he Master Plan comprises four elements: guiding principles, goals, existing conditions, and recommendations.

Guiding principles were derived from the ideas of the Basin founders and from discussions with hundreds of Basin users and park managers. *Goals* reflect the Basin's five interrelated systems—the historic landscape, the natu-

ral landscape, the river, the parks, and the parkways and paths. Subcommittees of the citizens advisory committee, organized around these systems, helped to develop *goals* for each of them.

The discussion of *existing conditions* and issues facing the Basin is organized by resource type—the river itself; river features and structures (banks, seawalls, landings, canals, and dams); parklands and pathways; parkland structures (foot bridges, boat and bath houses, pools, athletic fields, performance structures, monuments, and maintenance facilities);

and parkways and vehicular bridges. *Recommendations* follow within each section. (More detailed descriptions of each project area and recommended improvements appear in the "Project Areas" section on page 89.)

GUIDING PRINCIPLES FOR THE CHARLES RIVER BASIN

The broad ideas that inspired the original design of the Basin should continue to provide guidance to future decision-makers as they adapt the Charles River Basin to the needs and demands of the twenty-first century.

THE CHARLES RIVER BASIN IS THE HEART OF A CONNECTED REGIONAL SYSTEM. The Basin was conceived as the heart of an interconnected system of landscape reservations. Its creators viewed it as vitally important that the Basin connect to the western suburbs and to various other open spaces, such as Soldiers Field, Fresh Pond, Mt. Auburn Cemetery, and the Emerald Necklace. The basic principle of connection is central to the Metropolitan Park System.

THE BASIN SHALL BE A CLEAN AND HEALTHY ENVIRONMENT.

A major impetus behind the creation of the Back Bay residential district in the mid-1850s and the Charles River Basin after 1900 was to improve the quality of the river, an effort that continues to this day. The rise in use that has accompanied improved water quality was one of the motivating factors behind doing this Master Plan.

RIVER SCENERY SHALL BE ENHANCED.

"For those who cannot travel, free admission to the best scenery of the neighborhood is desirable," Eliot wrote. "It is indeed necessary, if life is to be more than meat." Eliot argued that urban development had increased the amount of time and distance urban residents must cross to reach rural, open spaces; for them and for those who could not afford to travel, enlightened municipal officials had to "acquire, for the free use and enjoyment of all, such neighboring fields, woods, pond-sides, riverbanks, valleys, or hills as may present, or may be made to present" for

Principles and MENDATIONS

their scenic, health, and recreational value. In the twentieth century roadways and unrelated structures have encroached upon these open spaces. Planners today are working to mitigate those impacts.

STRUCTURES SHALL BE SUBSIDIARY TO AND COMPLEMENT THE LANDSCAPE.

The Charles River Basin was designed to

provide restorative scenery for the urban dweller and preserve a breadth of view. Eliot argued that "large and conspicuous buildings, as well as statues and other monuments" subverted the quality of open space and could never be viewed as "ends in themselves." Buildings, bridges, roads, trees, and flowers should exist within parkland only as "a means auxiliary



and contributive to a larger end,-namely, the general landscape." Future planners should evaluate the location, massing, height, profile, materials, texture, and colors of all structures in the Basin to determine their fit in the landscape.

ONLY STRUCTURES OF THE VERY BEST DESIGN SHALL BE BUILT IN OR ALONG THE BASIN.

"The river runs through the very center of the metropolis," Charles Eliot noted in 1894, "and upon its shores should naturally be placed its most attractive structures, its monuments, and its finest dwellings." In his view, the Basin was the metropolitan region's "Court of Honor," a role demanding that even the most utilitarian structures reflect the highest design quality.

FORMAL AND PICTURESQUE DESIGN EXPRESSIONS SHALL BE EMPLOYED AND BALANCED ACCORDING TO LOCAL CIRCUMSTANCE.

Both Eliot and Shurcliff implemented this principle of balance in their work. Eliot wrote that circumstance-whether parks and parkways existed in a "confined urban space bounded by dominating buildings" or in a more pastoral set ting-should dictate whether they would be "absolutely formal or strikingly picturesque." The intensity of use and the metropolitan setting of the Esplanade, for example, suggested a more formal design. Shurcliff later combined a formal layout of paths, walls, and landings with a massing of trees and shrubs to achieve an effective balance of the formal and the picturesque.

The balancing of architectural and natural forms is characteristic of the Lower Basin and to some extent of the upper stretches, where handsome boathouses and elegant bridges, walls, and steps punctuate the wooded shoreline. Landscape treatments and maintenance should define and support formal and informal zones within the reservation.

PARKWAYS AND PATHWAYS SHALL BE FULLY INTEGRATED WITH THE RIVER LANDSCAPE, NOT DOMINATE IT.

While Eliot acknowledged the usefulness of parkways in providing access from the western suburbs to downtown Boston, he insisted that roads and pathways were merely "instruments by which the scenery is made accessible and enjoyable." As integral elements of the reservation, the parkways were intended to provide access to the best scenery of the region while not intruding onto that scenery themselves.

Clearly Eliot and the Metropolitan Park Commission planners did not anticipate the amount of traffic the parkways would be compelled to accommodate. The preeminence of automobile



UNION BOATHOUSE LANDING, LOWER BASIN.

travel has made it difficult to conceive of them as leisurely pleasure drives. Yet the parkways still have potential as attractive landscaped boulevards that complement the river setting. They

should never be walled off from the river. Hundreds of thousands of motorists have developed an image of the city from the views of water and parkland they have while driving the parkways. Parkways must be returned to their intended place within the landscape. The impact of parkway traffic on the park user's experience must be lessened.

ACCESS TO THE WATER'S EDGE AND SURFACE SHALL BE PROVIDED THROUGH A VARIETY OF MEANS. Eliot had suggested building overlooks and creating a system of electric passenger ferries to get people out onto the river. Shurcliff used islands, lagoons, pedestrian bridges, overlooks, and boat landings to allow pedestrians direct access to the shoreline. Future managers should seize every opportunity to restore visual access to the river along the Upper Basin and greater physical access along the entire Basin shore.



DEMOCRATIC LANDSCAPE WHERE PEOPLE FROM ALL WALKS OF LIFE MAY CONGREGATE. Frederick Law Olmsted was probably the first American

THE BASIN SHALL BE A

planner to express the conviction that parks

and other open spaces provided opportunity for the mixing and conversation of all classes. Deeply influenced by Olmsted, Eliot wrote of the need for "broad gravel-ways well shaded by

trees that afford pleasant out-of-door halls where crowds may mingle in an easy social life" as well as for spaces that permitted a solitary encounter with nature. Parklands continue to be valued for the opportunity for chance encounters with others and for the open space they offer in densely settled urban areas. able breadth, in order to make room for children's games and other uses quite distinct from the main purposes of the purchase, which are the preservation of the view of the river Basin and provision for boating on its waters." Playgrounds, ball fields, tennis courts, concert grounds, and gardens could all exist within the

> parkland, he wrote, "pro-

vided they are

so devised as

not to conflict

with or detract

from the

breadth and

quietness of the

general land-

scape." Foster-

ing a rich mix

users helps to

animate the park landscape

of uses and



THE PLAYING FIELDS AND PARKING LOTS AT DALY FIELD CONFLICT WITH THE RIVER LANDSCAPE.

A VARIETY OF USES SHALL BE ACCOMMODATED WITHOUT DETRACTING FROM THE RIVER LANDSCAPE. Eliot advocated providing for the needs of active users in his effort to have parkland set aside throughout the metropolitan area. He wrote of the Cambridge riverfront, "Because this place will be available for the recreation of the crowded population of East Cambridge, we would have this reservation possess a consider-

and makes the experience safer and more interesting for everyone.

THE CHARACTER-DEFINING FEATURES OF THE HISTORIC LANDSCAPE SHALL BE PRESERVED.

The Charles River Basin is a living park that needs to evolve to meet the recreation needs of current and future generations, yet, the historic character and features of the Basin must be respected. Rather than what Whitehill termed a "slavish antiquarianism," revitalization in the spirit of what has worked well before is appropriate for much of the Basin. The planning and design intentions of Eliot and Shurcliff have proven adaptable to changing times and should continue to guide the Basin's management.

Particular plantings that hold an important identity and association for the public should be protected, such as the London planetrees on Memorial Drive and the willow trees in Herter Park.

A THEME AND VARIATIONS SHALL BE STATED BY DESIGN.

The linear reservation should be experienced as a unified whole through a consistent treatment of the parkways and a constant reference to the river that ties it together. Simultaneously the transition in character from urban to suburban as one moves upstream should be enhanced through the choice of plant materials and degree of finish. Develop parkland areas as open spaces framed and punctuated by vegetation. Avoid linear alignments of vegetation within parkland areas, reserving such arrangements to reflect the linearity of the Basin's parkways.

Establish linear tree planting along the parkways to serve as the connecting threads of the Basin. Screen intrusive views with tightly spaced trees and shrubs. Maintain wider spacing where open views to the river are desired.

THE RECOMMENDED PALETTE OF PARKWAY TREES SHALL BE USED IN WAYS THAT ESTABLISH A UNIFIED CHARACTER ALONG STRETCHES OF PARKWAY. ENOUGH VARI-ETY SHALL BE INTRO-DUCED TO ASSURE HORTI-

CULTURAL HEALTH.



a problem.

DASSURE HORTI- WILLOWS AT CHARLESGATE, LOWER BASIN.

There are a few zones where a very narrow palette of species is appropriate, most notably the Cambridge Esplanade at MIT and the London planetree allée near Harvard University. Some degree of horticultural variety should be introduced into the rest of the parkway system. With consistency of form established, changing tree species every 200 or 300 feet is recommended.

ORNAMENTAL PLANTINGS SHALL BE USED TO MARK AND EMPHASIZE TRANSITION POINTS AND GATEWAYS AND EMBELLISH SIGNIFICANT STRUCTURES.

Historic boathouses, monuments, ornamental stairs, and bridges all deserve special treatment. The abutting banks of prominent bridges should be improved with signature plantings to enhance their appearance. The willows at Charlesgate are an excellent example, as are ornamental plantings on selected rotaries and traffic islands. THE DIVERSITY OF LANDSCAPE TREATMENTS— INCLUDING GROUND COVERS AND GRASSES, BANK TREATMENTS, TREE SPECIES, AND THE SELECTIVE INTRODUCTION OF SHRUBS THROUGHOUT THE BASIN—SHALL BE INCREASED. Increasing diversity of plant materials will provide for horticultural health, educational opportunity, and more diverse habitat for wildlife. Shrubs shall be used only where security is not

NATIVE PLANTS SHALL BE FAVORED IN THE BASIN. Eliot advised planners to preserve or create only that scenery "which is developed naturally from the local circumstances" of the area. He advised giving preference to native plants "without avoiding exotics of kinds which blend easily." Non-natives that are compatible in character with indigenous vegetation are also acceptable. THE CONDITIONS FOR A SUSTAINABLE AND MAIN-TAINABLE LANDSCAPE SHALL BE ESTABLISHED. Maintenance operations and environmental conditions must both be supported when making recommendations for plant species and landscape treatment. Environmental conditions must be respected when proposing species and treatments.

GENERAL MANAGEMENT GOALS FOR THE BASIN

These general management goals have evolved directly from goal-setting sessions of the Citizen Advisory Committee and reiterate many of the principles stated above (see "Appendix C— Public Participation"). They are organized around five focus areas.

THE HISTORIC LANDSCAPE

- Preserve the essential character-defining features of the historic landscape while adapting the Basin for contemporary uses
- Subordinate all manmade structures to the landscape and design them to complement the pastoral river setting
- Balance formal and picturesque "natural" design expressions
- Interpret the forces that shaped the Charles River Basin in order to educate the next generation of Basin advocates

SUNBATHERS, STROLLERS AND BICYCLISTS OFTEN COMPETE FOR THE SAME SPACE ON THE ESPLANADE.



THE NATURAL LANDSCAPE

- Diversify plant communities and maintenance regimes in the Basin for a healthier and more attractive landscape
- Enhance wildlife habitats while managing invasive species of plants and animals
- Establish a sustainable and maintainable landscape
- Interpret the natural resource systems of the Basin and the region

THE RIVER

- Achieve swimmable and fishable water quality
- Maximize public access to the water while ensuring a safe and quality experience for all
- Improve and maintain the channel from Watertown to Beacon Hill as a premier resource for boating

- Improve community outreach and raise awareness of existing and future public-access opportunities
- Establish regular opportunities for water users to coordinate their activities and voice their concerns

THE PARKS

- Assure that all park uses shall be public in nature or provide direct and substantial public benefits
- Support a variety of uses that relate to and directly benefit from the river setting
- Improve public access to the banks and water for people of all ages, abilities, and backgrounds
- Balance and distribute active and passive uses along the banks in a manner that minimizes conflicts and protects Basin resources

- Support use of the Basin during the winter months and evening hours wherever possible
- Provide a wide range of regional events and programs while mitigating impacts on both the Basin and surrounding neighborhoods
- Provide multiuse public facilities and spaces that are flexible, well-designed, and easily maintained

THE PARKWAYS AND PATHS

- Provide safe and continuous bicycle, skating, and pedestrian access along the entire length of the Basin. Separate footpaths and bike paths where doing so will not create excessive pavement near the shoreline
- Provide a comfortable, safe, and secure experience for visitors by reducing congestion and minimizing conflicts on the paths and water way
- Establish easier and safer pedestrian access across the parkways and bridges
- Reduce the impact of cars on pedestrian paths and parklands while reinforcing the identity of the parkways as landscaped pleasure drives. Strengthen the parkways and boulevard trees as the connecting threads of the Basin.

HISTORIC RESOURCES AND INTERPRETATION

The Charles River Basin is one of the most significant park landscapes in the country. The Basin is a National Historic Civil Engineering Landmark. The eastern end of the Basin, from the dam and streetcar viaduct to the Eliot Bridge, is listed in the National Register of Historic Places. The condition of historic resources and specific preservation recommendations are woven into the sections dealing with the river, riverbank, river structures, parklands, parkland structures, and parkways.

RECOMMENDATIONS FOR BASIN PRESERVATION

 Conduct archaeological reconnaissance and field investigation before any landscape work in areas where archaeological evidence is believed or known to exist. All such work will be performed in consultation with MDC archaeologists and the Massachusetts Historical Commission, from which an archaeological permit will be required.

Sixteen sites of prehistoric occupation have been documented within the Basin, with evidence demonstrated or believed to exist in eleven of them. Given the known resources, which are suggestive and compelling, any master plan recommendations that would result in ground or landscape alterations or modifications of grade must be preceded by an evaluation of potential impacts on prehistoric archaeological resources.

Expand the Charles River Basin National
Historic District by adding the area
between the Eliot Bridge, the district's
current western boundary, and Watertown
Dam. The entire Basin was subject to tidal
flow. Park planners and the Basin's chief
engineer considered the area between the historic Charles River Dam and the Watertown
Dam one reservation. Their design for the
Basin converted the river to a constant-level
fresh water impoundment. Information for

the existing Charles River Basin Historic District should be upgraded with more photographs and site-specific mapping; much of this work has been done in preparing this Master Plan.

- Prepare historic landscape reports for key landscapes, including the Boston and Cambridge esplanades.
- Undertake appropriate preservation treatments for the most significant buildings and landscapes. Where applicable, planners should follow the Secretary of the Interior's Standards for the Treatment of Historic Properties (see below) and consult the National Park Service Preservation Briefs series for guidance on specific preservation issues.
- Train maintenance staff in standard operating procedures and proper preservation treatments.
- Prepare historic structures reports for significant MDC buildings. Historic structure reports should be undertaken on the former stables and maintenance complex at Western Avenue, the Charles River Dam complex designed by Guy Lowell, the Fens Gate House, the Magazine Beach administrative building, and the Herter Center.

Before the reuse of the former *Charles River Speedway stables* at Western Avenue, a



INTERPRETIVE THEMES

historic structures report for the complex and standard operating procedures for its maintenance should be prepared. If the MDC



CHARLES RIVER SPEEDWAY HEADQUARTERS AND STABLES, CIRCA 1900

cannot fully use the structure, it should consider historic structure lease options to use and protect the complex and to generate funds for its restoration.

The Fens Gate House appears to be in

good condition, but it should be the focus of a historic structures report in view of the plans for bringing a pedestrian pathway past it that would link the Fens with the river. This pathway will draw new attention to the gatehouse and offers a superb opportunity to interpret the tributaries leading to the Basin, including Stonybrook and the Muddy River.

Because of its prominent riverside location and the importance of its designer, the *Magazine Beach administration building* should have a historic structures report. The lack of windows and light makes any kind of public use difficult without substantial alterations, but the report should explore possible alternative public uses.

• Conduct additional research on important historic properties and types, especially those that are not currently well understood.



