path along the top of the dam.

Extensive underground chambers are present in the lower part of the gatehouse and the within the dam itself. The underground chambers can be entered through cast iron doors set in a stone wall between the double granite stairs and through stairs inside the gatehouse. The double granite stairs lead up to the top of the dam. An ornate iron picket fence and locked gate which were part of the 1928-1929 perimeter fence (described below) currently restrict access from the parking lot to the top of the dam.

The slate covered hipped roof is supported with exposed rafters and decking, forming a cathedral style space. The roof framing is generally in good condition but there appear to be potential leaks at the hips, especially near the bottoms where the hip rafters sit on the corners of the building. The slate joints at the hips appear to be covered with a raised copper cap, although this was difficult to confirm during the 2005 field survey as the roof slope is fairly shallow and the exterior walls are over sixteen feet high.

Although there were no signs on the floor of any roof leakage during the recent field survey, the southwest corner of the roof has been rebuilt with modern 2'x4' rafters and plywood; the brick wall below this repair has light efflorescence stains. The brick walls at the northwest corner also have light efflorescence on their surfaces. The paint at all four corners is peeling and the wood is darkened, especially at the southeast corner.

While the roof is in good condition overall, it should be assumed that there is some moisture damage in the decking and possibly the rafters at the four corners. The roof structure would need to be repaired before the building could be designated for public use.

The sixteen inch concrete slab floor of the upper part of the structure is at elevation 138 feet and spans from the entrance to the west end of the wet wells. The remainder of the floor consists of sixteen inch concrete planks spanning between each of the four intake portals.

Figure 3.9: Modern materials in southwest corner of roof (2005)

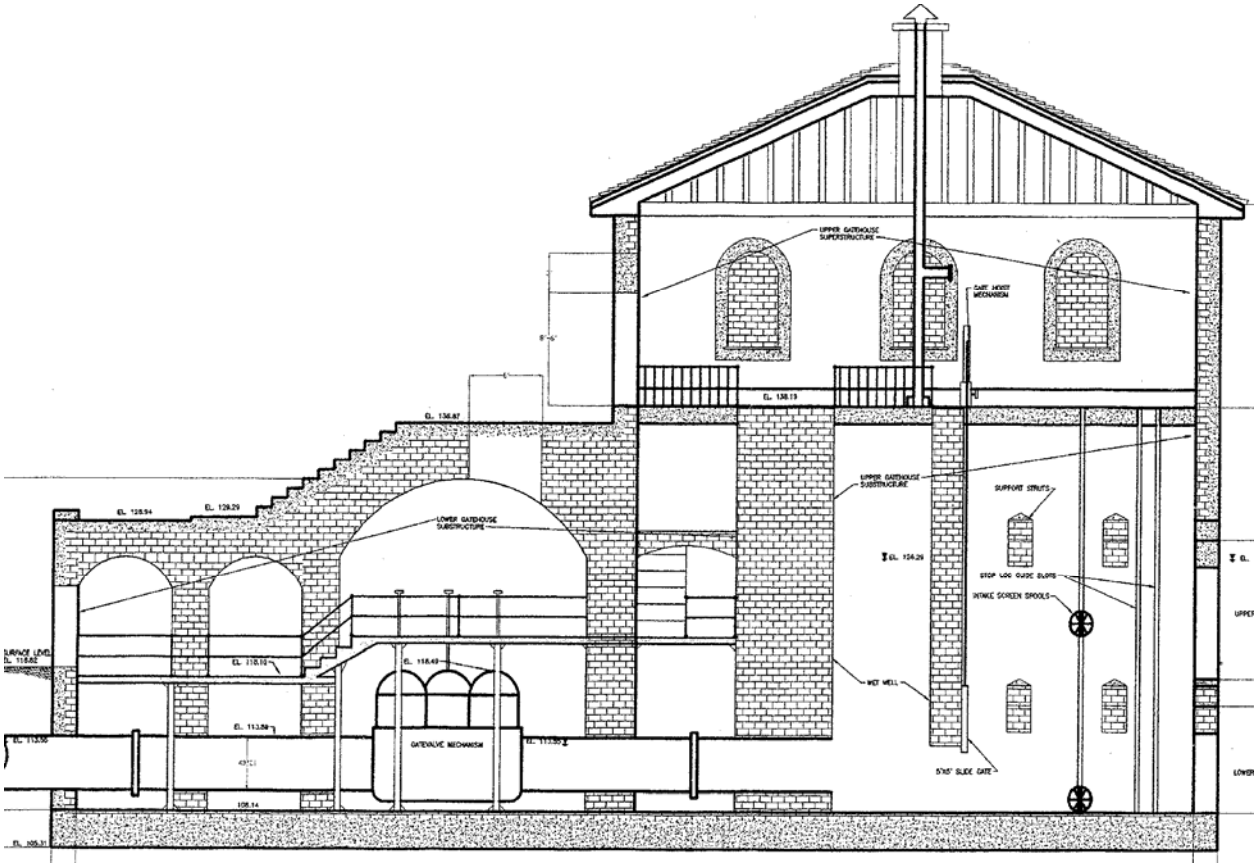

Figure 3.10: Section of Gatehouse #1 from GZA GeoEnvironmental, Inc. report

The 2005 field examination did not include the lower level; an attempt was made to reach the lower level but the wood platforms, catwalks and stairs were heavily damaged with rot and corrosion and access over the water-filled chambers was too dangerous to attempt. An extensive survey of the upper and lower interior levels was conducted by GZA GeoEnvironmental Inc in 1998 and their March 1998 report[13] provides a complete description of the chambers and related elements.

GZA's 1998 report for the MDC studied options and issues related to the use of the gatehouse. Based on the GZA report, if Gatehouse #1 was to be open to the public in some form, it would be necessary to close the chamber in the lower part of the structure with fill (either flowable concrete fill or a mix of flowable fill and crushed stone) and to concrete up to the upper floor elevation of 138 feet. Bulk heading of the intake and outtake pipe would also be necessary. GZA estimated the cost of closure (which included the work described above plus limited re-pointing of the exterior stone masonry of the gatehouse from the normal water line to the dam crest elevation, construction phase resident engineering, and preliminary testing for lead paint within the lower part of the gatehouse) at between $233,000 and $288,000 (at 1998 prices).

The walls of the gatehouse consist of exterior 72"x18"x8" granite units laid in a random ashlar pattern and interior face brick laid with narrow mortar joints appropriate for the best appearance. There are stepped cracks in the mortar joints above the window and door arches. Some of the cracks have been repointed in the past and some are open. These cracks are probably due to thermal expansion and contraction in the wall: they occur where the wall has been reduced in area by the window openings (now bricked up). Once the cracks develop they provide cavities for vine roots to intrude into the joints and further break down the mortar. Cracking was not observed on the interior side of the walls.

The windows have been sealed with brick and the upper entrance covered with wooden boards by the MWRA to prevent access. The interior of the upper structure is face brick with narrow mortar joints. There is some graffiti and vine growth on the exterior walls.

Gatehouse #1 has great potential for adaptive re-use as part of the DCR Reservation. It is an important, classically designed historic building in a very visible location. Based upon the 2005 field surveys and the previous analysis described here, the upper part of Gatehouse #1 is in good condition but needs extensive repair and maintenance before it can be used for any new purpose.

c. Walls and Stairways

Externally, two formal, angled stairs, constructed of granite, enclose a stone retaining wall. This wall and stair structure is integral to the Gatehouse and presents a grand entrance to the Reservation. At the center of the retaining wall, three cast iron doors lead into the underground chambers of the gatehouse. The large stone units of the wall are in good condition and in their original positions. Minor damage is present at the mortar joints, especially under a narrow coping or belt course at the top of the wall. The cast iron doors function and are in good condition.

Each stair consists of individual tread stone units and heavy side wall units. While the stairs appear to be in good condition, there is evidence of past movements among the various stone units. The side cheek walls appear to have tilted or shifted laterally, creating wide gaps between units that were subsequently filled with mortar. The wide mortared joints are generally intact but many are cracked. Although there are no immediate or major public safety concerns, some level of repair and stabilization of the steps and cheek walls is warranted.

Figure 3.11: Gatehouse #1 lower structure and double stairs (2005)

4. Other Buildings and Structures

a. Gatehouse #2

Gatehouse #2 was constructed in 1898 on the Beacon Street embankment or dam, opposite the High Service Pumping Station. It was designed to provide water to both pumping stations (which had been added in 1886 and

1898 when gravity was no longer sufficient to distribute water from Chestnut Hill) and took over the operations of the original Effluent Gatehouse #1. Built in the Renaissance Revival style, it is one-story in height, three window bays across and one window bay deep. The exterior is dressed granite ashlar and the windows are accented with iron grillwork. The roof has a shallow pitch and is clad with copper. Access to the structure is gained from the pedestrian path on top of the dam. There is a small flight of simple stone steps leading down to the Beacon Street sidewalk that are in fair condition.

Figure 3.12: Gatehouse #2 (2005)

A structural analysis for Gatehouse #2 was not conducted as a part of this Resource Management Plan. This gatehouse remains in operation and is under the control of the MWRA as the main outlet for discharge of the Reservoir's water to the water distribution system. It houses several five foot square gates used to maintain the water level. The MWRA has recently upgraded the equipment within the gatehouse and carried out repair and cleaning work to the inside and outside of the structure. Unlike Gatehouse #1, the windows are still glass and are covered with iron grille-work.

b. Intermediate (Cochituate) Gatehouse

The Intermediate Gatehouse (also known as the Cochituate Gatehouse) was one of the original structures built by the Water Board around 1869. Located on the dam between the two basins, it was designed to connect them both with the Cochituate Aqueduct. It is a hammered granite rectangular structure thirty feet by twenty-five feet in size, with a wood gable roof, arched window openings, and a bracketed cornice. The gatehouse sits on land now licensed by Boston College and the entrance is only accessible from the Boston College side of the fence.

Given its location and the fact that it remains under MWRA management, no structural survey was completed on the Intermediate Gatehouse. From visual examination, it appears to be in fairly good condition.

c. Reilly Memorial Pool and Rink

The Reilly Memorial Pool and Rink was constructed in 1961 at the eastern end of the Reservation on the corner of Chestnut Hill Avenue and Beacon Street. It was located on land acquired by the Commonwealth from the City of Boston in 1959. It is the largest building within the Reservation and lacks the attractive architectural qualities of the other structures.

The RMP did not include an evaluation of the Pool and Rink building itself, but does present an inventory and analysis of its landscape setting. The covered rink is partially screened by a wooded area along Chestnut Hill Avenue, but the open air pool, slightly terraced above Chestnut Hill Avenue, is fully visible from all sides without any screen or buffer vegetation. Only a chain link fence separates the pool from the surrounding streetscape and park land. The main entrance to the building is a roll-up steel door facing Beacon Street. A concrete paved pedestrian walk connects the entrance to the Beacon Street sidewalk. There is also a side service door on the west side of the building. The rink's service driveway leads from Beacon Street into the Reservation on the west side of the building. The bituminous concrete driveway is in relatively poor condition. Parking at the top of the driveway is meant to be reserved for maintenance and DCR only but there is some uncontrolled vehicle access and parking. From the parking area at the top of the driveway, the pavement essentially degrades into the many paths and desire lines leading up to the adjacent playground area and the Reservoir, detracting from the only existing "gateway."

If legislation to lease the Reilly Pool and Rink to a private concessionaire or other entity is under consideration, any agreement should take into account the site-related issues about appropriate access and sufficient parking for visitors. The adaptive reuse of Gatehouse #1 and its courtyard could include provisions for a safe drop-off area and pathway for the Rink. (See further discussion in the Management Resources section, below.)

d. Freestanding Walls

In 1977 three stone masonry freestanding sign walls were installed as part of the MDC landscape site

improvements. These walls mark the Beacon Street entrance to Saint Thomas More Road and the Commonwealth Avenue entrance to the Chestnut Hill Driveway. These walls serve as the only formal signage for vehicles entering the Reservation and therefore function as vehicular gateways into the park. A granite plaque inserted in the center of two of the walls reads "Chestnut Hill Reservoir, Metropolitan District Commission Commonwealth of Massachusetts." The letters are painted black for visibility. All fascia stones are rough granite. The three walls are typically four to eight feet high and terminate with a five to ten feet high stone masonry column. A cut tapered granite capstone runs along the top of the walls. The Beacon Street intersection wall is straight and twenty-five feet long. The west wall of the Commonwealth Avenue intersection is curved and approximately sixty-six feet long. The east wall is curved and one hundred and forty feet long.

Figure 3.13: Freestanding stone wall at Beacon Street Entrance (2005)

Most of the mortar joints for all three walls are in good condition, but deterioration is starting to affect the masonry. Almost all of the capstone butt joints have small cracks and some moss is taking hold at the butt joints that absorb moisture and dry slowly. A few of the joints between the stone units show calcium carbonate deposits. Water infiltration is beginning to work into the wall but no significant damage has occurred yet. Repair work is warranted given the existing damage and in order to prevent any future deterioration.

e. Retaining Walls

Early historic images of the Reservoir from the 1870s (reproduced in the Chronology in Appendix C) show that stone retaining walls existed within the project area, although it has not been possible to identify their exact locations or extent. There is an 1876 view showing the beginning of two low walls that ran either side of the Entrance Arch along Chestnut Hill Avenue. The portions photographed would have been demolished along with the Arch in 1896 but other sections may have been retained or replicated along the remaining Chestnut Hill Avenue boundary. There is also a photograph from c.1878 that shows a long low stone wall running northwest through the Amos Lawrence farm, which may also have continued into the land to the north of the Chestnut Hill Driveway. An 1886 engraving of the Driveway as it ran north of the Bradlee Basin shows a steep slope between the pathway and the road, which may have been retained by a stone wall, although no structure is visible.

Two sets of stone masonry retaining walls are today associated with the Reservation – along the Chestnut Hill Driveway and Chestnut Hill Avenue.

Figure 3.14: Upper stone retaining wall along Chestnut Hill Driveway (2005)

Retaining Walls along the Chestnut Hill Driveway

A double-tiered set of stone retaining walls is located in the slope below the Chestnut Hill Driveway. Here, the outer path running on the south side of the Driveway drops down below the upper wall. The path returns to the Driveway level after about 475 feet. The upper wall is typically about five feet high and the lower wall approximately thirteen feet high. The upper wall is composed of large, dry-laid granite stone units. The lower wall is composed of roughly dressed granite stones set in beds of mortar and has a battered face. There is no displacement in the wall as a system, or in individual units.

The stone units for the lower wall are set in beds of mortar and the mortar has been struck flush with the faces

of the roughly dressed stones. In general, there is no displacement of the wall as a whole, but one of the long stones at the top of the wall is displaced about six inches. This stone is at a location where mortar and small chinking stones have fallen out of the face of the wall.

Retaining Wall along Chestnut Hill Avenue

A retaining wall runs south to north alongside the Chestnut Hill Avenue sidewalk. It starts with a curved section at the Chestnut Hill Avenue and Beacon Street intersection and runs north to the intersection with Commonwealth Avenue. The wall then curves west and terminates a short distance away from the Commonwealth Avenue intersection. The total length of this wall is 905 linear feet. There is a short gap in the wall north of the Reilly Rink where a pathway leads from Chestnut Hill Avenue into the Reservation. This area of the wall was removed as a part of the 1977 MDC landscape improvements.

Figure 3.15: Stone retaining wall along Chestnut Hill Avenue (2005)

The Chestnut Hill Avenue walls are about two feet wide and vary in height, although three and a half feet is typical. These walls primarily serve as retaining walls, but in the area by the pool, a significant portion of the back side of the wall is exposed. The walls are capped with dressed stone slabs about six and half inches deep and four to five feet long. The wall is built mostly of large granite units that penetrate the full depth of the wall with smaller stones used to fill in the voids between the largest stones.

The stones are mortared together and the mortar between stone units is generally cracked, missing, disintegrated or is an inappropriate white mortar color used for a previous re-pointing. In spite of the mortar deterioration, the large size of the stone units has ensured the stability of the wall, there being no significant displacement of the wall as a system or of most of the stone units individually. However, several cap stones at the curve in the retaining wall near Commonwealth Avenue have been displaced outward about six inches. Also, small stones at the surface have toppled out of the wall at roughly ten to fifteen foot intervals.

The deterioration is caused by moisture infiltrating the interior of the wall and freezing or dissolving the constituents of the mortar. In the retaining wall, moisture enters the back of the wall from the soil; in the freestanding wall, moisture enters initially through cracked butt joints between the cap stones and then later through cracked mortar joints in general. It is possible to make repairs at the freestanding wall that will last for some time but repairs at the retaining wall will need frequent maintenance, in the absence of a waterproof membrane on the earth side. Immediate repairs may be necessary to prevent future deterioration.

Other Retaining Walls

See also the discussion of Gatehouse #1 related to the stone retaining cheek walls and formal stairs in the Gatehouse #1 area and the description of the Overlook.

Figure 3.16: 1977 overlook (2005)

f. Overlook

The overlook on the Chestnut Hill Driveway, created as part of the 1977 MDC site improvements, contains a granite bench, a steel picket fence, stone columns, granite paving, and an on-grade granite plaque that graphically describes the direction and distance to other Metropolitan

Boston water supplies. The overlook provides an open view of the Reservoir and the pumping station buildings south of Beacon Street. Although it is not a historic feature, the overlook does provide a place for significant views of the Reservoir, Gatehouse, dam, and the Waterworks development and is regularly used by pedestrians.

The overlook and all its associated features are in fair to good condition. However, there is a slight step-down to the adjacent packed dirt pathway that presents a tripping hazard as well as being aesthetically unattractive. This also effectively makes the overlook inaccessible to persons with physical disabilities.

5. Vegetation

a. General character

The park-like landscape was laid out between 1866 and 1870, at the same time as the Reservoir and roadway were being constructed. There are no known historic planting plans or plant species lists, but it is possible to identify the character of the planting and some individual species from historic photographs, postcards, written descriptions, and the records of the Boston Water Board. It is clear that a number of groves of trees were on the site prior to the construction of the Reservoir and that many of these were retained and incorporated into the new park. The Water Board then added specimen shade trees, flowering shrubs and vines, as well as laying out some areas as grass.

Originally, much of the landscape was covered with grass, which from historic photographs was meticulously mown to give a neat, almost manicured appearance. These grassy areas included the dam or embankment that retained the Bradlee Basin to its south and east; six feet wide strips bordering the path that encircled both basins; the land bordering Beacon Street as it approached the Reservoir and the entry drive that led to Gatehouse #1; and various larger open areas, particularly around the Lawrence Basin.

The area to the east of the Reservoir, around the hill parcel, was wooded, with a mix of fine evergreen and deciduous trees growing naturalistically in grass. Close to the water's edge, the large bedrock outcropping was planted with deciduous trees and vines, including Porcelain Berry and Virginia Creeper. In the northeast corner of the Reservoir, near the junction of the Driveway and Chestnut Hill Avenue (later Commonwealth Avenue), were a number of smaller rock outcroppings planted with deciduous, probably flowering, shrubs, columnar trees (probably Eastern Red Cedar) and grass. To the north of the Bradlee Basin the hilly promontory was densely covered with a range of mature trees. From their size in early images of the Reservoir, many of the trees must pre-date the creation of the park. They appear to have included oaks, elms and clumps of birch trees as well as a number of evergreen species. There were also some large specimen trees to the north of the Driveway in this area, perhaps including a very large American Elm. A further wooded area was located on the triangular piece of land that jutted into the Lawrence Basin (now known as Shaft #7). Over the dam between the two basins, the plantings were smaller in scale, with low massing of flowering deciduous and evergreen shrubs planted in grass. Similar plantings edged the path that joined the Driveway and the Intermediate Gatehouse. A large specimen deciduous tree marked the curve of the Driveway as it met Beacon Street.

Centennial Elms were planted in 1876 around the Reservoir and along the Chestnut Hill Driveway. Also in 1876 and again in 1887, elms were planted on both sides of Beacon Street. (The records of the Water Board and correspondence from renowned landscape architect Arthur Shurcliff both described them as English Elms, although that would seem a surprising choice to mark the centennial.) Although they appear to have thrived at first, 1901 photos show an absence of trees along Beacon Street. By the 1920s many were in poor condition, and more were destroyed by the 1938 hurricane.

The 1977 MDC improvements included an extensive program of replanting throughout the Reservation. Some shade trees were added to new landscaped areas at the Chestnut Hill Driveway and Saint Thomas More Road intersection, and a new circular bed was planted with small ornamental trees in front of Gatehouse #1. But, based upon the inventory of the existing site conditions, and an analysis of the photographs taken of the 1977 work, it seems that many of the proposed planting plans were never implemented.

As detailed in the previous natural resources section in this chapter, the vegetation of the Reservation today is composed of a mix of mown grass areas and wooded areas. Densely wooded areas are found on the slope north of the Reservoir, the area between Chestnut Hill Driveway and Evergreen Cemetery, and along the sides of the hill parcel in the northeast corner of the Reservation. Shaft #7 is also heavily wooded. There are also areas of

trees over mown grass between Chestnut Hill Driveway and the Commonwealth Avenue apartment buildings, the intersection of Chestnut Hill Driveway and Saint Thomas More Road, and the area between the Pool and Rink and the Reservoir. The areas along Saint Thomas More Road adjacent to Evergreen Cemetery and Boston College are typically composed of trees over mown grass. Several trees are fairly large; the most common large trees tend to be oaks with a few specimen quality beeches located on the hill. Many of the heavily wooded areas are overgrown with dense understory vegetation, much of it invasive. Several of the large trees are in poor and hazardous condition and need major pruning or removal because they present a threat to visitor safety.

Poison Ivy is a persistent problem throughout the Reservation. It is found in wooded areas hanging down from trees into pathway and along the fence, particularly in the west and southwest parts of the park.

Other areas, particularly the slopes of the dam and the area immediately around the Pool and Rink are open mown grass. During the growing season, these open grass areas, as well as the grass under tree areas, are mown by DCR/MWRA personnel on a regular basis. Typically the grass in the open areas is mown to approximately four inches. Existing vegetation maintenance practices are described in the Operations and Management section later in this chapter.

In Spring 2006, a complete inventory and analysis of the Heritage Trees (trees greater than 32" in caliper) on the site was undertaken. The inventory noted the location, size, species, and condition of each of the Heritage Trees, which are mostly located in the wooded areas north and east of the Reservoir. The inventory also noted other trees on the site which, although smaller than 32" caliper in size, merit attention because they either approach the size of Heritage Trees or represent a unique specimen tree with a strong form and size for the particular species. There are a total of 77 Heritage Trees, 65 other significant trees, and 10 large dead trees. The typical Heritage Trees species were Red, White and Black Oak, Linden, European Beech, and White Pine. Other trees considered significant included the previously mentioned species as well as Norway Spruce, Green Ash, and Larch.

The condition assessment assigned each tree a rating of good, fair, or poor. "Good" trees are trees in good health, vigor, and structure. "Fair" trees are in fair health due to some insect and/or disease problems and/or require some structural and dead wood pruning. "Poor" trees are trees in strongly declining health due to some insect and/or disease problems and/or require a large amount of structural and dead wood pruning.

In addition, the inventory noted the location and approximate size of dead trees and hazardous trees which have dead or dangerous branches near or above pedestrian areas. These dead trees should be immediately removed because their hazardous condition represents a threat to public safety.

b. Community Garden

A small community garden exists along the Chestnut Hill Driveway near the Wade Street dead end, officially known as the Chestnut Hill Reservoir Community Garden. The gardens were improved by the MDC as part of its 1977 landscape improvements. Defined along the roadway by a length of the 1977 iron picket fence, the Community Garden is approximately 7,500 square feet in size. A small concrete pad, approximately 20' x 25' in size is located north of the garden plots with three benches and a picnic table. The garden is open apart from two small sheds for storing garden supplies and some small fences around the individual garden plots. A dirt path connects the garden to the end of Wade Street. Overall the garden plots seem to be well maintained by the gardeners although there are some small compost and trash pile areas scattered throughout the adjacent woodland. See the Management Resources section, later in this chapter, for a discussion of the property issues relating to the Community Garden.

Figure 3.17: Chestnut Hill Reservoir Community Garden (2005)

6. Vehicular Circulation

As the Reservoir was being constructed between 1866 and 1870, the Water Board laid out an eighty foot-wide carriage drive around the water bodies consisting of the rerouted Beacon Street to the south and the new Chestnut Hill Driveway to the west and north. These joined with the existing Chestnut Hill Avenue to form a pleasure circuit around both basins. Located principally along the margins of the water, the winding Driveway followed the natural contours of the land and narrowed to sixty foot in places to preserve existing trees and outcrops. The surface was probably crushed gravel, converted to Tarvia Macadam in the early twentieth century as automobiles gradually took over from carriages as the principal vehicles on the road. Both the rerouted Beacon Street and the new Driveway had sidewalks. The main vehicular entrance points to the pleasure drive were from Chestnut Hill Avenue: one was through the Entrance Arch located where the Driveway began (demolished in 1896 when Commonwealth Avenue was extended) and the second was along the original route of Beacon Street as it approached Gatehouse #1. There were a number of secondary access points from the south, west and north.

Figure 3.18: Commonwealth Avenue vehicular entrance (2005)

Following the 1948 transfer of the Lawrence Basin to Boston College, much of the Driveway around the smaller basin was lost, although Saint Thomas More Road follows the original route of the Driveway to the northeast of the Basin. By 1977, both sides of the original Driveway north of the Bradlee Basin had become informal parking lots and were re-designed by the MDC. To the west, the intersection with Saint Thomas More Road, originally a wide triangular area, was also reconfigured from a Y-shaped intersection into a T, and new landscaped areas planted with shade trees adjacent to the roads. Rough cut granite rumble strips and saw-cut granite block crosswalks were installed along the Driveway and an overlook was added to provide views of the Reservoir and the historic buildings beyond.

Today, the Chestnut Hill Reservation has several main pedestrian and vehicular entrances, or “gateways”, that lead into the Reservation. Public vehicles can enter the Reservation in five locations. Three entrances are from Beacon Street: at the Reilly Pool and Rink service drive, at the Gatehouse #1 parking area, and one leading onto Saint Thomas More Road. Two entrances lead from Commonwealth Avenue, one via Saint Thomas More Road and the other to the Chestnut Hill Driveway. Two vehicular entrances to the Reservation have entry sign walls inscribed “Chestnut Hill Reservoir” (as described in the Other Building and Structures section earlier in this chapter) and thus provide a visual reference point that one is entering into Reservation property. Official DCR and MWRA vehicles access the path area inside the fence through two vehicular gates. From a vehicle, views to the water are limited by the vegetation growing on the slope north of the Reservoir.

