

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The existing environmental resources found in the Project area are described in this Chapter. The U.S. Department of Health and Human Services (DHHS) General Administration Manual, Part 30-50-00 (U.S. DHHS, 2000) requires Environmental Impact Statements to incorporate material required by applicable statutes or Executive Orders. The following environmental resources may be affected by the Project and are addressed in this Chapter include the following:

- Social Resources
- Economic Resources
- Environmental Justice
- Visual Quality
- Noise
- Air Quality
- Wastewater and Water use
- Historic Resources

The following environmental resources have been analyzed and are either not present in the Project area or would not be affected by the Project and thus are not discussed in this Chapter:

- Soil
- Geology
- Floodplains
- Wetlands and Riparian Areas
- Vegetation
- Fish
- Wildlife
- Threatened and Endangered Species
- Surface Water
- Water Supply
- Groundwater
- Coastal Zone

3.2 SOCIAL RESOURCES

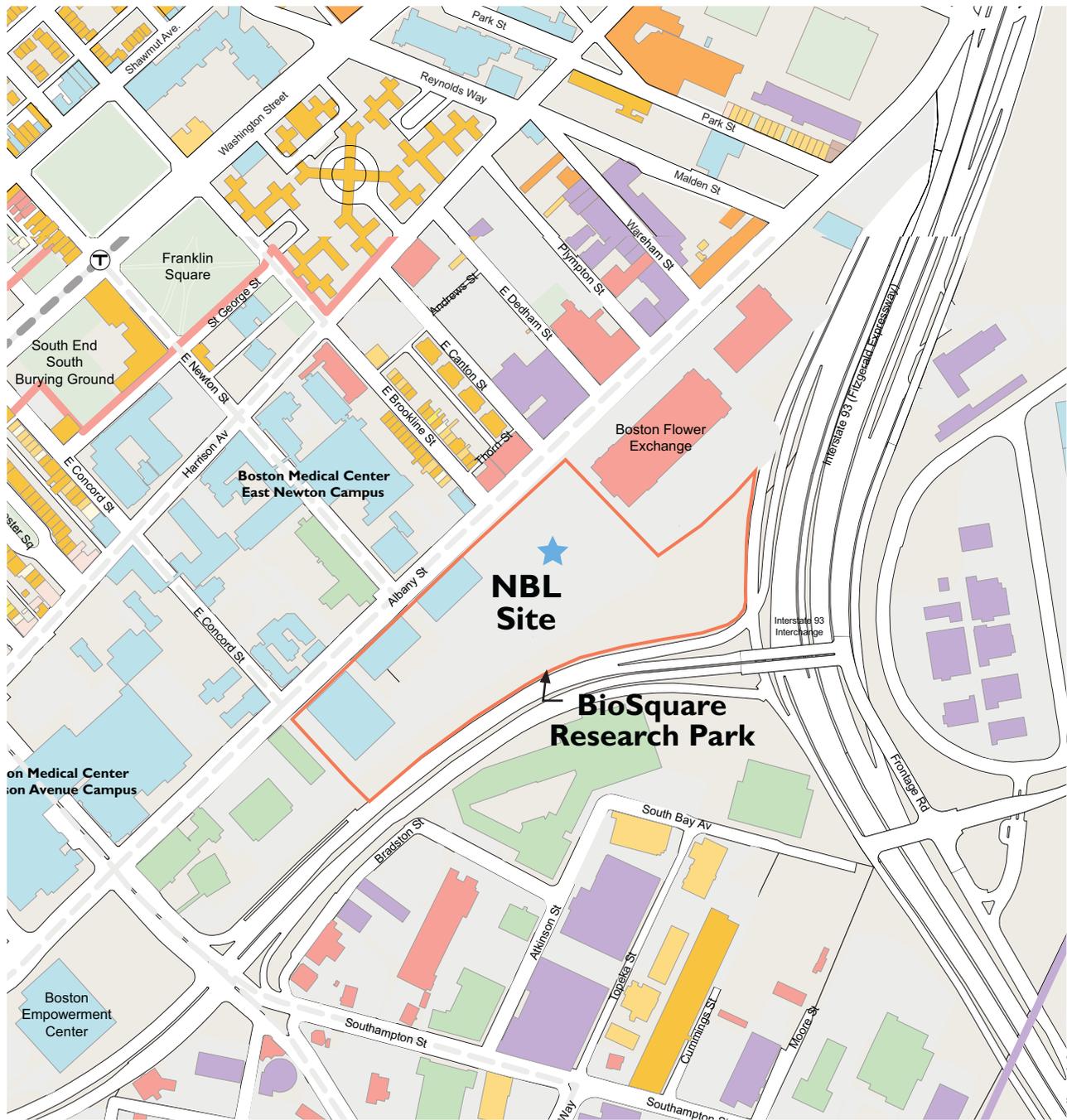
3.2.1 ANALYSIS METHODS

The socioeconomic study area includes the South End neighborhood and the City of Boston. The South End neighborhood as officially defined by the Boston Redevelopment Authority is comprised of multiple Census Tracts from the 2000 U.S. Census, including a portion of Census Tract 703, Census Tracts 704, 705, 706, 707, 708, 709, 711, 712 and a portion of Census Tracts 801, 804, 805 and 806. Data from Suffolk County and the State of Massachusetts are used where appropriate for comparison purposes.

Data was collected to comprehensively describe existing conditions for the primary impact area and the City of Boston. Baseline data for the primary impact area includes population statistics, including age and education; demographic data; information on land use; housing data, including number of units and occupancy; and current economic statistics. Data was collected to comprehensively describe existing conditions for both the City of Boston and the South End neighborhood. Data contains current population statistics including age categories and education levels taken from the 2000 U.S. Census (U.S. Census Bureau, 2000 and 1990), from the Boston Redevelopment Authority's (BRA) South End 2000 Census of Population & Housing (BRA, 2003) and the University of Massachusetts' *Massachusetts Benchmarks* project (University of Massachusetts, 2004). Existing land use is described based on field observations. Housing information includes number of units, vacancy rates and costs based on statistics from the 2000 U.S. Census, and the BRA's South End 2000 Census of Population & Housing. Economic information includes employment by industry, labor force and income from the 2000 U.S. Census, the BRA's South End 2000 Census of Population & Housing and from the University of Massachusetts' *Massachusetts Benchmarks* project. Information on public finance was obtained from the City of Boston Office of Budget Management (City of Boston Office of Budget Management, 2004a, b & c).

