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Community Setting

REGIONAL CONTEXT

Traversed by rivers and streams, Boston is located on the Atlantic coast. The resulting physical environment of harbors, shoreline, tidal flats, lakes, ponds, marshes, and riverbanks provided transportation, supplied water, and steered development through the city's long history.

Many of these physical characteristics have been greatly altered through the ensuing centuries: hills were leveled and used to fill wetlands; streams were covered over for housing and industry; the shoreline was pushed ever eastward; military installations were built and buried on harbor islands and along coastal promontories; and an airport was built over islands and wetlands.

Boston was incorporated as a town in 1630 and as a city in 1822.

Boston's 2000 population of 589,141 makes it the largest city in New England and the 20th largest in the United States. Encompassing only 48.4 square miles, Boston is actually the second smallest major city in land area in the country. The city's long history and compact size means a higher population density than many other urban areas. In turn, this has generated an ongoing need to create and preserve all manner of open space in competition with other land uses.

Despite its relatively small land size and population, Boston's influence is felt throughout the region. It is the economic, educational, medical, and cultural capital for the entire New England region. Boston is the center of the seventh largest metropolitan area in the nation, with a population of 5.4 million people in the Consolidated Metropolitan Statistical Area (CMSA) as defined by the federal government. The smaller Primary Metropolitan Statistical Area (PMSA) includes over three million residents.

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About 600,000 people work in the city, making Boston – along with Washington, DC and San Francisco – one of only three major cities that have more jobs than residents. In fact, one out of every six jobs in Massachusetts and one of every 13 jobs in New England is located within Boston. The city's economy is service-based and its leading industries are financial services, health care, education, high technology, and tourism.

Boston is home to 32 public and private colleges and universities, with a combined full-time and part-time enrollment of more than 132,000 students within the city limits. Altogether there are 65 colleges and universities in the surrounding area with more than 250,000 students. The combination of highly skilled jobs and the large number of colleges and universities results in a highly educated work force and a population that is relatively younger than other cities.

There are 30 hospitals in the city with a total of some 7,700 beds along with three of the nation's leading medical schools. Boston is also home to renowned museums, nationally recognized orchestras, professional theaters, and many performing and visual artists whose combined presence creates a strong cultural dynamic in the city.

As a government center, Boston is the capital of the Commonwealth, the seat of Suffolk County, and the host to several regional federal offices.

Given the size of Boston and its impact on surrounding communities, there is a wealth of regional resources that cross town and city borders throughout the region. They include:

- The Massachusetts Bay Transportation Authority (MBTA), which makes over one million average daily passenger trips and serves 680,000 riders daily in a system that extends across some 78 communities in the region and even crosses state borders.
- The Massachusetts Water Resource Authority supplies potable water to the Greater Boston area and treats it after the water is used.
- The Massachusetts Port Authority operates roads, bridges, Logan International Airport, and maritime shipping facilities.
- The Metropolitan District Commission is responsible for most major open spaces throughout the region, including the Charles River and the Neponset River Reservations, the Stony Brook Reservation, harbor beaches, and sites across Boston.
- The Massachusetts Turnpike Authority operates a limited access toll-way from the New York border into the center of Boston.
- The Emerald Necklace is a linked chain of historic landscaped parks shared by Boston and Brookline.
- The Metropolitan Area Planning Council conducts research and provides comprehensive planning assistance to the 101 member cities and towns within its jurisdiction.

HISTORY

Its physical environment has indeed shaped Boston's history. Some 7,000 years ago, native peoples came to this area to fish and hunt. They encamped on the harbor islands and in places on the mainland, including what are now Boston Common and Arnold Arboretum.

Four hundred years ago, European explorers discovered Boston Harbor. In 1629, the first European settlers arrived and founded Boston. There was a world of cod and merchant ships, a place of rivers and meadows that carried settlement inland. The landscape of steep hills and small valleys with ponds, streams, and small rivers was amenable to early agriculture.