The Reservation is bordered by three City of Boston public streets: Beacon Street, Commonwealth Avenue, and Chestnut Hill Avenue. These surrounding roads have heavy traffic loads, particularly Commonwealth Avenue and Chestnut Hill Avenue. Cleveland Circle has major vehicular congestion problems, particularly during rush hour traffic. The MBTA Green Line ‘B’ train runs along Commonwealth Avenue. The MBTA Green Line ‘C’ train terminates at Cleveland Circle east of the Reservation. The MBTA Green Line ‘D’ train runs south of the Reservation at the back of the Waterworks development. The Reservoir is partially visible from Beacon Street whereas Commonwealth Avenue and Chestnut Hill Avenue provide no real views to the Reservoir. Saint Thomas More Road and Chestnut Hill Driveway are completely within the boundaries of the Reservation. Combined, these two roads have around 216,000 square feet (4.96 acres) of paved surface.

a. Chestnut Hill Driveway

As described above, the Chestnut Hill Driveway was part of the historic design for the Reservoir landscape. To alleviate deteriorated conditions and unorganized shoulder parking, the MDC made substantial improvements to the roadway in 1977. This required first removing old catch basins and lights at the edges of the paving, followed by changes to the original alignment of the historic eighty foot-wide road to provide a pull-off

area south of the Driveway for parallel parking as well as head-in parking spaces on both sides of the road. Five feet-wide granite cobble paving strips were added at the back of the head-in parking spaces. This left a narrower central section for through traffic in which the MDC added granite cobble "rumble strips" on both sides of crosswalks. New cobra-head lighting, curbs, and catch basins were installed along the new edges of the road. The intersection of Chestnut Hill Driveway and Saint Thomas More Road was re-configured from a Y-intersection into a T-intersection.

Figure 3.19: Chestnut Hill Driveway (2005)

Relative to the other roads in the area, traffic along the Chestnut Hill Driveway is low although higher traffic flows do occur during rush hour as this roadway is frequently used as a shortcut to bypass the traffic on Commonwealth Avenue and Beacon Street. The Driveway still provides a pleasant driving experience as it gently winds across the top of the slope north of the Reservoir, although views of the Reservoir are limited by the dense vegetation and the parking areas. While vehicular speed should be minimized along this road, the rumble strips have proved to be a constant maintenance issue for the DCR. The granite cobblestones routinely are displaced, particularly by snow plows, and are a hazard to bicyclists and pedestrians.

b. Saint Thomas More Road

Saint Thomas More Road connects Beacon Street to the south with Commonwealth Avenue to the north, as well as providing access to several of the roads entering the Boston College campus. The northern stretch, beyond Shaft #7, has fewer street trees, with campus buildings and access roads immediately adjacent to the roadway along most of its length. The majority of pedestrians are students or faculty. As such, it has a different character from the other roads within the Reservation.

Figure 3.20: Saint Thomas More Road looking north (2005)

c. Parking

Currently, Chestnut Hill Driveway provides the only public parking spaces within the Reservation. All of the head-in parking spaces on the north side of the Driveway (seventy two spaces) are restricted to Allston/Brighton resident permit holders. The head-in parking spaces on the south side of the Driveway (fifty two spaces) are open to anyone during the day, but are restricted to permit holders from 8 P.M. to 6 A.M. As a result, there are usually several open parking spaces here during the day. Parking in the small group of parallel spaces (approximately 16 spaces) in the pull-off area on the south side of the Driveway is restricted to maximum three hours limit. Most of the parking on the Driveway is used exclusively by residents of the Commonwealth Avenue apartments and other nearby buildings.

The Boston Transportation Department (BTD) states the Driveway is considered a local roadway, as opposed to an arterial or collector, but is maintained by the Commonwealth. The BTD would not support any reduction in the number of parking spaces along the Driveway as they recognize a substantial need for residential parking in that area.

There is a small parking lot in front of Gatehouse #1, although it is currently used as a MWRA staging area. The MWRA retains care, control, and custody of this area as they require continued access to the water supply valves located under the lot for operation and maintenance purposes. Some parking is also available for DCR and other official vehicles in the service driveway adjacent to the Reilly Pool and Rink. This area with pavement in poor condition sees a lot of informal parking.

Parking spaces are in great demand around the Reservation when there are hockey games at the Reilly Rink and during Boston College sporting events. Until recently, on Boston College game days, the State Police, in an agreement with Boston College, would close down and coordinate parking along Saint Thomas More Road and Chestnut Hill Driveway. Parking was also commonly allowed in the two landscape areas at the intersection of Saint Thomas More Road and the Chestnut Hill Driveway across from Shaft #7. All such parking for sports events within the Reservation was suspended in 2005.[14]

The parking spaces along the Chestnut Hill Driveway are located on land leased to the Commonwealth by the City of Boston. This parking occupies land that would otherwise be part of the landscape and the parked vehicles are visible from the lower part of the Reservation, diminishing the visual quality of the park. There are no designated accessible parking spaces anywhere in the Reservation, not even among the approximate 140 spaces on the Driveway.

7. Pedestrian Circulation

In addition to the Driveway, the Reservoir was originally bounded in its entirety by an eight foot wide gravel footpath immediately along the water's edge, with a portion running along the top of the dam or embankment on Beacon Street, all bordered by trim strips of turf. Historic photographs show that the path and turf were meticulously maintained well into the early twentieth century. In 1928-29, a steel picket fence was installed (as described below), which prevented public access to most of the original path (which became known as the inner path) and a new path was installed outside the new fence for continued pedestrian access to the landscape. Following the 1948 transfer of the Lawrence Basin to Boston College, the two footpaths around the smaller basin were gradually lost.

In 1977 while the inner path was closed, the MDC installed a series of new and improved pathways including a "skinned jogging path" around the outside of the perimeter fence and paved paths atop the hill behind the Reilly Memorial Pool and Rink. Paved paths to the new playground were also installed.

Figure 3.21: Existing circulation diagram

In 2002, after the Bradlee Basin was formally decommissioned as a reservoir, portions of the fence were removed and gates opened to allow public access once more to the inner perimeter path.

Pedestrians currently enter the Reservation at several locations, which are noted on the Existing Circulation Diagram (Figure 3.21). The primary pedestrian entrances are from the Beacon Street sidewalk into the Reilly Pool and Rink area, through the opening in the Chestnut Hill Avenue retaining wall, through three areas along Commonwealth Avenue, and from the Boston College campus across Saint Thomas More Road. These entrances provide access to the two main pedestrian paths systems, which encircle the Reservation, and to another smaller, more recent system around the hill parcel and Reilly Rink and Pool. The existing pedestrian entrances are not signed and in some cases are not visually obvious as entrances into the Reservation. Figure 3.21 shows the location of the existing paths.

a. Reservoir Perimeter Path

The original inner or perimeter path, now typically six to eight feet wide and surfaced in stone dust, still follows the shoreline of the Reservoir, with a section running along the top of the dam. This path is typically called the "inner" path, which is completely inside the perimeter steel picket fence, except in the southwest corner of the Reservation where the original stonedust path is located outside the fence and a narrow dirt path has been established inside the fence. This "inner" path is about 8,250 linear feet long (1.56 miles).

Figure 3.22: Stonedust path along top of Reservoir dam (2005)

The sides of the inner path are not contained by edging and so they are not well defined and gradually transition into the adjacent mowed grass areas. The stone dust is mostly in fair condition although there are some areas of puddling after rain, particularly in depressions rutted out by vehicle traffic. The path narrows to only two to three feet in width west of Gatehouse #2 and continues to an area across from Boston College's Shea Field. This portion of the path is mostly composed of packed soil and runs parallel to a portion of the outer path, located on the opposite side of the 1928-29 perimeter steel picket fence. The fence creates a perceived lack of safety for the perimeter path, because there are few points to exit the path in an emergency.

The perimeter path offers a continuous view of the Reservoir. Along the dam, the views from the path also include Beacon Street, Cleveland Circle, Cassidy Park and the Waterworks development. The northern stretch of the path is bordered on the inland side by dense wooded areas which, combined with the physical distance from adjacent streets, screen the nearby urban area and mitigate the sounds of traffic. The perimeter path is the most popular recreational feature in the Reservation, and is actively used by joggers and walkers.

Figure 3.23: Worn dirt path running inside the perimeter fence and alongside Beacon Street (2005)

Access to the perimeter path is possible at nine locations. Two are bituminous concrete paths that run through gate openings in the fence at the southern and western edges of the Reservation. (During 2005 field surveys, the gate in front of Gatehouse #2 was observed to be unlocked on occasions.) The other seven access points are through gaps deliberately created when the MDC removed panels from the fence: near the intersection of Saint Thomas More Road and Beacon Street, near the old playground, inside the wooded area north of the old playground, near the intersection of Commonwealth Avenue and Chestnut Hill Avenue, and three openings adjacent to each other

along Beacon Street between Saint Thomas More Road and Reservoir Road. The gate openings are directly visible as entrances to the perimeter path, whereas thick vegetation and a lack of signs make the other seven access points less identifiable. Furthermore, the entrance paths through these openings are not well-defined and the surface is usually uneven, compacted dirt.

b. Outer Pathway

A second route, about 9,000 linear feet (1.7 miles) long, circles the Reservation, outside the perimeter fence. Most of this "outer" path is the deteriorated remains of the skinned jogging path installed in 1977, with the exception of the concrete sidewalks along Commonwealth Avenue, Chestnut Hill Avenue, and Beacon Street.

For the purpose of this description, the outer pathway begins at a point on Beacon Street west of Reservoir Road, and consists of a deteriorated gravel path up to the intersection with Saint Thomas More Road. This is a remnant of the original perimeter pathway, which in all other locations runs inside the fence. Along this stretch there are frequent large depressions that fill with water and become muddy, forcing pedestrians to the side of the paths. There is a grassed swale with catch basins along this portion of the path, but the effective function of these catch basins is questionable. It is in this area where the two pathways run parallel to one another, separated by the perimeter steel picket fence installed in 1928-1929.

The deteriorated gravel path continues north along Saint Thomas More Road up to the landscaped area opposite Shaft #7, varying in width from three to five feet, with frequent muddy depressions. From here the compacted dirt path continues in an easterly direction as an unpaved four to five foot dirt path along the south side of the Driveway. The path separates from the Driveway and dips below the stone retaining wall adjacent to the head-in parking spaces. Upon returning to the Driveway, the path passes by the overlook area, also installed by the MDC in 1977. At the Commonwealth Avenue intersection, the packed dirt path connects to the concrete sidewalk, which walkers can use to create a circular route via the City of Boston sidewalks on Chestnut Hill Avenue and Beacon Street (not within the RMP project area) to return to the start of the path.

c. Other Paths, Sidewalks, and Crosswalks

Another system of bituminous concrete paths winds along the top and around the hill parcel in the northeastern part of the Reservation. These paths also connect to the old playground area and the Reilly Rink and Pool building. The paved portions of these paths were part of the 1977 MDC landscape improvements and are in varying conditions between fair to poor with the paved edges frequently crumbling. The typical paved path width is between four to five feet. Several "desire line" dirt paths also exist in this area. Some of these desire lines run straight up the slopes and are creating erosion problems. Since the Reservoir perimeter path system was re-opened, the paths on the hill parcel experience less pedestrian traffic. Given their poor condition and lack of use, these paths are candidates for reconfiguration, including enhancing access to some excellent views of the water.

Figure 3.24: Bituminous concrete path adjacent to 1977 playground (2005)

Along both sides of Saint Thomas More Road, there is a five to six foot wide bituminous concrete sidewalk that is in fair to good condition. Most pedestrian traffic on these sidewalks is from Boston College. These sidewalks become concrete pavement near the Commonwealth Avenue intersection.

Figure 3.25: Desire line on drumlin in northeast corner of the Reservation (2005)

Painted crosswalks, outside the Reservation property, are provided at the intersections of all vehicular roads surrounding the Reservation. There are signalized crosswalks at Commonwealth Avenue and Chestnut Hill at Cleveland Circle. There are non-signalized, painted crosswalks within the Reservation at several points across Saint Thomas More Road and crosswalks paved with granite cobbles (rumble strips) at several points across the Chestnut Hill Driveway described above. These crosswalks serve to connect the outer pathway to a five foot wide bituminous concrete sidewalk running along the north side of the Driveway. The granite cobble crosswalks, part of the 1977 MDC improvements, are in fair to poor condition in many areas with loose and dislodged cobbles. Some areas of these crosswalks have been patched with bituminous concrete and may present tripping hazards to pedestrians.

Figure 3.26: Crosswalk across Chestnut Hill Driveway (2005)

There are no crosswalks or other safe ways to cross Beacon Street except at the corner of Chestnut Hill Avenue and Beacon Street (Cleveland Circle). Once the Waterworks residential development is occupied, additional safe pedestrian crossing may be needed.

8. Site Furnishings and Small-scale Features

a. Perimeter Fence

When the Reservoir and its park-like setting were first opened to the public in 1870, it contained a number of wooden post and rail fences, designed presumably to prevent accidents at certain key points. To achieve this protection, a guard rail was placed along the southwest portion of Beacon Street, at the south end of the embankment, to prevent carriages sliding into the basin, and to provide a barrier between vehicular traffic and visitors on foot. During the primary period of significance, there were additional fences running along either side of the Chestnut Hill Driveway north of the Bradlee Basin, certainly adjacent to the Entrance Arch and again in the area between the wooded promontory and Evergreen Cemetery. There was also probably a fence running along the lower edge of the embankment by Effluent Gatehouse #1, on the Beacon Street side, although the extent and purpose of this fence is unclear and 1901 photos show no fencing along Beacon Street. None of the wooden fences survive.

Figure 3.27: 1928-29 steel picket fence (2005)

After the end of the primary of period of significance, the MDC enclosed the north side of the Bradlee Basin in 1928 with about 4,500-feet of fence, a combination of decorative iron picket and chain link fence, intended to prevent human access and illegal dumping and thus improve water quality at the Chestnut Hill Reservoir. The new fence also protected the narrow strip of watershed that drained into the Reservoir. Three double-drive gates were erected. The contract suggests that the fence was to be painted with red lead, although this may have been primer and paint analysis tests would be required to confirm the original paint color used (the fence is currently painted green). The following year (1929), the MDC enclosed the south side of the Bradlee Basin with about 3,680-feet of decorative iron picket fence, to join with and match the existing fence. Two gates and a special fence around Effluent Gatehouse #2 were also commissioned. Topped with acorn finials, the fence closed off most of the original inner path to the public. Similar fencing and a new outer path were installed for the same reasons in 1931 around the Lawrence Basin.

Figure 3.28: Post and rail detail (2005)

As part of the 1977 MDC improvements, the picket and chain link fence was repaired, leaving a mix of 1928-1929 steel picket fence combined with 1977 replacement panels of a similar style. The entire area north of the Reservoir is entirely comprised of fence panels installed in 1977. The 1928-29 metal picket fencing starts from a point just inside the park near the intersection at Chestnut Hill Driveway and Commonwealth Avenue, runs atop the hill, past the old playground, and along Beacon and Chestnut Hill Driveway, ending by a small gate opposite Boston College. From there, the 1977 replacement fence runs along Chestnut Hill Driveway, meeting the 1928-29 fencing in the northeast corner of the Reservation. There are also small sections of 1977 fence immediately south of Gatehouse #1 and at the southern tip of the Reservation, around a new gate. A similar fence was installed around the new playground.

Figure 3.29: Typical intact 1928-29 panel (2005)

In total, the perimeter fence, as observed in 2005, consists of 814 panels: 443 panels of the 1928-1929 fence and 371 panels of fence replaced in 1977 (of which half a dozen are located randomly among the original fence panels and sixteen are in front of the community garden on the outer side of Chestnut Hill Driveway). There is also a short section of chain link fence between the 1928-29 panels just below Gatehouse #1.

The 1928-29 fence design consists of panels of twenty-one square section balusters between I-section posts with acorn-styled finials and tied by two horizontal L-section bars. The panels are eight-four inches (seven feet) long. Each panel includes a top and bottom rail made of two inch wide channels laid flat and five-eighth of an inch square by fifty-four inch long pointed pickets spaced four inches apart. The ends of each top and bottom rail have an elongated hole where they are bolted to the posts, thereby allowing the panels to slip slightly as the fencing expands and contracts during temperature changes. Unlike many old iron and steel fences at cemeteries and other historic sites, only a few of the failed connections have been repaired with welds, which prevent slippage between each post. The 1977 fencing panels were designed in a similar style to the 1928-29 originals, but they are one hundred and twenty inches (ten feet) long and do not have the decorative acorn castings. The new 1977 metal fencing is green although most of the panels have severely peeling paint.

Figure 3.30: Typically damaged 1928-29 panels (2005)

The condition of the fence was analyzed in 2004 by DeAngelis Iron Works and, in 2005 as part of this RMP, Ocmulgee Associates performed a further inventory and evaluation. According to Ocmulgee, the 1928-29 steel

picket fences are extensively damaged, with many deteriorated and missing elements. In particular, the following items were noted:

- The paint is completely deteriorated and some of the pickets are pitted from corrosion;
- Ten percent of the top rails are bent;
- Fifty percent of the pickets are bent or corroded in some degree, with about ten percent severely bent, missing or corroded;
- Forty percent of the panels have bottom rails that are significantly corroded and unsalvageable because they are buried in earth or vegetation;
- Twenty-five percent of the panels are in reasonably good condition and can be easily repaired;
- Thirty-five percent of the panels are in mixed condition, with damage and deterioration that could be repaired with replacement components;
- The posts appear to be set in concrete but many are corroded to some extent near the ground. Less than ten percent of the posts have broken off at the ground.

Figure 3.31: 1977 steel picket fence (2005)

The 1977 fencing panels are in fair to good condition except for some vine growth on certain sections, although preventative measures should be taken soon to ensure they do not deteriorate. There is one panel near the 1977 overlook that appears to have had damage repaired by inserting a section of salvaged, unpainted 1928-1929 fencing.

Two 1928-29 gates are located in front of the two gatehouses. The two forty-seven inch wide gate leaves and the ten foot six inch long fences on each side of the approach to Gatehouse #1 are about six feet high and are decorated more elaborately than the typical panel. Except for extensive paint loss and some corrosive pitting, they are in excellent condition. Most importantly, their hinges and anchors at the granite posts are intact and no spalling or deterioration was seen where the metal anchors are embedded in the stone. Similar gates without side fences are present at Gatehouse #2; some of the decorative circular elements are missing at these gates.

The MDC added two additional gates in 1977, one near the intersection of Saint Thomas More Road and Chestnut Hill Driveway, and the other near the intersection of Beacon Street and Reservoir Road. Both have double gates and are wide enough for vehicle access. In addition, as described in the section on circulation above, there are a total of seven openings in the fence where panels were removed in 2002 by the MDC to provide additional access points into the inner part of the Reservation.

Figure 3.32: 1928-1929 entrance gate at Gatehouse #1 (2005)

The perimeter fence was installed after the primary period of significance for the Metropolitan Water Supply (1845-1926) and the primary period of significance for Chestnut Hill Reservoir (1868-1926) based on the thematic National Register nomination. It was constructed within the later of the two secondary periods of significance

proposed in this RMP, which focuses on the importance of the Reservation as a metropolitan park. The perimeter fence is considered historically significant by the Massachusetts Historical Commission (MHC), and the Boston Landmarks Commission identified it as a feature to be preserved in its 1989 Study Report. In 2004, the MHC determined that its proposed removal would have an "adverse effect" on the property.[15] However, in 2006, the DCR has articulated the desire to restore a section of the dam to its appearance during the primary period of significance as an interpretive exhibit. The perimeter fence post dates this period.

Figure 3.33: Gatehouse #.2 gate with missing circular elements (2005)

The perimeter fence plays an important role in communicating the evolution of the Chestnut Hill Reservoir and Reservation, and provides a potential for historic interpretation of the later development of the landscape. In addition, parts of the fence continue to serve a functional purpose today. It protects the banks of the dam from uncontrolled pedestrian access, thus helping to avoid erosion caused by compaction on cut-through or desire line paths. Along Chestnut Hill Driveway the fence serves to protect the steep slopes on the north side of the Reservoir. Along Saint Thomas Road and the Evergreen Cemetery boundary, the fence delineates the Reservation property line.

Many users consider the fence an unwelcome symbol of control, with a placement that interferes with current use. It is seen as preventing egress from the inner path, thus contributing to the common perception of a lack of safety in the Reservation.

Figure 3.34: Entrance gate along Beacon Street (2005)

If all or portions of the perimeter fence are judged unnecessary and removed, sections that are in the best condition should be re-used to replace deteriorated sections in other areas of the Reservation. This will help reduce the repair costs and maintain the integrity of the original material. In accordance with the 2002 MDC-MWRA agreement, sections of 1928-1929 fence not used at Chestnut Hill Reservation should be made available to the MWRA to repair similar fencing at other locations.

b. Other Fences and Gates

As well as the perimeter fence, there are a number of other fences located within the Reservation. In 1977, the MDC installed additional fencing along the southern boundary of Evergreen Cemetery and along most of the western side of Saint Thomas More Road. This fencing is the same as the 1977 replacement sections to the perimeter fence, but is painted black. Sections of the black picket fence were also installed along the Boston College property line west of Saint Thomas More Road, and continuing west along Beacon Street. This section also delineates the Reservation boundary. In 1977, the MDC installed a metal picket fence to encircle the overlook area along Chestnut Hill Driveway, which differs from the usual 1977 fence in that the vertical balusters do not extend up beyond the top horizontal tie. This fence is in good condition.

Figure 3.35: 1977 fence on top of Chestnut Hill Driveway retaining wall (2005)

A heavy-gauge pipe rail fence, installed in 1977, spans the top of the retaining wall along Chestnut Hill Driveway. Its design consists of panels of seventeen balusters attached to round horizontal bars at top and bottom between I-section posts with arched tops. It is painted green and remains in good condition.

There is a section of fence in a style similar to the 1977 fence (it appears to have been installed prior to 1977 and probably by Boston College) in front of the Edmonds Building on Saint Thomas More Road.

An eight foot high chain link fence encircles the remainder of the Shaft #7 parcel. No public access is allowed into Shaft #7, although it is assumed that illegal access does occur: the area's nickname is "Beer Can Hill." The boundary of the Evergreen Cemetery (a Boston Parks and Recreation property) has been fenced since at least the turn of the 20th century. There is currently a five foot high chain link fence that marks part of the property line between the Reservation and the Cemetery. Generally, the fence is in fair condition although there are some sections that are in very poor condition and are severely rusted and sagging. Although this fence does serve as a distinct boundary between the Reservation and the Cemetery, it is unsightly in its present state and alternative treatments should be considered.

c. Lights

The light fixtures along Chestnut Hill Driveway were installed as part of the 1977 MDC improvements. Standard single head cobra light fixtures and a few double head cobra light fixtures provide lighting for vehicles and the sidewalks along all five main roads within and surrounding the Reservoir. Power to these lights is supplied through the ten foot easement established in 1978 between the Reservation and Commonwealth Avenue.

Box-style fixture pedestrian lights were also installed as part of the 1977 MDC landscape improvements and are located along hill parcel pathways and around the old playground and Reilly Memorial Pool and Rink. Based upon site observations, it appears that the lights no longer function or are no longer turned on. Most of the metal poles are in fair condition. There are four other 1977 box-style fixture pedestrian lights along the bituminous concrete pathway connecting the small parking area north of the Reservation. Based upon site observations, three of these lights still function and are in generally fair condition, with some graffiti.

The placement of lights within the Reservation contradicts the current DCR policy, which closes the park between dusk and dawn. Lighting at the Reilly Memorial Rink and Pool and along the parkways may be required and should be compatible with the character of the historic landscape.

d. Benches

Benches were in use in the landscape by at least 1912; a photograph in the State Archives shows visitors seated and enjoying a view of the Lawrence Basin. Today there are three different types of benches within the boundaries of the Reservation. For the purposes of this RMP, the benches have been labeled Type, 1, 2, and 3.

Figure 3.36: Type 1 bench (2005)

The first bench (Type 1) consists of wooden slats on a precast concrete frame. The concrete frame is attached to a below grade footer. The slats are painted green. These are a standard bench used by the former MDC throughout the metropolitan park system and thus are arguably the

most historically appropriate for the Reservation. There are twenty-three (23) of these benches in total:

- Four are along Beacon Street near the pool;
- Four are near the entrance wall at the intersection of Saint Thomas More Road and Chestnut Hill Driveway;
- Three are located near the intersection of Beacon Street and Saint Thomas More Road;
- Three are found in the Community Garden; and
- Nine are located in the area of the old playground.

These benches are generally in fair condition with mostly maintenance and small repairs needed such as painting the wood slats. The Type 1 benches are well-sited in the landscape and are directed toward views of the Reservoir, although a large grouping of benches is located in an unused area at the corner of Chestnut Hill Driveway and St. Thomas More Road.

Figure 3.37: Type 2 bench (2005)

The second bench (Type 2) has a more rustic design and consists of a longitudinally cut log fixed on rectangular wooden legs. The legs are secured to concrete blocks, which are now exposed several inches above the grade of the soil. There are ten of these log benches in the Reservation:

- Four are along the narrow path running behind the rink to Chestnut Hill Avenue, and
- Six are along the trails on the hill.

Generally, the Type 2 benches are in poor to fair condition with some severely deteriorated and nearly falling over due to exposed footings. These benches are not visually attractive or appropriate for an urban park setting and are not sited to take advantage of the scenic views.

The third bench (Type 3) was installed as a temporary bench and consists of wooden slats on freestanding metal frames. These benches are set directly on the ground without footings or foundation. They are secured with locked steel cables to nearby trees or fence posts, which mean they can be dragged around and the cables cause damage to the trees. There are four of these benches:

- One is south of the parking area along Chestnut Hill Driveway,
- One is on the side of the hillock north of Gatehouse #1,
- One is east of the intersection of Beacon Street and Saint Thomas More Road, and
- One is located along the outer path in the area between the Commonwealth Avenue apartment buildings and Chestnut Hill Driveway.

The Type 3 benches are in fair to good condition, but are not an appropriate style for the Reservation, because they are not permanent installations and as mentioned above, the security cables damage the trees and fence.

Figure 3.38: Type 3 bench attached to tree (2005)

A curved granite stone bench is also a component of the 1977 overlook. This bench is in good condition and is integral to the overlook design.