3.2.2 AFFECTED ENVIRONMENT

The Project site is located in the southeast portion of the South End neighborhood in the City of Boston within Suffolk County (see "Figure 3-1 Neighborhood Context Plan"). The South End is a densely developed residential area bordered by institutional and industrial areas south of Harrison Avenue. Beginning in the 1900s, the South End began to attract a number of the city's churches, hospitals and other institutions, including Boston City Hospital (now Boston Medical Center).



- | | |
|------------------------|-------------------------------|
| 1 Family Residential | Surface Parking |
| 2 Family Residential | Main Streets District |
| 3 Family Residential | MBTA Stations |
| Apartments/Condos | MBTA Surface Subway Lines |
| Mixed Use (Res./Comm.) | MBTA Underground Subway Lines |
| Commercial | Commuter Rail |
| Institutional | Below Ground Commuter Rail |
| Industrial | Water Transit Facilities |
| Open Space | Water Transit Routes |
| | Bus Routes |



FIGURE 3-1
Neighborhood Context Plan

source: Boston Redevelopment Authority

Today, commercial activity in the South End is concentrated along Columbus Avenue, Tremont Street and Washington Street, and includes many fine restaurants while the medical and research uses are concentrated along Albany Street and Harrison Avenue. The institutional/industrial uses located south of Harrison Avenue include the Boston University Medical Center (BUMC), the BioSquare Research Park, the Boston Flower Exchange facility on Albany Street and the Suffolk County House of Correction. The 28,160 residents of the South End are highly diverse in terms of race, ethnicity and household income. The area has a significantly higher than average male population, an above average median income, a lower than average unemployment rate, and an above average poverty rate compared to the rest of the City of Boston.

The Greater Boston Region, which includes all of Suffolk County, as well as a large share of Middlesex and Norfolk Counties, and portions of Plymouth and Essex Counties, is widely recognized as one of the world's most innovative economic areas. Home to some of the finest institutions of higher education, the region has generated a tremendous concentration of science- and technology-related research and development (University of Massachusetts, 2004). There are 22 hospitals and 35 colleges and universities within Boston's city limits (BRA, 2002). According to the University of Massachusetts' *Massachusetts Benchmarks* project, these intellectual resources, combined with the region's rich heritage and extensive cultural offerings, make Greater Boston the center of much of Massachusetts' economic activity (University of Massachusetts, 2004).

The region is home to half the state's workforce and jobs. According to the Bureau of Economic Analysis, the personal income generated by the residents of Suffolk, Norfolk, and Middlesex Counties accounts for more than 50% of the state total. The knowledge-intensive export clusters that drive the state's larger economy, knowledge creation, information technology, financial services, and health care are concentrated in Greater Boston (University of Massachusetts, 2004).

POPULATION TRENDS AND DEMOGRAPHIC INFORMATION

Greater Boston is the most populous of the state's regions with its 3,015,981 residents accounting for nearly half of the Commonwealth's population. Between 1990 and 2000, the region lagged behind the state in population growth rising 4.9% versus 5.5% (University of Massachusetts, 2004). In the City of Boston, population actually grew between 1990 and 2000, from 574,283 to 589,141, an increase of 3%. Table 3-1 provides a comparison of population and demographic trends of Boston and the South End.

Table 3-1: A Comparative Overview of Boston and the South End

	Boston	South End
Population	589,141	28,160
Foreign Born Population	25.8%	20.6%
White alone	320,699	14,048
Black or African American alone	146,958	7,053
American Indian and Alaska Native alone	2,581	199
Asian, Pacific Islander alone	44,563	3,236
Other race alone	46,709	2,504
Two or more races	27,631	1,120
Non-Hispanic, White Population	290,972	12,751
Hispanic Population	85,199	4,578
Poverty Rate	19.5%	23.9%
Unemployment Rate	7.2%	6.9%
Median Household Income	\$39,629	\$41,590
Housing Units	251,935	15,261
Occupied Housing Units	95.1%	93.6%
Median Gross Rent	\$802	\$707
Spoken Language at Home - English Only	66.6%	67.8%
Occupation - Service Industry	17.8%	14.4%
Occupation - Management, Profess. Etc.	43.3%	55.6%

Source: BRA, 2003, from Comparative Overview Table and p. 1, Table 2, Racial Composition. Additional data about race in the City of Boston was taken from U.S. Census Bureau, 2000, Table P6, Race.

In the 1990s, the median age in Greater Boston rose from 34.0 to 36.3, slightly below the statewide median of 36.6 years. This small increase masks a significant shift in the region's age profile. The population of those ages 45 to 64 increased almost 22% to 666,805, while the 19- to 24-year-old group fell by almost 19%, to 291,454 (University of Massachusetts, 2004). In the South End, the median age is 34.1, which is slightly younger than the median age in the City of Boston.

While both the state and region experienced a mini "baby boom," this has not been enough to counter the aging of the population, which is likely to have a significant effect on the economy. Employers will find that the aging workforce will require them to adjust their hiring practices to accommodate older, more experienced workers for entry-level positions (University of Massachusetts, 2004).

According to the 2000 U.S. Census, 28,160 people reside in the South End, comprising 5% of the population of Boston. Of that population, 50% are minority. Table 3-2 below details demographic characteristics for the Commonwealth of Massachusetts, Suffolk County, the City of Boston and the South End for Year 2000.

Table 3-2: Demographic Characteristics, 2000

Demographic Characteristics	Massachusetts	Suffolk County	Boston	South End
Total Population	6,349,097	689,807	589,141	28,160
Gender				
Male	3,058,375	332,918	283,548	15,262
Female	3,290,722	356,889	305,593	12,898
Age Group				
0-4	394,848	38,099	31,765	1,067
5-9	431,318	40,426	34,045	1,219
10-14	431,562	39,218	32,582	1,171
15-19	411,955	47,980	42,283	1,200
*20-24	406,139	77,580	70,892	2,641
25-34	920,320	140,406	123,522	7,295
35-44	1,075,986	104,807	88,041	5,241
45-54	873,074	75,672	63,691	3,533
55-59	307,886	27,262	22,511	1,288
60-64	236,408	21,855	18,208	1,129
65-74	430,427	38,743	31,357	1,375
75-84	315,532	27,523	22,139	741
85 and over	113,642	10,236	8,105	260

Source: BRA, 2003, p. 2, Table 7, Age, Race and Sex. Additional data for the Massachusetts, Suffolk County and the City of Boston was taken from U.S. Census Bureau, 2000, Table PB, Sex by Age.