- Identify appropriate public uses for vacant and underutilized historic resources. Consider lease arrangements with preservation restrictions to generate maintenance funds. Develop partnerships with private parties to maintain historic resources. Until appropriate uses can be found, vacant structures should be mothballed according to the standards outlined in National Park Service Preservation Brief #31, Mothballing Historic Buildings (1993).
- Require private owners of historic boathouses within the Basin to prepare historic structure reports and maintenance manuals as a condition of their leases.
- Develop in-house procedures to involve the state and local historic preservation agencies in decisions affecting historic resources in the Charles River Basin.
 Define categorical exemptions from review, such as maintenance and repair that do not alter historic structures. Define information standards and processes for other actions.

Certain historic resources merit special preservation treatment as defined in the

Secretary of the Interior's 1992 Standards for the Treatment of Historic Properties.

* The Basin's most important historic resources, including the historic overlooks and landings along the Esplanade and in Watertown, should be **restored**—that is, returned fully to their original condition. The historic benches with shade structures in the Lower Basin should be fully restored, using appropriate materials and repositioned if necessary.

- Crucial character-defining elements such as seawalls, certain bridges, historic buildings in reasonably good condition, and certain plantings such as the London planetrees on Memorial Drive, should be preserved—that is, their existing form, integrity, and materials should be stabilized and protected.
- * The rehabilitation standard, in which the most important historic features of a structure are preserved while allowing alterations for compatible uses, should be applied to bridges and buildings in need of major repairs or of retrofitting new uses that will help preserve them. Some of the concrete bridges in poor condition, the MDC Boathouse at the historic Charles River Dam, and the maintenance complex at the Arsenal Street Bridge fall into this category.
- * The reconstruction standard, which calls for the replication of a structure's general historic appearance, should be applied only to certain historic site details considered worth recapturing, such as bench or streetlight designs and certain landscape plantings such as those along the Cambridge and Boston esplanades.

PUBLIC INFORMATION AND INTERPRETATION

The Basin is of great historic, architectural, engineering, and environmental interest, yet many visitors are unaware of its significance. Numerous themes could be presented, including the history of industry and urban development along the river, park planning and design, and natural systems in an urban setting. While markers exist in

a few locations, no overall interpretive plan has ever been developed for the Basin.

EXISTING CONDITIONS AND ISSUES

The few historic markers in the Upper Basin are worn to the point that they can no longer be read. Along the Esplanade, most monuments and memorials are in poor condition and offer little explanation of their significance.



AN MDC RANGER EXPLAINS THE HISTORIC CHARLES RIVER BASIN TO VISITORS

perception that use of the river is limited and elitist must be overcome. Public awareness of the Basin's history and value must also be heightened through a Basin-wide interpretive program.

- Use seawalls to interpret the filling of the marshes and the changing of land uses. The western terminus of the Cambridge seawall at MIT would be a good site for interpretation. The filling of the Back Bay can be interpreted from the vantage point of the pedestrian bridges crossing Storrow Drive.
- Interpret the oldest seawall in the Basin, along the east side of the Broad Canal, for pedestrians and recreational boaters.

INTERPRETATION

• Develop a public education and interpretive program. There is little community awareness of the Basin's history, extent, and public programs. Two programs are dedicated to public access to the river, and several of the sailing and rowing facilities offer public programs. Most suffer from low profiles. A common

- Interpret the dam complex. The dam complex provides a superb opportunity to interpret several themes. The complex of buildings at the dam might effectively support certain types of programs. MDC park rangers might be stationed in the lower lock keeper's structure; exhibits on the creation of the Basin and the operation of the dam might also be installed here.
- Where a pedestrian pathway links The Fens to the river, use the gatehouse at Charlesgate to interpret the tributaries leading to the



Basin, including Stonybrook and the Muddy River.

• Provide materials that interpret all Basin monuments.

THE MEMORIAL TO THE FOUNDERS OF WATER-TOWN, SHOWN IN A 1936 PHOTO.

• Use the his-

toric shade structures in the Lower Basin to interpret how park activities have changed. A shade structure near Community Boating could become an armature for an exhibit on sailing history in the Basin.

• Encourage a broader array of public programs at the Herter Center, including interpretation of the Charles River Basin.

- Interpret the historic parkways for users who visit during weekend parkway closures.
- Use the bridges to interpret the history of transportation and land use in the Basin.
- Interpret the history of Magazine Beach. Create interpretive elements at the overlook to describe the powder magazine, the filling of the marshes, river swimming, crew races, and other themes.
- Interpret the history of Riverside Press on the north bank between the River Street and Western Avenue bridges.
- Establish the marsh in Hell's Half Acre, between Eliot and Arsenal Street bridges, as a laboratory for environmental education.
- Establish interpretive elements for the Watertown Arsenal at a reconfigured outlook at the Greenough Boulevard seawall.

THE RIVER

The Charles River is a wildlife habitat, a watercourse devoted to many uses, and a scenic resource. It is a resource whose ecological, recreational, and scenic values are not necessarily in conflict.

Today numerous issues confront the Charles River—water quality, navigability, capacity, conflicting uses, boat and pedestrian access, safety, and visual character.

EXISTING CONDITIONS AND ISSUES

Water Quality and Swimming

A partnership of Massachusetts Water Resources Authority (MWRA), the Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection, the Charles River Watershed Association, the MDC, and cities and towns within the watershed has improved the water quality of the Charles dramatically in recent years. The requirement to provide best management practices for stormwater discharges has had a significant impact. Concerned groups are campaigning to make the Charles River safe for fishing, boating, and swimming by Earth Day 2005. Charles River Watershed Association volunteers, with funds from the MDC and EPA, test water quality on a daily basis at nine boating facilities in the Basin and fly color-coded flags to alert boaters to water conditions. During the summer of 1998, the Charles River Basin was generally suitable for boating 83% of the time, a substantial increase over 1996, when it was deemed suitable for only 57% of the season. In wet weather, when combined sewers flush into the river, conditions were acceptable for boaters 72% of the time, a huge improvement over 45% of the summer of 1996.

This Master Plan does not focus specifically on water quality, a topic that has been addressed in numerous other studies. The plan does, however, examine the opportunities afforded by cleaner water.

Swimming in the lower Charles will continue to be problematic because of the many issues of public swimming beaches. Public swimming can only be allowed in publicly designated areas where lifeguards can be posted to protect public safety. If the history of freshwater beaches on the Charles is any indication, a public beach in the Basin would experience extremely heavy use. To create a public beach would require armoring the shoreline or creating a large sandy area to prevent shoreline erosion; heavy use would soak, trample, and destroy any turf in the area. The necessary facilities (parking lots, bathrooms, showers, and changing rooms) would encroach on limited parklands.

The river's natural turbidity is the most serious constraint on future swimming; lifeguards must be able to see swimmers who fall beneath the water's surface. A body of water is determined safe for swimming if a Secchi disk divided into alternating black-and-white quarters can be seen when it is lowered four feet into the water. The Charles, naturally murky due to tannins and silt, may never achieve this legal level of visibility no matter how clean the water. Silt fences and other forms of filtering technology might improve visibility by removing particulates. These are artificial, expensive, and require constant upkeep. Another way to improve visibility is to install a white sand bottom, though the current would wash the sand away regularly. A peagravel beach, a sturdier alternative, would also require regular, if less frequent, replenishment.

The existing sediments on the bottom of the river also pose problems. In many places they are likely to be contaminated. Hazardous materials would have to be dredged and replaced with clean fill. The costs of dredging and disposal of the dredged spoils are substantial.

There is strong potential for conflicts between boaters and swimmers. Preventing such conflicts would require a portion of the channel to be marked off with floats and swimming beaches be closely monitored during hours of operation. There are few places where the river is wide enough to accommodate both boat traffic and swimming.

It may be possible in one or two locations along the Basin to build swimming lagoons with filtered or recirculated river water. This approach, while expensive, could overcome some of the potential conflicts outlined above. Although there are few places along the river that could readily accommodate a lagoon, creation of one as a replacement for the existing pool complex should be considered at Magazine Beach. Herter Park is another site with sufficient room for a swimming lagoon.

Navigation

The ability of boats to navigate the Charles upstream of the North Beacon Street Bridge has become an issue requiring immediate attention. Historically the channel of the entire Basin was dredged to a minimum depth of eight feet.



Over the past thirty years silt has reduced the depth of portions of the Upper Basin to two feet or less. Three boating clubs already experience limited access due to silting and aquatic weeds in the Upper Basin. DREDGING THE RIVERBED IN WATERTOWN IN 1910.

The precise origin of this silt is not known, though only three sources are possible—waterborne matter from upstream, bank erosion, and solids from combined sewer outfalls, storm drains, and Massachusetts Turnpike and other roadway drainage. If it continues, this buildup of silt may make the Charles impassable above the North Beacon Street Bridge to boats drawing more than a foot of water. The Watertown and Newton Yacht Clubs and the public launch ramp at Daly Field could all become unusable within five to ten years if nothing is done to find and block the source of the silt and to remove the deposits that have accumulated. Disposing of these sediments will be extremely costly, as they are likely to be heavily contaminated.

Water chestnut, a nonnative invasive plant, has become another major navigational issue affecting the Upper Basin, particularly the members of Community Rowing. Rowers can float a scull in a few inches of water, but the aquatic plants that thrive in shallow water tangle their oars. The MDC has begun an effort to harvest this invasive plant, although it may take several years for the harvesting program to succeed fully. Large portions of the water surface

COLONIES OF WATER CHESTNUT HAVE TAKEN HOLD IN THE UPPER BASIN. IN THIS VIEW THEY APPEAR AS LARGE ISLANDS OF GREEN ALONG THE BANKS OF THE RIVER EAST OF WATERTOWN SQUARE. DALY FIELD AND NONANTUM ROAD ARE VISIBLE IN THE LOWER LEFT.



above the North Beacon Street Bridge contain the water chestnut; it is beginning to spread downstream. The plants have been spotted as far downstream as the Cambridge Boat Club, just below the Eliot Bridge. Shallow water encourages the growth of plants; dredging would help prevent their spread.

The already narrow upper stretches of the river are further limited by navigation hazards, most notably fallen trees and sandbars in front of some combined sewer outfalls. The only sandbar that has become a serious obstruction to traffic at this time is at Boston Water and Sewer Commission Outfall 032 above the Arsenal Street Bridge.

The clearances of most bridges over the Charles place limits on boating. Existing bridges are a major improvement over the pile bridges that once complicated navigation on the river, though their narrow arches and—in some cases—skewed orientation to the channel restrict traffic and sight lines. A powerboat cannot pass an eight-man shell in the arches of many of the bridges; vessels must take turns. Navigation lights require regular maintenance and prompt replacement.

Capacity

According to the National Water Safety Congress, carrying capacity is the ability of a body of water to provide safe and satisfactory experiences for variety of users over time without degradation of the resource. Boating traffic also has an impact on the experience of parkland users. A single person traveling too fast in a



CANOE RENTAL AT HERTER PARK.

large boat has a much greater impact on the experience of both water and parkland users than a group of canoeists. Given the large number of existing and potential users the Basin watercourse is best adapted and uniquely suited to nonmotorized boating. Many more canoes, shells, and sail boats can be accommodated safely than can powerboats.

Boating on the Charles is a weekly, sometimes even daily, pleasure for hundreds of people. Boats enliven the water park and provide enjoyment to thousands more who watch from the banks or from their cars. Crew races have taken place on the Charles for more than a century and a half, canoeing for more than a century, and sailing for more than fifty years.

There are no accurate measurements of actual river use, nor is there a clear method for determining if the Charles is at or approaching its carrying capacity. Growing demand is threat31 心

ening the Charles River as a special resource for recreational boating. Maintaining safe and supportable levels of use has become a crucial issue. There is a consensus among the diverse boating communities that the river functions well most of the time but that it may be at or over capac-

ity during certain periods, such as summer weekends.

User Conflicts

Despite an already high level of public use, some proponents maintain that there is potential for public boating programs to



SPEED BOAT AND SCULL NEAR HERTER PARK.

grow in the Basin. Given the large numbers of users, there is less conflict on the water than one might expect, due to complementary patterns of use. Rowers are more prevalent in spring and fall and on early weekday mornings, early weekday afternoons, and Saturday mornings. Sailors are inclined to use the river most heavily in summer and fall; in the spring they tend to sail between 3:00 p.m. and sunset and in summer and fall between 10:00 a.m. and 3:00 p.m., hours when rowers are generally not on the water. Sailors use the river on weekends as much as, if not more than, on weekdays in all seasons. Power boaters tend to be on the water during a shorter season, from the beginning of May through October, and for a more concentrated time-generally on weekends and after 5:00 p.m. on summer weekdays.

Conflicts do arise. Sunny evenings in late spring and early fall and weekends after 10:00 a.m. from late spring through early fall are especially busy. Powerboat traffic becomes so heavy during these periods that rowers, sailors, canoeists, and kayakers find it difficult to use the river



the North Beacon Street Bridge. Some of the current conflicts result from lack of cooperation within the boating community, lack of education about the needs of different users, and the absence of aggressive enforcement of boating rules. (See the discussion of etiquette, enforcement, and safety on the next page.)

Access to the River

In order to be successful, the river must be accessible to the public in a variety of ways. Access to boating opportunities for boat owners, for those who rent boats, for club members, and for tour boat passengers must all be preserved and enhanced. River access is also an issue to non-boating users. With the exception of a few of the public landings, people who want to be closer to the water have no easy means of doing so. A majority of the respondents to the user survey cited lack of access to the water from the banks as a major problem. There are few places along this stretch of the Charles where people can get out onto the river from the banks or rest comfortably at the water's edge. In some sections seawalls keep users high above the waterline. In others, especially above the Arsenal Street Bridge, the banks are too steep and overgrown to allow easy access to the water's edge.

In addition, there is currently no permanent facility for public access rowing on the Charles. Community Rowing, Inc. (CRI), one of the largest public-access rowing programs in the country, has no permanent home; its almost twelve hundred members, along with more than four hundred athletes from twelve college and institutional programs hosted by CRI, row out of the Daly Rink.

The Daly Rink is large enough to shelter CRI's boats and programs, but it has several serious drawbacks. The rink's skating program takes precedence over Community Rowing activities. This subjects CRI to disruptive maintenance procedures during its peak-use periods. Because CRI cannot use the rink until skating season is over, it begins at least a month later than other rowing programs; the shortest season of any rowing organization on the Charles. CRI must store its boats elsewhere during the winter. This is an expensive process and causes considerable wear and tear during transport and offsite storage. Because there is insufficient space within the rink, some of CRI's equipment, such as the engines for the coaching launches, is stored in large shipping containers on the river bank. These are an eyesore and vulnerable to theft.

Row As One—which works to make rowing accessible to women and girls of all backgrounds and income levels—shares the limited storage and dock space at Daly Rink with Community Rowing. Should Row As One expand significantly beyond its current level, it will outgrow this space and require a location easily accessible to its low-income youth population.

There is also need within the Basin for launch space and for parking for cartopped boats. Of the nine public landings along the Charles, only two—at Watertown Square and at Cambridge Parkway—have parking nearby. The parking spaces along Cambridge Parkway are of limited availability for people coming to use the Basin.

Because it competes for space with the public fleet, private boat storage at public facilities should be limited, made available only to those who have no other option and who are chosen each year by lottery. There is no storage available for privately owned small boats such as canoes or kayaks and very little storage available for privately owned rowing shells. Within the Basin only Daly Field offers a public-access boat ramp for powerboats and space for trailer parking. For some people launching here, the Charles is either their destination or an integral part of a leisurely trip to the harbor. For many others the long trip down the Charles, which takes forty-five minutes at the posted speed limit, is an inconvenience.



COMMUNITY ROWING, INC., USES THE DALY RINK TO STORE SHELLS.

This latter group tends to speed and ignore established traffic patterns, practices that can be dangerous to other boaters and disruptive to visitors on the park land.

There are no moorings or slips for transient boaters on the Charles. A limited number of visiting boat moorings should be created. Etiquette, Enforcement, and Safety

The popularity of the Charles River Basin for boating activities and the potential for future growth in its use require that regulations affecting traffic patterns, rights-of-way, and other safety issues govern boating. Though the U.S. Coast Guard Inland Rules of the Road apply to most rivers, the status of the Basin as a water

> park has given the MDC the legal authority to develop supplemental rules and regulations governing this watercourse (350 CMR, 12.0 M.G.L. c92 section 38).

> > In the past these boating rules and regulations have been inadequately enforced. Some boaters have ignored them by speeding or cutting across traffic,

and several dangerous collisions have occurred in recent years. The MDC Park Ranger Marine Unit now patrols regularly and has the power to issue citations.

Sailors, rowers, and power boaters need to recognize the limitations affecting each other and their movement on the water. Until the early 1990s the Charles River Boating Conference helped settle disputes between boating groups, work out traffic patterns, and address common issues, but since then users have lacked a forum to discuss these matters.