Overall, there is a lack of benches and other resting areas throughout the Reservation. Benches are particularly needed along the perimeter path which is the portion of the reservation most frequently used and the most scenic. The existing benches are not always in the best locations or condition, therefore infrequently used. The lack of standard bench type makes on-going maintenance by the DCR difficult when benches need repair or replacement.

e. Trash Receptacles

Two steel mesh trash receptacles are currently located at the entrance from the old playground and at the entrance near the intersection of Chestnut Hill Driveway and Saint Thomas More Road. Both are in relatively good condition. Adjacent to these two trash receptacles are dog scoop bag dispensers. A steel drum is located in front of the bituminous path to the Rink from Beacon Street that functions as a trash can. It may be that, for park users, a better location for trash receptacles would be at major entry or exit points to the Reservation. Certainly their current location means that DCR personnel must drive vehicles over pedestrian paths to access the receptacles for emptying: placing them at major gateways which are adjacent to roadways would result in less potential damage to pedestrian areas.

Figure 3.39: Trash receptacle and pet station (2005)

f. Playground

The 1977 MDC landscape improvements included the construction of a children's playground in the area between the Reilly Rink and the Reservoir. The play equipment has since been removed, although a stone mound remains that is a remnant of the slide play structure. The only remaining functioning feature is the semi-circular seating area with six benches facing the parking lot in front of Gatehouse #1. The stone retaining wall on the south side of the playground remains in good structural condition, although it is covered in graffiti. The original design of this playground does not meet current standards for children's play equipment and cannot safely be reused.[16]

The dilapidated playground and graffiti-covered retaining wall are prominent eyesores in the landscape. The stone mound is a safety hazard for children tempted to play on it. There are similar children's playgrounds provided in nearby parks such as Boyden, Shubow, Joyce and elsewhere. Given the limited amount of land available at Chestnut Hill Reservation and the historic significance of the landscape, DCR should carefully consider the need, siting and design of any proposed play equipment.

Figure 3.40: 1977 playground (2005)

g. Signage

There are few signs that officially indicate the area as the "Chestnut Hill Reservation." There is a sign near the intersection of Saint Thomas More Road and Chestnut Hill Driveway. The two freestanding sign walls at Beacon Street and Commonwealth Avenue entrances state "Chestnut Hill Reservation, Metropolitan District Commission, Commonwealth of Massachusetts." There is a single-sided kiosk board near the Reilly Memorial Pool and Rink driveway with information about the Reservation including a map of the property, DCR rules and regulations, history of the site, and listings of local DCR programs. Another metal DCR sign is affixed to the fence at the pool. There are small signs indicating the reservation open and closing times (dawn to dusk) and pet waste removal policy at two of the entrances to the perimeter path. The Reservation would benefit from additional informational signs, particularly at major pedestrian entrances. There is also an opportunity to develop interpretive signage for the Reservation, as none currently exists.

h. Overflow pipe

Along the back side of the dam and to the east of Gatehouse #2, there is an overflow pipe structure and headwall that is part of the operational function of the dam. MWRA has control over this structure. During the process of preparing the RMP, several members of the public expressed concern over the visual impact of these structures on the natural and historic beauty of the Reservation. There is also some erosion around the headwall which should be addressed.

Management Resources

1. Uses

Chestnut Hill Reservation is a well-used neighborhood park that connects three communities (Boston, Brookline and Newton) and serves a variety of users, from college students to long time residents. Although it is a part of a network of small open spaces in the region, the Reservation is the largest existing open space serving the community. The park provides opportunities for passive recreation, wildlife viewing, meditation, artistic pursuits and a healthful respite from the dense urban setting.

Over the past twenty years, the public has had limited access to the parkland surrounding the Chestnut Hill Reservoir. Up until 2002 the area inside the perimeter fence was under the jurisdiction of the MWRA, who restricted access for water supply protection purposes. Since the control of the parklands reverted back to the [MDC] DCR, the Reservation has seen heavy visitation, primarily from local residents who use the site for passive recreation. The park is open year-round, but visitation is higher in the warmer months.

a. User Survey

In order to better understand the way visitors use the Chestnut Hill Reservation, the DCR distributed a User Survey between November 2005 and February 2006. This survey was also distributed to the public through members of the Working Group and made available on the DCR website. Among the sixty responses received, there was a clear majority of people who walk to the Reservation and use the Reservoir pathway for passive recreation. Further results are summarized below:

- Most visitors are Brighton area residents with Brookline residents second[17];
- Majority of visitors live within ½ mile of Reservation;
- Majority walk to the Reservation;
- Main entrances to Reservation are at Gatehouse #2 and at Reilly Memorial Pool and Rink;
- Walking/dog-walking and running are the most popular activities, followed by bird watching;
- Most users visit the Reservation two to five times per week, with over 75% of respondents visiting at least 1 time per week;
- Favorite features are the path around the Reservoir, views, and natural woodland;
- Biggest safety concerns are visibility along pathways and control of the vagrant population, along with a need for increased presence of rangers or state police;
- Visitors would like to see improvement in trash removal, weed and shrub control and path maintenance;
- Top 3 Capital Improvements are restoration/repair of the paths, treatment of the 1929 fence, trash cans and path lighting[18];
- Users feel regulations could be clearer and better posted, and trails could be better marked;
- Parking is not identified as a major issue relative to park use. Most comments regarding parking relate to evening use by those visiting neighborhood residents, not to users of the Reservation.

2. Reilly Pool and Rink

The Reilly Memorial Pool and Rink are located on the triangular piece of land at the intersection of Chestnut Hill Avenue and Beacon Street. The complex includes the barrel-shaped indoor rink, a one-story, flat-roofed building, and the outdoor pool, enclosed by a black chain link fence. A short pathway from the Beacon Street sidewalk provides pedestrian access to the facility. Informal vehicular parking also exists in a rutted dirt area to the west of the building and at the Gatehouse #1 turnaround. Parking along Beacon Street has also been observed during sporting events at the Rink. There is no dedicated parking for this active recreation facility, nor is there a safe drop-off area..

If future legislation allows for the long term lease of the Reilly Rink to a third party, the lease area for the facility should not include any exclusive use of areas that are critical to the operation of the Reservation or the joint management by the MWRA and the DCR. Maintenance of the lease area should also be consistent with the maintenance recommendations contained in this plan (i.e. mowing, trash removal, tree care, signage, etc.).

Analysis of Surrounding Land Uses

The Chestnut Hill Reservation is one of the largest areas of continuous open space in the Brighton section of Boston. Other adjacent public and private open spaces and parks in Boston, Brookline and Newton are shown on

the accompanying Site Context and Open Space Map, and range from cemeteries, school playgrounds and local parks, to Country Clubs and DCR parks and parkways. The closest parks with playground equipment are Shubow Park in Boston (1/5 mile away), Daniel J. Warren Field and Waldstein Playground in Brookline (both about 2/5 mile away) and Joyce Playground in Boston (about ½ mile away). Cassidy Park, located across Beacon Street from the Reservation, provides a baseball field, two softball fields, two tennis courts, and a passive field. In addition, there are the athletic fields and other open spaces in the campus of Boston College.

1. Boston College

Boston College students are a major user group of the Reservation, and the campus of Boston College has a strong physical relationship with the Reservation and Reservoir. Historically, the old Lawrence Basin occupied the area where the Boston College athletic fields and Alumni Stadium are currently located. Boston College purchased the Basin from the Commonwealth in 1949, filling the Basin through 1969. The Chestnut Hill Driveway originally encircled both basins, running atop a dam structure. With the filling of the basins, the Driveway was terminated at Beacon Street.

The close proximity of the Reservation to the college creates the perception that the state-owned open space is an informal extension of the campus. This can lead to inappropriate uses, such as night time walking and running, parties, and long-term parking on Chestnut Hill Driveway. Since the park is not staffed or designed for nighttime use, these activities often conflict with park management. The State Police enforce the "park closed" regulation at night, but patrolling is limited.

2. Waterworks Park, LLC

The "Waterworks at Chestnut Hill" includes a redevelopment of the High and Low Pumping Station buildings and the Carriage House, which are a part of the *Water Supply System of Metropolitan Boston 1845-1926* thematic National Register of Historic Places nomination. The project includes adaptive reuse of the historic pump stations and a new residential building in the area of the former pipe yard, with a total of over one hundred one to three-bedroom units planned. Portions of the High Service Station and pump engine will become a public museum.

The scenic character of the Reservation has been identified as a major marketing advantage by the developer of the Waterworks, but there is little physical connection between the site and the Reservation. Many park users have identified Gatehouse #2 as a major pedestrian gateway to the Reservoir pathway, but there is no crosswalk across Beacon Street, and current landscaping plans for Waterworks do not show any paths to the Reservation. There has also been some interest in

Figure 3.41: "Waterworks on Chestnut Hill" development (2005)

the reuse of Gatehouse #1 for a boating concession.

a. Waterworks Public Benefit

The Waterworks development was made possible through the disposition of state-owned lands to the developer, with a requirement for public benefit investment ($1.4 million) to off-set the loss of Commonwealth property. The Division of Capital Asset Management (DCAM) negotiated the disposition and entered into an agreement with the developer, and the Boston Redevelopment Authority (BRA) is responsible for implementing the terms of the agreement.

The developer has already committed to a new traffic signal at Cleveland Circle ($75k) and a contribution to the preparation of the Chestnut Hill Reservation Resource Management Plan ($25k). The BRA is utilizing an Impact Advisory Group (IAG) process to program the remaining public benefit monies, including $900,000 for improvements to the reservation. The IAG has identified the removal of the 1928-1929 fence as a high priority for implementation. The BRA has independently committed to replacing the lights on Beacon Street with historic fixtures.

3. Public Transportation and Neighborhood Access and Visibility

Three lines of the MBTA Green Line run immediately adjacent to the Reservation. Stops include the Reservoir Station on the "D" Line, Cleveland Circle Stop on the "C" Line, and Chestnut Hill Avenue Stop, the South Street Stop, the Greycliff Stop, and the Boston College Station on the "B" Line.

Despite the extensive service by public transportation, Chestnut Hill Reservation, particularly Reilly Pool and Rink, are not readily located from the Cleveland Circle area. Residents in neighborhoods around the circle are also somewhat isolated from the Reservation, with no direct visual access to the Reservoir due to the topography of the dam. The Reilly Pool and Rink building and Gatehouse #1 are clearly visible from Cleveland Circle, but there is limited signage in place to identify the facilities.

Many large, single family homes along Beacon Street are located above the street level and residents enjoy open, scenic views toward the Reservoir.

4. Cleveland Circle

The Cleveland Circle area has recently undergone an extensive streetscape planning process spearheaded by the Aberdeen and Reservoir Civic Association related to future infrastructure and landscape improvements.[19] The streetscape plan was funded through the Massachusetts Historic Commission's Preservation Projects Fund and this planning process will hopefully guide enhanced pedestrian access to the Reservation as well as improving sidewalk conditions along Chestnut Hill Avenue and Beacon Street. Recommended capital improvements for the Cleveland Circle area also included vehicular circulation, parking, and improvements to general aesthetic appearance of the area, including a public art installation. The early action item from this project is a gateway element connecting Cleveland Circle with Cassidy Playground.

5. Property Issues

a. Chestnut Hill Driveway Parcel

The current Reservation boundary runs to the north of Chestnut Hill Driveway, following the rear property lines of the adjacent Commonwealth Avenue apartment buildings, Wade Street residences, and Evergreen Cemetery. This 17.55-acre driveway parcel, including Chestnut Hill Driveway and Saint Thomas More Road, was formerly "Chestnut Hill Park" and is owned by the City of Boston. Since 1976, the parcel has been under the care, custody and control of the Commonwealth through a 99-year lease originally between the MDC and the City of Boston.

The Chestnut Hill Driveway is an important recreational and historic feature of the Reservation. Its alignment, views into the Reservation and wooded edge all contribute to the Driveway's character as a historic pleasure drive and should be preserved. The 99-year lease arrangement with the City of Boston does not provide DCR with long term control of the driveway parcel, and the lands could revert to the City, possibly for development.[20] In order to protect the character of the Driveway, the driveway parcel should be under the exclusive control of DCR, through a transfer of the fee interest or through an agreement for perpetual care, custody and control.

b. Permits

In 1962 the Metropolitan District Commission (MDC), issued a permit to Boston College for the use of three parcels of land adjacent to the Shaft #7 parcel. The parcels total about 75,000 square feet and remain under permit to the college. Boston College continues to pay the annual fee of $1038 and is in good standing with the Commonwealth.

As written, the permit allows for revocation by the Commonwealth with 90 days notice, but no termination date is given for the permit itself. Further, there is no provision for re-assessing the value of the permitted land. The permit is over 40 years old, and the fee is no longer equivalent to the land value. The terms of the permit should be renegotiated to insure the long term protection of, or compensation for, public lands as required by Article 97 of the state constitution.

c. Encroachments

Chestnut Hill Reservation abuts a number of densely settled areas, resulting in encroachments into the Reservation lands.

Commonwealth Avenue Apartments
The high rise apartment buildings on Commonwealth Avenue and bordering Chestnut Hill Driveway enjoy the closest connection to the Reservation. Many of the

buildings have pedestrian access to the outer pedestrian path along Chestnut Hill Driveway. Residents have placed picnic tables and benches throughout the tree and lawn areas between the back of the apartment buildings and Chestnut Hill Driveway. The apartments also have direct access to the parking on Chestnut Hill Driveway, making the wooded area, in effect, a large backyard for the apartment buildings. Thus, the area appears to be associated with the private apartment buildings and not a part of the Reservation.

Community Gardens

The Chestnut Hill Reservoir Community Garden is located in the driveway parcel of the Reservation, near the terminus of Wade Street. Originally located at the intersection of Commonwealth Avenue and Chestnut Hill Avenue, the gardens were re-located to their present location in 1976/7. The garden occupies approximately 7,500 square feet, including divided plots, pathways, two sheds, compost piles and other appurtenances. The gardens are separated from the Driveway by steel picket fence installed in 1977. The Chestnut Hill Reservoir Community Garden Club requires that members reside in the Aberdeen neighborhood of Brighton. The garden group is autonomous, but maintains a membership with the Boston Natural Areas Network.

The gardens have been in this location for over 30 years but the history of the gardens goes back further. The Chestnut Hill Reservoir Community Garden Club dates back to the World War II Victory Garden which used to be at corner of Commonwealth Avenue and Chestnut Hill Avenue. The original garden site was sold by the City for construction of a large building, and the current plot was given as an alternative when this area was owned and managed by the City of Boston.

Based on a historic analysis of the Reservation and Chestnut Hill Driveway, the gardens are not considered a contributing feature of the historic pleasure drive once characterized by open water views, winding alignment, and a wooded park edge. The fence, garden plots, sheds, and other features visually detract from the experience of the Driveway and can be considered an inappropriate alteration to the historic landscape.

DCR currently has no written legal agreement with the Chestnut Hill Reservoir Community Garden Club for use of the parklands. While there is no reference to the group in the 1978 lease agreement with the City of Boston, the records of the Boston Parks Commission show the intent to protect this use in the transfer. A transcript of the Boston Parks Commission meeting in September 1975 notes that Commissioners indicated that the "Victory Gardens" should be maintained in any transfer of the land to the former MDC.

The gardens are seen as an integral part of the Reservation by many in the surrounding community. The gardens are viewed as an attraction, maintaining property values, and bring more of the public in the Reservation. Brighton has the fewest community gardens in the City.

When an agreement is negotiated between the Community Gardens and the DCR, some portion of the membership dues should be used to offset the private use (and public loss) of the property. Contributions could also be made to the DCR Urban Trust to benefit and support management of the Chestnut Hill Reservation. Garden membership should also be non-discriminating and inclusive to all residents.

Saint Thomas More Road

The traffic island at Saint Thomas More Road and the edge of the road along the Boston College campus is maintained and planted with seasonal flowering plants by Boston College. The formal plantings and the island's close proximity to the college entrance make the area appear to be part of the BC campus. The City of Boston also maintains the edge of the road along Evergreen Cemetery. Although Saint Thomas More Road is a part of the historic circulation pattern at Chestnut Hill, the area appears disconnected from the property. There is also no formal agreement between DCR and Boston College or the City of Boston for the maintenance of these areas.

Operations and Maintenance

1. DCR Management Structure

The Department of Conservation and Recreation manages recreational facilities in the Division of State Parks and Recreation and the Division of Urban Parks and Recreation. Within each division are smaller management units such as regions and districts. Chestnut Hill Reservation falls under the Urban Parks, South Region and is contained within the West District. The management for this area is based out of the West District office located at 12 Brainard Street, Hyde Park, MA.

Table 3.1: List of all facilities and assets under the DCR Urban Parks, South Region, West District

1.	Ames Street – 17 acres	33.	Newton Lower Falls Park
2.	107 Charles Street	34.	Norumbega Park
3.	Ames Street Canoe Launch (Pleasant St.)	35.	Norumbega Road
4.	Bajko Rink	36.	Olsen Pool
5.	Boulevard Road	37.	Quinobequin Road
6.	Brainard Street House	38.	Recreation Road
7.	Brook Farm Historic Site - lawns	39.	Red Wing Bay
8.	Brook Farm Historic Site - meadows	40.	Reilly Memorial Recreation Center (Pool and Rink)
9.	Camp Meigs	41.	Reservation Road
10.	Centre Street	42.	Riverdale Park
11.	Chestnut Hill Driveway	43.	Riverwalk Park
12.	Chestnut Hill Reservation	44.	Riverside Park
13.	Connors Pool	45.	Roche Ice Arena
14.	Cutler Park	46.	Smith Field Road
15.	Dale Street Playground	47.	Stony Brook Reservation
16.	Dedham Parkway	48.	SBR - Kelley Fields
17.	Doyle Playground	49.	SBR - Gelowitz Field
18.	Elm Bank Reservation	50.	SBR - Connell Fields
19.	Elm Bank Reservation - Soccer Fields	51.	Collella Field
20.	Enneking Parkway	52.	SBR - Dooley Playground
21.	Forest Grove Reservation	53.	SBR - Lawler _Playground
22.	Forest Grove Road	54.	Thompson Center
23.	Hammond Pond Parkway	55.	Turtle Pond Parkway
24.	Hammond Pond Reservation	56.	Veterans Memorial Pool
25.	Hancock Woods - entrance	57.	Veterans Of Foreign Wars Parkway
26.	Hancock Woods - fields	58.	VFW Parkway rotaries
27.	Havey Beach	59.	Village Falls Park
28.	Hemlock Gorge Reservation	60.	Waltham Veterans Rink
29.	Hyde Park Avenue	61.	West Roxbury Parkway
30.	Landry Park	62.	Westgate Canoe Launch
31.	Lost Pond Reservation	63.	Wilson Mountain Reservation
32.	Mother Brook Reservation	64.	Woerd Avenue Boat Ramp

2. Joint Management with MWRA

DCR shares responsibility for maintenance of the Chestnut Hill Reservation with the Massachusetts Water Resource Authority (MWRA) as outlined in the 2002 agreement between the agencies and summarized in Chapter 4 of this RMP. Specific maintenance tasks are identified below.

3. Maintenance

The current maintenance program for Chestnut Hill is designed to provide safe access to the path systems, control litter, control invasive growth along pathways and the water edge, and to sustain scenic views. With current staffing and resources, further restoration of the historic landscape or rehabilitation of the pathways and historic structures is not feasible.

The typical maintenance required for the Chestnut Hill Reservation includes mowing, vegetation management (pathways, riprap, vista clearing, and understory management), pathway maintenance (replenishing surface materials), trash removal, and painting and repairs to site features (bench, fences, kiosk, walls). In the winter, DCR is responsible for snow removal along city sidewalks abutting the Reservation and streets and paths within the Reservation, as needed.

a. Mowing

Mowing by the DCR is done once a week during the spring and summer, and typically takes forty to forty eight staff hours a week to complete, exclusive of trimming. Trimming around the base of the fence is especially difficult with the amount of soil buildup that has accumulated around the bottom rails. The MWRA is responsible for mowing and vegetation control along the 2000 foot dam structure. Mowing schedules are not consistent between the DCR and MWRA, with the MWRA usually mowing the dam much less frequently than the DCR mows the remainder of the reservation. Herbaceous vegetation along the dam sometimes is as high as two or three feet.

b. Vegetation Management

DCR is responsible for controlling vegetation growing in the shoreline rip-rap beyond the dam structure, which requires the use of boom mowers. MWRA boom mowers are sometimes used as they have a longer reach than the mowing equipment owned by the DCR. There has also been an on-going removal of overgrown understory vegetation especially along the slope below Chestnut Hill Driveway and vegetation growing up into sections of the fence. In Spring 2005, the DCR cleared an area of vegetation below the Chestnut Hill Driveway overlook, thus re-opening the view from the overlook to the Reservoir. The view from the overlook is now open, but the head-in parking on Chestnut Hill Driveway is no longer screened from view within the Reservoir and the cleared slope may need to be stabilized.

The MWRA cut back most of the overgrowth in the areas immediately adjacent to the water three or four years ago, however the roots were not removed so new growth is growing out of the old stumps. This requires periodic removals of sucker growth. There is currently no written plan for vegetation management in the reservation. An organized plan will lay the groundwork for more consistent and improved vegetation management.

c. Snow Removal

DCR plows the Chestnut Hill Driveway and Saint Thomas More Road during snow events. DCR also removes snow along sidewalks on Commonwealth Avenue, Chestnut Hill Avenue, and Beacon Street as well as the path to the Rink and Pool. The DCR declares snow emergency for DCR roads, and parking restrictions are enforced by the State Police. Snow emergency signs were recently removed from the parking area along Chestnut Hill Driveway, eliminating "no parking" restrictions during storms. Without restrictions in place, DCR cannot commit to snow removal in this area. At the request of residents, DCR also plows a four-foot wide path on the Reservoir pathway (currently outside the fence) from the gate west of Gatehouse #2 to Saint Thomas More Drive. This is the area where the Beacon Street sidewalk on the Reservoir side of the street ends. Thus, any proposed treatment of the Reservoir perimeter path should be suitable for the mechanical removal of snow in this location. Prompt snow removal on sidewalks is needed, and DCR has ranked the sidewalks around the rink by Cleveland Circle as priority 1 or 2 locations under the DCR snow removal policy.

Table 3.2: Summary of Maintenance Tasks, Equipment, and Time

Task	Equipment*	Time – staff hours
Mowing spring, summer, and fall	2 – 48" Exmark walk behind movers and a 20 push mower	40-48 per week
Mowing along dam	Boom mower	By MWRA
Trimming in park, a majority along the fence	2 Echo weedwackers	10 hours per week
Trimming at shoreline rip rap	Boom mower DCR mower has 10' reach that can reach on top of rip rap MWRA mower has 30' reach that can reach the water line	1-4 times a season. Depends on equipment availability.
Selective clearing of understory	Lopper and handsaws primarily used by volunteers and court crews	As needed. Currently on hold pending finalization of RMP.
Trash	Litter sticks and trash bags	5-10 hours per week depending on season
Snow removal	Plows	As seasonally required

*Equipment list (equipment is used in all of the parks in the West District, not exclusive to Chestnut Hill Reservation)

4. Staffing and Budget

The DCR West District, South Region, in which Chestnut Hill Reservation is located, has a total of twelve reservations totaling approximately 2000 acres and stretching from Boston to Dover and Waltham. Currently DCR is responsible for maintaining all areas at Chestnut Hill Reservation. Informal partnerships also exist with adjacent neighbors like Boston College, Evergreen Cemetery, and the adjacent apartment complexes who mow some of the lawn areas.

Staffing and budget levels for Chestnut Hill Reservation are very inconsistent, varying from year to year and often relying on seasonal staff with unpredictable skill levels. The Park Supervisor has provided detailed information on the FY 2005 staffing levels, which are seen as the baseline level of staffing to maintain the status quo (Level 1). In FY 2006, there were two seasonal staff appointments to the Reservation but both candidates took positions elsewhere. No other dedicated seasonal staff was assigned to the Reservation in FY 2006. Therefore, FY 2005 is used as an appropriate baseline for the RMP. (For more information on management levels and associated resources see Chapter 7).

In 2005, the Park Supervisor and two year-round staff were the only full-time staff for the Chestnut Hill Reservation, and their duties were split among the facilities in the West District. In 2005, there was a total of approximately fourteen seasonal staff spread throughout the twelve properties. During the summer of 2005, one seasonal on-site maintenance staff person was hired to work full-time exclusively at the Chestnut Hill Reservation. The primary duties of this seasonal employee were to mow grass, trim vegetation, and collect trash. Half way through the summer, the seasonal laborer was transferred to ballfield mowing duties at other DCR facilities.

5. Volunteer Groups

The DCR West District staff develops and plans volunteer projects and then solicits organizations for volunteers. Once a project is selected, DCR West District staff purchase and/or organize supplies, meet with the volunteer project leaders to go over logistics, and greet and oversee volunteers during the project. Afterwards, DCR West District staff wraps up the project by putting away unused materials and supplies, removing trash and debris, etc,

In addition to the DCR employees, there are volunteer groups, such as Boston Cares and City Year, who provide additional maintenance assistance throughout the season and are supervised by DCR personnel. These volunteer workers assist in major clean-up efforts. Community service workers from the Boston Trial Court also provide additional workers.

6. DCR Financial Information

Because of the management structure of DCR's Urban Parks and Recreation system, there is no dedicated operating budget for Chestnut Hill Reservation. Instead, the park competes with all the regional or district facilities for funds to buy materials and supplies. The FY 2006 allocation for maintenance materials for the entire West District was $60,000. This included materials for all parks and reservations, several ball fields, two swimming pools and two skating rinks. Supplies included items like mops, toilet paper, and trash bags. The budget and spending priorities fluctuate widely from year to year depending on funds and resources.

According to the Reservation Supervisor, the amount of money spent specifically for maintenance materials and supplies at the Chestnut Hill Reservation during the calendar year 2005 was approximately $2500.

7. Park Regulations

The current policy for the Reservation has it open year around, dawn to dusk. This is typical policy for all of the parks and reservations managed by the DCR. Dogs are allowed on site, but must be leased and are not allowed in the Reservoir. All dog waste must be picked up and disposed of properly. Shoreline fishing is allowed. A complete listing of the standard DCR rules and regulations for all of its reservations and parkways is included in Appendix D.

The User Survey issued over several months revealed consensus among residents that the park regulations are not adequately posted. Development of pedestrian gateways should include posting of the regulations.

a. Law Enforcement

At Chestnut Hill Reservation, park regulations and state laws are enforced at the state level through cooperation between the DCR Park Rangers and the Massachusetts State Police. Rangers are on staff only during park hours, while State Police are the primary law enforcement

agency with jurisdiction in the Reservation at other times. State Police are also responsible for enforcement along all of DCR's parkways and roads, including Chestnut Hill Driveway.

DCR also works closely with City of Boston police, who have concurrent jurisdiction on DCR lands, and Boston College campus police, who have no official authority on Reservation lands. Both city police and campus police have been contacted when incidents occur at the Reservation after hours. These reports are not always shared with DCR.