In time, this setting made possible a seaborne commerce that flourished through protected deepwater harbors. Early manufacturing utilized the waterpower of streams and rivers. The rolling terrain offered a venue first for farmland, then suburban estates, and then streetcar suburbs as the population increased throughout the 19th century.

As economics and populations shifted, so too did the challenge to maintain and create adequate open spaces for the growing population. Several waves of immigrants in the previous and current centuries resulted in crowded and impoverished neighborhoods where parks, playgrounds, and other forms of public open space were important to populations that had limited personal resources for recreation.

In the past, economic downturns, political indifference, and heavy use have combined to deteriorate some of Boston's proudest green areas. Assorted past industrial uses along the Charles and Neponset Rivers and other long-covered streams, for example, have left behind lingering pollution problems. Recent extensive and costly clean up efforts are only now beginning to alleviate these problems, thus enabling such areas to be used more extensively for water-based recreation. Related to such changes has been the ongoing effort to preserve existing open spaces while working to increase their size and quality.

Changes in the way the world does business have had impacts on Boston. One example was the conversion of railroad tracks that already cut through Boston into the Massachusetts Turnpike. The noise and air pollution of trains were traded for those of cars and trucks while the turnpike took more adjacent land for its right of way. Moreover, as commerce through the seaport declined, freight and passenger traffic at the adjacent Logan International Airport increased, leading to more runways and other aviation facilities that spread across islands, tidal lands, and even a city park.

After World War II, the promise of suburbia was particularly alluring in the Boston area. The population declined as many families left, trading apartment blocks and triple-deckers for the lifestyle of single-family homes separated by yard space and

linked by tree-lined, wide streets. The population decline devastated several neighborhoods in Boston, leaving behind abandoned buildings and vacant lots as the legacy of the overcrowding generated by the streetcar suburb boom of the late 19th and early 20th centuries.

With the drop in population, and the rise in abandoned buildings and vacant lots came a consequent pressure on municipal coffers. Pressures grew to reduce labor-intensive municipal functions: parks maintenance became a significant target, especially given the difficulty of standardizing the operations in the maintenance process. With the loss of constituents, and the pressure posed by reduced maintenance, city parks deteriorated during the 1960s and 1970s. The greatest blow was in the early 1980s, with the passage of Proposition 2½. This measure capped the rate at which local property taxes could rise, further limiting municipal revenues.

Open space activists in the mid-1980s formed a coalition of local park advocacy groups to strengthen their voice in City Hall. They put together an effort along with local philanthropists to focus on the critical state of deterioration of the park system, both municipal and metropolitan. It resulted in a landmark study, the Greening of Boston, that stimulated the city to develop a

1987 open space plan that outlined a program to rehabilitate the park system. Thanks to the booming economy in Boston during the 1980s, the city was able to enjoy large increases in property taxes which could fund this multi-million dollar rehabilitation campaign. But just as important was a recognition at the policy level that to revitalize neighborhoods and stimulate private re-investment in them, beautiful, safe, clean, functional parks were needed. Such parks were now seen as a key measure by which individuals and businesses assessed the value of a neighborhood.

Nevertheless, even during the period of post-war decline as the natural landscape was in some cases degraded, opportunities arose from these very conditions. Boston currently has more than 140

community gardens that provide thousands of residents with a food source, sense of community, and some outdoor exercise. Many of these gardens are located in some of the poorest neighborhoods and were built on trash-strewn vacant lots that sprang up as substandard and abandoned homes and businesses were destroyed. These sites have been transformed from dangerous eyesores to attractive produce and flower gardens. They have also increased neighborhood value.

A final example of the continual pressures between local communities and the forces of massive development is today's Southwest Corridor Park. Originally a rail line, it was to be expanded – in the manner of the Massachusetts Turnpike – into a multi-lane freeway that would have cut through the hearts



Southwest Corridor Park

of Cambridge and Boston. However, widespread community opposition from many diverse neighborhood organizations led to the project’s defeat. Today this right-of-way serves as a mass transit corridor for local, commuter, and regional/national rail travel, with parks and gardens along and over the below-grade rail corridor.