3.2.3 HOUSING

In the mid to late 1980s, Boston's real estate market experienced unprecedented growth, creating 80% of Boston's current condominium stock. In 1980 there were 4,500 condominiums in Boston. By 1990 there were 34,575 condominiums, and the median sales price was \$135,000. In 1999, condominium sales in Boston represented 36% of the city's residential property types (one, two, three family homes and condominiums). The median sales price for condominiums during that year was \$175,000, a 30% increase from the median sales price in 1990. Sales volume increased by 134% from 1990 to 1999 (1,997 sales compared to 4,683 sales). The Boston median condominium sales price per square foot also increased from \$202 per square foot to \$221 per square foot from 1998 to 1999, a 9% increase (City of Boston Department of Neighborhood Development, 2000).

The majority of the South End consists of Victorian row houses, which are protected by landmark designation and recognized as the largest neighborhood of this type in

the United States. In the 1980s, extensive public and private investment led to many of those buildings being returned to single-family units or condominiums.

According to the 2000 U.S. Census, there are 15,261 housing units in the South End, representing 6% of the city's total 251,935 housing units. Twenty-six percent (26%) of the units are owner-occupied with an average of 1.87 people residing in each household. Approximately 93.6% of the housing units in the South End are occupied.

The housing market in the South End is dominated by condominiums. In 1998, the South End had the highest number of new unit condominium conversions in the City of Boston, with a total of 179. In 1999, 93% of all residential sales were condominium sales. At \$323 per square foot, the South End had the second highest condominium sale price per square foot in the city of Boston in 1999 (City of Boston Department of Neighborhood Development, 2000). In 2002, 761 condominiums were sold in the South End, while only 18 single-family homes, 13 two-family homes and 14 three family homes sold during the same year. The median sale price in 2002 was \$717,250 for single-family homes, \$1,125,020 for two family homes, \$977,500 for three family homes and \$400,000 for condominiums (City of Boston Department of Neighborhood Development, 2002).

Of the 15,261 housing units in the South End, 14,278 units are occupied, leaving 6.4% vacant. Of the occupied units, 10,320 or 72.3% are renter occupied. Forty-four percent (44%) of the 983 vacant units in the South End are available to the rental market (BRA, 2003).

3.2.4 EDUCATION

The Boston Public School System (including neighborhoods such as the South End) is managed on a City-wide basis, such that children do not necessarily attend school in the neighborhoods in which they live, (as evidenced by the fact that the South End does not have its own high school). The Boston Public School System oversees the five public schools in the South End: three elementary schools, including Blackstone Elementary, Joseph J. Hurley Elementary and McKinley Elementary; McKinley Technical High; and the Carter Development Center, devoted to serving the educational needs of severely disabled students. All of the neighborhood's schools are multicultural in nature, and one school, Joseph J. Hurley Elementary School, offers English-only as well as bilingual education. In addition, both of the McKinley schools serve students with serious emotional, behavioral and learning disabilities. The South End lacks a regular high school, but Boston High School is nearby in the Back Bay.

Total enrollment at all of the schools is 1,371. Approximately 1,150 students attend the three elementary schools, 200 attend McKinley Technical High, and 24 attend the Carter Development Center.

There are 3,023 school age children currently residing in the South End, which is 10.7% of the total population. The number of school age children residing in the City of Boston is approximately 84,109, or approximately 14.3% of the City's total population. Information about school age children is taken from the 2000 U.S. Census age bracket of 5 to 17 years old.

3.2.5 COMMUNITY SAFETY AND RISK

LAW ENFORCEMENT

The existing BioSquare Research Park has BUMC Security Officers on site at all times and is patrolled by Boston University Police Officers on a regular basis. BUMC has a 100-person security department that includes 85 security officers, investigators, and management and systems staff.

The City of Boston Police Department provides law enforcement in the South End neighborhood. The Department has eleven district stations. The Project site is served by the District D-4 Police Station, located at 650 Harrison Avenue. Thirty-five officers are assigned and deployed at Station D-4 and patrol three shifts per day on foot and in car. When necessary, aid is sought from District B-2 in Roxbury, District D-14 in Brighton/Allston or District A-1 in downtown Boston and District C-6 in South Boston.

FIRE PROTECTION

Division 1, District 5 of the Boston Fire Department, provides fire protection and emergency rescue services for the Project area. The companies serving the Project area include Engine 3 at 618 Harrison Avenue (District 4), Engine 22 at 700 Tremont Street (District 4), Engine 14, and Ladder 4 at 174 Dudley Street (District 5). Although the Project area is located in District 5, the closest station is Engine 3 in District 4. The ladder companies are equipped with entry tools, ladders, hooks and axes. Their job is to gain entry, locate fires, search for and remove victims, and handle life-threatening situations. Their primary objective is to confine and extinguish fires. All engine companies are equipped with tanks that carry 500 to 750 gallons of water to be used before the fire company can hook into local hydrants. The rescue squad is equipped for any magnitude of rescue operation.

All of the companies serving the Project area (including District 5) have a minimum staffing level of one officer and three firefighters per shift. Given the location of the Project area, a first full fire alarm would provide 16 to 22 firefighters, with additional staff arriving with each additional alarm issuance.

HEALTH CARE

The Project site is located across the street from the Boston Medical Center (BMC). BMC has two campuses, including the East Newton Street campus and the Harrison Avenue campus, each with their own emergency rooms. BMC is a private, not for profit, 547-licensed bed academic medical center. The hospital is the primary teaching affiliate for Boston University School of Medicine. Emphasizing community-based care its mission is to provide consistently accessible health services to all and is the largest safety net hospital in New England. BMC provides a full spectrum of pediatric and adult care services, from primary to family medicine and advanced specialty care. Seventy percent of BMC's patients are minorities and nearly 50% speak English as a second language. BMC also responds to the unique needs of children who are the most vulnerable among underserved minorities. In 2004 BMC provided \$350 million in free care to the public. Of 853,050 prescriptions filled last year by BMC's outpatient pharmacy, which is the busiest single-site pharmacy in the United States, 75% were free care.