There is an issue of dogs off leash within the Reservation even though the DCR policy is for all dogs to be leashed at all times. Boston animal control officers have been seen on the Reservation.

b. DCR Ranger

One DCR Ranger is assigned to the District, but she splits her duties among twelve other DCR facilities. The Ranger is stationed out of Hyde Park and does not provide a regular patrol of Chestnut Hill Reservation, instead responding only to specific incidents or reports. Seasonal rangers may be able to provide regular foot patrol in the future.

Responses to the User Survey issued as part of the RMP process indicated that many users do not feel safe at the Reservation. In addition to better visibility along pathways, users would like to see more of a presence from law enforcement. This is not likely to happen unless additional staff is assigned to the facility. One Ranger dedicated to the Chestnut Hill Reservation one day per week could improve the public perception of safety and would allow for development of interpretive programming at the park.

DCR's Chief Ranger recommends establishing a pilot "Park Watch" program at the Reservation, through which concerned volunteers would work cooperatively with park rangers and police to recognize and report suspicious activity in and around park areas. There are currently Park Watch programs at Blue Hill Reservation, Hancock Woods, and Stony Brook Reservation. Although this program would improve the perception that the park is unsafe, DCR should not rely on private citizens for law enforcement.

8. Permit Program

Events at Chestnut Hill Reservation are allowed by permit through DCR's Permit Office (see Chapter 7 for details). Permitted activities could include organized walks and sporting events, cultural performances or arts education. Given the lack of dedicated meeting space and the limited land at the Reservation, the facility is not well-suited to most of these uses.

It is important that groups planning events obtain a permit from DCR. Proposed activities will be reviewed and approved by the Park Supervisor to insure that events do not conflict with DCR maintenance or other events. This process also provides park staff an opportunity to plan for events and protect significant resources. A list of activities requiring permits and an overview of the DCR Permit Program are included in the Chapter 7 Operations Plan.

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[1] MA Division of Fish and Wildlife 1990.
[2] IPC 2001.
[3] Dreyer 2001.
[4] PCA 2001.
[5] Converse 2001.
[6] Dirr 1990.
[7] Rawinski 1982, Thompson et. al. 1987, Malecki et al. 1993
[8] Blossey, 2001.
[9] CDM. "Emergency Distribution Reservoir Water Management Study, Task 5.2 Chestnut Hill Reservoir Final Management Plan" prepared by for the MWRA, May 2002.
[10] GZA GeoEnvironmental, "Feasibility Evaluation of Abandonment of Gatehouse No. 1" prepared for the MDC, Division of Watershed Management (March 1998).
[11] Carolan, MHC inventory form for the Effluent Gatehouse #1, s8.
[12] GZA GeoEnvironmental, "Feasibility Evaluation of Abandonment of Gatehouse No. 1" prepared for the MDC, Division of Watershed Management (March 1998).
[13] GZA GeoEnvironmental, "Feasibility Evaluation of Abandonment of Gatehouse No. 1" prepared for the MDC, Division of Watershed Management (March 1998).
[14] DCR Commissioner Stephen Pritchard, letter dated September 9, 2005 to Secretary Edward Flynn, Secretary of Public Safety (who oversees the State Police).
[15] Ellen J. Lipsey to Patrice Kish (DCR), letter dated 27 Sept., 2004.
[16] U.S. Consumer Product Safety Commission, *Handbook*

for Public Playground Safety, Pub. No. 325 (Washington, D.C.).

[17] Boston College students are known to be major users of the Reservation, although none responded to the survey

[18] The Reservation is not open at night

[19] Cleveland Circle Streetscape Plan, Final Report prepared by The Cecil Group, Inc. and Howard/Stein-Hudson Associates for the Aberdeen and Reservoir Civic Association. October 2002.

[20] The City-owned parkland may also be subject to the provisions of Article 97 of the Amendments to the Constitution of the Commonwealth.

Chapter 4

RESOURCE PROTECTION GUIDELINES AND REGULATORY PROCEDURES

Figure 4.1: Chestnut Hill Reservoir and Gatehouse #2 (2005)

Under this Resource Management Plan (RMP), the Department of Conservation and Recreation will manage the Chestnut Hill Reservation as an important recreational park as well as a significant historic landscape and natural resource. This management strategy is reinforced by the designations and regulatory protections currently in place at the property which include:

- Listing on the National Register of Historic Places as part of the Water Supply System of Metropolitan Boston thematic nomination;
- Designation as a City of Boston Landmark;
- Protections under the Wetlands Protection Act as administered by the Boston Conservation Commission;
- Restrictions as outlined in the joint management agreement between the MWRA and DCR.

Each of these designations has implications for the management and treatment of the Chestnut Hill Reservation. As a result, the recommendations of this RMP must be consistent with the applicable laws, as well as the professional standards, guidelines, review processes, and practices promulgated by the associated agencies, and the implementation of the recommendations must follow all applicable regulatory procedures.

Historical Designations and Treatment Standards

Portions of Chestnut Hill Reservation are listed on the National Register of Historic Places (NR) and are designated a City of Boston Landmark. By law, DCR must consult with the Massachusetts Historical Commission (MHC) for actions impacting NR properties. The law requires that DCR seek approval from the Boston Landmarks Commission (BLC) for changes proposed to the landmark property.

1. The National Register of Historic Places

The National Register of Historic Places (NR) is the nation's list of historic properties worthy of preservation. Properties on the NR are recognized as making important contributions to a community, the Commonwealth or the nation, because of the property's historical significance based on the property's associations with important historical events, persons, design, or archeological resources. DCR consults NR nominations to identify features that contribute to the understanding of a place as a historic property. Buildings, structures, sites, and objects that are substantial in scale and which relate directly to the significance of the property are listed as "contributing resources" in the nomination. Smaller individual features, such as specimen trees and site furnishings are often considered "contributing features" in cultural resource planning. DCR uses the period of

significance to prioritize features for preservation and to interpret properties. Later features that do not relate to the period of significance are usually given less priority than those that are associated with historic periods.

Most of the Chestnut Hill Reservation is listed on the National Register of Historic Places as part of the "Water Supply System of Metropolitan Boston" thematic nomination. The current NR boundary does not follow the Chestnut Hill Reservation boundary, as it excludes the Reilly Rink and Pool, the woodland behind the rink/pool, and the vehicular area in front of Gatehouse #1. The listing also includes properties and features no longer contained within Commonwealth lands – specifically the buildings now being rehabilitated through the Waterworks development. This nomination also includes other DCR managed properties at Middlesex Fells Reservation and along the Cochituate, Sudbury and Wachusett Aqueducts. Overall, the resources of this nomination relate to the development of the water supply system from 1865-1926. Features that survive from this period are usually considered "contributing features."

An analysis of the property undertaken as part of this RMP has determined that the Reservation may also be important for its association with two secondary historic contexts – the Early Boston Park (1865-1919) and the Metropolitan Park System (1919-1948).

For the purposes of this RMP, the primary period of significance, 1865-1926, is identified as the priority for site interpretation, although the entire Reservation is potentially eligible for listing on the NR under the two secondary contexts. Additions introduced to the Reservation after 1948, such as Reilly Memorial Pool and Rink and their associated walkway and service driveway, are considered non-contributing resources.[1]

a. Secretary of the Interior's Standards

To protect the significance historic features of the Chestnut Hill Reservation, DCR will follow the *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for the Treatment of Cultural Landscapes*. The Secretary's Standards are the benchmark for preservation practice in the U.S. and provide general principals with four philosophical approaches. The treatment approach for most of the Chestnut Hill Reservation will be **Rehabilitation**, which is described in further detail in Chapter 5, and defined as follows:

> The act or process of making possible a compatible use of a property through repair, alterations and additions while preserving those portions or features which convey its historical, cultural or architectural values.[2]

The DCR has also identified the area from east of the Reservoir dam Gatehouse #1 to and area west of Gatehouse #2 as a priority for site interpretation. This area will be treated as a distinct **Restoration** zone to physically illustrate the appearance of the Reservoir during the primary period of significance. The restoration zone is also explained in more detail in Chapter 5.

b. NR Regulatory Compliance

Properties listed on the National Register are automatically included in the State Register of Historic Places, maintained by the Massachusetts Historical Commission (MHC), and are protected from adverse effects of actions by state and federal agencies through a review and consultation process. DCR funded, permitted or approved activities at Chestnut Hill Reservation are subject to review by the Massachusetts Historical Commission (MHC) as outlined in M.G.L. Ch.9 ss. 26-27c as amended by Ch. 254 of the Acts of 1988. Activities which utilize federal funding or require federal permits or approvals are reviewed by the MHC as required under Section 106 of the National Historic Preservation Act of 1966.

To comply with these regulations, DCR must file a Project Notification Form (PNF) for all work at the Reservation, initiating the consultation with MHC. DCR's Office of Cultural Resources is the liaison with the MHC for regulatory compliance and will coordinate development and submission of all PNFs. The MHC will review projects for consistency with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and make a determination of "no effect," no adverse effect," or "adverse effect." Adverse effect findings require additional consultation with the MHC, possible including the negotiation of a Memorandum of Agreement between the agencies to outline mitigation to offset the adverse impacts. By law, the MHC has thirty days to review each PNF, so consultation early in the project planning phase is recommended.

2. The Boston Landmarks Commission (BLC)

In 1989, the Boston Landmarks Commission completed a study entitled "Report of the Boston Landmarks Commission on the Potential Designation of the Chestnut Hill Reservoir and Pumping Stations as a Landmark." The property was subsequently designated a local landmark under Chapter 772 of the Acts of 1977, as amended. This designation provides local regulatory review and approval of physical changes to the property. The 1989 study report contains the Standards and Criteria for treatment of the Reservoir landmark district, including the Chestnut Hill Reservation (excluding the Rink and Pool area, woodland and Gatehouse #1 courtyard area). In addition to the General Standards and Criteria, several Specific Standards and Criteria are articulated, including treatment of the landscape (Section 9.0).

a. BLC Regulatory Compliance

DCR activities at Chestnut Hill Reservation must comply with the Standards and Criteria outlined in the 1989 Study Report from the Boston Landmarks Commission (BLC). For any project at the Reservation affecting lands within the BLC boundary, the DCR must file an "Application for Certificate of Design Appropriateness or Design Approval or Exemption." The BLC meets twice each month to review the applications and make their decisions. Unlike the MHC review process, which is consultative, the BLC has the legal authority to approve or deny project proposals.

Water Resource Protection

Of the approximately 120 acres of Commonwealth land at Chestnut Hill Reservation, about 80 acres is open water. The Reservoir (Bradlee Basin) is both a historic landscape feature and an important water resource. In addition to the historic protections above, the Reservoir is protected by the Massachusetts Wetlands Protection Act, which is enforced by Boston Conservation Commission, and the restrictions outlined in the 2002 joint management agreement with the Massachusetts Water Resource Authority (MWRA).

1. Boston Conservation Commission (BCC)

The Boston Conservation Commission (BCC) protects and preserves open space and other natural areas of the City including wetlands. The BCC administers the Massachusetts Wetlands Protection Act (M.G.L.c131s.40) and the Massachusetts Rivers Protection Act (HB s. 18.26) the Conservation Commission Act (HB s. 18.9). The BCC is comprised of seven Commissioners and an Executive Secretary appointed by the Mayor. The Executive Secretary is a member of the Environment Department staff. The Commission administers the Commonwealth's Wetlands Regulations by determining wetland boundaries; reviewing the permitting projects proposed in or near wetlands and defined buffer areas; and by placing conditions on development projects that affect wetlands.

Wetlands are vital to the City's natural environment and ecology. They are natural resources that contribute to water supplies and quality, provide habitat to fish and shellfish, prevent flood and storm damage, provide wildlife habitat, and preserve open space and natural areas. The Chestnut Hill Reservoir, although manmade, is considered a wetland, protected by the BCC.

a. BCC Regulatory Compliance

Work within 100 feet of a wetland or flood plain area is under the jurisdiction of the BCC and requires a permit. Two times each month, the BCC holds public hearings to review permit applications and to provide an opportunity for abutters and the public to comment on proposed work. Permit applications are available from the Boston Conservation Commission at Boston City Hall, Room 805. All projects proposed within 100 feet of the Chestnut Hill Reservoir require a permit from the BCC. Maintenance activities may be permitted programmatically, as at the Charles River Basin, but further consultation with the BCC is required to develop vegetation management practices that are appropriate for Chestnut Hill Reservation.

2. Cooperation with MWRA

In 1979 the Chestnut Hill Reservoir changed from an active water supply to an emergency, back-up reservoir. The Massachusetts Water Resource Authority (MWRA) retains control and management of those features that are critical to their operations. The joint management responsibilities of the DCR (formerly the Metropolitan District Commission) and the MWRA are outlined in a 2002 agreement. Several water quality control measures are specified in the agreement including:

- Waterfowl and other wildlife control;
- Requirement that pets be leashed and curbed;

- No horseback riding;
- Trash and debris control;
- Consideration for non-motorized boating concession;
- No swimming or bathing;
- Signage program including prohibited and allowed uses;
- Proper maintenance, design and construction to minimize erosion;
- Patrolling of the area by DCR rangers;
- Advance notification to the MWRA of any construction, alteration, or maintenance work, with opportunity to review and comment;
- MWRA retains the option to salvage and reuse the iron picket fence if removed by the DCR.

The MWRA continues to manage and maintain the following resources for water supply purposes:

- Gate #2, intake, discharge pipes, electric and instrumentation;
- Gatehouse #1, dam structure (this includes the entry road and turnaround);
- Cochituate Aqueduct and its facilities including the Intermediate Gatehouse;
- Weston Aqueduct Supply Main, blow-off facilities;
- Sudbury Aqueduct Terminal Chamber discharge pipe to reservoir both existing and planned.

a. MWRA Regulatory Compliance

For all activities at the Chestnut Hill Reservation, the DCR should consult with the MWRA for compliance with the 2002 agreement. DCR and the MWRA currently have an informal staff-to-staff system of communication, which serves both agencies well. The park supervisor or project managers should work with the MWRA representative early in the planning stages of a project to avoid conflicts.

A representative from the MWRA has served on the planning team for this Resource Management Plan, providing valuable guidance in shaping the management strategy and treatment recommendations to insure consistency with the 2002 interagency agreement.

Interagency Agreements

The Reservation is now composed of several different parcels of land that were once controlled by the MWRA, the former MDC, and the City of Boston. A May 13, 1976 agreement transferred management including "care, custody and control, including police protection", of the 17.55-acre parcel of land (known as "Chestnut Hill Park" at the time) north of and including Chestnut Hill Driveway and the right of way of Saint Thomas More Road from the City of Boston to the MDC for 99 years. A June 22, 1978 Order of Taking contains the provisions for a perpetual 10 foot-wide, (approximately 150 feet long and 1,506 square feet in area) easement for the purposes of installing and maintaining an electrical conduit between the Reservation property line and the Commonwealth Avenue right of way. This easement addressed solely the electrical line as trees and structures within the limits were not included in it.

Operation and maintenance responsibility for the area within the perimeter fence was passed from the MWRA back to the MDC through an interagency agreement in 2002.[3] Up until the 2002 agreement between the MWRA and MDC, the MDC maintained control of all of the land outside the perimeter fence and inside the boundary of the current Reservation, while the MWRA controlled all of the land inside of the perimeter fence and Shaft #7. As a result of the 2002 agreement, the MDC (now DCR) assumed management responsibility for the Reservoir, the perimeter fence and the surrounding Commonwealth land and agreed to develop, implement, and manage a public access plan and program for the Reservation. The MWRA retains responsibility for Gatehouse #2, Gatehouse #1, Cochituate Aqueduct, Weston Aqueduct Supply Main, and the Sudbury Aqueduct Terminal Chamber.

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[1] The full analysis of the secondary historic contexts and periods of significance and their associated integrity can be found in Appendix C.

[2] Charles Birnbaum and Chris Capella Peters. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, D.C.: National Park Service, 1996), p. 48.

[3] Agreement Between the Metropolitan District Commission and the Massachusetts Water Resources Authority Regarding Chestnut Hill Reservoir and Surrounding Lands Held By or On Behalf of the Commonwealth, May 2002.

Chapter 5
RECOMMENDATIONS

Figure 5.1: Chestnut Hill Reservoir (2005)

General Recommendation

1. Management Goals

In order for the Resource Management Plan for the Chestnut Hill Reservation to be successful, DCR will embrace management goals that recognize the importance of the Reservation as an historical, cultural, architectural, and recreational landscape. The RMP supports the following management goals and objectives for the Chestnut Hill Reservation:

- **Preserve, protect, and enhance the extant features associated with both the primary and secondary historic periods and contexts identified in this RMP, while allowing for present day use within the Rehabilitation area.** Treatment of the Reservation and its character-defining features will in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* as well as the Standards and Criteria set forth by the Boston Landmarks Commission.

- **Preserve, protect, and enhance the historic features associated with the primary period of significance (1868-1926) within the Restoration zone from Gatehouses #1 to Gatehouse #2 in order visually illustrate the appearance of the Reservoir in 1901 as an interpretive exhibit.**

- **Recognize the history of Chestnut Hill Reservoir within the context of the greater Metropolitan Water Supply system.** Develop interpretive programming that relates the Reservoir to the Waterworks and other sites within the metropolitan Boston water supply system.

- **Provide a place for passive recreation and quiet enjoyment.** Include a universally accessible pathway to serve a wide range of recreational users.

- **Balance historic landscape preservation with recreation and natural resource protection.** Maintain the historic structures and landscape, and conduct vista clearing using practices that avoid adverse impacts to woodland health and wildlife habitat.

- **Ensure that park users feel safe.** Develop and promote a program of regular DCR or other law enforcement and staff presence; eliminate areas with perceived safety concerns; improve pedestrian egress from the inner loop (perimeter path).

- **Strengthen and coordinate partnerships** to support a common vision for the Chestnut Hill Reservation, leveraging private funding for capital, operations, maintenance and programming needs; identify and explore New Models for Stewardship.

- **Establish equal levels of DCR custody, care, and control for all areas of the Reservation under its management,** including permanent/long-term agreements related to the driveway parcel.

- **Establish formal agreements for specialized use of Reservation lands** such as the community gardens and restricted parking areas.

- **Clarify and promote park rules and regulations** that are clear, concise, and communicated in an attractive form that is easy for the park user to follow.

- **Establish a sustainable and maintainable landscape** that will enhance wildlife habitats while managing invasive species of plants and animals.

2. Preservation Treatment

The Resource Management Plan for Chestnut Hill Reservation is intended to meet a number of diverse objectives, focused primarily on preserving and enhancing the historic character of the Reservation, improving public use through enhanced site access and circulation, and adapting the site to meet current safety, access and park standards. To accomplish these diverse goals, this chapter considers four philosophical approaches for the treatment of the Reservation landscape based on the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, revised in 1995.

> A treatment is a physical intervention carried out to achieve a historic preservation goal – it cannot be considered in a vacuum. There are many practical and philosophical variables that influence the selection of a treatment for a historic property. These include, but are not limited to, the extent of historic documentation, existing physical conditions, historical value, proposed use, long and short term objectives, operational and code requirements, and anticipated capital improvement, staffing, and maintenance costs.[1]

The Secretary's Standards include four distinct philosophical approaches that define the extent and intent of physical changes proposed for an historic property. The treatments, Preservation, Rehabilitation, Restoration, and Reconstruction, each vary in the level of intervention, required documentation and appropriate application:

- **Preservation** "maximizes the retention of distinctive materials, features, spaces, and relationships" through maintenance and repair of existing features as the property has evolved over time. While protection and stabilization and work are included, the focus of preservation treatment is on retention and maintenance, while avoiding replacement of intact or repairable historic materials.

- **Rehabilitation** is an inclusive treatment that provides for a broad range of interventions to both meet contemporary uses and retain historic character. This includes the retention and maintenance of existing historic features, as well as selective changes to the property provided the overall historic character is not compromised.

- **Restoration** illustrates a specific earlier historic period by removing non-historic features, replacing missing features from the restoration period, and retaining extant historic features. Because the intent of restoration is to re-create an authentic historic property associated with a specific historic period, the replacement of missing historic features should be identified and chosen through substantial documentary and physical evidence.

- **Reconstruction** recreates a vanished historic property through new construction, when absolutely necessary and no other interpretive method can convey the information. This treatment is, in reality, rarely used.

3. Recommended Treatment

a. Reservation Treatment

The philosophical approach for the treatment of the Chestnut Hill Reservation represents a strategy for long-term management of the landscape founded on its significance, existing conditions, and use; it also balances issues of access and preservation with contemporary use and requirements.[2] Based upon the goals and objectives stated above, the RMP recommends the *Rehabilitation* treatment for most of the Chestnut Hill Reservation, excluding the Restoration zone from Gatehouse #1 to Gatehouse #2 described below. Rehabilitation combines the retention and maintenance of existing historic features, with limited new construction to meet current needs, and allows selected replacement of missing historic features necessary to retain the property's historic character. This treatment approach allows for the

adaptation of the historic landscape to accommodate contemporary use (passive recreation). This treatment is also preferred because it does not require the reconstruction of missing features or the full restoration of the landscape to a specific period of time, investments which would be unsustainable given existing resources and management capacity. This treatment approach allows for the adaptation of the historic landscape to accommodate contemporary use (passive recreation).

Rehabilitation is the only treatment that also allows for the construction of new additions or alterations to meet contemporary uses provided that, when removed in the future, the "essential form and integrity" of the site would remain unimpaired. In this regard, the new work should be differentiated from the historic features, but should remain compatible in terms of "materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment." In some cases, rehabilitation is chosen when a historic resource is so deteriorated that repair work requires substantial intervention, well beyond what is normally considered appropriate in preservation. Finally, rehabilitation can also accommodate a limited amount of replacement of missing historic features in kind, or with a new design that is compatible with the original feature and with the current character of the property. However, Rehabilitation prohibits "changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties." This would also include replacing missing features in another location. Taken together, rehabilitation is the most flexible and accommodating of the four treatments.

For the Chestnut Hill Reservation, rehabilitation is an ideal treatment for most of the site because it expressly addresses historic properties that must continue to meet contemporary uses. The Reservation is a property actively used by the surrounding community and provides both a unique recreational, natural, and historical resource. With an emphasis on repair, historic character, and contemporary use, the treatment Rehabilitation can easily form the framework for interventions needed to meet the RMP objectives outlined above.

b. Restoration Zone

The DCR has identified an additional interpretive objective to visually communicate the appearance of the Reservoir during the primary period of significance. Because this represents a more labor-intensive approach to landscape maintenance, the entire dam from Gatehouse #1 to west of Gatehouse #2 will be restored as an educational tool to illustrate the property as it looked in 1901, the height of operation for the Reservoir and the end of much of the associated construction. This includes the area from the toe of the slope along Beacon Street, to the water's edge, extending parallel along the dam to the Reservoir from the north side of Gatehouse #1 to an area west of Gatehouse #2. The crushed stone perimeter path is included in the Restoration zone, but the sidewalk along Beacon Street is not.

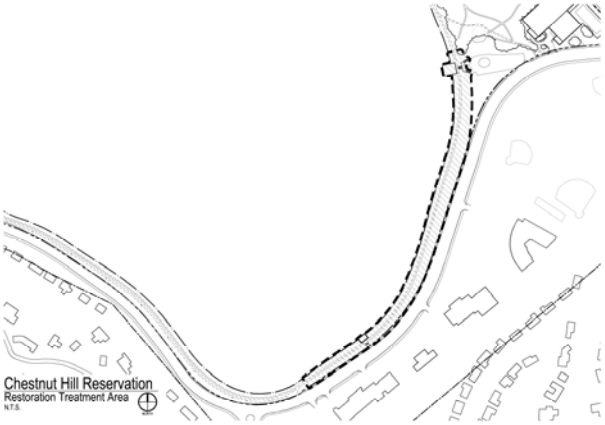

Figure 5.2: Restoration treatment area

Restoration as a treatment depicts the "form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period."[3] Because it involves removal of later features and the replacement of missing historic features, Restoration requires a higher level of documentation and substantiation, necessary to ensure historical accuracy.

Figure 5.3: Photograph showing Gatehouse #1 from 1898 (DCR)

For the Chestnut Hill Reservation, restoring the area from Gatehouse #1 to Gatehouse #2, illustrated in figure 5.2, requires the removal of the later 1928-29 fence and the management of the area with a high level of active maintenance. Several historic photographs dated 1901, provide the specific documentation related to the landscape's character during at the time. This included closely-mown turf on the dam, a highly maintained crushed stone path, and small shrub plantings flanking the steps to Gatehouse #2.

Figure 5.4: Photograph showing Gatehouse #2 from 1901 (DCR)

While street trees are evident in historic photographs from the early 1890s, by 1901 they are gone from the Reservoir side of Beacon Street between Gatehouses #1 and #2. Park benches are not evident in this area as well. Given the complex multi-jurisdictional management and access required in front of Gatehouse #1, the vehicular courtyard extending from Beacon Street will remain in the Rehabilitation zone. Only the Gatehouse building and its immediate setting, including the dam and pedestrian steps, are located within the Restoration zone. In order to implement this recommendation, an agreement between the MWRA and the DCR will be required for this area. The Rehabilitation and Restoration standards are included at the end of Appendix C.

Figure 5.5: Photograph showing the Reservoir and Beacon Street from 1901 (DCR)

4. Land Stewardship Zoning Guidelines

As part of the 2003 legislation creating the Department of Conservation and Recreation (DCR), the legislature also required the preparation of management plans for state parks, forests and reservations under the care of DCR. Management plans must include guidelines for operation and land stewardship of natural and cultural resources, and ensure consistency between recreation, resource protection, and sustainable forest management.

In February 2006, the DCR Stewardship Council approved the Land Stewardship Zoning Guidelines for resource management plans. The Guidelines define three types of zones and are intended to provide a general land stewardship zoning framework that is flexible and that can guide the long-term management of the DCR property. The three zones can be supplemented with significant feature overlays that identify specific designated/recognized resource features (such as Forest Reserves, Areas of Critical Environmental Concern or areas with historic preservation protections).

Land Stewardship Zoning Guidelines provide a foundation for recommendations that will address resource stewardship and facility management objectives, and are intended to cover both existing DCR property or facility conditions and desired future conditions for the property or facility. Proposals for changing the Guidelines already approved in a Resource Management Plan must be submitted to the Land Stewardship Council for review and adoption.