RECOMMENDATIONS FOR THE RIVER

- Maintain the no-swimming policy in the Basin for the foreseeable future. The master planning process assessed the feasibility of swimming in the Basin by evaluating a number of potential sites:
 - Upper Basin above Newton Yacht Club: While this stretch of the river would be out of the main boating lanes, the water is quite shallow and would need to be dredged, and there is a strong likelihood of hazardous materials in the sediment. There is no room for parking nor is adequate public transportation access available.
 - *Magazine Beach:* The site of a historic beach, this location has a certain appeal. Parking is limited and public transportation access is poor. Magazine Beach is a heavily used stretch of the Charles, and its parkland is already carved up among different programmed uses. Adding a swimming beach would overburden the park with facilities. The crowds and traffic a beach would create will have an adverse impact on the adjacent neighborhood.
 - * *Esplanade lagoons:* The lagoons are contained, almost entirely empty of boat traffic, and well served by public transportation. However, a swimming beach would be out of character with the formal setting of the Esplanade. A swimming area would add an unsupportable level of use to the severely crowded banks.

THE SPRAY POOL AT LEDERMAN FIELD IN CHARLESBANK PARK.

* *Eastern end of Herter Park:* This area presents the most promising option for the creation of a new swimming beach,

although it has serious drawbacks. Transit service is poor, but there is ample parking. Its location at the outside of a curve in the river would make it easier to rope off an area for swimming without disrupting boating traffic. This is the only large park within the Basin laid out with flexible fields. These fields receive heavy use for everything from pick-up volleyball to sunbathing to family picnics. Adding changing rooms and a beach would disrupt the layout of the park and require eliminating a major portion of the fields. Because the river is quite shallow here, creating a swimming area would require a major dredging project.

The problems associated with these sites compel the recommendation to continue the no-swimming policy in the Basin. The policy, however, should be interpreted to allow wading at one's own risk as water quality improves.



- As existing swimming pools require removal or replacement, consider naturalized swimming lagoons as an alternative. River-fed lagoons or recirculating lagoons should be more successfully integrated with the river setting than are the existing pools structures.
- Support the goal of attaining a swimmable
 level of water quality by the year 2005.
 Clean water will be major boon to boaters
 on the river as well as pedestrians along the
 shore. Novice sailors and rowers will no
 longer fear capsizing into polluted waters.
 Though swimming is not advised, pedestrians and dog walkers will be able to come to
 the water's edge and wade in some places
 without fear of polluted water.
- Develop a maintenance program for clearing fallen trees, shopping carts, and other navigational hazards, including floating trash, from the Charles. Seasonal sweeps of the Basin to remove hazards should be imple-

mented. Many "dolphins"-clustered pilings bound together at the top with cable, several of them along Lederman Field and near the Lechmere Canal-are now just navigational hazards. Their historical significance should first be assessed, and, if insignificant, they should be cut off at the mud line to avoid disturbing river sediments and removed. Some should be maintained as tie-offs. The maintenance program should also address such issues as replacing navigation and arch lighting on bridges.

A small boat should be employed to skim the line of garbage from the downwind side of the Lower Basin, working with ground crews to clear steep banks of trash. More frequent sweeping of parkway gutters would reduce the amount of trash and sand entering the river.

The MDC should coordinate a Basin-wide volunteer cleanup effort in the spring and fall. This would expand current programs and "servathons" and could be a regular Charles River event. To encourage citizen participation and raise public awareness, all local street drains emptying into the Charles should be identified with small signs (for example, "drains to Charles River").

• Commission a dredging study to examine requirements necessary to maintain the navigability of the Charles between North Beacon Street and Galen Street. The study should also assess the sandbar in front of

BWSC Outfall 032, any bridge arches that have filled with sediment, and any other potential dredging needs in the Basin. This study should 1) investigate the source of new material and develop a detailed strategy for preventing such filling in the future, including the development and maintenance of catch basins at combined sewer outfalls and other potential sources of sediment; 2) analyze environmental hazards and permitting; 3) assess disposal sites for dredged material; 4) determine how far upstream dredging should proceed, either to the combined sewer outfall above Newton Yacht Club or all the way to Watertown Square; and 5) develop cost estimates and suggest potential sources of funding.

• Continue to fund a maintenance program to prevent the waterway from being

choked by water chestnut and other invasive species. Over the last eight years the MDC has spent close to half a million dollars to control water chestnut in the Lakes District

above the Moody



TRASH ON THE SHORE OF THE RIVER NEAR THE NORTH BEACON STREET BRIDGE IN THE UPPER BASIN

Street Dam. The Watertown Yacht Club has already spent money to harvest the invasive

plants. Other organizations have indicated their desire to work with the MDC on this issue.

- Establish a Charles River Basin hotline so problems can be reported easily and quickly.
- Provide adequate funding to maintain the new Charles River Dam-its sluice, lock culverts, engines, and other equipmentat optimum levels in order manage floods effectively and minimize water level fluctuation or, at a minimum, warn the boating community of water-level fluctuations. In order to protect small craft in the locks, "slow-no wake" signs should be posted and enforced.
- Maintain the river channel to improve navigation under the existing bridges. Any

future bridges should incorporate broad spans to accommodate safe navigation. Many of the bridges over the Charles are due for major restoration in the coming decades; others may be replaced entirely.

Arches should be

designed and the channel maintained to accommodate boating traffic safely.

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- Host a revitalized Charles River Boating Conference at the Metropolitan District Commission and encourage greater cooperation among user groups.
- Work with the Boating Conference to measure crowding and capacity. A carefully constructed methodology for the collection and use of data should be developed. The most reasonable approach to monitoring capacity would be to pick several key points where conflicts occur and monitor them at peak-use times, such as from 3:00 p.m. to 8:00 p.m. on Fridays in the late spring and early fall. Volunteers from the Boating Conference should aid in this effort. The MDC Park Ranger Marine Unit should keep track of accidents on the Charles and their severity, and prepare an annual report.
- Review and supplement MDC rules and regulations for the Basin to reflect its unique conditions and its crew and sailing race courses. A reestablished Boating Conference, in cooperation with the MDC Park Ranger Marine Unit, must undertake this review and develop key regulations for specific sections of the Basin.
- Preserve the quiet character of the Charles River by managing it primarily for nonmotorized craft and by strictly enforcing powerboat speed limits. New boating uses should be carefully screened to ensure their compatibility with the quiet character of the

Charles, particularly in the riverine stretch above the Boston University Bridge. Vessels that are too large, generate excessive wakes, or travel at high speeds should be limited. The prohibition on jet skis, which cannot operate effectively at the posted speed limits, should continue. Though difficult to enforce, noise restrictions should be put in place and MDC rules and regulations should be posted at the Daly Ramp and enforced by the MDC Park Ranger Marine Unit.

• Restrict the Esplanade lagoons, designed for canoeing, to hand-powered vessels only.

• Limit overuse of the river through strict controls on

> the construction of new facilities and on the expansion of existing ones. Expansion should only be allowed if the facility requesting it can first, provide amenities for park users such as restrooms and drinking fountains, and second, demonstrate measurable increases in public access to the water actions that would, for example, provide room for public high school, college, or public programs. Access to the Charles is a precious asset; those that have it must work together to provide access for those that do not.

Prohibit the building of new facilities until adequate enforcement of boating rules and regulations is in place. Given the narrowness of the banks along much of the river, it is vital to minimize the encroachment of new structures. New boathouses should not be built in areas where their presence will negatively affect river traffic patterns, such as near the Boston University or Eliot Bridges, on the inside edges of river bends, or between the Harvard and Longfellow Bridges in the Lower Basin.

The MDC should review all new con-

struction to preserve

the beauty of the Basin.

Consideration should

be given to the height,

massing, and scale of

proposed buildings, the

materials and color of

buildings and site fea-

tures such as fencing,

the impact of struc-



THE SHALLOW UPPER BASIN, NEAR THE PERKINS SCHOOL IN WATERTOWN, IS IDEAL FOR ROWING.

tures on viewsheds, landscaping, and the continuity of public access along the shore.

In certain circumstances existing boathouses should be allowed to relocate from pinch points such as the Boston University and Eliot bridges. The most obvious candidate is the Boston University Sailing Pavilion, whose location just downstream of the Boston University Bridge creates traffic problems on the banks as well as on the water. An alternative location between the current site and Charlesgate would give the sailboats ample room to maneuver while increasing safety on the public pathway. The moratorium on yacht club expansion, in place since the 1960s, should be continued. Permitted to build from the 1940s through the 1960s, the yacht clubs have been good neighbors and advocates for the Basin. The Charles River Basin can certainly accommodate the limited number of private

yachts currently berthed there. The river has, however, greater capacity for small, nonmotorized craft that can serve the recreational needs of more people.

One or possibly two new facilities to allow public access to the river may be appropriate; these sites are identified below. Only two of the TOUR nineteen facilities on the Charles are dedicated exclusively to public access; any new facilities should be reserved for public-access programs or for organizations with substantial public-access components.

- Maintain existing public boat landings and provide up to five new public landings. Recommended sites for new public landings are shown in the diagram on page 38. With the exception of a landing at Herter Park, no new public boat landings should be located upriver of the Anderson Bridge.
- Require existing and proposed boat and yacht clubs to pay an annual rental fee based on the appraised value of their facility. Seek legislation to allow use of these funds to increase maintenance and regulation enforcement in the water channel.

Limit tour boat operators based in the Basin to a finite fleet of vessels and to their current level of operation. Tour boats are among the most effective ways to broaden public access to the Basin and are thus an essential piece of Charles River pro-



TOUR BOATS PROVIDE RIVER ACCESS TO MORE THAN 300,000 VISI-TORS EACH YEAR.

gramming. However, their operations also periodically contribute to overuse of the river and to conflicts between user groups. The MDC should continue to limit amphibious tour boats to turning just upstream of the Longfellow Bridge and should limit their range during peak-use periods. Because of the narrowness of the channel above the Boston University Bridge, boat tours should be scheduled for times of day that minimize conflict with rowers and other boaters, and tour boat companies should be encouraged to use smaller vessels. Large tour boats should be permitted above Anderson Bridge only for special occasions and special tours.

Limits must be retained to mitigate the intense crowding between the Longfellow and Harvard bridges during both sailors' prime racing times and weekend rowing regattas. The MDC should work with the Boating Conference to evaluate any further expansion of these programs.

- Allow the public rowing programs to build one new facility to serve the public. The master planning team evaluated twelve sites within the Basin large enough to accommodate a new boating facility according to these criteria:
 - * Access to public transit, because the boating community is increasingly interested in reaching out to low-income high school students and others who may not own cars.
 - * Availability of parking to serve boaters, many of whom prefer to drive.
 - * *Impacts on parkland* so as to minimize encroachment of new facilities.
 - * Benefits to park users.
 - * Impacts on the water sheet traffic patterns. The evaluation identified five sites where a new boathouse might be built:
 - * *Daly Field*, by replacing or retrofitting the skating rink
 - * Near the Sherborn Street pedestrian bridge across Storrow Drive, just upstream of the Harvard Bridge
 - * At the upstream terminus of the MIT seawall
 - * On the Cambridge seawall just below the Longfellow Bridge
 - * Between the Boston University and River Street bridges if it ever becomes possible to shift the alignment of Storrow Drive away from the channel in this section

Daly Field appears to be the best of these locations for an expanded public rowing program because of ample parking, ample room for the facility (presuming the eventual removal of the skating rink), and an open Upper Basin for novice rowers. A facility here would continue to animate the Upper Basin and avoid added congestion downstream. It would also provide an opportunity to restore the bank behind the rink (see Appendix F).

• Provide more launch sites for small, handcarried boats. Either shallow-water piers or beaches should be created close to small parking lots for small boats. Piers should be broad enough to serve fishermen or sunbathers in addition to boaters. Given the fluctuating water levels all docks should be equipped with ladders for small craft such as kayaks. Wherever possible, locate bathrooms near docks for boaters.

The Master Plan has identified six potential launch sites that could be created by improving existing or developing new facilities:

- improve the existing public landing at the Cambridge riverfront, off Cambridge Parkway
- * add a small dock and launching beach at the *lower end of Magazine Beach* near the MWRA Cottage Farm facility
- * create new access at the north end of the Genzyme Corporation riverfront
- create a launching beach and landing at *Herter Park East* in concert with Charles River Canoe and Kayak
- * repair the existing landing, currently hidden in trees, off *Greenough Boulevard*
- * build a landing near the open field by Charles River Road just west of Perkins School
- Reduce use of Daly Field ramp by securing convenient options closer to Boston Harbor for boaters headed there. The Schrafft's ramp in Charlestown and Rainbow Park in Dorchester should be publicized to

reduce the number of boats headed for the harbor that now use the Daly Field ramp. Building a new launch ramp at the end of the Broad Canal in Cambridge would create an option closer to the harbor, reducing powerboat traffic on the Charles. Serious clearance issues would have to be overcome for this option, limiting its viability. The depth of the steel beams under the drawbridges that spans the canal limits clearance for small powerboats. A future opportunity exists to redesign the bridges to allow powerboats safe passage.

Once alternatives are available, small signs should be installed at the Daly Field ramp to encourage the public to use other ramps. The amount of trailer parking available at Daly Field should also be reduced.

 Limit the moorings in the Lower Basin to 70 (the current number), and provide a small number of additional guest moorings for visiting boaters. The breadth of the Lower Basin below the Longfellow Bridge accommodates the current public moorings, but increasing boat traffic in the Lower Basin makes it necessary to limit the number of moorings to their existing number, plus two or three for visiting vessels. The Charles River Basin, with its views of downtown Boston, would undoubtedly become a





THE METROPOLITAN PARK COMMISSION, FORERUNNER OF THE MDC, MAINTAINED A POLICE FLOTILLA BEGINNING AT THE TURN OF THE CENTURY. popular layover mooring. An MDC Park Ranger Marine Unit housed at the MDC Boathouse should manage these guest moorings, and mooring fees should help to fund this unit.

Expand public access to the water and publicize public-access programs. The MDC should work with the boating community and the Boating Conference to promote the river as a recreational resource. Renewals of leases for private clubs should be contingent upon more aggressive promotion of existing public-access programs along the Basin and in public schools. An annual report on public access progress should be produced by the Boating Conference.

Given the success of Charles River Canoe and Kayak at Herter Park, demand may develop for another rental program in the Upper Basin. Daly Field is one possible site for a new program restricted to the upstream stretches. The shallow water here is ideal for novice canoeists, and the site offers good views at the Watertown Dam. To provide public access to the historic canoeway, Community Boating might be allowed to rent a limited number of canoes or other handpowered boats to the general public. A rental facility at the future North Point

Park would be sufficient to meet demand for renting boats in the New Basin as well as the Lower Basin.

- Create more opportunities for Basin users to get down to the shore and have close contact with the water. More wooden landings should be established at the shore's edge for sunbathing, picnicking, fishing, and dangling one's feet in the water. Shallow draft boats should be allowed to use these landings. Steps down to the shore and large flat stones to perch on at the water's edge should be provided at key intervals.
- Educate the boating public about the rules of the road. Several potential avenues exist for educating boaters about the rules of the

water. The Boating Conference should work with the MDC Park Ranger Marine Unit to prepare a handbook or pamphlet explaining the rules and the needs of each type of user, distribute it to all registered boaters, post it in boathouses and yacht clubs, and include it on the MDC's Web site. Speed limits should be posted more prominently on the bridges. Finally, signs explaining appropriate passing techniques and etiquette should be posted at Daly Field and other launching points, in the locks, and on several of the bridges.

- Actively police the river for violations of applicable boating regulations. The MDC Park Ranger Marine Unit should have a strong presence on the Basin. Its efforts to enforce boating rules and regulations aggressively should be supported. Encourage members of the boating community to use a hot line or marine radio to report boats that violate rules and endanger others.
- Provide safety equipment in areas of high risk. The now-missing seawall ladders should be replaced at regular intervals along the Lower Basin, and all landings should be equipped with ladders and grab bars.

RIVERBANKS AND RIVER SCENERY

The riverbank is one of the Basin's most visible and important landscape zones. Water-loving plants lining the edge of the river help to stabilize steep banks and provide limited cover for birds feeding along the river. Boaters in the upper reaches of the Basin are completely surrounded by bank vegetation that screens the parkways from view and creates the illusion of a more natural setting. At the same time, volunteer growth of high shrubs deprives the parkway and path users of any views of the water. This was not always the case.

While the riverbank appears natural in many locations, there is not a linear foot of bank within the Charles River Basin that was not actively shaped. Most of the shore is armored with stone, much of which has fallen down over time. Indeed, early photographs indicate that the clear intent of park planners was to create an open river edge lined with parkway trees. The Basin's first planners and managers sought to create an expansive pastoral landscape with open views to the river as a contrast to the crowded conditions of city life.

Reductions in park maintenance over time and invading plant species have resulted in the filling in of most of the riverbank with vegetation. Where the embankment slopes are gentle and accessible by mowing machines, it is possible to maintain turf to the water's edge. In areas where the slopes are steeper than 1:4 or 1:5, maintenance crews must clear-cut vegetation

the water along key stretches in the spring and again in the fall. This practice, effective for a short time, is not sustainable. Since the cutting does not disturb root systems, vegetation regrows vigorously and soon blocks the view again with thicker growth. A tendency of maintenance crews to run their

to open views to

mowers along the crest of the slope produces a linear, almost mechanical appearance along much of the Charles.