BMC is currently one of two hospitals represented on the Executive Board of the Metropolitan Medical Response System (MMRS) chaired by the Chief of Boston Emergency Medical Services (EMS). In addition to participating in these committees, BMC has the largest Level I Emergency Department (ED) Trauma center in New England which is located two blocks from the proposed Boston-NBL facility. Boston EMS uses a dynamic dispatch model so that ambulances are continuously dispatched to the next available call. There are several ambulance stations located in the vicinity of the Project site, including Ambulance 6 at the District C-6 police station located on Broadway Street in South Boston, Ambulance 2 at the District B-2 police station located on Warren Street in Roxbury, and Ambulance 16 at Beth Israel Hospital located at 330 Brookline Avenue in Boston. All of the stations are staffed by two persons per shift and there are three shifts per day.

3.2.6 TRANSPORTATION

The Boston-NBL facility site is part of the BioSquare Research Park located within the research/institutional area of the South End neighborhood of Boston, adjacent to the BUMC campus. While situated immediately adjacent to the regional highway system, the campus does not at the present time have direct highway access. Existing vehicle access to the BioSquare Research Park currently occurs exclusively from Albany Street from five site driveways (see "Figure 3-2, Existing BioSquare Research Park Site Access and Circulation Plan").

Existing vehicle trip counts in the area have been measured to be 18,000 vehicles per day (vpd) on Albany Street, 15,000 vpd on Frontage Road, and 64,000 vpd on the Massachusetts Avenue Connector.

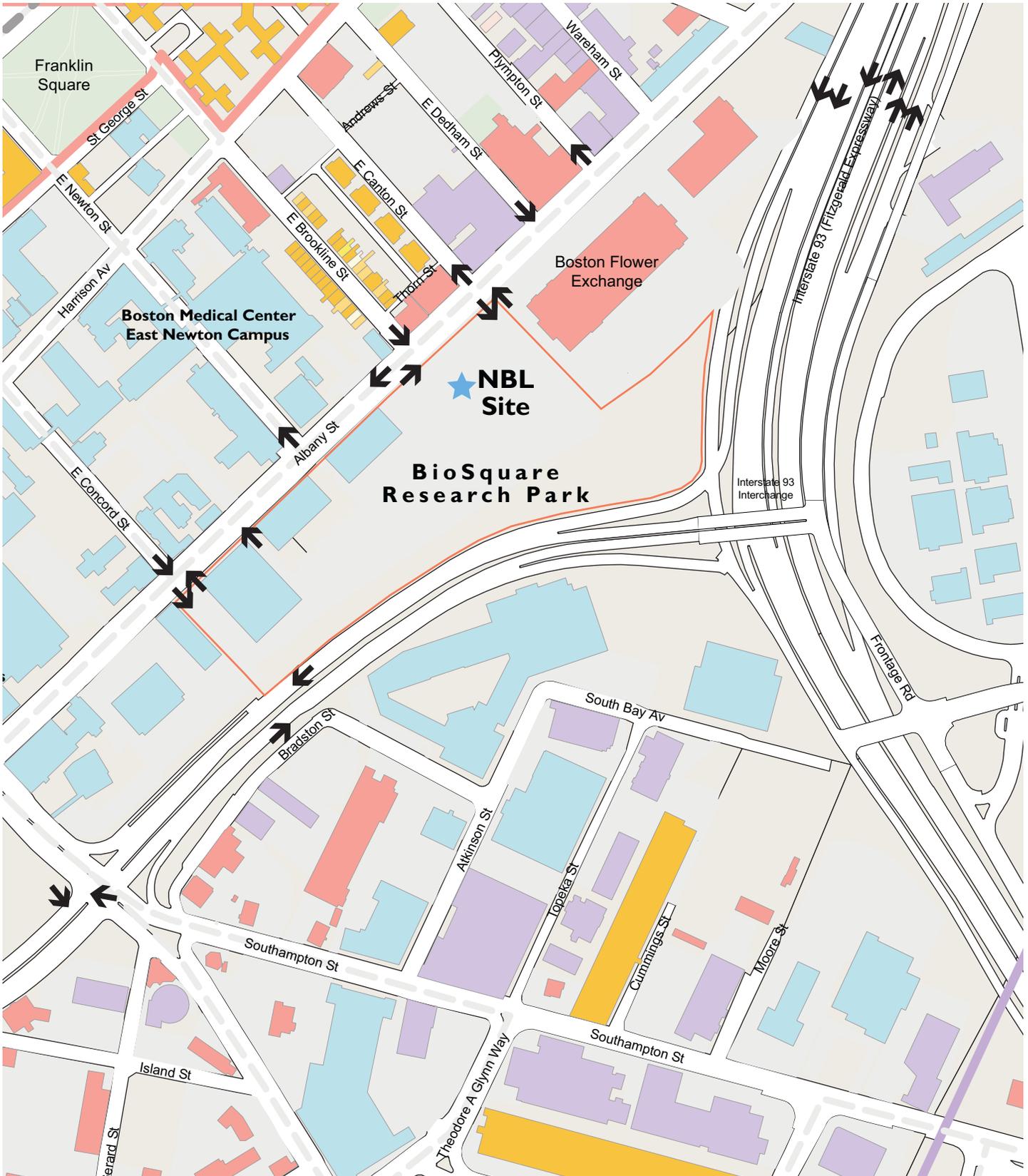


FIGURE 3-2
Existing BioSquare Research Park Site Access and Circulation Plan

source: Boston Redevelopment Authority

There are approximately 2,200 parking spaces located within the BioSquare Research Park including the 1,000 spaces in the Albany Street Garage and 1,200 surface parking spaces.