POPULATION CHARACTERISTICS

Boston’s population has been rising over the past twenty years, in contrast to previous decades of population loss. There was a 2% rise in the 1990 figure (574,283) over the 1980 figure, and a 2.59% rise in the 2000 figure (589,141) over the 1990 figure. Population density increased from 1980 to 1990 by 245.1 persons per square mile, reflecting the increase in total population. The population increase speaks to a need for more open space, as more people will likely put more pressure on existing spaces.

In 1990, 19 percent of Boston’s population were in the 0-17 age category, while in 2000 that has increased to 20%. The average age in 1990 was 34.6. Overall, the need for a full spectrum of open spaces is clear, from pedestrian/bicycle paths and children’s play lots, to ball fields and courts, and passive spaces and community gardens.

City-wide Demographic and Housing Profile

POPULATION	
2000 Census	589,141
1999 Census	574,283
1980 Census	562,994
Population growth/decline, 1990-2000	2.59%
Population growth/decline, 1980-1990	2.01%

AGE		
2000 Census		
0-17 years	116,559	20%
18 and over	472,582	80%
1990 Census		
0-4 years	36,601	6%
5-9 years	30,084	5%
10-14 years	26,626	5%
15-17 years	16,522	3%
18-20 years	39,780	7%
21-24 years	60,668	11%
25-29 years	73,477	13%
30-34 years	58,887	10%
35-44 years	78,159	14%
45-54 years	46,916	8%
55-59 years	19,638	3%
60-64 years	20,975	4%
65-74 years	35,832	6%
75-84 years	21,899	4%
85 years and over	8,219	1%
Average Age (1990 Census)		34.6

SOCIO-ECONOMIC/HOUSING/DENSITY	
Population 16 Years and Older, by Employment Status	
(1990 Census)	%
Employed in armed forces	less than 1
Employed civilians	61
Unemployed civilians	6
Not in labor force	34
Median Household Income (1990 Census)	\$29,180
Occupied Units Ownership	
(1990 Census)	% Units
Owner occupied	31
Renter occupied	69
Number of Year Round Units in Structure	
(1990 Census)	% Units
Single units	16
Double units	14
3-9 units	38
10-19 units	11
20-49 units	9
50 or more units	11
All other	1
Single/Multiple Unit Ratio	0.19

Households by Age and Poverty Status	
(1990 Census)	% Households
Above poverty, under age 65	67
Above poverty, age 65 and over	16
Below poverty, under age 65	14
Below poverty, age 65 and over	3

Household by Number of Vehicles	
(1990 Census)	% Households
No vehicles	38
1 vehicles	42
2 or more vehicles	20

Population Density	
	Persons per Square Mile
1980 Census	11,616.1
1990 Census	11,861.2
Density Change 1980 to 1990	245.1

RACE	1980 Census	1990 Census	2000 Census
White	382,123 68%	338,734 59%	291,561 50%
Black	122,203 22%	136,887 24%	140,305 24%
Hispanic	36,068 6%	61,955 11%	85,089 14%
Asian or Pacific Islander	14,910 3%	29,640 5%	44,280 8%
Other	6,473 1%	7,067 1%	27,906 5%

Household growth was sizable from 1980 to 1990, a 4.69% increase, which explains part of the increased pressure on housing availability and prices. While most households with children were headed by a married couple (52%), a significant proportion were headed by a single family head, with the vast majority in this category headed by a female (41% out of all households with children). In 1990, the average persons per household figure was 2.37, with 1-person households representing 36% of all households, the largest percentage among the household size categories. Open spaces provide an important venue for social interactions between and within families and households; at the same time, the increasing number of households and the resulting pressure for housing puts pressure on existing open spaces and the remaining land resources available for future open spaces.