A direct result of these management practices is a river edge that is either entirely open or completely blocked by vegetation. An intermediate condition—where edge treatments vary so that water views are filtered or framed by vegetation—would be far more interesting. This requires a more directed approach to maintenance and intensive horticultural training for maintenance staff.

In most instances, opening scenic views to the water and keeping them open will require a full reconstruction of embankments to remove inva-



sive species down to their roots. Armoring by itself cannot prevent the return of invasive plants. More manageable plant varieties, including natives and nonnatives, will need to be planted and carefully cultivated in the joints of riprap slopes. Horticultural training will be critical to the success of this approach (see Appendix F----Riverbank Establishment & Maintenance.)



RECOMMENDATIONS FOR RIVER BANKS

- **Create river views.** The 1996 Rivers Protection Act authorizes the identification and creation of scenic overlooks. Numerous areas along the banks of the Charles should be opened up for views (see plan diagram, above).
- Identify and protect key scenic vistas
 by managing vegetation and controlling development. The most scenic
 views are at bridges or bends in the
 channel.
- Establish sustainable riverbank treatments. Plans for bank treatment should be modulated to respond to the need for views, physical access to the water, bank stabilization, wildlife habitats, visual interest, and screening of parkways for water users. Vegetation should weave in and out from the river's edge, creat-



ing a less urban and more varied interrelationship between park and water.

Implement and test recommendations with a demonstration project in a selected area of riverbank, using the recommended plant list in Appendix E. (See "Appendix F— Riverbank Establishment and Mainten-

> ance.") Specific conditions suggest implementing one of five recommended bank treatments, which are described on the next five pages.





* LAWN TO THE RIVERBANK: This treat-

ment achieves an open, expansive view toward the river and open access to the bank where river activities draw heavy spectator traffic. It also allows for small boat landings. Riprap needs to be stabilized to support this condition, the least stable of the riverbank treatments. This edge should be embellished with periodic groupings of understory and canopy trees. Such a treatment is recommended for approximately 4.0 miles that include these areas along the north bank:

- > MIT seawall to Boston University Boathouse,
- > stretches of Magazine Beach,
- > banks east and west of Weeks Footbridge,
- > banks east and west of Anderson Bridge,
- > dock area at Greenough Boulevard,
- > Squibnocket Park;

and these areas along the south bank:

- > Lederman Field to Longfellow Bridge,
- > Esplanade lagoon banks and island banks,
- > a stretch west of Harvard Bridge,
- > a stretch at Boston University riverfront,
- > banks east and west of Weeks Footbridge,
- > stretches of Herter Park,
- > Daly Field.

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RIVERBANK: WOODY UNDERSTORY



- ★ LOW TO MEDIUM HERBACEOUS AND WOODY UNDERSTORY: This treatment achieves unobstructed water views along most of its length, with a planted zone three feet deep between the parkland and the river that will prevent movement to the edge of the bank. The majority of plant material in this zone is a maximum of three feet high, with periodic higher vegetation up to four feet that overhangs the water and provides shade for fish. This treatment stabilizes the bank and replaces grass with other species in areas that are hard to mow. It is suggested for approximately 2.13 miles, including these areas along the north bank:
 - stretches between Boston University and River Street Bridges,

- stretches between Western Avenue
 Bridge and Weeks Footbridge,
- > stretch near Longfellow Park,
- > stretch near Eliot Bridge,
- > stretch of Greenough Boulevard,
- > small stretches along Charles River Road, and
- > near Galen Street Bridge;
- and these areas along the south bank:
- > the islands by Community Boating (low, with habitat-rich vegetation),
- > stretch west of Esplanade,
- small stretches between the Anderson and Eliot Bridges,
- > stretches of Herter Park, and
- > small stretch on Nonantum Road.







★ HERBACEOUS EDGE WITH OVER-

STORY: The greater richness of edge vegetation in this treatment imparts a diverse character to the bank. It serves as a transitional landscape between broad open views of the river and wooded banks. This treatment is recommended for approximately 4.0 miles at these areas along the north bank:

- > between River Street and Western Avenue bridges,
- > stretch east of Eliot Bridge,
- > by Hell's Half Acre,
- > stretch of Greenough Boulevard,
- between Watertown Square and
 Watertown Dam;

and along the south bank:

- stretches between Harvard and Boston University bridges,
- between Boston University and River Street bridges,
- > stretch between River Street and Western Avenue bridges,
- stretches between Western Avenue and Anderson bridges,
- stretches between Anderson and Eliot bridges,
- > stretches of Herter Park,
- > stretch along commercial strip,
- > stretches of Nonantum Road,
- between Watertown Square and
 Watertown Dam.

RIVERBANK: RIPARIAN WOODS

- ***** RIPARIAN WOODED BANKS: This treatment, mostly found in the western Watertown and Newton zones of the Basin, provides the most positive and protected experience for water users. Selective thinning and clearing should be carried out to open up periodic views into the river from the parkland. This treatment is recommended for approximately 3.13 miles at these areas along the north bank > stretch east of Boston University Bridge, > stretches of Greenough Boulevard, > stretch of North Beacon Street, > stretches of Charles River Road; and in these areas along the south bank: > most of commercial strip > stretches of Nonantum Road
- * GRAVEL SHORE AT RIVER'S EDGE (*no section sketch shown*): This treatment varies the more typical treatment of lawn up to the edge of the bank and allows for future possible wading in the river. It is proposed in areas where there is already a gentle slope to the river and a bed of gravel at the water's edge. This treatment currently exists at Magazine Beach and in front of Boston University and should be retained there.
- Manage the cutting and maintenance of the bank edge. Creating a flowing pattern through the cutting and maintenance of the bank edge will impart a less linear, more dynamic profile to riverfront vegetation in less formal stretches.



• Increase wetland habitat and wildlife support. Restore and increase marsh environments along the shore and at Hell's Half Acre. Increase meadow habitats in the Upper Basin and enhance woodlands by controlling invasive exotics. 45 💊

RIVER STRUCTURES

Within the Charles River Basin a set of structures—seawalls, canals, dams, and landings—regulates the channel and the flow of water.

The highly visible granite seawalls, all built between the mid-nineteenth century and the completion of the historic Charles River Dam, play an important role in defining the historic character of the Basin. They arose from the interest in reclaiming the polluted mud flats of the estuary for development.

CLAM DIGGERS ON THE MUDFLATS AT LOW TIDE PRIOR TO THE COMPLETION OF A TEMPORARY DAM IN 1908.



The seawall along the Boston shore of the Lower Basin, built when the Back Bay was filled, is still visible along Storrow Drive. An integral part of the old dam, seawalls exist along the Charlesbank. They also line the Cambridge side of the Basin between the Charles River Dam and the Boston University Bridge. Short segments are found between the River Street Bridge and the Western Avenue Bridge and at the Arsenal dock site in Watertown. In many cases the seawalls carry decorative cast iron railings. Parts of the nineteenth-century canals also survive. Broad Canal, built in 1805, was largely filled during the twentieth century; the seawall along the north shore of the river is one of its last vestiges. Lechmere Canal, built in 1874, was transformed in the 1980s into a water park and focal point for commercial and residential development. The head and north side of Broad Canal will be developed similarly in the near future.

The historic Charles River Dam complex includes key engineering elements—the dam itself, its locks, and the drawbridge. Guy Lowell designed its chief architectural components—the upper and lower lock gate houses on the Boston side, the Washburn Pavilion, and the MDC stables and boat house on the Cambridge side. Four terraced boat landings were completed in 1935–37. These handsome granite structures served both as formal overlooks and boat landings. Three of the landings are located along the Esplanade at Gloucester Street, Dartmouth Street and Commissioners Landing. The fourth landing links Watertown Square to the river.

EXISTING CONDITION AND ISSUES

Because of their solid construction and deep footings the seawalls remain in good condition, but the ornamental rails that line their tops are failing. After a century of use many have rusted; the MDC is replacing these railings incrementally at great cost.

The Museum of Science and its parking garage gradually covered much of the dam between the 1950s and 1970s. A second lock intended for small craft is entirely hidden underneath the garage. Some of the most handsome stonework in the Basin is now visible only from inside the



parking garage. Of the five historic dam structures, the boathouse is in the worst condition, with structural damage evident on its façade. The stables and the Washburn Pavilion have recently been renovated; the Massachusetts State Police currently use the lower lock gate house and yard, which are inaccessible to the public.

Most of the historic steps and landings along the shore are in need of stabilization and repair. At Commissioners Landing the stone steps are collapsing. At the Gloucester Street Overlook,



THE BOSTON EMBANKMENT WAS COMPLETED IN 1910. THE GRANITE STEPS (LOWER LEFT IN PHOTO) LEAD UP TO THE LONGFELLOW BRIDGE.

> a massive panel of granite has fallen and broken into pieces; another on the opposite wall threatens to do the same. The remaining panel needs to be removed before it falls. Design plans are under way for this repair work.

RECOMMENDATIONS FOR RIVER STRUCTURES

- Conduct a visual conditions survey of all seawalls above and below water.
- Develop and follow a maintenance plan for the seawalls. The maintenance plan should include removal of any trees or shrubs growing out of the stone work and stabilization of loose railings. Given the high visibility and the high cost of railings, it is recommended that individuals and businesses be asked to donate segments as part of a comprehensive effort to secure private funds for restoration needs.
- Preserve and provide access to the oldest seawall in the Basin, along the east side of the Broad Canal in Cambridge. Preserving this segment of the old canal and providing access to it by land and water may require reconstruction of the drawbridges for improved clearance. However, portions of the drawbridges—the counterweights and control house—should be preserved and interpreted if possible.
- Make preservation, interpretation, and public access to the historic buildings and grounds of the historic Charles River Dam a priority. This is the focal point of the Charles River Basin Historic District. Create a pathway along the upstream side of the

dam; several alternatives for this pathway have been studied and are presented in Segment 1E, Project Areas. The historic buildings and grounds are to be studied under a separate MDC contract. Historic structures reports should be prepared for each of the five buildings as a basis for renovation and reuse, and a cultural landscape report should be prepared for the grounds. The MDC boathouse at this location should be stabilized immediately. The MDC Park Ranger Marine Unit should operate out of the boathouse.

- Develop a stabilization and maintenance plan for all historic landings in the Basin. Historic Structures reports should be prepared for all landings, and standard maintenance procedures should be developed. Historic stone work throughout the Basin should be field-checked periodically. Unstable sections should be stabilized immediately. If stabilization is impossible at the time, historic elements such as stone balustrades that are in danger of falling or breaking should be removed, labeled, and stored in a secure place until a careful reconstruction can take place.
- Stabilize the granite steps and landings along the Esplanade. It would cost far less to stabilize these stone structures now than to reproduce missing or broken pieces later. The Galen Street Bridge, where stone balusters

had to be reproduced at considerable cost, is a case in point. In many cases repointing the stone work in place may be all that is needed to preserve these durable and handsome structures. The stone steps at Commissioners Landing should be completely rebuilt on a new foundation if necessary. Design plans are underway for some of this repair work. Additional funding to complete the design and construction will be necessary.





PARKLANDS

This Master Plan aims to strengthen certain historic features of certain parklands within the Basin—for example, to heighten the character of the Esplanade as a quiet, passive-use area. It also advocates planning creatively—through grading, planting design, redesign of parking lots, or the addition of structural elements such as entrance gateways—those areas where the parklands widen.

These larger spaces offer an opportunity to claim passive areas within an otherwise extremely active Basin. In the parks within the Basin, landscape treatment should be tailored to the existing and proposed facilities and to the design of the space and should support the separation of active and passive use.

The number of park greens within the Charles River Basin is small, but with their pathways they have the potential to form critical connections to other major open spaces in the Boston metropolitan area. Restoring the physical connection between the Basin and the Fens at the Charlesgate would link it to the Emerald Necklace. A multiuse trail now under construction will tie the Basin to the Upper Charles River Reservation and regions to the west. Another trail, which will run between the Watertown Arsenal and Alewife, will connect the Charles to the Minuteman Bikeway, a regional bicycle path. The Fresh Pond Parkway section of this trail will soon be complete. The long-sought goal of a continuous pathway for pedestrians and bicyclists around the entire Basin was achieved in the 1970s with the completion of the Dr. Paul Dudley White Bicycle Path. The longest shoreline loop path in the metropolitan area, it stretches for more than seventeen miles on both sides of the Basin. The Basin includes more than thirty-two miles of pathways, hard and soft. This total will soon increase with the construction of the new Basin pathways from the Charles River Dam to Boston's Harborwalk and to the Freedom Trail at the Charlestown Navy Yard.

EXISTING CONDITIONS AND ISSUES

Landscape Issues

The parkland landscape in the Basin is surprisingly homogeneous. A narrow palette of species and landscape styles dominates the Basin. Because the parkland is structured by the continuous line of the pathway and because of its



THE MUDDY RIVER AT CHARLESGATE, THE MISSING LINK BETWEEN THE EMERALD NECKLACE AND THE BASIN. urban context, there has been a tendency to plant trees in straight lines even where there is enough room to relieve that urban linearity with informal massing of vegetation. The transition spaces between different areas of the Basin and at major approaches should have a treatment that underscores the richness and variety of the Basin experience. The willow trees at the Bowker Overpass are an example of what might be done. The mature willows mark the transition between the Fens and the Charles River Basin and help to soften the impact of the highway ramps.

The landscape at most bridges should be an important element that enhances the Basin landscape and orients users to the park. Motorists take in full views of the bridges and their problem landscapes as they drive along the Charles.

Trees

Trees are the most important design element in shaping scenery. They form edges to paths and open space, create canopies, frame views, and are the object of the view themselves—the willows at the Esplanade, for example.

Within the small number of tree species that have been planted, some are poorly suited to the Basin's needs and should be phased out or used sparingly with greater attention to their placement. The bushy, full form of the American linden, for example, blocks water views. Mature Norway maples require deeper, better soil than

the parkland can provide and should be phased out entirely. The yearly donation of cherry trees from Japan is a wonderful gesture, but their excessive use in the Basin has lessened their appeal and forced their siting in inappropriate places and configurations. Conversely, there are very few evergreens within the Basin, which would add winter interest in the parkland (see the plant list in Appendix E).

Particular signature trees, such as the London planetrees along Memorial Drive and the black willows at the Esplanade lagoons and Herter Park, should be preserved. Most of the Basin's trees show signs of stress due to an urban setting, intensive park use leading to soil compaction, or damage mowers have done to trunks.

Shrubs and Grasses

Over time, security and maintenance issues have reduced the number of shrubs in the Basin landscape. The judicious use of shrubs in the parkland, however, can improve the character of particular areas, screen intrusive views, facilitate maintenance where banks need to be stabilized or grass maintenance is difficult, and control use where short-cut paths have degraded park areas.

Grass is currently the universal ground cover throughout the Basin. Many park areas need mown turf to support use and visual character. However, alternative treatments such as tall



meadow grasses or ivies should be considered to facilitate maintenance, increase visual diversity, and protect trees where repeated mower damage is weakening them. These alternative ground covers and shrubs require a different maintenance regime than turf does; additional staff and staff training would be required to maintain a more diverse landscape. CHERRY TREES AT THE RIVERSIDE BOAT CLUB

Pathways

Large sections of Basin pathways are in poor condition. Clogged or nonexistent catch basins and poor grading have created drainage problems, such as at Herter Park. Pavement has cracked or spalled and potholes have developed

BARE PATHS NEAR MIT (LEFT), AND A JOGGING TRAIL WORN BY USERS AT LEDERMAN FIELD.



in other places such as the Cambridge Esplanade at MIT. The historic promenade at the Esplanade is in need of rehabilitation. Bridge walkways are not consistently plowed in the winter. Vegetation obstructs some of the paths in the Upper Basin. A regularly scheduled program of pathway maintenance must be developed.

The width of pathways is often inadequate for the amount of traffic they carry, particularly where parkways crowd the bank. Some stretches of pathway are only five feet wide, barely enough room for bicyclists to pass one another. In many of these stretches, users are spilling off the paved edges onto bare earth, in effect creating paths eight to ten feet wide. Some joggers tend to make their own pathways off the paved surface, which helps to alleviate crowding on the main path but causes erosion and root compaction. In several places, such as Nonantum Road, light poles, signposts, guardrails, or electrical boxes have been placed in already narrow pathways, further constricting their width.

Narrow widths and overuse of the pathways have made conflicts between those on foot and those on wheels more common. Though users seem to sort themselves out and avoid collisions on crowded pathways, conflicts compel some users to avoid popular spots at certain times. The crowded conditions are aggravated by individuals who do not follow the rules of the road—giving audible signals before passing, for example, or moving at a moderate speed. Even though cyclists and skaters may be in control, their speed threatens many pedestrians. Pedestrians often look back over their shoulders at the sound of brakes or are startled as cyclists or skaters brush by them to pass while avoiding oncoming traffic. This constant state of nervousness is not conducive to quiet contemplation of the river scenery. Pedestrians themselves often walk more than two abreast which makes passing difficult and dangerous.