In 1991, BUMC created a transportation management association, Transportation Solutions for Commuters (TranSComm). TranSComm's other members include the BioSquare Research Park and the Boston Public Health Commission. The organization works to bring more frequent and accessible public transportation to the Medical Center community and provides information on transportation services. In addition, TranSComm operates the following 15- to 30-passenger shuttles:

- VA Shuttle travels from Boston Veterans Administration Medical Center (VA) in Jamaica Plain to BUMC several times per day on the half-hour from 9:30 a.m. to 5:30 p.m.;
- All-Day Campus Shuttle travels within the campus boundaries (from 1010 Massachusetts Avenue to 560 Harrison Avenue) from 6:30 a.m. to 6:30 p.m. It runs every 20 to 30 minutes;
- Evening Shuttle travels from BUMC to MBTA subway stations, the South End neighborhood, and BUMC surface parking lots from 5:15 p.m. to 12:15 a.m.;
- Inner Campus Shuttle travels between institutions, primarily for patients and employees, from 8:30 a.m. to 5:30 p.m. on a continuous loop;
- Healthnet Shuttle travels from Boston neighborhoods to Boston Medical Center (for patients only); and
- Charles River Campus Shuttle travels from the BU Charles River Campus to BUMC several times each day, September–May.

TranSComm allows South End residents to use its shuttle services at no cost. This includes the all-day campus shuttle stopping at St. Helena House, a facility for elderly and handicapped South End residents.

3.3 ECONOMIC RESOURCES

The economic boom of the 1990s benefited the Greater Boston region un-evenly, as some residents actually saw a decline in their financial well-being. The economy currently faces the growing challenge of housing affordability. There is an insufficient stock of affordable housing and a growing "affordability gap", the difference between families' median income and the income required to buy a median-price home (University of Massachusetts, 2004).

In 2000, educational, health and social services made up the greater Boston region's largest industry sector in terms of employment. This was followed by retail trade; manufacturing; and finance, insurance, and real estate (FIRE). The industry mix changed during the

economic expansion between 1993 and 2000. Notable changes were the increases in services and FIRE, at the expense of manufacturing and some government employment. Overall, regional employment grew 20.7% during this period, with services growing 30.7%, retail trade 15.4%, and construction 67.5% (University of Massachusetts, 2004). Much of the region's economic growth during the 1990s benefited high-wage, educated workers and was concentrated in its outer ring.

3.3.1 EMPLOYMENT

Over the 1990-2001 period, the Greater Boston Region's workforce increased by 3.6%, the same as the state's overall rate. Almost all of this growth came in 2001, after a decade of recovering losses incurred in the early-1990s recession. During the decade between 1990 and 2000, the Greater Boston unemployment rate was below that of the state, reaching a low of 2.2% in 2000 (University of Massachusetts, 2004).

The unemployment rate in Greater Boston increased from 2.2% in 2000 to 2.8% in 2001, and then to 4.3% in 2002. The increase has been accompanied by the loss of thousands of jobs, especially in the high-tech sector. While household-based data shows a decline of approximately 23,000 jobs in 2002, the number of "establishment" jobs lost is larger. "Establishment" employment data accounts for commuters into the Boston area, while household data does not (University of Massachusetts, 2004).

Table 3-3 below details the Year 2000 employment characteristics as defined by the 2000 Census for the Commonwealth of Massachusetts, the City of Boston and the South End. Management, professional and related occupations comprise the majority of jobs within the State, City and within the South End neighborhood, with sales and office occupations following behind in all three areas.

Table 3-3: Employment Characteristics, 2000

Industry	Massachusetts	Boston	South End
Employed civilian populations (16 yrs or older)	3,161,087	285,859	15,483
Management, professional and related occupations	1,298,704	123,850	8,604
Service occupations	444,298	50,839	2,237
Sales and office occupations	818,844	73,199	3,557
Farming, fishing and forestry occupations	6,642	223	0
Construction, extraction and maintenance occupations	235,876	14,118	357
Production, transportation and material moving occupations	356,723	23,630	728

Source: BRA, 2003, p. 11, Table 36, Occupation. Additional data for the Massachusetts and the City of Boston was taken from U.S. Census Bureau, 2000, Table P50, Sex by Population for the Employed Civilian Population 16+ Years.

3.3.2 INCOME

Personal income is defined as all income received by individuals from all sources including income from work (labor and earnings), income from savings and investments (investment income), and income from outside sources such as Social Security or Medicare (transfer payment income). According to the Boston Redevelopment Authority's South End 2000 Census of Population and Housing Report #576, there are a total of 14,300 individual households in the South End with a median household income of \$41,590. These households are further broken down by family and non-family designations. The 2000 U.S. Census defines a household to include all the persons who occupy a housing unit, regardless of their relationship. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. A family household has at least two members related by birth, marriage, or adoption, one of whom is the householder. Non-family households are those people who are living alone or are householders who share living space with non-relatives only, such as a boarder or roommate. These categories are the typical income brackets for Census data. The number of family households in the South End is 4,723 with a median income of \$35,416. The number of non-family households in the South End is 9,577 with a median income of \$42,842.

Table 3-4 shows the per capita personal income, which is calculated by dividing all personal income, received by all permanent residents by the total population, in the

nation, state of Massachusetts, City of Boston, and South End neighborhood for 1990 and 2000. The Massachusetts state per capita personal income in 2000 was \$37,756. In 2000, the per capita personal income for the South End was \$36,083 which is similar to the per capita income for the state which is ranked 7th in the nation for per capita personal income by state. The South End per capita income level for the year 2000 is \$36,038 or 1.2% above the national level. This is a significant change compared to the South End's 1990 per capita income level of \$17,824.

Poverty levels indicate the percentage of the population with incomes below that necessary for basic necessities including adequate housing, food, transportation, energy and health care. According to the 1999 U.S. Census data 573,421 people or 9.3% of the state's population were living below the poverty level. This is less than the poverty statistics for the nation as a whole, which in 1999 listed 33,899,812 people (or 12.4%) living below the poverty threshold.

In the City of Boston, the 2000 poverty levels were 19.5%, while in the South End the levels were higher at 23.9%. The South End poverty level and above average median income level provide an indication of the area's economic diversity.