Unemployment in 1990 was at 6%, while median household income at that time was \$29,180. While 3% of total households were ones below poverty with individuals aged 65 and over, 14% were ones below poverty with no individuals aged 65 and over. When incomes are lower, persons and households will likely be more dependent on public open spaces for their out-

HOUSEHOLDS

Households		Households w/ One or More Persons Under 18 Years			Persons in Households		
1990 Census	228,464	(1990 Census)	Households	%	(1990 Census)	Households	%
1980 Census	218,234	All Households	228,464	100%	1 person households	81,212	36
Household Growth/Decline, 1980-1990	4.69%	No One Under 18	170,894	75%	2 person households	67,339	29
Population by Household Type		With One or More Under 18	57,570	25%	3 person households	34,005	15
(1990 Census)	% Persons	Households with Children by Type			4 person households	23,443	10
Family households	67%	(1990 Census)	% Households w/children		5 or more person hshlds	22,465	10
Non-family households	28%	Married couple families	52		Average Persons per Household (1990 Census) 2.37		
Group quarters	6%	Other family, male head	6		Family Type		
		Other family, female head	41		(1990 Census)	% Families	
		Non-family	1		Married couple		59
					Other family, male head		8
					Other family, female head		33
					Families as a % of All Households 51%		

door leisure pursuits. (Even higher income persons and households are dependent on public open spaces for various forms of organized – and unorganized – play.)

Multi-family housing is the general rule in Boston: renters occupied 69% of housing units, per the 1990 census; 70% of year-round housing units were in structures with 3 or more units. Renters and owners in multi-family structures will tend to have less access to open space on-site, and therefore have greater need for open space availability in the public realm.

The availability of a motor vehicle for a household leads to mobility and access to recreation areas much farther from home than walking distance: yet in Boston, per the 1990 census, 38% of households had no access to a vehicle, making them generally dependent on walking or various forms of mass transportation to access open space.

In terms of race, the city of Boston has become more diverse in the past twenty years. The white population share has dropped from 68% in 1980 to 59% in 1990 to 50% in 2000. The black/African-American share has remained fairly stable (22%, 1980; 24% in both 1990 and 2000); while the categories Hispanic, Asian/Pacific Islander, and Other have increased their population share from 10% in 1980 to 17% in 1990 and 27% in 2000. The increase in categories other than black and white has much to do with the rise in immigration over the past twenty years. Immigrants have been a significant part of the increased interest in non-traditional sports such as soccer and cricket, which has put pressure on certain open spaces.



Public Garden

GROWTH AND DEVELOPMENT PATTERNS

More than 350 years in the making, Boston has evolved through the centuries from a coastal colonial outpost populated by residents from a couple of small English towns to a major metropolis of diverse activities and population.

Relatively small in area for a major city, Boston faces land use pressures and competition as it continues to be “filled up” by development.

Demands for commercial and residential development and the call for more green space are driven in part by continued migration into the city. Boston’s population continues to grow, fueled not only by newcomers from other lands as mentioned in the population characteristics part above, but also by empty nesters moving back into the city, and by young professionals who come here to our many colleges and stay to work after graduation.

The city’s infrastructure also has evolved through the years. Boston’s colonial-era streets have grown into a 795-mile network. Eight major highways feed into downtown Boston and the city is encircled on the north, west, and south by suburbs linked to Route 128, the state’s circumferential highway. Three limited-access U.S. interstate highways serve the city.

Boston developed the first subway system in the nation, which has grown to serve 680,000 riders daily from 78 communities. Logan International Airport served 27.4 million passengers in 2000.

The city contains over 4,500 acres of parks, playgrounds, and other protected open spaces, more than half of which are owned by other (mostly state) entities. More than one-half of the city's land is tax exempt, owned by either government, religious, charitable, medical, or educational institutions.