Ideally, wheeled users would be separated from pedestrians, as is done in the Southwest Corridor Park. The extremely constrained parkways, paths, and shore areas along most of the Charles River Basin make this impossible in most places. The twelve feet needed to establish two six-foot bicycle lanes next to parkways is simply unavailable along much of the Basin. While it is possible to add bicycle lanes in limited stretches along the parkways, the lack of continuity would force awkward and dangerous transitions as cyclists shifted from the roadway to a multiuse path and back again.

Another important consideration is the relation of pathways to parkways, which contributes to a sense of security. Along most of the north side of the river, the main pathway runs close to the parkway and is clearly visible from the road. On the south side along most of the Lower Basin and part of the Middle Basin, the path is not as visible from the road. The boardwalk underneath the Boston University Bridge is particularly problematic. Anyone on the

boardwalk is invisible from the road or even from the path segments that lead to it. It is in the middle of one of the longest stretches with no exit from the Basin parklands.

While the Charles River Reservation is officially closed after dusk, some of the paths are lighted for night use, and many people use them.

People entering after dusk do so "at their own risk." The pathways are not as safe at night as they are during the day. State Police records BICYCLES, JOGGERS AND PEDESTRIANS SHARE THE PATH AT HERTER PARK.



document that a large number of incidents have taken place between sunset and sunrise; of fiftyeight incidents in the Lower Basin for which the time of trooper response is noted, twentyeight took place after dark. On the few Basin pathways that are lighted, bulbs are often burned out. Only thirty-six percent of respondents to the user survey felt safe at night in the Basin. Although the reservation is not legally open at night, use does occur then and ways to make Basin pathways safer after dark should be explored.

Police Presence and Security

Many users assert that a stronger police presence in the Basin has been necessary for some time. Patrolling on the pathways is limited to two State Police troopers on bicycles between the historic Charles River Dam and the Boston University Bridge and one between the Boston University Bridge and the Watertown Dam. In the summer they are joined by several MDC park rangers. MDC rules and regulations for the Basin, last updated in 1997, give MDC Rangers noncriminal citation powers and ticket books; State Police have full police powers.

The two State Police stations that patrol the Basin monitor security incidents in logbooks and daily journals. The Lower Basin Police Station covers the area between the historic Charles River Dam and the Boston University Bridge; the Upper Basin Police Station covers the rest of the Basin. The planning team consulted each station's records and interviewed officers to determine the number of reported incidents; these were then separated into qualityof-life and safety concerns. Incidents that did not threaten the safety or property of people using the reservation but did affect, sometimes seriously, how comfortable people felt there for example, drunken behavior, camping, drug use, and men exposing themselves—were classified as quality-of-life issues. Safety incidents include all serious injuries, threats, or damage to property, such as assault and collisions between an automobile and a pedestrian or cyclist. Collisions between automobiles on parkways were not included in the count.

In general, there were far more incidents reported below the BU Bridge than above it, including the majority of the safety incidents. In July 1997, for example, users reported thirtytwo safety incidents and twenty-six quality-oflife incidents in the Lower Basin but only eight safety and seventeen quality-of-life incidents in the Upper Basin.

One of the most important safety issues is a lack of emergency and/or pay phones for reporting incidents. This is a serious safety issue. When accidents occur, it can be very difficult to call for medical assistance. For the safety of their students Harvard and MIT maintain emergency phones that connect directly to the police and cannot be used for any other purpose. These stretches of Basin parkland are the only ones with such facilities. No other public emergency phones exist within the Charles River Reservation, and all three sets of pay phones in the Basin are on the Boston Esplanade.

RECOMMENDATIONS FOR LANDSCAPE MANAGEMENT

- Implement a process of selective and sustainable clearing to achieve a more varied and picturesque effect along the entire Charles River Basin; make additional plantings in certain areas.
- Introduce a greater variety of plant choices and vegetation designs into the Basin landscape. Planting should define open spaces, with plants in masses, and should incorporate informal configurations where there is sufficient park width. For visual and horticultural reasons the palette of canopy tree choices should be expanded. The palette of understory ornamental trees should also be expanded and should be planted in a greater variety of configurations to embellish structures, define terrace areas, and highlight sculpture. Evergreens should be planted to increase winter interest, modulate views yearround in and out of the parkland, and diversify the character of park areas. Native plants with berries should be introduced in the Upper Basin to increase interest and improve wildlife habitat.
- **Regrade parkland areas.** Changes in the grade will work to improve the character and usability of the park in areas where erosion, compaction, or past grading has resulted in slumped, unappealing, or difficult-to-use landforms.

- Selectively remove trees where necessary to increase the amount of open, sunny parkland. Selective tree removal will provide space for passive use and create better views of park spaces framed by vegetation.
- Protect signature trees and devise a strategy for replacing them. (See "Appendix D— Landscape Maintenance.")
- Judiciously introduce shrubs into the Basin landscape. Use shrubs to improve the character of the park and parkways and to control pedestrian movement. Shrubs should also be used to embellish special structures or landscapes, such as boathouses and the lagoon banks. Security and maintenance issues should help determine the choice of species.
- Implement a variety of strategies to protect trees from the stresses of soil compaction and mower damage. Mature trees can withstand these stresses, but the bases of

- small- to moderate-sized individual trees in heavily used narrow or exposed areas should be mulched. Masses of fescue or ground covers should be planted under trees to reduce the need for mowing. Paving units such as Belgian block should be installed to surround trees planted close to pathways in order to prevent compaction and mower damage.
- Increase diversity, visual interest, and ease of maintenance by introducing a greater variety of ground covers. Fescues should be used to mark the transition from turf areas to the river and river-edge vegetation or from turf to woodland areas. If planted as proposed along road shoulders, medians, under tree masses, and in selected parkland areas fescues could constitute about fifteen percent of the current turf area. Ground covers should be introduced under tree groupings and to create meadows in selected places such as Herter Park West and at the intersection of Greenough Boulevard and Arsenal Street. Belgian
- Embellish important structures throughout the Basin with special horticultural treatments. In particular, the Basin's bridges and boathouses present strong images in the landscape, mark points of arrival along the journey up and down the Charles, and orient

the user. Landscape treatments, such as the use of signature trees at selected bridge abutments and vines on bridges, should strengthen their visual presence.



• Restore and protect the wetland

> environments in the Basin. Wetlands at the General Service Administration site in Watertown and at Hell's Half Acre, currently threatened by invasive exotic plants and pedestrian incursions, should be surveyed and restored.

SOIL COMPACTION AND EROSION TAKE THEIR TOLL ON PARKWAY TREES ALONG MEMORIAL DRIVE NEAR MIT.



block might be used in places where shortcutting has killed grass and compacted soil, such as at pathway intersections.

RECOMMENDATIONS FOR PARKLAND USE AND CIRCULATION

• Remove intrusive structures that have little or no historic significance and serve no compelling river-related purpose within the Basin. The Daly Rink, the former bathhouse occupied by the American Legion Marsh Post at Gerry's Landing, and the aging

∞ 52

pool complexes should be removed. The recreational value of uses currently housed in these structures should be assessed and, if appropriate, better integrated into the Basin landscape or accommodated elsewhere.

- Expand unstructured spaces for passive uses throughout the Basin. Unstructured spaces are flexible, benefit a much broader number of users, and support passive enjoyment of the river—a central purpose of the Charles River Basin. New areas for passive uses should be added wherever possible. Existing passive use space, such as that at the Esplanade and Magazine Beach, should be expanded. It is crucial to preserve pockets of quiet activity in the midst of even such high-use areas.
- Convert specialized facilities and dedicated athletic fields to flexible use where possible. Given the limited space along the Basin and the likelihood of future shifts in forms of recreation, dedicated facilities that benefit single user groups for limited periods of time should be discouraged. Fields should be adaptable to a variety of organized and informal games.
- Distribute uses more evenly along the Basin. Redistributing informal uses along the Basin will help to minimize impacts on the most popular stretches of parkland. A park area could be developed above the North Beacon Street Bridge to draw users into the upper reaches of the Basin. The expansion of park space at the MIT seawall would help alleviate the crush of users on Esplanade paths.

 Increase the number of temporary parkway closures on weekends and extend the length of the season.
 Riverbend Park, the section of Memorial Drive closed to
 motorized traffic on Sundays from April through October, is



FLEXIBLE-USE AREA AT HERTER PARK.

very popular. Expanding the parkway parks along most of the north bank could help to distribute users along the Basin. Consideration should also be given to extending the parkway closure season.

 Achieve adequate path widths while preserving the park-like condition of the Basin. Wherever possible, pathways in constricted areas should be eight feet wide and incorporate one-foot shoulders on the down-slope side to prevent erosion. The difference between sixand eight-foot widths is so significant that it justifies extraordinary measures such as regrading riverbanks and rebuilding riprap slopes. Where the width of the parkland is sufficient, heavily trafficked multiuse paths should be ten feet wide. All multiuse paths and bridge crossings should be easily accessible to emergency and maintenance vehicles.

In no case should one or more paths dominate the bank or take up more than twenty percent of the width between the shore and the parkway curb. Unless the shore is armored with stone, all pedestrian paths should be a minimum of five feet from the shore and at least eight to twelve feet everywhere space permits

- Where banks are wide enough, establish separate paths for wheeled users and pedestrians. Where dual paths exist, as at the Esplanade islands, designate the path closest to the shore for pedestrian use only. Where space permits in the Upper Basin bicycle lanes and additional pedestrian pathways should be created along the shore. The MDC should field-test a variety of solidified soil paths for pedestrians to see which ones perform well over time. Avoid the use of asphalt surfaces close to the shore.
- Discourage wheeled traffic on pedestrian paths. A combination of rumble strips, soft surfacing, curved alignment, and gates should be sufficient to limit wheels on pedestrian-

only pathways. To discourage excessive speeds at transition points, pavement at the approaches to intersections and pedestrian bridges should be scored.

- Paint center stripes on all multiuse paths to help direct two-way traffic, and install jogging mile markers. Choose a darker nonglare paint to be in keeping with the park setting.
- Benches that face pathways should be set back on concrete pads at least 18 inches, preferably 24 inches, so that users' legs and feet do not extend into the path.
- Post trail etiquette signs and educate users to "share the path/share the park."
- Plow the main paths and bridge crossings of jogging loops along the river for yearround use. Sweep the paths periodically to prevent slides and falls on bicycles and skates and to improve cleanliness.
- Develop a path-monitoring and -maintenance program. Set up a hotline or Web address for users to report problems quickly and easily. Establish an adopt-a-path program for volunteers to help with routine path and shore maintenance.

- Add more pay phones at areas with heavy use. Pay phones increase security by providing the means for people to contact the state police. In a reservation of this size it is not uncommon for people to overextend themselves in terms of time and distance. Provide pay phones at or near clearly recognizable drop-off/pick-up points for cars and taxis. Boathouses should be required to provide accessible public phones as part of their permits.
- Minimize hiding places for potential assailants and keep sight lines clear. A varied landscape is important both for visual interest and for improved habitat along the Basin, but shrubs and dense vegetation should be set back from main pathways in areas where security is a leading concern.
- Install emergency telephones at regular intervals. These should supplement a system of public telephones and campus security phones so that users can find a phone about every half-mile. Locations should be posted on each phone, making them readily available to caller and dispatcher. Adding emergency phones would enable people to report safety incidents quickly and might thus discourage criminals activity.

- Design night lighting for select locations People congregate in certain areas along the Basin, such as the Esplanade and the MIT front, to enjoy the night views of the city or to escape the summer heat. Esplanade pathways are already lighted, but appropriate lighting should be added at the terraced boat landings and at Watertown Square to improve the appearance and safety of these gathering places. Care should be taken to shield all light sources so as not to blind people to night views across the water.
- Schedule some maintenance activities at night in key areas to improve safety. A staggered maintenance schedule would reduce disruption during peak use times and provide an additional presence within the park after dark.
- Increase the number of MDC bicycle patrols and encourage their enforcement of rules and regulations.

PARKLAND STRUCTURES AND THEIR USE

The Basin parklands feature footbridges, boathouses and yacht clubs, swimming pools and bathhouses, athletic fields and courts, playgrounds, performance structures, maintenance facilities, monuments, and park furniture. The fifteen boathouses and four yacht clubs generate a significant amount of use and activity, but other structures are not water-dependent in a strict sense. Some take advantage of the river setting and are enhanced by it; others could operate just as successfully in another location. Many of the sports fields and facilities supplement similar facilities in local city parks.

Most of the facilities on Basin parkland are dedicated facilities—that is, they have only one use. They lack the design flexibility to allow their being shared by other uses. Some, including the pools, are open for very limited periods of time during the year. Many, however, are the product of prominent and significant designers and reflect the attitudes of the "City Beautiful" movement. At the start of the century the Metropolitan Park Commission established a high standard for the design of even the most utilitarian of structures. They are legitimate historic resources that deserve protection.

Six footbridges span the river, including the 1925 John W. Weeks Bridge, designed by McKim, Mead, and White. Arthur Shurcliff designed the five footbridges that cross the Esplanade lagoons. In the second half of the twentieth century, nine utilitarian footbridges were constructed to carry pedestrians safely over Storrow Drive, Soldiers Field Road and Memorial Drive. Of these the Fiedler Bridge, with its flowing lines and broad span, is the

most distinctive. There are also footbridges at Magazine Beach and Herter Park.

Boathouses, the most prevalent building type in the Charles River Basin, signify a 150-year tradition of crew racing on the



THE FIEDLER FOOTBRIDGE LINKS THE ESPLANADE WITH BEACON STREET AND THE NEARBY PUBLIC GARDEN.

Charles. The fifteen boathouses along the banks include eleven dedicated to rowing and four to sailing. Anticipating the sheltered waters the historic Charles River Dam would create, most were built between 1900 and 1920, and, despite differing architectural styles, are similar in their bold massing, siting, and the way they engage the water's edge with ramps and floats to facilitate boat launches. The oldest is Harvard University's Newell Boathouse, constructed in 1900 to the design of Peabody and Stearns. Harvard built its Weld Boathouse in 1907, the Riverside Boat Club was built 1912, and the Cambridge Boat Club was completed in 1909. The oldest private rowing club on the river, the Union Boat Club, rebuilt its boathouse when the dam and the Boston Embankment were completed in 1910. Two of the four sailing pavilions are significant in architectural terms-the Walter C. Wood Sailing Pavilion, completed for MIT in 1936, and the MDC Community Boating pavilion, built on the Boston shore in 1941.

> The three swimming pools in the Basin—at North Beacon Street, Magazine Beach, and Charlesbank Park—were built in response to the increasing pollution

made it unsafe to continue to swim at such popular areas as Magazine Beach. All are simple, low-profile masonry structures built between 1951 and 1952. The pools and their accompanying bathhouses take up limited shore space and bear little relation to the river.

There are three broad areas within the Basin where sports fields and courts have been accommodated: Lederman Field, Magazine Beach, and Daly Field. Taken together there are six softball fields, two soccer fields, two tennis courts and several informal volleyball courts. The fields at Magazine Beach overlap so that softball games and soccer games cannot be played simultaneously. The poor condition of the turf at many of these fields indicates the intensity of the use.

Four deteriorated and antiquated playgrounds were recently removed from the Esplanade. Playgrounds in varying degrees of repair are located at Magazine Beach, near Longfellow Park, and in Watertown along Charles River Road. Playgrounds have been reconstructed at Herter Park's Artesani Playground and the Lee Pool.

Performance facilities and sites include the Hatch Shell, the Esplanade, Lederman Field, and the Publick Theatre at Herter Park. The Hatch Shell, built in 1940 to replace earlier band shells from 1929 and 1934, has become one of the region's most popular outdoor venues for music, an icon of New England that attracts a full season of public programs. It was completely restored a decade ago.

Completed in 1960 as part of the proposed Metropolitan Boston Arts Center, the Publick Theatre in Herter Park has presented plays each season since. Built on the site of the Charles River Speedway, the Publick Theatre is located on an island surrounded by a moat that flows from the river. The striking sculptural landform of the island creates an inward-focused amphitheater that is connected to the surrounding park by a bridge and a glassand-steel building designed by Saltonstall Morton Architects. This two-story structure is the Herter Center. It is currently used for storage and office space for the New England Sports Museum.

The scope of the events that take place at these facilities—attendance, duration, and impact varies tremendously. The High School Jazz Band Festival attracts a few hundred listeners to the Hatch Shell, while hundreds of thousands attend the Forth of July Boston Pops concert.



THE PUBLICK THEATRE AT HERTER PARK.

Maintenance, support, and administrative facilities include the MDC stables at the historic Charles River Dam, completed in 1910 to a design by Guy Lowell and recently renovated; the 1910 Fens Gate House at Charlesgate, which screens the outflow from the Stony Brook culvert; the Magazine Beach maintenance building, converted from an 1818 powder magazine by the Olmsted brothers in 1899 and currently used for storage; and the intricate and handsome Upper Basin headquarters complex on Soldiers Field Road, designed by William Austin of Stickney and Austin and built about 1900.