Table 3-4: Per Capita Personal Income

Year	U.S.	Massachusetts	Massachusetts % of U.S.	Suffolk County	Boston	South End
2000	\$29,847	\$37,756	126%	\$22,766	\$23,353	\$36,083
1990	\$19,477	\$23,043	118%	\$15,414	\$15,581	\$17,824

Source: Information for U.S. and Massachusetts taken from U.S. Department of Commerce Bureau of Economic Analysis, 2000, SA1-3, Personal Per Capita Income. Information for Suffolk County and Boston taken from U.S. Census Bureau, 2000, Table P8, Sex by Age and Table P158, Aggregate Income in 1999 (Dollars) for the Population 15+ Years; and from BRA, 1992, p. 16. South End information taken from BRA, 2003, p. 14, Table 44, Per Capita Income; and from the BRA, 1993, p.16.

3.3.3 GOVERNMENT AND PUBLIC FINANCE

The Boston-NBL facility would be located within the City of Boston and therefore revenues and spending within the area would result from the Proposed Action. The primary sources of local government revenues are intergovernmental transfers (funds passed through from federal and state governments) and local real estate taxes and other fees and assessments.

Although generally exempt from local taxation as a non-profit educational institution, Boston University is currently one of the larger taxpayers in the City of Boston. The University makes annual payment in lieu of taxes (PILOT) payments of \$3.2 million and real estate tax payments of \$3 million. BUMC currently makes PILOT payments in excess of \$300,000 per year to the City. In total, PILOT payments accounted for \$40,910,000 or 2.3% of the City's revenues in 2003.

The City's revenues in 2003 were \$1.8 billion (City of Boston Office of Budget Management, 2004c). Real estate and personal property taxes in 2003 were \$1.0 billion, an increase of 6% from the previous year. Property tax levy alone has been the City's largest and most dependable source of revenue growth during the past 20 years (City of Boston Office of Budget Management, 2004a). In 2003, property taxes provided 56% of all City revenue.

The second largest source of revenue for the City of Boston is state aid. State aid makes up \$476 million of total City revenues (City of Boston Office of Budget Management, 2004b), a decrease of \$46 million over Fiscal Year (FY) 2002. The stability of State Aid is of critical importance in determining the City's ability to deliver quality services while managing fiscal stability and a balanced budget. Other sources of revenue for the City of Boston include excise taxes, fines, investment income and other funds. Total revenue generated from sources of other revenue accounted for approximately \$284 million of the total City of Boston budget.

In summary, the City of Boston has a large and diverse economy with multiple income streams, which have led to fiscal stability. While recent downturns in the state and national economy have reduced state and federal aid, the City has been able to maintain basic municipal services.

3.4 ENVIRONMENTAL JUSTICE

U.S. Executive Order 12898 (Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations) directs federal agencies to assess proposed actions or alternatives for disproportionately high and adverse human health or environmental impacts on minority and low-income populations. Identification of health and environmental issues is accomplished through public involvement and the scoping process. Environmental justice has been an important consideration in the NEPA process since the issuance of Executive Order 12,898 in 1994, which required all federal agencies to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States." In addition to Executive Order 12,898, two important guidance documents help define how to address environmental justice concerns during the preparation of an Environmental Impact Statement: The Council on Environmental Quality's December, 1997 document Environmental Justice Guidance Under the National Environmental Policy Act, and an April 1998 document produced by an EPA workgroup with representatives of each EPA region, entitled Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. A comprehensive approach to environmental justice in the preparation of an Environmental Impact Statement involves:

- Encouraging meaningful community representation in the NEPA process through the use of effective public participation strategies and special efforts to reach out to communities of color and low-income populations;
- Identifying the area impacted by the proposed facility or activity and assessing whether there is the potential for a disproportionately high and adverse human health or environmental effect on low-income or minority populations from the Proposed Action;
- Considering alternatives that have a less disproportionate effect on low-income and minority populations if a disproportionate impact is found, and
- Identifying mitigation measures that address the needs of affected low-income and minority populations.

To address public participation related issues, BUMC has made an institutional commitment to informing and educating the public about the proposed Boston-NBL facility as described in detail in Section 1.6. The study area for EJ was expanded since the filing of the DEIS to include neighborhoods within a one mile radius from the Project site.

Because the Commonwealth of Massachusetts Executive Office of Environmental Affairs (EOEA) has an Environmental Justice Policy, additional analyses were undertaken outside of the NEPA process (Fort Point Associates, Inc. 2004). According to the EOEA Policy, EJ populations are defined as neighborhoods that meet one or more of the following criteria:

- The annual median household income is at or below 65% of the statewide median household income;
- 25% of the residents are minority;
- 25% of the residents are foreign born; or
- 25% of the residents are lacking in English language proficiency.

Neighborhoods, as defined by the Environmental Justice Policy of the Executive Office of Environmental Affairs in the Commonwealth of Massachusetts, are U.S. Census Bureau census block groups. Neighborhoods and populations adjacent to the Project site are areas that may have potential environmental justice effects. The U.S. Census Bureau tracts located wholly or partially within the one mile radius are listed in Table 3-5 and shown in "Figure 3-3, Project Site Census Tracts". A total of 52 block groups within these census tracts were analyzed.