Currently there is massive construction underway along parts of the city's waterfront and downtown. Known collectively as the "Big Dig," the Central Artery/Third Harbor Tunnel Project is building a new highway tunnel coursing through downtown, while adding another tunnel from the Massachusetts Turnpike to the airport. Not far from this work is a recently completed water pollution treatment plant on Deer Island. A 9-mile tunnel carries the secondary treatment plant's effluent eastward to mix with the waters of Massachusetts Bay. Thus the waters of Boston Harbor are becoming clearer and cleaner.

Once completed in total, these projects are expected to spawn new green spaces where there is now congestion and tumult.

These massive and expensive projects capture the public eye and imagination, but in Boston's residential neighborhoods a more subtle effort has been underway that is also crucial for determining how the Boston of this new century will look and how amenable it will be to its residents. This effort has been a process of re-zoning neighborhood by neighborhood to reflect changes and to better fit residents' needs. This effort is driven in part by the city's high population density that, in turn, increases pressures for development in whatever diminishing yet developable space can be found.

The basic inquiry is: what kind of city do Bostonians want for the next century? All across the city, the question is being answered in both dramatic and modest fashion.

Infrastructure

Since European settlement, Boston has always been a little short of elbowroom. Thus, it is not surprising that Boston's infrastructure – the methods of moving people, communicating, supplying the needed water and sewerage and the goods they want – also functioned in close quarters. So it is even today, almost 400 years since the City on a Hill was first settled.

Boston remains relatively small, less than 50 square miles with a downtown of only three square miles. However, with a population nearing 600,000, Boston is the most populated city in New England. An additional 1.4 million people enter Boston each day to work, attend school, or visit.

The necessary infrastructure systems to support this dense area then becomes a double-edged sword. Providing various means

of transportation, a myriad of electrical services, gas lines, and water and waste systems not only sustains the population but also encourages ever more users until various forms of gridlock loom on the horizon.

This also means that land for any use is at a premium. Parking lots and office towers contend with parks and playgrounds for space in the crowded urban environment. Achieving a balance of necessary services while maintaining Boston's quality of life is a continuous push and pull of public policy – one in which open space and infrastructure play key roles, sometimes complementary and sometimes contending.

This section of the Open Space Plan will look at two general infrastructure areas: Transportation and water use. Water use includes the consumption of water by people and industry as well as the treatment of water and other fluids as sewage.

Transportation

In order of their appearance and development, water, road, rail, and air have provided transportation in Boston.

It started with the Atlantic Ocean crossing, carrying the first permanent settlers from Northern Europe. This body of water then served as a “coast road” for further exploration of the eastern seaboard.

Ocean harbors and the rivers that flowed into them soon followed as another transportation element. For Boston, that primarily meant the Charles and Neponset rivers as early inland routes as well as sources of fresh water, fish and other game food, and power for early businesses such as grinding mills. The rivers were also altered, bridged, dammed, and diverted as development proceeded.

As soon as settlers landed, of course, they also began making their way upon land. First largely by foot, following early Native American trails or creating new “desire paths” – footways that literally took the path of least resistance by going around natural obstacles such as hills and lowlands. Many of these paths soon became crude roads and then city streets. Ferries and then bridges also became early and important parts of overland travel. The first span across the Charles River was completed in 1786, for example, but this bridge had been proposed as early as 1720.

Railroads were first built in Boston during the 1830s and grew rapidly as a means of moving both people and goods swiftly over greater distances. The advent of railroad technology made possible the extensive filling in and building up of tidal flats and lowlands into new neighborhoods. This technology made possible not only the greater carrying capacities by rails, but also furthered the development of steam engines that were used to power locomotives hauling the fill-laden cars and to power steam shovels to replace pick-and-shovel efforts by humans.



The advent of railroad technology made possible the extensive filling in and building up of tidal flats and lowlands into new neighborhoods.

The Back Bay and South End are just two major examples of neighborhoods made possible by these new technologies.