The land stewardship zones and significant feature overlays associated with Chestnut Hill Reservation are illustrated in Figure 5.6 and described in detail below:

a. Applicable Land Stewardship Zones

Chestnut Hill Reservation has two applicable stewardship zones and a Cultural Resource Overlay. Because the Reservation is listed on the National Register of Historic Places and is a designated Boston Landmark, the majority of the property is contained within the Cultural Resources Overlay, providing a high level of protection to the landscape as a whole. Zone 2 guidelines are recommended for the Reservoir landscape, pathways and wooded areas, while Zone 3 guidelines are more suitable for the more developed areas such as paved park roads and the rink/pool area.

b. Significant Feature Overlays - Cultural Resource Overlay

General Description

The three land stewardship zones may be supplemented with significant feature overlays that identify specific designated/recognized resource features. These significant features are generally identified through an inventory process or research, and are formally designated. The purpose of these overlays is to provide more precise management guidance for identified resources and to recognize, maintain, protect, or preserve unique and significant values, regardless of the zone in which they occur. Examples of significant feature overlays include Forest Reserves, areas subject to public drinking water regulations, or areas subject to historic preservation restrictions.

Chestnut Hill Reservation Cultural Resource Overlay

The Cultural Resource Overlay at Chestnut Hill includes all parts of the property listed on either the National Register of Historic Places or designated a local landmark by the Boston Landmarks Commission (BLC). These historic designations exclude only the Reilly Rink and Pool area, the Gatehouse #1 area, and the Shaft #7 parcel (which DCR does not control). Procedures for the protection of cultural resources, including regulatory compliance with the Massachusetts Historical Commission and the BLC, can be found in Chapter 4 of this RMP.

Although the Gatehouse #1 parking area is not currently included in either historic designation, research conducted as part of this RMP indicates that the area could be

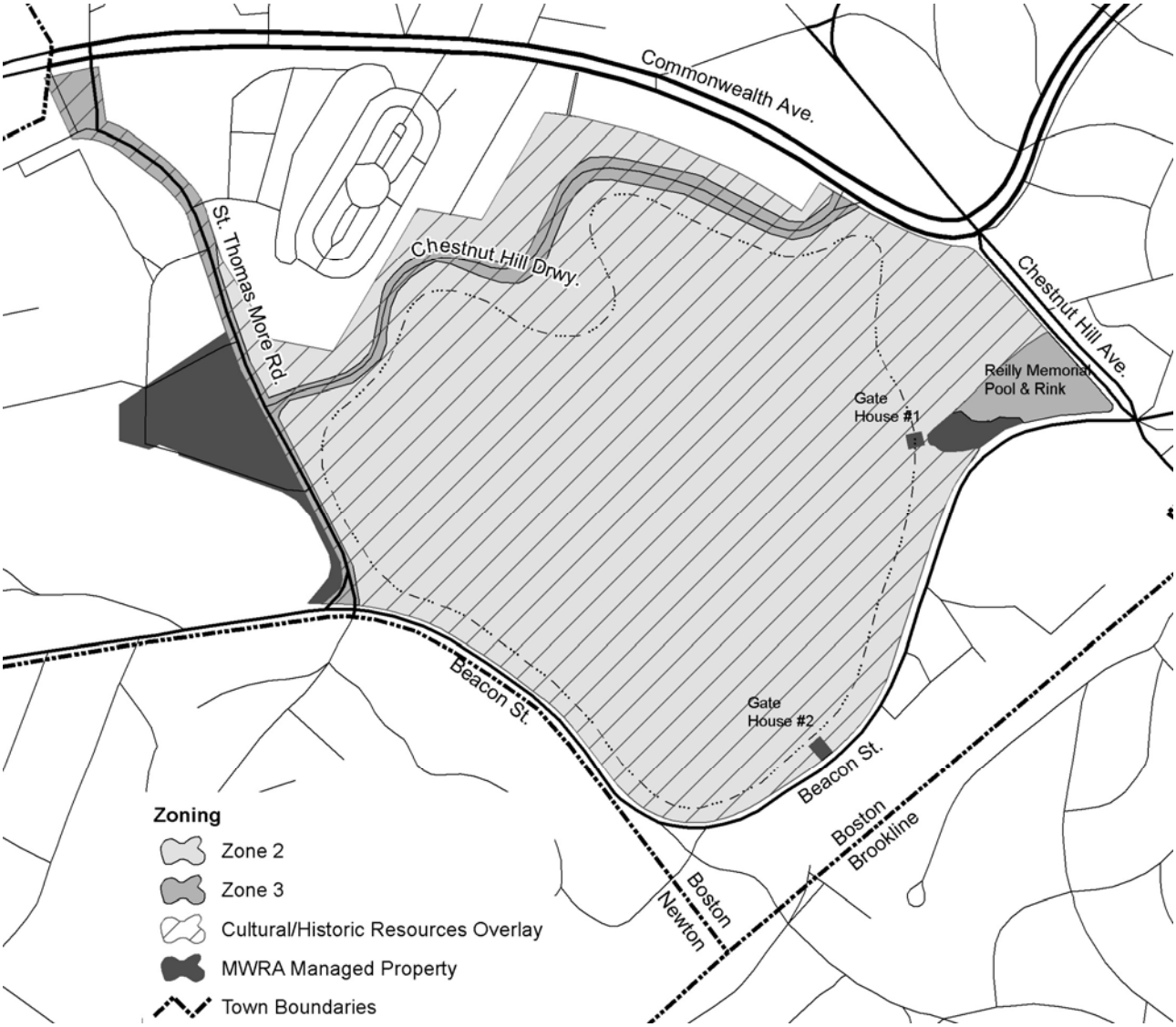

Figure 5.6: Chestnut Hill Reservation land stewardship zoning (DCR)

included in a National Register nomination that addresses the proposed secondary periods of significance. If this area were to be placed under the care and control of DCR it would be contained within the Cultural Resource Overlay. Since the gatehouses and Shaft #7 are under the control of MWRA, no zoning has been assigned in this RMP.

c. Zone 1

Although Chestnut Hill Reservation is a significant cultural landscape, Zone 1 guidelines are not recommended for any part of the property. Instead, the guidelines of the Cultural Resource Overlay apply. The following description is provided for reference only.

General Description
This zone includes unique, exemplary and highly sensitive resources and landscapes that require special management approaches and practices to protect and preserve the special features and values identified in the specific Resource Management Plan. Examples of these resources include rare species habitat identified by the Natural Heritage & Endangered Species Program as being highly sensitive to human activities, fragile archaeological or cultural sites, and unique or exemplary natural communities. Management objectives emphasize protecting these areas from potentially adverse disturbances and impacts.

General Management Guidelines
- Only dispersed, low-impact, non-motorized, sustainable recreation will be allowed provided that the activities do not threaten or impact unique and highly sensitive resources.
- Existing trails and roads will be evaluated to ensure compatibility with identified resource features and landscape, and will be discontinued if there are suitable sustainable alternatives. New trails may be constructed only after a strict evaluation of need and avoidance of any potential adverse impacts on identified resources. New roads may only be constructed to meet public health and safety needs or requirements; however, the project design and siting process must avoid any potential adverse impacts on identified resources and demonstrate that there are no other suitable alternatives.
- Vegetation or forest management will be utilized only to preserve and enhance identified resource features and landscapes.

d. Zone 2 - Reservoir Landscape and Woodland

General Description
This zone includes areas containing typical yet important natural and cultural resources on which common forestry practices and dispersed recreational activities can be practiced at sustainable levels that do not degrade these resources and that hold potential for improving their ecological health, productivity and/or protection through active management. Examples include terrestrial and aquatic ecosystems characterized by a diversity of wildlife and plant habitats, rare species habitat that is compatible with sustainable forestry and dispersed recreation, agricultural resources, cultural sites and landscapes. Zone 2 areas may be actively managed provided that the management activities are consistent with the approved Resource Management Plan for the property.

General Management Guidelines
- Management approaches and actions may include a wide range of potential recreational opportunities and settings that are consistent and compatible with natural resource conservation and management goals.
- Protect and maintain water quality by providing for healthy functioning terrestrial and aquatic ecosystems.
- Provide a safe, efficient transportation network with minimal impact on natural and cultural resources while serving public safety needs and allowing visitors to experience a variety of outdoor activities.
- New trails may be allowed dependent upon existing area trail densities, purpose and need, physical suitability of the site, and specific guidelines for protection of rare species habitat and archaeological resources.
- Sustainable forest management activities may be undertaken following guidelines established through ecoregion-based assessments, district level forestry plans, current best forestry management practices, and providing for consistency with resource protection goals.
- Utilize Best Management Practices for forestry and other resource management activities to encourage native biodiversity, protect rare species habitats and landforms.
- Roads may be constructed if access for resource management or public access is needed and construction can be accomplished in an

environmentally protective manner. Existing roads will be maintained in accordance with the DCR road classification system and maintenance policy.

- Additional site-specific inventory and analysis may be needed prior to any of the management activities described above to ensure that no adverse impacts occur to previously un-documented unique and sensitive resources and landscape features.

e. Zone 3 - Roads and Reilly Rink/Pool Area

General Description

This zone includes constructed or developed administrative, maintenance and recreation sites, and resilient landscapes that accommodate concentrated use by recreational visitors and require intensive maintenance by DCR staff. Examples include areas developed and deemed appropriate for park headquarters and maintenance areas, parking lots, swimming pools and skating rinks, paved bikeways, swimming beaches, campgrounds, playgrounds and athletic fields, parkways, golf courses, picnic areas and pavilions, concessions, and areas assessed to be suitable for those uses.

General Management Guidelines

- The management approach and actions will emphasize public safety conditions and provide for an overall network of accessible facilities that meets the needs of DCR visitors and staff.
- Maintenance of these facilities and associated natural and cultural resources, and new construction or development, will meet state public health code, and state building code and environmental regulations.
- Shorelines and surface waters may be used for recreation within constraints of maintaining public safety and water quality.
- Historic restoration, rehabilitation or reconstruction for interpretation or adaptive reuse of historic structures will be undertaken only in conjunction with a historic preservation plan.
- To the greatest extent possible, construction will include the use of "green design" for structures, such as use of low-flow water fixtures and other water conservation systems or techniques, solar and other renewable energy sources, and the implementation of Best Management Practices to protect the soil and water resources at all facilities.

Site-Specific Recommendations

The following recommendations have been developed collaboratively with the DCR, and are intended to address the analysis of current conditions described in Chapter 3 and meet the RMP objectives defined above. They include a broad range of recommended actions to enhance resource stewardship, public use, and park management. This section of the RMP also refers to the Site Treatment Recommendations Plan which presents a graphical compilation of these site-specific recommendations. The priorities and recommended strategy for implementing the recommendations are included in Chapter 6 – Implementation Strategy.

Natural Resource Recommendations

The overall character of the Reservation consists of an island of natural resources within a larger urban and suburban setting, highly valued by residents as a natural asset to the densely developed community. The vegetated portions of the site currently offer a moderately desirable aesthetic value and limited wildlife habitat. To maintain and enhance these aesthetic values, management recommendations address both invasive species and methods to enhance wildlife habitat. These recommendations for natural resource management should also be balanced with the other proposed treatment recommendations and the historic character of the Reservation.

Natural resource recommendations are limited to vegetation and nuisance wildlife management within the site, in so much as these recommendations are contained within the overall goals for the Chestnut Hill Reservation. Long term strategies should be developed to promote a native community of plant species within the site that buffer land uses, deter a resident population of Canada geese, and protect and enhance wildlife habitat. The desired plant community should ultimately provide valuable cover, foraging, and nesting habitat for resident and migratory wildlife and contribute to the overall vegetative community and composition within the Reservation. Additional recommendations are included in the Vegetation Management Plan (VMP) developed in conjunction with this RMP.

Recommendation: Remove and control invasive species.

Invasive exotic species are generally defined as non-native plants that have aggressively invaded naturally

occurring plant communities.[4] Virtually every habitat within the Reservation contains one or more invasive plant species, including Oriental Bittersweet (*Celastrus orbiculatus*), Black Locust (*Robinia pseudoacacia*), Norway Maple (*Acer platanoides*) European Buckthorn (*Rhamnus frangula*), Multiflora Rose (*Rosa multiflora*), Purple Loosestrife (*Lythrum salicaria*), and Garlic Mustard (*Alliaria officinalis*). Poison ivy, although not considered an invasive species, presents a management challenge within the site as it occurs as a low-growing groundcover and as a climbing vine that winds around trees and shrubs within the upland portions of the site. Invasive species removal and native vegetation installation will optimize wildlife habitat for the widest range of bird and animal species. Specific recommendations for invasive species management are described below.

- Manual and mechanical techniques such as hand and tool pulling, hand cutting, mowing, girdling, brush-cutting, mulching and tilling can be used to control some invasive plants, particularly for relatively small populations.
- Biological control is an option to hinder the growth and spread of Purple Loosestrife (*Lythrum salicaria*). The use of *Galerucella* spp. as a biological control for *L. salicaria* has proven effective, with a success rate of up to 90% in other areas of North America without visible environmental repercussions.[5]
- Chemical control techniques involve the use of herbicides that kill or otherwise impair an individual's competitive ability. Application methods include foliar application by spraying, application to cuts in the stem or trunk, application to cut stems and stumps during the dormant season.[6]
- Replant and re-seed areas of invasive species removal in order to promote a native understory. There are several alternative seed mixtures that may be appropriate for the upland and wetland areas, which are best planted in early spring. The seed mixtures are comprised of species native to New England and are available in mixtures tailored for both upland and wetland restoration.
- Conduct routine invasive species maintenance. Follow-up invasive species removal should be conducted on an annual basis. The use of selective herbicide application will further deter any aggressive species (i.e. European Buckthorn, Speckled Alder).[7]

Recommendation: Enhance the forested upland and wildlife habitat.

Maintaining the forested upland on site with well-developed canopy, mid and understory growth and enhancing the remaining vegetated areas throughout the Reservation is critical for sustainable wildlife populations.

- Create and maintain vegetated structure between canopy, mid-story, and understory to promote wildlife habitat;
- Install native species where appropriate, to create a canopy and understory of equal or greater density, diversity, and value as existing conditions.
- Enhance and expand native understory in appropriate locations.
- Mulch exposed root systems near the trail network to protect trees and associated root zones and to stabilize soil.
- Remove and prune dead wood from trees within reach of the trail system.
- Provide adequate cavity and den tree habitat for wildlife for food and cover habitat. Create wildlife snags (dead or dying trees left on site) if practical in areas where they would not pose a threat to visitor safety.
- Increase diversity and species richness by removing invasive species.
- Prevent spread of invasive species through removal and subsequent monitoring.
- Conduct follow-up monitoring to assess invasive species re-growth, success of native plant installation, utilization of vegetation by resident and migratory species. Re-plant native species as necessary.

Recommendation: Selectively thin understory vegetation.

Forest understory is critically important to wildlife and provides feeding, breeding, nesting, and cover habitat for a variety of birds and small mammals. With deliberate management, those portions of the understory dominated by invasive species can be replaced with an understory comprised of herbaceous species beneficial to wildlife. The appropriate time of year for removal of invasive species is during the winter, to minimize disturbance of wildlife, particularly nesting habitat. Native species that provide wildlife habitat should be retained. Retention or creation of snags and large woody debris within the

interior portions of the forested area and beyond typical public access is also critical to promote habitat. As specific actions are developed for site improvements, the following should be considered related to enhancing wildlife habitat:

- Selective thinning of understory vegetation should focus on invasive species removal.
- Schedule vegetation thinning to minimize disturbance to nesting wildlife. Thinning should not disturb or remove wildlife nesting and den habitat.
- Maintain brushy areas next to wooded edges for nesting and cover habitat, in particular for small mammals and birds that utilize these important 'edge' ecotones.
- Conduct follow-up monitoring to monitor and prevent invasive species from colonizing thinned area.

Recommendation: Control the Canada Geese population

Canada geese can denude grassy areas within the site and their droppings are also a public health concern. LEC observed a flock of resident Canada Geese within the open water Reservoir and within the grassy portions of the site during their evaluations. The Canada Geese may also present a threat to Reservation visitors that encounter the geese and may be chased, scared, or deterred from the park by these aggressive birds. Non-lethal methods of controlling the resident Canada goose population include habitat modification, installation of fencing, and visual deterrents. Lethal methods, including egg addling, are considered effective, legal management techniques.[8] DCR should incorporate habitat modification into its vegetation management practices to effectively minimize the attractiveness of the Reservation to geese. Habitat modification includes:

- Installing landscape plantings that that physically reduce access to forage areas.
- Replacing existing grassy areas with low-growing groundcover not desirable to Canada geese.
- Removing goose-preferred grasses such as fescues or timothy and replacing with coarser grasses.

Cultural and Recreational Resources Recommendations

The following recommendations address specific features, resources, and areas of the Chestnut Hill Reservation that have been altered by human use to meet specific functional and aesthetic objectives. This includes features that were constructed historically, as well as more recent additions. The organization of these recommendations generally follows the inventory and analysis subsections in Chapter 3.

1. Cultural Landscape

Recommendation: Preserve and enhance the historic character of the cultural landscape.

The features, materials, and spaces described below are components of the Chestnut Hill Reservation cultural landscape. As such, the recommendations that follow address specific actions needed to improve landscape character along with other goals for the Reservation. Some of the most important and critical recommendations needed to enhance the character of the cultural landscape include improvements to the Chestnut Hill Driveway, entry at Gatehouse #1, specimen trees, pedestrian circulation along the Reservoir perimeter, and the treatment of the perimeter fence. As discussed earlier in this chapter, the cultural landscape will be managed according to the treatment Rehabilitation, with the dam structure from Gatehouse #1 to west of Gatehouse #2 included in a Restoration zone, with a restoration date of 1901.

2. Reservoir and Dam

Recommendation: Preserve the existing Reservoir and Dam.

The Reservoir is the prime focal point for the Reservation. As such, the Reservoir shoreline and water level should be actively preserved and maintained. Any erosion or damage to the dam slopes should be immediately stabilized and repaired. Every effort should be made to sustain a constant water level. In addition, the water quality should be maintained to high standards with regular water testing by the MWRA. Invasive aquatic plants, such as Purple Loosestrife, should be removed. Any trash or pollution dumped into the Reservoir should be immediately removed and the shoreline rip-rap maintained, kept clean of trash and debris, and free of encroaching vegetation.

3. Gatehouse #1 Area

Recommendation: Negotiate with the MWRA for use of Gatehouse #1,
DCR and the MWRA should negotiate an amendment to the 2002 agreement to include DCR management of the building or have MWRA pursue the state surplusing process through DCAM. Negotiations should also include a discussion of the management and future use of the paved parking area below Gatehouse #1, which is currently under the control of the MWRA.

Recommendation: Stabilize and repair Gatehouse #1.
The MWRA, the DCR, or a partnership thereof should commit to funding the baseline (stabilization) capital repairs on Gatehouse #1 as indicated in the GZA GeoEnvironmental, Inc. March 1998 report to the MWRA. These repairs should include the minimum cost of $233,000 (in 1998 dollars) to fill and close off the lower chambers with flowable fill and granular fill mix as recommended in the report. This will allow a complete and safe floor base for the upper part of the Gatehouse. As stated in Chapter 3, the upper part of the structure is in good condition but some maintenance is warranted to prevent future problems. Exterior stone masonry should be re-pointed, cracks repaired, and vines removed. The hip coverings at the roof may need to be replaced to stop the water infiltration. There may be some moisture damage in the roof sheathing and framing near the bottoms of the hips and these wood members will need to be replaced to match the historic roof framing.

Following immediate repair and stabilization of the structure, the DCR should pursue a restoration treatment for the exterior of the gatehouse, consistent with the treatment of the dam structure landscape from Gatehouse #1 to west of Gatehouse #2. New glass to match the historic glass will need to be installed in the windows following removal of the brick. A new entrance door to match the historic door will be required for the upper level entrance. The existing cupola should be removed and replaced with a new cupola that restores the original cupola design. Every effort should be made to ensure that any repair and improvement to the Gatehouse be made to respect the original historic design and to meet the Secretary of the Interior's Standards for Restoration. Future work is also subject to review by Boston Landmarks Commission and Massachusetts Historical Commission.

To ensure the longer term viability of the Gatehouse as future new use, the DCR should develop a maintenance plan and budget to protect the building until a re-use strategy is put into action.

Recommendation: Consider a future re-use strategy for Gatehouse #1.
Once the priority issue of stabilizing and repairing the Gatehouse is accomplished, the DCR should work with the public in considering a best new use. This re-use should be coordinated with the restoration of the building's exterior and setting, including the exterior steps, the treatment of the vehicular courtyard described below, and in conjunction with existing and future visitor services and Reservation programs.

Recommendation: Repair and restore the exterior stone steps and walls below Gatehouse #1.
This area, which is within the Restoration zone, should serve as the primary pedestrian gateway into the Reservation leading from the vehicular courtyard below up to the top of the dam. The steps and cheek walls require repairs and re-mortaring for safe pedestrian use. Consistent with the treatment Restoration, the existing columns and gates should be removed as they were installed with the 1928-29 fence, after the 1901 restoration date.

Recommendation: Consider future options for the entry and existing parking area below Gatehouse #1.
This feature is a critical component of the primary gateway into the Reservation. While the Gatehouse is included in the proposed Restoration zone, the vehicular courtyard will be treated following the Standards for Rehabilitation, which will allow for the adaptation of this area to meet current uses. However, recovery of the historic character of the courtyard is a priority for this RMP. Options for rehabilitating the vehicular courtyard and parking area include:

- Minimize parking for daytime use only. Place a time limit on parking.
- Maximize parking for both the Reservation and night time Reilly Rink use.
- Rehabilitate the original historic entrance and turn-around drive, including reconstructing the missing historic fountain.[9]

- Provide an accessible route from the parking area to the top of the dam and Gatehouse #1 within the Rehabilitation area.
- Incorporate parking and/or a safe drop-off area and access route for the Reilly Rink & Pool.

In order to achieve this recommendation, an agreement between the MWRA and the DCR for this area will be required.

Figure 5.7: Existing parking area below Gatehouse #1 (2006)

4. Other Buildings and Structures

a. Gatehouse #2

Recommendation: Repair the stone steps below Gatehouse #2.
This area should serve as an important pedestrian gateway into the Reservation from the Beacon Street sidewalk. The steps require minor repairs and re-mortaring for safe pedestrian use.

b. Intermediate (Cochituate) Gatehouse

There are no recommendations for the Intermediate (Cochituate) Gatehouse. It currently remains under MWRA management and control.

c. Reilly Memorial Pool and Rink

Recommendation: Redesign landscape around the Reilly Memorial Pool and Rink to beautify and buffer area.
The Reilly Pool and Rink building is an unattractive structure and much of the existing vegetation is either overgrown or in poor condition. The landscape around the building and pool should be completely renovated with a new design that acts to beautify and screen the buildings since the pool is in very close proximity to Chestnut Hill Avenue and the Cleveland Circle area and is visible from the roadway. Signage should be installed in appropriate areas to readily identify Rink and Pool. This landscaped area will likely have a more intensely structured design character than the other parts of the Reservation.

Figure 5.8: Reilly Pool & Rink landscape (2006)

d. Freestanding Walls

Recommendation: Repair and repoint the Chestnut Hill Avenue retaining and freestanding walls.
Immediate repair is needed on these walls to avoid more serious deterioration. While it is possible to make repairs to the freestanding wall that will last for some time, repairs to the retaining wall will require frequent maintenance in the absence of a waterproof membrane on the earth side to prevent water infiltration. These repairs include:

- Deeply raking 100 percent of the joints and repoint all of the mortar joints, using a mortar color compatible with the stone color and soft enough (Type N) to move without cracking and permeable enough to allow migrating vapor to pass through it.
- Resetting the displaced cap stones.
- Setting fallen stones back into the cavities in the faces of the wall. Where there are one or more stones of a similar size that have fallen out together, the stones should be toothed into the wall so they cannot loosen as a group in the future.

Annual inspection and immediate necessary repair work is recommended after the overall repair work is complete.

Recommendation: Repair and re-point the freestanding entry sign walls.
To prevent future water damage, chip back the butt joint mortar in the capstones to form recesses and apply a tinted sealant across the joint to waterproof the joint. Re-point the face of the wall as required.

Recommendation: Extend the western freestanding sign wall at the Commonwealth Avenue entrance to restrict unauthorized vehicular access onto this corner of the Reservation.
Maintenance vehicles for the adjacent apartment buildings frequently park in this landscape area. Extending the wall will prohibit vehicular entry.

e. Retaining Walls

Recommendation: Repair and re-point the Chestnut Hill Driveway retaining walls.
These two tiered walls are located on the south side of the Chestnut Hill Driveway. The existing outer pathway passes below the upper wall. Based upon onsite observations, no repair work is needed for the upper wall. The upper half of the lower wall generally needs to be raked and re-pointed with missing chinking stones replaced.

f. Overlook

Recommendation: Preserve, repair, and maintain the existing 1977 overlook and railing.
The overlook is in fairly good condition overall, however the stone retaining wall masonry units require some minor repointing. Any new path to the overlook needs to be made flush with the existing grade of the overlook to allow for full accessibility.

5. Vegetation

Recommendation: Prepare a Vegetation Management Plan for the Reservation.
A comprehensive vegetation management plan should be developed to preserve the historic character of the site, protect and enhance wildlife habitat, insure public access and safety, enhance the native vegetation and remove invasive species, remove hazard trees and large dead branches in pedestrian areas, vista clearing and maintenance, recommended plantings, and to promote soil and water quality. The specific recommendations contained in a vegetation management plan are long-range planning recommendations intended to maintain and promote a healthy ecosystem of diverse native species with high habitat value.

Recommendation: Selectively prune major trees and remove hazardous branches and dead trees in areas adjacent to pedestrian areas.
Based upon the Heritage Tree inventory and analysis, many trees need pruning to re-establish a more healthy form and to remove dead limbs. Several other trees are either dead or in a state of such poor health that they pose a threat to public safety and warrant removal. Dead trees that are sufficiently located away from pedestrian and vehicular areas can remain to provide wildlife habitat. A qualified arborist should be used for all pruning and removals using the specifications set forth in the recommended vegetation management plan.

Recommendation: Remove/control invasive species and poison ivy.
As documented in the Natural Resources section of Chapter 3 and in the natural resources recommendations above, there are a number of invasive plant species throughout the Reservation. Every effort should be made to either eradicate or control invasive plants and poison ivy.

Recommendation: Selectively clear understory vegetation to maintain and enhance the view from the hill behind the Reilly Memorial Pool and Rink to the Reservoir.
There is a significant view of the Reservoir from the top of the rock outcropping. The understory vegetation below the canopy trees should be selectively cleared on an annual basis to maintain the view, consistent with the natural resources recommendations described earlier in this chapter and in the vegetation management plan.