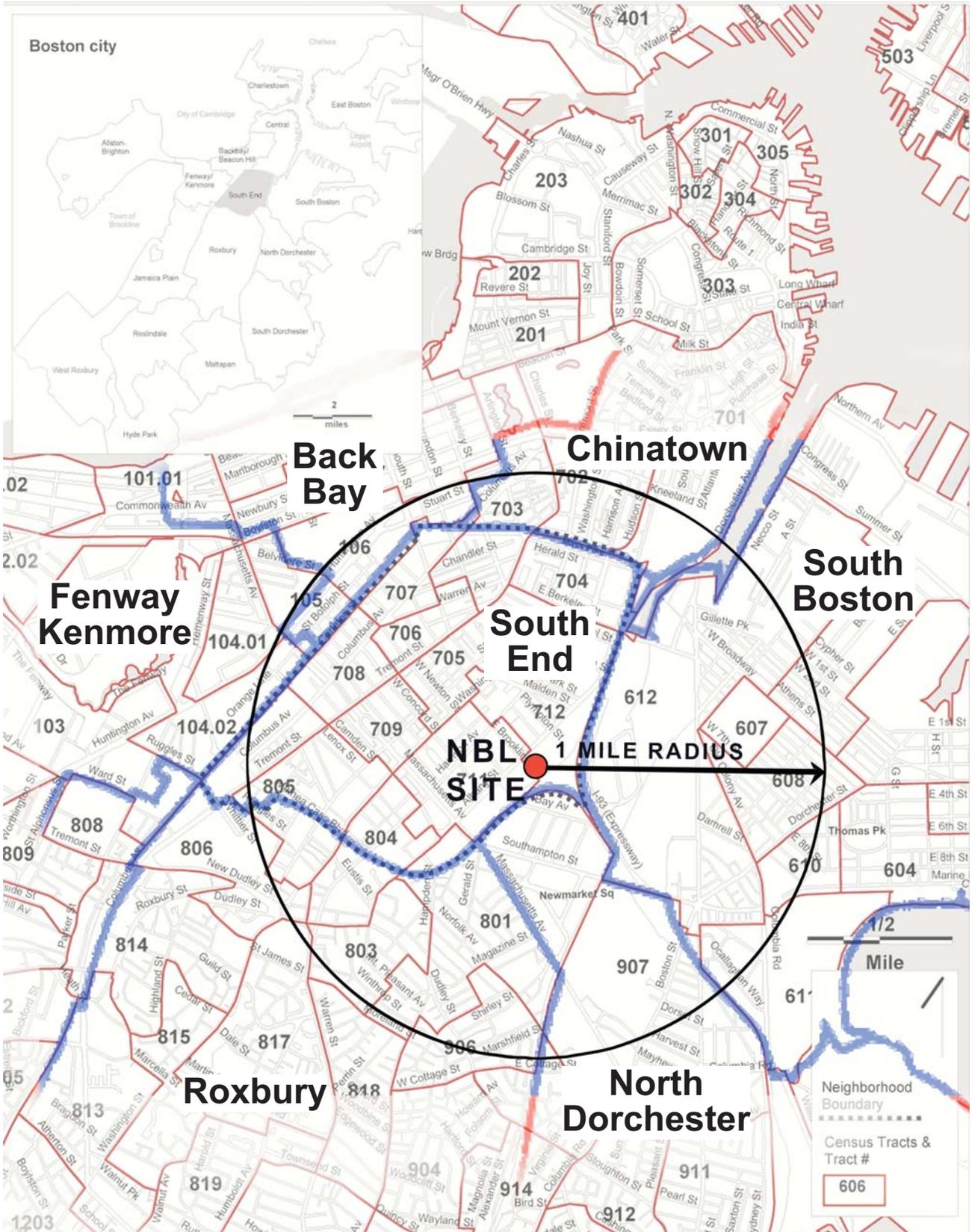


FIGURE 3-3
Project Site Census Tracts
source: Boston Redevelopment Authority

NATIONAL EMERGING INFECTIOUS DISEASES LABORATORIES
FINAL ENVIRONMENTAL IMPACT STATEMENT

The EJ study area represents a diverse cross section of the population within the City of Boston with a total population of 53,470. The area is comprised of 7 neighborhoods, including the entirety of the South End and portions of South Boston, North Dorchester, Roxbury, Chinatown, Back Bay and Fenway/Kenmore. Within the study area, the range of incomes, percent foreign-born and minority populations vary greatly according to neighborhood. See Table 3-5, Block Group Data for detailed Census Data for each neighborhood and block group within the EJ study area. For example, the poorest block groups are in South Boston while the block groups with the highest percentage of minorities are located in Roxbury. In addition, when compared with the City of Boston, the study area presents a similarly diverse social makeup in terms of economic and racial composition.

Table 3-5: Block Group Data

Neighborhood	Census Tract	Block Group	Population	% Minority	% Foreign Born	% Lacking English Proficiency	Median Annual Household Income*
Back Bay	106	2	1,283	21%	24%	1%	\$61,830
Chinatown	702	1	942	85%	73%	11%	\$22,083
Chinatown	702	2	1,195	94%	67%	15%	\$30,114
Chinatown	702	3	1,945	59%	48%	21%	\$9,327
Chinatown	703	2	654	22%	24%	2%	\$64,637
Fenway/Kenmore	104.02	3	583	42%	33%	7%	\$11,815
Fenway/Kenmore	105	2	1,091	28%	37%	2%	\$14,125
Fenway/Kenmore	105	3	816	26%	18%	0%	\$34,265
No. Dorchester	801	1	1,852	68%	8%	0%	\$32,375
No. Dorchester	907	4	709	20%	31%	5%	\$45,326
Roxbury	801	2	833	97%	32%	0%	\$25,337
Roxbury	801	3	696	95%	17%	0%	\$29,792
Roxbury	803	1	483	100%	16%	0%	\$21,855
Roxbury	803	2	1,162	91%	21%	4%	\$25,365
Roxbury	804	2	619	100%	12%	0%	\$33,438
Roxbury	805	2	1,481	88%	16%	0%	\$11,607
Roxbury	806	1	1,002	58%	32%	4%	\$21,813
Roxbury	906	1	459	90%	43%	10%	\$34,327
Roxbury	906	2	581	87%	42%	9%	\$33,235
So. Boston	607	1	835	45%	25%	1%	\$18,864
So. Boston	607	2	708	42%	30%	7%	\$14,914
So. Boston	608	1	705	3%	7%	0%	\$67,000
So. Boston	608	2	680	0%	11%	0%	\$60,296
So. Boston	608	3	936	10%	18%	1%	\$38,684
So. Boston	608	4	1,522	7%	12%	4%	\$35,815
So. Boston	610	3	938	62%	39%	7%	\$7,870
So. Boston	611	1	494	59%	29%	4%	\$12,059
So. Boston	612	1	508	0%	4%	0%	\$52,045
So. Boston	612	2	600	6%	9%	0%	\$30,833
So. End	703	3	2,083	17%	11%	0%	\$72,619

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Table 3-5: Block Group Data (Cont.)