Toward the end of the 19th Century, rails also were used to convey horse-drawn trolleys and later became the roadbeds for electrified above-ground trolleys and subway lines. The advent of mass transit caused many hitherto far-flung areas around Boston to become convenient to the city core. Thus, what have been called “streetcar suburbs” grew along trolley lines in Roxbury, Brighton, Dorchester, and other areas around Boston.

Air travel in Boston developed in the last century with Logan International Airport started during the 1920s on the mud flats of East Boston. Today, both passenger and freight uses have greatly expanded at Logan, in part taking up the slack of gradually diminished ship-borne services to Boston.

The following sections will take a closer look at current and future transportation plans and issues in Boston.

Roads

The variety of road service in Boston ranges from narrow cobblestone alleys on Beacon Hill dating back several centuries to the massive Big Dig – the widening and burial of the Central Artery to be followed by the removal of the elevated portion currently in use. Ultimately the Big Dig will not only remove the physical barrier of the elevated artery, but also create about 12 acres of new parkland in the city.

As the ownership of privately owned vehicles increases, the burden of ever-growing traffic adversely impacts on the quality of life in the city, as well as in the surrounding metropolitan area. From residential neighborhoods where merchants and residents call for more parking to the heavily-used Interstate Highway System that cuts through and surrounds Boston, the conflict between personal choices and public good remains unresolved. Roads are an important spoke of the transportation wheel serving Boston. At the same time, traffic delays and air, water, and noise pollution are constant reminders of the cost of such a transportation system.

A few statistical snapshots underline these observations:

- According to the 1990 Census, at least 83% of the region’s households and 62% of Boston households owned at least one vehicle.
- The automobile ownership rate in Boston increased 14% between 1980 and 1990.
- Since 1970, vehicle miles traveled in the region have increased by 75% while the population grew by only 10%.
- Vehicle miles traveled continue to increase much faster than

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the population. By 2020, vehicle miles traveled are expected to increase by 26%, but the population is projected to grow by only 5%.

- In 1990, of about 500,000 daily commutes, 224,000 of them – about 43%–took place in a vehicle with a single occupant.
- Although Boston’s historic core was not designed for the automobile, each day 600,000 vehicles are driven into the downtown.
- The growing number of vehicles on Boston’s roadways are not only coming from other communities: in the year 2000, more than 376,000 cars were registered in Boston, an increase of 12.6% since 1999 alone.

Air

In an urban area, both parks and airports can compete for land. The Frederick Law Olmsted-designed Wood Island Park in East Boston, completed in 1895, was sacrificed for airport expansion in the 20th century.

Yet, Logan International Airport is undeniably a critical commercial, communication, and travel link between Greater Boston and the rest of the world. This is reflected in a few statistics from the past decade. According to figures from Massport:

- In 1990, Logan handled 22,878,191 passengers. In 2000 that figure had grown to 27,412,926 – an increase of 8.3 percent.
- In 1990, 683,434,975 tons of cargo moved through the airport. By 2000 there were 852,347,154 tons – 8 percent growth.
- In 1990, 119,818,113 tons of mail passed through Logan. For 2000 that number was up to 194,902,513 tons reflecting a 6 percent increase.

A significant increase in business at the airport has resulted in additional expansion: New airport hotels and terminal buildings, a third harbor tunnel to increase vehicular access, and more parking spaces.

In addition, Massport and the air carriers using Logan have called for construction of a new airport runway in order to alleviate congestion. Just as avid are opponents who contend that an additional runway will have a direct and detrimental effect on the quality of life in neighborhoods that exist under Logan flight patterns. Opponents cite not only the noise and pollution caused by additional aircraft flying near them but the increase in cars making their way to the airport as well.

As part of its efforts to mitigate the airport’s negative impact on surrounding communities, especially East Boston, Massport has built and maintains Piers Park, located on the site of a formerly dilapidated dock. An additional park is planned for an adjacent pier.