Recommendation: Selectively clear an area of understory vegetation on the north side of the Reservoir to restore the historic "open-park" character and views from Chestnut Hill Driveway.
The area between the inner pathway and the section of the perimeter fence replaced in 1977 northwest of the Reservoir is currently densely vegetated with trees and understory plants. The RMP recommends selectively thinning sections of the understory in this area to establish a view towards the water in all seasons. This area should not be completely cleared due to the steep slopes present in this location and to prevent potential erosion issues.

Understory clearing and thinning should follow the guidelines outlined under the natural resource recommendations. Areas to be thinned should not be in area where it would result in poor views from the Reservoir pathway or where it would open up views to parking or buildings outside of the reservation. Refer to the Site Treatment Recommendations Plan for the location and extent of recommended clearing in this area.

Recommendation: Maintain open view from 1977 overlook on Chestnut Hill Driveway.
The area below the 1977 overlook was cleared in the fall of 2004. This view should be maintained through annual selective pruning and clearing, with low-growing vegetation added to stabilize the slope, in accordance with the vegetation management plan.

Recommendation: Reseed and maintain grass areas on dam.
Eroded and bare grass areas on both sides of the dam should be reseeded and invasive and weedy plants removed. The edge between the path and the grass should be maintained with a distinctive edge to re-establish the historic manicured look that existed along the dam.

Recommendation: Add street trees on the Reservoir side of Saint Thomas More Road.
Additional street trees along Saint Thomas More Road will better define the edge of the road and re-establish the historic character in this area.

Recommendation: Increase tree and understory vegetation in the southwestern part of the Reservation to buffer the Reservation from Beacon Street traffic.
Planting new naturalistic vegetation, in addition to the existing vegetation, will increase the sense of visual separation between the Reservation and the busy Beacon Street.

a. Community Gardens

Recommendations related to the existing Community Gardens are discussed below under Management Resources.

6. Vehicular Circulation

a. Chestnut Hill Driveway

The character of the historic drive has deteriorated since the early 20th century. The Chestnut Hill Driveway should be rehabilitated to re-establish its original historic character and to improve pedestrian circulation, while still functioning as an important part of the public street and parking infrastructure.

The management of the Chestnut Hill Driveway parcel will take into consideration the critical need for resident parking, the significance of the Driveway as part of the historic landscape, and the need to provide equal access to the entire Reservation. Specific guidelines for the Driveway are:

- Minimize changes to the parking area and take into consideration residential parking needs including handicap accessible parking requirements.
- Treatment of the parking area should be a part of a larger plan for Chestnut Hill Driveway.
- Provide an accessible route along the Reservoir side of the Driveway as part of a plan to maximize accessibility while balancing historic preservation needs.
- Maintain some vegetation along the Driveway to screen views of apartment buildings, parking structures, etc. as seen from the Reservoir path to "block the city out."
- Collect traffic volume and speed data to determine whether any traffic calming is needed and what methods would be appropriate along the Driveway.
- Replace granite crosswalks with a more appropriate accessible surface that does not increase the maintenance burden. Remove granite rumble strips and replace with traffic calming features as determined by traffic data (above).
- Select a replacement lighting fixture that is both historically appropriate and as energy efficient as possible.
- Incorporate provisions for recreational use of the woodland buffer, such as public benches and tables.
- Treatment of the Driveway will be in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.*

Recommendation: Conduct a traffic study.
The purpose of the recommended traffic study is to gather data on whether traffic calming is necessary and should be used as a tool for any future repair and rehabilitation of the Driveway.

Recommendation: Rehabilitate Chestnut Hill Driveway as a distinctive pleasure drive and to accommodate a redesigned accessible path.

In the immediate term, potholes and depressions should be repaired and catchbasins and utility manholes set flush with the existing grade. In addition, the existing cobblestone rumble strips, installed as part of the 1977 MDC improvements to serve as speed deterrents, should be removed. The granite block crosswalks and strip between the roadway and parking spaces should be removed as well based on the maintenance issues described in Chapter 3. Crosswalks should be replaced with the standard painted crosswalk symbols. The parking area should be re-striped in the existing configuration. Future improvements of the parking area should include provisions for accessible parking spaces, as none currently exist in the Reservation. DCR should work with the City of Boston to identify ways in which the City might assist with the maintenance (striping, sweeping) of the Driveway in consideration of the parking benefit provided to city residents within the Reservation.

Figure 5.9: Sign located at the entry from Commonwealth Avenue indicating Chestnut Hill Driveway "For Pleasure Vehicles Only" (2006)

During the course of developing the RMP, the DCR determined that parking restrictions in the head-in spaces along Chestnut Hill Driveway are not necessary, and snow emergency signs will be removed from the parking area. Signs will be maintained and restrictions enforced along the remainder of the Driveway.

In the longer term, the Driveway should receive a more intense rehabilitation treatment that includes improvements to the parking, new street lights, improved vehicular entryways, and new landscape treatments. The parallel parking area should be modified to remove the landscape median. See the Parking and Pedestrian Circulation sections later in this chapter. This realignment can be accomplished with no net loss of existing parking, although accessible parking spaces should be included. The previously described traffic study should be used to determine what, if any, traffic calming measures are needed.

The existing "cobra-head" style street light fixtures along the Driveway should be removed and replaced with a single style light fixture that is compatible with the historic character of the Reservation. See the Lighting section later in this chapter.

Summary of Chestnut Hill Driveway modifications:

- Removal of rumble strips
- Removal of existing street lights
- Repair and repave roadway
- New entry walls at Saint Thomas More Road (See recommendation below)
- Repair of existing Commonwealth Avenue freestanding walls
- New historic-style lighting
- Opening of scenic views and new landscaping
- Standard painted crosswalks

Figure 5.10: Cobblestone strips proposed to be removed along Chestnut Hill Driveway (2006)

Recommendation: Define and create a formal vehicular gateway at the intersection of Chestnut Hill Driveway and Saint Thomas More Road.

The western end of Chestnut Hill Driveway should serve as an official vehicular and pedestrian entrance into the Reservation from Saint Thomas More Road. Landscape elements to add to this area include two freestanding

stone entrance sign walls similar in design to the walls at the Commonwealth Avenue entrance to Chestnut Hill Driveway and distinctive, naturalistic planting. The sign walls should read "Chestnut Hill Reservation, Department of Conservation and Recreation" to reflect the current name and management structure.

b. Saint Thomas More Road

Recommendation: Maintain Saint Thomas More Road
The DCR should continue its maintenance policies on Saint Thomas More Road in cooperation with Boston College.

c. Parking

Recommendation: Modify the area of the parallel parking area along Chestnut Hill Driveway.
In order to bring more usable landscape area into the reservation, the existing parallel parking area with its median island can be removed and replaced with a simpler area of parallel parking immediately adjacent to the eastbound travel lane. This can be accomplished with no net loss of existing parking but does provide new landscape area that was previously taken up by the ingress lane for the parking area and the landscape island. The existing trees in the island can be transplanted to other parts of the reservation. See the Site Treatment Recommendations Plan for the proposed redesign. As per the current parking policy, this modified parking area should be reserved for Reservation daytime use only with a specific time limit of three hours.

d. Pedestrian Circulation

The proposed pedestrian circulation recommendations below are based upon DCR maintenance issues, providing for the continuity and management of the perimeter ("inner") and "outer" pathway systems, defining clear access points (gateways), modifying the existing paths to maximize universal accessibility, installing additional paths in needed areas, removing non-used paths and desire lines, DCR snow removal practices, and preserving the character defining qualities of the original Reservoir perimeter path. Figure 5.11 shows the recommended final path system.

Recommendation: The existing pathways should be repaired and maintained for safe pedestrian use.
For the immediate short term, the existing paths, particularly the perimeter path should be repaired. This work would include filling of potholes and other depressed areas. DCR and other public vehicles entering the reservation should take special care entering and driving through the reservation to prevent additional damage to the existing paths and adjacent landscape areas. The longer term plan should include redesigning the path network (see recommendations below).

Recommendation: Define and enhance primary formal pedestrian gateways into the Reservation.
Gateways should be identified and designated for the existing main pedestrian entryways into the Reservation. These gateways should be visually prominent and readily identify to the visitor that they are entering into a DCR property. There should be standard, uniform design elements for these gateways such as such as signs, interpretive information, ornamental bollards, planting, and distinctive paving patterns and materials. All signage should comply with the DCR Graphic Standards. Gatehouse #1 should serve as the primary pedestrian gateway into the site.

Recommendation: Improve, reconfigure, and simplify the existing path network to improve pedestrian access.
Widen and repave the Reservoir perimeter path.
The stonedust pathway around the Reservoir should be repaved to follow the alignment of the original perimeter pathway and eliminate areas of dual pathways. The path should be surfaced with stonedust to maintain a typical, consistent 10-foot width, which is more similar to the historic character than the current path. (For the portion of this path in the southwestern part of the reservation, see the following recommendation.) This does represent an increased width beyond the historic 8 foot-wide path, but is needed to accommodate the increased use of the Reservation. The 10 foot, multi-use path will also help protect the bordering turf, because users traveling in two directions will have sufficient room to pass each other and will not be inclined to step off the stonedust surface. The depth of the subbase for this path should also be tested to see if the depth and material is adequate to allow for vehicular traffic, since it is likely this pathway will continue to provide limited access for official DCR and MWRA vehicles. If it is not sufficiently deep, the full depth of the stonedust pavement should be deepened to prevent vehicular damage in the future. The surface of the path will need to be crowned to allow for adequate drainage and to prevent future issues with puddling. The grass areas immediately adjacent to the path should be repaired once the paving is complete. A stabilizer for the

Figure 5.11: Proposed circulation diagram

stonedust should be considered to control dust and to protect the path.

Design and pave the dual paths in the southwestern part of the Reservation into a combined, single bituminous concrete/stonedust path.

This section of the 1928-1929 fences should be removed and the existing dirt paths replaced with a new 10' path that follows the original alignment of the perimeter pathway. Since this pathway serves both as a Reservation path and a pedestrian route in winter, the new path surface should be stable enough to hold up to mechanical snow removal. One solution is to install a new 4 foot wide stonedust path on the Reservoir side with a 6 foot wide bituminous concrete path immediately adjacent on the Beacon Street side (see the Site Treatment Recommendations Plan). Starting in the area by the existing vehicular gate at the western end of the dam, this combined path will continue up alongside Saint Thomas More Road until they split at the area by the existing vehicular gate across from the Boston College fields. The bituminous concrete side should be the only side snowplowed since stonedust is prone to damage from snowplows. To ensure proper drainage in this area, the new two pavement path should be properly graded to shed water away from the Reservoir. The existing drainage swale and catch basin system on the south side of the path should be evaluated and repaired or re-designed as necessary.

Install a new universally accessible path with bituminous concrete paving on the south side of Chestnut Hill Driveway to replace the existing hard packed dirt pathway.

The existing dirt path on this side of the driveway is too narrow and does not allow for full accessibility. This existing pathway should be removed and replaced with a 5-foot wide bituminous concrete path that meets current accessibility requirements. The new path should typically have a minimum 2 or 3 foot wide grass strip along the roadway edge and a minimum 3 foot grass strip along the fence except in the areas where the distance between the curb and fence are too narrow to allow this treatment. In order to achieve these accessibility requirements, the new

path will require some degree of regrading in the area where it passes under the retaining wall. A second side path can be designed above the retaining wall to allow pedestrians a safe way to cross the Driveway at the crosswalk to reach the sidewalk on the north side of the Driveway. See the Site Treatment Recommendations Plan for the schematic route of this path.

Design a new accessible path system with bituminous concrete pavement on the hill behind the Reilly Memorial Pool and Rink.

A new path system should be designed to replace the existing path system and become a universally accessible route between Beacon Street, Commonwealth Avenue, the inner pathway, and the Reilly Memorial Pool and Rink area. The path should be designed to have no steps and a 5% or less grade which will meet accessibility guidelines. The existing paved loop path, which is not commonly used, should be removed and allowed to naturalize. The other "desire-line" dirt paths in this area, which are an erosion problem, should be filled and provisions made to limit continued pedestrian access to these dirt paths such as the installation of vegetation. There is also a good view of the Reservoir on top of the rock outcropping and provisions should be made to access this natural overlook area.

Figure 5.12: Redesigned paths behind Reilly Memorial Pool and Rink

Recommendation: Install a woodland trail connecting the Reservoir perimeter pathway and Chestnut Hill Driveway.

This new path will allow for a connection between these two areas that does not currently exist on the north side of the Reservoir. The pathway will connect at the modified parallel parking area along Chestnut Hill Driveway. The Site Treatment Recommendations Plan shows a proposed alignment for this path. Final location of the path should be based on a study of topography, vegetation, and location of rock outcroppings. This path should meet the accessibility requirement for outdoor recreational trails. Ground disturbance should be limited. Additional study is needed to determine the appropriate paving material for this path although it is recommended that the path surface be constructed naturalistic (soft-surfaced) and permeable material. Construction of this trail should be in conjunction with the clearing of some of the understory vegetation in order to open a vista towards the Reservoir.

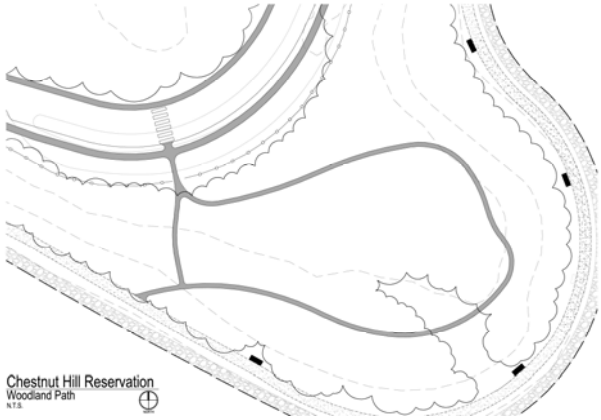

Figure 5.13: Proposed woodland path (schematic)

Recommendation: Preserve, repair, and maintain existing bituminous concrete sidewalk on north side of Chestnut Hill Driveway.

This existing sidewalk receives frequent use and should remain as a vital part of the site circulation system. A portion of this sidewalk will be required to be realigned along with the proposed changes to the Chestnut Hill Driveway.

Recommendation: Coordinate with the City of Boston to install a crosswalk across Beacon Street at Gatehouse #2.

Although this recommendation is technically outside of the Reservation boundary, DCR should coordinate with the City of Boston and the Waterworks development to provide this essential pedestrian linkage into the Reservation. An on-demand signal may be warranted for this crosswalk for pedestrian safety due to the high vehicular volume and speeds on Beacon Street.

7. Site Furnishing and Small Scale Features

a. Perimeter Fence

Recommendation: Remove the 1928-1929 perimeter fences consistent with the treatment Restoration from Gatehouse #1 to Gatehouse #2.

In order to accurately portray the 1901 appearance of the Reservation within a distinct area from Gatehouse #1 to Gatehouse #2, the RMP recommends the removal of the later 1928-1929 fence. This creates an outdoor interpretive exhibit for a small section of the Reservoir perimeter that visually communicates the accurate historic character of the landscape during the primary period of significance. At Gatehouse #1 and #2, the 1928-1929 gates and columns should be removed as well.

Removal of the fence will include cutting the steel posts to grade, removal of fence panels, and removal of the concrete footings. These removed sections of fence will need to be stockpiled at the discretion of the MWRA.

Figure 5.14: Gatehouse #2 fence gates proposed to be removed (2005)

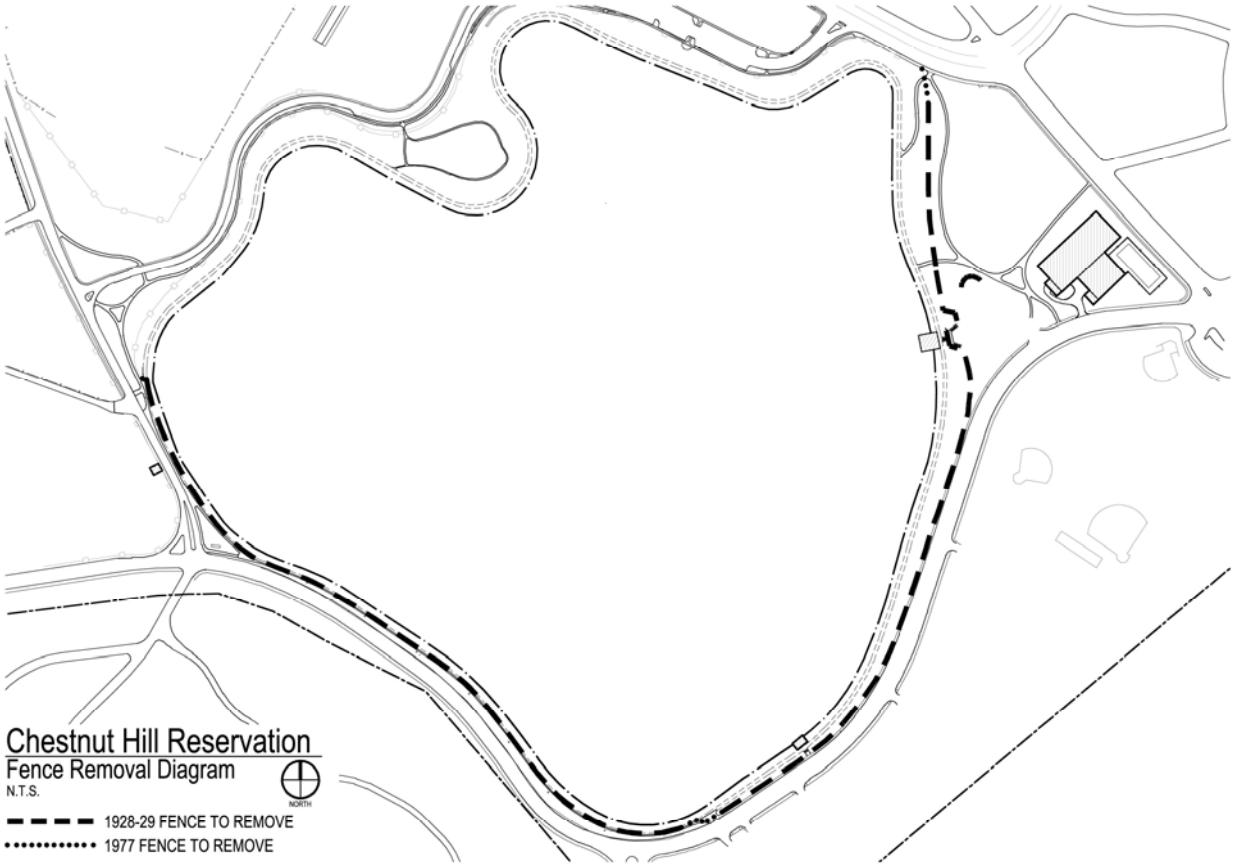

Figure 5.15: Fence removal diagram

Recommendation: Remove 1928-1929 fence in areas where it interferes with existing public use and serves no management or programmatic purpose.
As recommended in the previous Pedestrian Circulation section, the combining of the dual paths into a single bituminous concrete/stonedust path will require the removal of the fence in the southwest corner of the Reservation. The fence that runs from north of Gatehouse #1 towards Commonwealth Avenue should be removed to more fully open up this wooded area and allow for overlook opportunities.

In addition, vegetation and earth should be removed on the bottom rails of the 1977 panels in order to prevent corrosion of the posts and lower rails.

Recommendation: Replace and/or relocate the two 1977 vehicular gates with design that is compatible with landscape (after 1928-1929 fence removal).
If the DCR has or expects problems with illegal vehicular entry, other control measures such as removable bollards should be considered in place of the gates.

Figure 5.16: 1977 gate in the perimeter fence proposed to be removed (2006)

Recommendation: Retain and maintain the 1977 perimeter fence along Chestnut Hill Driveway and Saint Thomas More Road and along the Evergreen Cemetery property line.
The 1977 fence should be monitored on an annual basis and repaired and repainted as needed. Maintenance should include removal of any non-grass vegetation and sediment immediately under the bottom rail to maintain a minimum 2 inch clearance.

b. Other Site Fences

Recommendation: Retain the 1977 pipe rail fencing along the upper Chestnut Hill Driveway retaining wall.
This fence serves as fall protection. The fence should be monitored on an annual basis and repaired and repainted as needed.

Recommendation: Remove and/or repair and maintain the existing chain link fence along the Evergreen Cemetery property line fronting Saint Thomas More Road.
DCR should coordinate with the Boston Parks and Recreation Department, who owns and maintains the Evergreen Cemetery, to determine a strategy for repairing or replacing this fence.

c. Lights

The existing DCR policy is that the lands within the reservation are only open from dawn until dusk, therefore no lighting is warranted. However Saint Thomas More Road and Chestnut Hill Driveway, being part of the public infrastructure and parking, require lighting for pedestrian and vehicular safety. The Reilly Memorial Pool and Rink is also used at night thus the continued need for lighting around this building is warranted.

Recommendation: Remove the existing "cobra-head" style light fixtures along Chestnut Hill Driveway and Saint Thomas More Road and replace with a single style light fixture that is compatible with the historic character.
These street lights do not reflect the character of the historic roadways. Historic style light fixtures also serve to differentiate these roadways from the surrounding city roads and are more compatible with the character of the Reservation. The DCR standard pendent-style parkway street fixture is recommended. New street lighting should consider light pollution, energy efficiency, cost, security and consistency with other street lighting in the area.

Recommendation: Remove all 1977 pedestrian light fixtures on the hill behind the Reilly Memorial Pool and Rink.
The existing pedestrian lights no longer function and this area of the Reservation is closed after dusk.

Figure 5.17: Park lights proposed to be removed on the hill behind Reilly Pool & Rink (2006)

d. Benches

Recommendation: Install benches in the Reservation in one consistent style that is compatible with the historic character.
All existing benches should be removed, particularly bench types 2 and 3 as described in Chapter 3. New benches in a consistent style should be sited around the outside of the inner pathway at regular intervals and at important view and vista points. It is recommended that the new bench be of an historic style while still easily maintainable and vandal-resistant. See the Site Treatment Recommendations Plan for all proposed locations for new benches.

All new benches should be inspected on an annual basis to check for any needed repairs and/or repainting. The DCR should also explore a bench donation program similar to other bench donor programs coordinated by other jurisdictions.

e. Trash Receptacles

Recommendation: Place trash receptacles at appropriate areas throughout the Reservation when staffing levels increase.
The number of trash receptacle must be directly related to the ability of staff to service them. Under existing staffing levels, the existing number of trash receptacles should remain in place. But once staffing levels increase there should be a trash receptacle at every pedestrian gateway, at the two entrances to the Reilly Memorial Pool and Rink, and at Gatehouse #1 if it is open for public use.

f. Playground

Recommendation: Remove the remainder of the 1977 playground and conduct a study on the need for a replacement playground.
The stone mound, benches, and fence should be removed to eliminate public safety hazards. The grates should be removed from the trees. Graffiti on the retaining wall should be removed and the wall repaired and repointed as needed.

DCR should analyze appropriate locations, types of suitable play equipment, size, costs, and maintenance requirements for a possible future play area at the Chestnut Hill Reservation.

g. Signage

Recommendation: Install appropriate informational signage at pedestrian gateways.
Typical informational signage will be a listing of the properties rules and regulations and property map. The map should indicate distances along major paths. Signage should also indicate the location and direction to the future Waterworks development museum.

Recommendation: Install interpretive signage in coordination with the Waterworks museum.
There is potential to develop an interpretive program in coordination with the future museum at the Waterworks development. Interpretive material relating to the development and function of the Reservoir and waterworks can be available at the museum with coordinating interpretive signs on site. The recommendations of this RMP also include developing a outdoor exhibit, with the restoration of the dam structure from Gatehouse #1 to west of Gatehouse #2. In this and other areas of the Reservation, interpretive signs could relate back to educational information displayed and distributed by the museum. Signage must be consistent with DCR graphic standards.

h. Overflow pipe

Recommendation: Improve the visual appearance of the dam overflow pipe and headwall.
Simple measures should be taken to minimize the visual impact of this area including the stabilization and reseeding of eroded areas and painting the pipe and

concrete headwall a green or black color. This effort would require coordination and approval from the MWRA.

Management Resources Recommendations

1. Recreational Uses

Recommendation: Pursue water-based recreation on the Reservoir as an appropriate recreational use.
There is the potential, based upon MWRA and other regulatory and public review, to develop a recreation program that takes advantage of the open water resource of the Reservoir. Such a program would ideally be based out of Gatehouse #1 in conjunction with its re-use strategy.

Some issues to be considered are:

- Staffing;
- Impacts on public access to Gatehouse #1;
- Whether the facility should be a private concession or solely operated by the DCR;
- Storage needs for equipment and boats, particularly during the off-season;
- Days and hours of operation; beginning and end of season.

Recommendation: Establish a bicycle policy in the Reservation, including designated routes.
DCR does not currently limit the use of bicycles in the Reservation. Regulations may be put in place that restricts bicycle use to the paved paths to prevent damage to the landscape areas. DCR should monitor the impact of bicycles on the perimeter pathway and restrict this use if it is determined to have an adverse impact on the stonedust path surface or safe pedestrian circulation. Along with this bicycle policy, bicycle racks should be installed at the Reilly Memorial Pool and Rink and below Gatehouse #1.

Recommendation: Develop site map showing primary pathways, distances, egress and access points, and other points of orientation, including parking and MBTA train and bus stations.
These site maps should easily understood by the typical Reservation visitor and be posted at all pedestrian gateways. The DCR should coordinate with the future Waterworks Museum in the installation of any site interpretive signs. Signage should be historically appropriate and sensitive to the natural aesthetic of the Reservation and consistent with DCR graphic standards.

Recommendation: Monitor any negative impact from recreational activities.
If bicycles or other recreational uses create any negative impact, additional rules and restrictions should be considered by the DCR. Running events would be considered for Chestnut Hill Reservation provided they are approved by Division of Urban Parks and Recreation (DUPR) staff and a DCR permit is granted. DCR and the MWRA should monitor for uncontrolled pedestrian access along the raised dam structure once the fence is removed.

2. Reilly Memorial Pool and Rink

Recommendation: Develop provisions for the use of the Reilly Memorial Pool and Rink by a lessee including landscape maintenance responsibilities, parking and access requirements.
Use of the Pool and Rink should not adversely affect use of the larger Reservation lands.[10]

3. Surrounding Land Uses and Property Issues

Recommendation: Review the conditions of 99-year lease agreement from the City of Boston for 17.55-acre driveway parcel and negotiate gift of fee interest from the City.
It is likely that any change in the status of the 99-year lease parcel would be subject to both local and state review.