The Charles River Basin—particularly the Esplanade—features numerous memorials, monuments, and statues in addition to the Hatch Shell. The only other substantial memorial, excluding bridges, honors the founders of Watertown near Watertown Square. Several markers have been placed along the river to identify historic sites, including one on the knoll near the point where Roger Clap and the Dorchester Men landed in 1630.



THE UPPER BASIN POLICE STATION AND MAINTENANCE BUILDING, BUILT AROUND 1900, ON SOLDIERS FIELD ROAD.

The best monuments combine superior design with a functional purpose. The Curtis Memorial bridges the lagoon. The charming Lotta fountain was built to provide dogs with water on hot days. The Oliver Wendell Holmes memorial, originally located opposite the judge's house on Beacon Street, provides a place to sit near the Boat Basin. The Storrow monument provides a map of the Charles and nearby bodies of water to help people orient themselves. Other monuments function solely to memorialize individuals, such as the statues of Sen. David I. Walsh, Gen. George Patton, Gov. Maurice Tobin, and Gen. Charles Devens facing the Hatch Shell oval.

Basin parklands feature an array of park furniture and amenities. Historic site furnishings are one of the best indicators of how people have used the Basin through time. Scores of benches in several styles have been provided for public use within the Charles River Basin. Four of the five types of metal-frame benches aged better than those made of concrete. Those with concrete supports have generally not worn well; many are broken. The benches in John F. Kennedy Park, completed in 1987, are based on a design by Arthur Shurcliff . They have heavygauge steel legs and broad wood-slat seats and backs. They are attractive, comfortable, and durable. There are several sun shelters with benches in the Lower Basin, built to replace earlier shelters with striped canvas roofs. These sun shelters reflect the need of earlier generations for shade before the newly planted trees matured along the Basin.

There are six public bathrooms along 17.5 miles of riverbank, one of which is open yearround. There are only ten water fountains along the Basin, six of them along the Esplanade and two at Magazine Beach. There is one concession stand on the Esplanade and one near the spray pool in Charlesbank Park. There are three banks of pay telephones, all on the Esplanade.

EXISTING CONDITIONS AND ISSUES

Physical Condition

The condition of boathouses varies greatly. Structural failure is apparent on one, the MDC Boathouse on the Charles River Dam. The three swimming pools and bathhouses are all nearing the end of their useful lives. The Lee Pool and Bathhouse have been closed for several years due to structural problems. The roof of the Magazine Beach maintenance building needs to be replaced, though its massive masonry walls are sound.

Visibility and Access

The North Beacon Street Pool and Bathhouse is isolated from the river by a busy intersection and partially cut off from the neighborhoods by the Massachusetts Turnpike. The Fens Gate House is almost entirely hidden by the Bowker Overpass; only drivers on the westbound ramp to Storrow Drive are afforded a quick glimpse of this handsome building. The Upper Basin headquarters complex is not fully occupied and therefore vulnerable to vandalism. Its Captain's House is screened by overgrown vegetation from the parkway. The Saltonstall Memorial, a handsome work of art, is all but lost in the trees. At Herter Park the moat surrounding the Publick Theatre has partially silted in, and vegetation has totally obscured views of the island to the extent that many do not recognize it as such. Crude lighting, staging, and storage trailers obscure the potential of this island setting.

Effect on Viewsheds

The Magazine Beach Pool and Bathhouse block views to the river. The American Legion Marsh Post at the Eliot Bridge, built as a bathhouse in 1941, has little architectural merit, has been modified, and blocks a key view to the river and the Eliot Bridge from Greenough Boulevard.

Special events also affect views. Because most large events are sponsored, there is a danger that their commercial aspects—large banners, canopies, and inflatable signs bearing the names and logos of companies—will overwhelm the river setting. Vehicles have taken over more and more space to service these events and intrude on the park setting.

Crowding and Capacity

Existing boathouses are at capacity; demand for more space has built up over the past twenty years. The pool and bathhouse at Magazine Beach crowd that site. Parking for the Lee Pool intrudes upon the river pathway. Special events are taxing segments of the Basin. The Hatch Shell and the staging grounds for various walkathons, road races, and boating events are under stress and overcrowded. These events also cause noise, trash, parking, and traffic problems for the surrounding neighborhoods. The impact of special events on the quiet enjoyment of the Basin by regular users must be taken into consideration and a better balance struck.

Without planning, monuments and memorials may proliferate to the point that they clutter the riverbanks. Some seem out of place—the two cherry trees and the massive stone and wooden rail next to the Hatch Shell, for example, or the bust of Arthur Feidler on the island near the lagoon. Once installed, monuments are very difficult to remove or modify.

Privatization of Public Space

The regattas fence off sizable areas of the shoreline each year for three to four days. Sponsorship is essential to many of the events, but it is important to preserve public access and the character of the Basin while sponsors' desire for visibility is accommodated.

Lack of Amenities

One of the most important issues raised during the master planning process, including the user survey, is the lack of crucial amenities in the Basin. An intensive survey of the area corroborated this opinion. Benches, though in decent shape-seventy-five percent need only minor, cosmetic repair or no repair at all-are poorly distributed. Some stretches of parkland are cluttered, and others, such as Charles River Road, are underserved. Many benches seem haphazardly placed, with little attention to views or proximity to traffic. In some places benches protrude onto narrow pathways and create pinch points and uncomfortable conflicts between passive and active users. Little provision is made for other types of informal seating, such as

A FAMILY PICNICS AT MAGAZINE BEACH.

grassy slopes, terraced steps, and sitting walls. And even though only twenty percent of benches require major repair and another five percent require replacement, these benches are highly visible and color public perception of Basin maintenance.





ORIGINAL LAMPS, IN 1910. The Basin alsooffers only twenty-
one picnic tables.seIn heavily usedreareas such asareHerter Park andnMagazine Beach,
large family pic-
nics are one of theFprimary weekend
activities. Existing
picnic tables are
always full duringsesummer. The lackth

of designated

THE places for grills means people place their small CONGFELLOW grills directly on the grass, creating a fire hazard BRIDGE AND ONE OF THE BASIN'S

> Site furnishings are highly vulnerable to vandalism and costly to maintain. Many of the original site furnishings along the Basin—for example, the spiked lamps of the original Esplanade have long since disappeared. As a result the Basin lacks much of the rich detailing that was present in its first few decades. Some of the wooden roofs on the sun shelters are low and pose a hazard to bicyclists and should either be moved back from pathways or elevated a few inches. The roofing materials on many of them are not in keeping with their original design. In some cases the benches are missing entirely.

Though the earlier spiked gas lamps are gone, some of the original acorn-style lamps remain. Reproduction acorn lights were specified for the renovation of Memorial Drive in front of MIT and were intended to continue up river, but now extend only as far as the dual parkway. Beyond that point modern streetlights prevail.

The five public bathrooms at the pools, Daly Field and Rink, and the Hatch Shell are open seasonally during limited times, and for major events the MDC does bring in temporary toilets. Only the newly renovated bathrooms at the Dartmouth Street Overlook on the Esplanade are open consistently. The boathouses, sailing pavilions, yacht clubs, and community gardens are usually willing to open their doors in case of emergency, but the public is not invited to use these facilities.

Water fountains are unevenly distributed, and some do not work. The Basin also offers few choices for food and drink. Food concession trucks are only allowed onto the reservation with a permit during special events. Concession trucks swing by at the Herter Park parking lot occasionally but do not stay long. While many users would welcome affordable food concessions, others object to the intrusive visual quality of concession trucks with their commercial colors and advertising. Finally, few signs help orient first-time visitors to the Basin, explain its rules and regulations, or interpret its natural and cultural history. The bike route signs give cyclists the mistaken impression that they have right of way on pathways that function as multiuse paths.

RECOMMENDATIONS FOR PARKLAND STRUCTURES

- Remove intrusive structures that have little
 or no compelling river-related purpose
 within the Basin, such as the Daly Rink,
 the bathhouse occupied by the American
 Legion Marsh Post at Gerry's Landing, and
 the aging pool complexes. The recreational
 value of uses housed in these structures
 should be assessed and, if appropriate, better
 integrated into the Basin landscape or
 accommodated elsewhere.
- Develop design guidelines for new construction that reflect the characterdefining features of Basin architecture. The Basin should accommodate only those facilities that can harmonize with the river setting and guard against a proliferation of facilities for special interests. Structures should be sited so that they emphasize the river landscape and are folded into that landscape. Playful and irregular massing can break down the scale of large facilities and

help them blend with irregular landscape forms. Heights should be limited to that of the surrounding trees if possible, and a profile that ties the building to the surrounding landscape should be encouraged. Exterior materials, textures, and colors should be as natural as possible to complement the landscape. New construction should harmonize with existing architectural forms. Most of the boathouses, for example, were built in the first decade of the twentieth century and exhibit characteristic massing, contours, siting, and materials. Modern boathouses should reflect this character without mimicking past styles.

- A database of all relevant information on the Basin's memorials, monuments, and statues should be created and standard operating procedures established for their maintenance. Existing monuments should be restored and protected, according to written maintenance protocols.
- Develop stringent criteria for the permitting, design, and siting of new monuments.
 Eliot argued that monuments and other
 "obtrusive structures" were inappropriate
 because they might detract from the river
 scenery. Instead of stones or statuary, the
 MDC should encourage the donation of
 well-integrated functional elements (benches,
 landings, pedestrian bridges), with naming

privileges for only the most generous donations and worthy recipients. Only inconspicuous plaques, less than one by five inches, should be permitted on donated benches. Donated trees should have no permanent markers placed on them.

Certain zones such
as the island at theas the island at theEsplanade shouldbecome off limitsfor monuments.To honor those whohave been majorbenefactors of theBasin, the MDCmight consider a"donor's grove" atthe Dartmouth or Gloucester StreetOverlook, where their names could beorganized and recorded in the pavement. A

Wellesley College.

 Create design standards for park furnishings and establish maintenance procedures and schedules. Patterns and specifications for historic lights, benches, rails, and other furnishings should be retained for future use. The bench design for John F. Kennedy Park, based on the earlier Shurcliff design, should be the standard for the Basin. While it may be tempting to choose metal or plastic slat

similar donor's wall has been established at

benches because they are easier to maintain, wooden slats are far more comfortable and aesthetically pleasing. All benches should be sited on concrete pads to avoid mud holes, and the concrete should be dark to blend better with the surrounding turf and asphalt

paths.

• Encourage alterna-

ments, especially

along the water.

Maintain, where

ate gentle grassy

appropriate, or cre-

tive seating arrange-



THIS MODERN BENCH ON THE ESPLANADE ACROSS FROM MIT IS BASED ON AN EARLIER SHURCLIFF DESIGN AND SHOULD BE USED THROUGHOUT THE BASIN.

PLANADE ACROSS FROM RCLIFF DESIGN AND THE BASIN. And shrubs removed to achieve this condition. Gentle slopes between 5:1 and 10:1 are generally well drained and dry to sit on. They allow people to sit close to the water

and accommodate groups well. The wooden landings offer a clean and comfortable surface to sit or lie on, attracting scores of people on warm day. They should be repaired and supplemented.

 Remove dilapidated or poorly sited benches and the pads they sit on. Collapsing park furnishings and empty footings color

~ 60

VISITOR AMENITIES



condition. They foster an appearance of neglect and should be quickly repaired or removed. Benches and pads that are too close to parkways or isolated and rarely used should be removed and the area restored to turf.

- Redistribute crowded benches and place new benches in select locations where they afford good views, are accessible from paths, and are sufficiently set back from the parkways. Where appropriate, benches should be arranged to form alcoves for small groups to socialize as well as enjoy the view. Encourage boat clubs and institutions along the river to donate and maintain benches near their facilities.
- Add tables, ash pits, and extra trash barrels in a few designated areas. Too many furnishings can create a cluttered appearance, but the current number of picnic tables does not satisfy the demand for them. Picnic tables should be heavy-duty but movable, so that people can combine them and so that maintenance

crews can take them in for the winter or for repairs. To avoid a cluttered appearance picnic tables should be set back from the water's edge and grouped relatively close to parking lots to accommodate groups who arrive by car with picnics and grills.

- Provide bicycle racks at key locations. Bicycle racks should be placed only near playgrounds, sports fields, and in major gathering places where people are apt to leave their bicycles unattended. Boat houses should be required to provide bicycle racks.
- Replace or repair damaged water fountains and add new ones along the upper stretches of the Basin and along the MIT seawall. Joggers have repeatedly asked for water fountains, which should be located along the most popular loops. Water fountains close to boat landings would also serve the boating community; boat clubs should

donate them as part of their community service. Some fountains might be equipped with dog basins to serve the substantial canine population.

Locate concession stands and food carts where they will best serve the public and not intrude into the Basin landscape. Magazine Beach, Herter Park, and Daly Field are potential sites for walk-up concession stands or food carts. The MDC should seek and approve an appropriate design for concession stands and food carts in order to avoid the intrusion of commercial signs and canopies in the public landscape. Require food vendors to pick up trash and maintain the portion of the park around their site on a daily basis. In the longer term, consideration should be given to locating restaurants in historic buildings such as the Upper Lock Gate House at the historic Charles River Dam. Since boating traffic drops away after dark, dinner cruises should be allowed on the river.



AN ICE CREAM CONE MAKES A VISIT TO THE RIVER THAT MUCH MORE ENJOYABLE. Increase the availability of public bathrooms; supervise and maintain them regularly. Several options exist for increasing the number of bathrooms in the Basin. The feasibility of the European model of unsupervised, pay-per-use toilets should be explored. A higher cost per use should be permitted in lieu of the exterior advertising that is often used to generate income to the provider. (No advertising of any type should be allowed in the Charles River Basin; useful information for park users should appear where advertisements normally do.) The units should be modified to blend with the Charles River Basin landscape in form and color.

Link expansion permits for boathouses and yacht clubs to the provision of public restrooms. Some boat clubs allow the public to use their bathrooms, but they do not advertise their availability because of security and liability concerns. Other options include installing solar-powered composting toilets, as are used on the Boston Harbor islands, or increasing the number of portable toilets. The latter would be a more immediate, if less aesthetic, solution to the problem, and would permit the MDC to tailor the number of portable toilets to seasonal use and events. They are privately maintained and difficult to vandalize, but they are costly to operate for long periods. Bathrooms might be linked to such other facilities as concession stands or boat rentals. Close supervision and constant maintenance is essential to the success of public bathrooms.

- Install orientation signs at key gateways to the Basin.
 All signs throughout the Basin should
 have a unified color and design. Orientation signs should
 include:
- * A map of the entire Basin, including mileage of loops, connections to other regional open space systems, connections to public



LEARNING TO SKATE IN REVERSE AT RIVERBEND PARK ON MEMORIAL DRIVE.

- transit, and major destination points.
- The locations of bathrooms, drinking fountains, pay phones, emergency phones, concessions, and other amenities.
- * The *locations of particular uses*, such as canoe and kayak rentals and the Publick Theatre.
- Install trail etiquette signs at regular inter-

vals. A committee of interested citizens should review the precise content of these signs. Members of the Citizens Advisory Committee have expressed interest in pursuing design and installation of these signs as an early action item. Trail signs should include this information:

- * Keep right
- * Pass on the left, after audible signal

- * Bicyclists and skaters should wear safety helmets
- Walk pets on short leashes (seven feet or less) and remove droppings
- * Move off the pathway when stopped
- Pedestrians should walk no more than two abreast
- Replace bike route signs with multiuse path signs and install mileage markers along the paths for joggers and walkers.
- See "Historic Resources and Interpretation," beginning on page 26, for preservation recommendations.

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USE OF PARK FACILITIES

- Concerts and other special events at the Hatch Shell and elsewhere should not unreasonably interfere with the public's enjoyment of the Charles River Basin. During special events other users should be able to circulate along the main pathways and enjoy the river.
- Allow a wide range of appropriate events to be staged along the Basin. Special events should benefit from and complement the river setting. Events that do not meet these criteria, in the judgment of the MDC, should be staged elsewhere (for example, at City Hall Plaza, the Boston and Cambridge Commons, or Columbus Park). Event sponsors and the MDC should sign a written permit agreement that includes MDC rules and regulations; a schedule for the event; and a map showing walkathon routes, delivery routes, staging areas, electrical hookups, temporary parking areas, and other details. The permit should be kept with the event manager and be available to MDC Rangers for review. This would represent a refinement of the current permit system.

Performance bonds should be posted for all large organized events to support cleanup and turf-mitigation measures. A payment system should be devised to distribute financial responsibility in a way that reflects the relative impacts of different events. After large events these funds should be used to restore the landscape to its previous condition.

Event sponsors should demonstrate the capacity to organize and manage the event including security, efficient setup and cleanup, and restoration of any damaged facilities. Setup, take-down, and cleanup should be done immediately before and after the event.

Delivery vehicles should not be allowed to drive on soft turf areas, especially after a rain, or to park in the Basin for longer than one hour. Arrangements should be made for parking elsewhere during the event. Heavy equipment that could damage the Basin landscape or furnishings should be barred.