Rail and Bus Transit

In response to the crush of automobiles heading into and out of Boston, the MBTA has been re-opening commuter rail lines that had been shut down with the advent of the Interstate Highway System in the 1960s. For example, service to the South Shore, New Bedford, and Fall River has been restored.

Closer to home, the MBTA is currently working on an Urban Ring and Silver Line. The Urban Ring would loop from Dorchester through Roxbury, Fenway, Charlestown, Cambridge, Somerville, and East Boston. The Ring would connect biomedical research areas, high tech clusters, Logan Airport and older residential neighborhoods with these new job sources. It would also make open spaces more accessible along its route, such as the South Bay Harbor Trail, the Emerald Necklace, the Southwest Corridor Park, and the Charles River Reservation. Some open spaces may even be created in the Urban Ring corridor because of its potential implementation.



MBTA's Silver Line

The Silver Line will link the developing South Boston seaport district with Chinatown, the South End, Lower Roxbury, and downtown. It will result in a new park along Fort Point Channel, and pedestrian and bicycling accommodations in the Washington Street portion of the corridor in the South End. The Silver Line will thus increase access to waterfront open spaces at the Fort Point Channel and South Boston Seaport districts from inland Boston neighborhoods.

More directly affecting the city's park system will be such smaller changes as redirecting an MBTA bus route to better serve the newly opened 103.6-acre Millennium Park in West Roxbury.

Water

Waterborne transportation in Boston over the course of nearly 300 years has undergone many manifestations. The sea and the harbor continue to be important avenues of international commerce although Boston's share of this trade has fallen behind other port cities such as New York and Montreal. For example, today cruise liners calling in Boston are a bigger business than container ships.

However, in recent years the city and other communities have revived and expanded one of the earliest forms of transportation utilized in the early days of the colony: water ferries. Different parts of Boston as well as the surrounding environs continue to be separated by water. Thus, as the area's population and development densities continue to increase, ferry service will become a more viable alternative to clogged highways and packed transit trains.

The Boston Harbor Islands park system, now being developed by a consortium of governmental agencies and other entities,

including the Parks Department, will only add to the demands for additional water transportation. Private ferries transport visitors to Georges Island from the Long Wharf dock. From there, a state-subsidized water taxi service provides free transit to several other harbor islands. Lowering the cost of the private ferries to enable a broader range of passengers to access the islands will be an ongoing concern of harbor island park management.

Water and Sewer Service

The water that enters Boston homes, businesses, and institutions and then leaves as sewage requiring treatment is the responsibility of two public agencies: the Massachusetts Water Resources Authority (MWRA) and the Boston Water and Sewer Commission (BWSC).

In addition to Boston, the MWRA supplies water to 45 other Massachusetts communities. The water – some 250 million gallons daily – comes from the Quabbin Reservoir, 65 miles west of Boston, and the Wachusett Reservoir, 35 miles west of the city. From there the water supply is conveyed via aqueducts from the two reservoirs to the Weston and Norumbega reservoirs where it is held for delivery to BWSC’s service networks.

When MWRA water reaches Boston, after passing through treatment plants, storage tanks, and aqueducts, the Boston Water and Sewer Commission takes over. The BWSC was created in 1977 to maintain and improve the long-term quality and reliability of water and sewer services in Boston. Today, BWSC’s primary goals are efficient delivery of service, environmental protection, and cost control. Accordingly, it is necessary for BWSC to maintain and improve the water distribution and sewer systems and to provide the highest quality water and sewer services at the lowest possible cost to customers.

BWSC owns and operates a system for the distribution of drinking water to customers throughout the city. BWSC purchases water (disinfected and fluoridated) from the MWRA. BWSC is the MWRA’s largest single customer for both water and sewer services, and MWRA charges represent the largest single component of BWSC’s operating expenses.