Recommendation: Consult with DCR Legal Services regarding the use of the area north of the Chestnut Hill Driveway by the Commonwealth Avenue apartments.
Currently this area has picnic tables and other site furnishings installed by the Commonwealth Avenue apartments. As a result, this area visually appears to be part of the apartment property although it is officially public land. DCR should regain control and maintenance of this area.

Recommendation: Physically define the current property line by cornerstones, blazes, or other simple boundary indicators, especially on the north side of the Reservation behind the Commonwealth Avenue apartments and Ward Street houses.

For maintenance reasons, the DCR should physically indicate the property line of the Reservation. DCR should monitor the boundary line regularly to check for encroachment or unauthorized use or access.

Recommendation: Negotiate a formal agreement with the Community Gardens.
The agreement should be structured to resolve issues of maintenance, public benefit, liability and access, including Garden Club membership requirements. Such an agreement should be consistent with those in place for the community gardens at other DCR facilities.

4. Operations and Maintenance

Recommendation: Continue and strive to enhance the typical maintenance activities within the reservation.
This would include mowing, vegetation management, street sweeping, snow removal, and repairs to existing site structures, paths, roads, utilities, and furnishings. The enhancement of these maintenance activities will require the addition of DCR staff as well as additional funding for equipment. Chapter 7 outlines a process for reservation operations including increased management levels, maintenance zones, partnership opportunities, and operational costs.

Recommendation: Prepare a program for the on-going monitoring of site vegetation.
This proposed program would be developed for the short- and long-term assessment of the health and sustainability of existing and new trees, shrubs, grasses and other plants. This will include monitoring for diseases, insect problems, hazardous vegetation, invasives, and capability with the goals and vision for the Reservation. The vegetation management plan will serve as a guide for dealing with vegetation issues as they arise.

Recommendation: Create formal maintenance agreement between Evergreen Cemetery and DCR for land alongside Saint Thomas More Road.
Land adjacent to the Cemetery on Saint Thomas More Road is currently maintained by the Cemetery (Boston Parks and Recreation). This arrangement should be formalized in a maintenance agreement to allow for continued Cemetery maintenance.

Recommendation: Create formal maintenance agreement between Boston College and DCR for land alongside Saint Thomas More Road.
Land adjacent to Boston College on Saint Thomas More Road is currently maintained by the College. This arrangement should be formalized in a maintenance agreement to allow for continued existing College maintenance.

Figure 5.18: Land along Saint Thomas More Road (2006)

Recommendation: Clean out and maintain effective function of the existing catch basins in the swale adjacent the pathway and along Beacon Street in the southwestern part of the Reservation.
The condition of these catchbasins is not known as they were not evaluated as part of the RMP. However, there is significant erosion and water puddling in the swale and along the adjacent pathway. To ensure that future problems do not arise in this area, the catchbasins should be monitored and cleaned out on a regular basis.

Recommendation: Maintain swale adjacent the pathway and along Beacon Street in the southwestern part of the Reservation clear of obstructions and dense vegetation.
Regular mowing and clearing of any volunteer woody vegetation in the swale will assist in maintaining the functionality of the catchbasins.

Recommendation: Continue DCR's current practice of snow removal.
Snow removal should continue on city sidewalks abutting the Reservation, DCR roadways, and a portion of the existing Reservoir pathway along Beacon Street where no sidewalk exists. After the proposed 6 foot wide bituminous concrete path and 4 foot wide stonedust path are installed as detailed in the Pedestrian Circulation

section, only the bituminous concrete path should be snow plowed. Snow removal along the full length of the Reservoir perimeter pathway is not recommended as the pathway has been, and was historically, a soft surface which is not suitable for plowing.

During the course of preparing this RMP, it was determined that the snow emergency restrictions along Chestnut Hill Driveway do not apply to the parking area. Those signs will be removed. However, without the parking restriction, responsibility for snow removal will fall upon the users of the parking area.

DCR should continue to work with the City of Boston to insure that city sidewalks are maintained during snow events.

5. Park Staff

See Chapter 7 for recommendations on management levels, staffing, and associated costs.

Recommendation: Develop interpretive programs and guided walks that supplement other patrols and increase visibility of staff.
Additional interpretive staff or partnership with a private group will be required to achieve this recommendation. This program should be developed in conjunction with the future Waterworks museum.

6. Law Enforcement

Recommendation: Coordinate existing patrols by various law enforcement agencies to establish regular patrol and increased visibility of security personnel.
This may require a formal agreement between the DCR Park Rangers, State Police, Boston Police, and possibly Boston College Police.

Recommendation: Establish a ParkWatch pilot program to assist the DCR in maintenance and safety issues.
This program will enhance training for park partners, public education, and park signage. The District Ranger would coordinate implementation of this recommendation.

7. Regulations

Recommendation: The DCR needs to promote and enforce regulations regarding dogs in the Reservation and make policies clear for park users and enforcement personnel.
The dog regulations should be clearly posted on signs at all pedestrian gateways. DCR rangers and State Police should enforce the leashed dog regulation which is already in place.

Recommendation: The State Police should continue to enforce the "No Parking" on the Chestnut Hill Driveway, Saint Thomas More Road, and reservation lands during Boston College home football games and other intensive use events.
Enforcement should contain provisions for protection of landscaped areas from vehicular parking at Chestnut Hill Driveway and Saint Thomas More Road.

Recommendation: Enforce traffic rules and regulations on roads within the reservation.
The DCR Rangers and State Police, with assistance from Boston Police, should actively enforce traffic rules and speed limits on Saint Thomas More Road and the Chestnut Hill Driveway.

Recommendations for Further Study

Upon the adoption of this Resource Management Plan, DCR should pursue additional plans that build on the findings and recommendations in this document. They include (not in priority order):

1. Landscape treatment plan with detailed recommendations for new planting, pathway, site furnishings, and site features design;
2. Interpretive and sign plan (coordinated with future Waterworks Museum);
3. Gatehouse #1 rehabilitation plan;
4. Landscape design for the area around the Reilly Memorial Pool and Rink;
5. Landscape design for the area between Gatehouse #1 and the Reilly Memorial Pool and Rink. Such design can include;

- Rehabilitation of the loop drive and reconstruction of the missing fountain in the historic courtyard area;
- Addition of new parking for the Reservation including handicapped parking;
- Universally accessible pedestrian access into the Reservation and to/from the parking area, Gatehouse #1 and the Reilly Memorial Pool and Rink;

- Landscaping and vegetative screening of the Reilly Memorial Pool and Rink from Gatehouse #1;

6. Landscape design and detailed maintenance plan for the area behind the Rink/Pool;
7. Update/amend the National Register and Boston Landmarks nominations to clearly define the boundaries of the historic property and address potential secondary historic contexts and periods of significance;
8. Coordination with City of Boston on crosswalks, street lighting, and public parking;
9. Analysis of play equipment needs and seating requirements.

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[1] Charles Birnbaum and Chris Capella Peters. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes.* (Washington, D.C.: National Park Service, 1996), 6.

[2] Robert Page, Cathy Gilbert and Susan Dolan. *A Guide to Cultural Landscape Reports* (Washington, D.C.: National Park Service,), 81.

[3] Birnbaum and Capella Peters, Guidelines, p. 90.

[4] MA Division of Fish and Wildlife, 1990.

[5] Blossey, 2001; Blossey and Schroeder 1995.

[6] Chemical applications for invasive species control may require an Order of Conditions from the Boston Conservation Commission and should meet DCR integrated pest management (IPM) policies.

[7] Blossey, 2001; Blossey and Schroeder 1995.

[8] LEC personal communication with MA Division of Fisheries and Wildlife.

[9] The original historic fountain was relocated by the MDC in 1977 and is now part of the Waterworks development. The original fountain is now owned by the Waterworks development thus a new fountain to match the original fountain design will need to be constructed.

[10] The RMP does not make any recommendations regarding the internal operations of the Reilly Memorial Pool and Rink.

Chapter 6

IMPLEMENTATION STRATEGY AND PRIORITIES

Figure 6.1: The reuse of Gatehouse #1 including rehabilitation of the adjacent entry area is a high priority for implementation.

Introduction

The recommendations outlined in Chapter 5 present the capital improvements and management actions needed to meet a broad range of objectives from health and safety to enhancing visitor use and historic character. This section of the RMP provides a focused strategy for these improvements by defining priorities, associated costs, and the recommended method for implementation. This implementation strategy is based on the analysis of existing site management and site conditions, public comment, situations necessitating immediate attention, and the needs of the DCR, as well as, reflecting the goals and objectives of this RMP. Public safety and protection of critical, threatened resources is a higher priority than enhancement activities such as adaptive reuse, although both are essential to the successful management of the reservation.

The following are the Implementation Strategy and Priorities for capital improvements and management recommendations.

Recommended Capital Improvements Implementation Strategy and Priorities

During the RMP process, capital improvements priorities were established in conjunction with the DCR and through community input with an advisory group and at public meetings. There are three categories, with the proposed improvements focusing on protecting the integrity of historic resources, resolving the public safety issues, restoring and enhancing prime natural resources of the park, and enhancing visitor use. In addition, issues of improving universal accessibility, of addressing natural systems sustainability, and of reducing of maintenance requirements are contained within these priorities. The categories are:

High Priority: These items are immediate priorities and are typically related to issues of public health, safety, and welfare including structural stability of features that should be corrected in the near future and if left uncorrected would lead to a permanent loss of an important historic resource or would impact the safety of the public. The need to repair deteriorating infrastructure and restore the visual and historic character of the Reservation can also be considered as high priority. These immediate items should be addressed first, and funds should be found to accomplish this work. Some of the high priority work can be accomplished as early action projects or projects that could be completed by “in-house” personnel or volunteers closely supervised by DCR personnel.

Medium Priority: These items are classified as needing immediate attention, but which could be delayed for three to five years. Medium priority improvement may also relate to any one of the following situations:

- The security of the site is in question, but is not judged to lead to accelerated loss of an important historic resource;
- Lack of repair or attention to a particular item would accelerate damage and lead to far more extensive costs;
- The life of the feature is not expected to exceed three to five years in its present state;
- Lack of repair or replacement would detract significantly from the site's appearance; or
- Lack of repair or restoration could lead to some loss of historic detail, material, or finish.

Low Priority: These items require future attention, which means that they can be delayed for at least five years. When addressed in the future they are cosmetic repairs or other improvements whose delay will not affect site security or appearance, or result in the loss of historic resources. Some of these items will require increased staffing and maintenance. Such items will only be put in place when resources allow.

Proposed improvements as described in Chapter 5 have been broken down into the three categories with an estimated cost. Many of these items could be considered flexible, since priorities could change if funding becomes available for certain types of projects immediately or in the future or if deterioration occurs sooner then anticipated. During the course of preparing this RMP, several high priority projects were recommended for implementation through funding from the Waterworks community benefits funds and the EOEA Office of Public Private Partnerships. They are removal of the 1928-1929 iron fence, pathway rehabilitation, vegetation management, and stone wall repair.

It should be noted that the following costs are for budgeting purposes only. These estimates reflect 2006 costs and assume a public bid process as required by the DCR under the public bid laws of the Commonwealth. Unforeseen circumstances such as increased labor and material costs as well as permitting and regulatory requirements may increase the final, actual costs. There are a number of projects, which could be handled by DCR "in-house" personnel with minimal outlay of capital costs. Some of these costs could also be reduced with selected services provided by volunteers under DCR supervision as well as directly by DCR staff. Since many of the projects are anticipated in the future and achieve long range goals, a factor for inflation has been omitted. A cost for the consultant's fee is also included for budgeting purposes, which is typically 10% of the construction cost. In addition construction costs include 10% for general conditions and a 20% contingency.

Potential DCR staff and DCR in-house projects and projects that could be carried out by existing DCR maintenance contracts are indicated with an asterisk (*****).

1. High Priority Category

Resolution of Public Health, Safety, and Welfare Issues and Historic Resource Protection

Item	Construction Cost	Consultant Fee
Stabilization and securing DCR managerial control of Gatehouse #1** ▪ Repair of roof and walls ▪ Filling of lower chamber	$350,000	$35,000
Repair reservoir perimeter path ▪ Repair existing stonedust paving and filling of depressions in dirt paths*	$25,000	$2,500
Remove entire 1928-1929 fence ▪ Permanently remove and stockpile fence sections (storage costs not included)	$45,000	$4,500
Hazardous tree management ▪ Removal of dead trees and pruning of hazardous branches*****	$30,000	$3,000
Remove the 1977 playground area, lights, and fencing; restore the landscape with grading, new plants, and grass as part of pathway redesign in this area	$50,000	$5,000

Item	Construction Cost	Consultant Fee
Repair stone wall along Chestnut Hill Avenue	$25,000	$2,500
Clean out and inspect catch basins *	$8,000	$800
Install benches throughout Reservation* **	$120,000	$12,000
Remove rumble strips and cobble crosswalks along Chestnut Hill Driveway; repave and install painted crosswalks	$78,000	$7,800
Pave pathways alongside the south side of Chestnut Hill Driveway ▪ 5' wide accessible bituminous concrete path	$115,000	$11,500
Repair of stone retaining walls along Chestnut Hill Driveway	$15,000	$1,500
Total High Priority Category Costs	**$861,000**	**$86,100**

* Potential item to be handled by DCR staff and through existing maintenance contracts

** The proposed stabilization and repair of Gatehouse #1 will require a negotiated agreement between the MWRA and DCR.

*** Potential for a memorial bench donation program. Typical bench material and installation cost is approximately $3000.

2. Medium Priority Category

Restoration and Enhancement of the Prime Historic and Natural Assets of the Park

Item	Construction Cost	Consultant Fee
Chestnut Hill Driveway Rehabilitation ▪ Replacement of existing street lights with new historic style lighting ▪ Repair and repave roadway ▪ Modification of parallel parking area ▪ New entry walls at Saint Thomas More Road ▪ Repair of existing Commonwealth Avenue entry walls ▪ New landscaping	$550,000	$55,000
Repave reservoir perimeter path ▪ Repair and repave stonedust path to 10 foot width around most of reservoir ▪ Install 4 foot side stonedust path and adjacent 6 foot wide bituminous concrete path between existing vehicular gates at southwest corner of Reservation	$215,000	$21,500
Landscape improvements and vista clearing ▪ General tree pruning and forestry management* ▪ Upland invasive plant removal/control* ▪ Shoreline invasive plant removal/control* ▪ Repair of eroded areas along dam* ▪ Understory clearing for vistas*	$225,000	$22,500
Total Medium Priority Category Costs:	**$990,000**	**$99,000**

* Potential item to be handled by DCR staff and through existing maintenance contracts

3. Low Priority Category

Resource and Use Enhancement

Item	Construction Cost	Consultant Fee
Design and construct primary formal pedestrian gateways (4) ▪ Install new signage ▪ Landscape enhancement ▪ Install new trash receptacles ▪ Install dog-mitt stations	$75,000	7,500
Create new accessible path system in the area between the Reilly Memorial Pool and Rink and Commonwealth Avenue ▪ Removal of existing paths ▪ Grading ▪ Paving of new bituminous concrete paths ▪ Install benches ▪ Landscape repair and renovation, including overlook area at playground+	$182,000	$18,200
Re-use strategy for Gatehouse #1 and enhancements to surrounding areas** (Main Reservation Gateway) ▪ Restoration and enhancement of Gatehouse for re-use (including repair of doors and windows and restoration of historic cupola) ▪ Rehabilitation of landscape and drive below Gatehouse ▪ Restore stone walls and steps	$900,000	$90,000
Remove existing street lights along Saint Thomas More Road and replace with historically appropriate lights	$200,000	$20,000
Install new general site amenities and landscape enhancements ▪ Install street trees on the Reservoir side of Saint Thomas More Road ▪ Plant tree and understory vegetation in the southwestern part of the Reservation ▪ New plantings throughout site ▪ Renovate grass areas* ▪ Install bike racks ▪ Interpretive panels ▪ Visual improvement to the dam overflow structure (subject to MWRA approval)	$300,000	$30,000
Site work and landscape renovation around Reilly Memorial Pool & Rink	$100,000	$10,000
Create new woodland path system between Chestnut Hill Driveway and the reservoir perimeter pathway including selective clearing of vegetation*	$10,000	$1,000
Total Low Priority Category Costs	**$1,767,000**	**$176,700**

* Potential item to be handled by DCR staff and through existing maintenance contracts

** The proposed re-use strategy of Gatehouse #1 requires a negotiated agreement between the MWRA and DCR.

+ If further analysis determines a need for a new playground, estimated construction costs are $150,000-$175,000

Summary

Priority	Construction Cost	Consultant Fee
High Priority Category	$861,000	$86,100
Medium Priority Category	$990,000	$99,000
Low Priority Category	$1,767,000	$176,700
Total for all priority categories:	**$3,618,000**	**$361,800**

Five-Year Capital Program

One of the goals of the RMP is to address a proposed set of projects for the site that can be implemented over a Five-Year Capital Program. Although a specific construction budget can not be actually finalized, the RMP proposes a total construction budget of $3,618,000 for the Five-Year Capital Plan. Below is a breakdown of the amount budgeted for each year including the amounts to be budgeted for the consultant's /design fee.

Fiscal Year/Early Action Items	Construction Cost	Consultant Fee
Year 1	$700,000	$70,000
Year 2	$700,000	$70,000
Year 3	$700,000	$70,000
Year 4	$700,000	$70,000
Year 5	$818,000	$81,800
Total for five years:	$3,618,000	$361,800

Early Action Project

DCR's contract with the consultant to complete the Resource Management Plan also included an allowance to cover design services related to implementation of an Early Action Project, to be determined by the RMP process. This early action project was intended to facilitate visible improvements to the Reservation, raising public interest and possible funding for future improvements.

There were several EAPs considered during the RMP process and presented to the Working Group and the public for their comment. They were treatment of the 1928-1929 fence[1], repaving reservoir perimeter path to 10' width, hazardous tree management, and the development of a vegetation management plan.

Input from the Working Group and the general public strongly supported the creation of a Vegetation Management Plan to supplement the RMP, and the consultant was directed to develop the VMP on a parallel track with the RMP. Special concern was expressed about the quality and quantity of existing vegetation management in the Reservation since it was acquired by the MDC [DCR]. The Vegetation Management Plan will provide a manual for the DCR to preserve the historic character of the site, protect and enhance wildlife habitat, insure public access and safety, enhance the native vegetation and remove invasive species, remove hazard

trees and large dead branches in pedestrian areas, vista clearing and maintenance, recommended plantings, and to promote soil and water quality. The Plan will also include specific planting recommendations for key areas of the Reservation especially the area below the Chestnut Hill Driveway overlook.

Other EAPs identified in the plan remain High Priority actions in the Resource Management Plan, but are not being implemented as part of the RMP contract.

Management Recommendations Implementation Strategy and Priorities

In addition to the capital improvements, there are management recommendations which are essential for the protection, preservation, and improvement of Reservation's resources. These management recommendations were detailed in Chapter 5. The following represents a strategy for implementing the management recommendations based on the high, medium, and low priority categories.

1. High Priority Category

- Develop site map showing primary pathways, distances, egress and access points, and other points of orientation, including parking and MBTA train and bus stations.
- Monitor any negative impact from recreational activities including pedestrian access along the dam following the removal of the fence.
- Consult with DCR Legal Services regarding the use of the area north of the Chestnut Hill Driveway by the Commonwealth Avenue apartments.
- Physically define the current property line by cornerstones, blazes, or other simple boundary indicators, especially on the north side of the Reservation behind the Commonwealth Avenue apartments and Ward Street houses.
- Create partnerships for capital, operating, maintenance and programming opportunities.
- Negotiate a formal agreement with the Community Gardens.
- Continue and strive to enhance the typical maintenance activities within the reservation.
- Conduct playground feasibility analysis.
- Clean out and maintain effective function of the existing catch basins in the swale adjacent the pathway and along Beacon Street in the southwestern part of the Reservation.
- Maintain swale adjacent the pathway and along Beacon Street in the southwestern part of the Reservation clear of obstructions and dense vegetation.
- Continue DCR's current practice of snow removal.
- Coordinate existing patrols by various law enforcement agencies to establish regular patrol and increased visibility of security personnel.
- Establish a Park Watch pilot program to assist the DCR in maintenance and safety issues.
- The DCR needs to enforce regulations regarding dogs in the Reservation and make policies clear for park users and enforcement personnel.
- The State Police should continue to enforce the "No Parking" on the Chestnut Hill Driveway, Saint Thomas More Road, and reservation lands during Boston College home football games.
- Enforce traffic rules and regulations on roads within the reservation.

2. Medium Priority Category

- Prepare a program for the on-going monitoring of site vegetation.
- Create formal maintenance agreement between Evergreen Cemetery and DCR for land alongside Saint Thomas More Road.
- Create formal maintenance agreement between Boston College and DCR for land alongside Saint Thomas More Road.

3. Low Priority Category

- Develop provisions for the use of the Reilly Memorial Pool and Rink by a lessee including landscape maintenance responsibilities, parking and access requirements.
- Pursue water-based recreation on the Reservoir as an appropriate recreational use.

- Establish a bicycle policy in the Reservation, including designated routes.
- Review the conditions of 99-year lease agreement from the City of Boston for 17.55-acre driveway parcel and negotiate gift of fee interest from the City.
- Develop interpretive programs and guided walks that supplement other patrols and increase visibility of staff.

[1] In the Draft RMP, the recommendation was to repair and partially remove the 1928-1929 fence. Based on public comment, the recommendation in this Final RMP is to completely remove the 1928-1929 fence. See Appendix B for additional information.

Chapter 7
OPERATIONS PLAN

Figure 7.1: Mown open space at Chestnut Hill Driveway and Saint Thomas More Road (2005)

Introduction

This RMP has outlined the existing management resources at Chestnut Hill Reservation, including the types of users, variety of use, park infrastructure, personnel, and other resources supporting the management of the park. Resources and staffing vary from year to year and from season to season. Seasonal staff assignments are made in the spring, but may not provide adequate personnel to implement the recommendations of this RMP.

The purpose of this Operations Plan is to identify the resources needed to manage Chestnut Hill Reservation. The RMP proposes looking at a multiple tiered Operations Plan:

- **Level 1:** Maintaining the reservation mostly as it is done currently;
- **Level 2:** Developing a more intense operation through the addition of 1 or 2 full time staff; and
- **Level 3:** Developing intense operations such as a full-time ranger; and/or multiple full time and part time staff.

DCR Management Structure

The Department of Conservation and Recreation manages recreational facilities that fall under the Division of State Parks and Recreation and the Division of Urban Parks and Recreation. Within each division are smaller management units such as regions and districts. Chestnut Hill Reservation falls under the Urban Parks, South Region and is contained within the West District. This district includes such parks as Cutler Park (Needham), Wilson Mountain (Dedham), Hammond Pond Reservation (Newton), Veterans Memorial Pool (Waltham), Elm Bank Reservation (Dover/Wellesley), and Lost Pond (Brookline). A more detailed listing of all facilities in this district is in Chapter 3. The management for this area is based out of the West District office located at 12 Brainard Street in Hyde Park.

It is important to note that the assignment of staff and allocation of resources (funding, materials, etc.) is based on regional management priorities. With the current levels of regional staffing and funding less than sufficient to support all of the facilities within the region, management decisions are often based on levels of visitation, recreational use (swimming and camping vs. walking), and public safety. Chestnut Hill Reservation is a relatively small park, offering primarily passive recreation, which results in a low priority for staffing and funding. Although the Reilly Pool is staffed during the swimming season, staff are assigned to the pool only and do not provide services to the Reservation as a whole.

Management Levels and Associated Costs

1. Level 1 - Baseline

Level 1 management is the management of the facility in its current condition, with no change to the visitor experience. At Chestnut Hill Reservation this includes walking and running on existing pathways, passive birding and arts enjoyment, and no programmed interpretive services or regular daily presence of DCR personnel. At a minimum, seasonal maintenance includes lawn mowing, vegetation control and trash pick-up (at least weekly).

In the current system of regional/district allocation of staff and resources, there is no dedicated full time staff or guaranteed seasonal staff for the Reservation; so the existing staffing does not support the Level 1 management of the Reservation. The FY 2005 level of staffing is the minimum required to achieve this goal.

Level 1 Staffing

Number	Staff description	Time
1 (District)	Park Supervisor	Year Round
1 (District)	Park Ranger	Year round
1 long-term	Seasonal Forest & Parks Supervisor I	May 15 to Oct. 31 (24 wks)
1 short-term	Seasonal Laborer	Memorial Day to Labor Day (14wks)
2 short-term	summer workers	12 weeks of work

2. Level 2 – Improved

Under the level 2 management of Chestnut Hill Reservation, DCR staff work toward recapturing the character of the historic landscape. With a guarantee of qualified seasonal or short term staff, the Park Supervisor could plan annual projects to address the recommendations of this RMP. Annual efforts could as an example include pathway surface repairs, vista management, invasive plant control, and limited planting.

To achieve Level 2 management, skilled seasonal staff must be assigned to Chestnut Hill Reservation every year. The Park Supervisor or District Supervisor must be informed of seasonal assignments well in advance to allow time for planning projects, obtaining supplies, and scheduling equipment.

Level 2 Staffing

Number	Staff description	Time
1 (District)	Park Supervisor	Year round
1 (District)	Park Ranger	Year round
1 Full time	Forest & Parks Supervisor I	Year round
2 Long-term	Seasonal Forest & Parks Supervisor I	April 1 to October 31 (26 wks)
2 Short-term	Seasonal Laborer	Memorial Day to Labor Day (14wks)

3. Level 3 - Enhanced

Chestnut Hill Reservation is a popular recreational landscape with great potential to showcase historic resources, as well as, educate the public. Once baseline management is mastered, DCR could strive toward creating an urban gem at Chestnut Hill Reservation, with visitor services/experiences on par with the significance

of the parks' unique historic features. Referring to Chapter 5, a capital program focusing on the adaptive reuse of historic Gatehouse #1 would establish a contact point for visitors; create opportunities for interpretation, and possible partnership with local organizations. In addition, the restoration of Chestnut Hill Driveway could recapture parkland, restore and retain historic views, and recreate the driveway experience, so integral to the original concept of the park. This level of management is dependent on the implementation of a number of capital improvements along with an increase in year-round staff; specifically a dedicated Interpretive Ranger, as well as, additional staff to maintain paths, staff Gatehouse #1, and to develop and implement the interpretive programs.