<image>

While sponsorships of special events should

be encouraged, large banners bearing sponsor

or brand names should be strictly limited in

should not be erected more than twenty-four

hours in advance of an event and should be

removed within twenty-four hours after the

event ends. Under no circumstances should

enclosures, vehicles, or equipment block any

part of the shoreline or any pathway. Tents

size and quantity. Sponsors' enclosures

THE AUDIENCE PREPARES FOR A CONCERT ON THE CAMBRIDGE SIDE OF THE WEEKS BRIDGE.

Event sponsors should work in partnership with the MBTA to actively encourage the use of public transportation by participants or provide special shuttle service. Use of the Basin for political or commercial purposes should be scrupulously avoided. or enclosures should be set back a minimum of forty feet from the water's edge. The promotion or selling of products, other than food from permitted concession stands, should not be allowed. 63 心

- Stage special events, walks and races at a variety of locations to avoid undue burden on a single site. Road races and walkathons currently begin at the Esplanade, an already intensely used place. Consistent with the goal of introducing more quiet space there for passive activities, the number of special events staged from here should be reduced and promoters encouraged to use these alternative venues:
 - * Lechmere Canal: The head of

Lechmere Canal might be an ideal spot for smaller walkathons and road races if an agreement can be reached with the City of Cambridge, which owns the land. It has copious parking, adequate transit, and excellent public services. Perhaps more important, it is almost entirely paved, so events staged here would have relatively low impacts on the Basin landscape.

* Lederman Field: Lederman Field is one of the best alternatives to the Hatch Shell or Esplanade for small- and medium-sized road races and walkathons. Like the Esplanade, Lederman Field offers access to transit and spectacular views. Special events here would have to be scheduled around athletic events, the primary use of this area. Should the Lee Pool complex be replaced or removed in the future it will be important to maintain public restrooms, drinking fountains, and a concession stand to support large events.

- * *Cambridge Esplanade:* If the eastbound lanes of Memorial Drive next to the river are closed periodically as they are at Riverbend Park further west, the Cambridge Esplanade at MIT could be a site for staging road races, walkathons, and other events.
- * *The Charlesgate:* Overlooked and forgotten by many park users, The Charlesgate



PARTICIPANTS IN THE AIDS ACTION COMMITTEE'S ANNUAL WALK FOR LIFE TAKE ADVANTAGE OF A REST STOP AT CHARLESGATE.

- provides a large area for gatherings.
- * Riverbend Park: Riverbend Park from River Street to Greenough Boulevard has ample room for events as well as for other public uses. It is accessible by public transit, and Harvard Square garages are available for parking. Walkathons and road races usually end with a celebration, including a band or disk jockey that plays for several hours. The presence of residential buildings would require strict controls on noise.
- * *Daly Field:* With improved public transit access to the upper end of the Basin, Daly

Field could become a more active staging ground for events. It offers ample parking and room for thousands to gather. Event sponsors should be encouraged to provide shuttle service from MBTA stations and elsewhere in the Basin.

- **Ban special events from certain areas of the Basin.** The Esplanade islands, Herter Park West, and Hell's Half Acre should be protected as oases of calm and quiet.
- Maintain the Hatch Shell as the premier outdoor performance venue in the metropolitan region and reserve it primarily for musical performances. The original bequest for the Hatch Shell prohibits use of the facility for political purposes. To protect residents in adjacent neighborhoods the MDC should test sound levels at the property line and at the source to establish appropriate decibel levels; the Boston ordinance governing sound levels in a residential/commercial area sets a ceiling of 65 decibels/25 hertz at the source. Events should take place only from 7:00 a.m. to 10:00 p.m. There should be no amplified sound before 10:00 a.m., with the exception of sound checks. The MDC should approve the use of sound amplification elsewhere in the Basin and should stipulate that it be directed away from residential areas. Groups that consistently violate the ordinance should be denied access to the facility for the following season. Exceptions to the noise ordinance

for certain special events, such as the Fourth of July, should be made at the discretion of the MDC. Bullhorns used during walkathons should not be allowed near residential areas.

With the exception of the Fourth of July celebration, special concert events should be limited in scope to the grassy oval and the music lagoon. The oval, about thirteen thousand square feet, can comfortably accommodate eight hundred to one thousand people sitting on blankets. Another two hundred to four hundred listeners can be accommodated at the edges of the oval or across the lagoon with a view of the Hatch Shell. Events that draw crowds significantly larger than this cannot be accommodated comfortably in this space. If they are permitted, a rest period of two weeks afterward should be instituted to support landscape recovery. Scheduling events four days a week



THE HERTER CENTER BRIDGES THE LAGOON AT HERTER PARK.

from June through September—rather than five days week, as is currently done—would also reduce wear and tear.

Overall, use of the Hatch Shell should be reduced by one-third to maintain the turf in reasonable condition.

• Fully restore and preserve the Herter Center and outdoor theatre for future public use. The Herter Center performance complex is less than fifty years old. Modern preservation standards might construe the structure as an intrusion into the original park setting and suggest its removal, but it serves an ongoing public purpose and with some reasonable investment could be restored. Link the outdoor Publick Theatre and Herter Center programmatically so that they support each other. Local institutions and business partners should be identified to assist in advocacy and fund-raising efforts.

PARKWAYS, BRIDGES AND PATHS

Parkways following the banks of the river were an integral part of the Charles River Reservation from its creation. The tree-lined parkways, or "pleasure drives," were designed to provide access by horse-drawn vehicle to the scenery of the river, to link the Basin to other reservations, and, to

a lesser degree, to provide access from the western suburbs to the city. In contrast to the rectilinear pattern of urban streets and the straight causeways and bridges that crossed the open marshes, the parkways were broad and expansive. Their sweeping curves and open vistas unlocked the scenery of the Charles, once hidden behind private commercial lots and visible only from dead-end streets.

The parkways in large measure function as Charles Eliot intended—as "instruments by which the scenery is made accessible and enjoyable." Though burdened by much greater traffic than their founders could have imagined, the parkways remain among the most enjoyable roadways in the metropolitan region. Motorists can see the Boston skyline from as far away as Watertown, a sight that reappears along the river closer to the city. The parkways provide motorists several opportunities to stop, park, and visit the shores of the river.

Breadth of view and the broad gesture were essential to the parkway aesthetic. Ironically, the scale and alignment of the earliest parkways for carriages anticipates the modern highways designed for motor cars a half-century later. Motorists today feel quite comfortable going five times the speed for which the parkways were intended.

Eliot had proposed that the context of a parkway should determine whether its design was formal or picturesque, and Arthur Shurcliff appears to have intended a formal planting of street trees along virtually all the parkways. The 1928 master plan map shows trees on only one



LOOKING SOUTHEAST ALONG MEMORIAL DRIVE NEAR HARVARD SQUARE, ABOUT 1965.

side of Cambridge Parkway, a feature that, to its detriment, characterizes it today. The Cambridge underpass at the Longfellow Bridge, where the viaduct is today, was to be built on filled land with a picturesque massing of trees on either side, a rare exception to regimented street trees. The formal boulevard treatment of Memorial Drive in front of MIT was intended to reach beyond the end of the seawall all the way to the Boston University Boathouse. The map shows that the Soldiers Field Road extension in front of the Brighton Abattoir site had been deleted as an alternate route. The Birmingham Parkway, a somewhat redundant road that maintains a much stronger parkway character than the commercial Soldiers Field Road extension, was also shown on the 1928 map. No landscape treatment was indicated for the Arsenal Street and North Beacon Street sections.

The parkway system from the historic Charles River Dam to Watertown Square consists of Storrow Drive on the south bank and Memorial Drive on the north bank, Soldiers Field Road and its extension, Greenough Boulevard, Nonantum Road, and Charles River Road. The vision of a continuous parkway system for the entire length of the Basin was not completed until the 1960s with the construction of Greenough Boulevard. Some of the late parkways were never fully landscaped, while many of the original parkways were widened and are no longer delineated by a consistent row of street trees.

Reinforcing the continuity and landscape character of these parkways is crucial to the success of the Charles River Basin as a scenic reservation in the heart of the city. Achieving this end in the face of increased traffic and speed is a fundamental challenge.

HISTORIC BRIDGES

The Charles River Basin contains eleven automobile bridges that connect major roadways as well as multiuse and railroad bridges. The automobile bridges spanning the river are the most prominent and play an exceptionally important role in defining the historic character of the Basin. Most of these bridges, in particular the 1906 Longfellow Bridge and the 1907 Galen Street Bridge, are handsome examples of early twentieth-century civic design that were specifically planned to enhance the aesthetic character of the Basin. The Longfellow Bridge is certainly the most substantial, the most visible, and to many the most handsome of the bridges. It is notable for its buttresses shaped like Viking ships heading upstream, which recall the popular myth that Leif Erickson discovered the Charles River Valley. In addition to vehicles the bridge also carries the MBTA Red Line.

Other bridges that cross the river are the Harvard Bridge at Massachusetts Avenue, the Boston University, River Street, Western Avenue, Anderson, Eliot, Arsenal Street, and North Beacon Street bridges. On the Cambridge side of the river, secondary bridges carry traffic over the Broad and Lechmere Canals. Other bridges include the Craigie Bridge at the Historic Charles River Dam, and the Grand Junction Railroad Bridge at the Boston University Bridge. All of the bridges are more than fifty years old and are designated as contributing structures in the Charles River Basin Historic District.



EXISTING CONDITIONS AND ISSUES

Interference with River Views

One of the most valued aspects of the Charles River Basin is that its parkway system visually connects tens of thousands of people every day to the river. Some parkways provide beautiful views to the Charles, but the growth of vegetation along many, particularly in the Upper Basin in Watertown, blocks river views. The roadway between the Bowker Overpass and the River Street Bridge and stretches of Memorial Drive near Longfellow Park no longer provide access to river scenery—their original and primary purpose.

Horticultural Condition, Diversity, and Maintenance

Trees along the parkway shoulders, the narrow portions of land immediately abutting parkway edges, are subject to severe stress, including desiccation, car exhaust, salt and sand deposition, loss of topsoil caused by storm drainage problems, reduction of root systems due to roadway construction, soil compaction from running and bicycling, and trunk damage caused by grass mowing. The vast majority of trees now exhibit such signs of stress as crown dieback, root shoots, leaf scorch, girdling roots, or loss of the tree's center leader.

Alternating clusters of different species of trees and other plantings would create an ecosystem less susceptible to disease and insect

ARLES RIVER

THE BASIN PARKWAYS ARE INTENDED FOR PLEASURE VEHI-

CLES ONLY.

side of the road and another the opposite side.

The most common condition is the use of clus-

ters of different tree species along a parkway

XCLUDE

RESERVATION .

TO SPEEDWAY

infestation. Several strategies for species distribution, some more successful than others, exist for the parkway shoulders. In a few places, most notably the site of the London planetrees along Memorial Drive, one plant species grows on both sides of the parkway for an extended distance. Along other stretches of the parkways, such as Memorial Drive between the River Street and Western Avenue bridges, one species inhabits one

stretch, with each species grouped for a distance before changing, as on Soldiers Field Road across from Herter Park. In some cases, as on Storrow Drive west of the Bowker Overpass, adjacent trees are of different species. Of these strategies, single-species plantings and clusters of a small variety of species are the most visually successful. There are very few ornamental plantings along the parkways. For some time during the 1980s the MDC maintained numerous floral

> displays along its parkways, to great public acclaim.

The maintenance of parkway trees is limited due to staff and funding shortages. Maintenance is critical if parkway plantings are to survive and perform well in the inhospitable shoulder zone.

Medians

Parkway medians have been treated inconsistently and are of uneven visual quality.

uneven visual quality. Some are hard surfaced, with weeds

forcing their way up through the pavement. Others are narrow zones of grass with guardrails that make mowing difficult. Some wider medians, such as those along Soldiers Field Road, have been planted with trees, which greatly enhances the visual character of the parkway but complicates mowing.

Curbs

The parkway curbs are not at a consistent eightinch height and are losing their ability to protect the shoulder planting zone from salt and sand deposition and road runoff. In some places, curbing has broken down or been lost. Other places, such as along the Soldiers Field Road commercial strip, have no curb at all. The majority of curbing is intact, but repeated road surfacing has raised the road level and reduced curb height.

Shoulders

Because bikers and runners use them heavily, the shoulders have suffered from a great deal of soil compaction and loss of turf.

Guardrails

There is no consistent guardrail design, and the location of guardrails along the parkways appears inconsistent. Metal guardrails, used frequently on the parkways, make these roads feel like highways rather than pleasure drives.

Traffic Volume and Speed

The Charles River Basin parkways function as major arterials serving Boston, Cambridge, Watertown, and Newton. The most significant change to the parkways over the decades has been the increase in traffic volume and speed, which has had a deleterious effect on parkway infrastructure and landscaping and has changed the way people experience the Charles River Basin.

Parking rules and speed limits are not aggressively enforced. Due in part to a lack of enforcement, speeds on the parkways have climbed well above posted speed limits. The road alignments and the lack of curb cuts invite high speeds. The entire southern bank has become a speedway. There are particular problems on the north bank at the straightaway in front of MIT and near Magazine Beach where the Reid Overpass allows acceleration. Many of these parkways have become high-speed barriers between neighborhoods and the Basin.

Design

The sweeping curves of the parkways reflect the broad curves of the river and make them pleasing roads to drive. However, many parkway design elements, such as guardrails and lighting, are in poor condition or are not in character with the parkland setting. In many cases the landscaping no longer helps to mediate between the parkways and the river. Rather than providing openings and framing views, landscape materials tend to line the drives with monotonous walls of green.

Parkway and Lane Widths

Planning participants and users agree that the parkways dominate too much of the Basin. While they must be maintained as functional arterials, their negative impacts should be more effectively mitigated. Two of the most dramatic possibilities are narrowing certain parkways to reclaim parkland and capturing other parkways for temporary weekend use by pedestrians, bicyclists, and skaters.

Some of the parkways built or expanded between the 1940s and 1960s were laid out in anticipation of higher volumes of traffic than have actually occurred, particularly in the Upper Basin and along the north shore. Numerous segments of these parkways are thus excessively wide both for existing and anticipated traffic demand. Recent traffic counts substantiate these observations. In these cases it is both feasible and desirable to narrow the parkways permanently.

Although the overall width of the parkways can be quite generous, the driving lanes themselves are narrower than the eleven-foot MDC standard. Along much of the Basin, particularly on the north side, parkway lanes are only ten feet wide. Shoulders vary but are often only one foot wide, making them too narrow for cyclists who prefer to ride on the road. These narrow widths do slow traffic and preserve space for parkland.

Parking

Parking is quite limited in many parts of the Basin. On the south side of the Lower Basin a few spaces are available by the Lee Pool. The Massachusetts Eye and Ear Infirmary allows Community Boating members to use its parking lot during evenings and weekends. Parallel parking exists along the north side of the Lower Basin, but students and commuters tend to use it all day. It is almost always impossible for people who wish to use the Basin on weekdays to find an open parking space. Above the Lower Basin, parking exists in lots sited where parklands widen. There is some parallel parking along Charles River Road and North Beacon Street in Watertown and off-peak parking along Memorial Drive. Large numbers of private surface and structured parking spaces abutting the Basin could potentially be shared during offpeak hours.

Intersection Crossings

It is difficult in places for pedestrians, joggers, cyclists, and skaters to cross the parkways to get to the Basin. While almost all of the intersections are signalized, many of the traffic lights do not have pedestrian walk phases. Where there are pedestrian walk phases, the wait is in many cases too long—up to 110 seconds in one case. Long stretches of the parkways have no pedestrian signals of any kind, for example, along the MIT campus and Nonantum Road. Intersection handicap ramps, which are heavily used by bicyclists and skaters, are often poorly aligned with crosswalks, and space is insufficient for bicycles, pedestrians, and skaters to queue at some crosswalks and pedestrian islands.

Condition of bridges

Most of the bridges in the Charles River Basin are experiencing some degree of deterioration, and several, although structurally sound, are in poor condition. Bridge rehabilitation places a major strain on the MDC's annual bond fund spending cap. If there are no public safety concerns, capital funds for their reconstruction are difficult to secure. Bridge repair and replacement must respect the historic character of the Basin. Structural recommendations are beyond the scope of this report.

RECOMMENDATIONS FOR THE PARKWAYS AND BRIDGES

THE HANDSOME RIVER STREET BRIDGE, COM-PLETED IN 1926, SHOULD BE STABILIZED AND RESTORED.

• Restore the pleasure-drive character of the parkways and reserve and reinforce a consistent parkway character along the entire length of the Charles River Basin. Enhance



the original landscape character of the parkways to integrate them with the river setting. This will help calm traffic as motorists slow down to enjoy the view. Key initiatives should include replanting the road-

way allées, opening views to the water, choosing appropriate light fixtures that support the historic character of the parkways, and removing or redesigning intrusive elements such as guardrails.