The Boston Water and Sewer Commission’s current water distribution system consists of approximately 1,096 miles of pipe which range in size from 4 inches to 48 inches, including almost 14 miles of high pressure fire service pipe located in downtown Boston, 13,103 hydrants, and 17,529 valves. The system serves approximately 87,000 accounts through four major service networks. These service networks are supplied with potable water purchased from the MWRA at 27 metered delivery points.

In addition to water delivery throughout the city, the Boston Water and Sewer Commission owns and operates a system for the collection and transport of wastewater and storm drainage



Fort detail, Long Island

in Boston. The sewer system consists of conduits ranging in size from six-inch clay lateral sewers to 20-foot by 15½-foot concrete culverts. The 1,402-mile sewer system is comprised of approximately 588 linear miles of sanitary sewers, 547 miles of storm drains, and 267 miles of combined sewers. Other facilities include eight pumping stations, two gatehouses, 40 permitted combined sewer overflow outlets, 107 regulators, and 77 tide gates.



Fountain, Public Garden

Two former sewerage works under BWSC control hold potential for open space use: Calf Pasture in Dorchester, along Dorchester Bay, and the Moon Island facility, which may hold promise for future use as part of the Boston Harbor Islands park system.

Historically, water services had a more modest beginning in colonial Boston. Early settlers relied on water from cisterns and underground wells, but the quality was poor and the supply inadequate. The first attempt to provide an alternative came from a private company; in 1796, the Aqueduct Corporation began delivering water from Jamaica Pond through a system of wooden pipes.

In 1848, Boston obtained its first municipal water supply from Lake Cochituate via the Cochituate Aqueduct and the Brookline Reservoir. In order to meet the growing needs of Boston and the necessary system expansion, construction began in 1866 on the Chestnut Hill Reservoir. Construction of reservoirs on the Sudbury River to feed the Chestnut Hill Reservoir through the Sudbury Aqueduct soon followed. The Metropolitan Water District was formed in 1895 and by 1908 the Wachusett Dam, Reservoir, and Aqueduct were completed.

By the early 1900s, it was apparent that the Boston metropolitan area required additional water supplies and a more comprehensive plan to ensure its delivery. The MDC Water Supply Division was created in 1926 as a solution to this problem and was responsible for building many MDC facilities, among them Quabbin Reservoir, the Quabbin Aqueduct, and the Hultman Aqueduct. (A 17-mile MetroWest Water Supply Tunnel is now under construction. It will provide backup to the nearly 60-year old Hultman Aqueduct.)

In 1985, legislation transferred the possession, control, and operation of the MDC Water and Sewerage Divisions to the newly created Massachusetts Water Resources Authority.

Today, all wastewater collected by BWSC facilities are conveyed to the MWRA's Deer Island Treatment Plant for both primary and secondary treatment. The MWRA has created a 44-acre park that surrounds the plant, thus offering a harbor island experience accessible by land.

This newly opened treatment plant is part of a cleanup of Boston Harbor ordered by a federal court. The MWRA and its predecessor agency, the Metropolitan District Commission, were



Rivermoor Urban Wild,
West Roxbury

found in violation of both state and federal clean water laws. The court ordered the MWRA to build the wastewater and sludge facilities as well as improved combined sewer overflow facilities, all on a court-set schedule.

These sewer renovations and the wastewater and sludge treatment make up the largest public works project ever to be built in New England up to that time and has a final cost estimated at up to \$6.1 billion. This massive undertaking includes a 9-mile effluent tunnel to carry treated water hundreds of feet below Boston Harbor and into Massachusetts Bay.

The scope of this undertaking is driven by the nearly two million people, almost half of the state's population, and the 5,500 businesses and industries who send their waste to Boston Harbor. It is also driven by the vast scope of the Boston waterfront, where commercial, residential, and recreational interests have been positively affected by the cleanup of the harbor waters. The MDC harbor beaches are completing a rebuilding program to accommodate projected increases in their use as word spreads of the cleaner harbor waters.