Level 3 Staffing

Number	Staff description	Time
1 (District)	Park Supervisor	Year round
1 (District)	Park Ranger	Year round
1 Full time	Forest & Parks Supervisor I	Year round
1 Full time	Laborer I	Year round
2 long-term	Seasonal Forest & Parks Supervisor I	April 1 to October 31 (26 wks)
3 short-term	Seasonal Laborer	Memorial Day to Labor Day (14wks)
1 short-term	Interpretive Ranger	Memorial Day to Labor Day (14 wks)

Maintenance Zones

The RMP organized the site into geographic maintenance zones based on the character of the area and the tasks required in each zone. Five of these zones are currently maintained by DCR and two are currently maintained by others. Refer to the Maintenance Plan in Appendix F for the boundaries of the maintenance zones. Zones currently maintained by DCR:

Zone 1 Mown Lawn
Zone 2 Trees over grass
Zone 3 Woodland
Zone 4 Reilly Memorial Pool and Rink
Zone 5 Edge of water

Zones currently maintained by others:

Zone 6 Saint Thomas More Road edge at Boston College/Evergreen Cemetery
Zone 7 Chestnut Hill Reservoir Community Gardens

Each geographic zone area could require a variety of maintenance tasks such as mowing and trimming, mulching beds and weeding, litter removal, tree and shrub maintenance, removal of invasive species, graffiti removal, reporting of current conditions, debris and trash clean up, and maintenance of pathways, sidewalks, and parking areas. The densely wooded area north of Chestnut Hill Driveway and bordering Wade Street and Evergreen Cemetery should be managed as a buffer zone protecting and enhancing the Reservation.

The following maintenance tasks are recommended to maintain Chestnut Hill Reservation. The work of the in-house crews may be supplemented by specialized work under DCR maintenance contracts (i.e. arborist services).

- **General Maintenance**
  - Mowing (lawn and open areas)
  - Watering
  - Weeding
  - Soil testing
  - Trash barrel pick-up
  - Debris clean up
  - Fall leaf collection
  - Snow removal
  - Sweeping pathways, roadways, and parking areas
  - Graffiti removal
  - Special events

- **Horticulture**
  - Prune and trim shrubs

- Special planting projects
- Ornamental pruning of small trees
- Weeding and plant identification
- Watering all newly planted areas
- Fertilize trees and shrubs
- Install/replace shrubs
- Seasonal beautification
- Mulching plant beds
- Insect control

- **Structure**
  - Repair, paint fencing
  - Repair, paint benches
  - Repair, paint wood trim on Gatehouse #1 (if under DCR control)
  - Masonry wall and pathway improvements
  - Maintenance of signage
  - Graffiti removal and masonry cleaning

- **Forestry (Zone 2 & 3 only)**
  - Tree and stump removal
  - Structural and safety pruning
  - Tree trunk protection
  - Tree replacements
  - Fertilize tree areas
  - Pest and insect control
  - Tree tagging and installation
  - Emergency tree response
  - Removal of invasive vegetation

General maintenance standards for specific tasks (turf, woodland, etc.) are included in Appendix E.

Maintenance Agreements

Both Boston College and the City of Boston currently provide maintenance services along Saint Thomas More Road. If a formal maintenance agreement can be negotiated between the parties, these partnerships could decrease demands on park staff and facilitate good management of the Reservation as a whole.

Operational Costs

Because DCR does not maintain a separate operational budget for Chestnut Hill Reservation, maintenance costs are difficult to measure. The 1999 *Maintenance Plan for the Muddy River Parks of the Emerald Necklace, Muddy Rivers Restoration Project* outlined a prototype methodology for calculating costs based on maintenance programs at the Arnold Arboretum, Prospect Park in Brooklyn and other prominent historic parks. If this methodology were applied to Chestnut Hill Reservation, maintenance costs would range from approximately $70,000 for Level 1, $105,000 at Level 2 to $140,000 for Level 3. More information on this methodology can be found in Appendix E.

Capital Costs

Capital costs are included in Chapter 6 Implementation Plan.

Memorial and Commemorative Gifts DCR Reservations

DCR is developing a policy on Memorial and Commemorative Gifts in its parks. The policy is now under review by the Executive Office of Environmental Affairs.

Park Event Permitting

Certain uses of DCR parkland require a permit, including reserving parkland for a special use; sporting events, concerts, road races, walk-a-thons, outings and charity events, and any commercial activity on DCR parkland (which may also require a license). There are four different types of DCR park permits – Recreational Use Permit, Special Use Permit, Permit Agreement, and License Agreement.

- **A Recreational Use permit** is for timed, daily or seasonal "intended" use such as a camping permit or skating rink ice rentals. These permits are requested and Issued at a DCR regional, district or facility office, with approximately 4,000 issued each year.

- **A Special Use Permit** is for one day to one year intermittent events. They are requested and issued at the Boston office and require liability insurance. They may also require labor reimbursement, trash cost reimbursement and various other permits from state, federal or local agencies. The following activities require Special Use Permits:

  - Small group outings with amplification, tents or amusements
  - Large group outings & special events
  - Charity events
  - Aquatic events
  - Parkway usage

  - DCR facility or equipment usage

- **A Permit Agreement** covers activities lasting 5 days or more and up to 5 years. Such agreements are subject to state procurement law and are solicited through the DCR's Boston office. Permit agreements require approval of the DCR Commissioner. The following activities require Permit Agreements:
  - Concessions
  - Transportation
  - Communication technology

- **License Agreements** can be issued for long and short term use of DCR parkland for sustained types of uses. Requested and issued through the Boston office, these agreements require approval from the DCR Commissioner and may be subject to public hearing. The following uses require License Agreement:
  - Boat houses
  - Utility occupancy

Other Agreements

DCR may also enter into a Memorandum of Understanding (MOU) or a Memorandum of Agreement (MOA) for activities related to Friends Groups, stewardship of land, and municipal and government agencies. MOUs and MOAs are issued by the DCR in Boston and require the approval from the DCR Commissioner.

For all other agreements at Chestnut Hill Reservation, the DCR Permit Program allows for specialized events. Because the park is a historic landscape, careful attention should be paid to the impacts of proposed activities on the landscape – specifically lawns, trees, and pathways. The Permit Program should include provisions for protection of resources during events and restoration of resources following events. The Program should also assess the need to include fees to offset costs of labor associated with resource protection.

Chapter 8
PARTNERSHIPS

Figure 8.1: Volunteers clearing invasive species (courtesy Eva Webster 2006)

Introduction

The creation of this Resource Management Plan would not have been possible without partnerships. The RMP is a direct result of the cooperative efforts of public and private organizations and individuals working together toward a common goal. The RMP was funded through a partnership among the Executive Office of Environmental Affairs (EOEA) Office of Public Private Partnerships (OPPP) and private contributions from Waterworks Park, LLC and Boston College. The RMP process was also enriched by the knowledge of an existing network of non-profit groups and individuals dedicated to protecting the quality of life in and around the Reservation.

Creating the plan is a new beginning for the Chestnut Hill Reservation. There is a clear role for partners in implementing the recommendations of this plan and in providing long-term stewardship of Chestnut Hill Reservation[i]. Like other great parks and the groups that support them - Prospect Park in Brooklyn; Piedmont Park in Atlanta; the Public Garden, Common, and Commonwealth Avenue in Boston; the Friends of Buttonwood Park, New Bedford; and the Charles River Conservancy in Boston and Cambridge - and public institutions like art museums and libraries, Chestnut Hill Reservation is worthy of private support to augment appropriate and adequate public funding.

The high level of public involvement in the development of this RMP sets the stage for public-private partnerships. This chapter outlines some of the ways that non-profit organizations, businesses, institutions and individuals can contribute to the preservation of this vital community resource.

Partnerships for Parks

In their 2000 publication *Public Parks, Private Partners: How Partnerships are Revitalizing Urban Parks* the Project for Public Spaces, Inc.[ii] identifies nine categories of activities undertaken by nonprofit organizations in their support for a park. The categories came from a survey of two dozen non-profit park organizations funded through the Wallace-Reader's Digest Funds. They are:

- Fundraising
- Organizing volunteers
- Design, planning and construction of capital improvements
- Marketing and public outreach
- Programming
- Advocacy
- Remedial Maintenance
- Routine Maintenance
- Security

These partnership activities often grow out of a master plan or other park plan (such as an RMP) and require

close coordination, communication and cooperation with park staff. The following are specific activities that a non-profit, volunteer, institutional or business partner may undertake to partner with DCR at Chestnut Hill Reservation.

Partnership Opportunities at Chestnut Hill Reservation

1. Fundraising

This RMP has revealed a substantial gap between the DCR public resources currently available for the management of Chestnut Hill Reservation, and the level of resources needed to maximize the public benefit of this important open space. Private supplemental financial support is always welcome from non profit groups. Park partners at Chestnut Hill can use their tax exempt status to solicit donations from individuals and large foundations to partner with DCR. Fundraising is always an excellent way to promote the park, raise awareness of parks needs and goals.

a. Annual Operating Costs

Donations can be collected in the Chestnut Hill Reservation account of the DCR Urban Trust, an account not tied to the fiscal year budget from which park managers can draw for purchases of supplies, equipment, and other needs, and can establish a maintenance endowment for a specific place. Following the $2+ million rehabilitation of the youth athletic fields at Teddy Ebersol's Red Sox Fields at Lederman Park on the Esplanade, Boston, through partnership among DCR, EOEA, The Red Sox Foundation, Hill House, and the Esplanade Association, the partners established a private endowment for its ongoing care to include private funds to augment DCR maintenance and operational monies. This protects the investment and insures the delivery of high quality public services into the future.

b. Capital Campaigns

Park partners can raise dedicated funds for a specific capital project identified in Chapter 7 of this RMP, or in the succeeding Vegetation Management Plan (VMP). Funds can be deposited into the CHR account of the DCR Urban Trust. A dollar-for-dollar match may also be available through the EOEA Office of Public Private Partnerships (OPPP) which solicits project proposals annually and provides state matching funds on a competitive basis to match non-state funds. See OPPP Program description later in this chapter.

c. Memorial Bench Program

One of the community's higher priorities for Chestnut Hill was the installation of benches, particularly around the inner pathway. The addition of new benches, as well as the relocation or replacement of existing benches, is a compelling goal for a bench donation program. Similar to the programs at Brookline Reservoir and MWRA's program at Deer Island, a Memorial Bench Program would identify a bench type and locations and solicit private donations to fund the installation. A small plaque can be attached to the back of the bench in recognition of the donor. The Esplanade Association and DCR have coordinated on a highly successful bench donation program for the historic Esplanade.

d. Grants

Non-profit partner organizations may be eligible for grant funding that would not traditionally be available to DCR. DCR staff are available to assist in the preparation of grant applications, developing projects scopes, and general technical assistance.

2. Organizing Volunteers

Organizing volunteers is a familiar and beneficial activity for non profit groups. At Chestnut Hill Reservation, there is great potential for volunteer partners to augment, but not replace, existing DCR staff with volunteers for maintenance, staffing events and development of programs. Volunteer events serve to build community stewardship and increase public involvement, benefiting both the park and the non profit.

a. Maintenance

At Chestnut Hill Reservation, volunteer groups have been successfully providing remedial maintenance including weeding and general park clean up. The successful use of volunteer crews depends on proper training and adequate professional supervision. DCR staff often work with skilled community volunteers to identify appropriate volunteer projects and to organize and monitor these activities. Organizing an annual spring-clean up can help to jump start the season and provide extra hands when the park staffing is limited prior to hiring of seasonal staff.

A non-profit group might also hire a volunteer coordinator who can provide skills training for volunteer

activities under the supervision of DCR staff. The Charles River Conservancy and the Esplanade Association both fund volunteer coordinators who bring other partners to DCR parks.

b. Events

Chestnut Hill Reservation is a very popular open space, and there may be increasing demand for special events. Park partners can help DCR fund, plan and market these events and provide extra personnel during these activities.

c. Programs (visitor education and outreach)

DCR's Rangers organize interpretive programs at Chestnut Hill Reservation each year. With support from park partners these programs can be expanded to run more frequently, or to include- more people. Non profit groups can also work with the DCR Rangers to create alternative curricula on ecology, history or engineering which can be implemented by both DCR staff and volunteer docents.

DCR has successfully partnered with Friends groups at the Boston Harbor Islands, Breakheart State Reservation and Neponset River Reservation for park programs.

3. Design, Planning and Ponstruction of Capital Improvements

This RMP outlines a number of priority capital needs. The budgeting, design and implementation of those projects will likely occur over many years. Just as the RMP process has been enhanced by public participation, so will the process of planning and designing capital improvements. DCR's park partners will be encouraged to bring the perspective of the neighbor, park user and open space advocate to project planning and construction. Whether through simple public meetings or through formal agreements for funding initial capital investment and maintenance endowments, park partners can play a role in capital projects.

4. Marketing and Public Outreach

The development of the RMP for Chestnut Hill Reservation has raised awareness of the park through public meetings and press coverage. Park partners can build on this momentum through a website, newsletters, and postings at the park. At Chestnut Hill these marketing efforts can serve to build partnerships among the many existing groups, bring in new members, and generally increase public involvement.

5. Programming

The Chestnut Hill Reservation park partners are park users, and have diverse ideas on how to create programs that effectively serve the park constituency. Partners working in close coordination with park rangers can identify themes for programs such as:

a. Recreation

Chestnut Hill Reservation has a large group of active walkers and joggers using the ~1.5 mile Reservoir path. This user base can be organized around a competitive race or charity walk. Non profits and other partners can help DCR develop these programs and provide supplemental staff during events.

b. Arts/Cultural Programming

Chestnut Hill Reservation does not currently have a formal performance space, and analysis shows that no new facilities for performances should be developed. If the Gatehouse #1 area is rehabilitated, the courtyard and steps could serve as a "stage." In addition, the Reservoir path might be suitable for "movable" performances or cultural activities similar to the annual Lantern Parade at Jamaica Pond. These types of cultural events can be replicated at Chestnut Hill Reservation, working through the DCR permit office to obtain a Special Permit.

c. Environmental Education

DCR's park partners have relationships to organizations and institutions that can provide educational programs on birds, plants, historic landscape, engineering and other topics at Chestnut Hill Reservation. The partners can be the liaison with the Commonwealth to bring these programs to the Reservation.

6. Advocacy

Non-profit groups, academic institutions, and park partners represent a broad constituency, whose combined voices can make a tremendous impact on the Reservation. Working with the media and elected and appointed leaders, non profits and neighborhood groups can promote the local perspective on park management, operational and capital needs, and increase awareness.

7. Remedial Maintenance

While many non-profit organizations are successful in raising awareness of capital needs and directing efforts toward specific projects, it is often the operational needs that are the most challenging. DCR's park partners can contribute toward regular maintenance at the Reservation in several ways.

a. Annual volunteer "clean up" day

As mentioned under "Organizing volunteers," volunteers can directly assist in the maintenance of Chestnut Hill Reservation.

b. Funding

Non profit organizations can raise funds to support the operations of Chestnut Hill Reservation. Contributions can be pooled into semi-annual donations to the Urban Trust. Park staff can then draw from the account for supplies, equipment and other needs.

c. Contracting for Services

In some cases, a park partner may have the capacity to support a contract for maintenance at Chestnut Hill Reservation. This might include mowing, path maintenance, and other cyclical maintenance activities.

8. Routine Maintenance

Currently routine maintenance at Chestnut Hill Reservation is the responsibility of DCR and MWRA as outlined in the 2002 joint agreement. However, there may be an opportunity to partner with surrounding institutions and property managers for lawn maintenance, trash removal, and other routine maintenance in abutting areas. There may also be an opportunity to create a reporting system by which park users can notify DCR of full trash receptacles, overgrown paths and other needs.

9. Security

At Chestnut Hill Reservation, visibility on pathways and clear entry and exit point have been identified as critical maintenance tasks, both of which will increase safety at the park. There are also programs in which park partners can participate to supplement security provided by DCR.

a. Park Watch Program

The Chestnut Hill RMP recommends the establishment of a Park Watch program at the reservation, through which volunteers would work cooperatively with park rangers and police to recognize and report suspicious activity in and around park areas. The program would be modeled after DCR programs already in place at Blue Hills Reservation and Stony Brook Reservation. This program is similar to the "Ambassador Program" initiated by the Piedmont Park Conservancy in Atlanta, GA. That program trained seasonal staff to greet visitors and report incidents via radio to a full time security guard. Both programs are intended to improve the public perception of safety through increased visibility of personnel.

Guidelines for Partnerships at Chestnut Hill Reservation

This Resource Management Plan provides a framework for future decision-making and capital investment at Chestnut Hill Reservation, whether undertaken by the Commonwealth or through public-private partnerships. It is important that the relationship between DCR and its park partners also take place within a mutually understood framework. For all partnerships, the DCR West District Manager shall serve as the liaison between park partners and DCR, and the following guidelines shall apply. These Guidelines for Partnerships follow the EOEA OPPP "Guiding Principles for Public Private Partnerships."

- Partnership activities shall be subject to approval by DCR, and park partners shall pursue approvals well in advance of any activity. DCR shall respond to all requests for approval of partnership activities in a timely manner, promptly issuing any permits or licenses necessary to plan and execute the approved activity.

- Partnership activities shall provide a public benefit consistent with the management goals of Chestnut Hill Reservation as outlined in the CHR Resource Management Plan.

- Partnership activities shall take into account protection of natural, cultural and recreation resources.

- Partnership activities shall be compatible with and enhance the resources of Chestnut Hill Reservation.

- Partnership activities that could potentially increase maintenance and operational responsibilities will be evaluated based on the park/district capacity. Proposals for such activities should include provisions for meeting increased maintenance needs.

- Partnership activities shall provide maximum public access, use and enjoyment, including universal access as outlined in the Americans with Disabilities Act (ADA).

- Partnership activities shall be consistent with existing park regulations.

- Partnership activities that promote public understanding of the history of Chestnut Hill Reservoir and the surrounding park landscape are encouraged.

- It is understood that partnership activities support DCR's management of Chestnut Hill Reservation and do not result in special access or ownership by private parties involved in the partnership.

1. Memorial Gift Policy

Projects involving donations under $5,000 to the DCR Urban or Conservation Trusts must comply with the DCR Memorial Gift Policy.

Waterworks Community Benefits Funds and the OPPP "Fix It First" Program

As per the Land Disposition Agreement (LDA) for the sale of the Waterworks property to the developer, the developer of Waterworks Park has set aside $900,000 of community benefit funds for improvements to the Reservation, which will be administered through the Boston Redevelopment Authority. These funds will be used to pay for the high priority capital projects identified in this RMP. In 2006 the Office of Public Private Partnerships provided $150,000 to CHR as a match to these private funds.

For each project, DCR will coordinate a public process to solicit input on the scope or design of the project. DCR will design and bid the project, then submit a funding request to the Boston Redevelopment Authority (BRA). The first phase of projects will include removal of the fence, pathway rehabilitation, and stone wall repairs.

[i] DCR is preparing a technical bulletin on public private partnerships. *Terra Firma 4: Public/Private Partnerships Preserving Historic Landscapes in Massachusetts* will be available at www.mass.gov/dcr in late 2006.

[ii] More information about Project for Public Spaces, including ordering information for *Public Parks, Private Partners* is available at www.pps.org . *Public Parks, Rrivate Partners*, Project for Public Spaces, New York, 2000

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List of Repositories Consulted and Outcome

1. City of Boston

a. Bostonian Society

Boston, MA

Housed in the Old State House, the Society has a museum collection of approximately 6,500 artifacts and works of art, including paintings, prints and drawings. There is also a library collection of some 7,000 books, 35,000 photographs, 2,000 architectural drawings, 400 maps, approximately 250 manuscript collections, ephemera, and scrapbooks. Librarian Holly Smith identified from the collection two photographs of the pumping stations, available online; and a small selection of other images, including three aerial photographs of the reservoir taken in 1923 by the Fairchild Aerial Camera Corporation: a view showing Commonwealth Ave from the reservoir and two views across the reservoir, one looking northward and one northeast.

b. Boston Public Library

Boston, MA

The municipal library contains over 6 million books and one million manuscripts and rare books. It may well contain images and other information about the reservoir.

c. Historic Burial Grounds Initiative

Boston, MA

Immediately adjacent to Chestnut Hill Reservoir, the Evergreen cemetery was established in 1850 and has been managed by the City of Boston since 1873. A preservation master plan was completed in 1999, elements of which appear in this report. Kelly Thomas of the City's Historic Burial Grounds Initiative reported that she had no further historic material on the cemetery.

2. Commonwealth of Massachusetts

a. Massachusetts State Archives

Boston, MA

This extensive collection preserves and makes available the records of the state government. It includes legislative, administrative, executive and judicial records, photographs, maps, and much genealogical information. Crucially it contains the archives of the Metropolitan District Commission and its predecessors: administration, real estate takings, waterworks, sewer construction and management, and parks engineering. As part of this, there is a significant collection of material on the Boston and Metropolitan Water Works, including correspondence, calculation books, Board minutes and diaries, Annual Reports, photographs, and a splendid set of some 7000 lantern slides and volumes of bound prints that date from 1895 to 1921. These include some 23 early images of Chestnut Hill. Unfortunately no substantial material prior to 1895 survives in the archives. Of the more recent material, some was transferred to the MWRA on its creation, and some of the rest is still being catalogued. Additional materials are also held by the Boston DCR office, including some 60,000 plans. Sean Fisher, DCR Archivist, provided invaluable help in identifying relevant information and images from the Archives for the production of this report.

b. Massachusetts Historical Commission

Boston, MA

The Historical Commission is the state agency responsible for the oversight and preservation of historic sites and homes in Massachusetts. Its collection includes copies of the MHC inventory and National Register nomination forms for the reservoir.

c. Massachusetts Water Resources Authority Library

Boston, MA

The MWRA Library holds a large collection of books, historical documents, reference materials and periodicals. It includes extensive further material on the Boston and Metropolitan Water Works, transferred from the MDC archives in the 1980s. The collection includes over 190 boxes of photographs, more than 97 boxes of Metropolitan Water Works papers (correspondence, contracts, files) and 100 boxes of reports. For Chestnut Hill, it has a set of the bound volumes of photographs taken between 1895 and 1921, and a number of MWRA reports written on the reservoir since 1985.

3. Boston College

a. Office of the University Historian

Boston, MA

This Jesuit university moved from its original location in the City's South End to a site adjacent to the reservoir in 1913 and, in 1949, acquired the surplus Lawrence Basin to create its new Lower Campus. It has some information and historical images of the reservoir on its website, including 15 aerial photographs. Dr Thomas H. O'Connor, University Historian, and Ed Copenhagen at the Burns Library offered help and advice for this report, including providing copies of the only known photographs of the iron fence from the 1930s.

b. Brighton-Allston Historical Society

Boston, MA

The BAHS has a collection of books, maps, articles, oral histories, census data, newspapers and 2,500 photographs, housed in the resource room at the Brighton Library. It proved a rich source of information and images for the RMP. The Society's curator William P. Marchione made available much secondary material, and provided scanned copies of some 50 relevant photographs/postcards held by the Society.

c. Brookline Historical Society

Brookline, MA

This is a non-profit community organization working to preserve and explain the town's history. It has a collection of over 100 historic postcards, of which seven are views of Chestnut Hill reservoir. Leah Walczak, curator of the Society, indicated that the staff is currently conducting a major inventory of its materials and so most are not yet catalogued (especially the photographs). She believes that anything else she does have on Chestnut Hill will relate to the buildings.

d. Chestnut Hill Reservoir Coalition

Boston, MA

Eva Webster, founder of this lobby group, provided information on the areas of research most likely to be of interest to the local communities.

e. Frederick Law Olmsted National Historic Site

Brookline MA

The Olmsted Archives contain nearly 1,000,000 original design records of the founder of American landscape architecture and the firm he established. The collection includes the 1887 diagram of the Chestnut Hill loop and five Olmsted Brothers plans from 1899 and 1900 of the design for the courtyard in front of the Low Service Pumping Station, the pipe yard layout and a proposed but never executed rerouting of Beacon Street.

f. Harvard University

Cambridge, MA

A search of the University's online catalogues revealed six potential sources of information specifically about Chestnut Hill, including a detailed gatehouse description and a 1930s photograph housed in the University's Archives. Unfortunately there was a 10-14 week wait to access material in the archives. There was also a small amount of correspondence about the Beacon Street elms in the Shurcliff papers at the Loeb Library Special Collections, and two maps (1869 and 1876) of park proposals in the Harvard Map Collection. There was also a good deal of published and

unpublished material about the metropolitan water works more widely, located at various of the university's libraries, including a large selection of state- and city-level government publications in the Littauer Library.

g. Historic New England (formerly the Society for the Preservation of New England Antiquities)

Boston, MA

This not-for-profit organization was founded in 1910 to collect and preserve buildings, places and objects of historical interest. Its Library and Archives contains more than one million items that document New England's architectural and cultural history. The collections comprise photographs, prints and engravings, architectural drawings, books, manuscripts, and ephemera. They contain a small sample of late nineteenth- and early twentieth-century photographs and postcards of the reservoir, some of which were used in the Boston Landmark Commission report, as well as some relevant maps and other published materials.

4. Library of Congress

a. Historic American Engineering Records (HAER) and Historic American Buildings Survey (HABS)

Washington D.C.

The only information about Chestnut Hill Reservoir in these two extensive collections of historical material focuses on the two pumping stations and the Leavitt engine contained in the High Service Pumping Station. An online search of the entire Library of Congress holdings revealed that the only other materials held are in the Olmsted Associate Records in the Manuscript Division. These are a handful letters relating to the Olmsted design for the courtyard in front of the Low Service Pumping Station and the adjacent pipe yard; and some discussion of the 1899 proposed rerouting of Beacon Street.

b. Massachusetts Historical Society

Boston, MA

Founded in 1791, the MHS is a research library and manuscript repository housing millions of documents and artifacts relating to the history of the state and, especially from the eighteenth century, the history of the country. Its collection includes 38 state and city pamphlets on the Boston water supply from 1859 – 1872.

4. Newton Historical Society

a. Newton History Museum at the Jackson Homestead

Newton, MA

Part of the Chestnut Hill reservoir lay within the Newton City limits until 1875. The Newton Historical Society, a department of the City of Newton, has an extensive library and research collection on local history, unfortunately much of it un-catalogued. Archivist Susan Abele reported that the collection includes an 1855 Map of Newton, showing part of the future site of the reservoir; an 1866 detail of a Boston map, showing the reservoirs; an 1874 City of Newton Atlas that shows the reservoirs and abutters property; one post card view of the reservoir with a small pump house; and the undated photograph of the Amos Lawrence farm next to the reservoir.

b. Preservation Mass (formerly Historic Massachusetts Inc.)

Boston, MA

Contact with Elsa Fitzgerald, Special Projects Manager, in February 2005 indicated that this statewide non-profit organization (which is dedicated to preserving the Commonwealth's historic and cultural heritage) holds no significant historic material on the reservoir.