• Narrow selected segments of the parkways to reclaim riverbank. Narrowing parkways can be done only where the roads have significant excess capacity and where fewer lanes can handle projected traffic volumes. Narrowing selected segments of the parkways will help to slow traffic to the posted speed limit. Pedestrian safety and access to the Basin will be enhanced both by reducing the amount of roadway that must be crossed to reach the river and by slowing traffic on those roads.

Reclaimed riverbank will permit congested pathways to be widened from five to six feet to ten or twelve feet in certain areas. The additional room for riverbank landscap-





ing will result in a more attractive and useful edge for people and improved habitat and water quality.

After careful consideration of traffic counts on the parkways and of the width and quality of the parkland adjacent to them, this Master Plan recommends these permanent lane alterations:

- close one eastbound travel lane of Nonantum Road from Galen Street to Charlesbank Road:
- close one travel lane in each direction on Charles River Road from Galen Street to North Beacon Street;
- close one travel lane in each direction on North Beacon Street;
- close one travel lane in each direction on Greenough Boulevard from Arsenal Street to the approach to the Eliot Bridge;
- close one westbound travel lane on Memorial Drive between Fresh Pond Parkway and Hawthorn Street;
- close one westbound travel lane from the service road at the Genzyme front, off

Soldiers Field Road at the overpass between Cambridge Street and Western Avenue;

- close one eastbound travel lane along Memorial Drive at the Cambridge Esplanade in front of MIT;
- narrow the eastbound ramp from the Boston University Bridge to Memorial Drive, to provide a wider sidewalk and safer pedestrian crossings.
- Add more parkway closures to Riverbend Park, expand the Riverbend Park model to other Basin parkways during spring, summer, and fall weekends, and expand the parkway closure season. Adding temporary parkway closures will dramatically increase the access of pedestrians, bicyclists, and skaters to the Charles River Basin. Additions to Riverbend Park should be phased in over time on a trial basis to determine the cumulative effect on local traffic. In addition to Riverbend Park and Greenough Boulevard between North Beacon and Arsenal Streets, these parkways should be closed on weekends:
 - * Charles River Road
 - * Greenough Boulevard
 - Eastbound lanes along the Cambridge
 Esplanade (with two-way traffic on the westbound lane)

Close some of the parkways on Saturdays as well as, or instead of, Sundays. Experiment with the schedule of closures. Lower- and Middle-Basin parkways might be closed on Sundays and Upper-Basin parkways on Saturdays, for example, to draw people to different areas and to serve different groups. Expand the length of season for parkway closures.

• Reserve existing parking spaces for park users, especially in the Lower Basin. In such high-demand locations as the Cambridge Esplanade, limit parking to two or four hours during the day to keep students and commuters from monopolizing available spaces. MDC Park Rangers and State Police will need to enforce these limits if they are to work. The parking supply should be increased in the evenings and on weekends by developing shared parking agreements with businesses or institutions along the river and installing clear signage to direct users to those lots. One westbound lane of Soldiers Field Road along Herter Park should be set aside for weekend and special-events parking in order to allow a reduction in the size of the main parking lot at Herter Park.

Parking and access for shell trailers should be maintained for boathouses. Because trailers are intermittently present, areas of reinforced turf could be designated for their use. Trailers should not be stored for long periods of time next to boathouses.

Improve and expand the traffic and pedestrian signalization throughout the Basin. Improved signals will dramatically improve safety for non-automotive users. Pedestrian signals should be provided along most at-



THREE NEW PEDESTRIAN SIGNALS ARE RECOMMENDED FOR MEMORIAL DRIVE NEAR MIT.

grade path crossings in the Lower Basin where traffic is heavy. Pedestrian crossing signals should be timed with parallel vehicular signals. Motor vehicles are required to yield to pedestrians in case of conflict, but it would be preferable to install an exclusive interval for pedestrian crossings within the signal cycle where traffic volumes warrant the added time.

Wait times for path users should not be excessively long, preferably between sixty and seventy-five seconds. Provide sufficient room at intersections for several bicycles, pedestrians, and skaters to wait safely for the light to change. New crossing signal icons might display a cyclist as well as a pedestrian figure to alert drivers to the presence of fast-moving cyclists and skaters.

Add pedestrian signals to the following existing traffic lights (numbers correspond to the numbering on the diagram on page 72):

- I Nonantum Road at Galen Street
- Nonantum Road at North Beacon Street, west side
- 3 Soldiers Field Road at Arsenal Street
- 4 Memorial Drive at Western Avenue
- 5 Memorial Drive at River Street
- 6 Soldiers Field Road at Cambridge Street



Install additional pedestrian signals at several cross streets and mid-block locations:

- 7 Nonantum Road and Brooks Street: align crosswalk and existing signal
- 8 Nonantum Road at North Beacon Street, east side
- 9 Memorial Drive at either Pleasant or Magazine Street in Cambridgeport
- 10 Memorial Drive at Endicott Street at MIT
- II Memorial Drive at Harvard Bridge
- 12 Memorial Drive at Wadsworth Street by MIT (Wadsworth is preferred over Ames to avoid queues back to the underpass)

In all instances it appears that pedestrian volumes warrant pedestrian signals. This assumption will need to be tested in each case, particularly at the mid-block crossings. Install pedestrian/bicycle crosswalks and yield signs at certain intersections or midblock crossings:

- 13 Nonantum Road at Charlesbank Road (possible link to a future pedestrian bridge)
- 14 key cross streets on Charles River Road, including Irving Street near the playground
- 15 North Beacon Street at Greenough Boulevard
- 16 at the intersection of Soldiers Field Road and Parsons Street add a crosswalk to serve Brighton
- 17 Greenough Boulevard at Grove Street
- **18** Memorial Drive at Sparks Street (Sparks is preferred over Hawthorn due to its alignment, parking, bus stop, and proximity to Mt. Auburn Street)
- 19 Memorial Drive at the start of the curved viaduct as it approaches Longfellow Bridge.

along the Basin to serve bicyclists, skaters, and people in wheelchairs; align ramps with crosswalks at the following locations:

Improve or

- 20 Nonantum Road at Brooks Street
- 21 Memorial Drive at JFK Street
- 22 Soldiers Field Road at North Harvard Street
- 23 Memorial Drive at Amesbury Street

NARROWING GREENOUGH BOULEVARD BY TWO LANES WILL ALLOW THE REESTABLISH-MENT OF A HEALTHY RIVER-BANK ALONG THE SHOULDER OF THE PARKWAY.



- Selectively clear vistas in the Upper Basin to reestablish access to river scenery for motorists, bicyclists, and pedestrians (see page 41).
- Balance river views with traffic screening. Decisions about shoulder and parkland planting should balance the need for river views from the road with the need to screen traffic from parklands.
- Implement a comprehensive maintenance program for parkway trees.
- Improve the shoulder planting zone, or "tree lawn," to support plant growth. The shoulder planting zones are key to reintegrating the parkways into the park. Currently most tree lawns are poor environments for plantings. The minimum width of tree lawns should be six feet, the standard width throughout much of the Basin, but a minimum of eight to ten feet would create a far healthier planting zone. Where the shoulder planting zone is less than six feet wide, trees should be avoided and fescue should be planted.
- Along any given stretch, parkway trees should alternate among clusters of no more than three species in order to provide canopy continuity. Recommendations for parkway tree plantings should consider the adjacent context of the parkway, how the road alignment affects the perception of the tree allée, and the relative needs for plantings on the river and land sides of the parkway.

- For ground cover, shoulders should be planted with fescue-rich grass mix. Fescue requires only two mowings per season and is more adaptable to inhospitable urban conditions than other grass types. Less mowing will reduce damage to trees, while turf coverage will reduce water transpiration and soil compaction in the shoulder zone. Other grasses with a high salt tolerance should be part of the mix. Further research and trials should be undertaken to determine the most successful mix.
- Replace and maintain topsoil in shoulders. Topsoil is missing and needs to be replaced in most shoulder planting zones. Sandy loam and organic material should be added whenever new planting is planned.
- Increase the paved shoulder width to a minimum of three feet where existing pavement allows. Widening shoulders would provide space for those cyclists wanting to bike on the parkways but can only do so today along sections of the Upper Basin. Recreational bicyclists will continue to be accommodated on multiuse paths along the river in order to limit the width of the parkways and preserve space for parkway trees.
- Embellish rotary islands and medians with plantings of perennials and ornamental grasses to improve their visual character and support maintenance. Where the median is narrow, about three feet, use pavers on a bituminous concrete sub-base to inhibit weed growth. Where the median is a

minimum of six feet, plant with a fescue mix and, in certain limited areas where more ornamental treatment is warranted, with compact, hardy shrubs (but avoid shrubs such as *rosa rugosa*, which tend to trap trash). Where the median is a minimum of ten feet, plant with canopy trees and underplant with fescue to reinforce parkway character.

 Assess the need for guardrails, and use only where necessary. Consider a center guardrail where needed, rather than double guardrails. Where there are insufficient recovery zones, guardrails contribute to parkway safety by directing cars away from steep embankments, trees, or other hazards. Recent research indicates, however, that many guardrails may actually raise the risk to people by directing a skidding car back into traffic. Guardrails are visually intrusive, narrow the usable portion of paths, and reduce the quality of the park experience. The MDC should review the current standards for the design and location of guardrails along parkways and remove those that are unnecessary or dangerous.



- Standardize guardrail design throughout the Basin and substitute a distinctive design that is safe and attractive. Consider changing all rails to wood with steel backing as on the Merritt Parkway or corten steel on wooden uprights, the National Park Service standard for reservations. Where guardrails back onto a path, a second wooden rail should be placed on the path side to protect bicyclists and skaters from injury.
- Calm traffic and reduce speeds on parkways that abut neighborhoods. Proper landscaping with trees fairly close to the curb will narrow the apparent width of the parkway and thus induce motorists to slow down. The ability of trees to reach across the parkway from either side and interlace their branches creates the greatest sense of enclosure. This planting should be a high priority for parkways.

Attractive signs should mark the transition to MDC parkways along the river. Textured pavement should be introduced at certain key transition points to special zones, such as the Cambridge Esplanade, in order to slow traffic. Rumble strips are effective but should be sited with care; sudden changes in sound and texture can startle drivers and cause them to swerve. Where weekend roadclosures are anticipated, rumble strips should have a smooth section at the center to permit inline skaters to cross them. Raised speed bumps at intersections, while appropriate for residential streets, would not be safe for the speeds and volumes of parkway traffic. They are an attractive nuisance for skaters and bicyclists, some of whom use them to get airborne.

Strictly enforce speed limits after a period of notification, and use portable radar-activated speed signs to indicate the speed of oncoming cars during the notification period. Concentrate enforcement efforts where pedes-

trian conflict is high and speed- ANDERSON I ers can be pulled over safely. Combine enforcement with an effort to educate motorists about the parkways as a special asset shared by bicyclists, skaters, and pedestrians.

• Maintain ten- to eleven-foot lane widths as the standard. This lane width is generally appropriate for parkways. Where off-peak parallel parking is permitted, the parking lane width should be eight feet, with a shoulder of two to three feet, to accommodate car doors.

RECOMMENDATIONS FOR HISTORIC BRIDGES

 Prepare historic structure reports for all bridges to assess their historical significance and structural integrity and to recommend proper preservation programs and techniques.



THIS 1932 SHOWS THE HISTORIC LAMPS THAT ORIGINALLY LINED THE ANDERSON BRIDGE.

- Develop and follow maintenance plans for each bridge. In the event a bridge needs to be replaced, new bridge design should reflect the key character-defining features of Basin bridges, including such features as arches and historic lighting.
- Reintroduce consistent lighting on all Charles River bridges to mark the river at night and illuminate these landmarks.
 Design and install architectural lighting for the Longfellow Bridge, Eliot Bridge, and Weeks Footbridge to illuminate their distinctive architectural features.
- Seek alternative sources of funding for bridge repair and replacement that does not compete for limited park budgets.

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ACCESS AND CIRCULATION

Use of the Charles River Basin is enhanced by its proximity to public transportation, its connections to other areas, and the ability of users to make effective use of its pathways.

Many people already use public transportation to get to the Charles. Subway service is best below the Anderson Bridge, where the Red Line stations at Charles/MGH, Kendall Square/ MIT, and Harvard Square are close to the Basin. The Charles/MGH station comes closest to the river and is currently undergoing redesign. The Green Line runs parallel to the Charles for much of the river's length, with convenient stations at Lechmere and the Science Museum, and from Park Street through the Boston University stops on Commonwealth Avenue.

Because commercial vehicles are not allowed on the Basin parkways, bus service is available only on intersecting or nearby routes. Bus service in the middle stretches of the Basin from lines crossing the Western Avenue, River Street, and Arsenal Street bridges is acceptable. In the Upper Basin, bus lines serving Watertown Square, Newton Corner, and Oak Square are marginally convenient, coming within a fifteen-minute walk of major destination points on the river.

Years of planning and effort have brought about some exciting new east-west pathway connections. New connections between Watertown Square and the Upper Charles River Reservation are currently under construction; portions are already open. What was once known as the "Lost Half-Mile," the stretch between the historic Charles River Dam and Boston Harbor, is now being built as the "New Charles River Basin," a system of linked parks and pathways.

One of the most common travel patterns for walkers, joggers, and skaters along the river is making a loop around the Basin. Above the Boston University Bridge a series of loops of manageable distances exists; the only loop that is too long to stroll comfortably is between the Galen Street and North Beacon Street bridges in the Upper Basin.

EXISTING CONDITIONS AND ISSUES

North-South Connections

The Charles River Basin is the heart of the Metropolitan Park System, yet its connections to that system are often tenuous, particularly to the north and south. The Emerald Necklace originally connected with the Basin at the Fens, yet the Bowker Overpass prevents a direct link. Fresh Pond and Mt. Auburn Cemetery are an easy trip from the Basin, but there is no safe and easy path to either. Although a multiuse trail from the Minuteman Bike Path at Alewife to the Watertown Arsenal has been proposed, the Basin currently is not connected to it or to any other part of the growing network of multiuse trails in the region.

Absence of Loops

The most tenuous and incomplete pedestrian, biker, and skater loops are in the Lower Basin, the most densely populated and heavily used part.

Underutilized Public Transit

Parking lots could be reduced in the Basin if more users traveled by subway or bus, particularly for special events.

RECOMMENDATIONS FOR ACCESS AND CIRCULATION

- Strengthen the connections to the Emerald Necklace by creating a new Charlesgate path system.
- Establish a connection across North Beacon Street to the restored open space associated with the Arsenal development and to the Minuteman Bike Path extension on the opposite side of Arsenal Street.
- Produce a pocket trail map to introduce users to these new regional links and to proposed connections.
- Establish a connection along the upstream side of the Museum of Science.
- Improve connections to the shore path at both ends of the Longfellow Bridge and from the new Charles/MGH subway station. Coordinate Longfellow Bridge connections on the Boston side with circulation improve-

ments around a new Charles/MGH subway station. Establish a direct aerial connection between the redesigned station, the Basin, and the Longfellow Bridge. A well-designed system of pedestrian bridges would provide full access without compromising the historic integrity of the Longfellow Bridge. Improve the connections at the Cambridge viaduct.

• Create a new pedestrian crossing across the river at the Boston University Bridge. Use the abandoned half of the Grand Junction Railroad Bridge that passes underneath the Boston University Bridge to make a new crossing. Deck over and pave the bridge section and fence off the active tracks. Provide a ramped path up to the crossing on the south side and a ramped path down from the intersection on the north side.



Separate but related initiatives would improve pathway loops in the Lower Basin: I) create a second boardwalk underpass at the Boston University Bridge to link this loop to Magazine Beach along the river; 2) extend



the shore path across the railroad tracks and along the shore in front of Boston University's DeWolfe Boathouse; and 3) working with the city of Cambridge, extend a path underneath Memorial Drive and up the Grand Junction Railroad alignment into East Cambridge.

- Build a new pedestrian bridge across the river near Maple Street in Newton in the Upper Basin. This 200-foot bridge would shorten a 3.5-mile loop to a more manageable distance, provide better access to Daly Field and the Watertown meadows, and provide stunning views of the Upper Basin. Such a project should be able to attract private funding and could be built in conjunction with public improvements to the park area along Charles River Road. The Weeks Bridge is a good example of a privately funded improvement.
- Encourage the use of public transportation to reach the Basin for outings and special events. Work with the MBTA to provide clear orientation maps and signs to help visitors find their way to the river. Announcements for large events at the Basin should encourage public transportation use by giving directions and schedules.

Study the concept of dedicated shuttle vans to serve the Basin during peak-use periods. "Green vans" might be equipped with bicycle racks so that families could take oneway bicycle trips along the Charles. Special events in the Upper Basin could use the vans to supplement public transportation. While expensive, such a program might attract business sponsors because of its high visibility.

• Maintain existing pedestrian bridges. Clean drains, paint support structures and railings, trim overhanging branches, and regrade surfaces.

THE WEEKS BRIDGE,

DESIGNED BY MCKIM, MEAD AND WHITE AND

DEDICATED IN 1927, SETS

A HIGH STANDARD FOR

PEDESTRIAN BRIDGES

ACROSS THE CHARLES.