Neighborhood	Census Tract	Block Group	Population	% Minority	% Foreign Born	% Lacking English Proficiency	Median Annual Household Income*
So. End	704	1	1,827	96%	50%	14%	\$12,165
So. End	705	1	1,556	44%	26%	3%	\$73,889
So. End	705	2	1,238	68%	14%	7%	\$11,609
So. End	705	3	1,566	32%	15%	1%	\$61,743
So. End	705	4	1,071	52%	10%	5%	\$32,159
So. End	706	1	1,079	19%	15%	0%	\$87,323
So. End	706	2	1,114	9%	16%	0%	\$92,498
So. End	707	1	1,042	68%	20%	0%	\$37,500
So. End	707	2	1,196	34%	11%	0%	\$69,427
So. End	708	1	1,572	50%	20%	0%	\$42,298
So. End	708	2	984	44%	13%	0%	\$36,154
So. End	708	3	1,045	19%	19%	0%	\$61,411
So. End	709	1	2,039	46%	15%	0%	\$48,036
So. End	709	2	826	70%	15%	0%	\$17,885
So. End	711	1	914	52%	29%	0%	\$11,572
So. End	711	3	755	79%	42%	0%	\$26,894
So. End	712	1	465	77%	17%	0%	\$15,643
So. End	804	1	152	72%	20%	0%	\$38,646
So. End	805	1	813	88%	29%	0%	\$33,292
So. End	805	3	1,528	95%	26%	0%	\$13,304
So. End	**711	2	1415	28%	7%	0%	\$57,353
So. End	**712	2	878	47%	26%	0%	\$33,750
Average			1,028	52%	24%	3%	\$36,312
Total			53,470				
City of Boston			589,141	46%	26%	2%	\$39,629

* Bold text indicates a value in excess of the 25% threshold or a Median Annual Household Income below 65% of the Statewide Median Income (\$32,826)

** Census Tracts evaluated in the Draft EIS

MINORITY POPULATION

Within the study area, 52% of the residents are minority (see Table 3-6, Minority Population Summary). The Project site is therefore located in an Environmental Justice *minority population* area, as the average of minority residents within the study area block group exceeds 25%. For purposes of this assessment, minority refers to people who classified themselves in the 2000 U.S. Census as Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race or Two or More Races.

Table 3-6: Minority Population Summary

EJ Study Area Block Groups	Total population	Number Minority	Percent Minority
City of Boston	589,141	271,005	46%
EJ Study Area	53,470	27,408	52%
South End	27,158	13,562	50%
South Boston	7,926	1,804	23%
North Dorchester	2,561	1,401	55%
Roxbury	7,316	6,430	88%
Chinatown	4,736	3,180	67%
Back Bay	1,283	269	21%
Fenway/Kenmore	2,490	762	31%

The percentage of minority populations in the study area varies from 0% to 100%, with block groups in the South Boston neighborhood representing the former end of the spectrum and block groups in Roxbury the latter. Fifty-two percent (52%) of the study area is comprised of minority populations, compared with the City, which has 46% minority population.

LOW-INCOME POPULATION

In 1999, the statewide median household income for Massachusetts in 1999 was \$50,502. Sixty five percent of this number is \$32,826, which is the threshold used to determine whether a low-income population exists in a block group. Twenty-five (25) block groups in the study area had median household incomes less than this threshold according to the 2000 US Census (see Table 3-7, Low-income Population Summary).

Table 3-7: Low-income Population Summary

EJ Study Area Block Groups	Total number of block groups	Number of low-income block groups
EJ Study Area	52	25
South End	23	8
South Boston	10	5
North Dorchester	2	1
Roxbury	9	6
Chinatown	4	3
Back Bay	1	0
Fenway/Kenmore	3	2

The range in annual median household income within the Study area is significant, with the lowest median household income of \$7,870 occurring in a block group in South Boston. Block groups in Chinatown and the South End rank second and third

lowest for median annual household income. The highest occurring income level in a block group is in the South End at \$92,498.

FOREIGN BORN POPULATION

For purposes of this assessment, foreign-born residents are those residents who were not born in the United States, Puerto Rico, other U.S. Island Areas, or born abroad to American parents.

The percentage of foreign born varies from 4% in a block group in South Boston to 73% in a Chinatown block group. The average percentage of foreign born in the Study Area is 22%. The City of Boston average for foreign born is 29% (see Table 3-8, Foreign Born Population Summary).

Table 3-8: Foreign Born Population Summary

EJ Study Area Block Groups	Total population	Number Foreign Born	Percent Foreign Born
City of Boston	589,141	170,995	29%
EJ Study Area	53,470	11,969	22%
South End	27,158	5,357	20%
South Boston	7,926	1,384	17%
North Dorchester	2,561	368	14%
Roxbury	7,316	1,779	24%
Chinatown	4,736	2,030	43%
Back Bay	1,283	308	24%
Fenway/Kenmore	2,490	743	30%

ENGLISH LANGUAGE PROFICIENCY

According to the 2000 U.S. Census, languages spoken at home other than only English include Spanish, Indo-European languages, Asian and Pacific Island languages, and other languages.

No block group in the Study Area meets the EJ criteria that 25% of residents lack English language proficiency and in fact, the majority of block groups have populations that are language proficient. The highest occurrence of non-English speakers is in a block group in Chinatown, with 21% of the population lacking language proficiency.

SUMMARY OF EJ CRITERIA IN EJ STUDY AREA

The EJ Study Area contains neighborhoods with highly diverse populations in terms of race, income and foreign-born characteristics.

- Minority EJ populations exist in block groups in all neighborhoods in the Study Area except Back Bay.
- Low income EJ populations exist in block groups in all neighborhoods in the Study Area except Back Bay.
- Foreign born EJ populations exist in block groups in all neighborhoods in the Study Area except Back Bay and no neighborhoods have English language deficient EJ populations.

HEALTH CONDITIONS FOR LOW INCOME AND MINORITY POPULATIONS WITHIN THE EJ STUDY AREA

Some of the communities located in the Environmental Justice study area, including the South End, Roxbury, and Dorchester are neighborhoods with high rates of asthma morbidity (Gottlieb et al, 1995). "Figure 3-4", prepared by the Boston Public Health Commission Research Office, shows asthma hospitalizations rates per 1,000 population in various Boston neighborhoods from 1998 to 2002. The average rate for the City of Boston as a whole is 8.4. Three of the communities included in the EJ study area have rates higher than the Boston average including Roxbury at 14.6; North Dorchester at 13.0 and the South End at 10.8.

Asthma is thought to be triggered by many environmental factors including house dust, pet dander, and air pollutants. In a 1995 study of the correlation between asthma hospitalization rates and poverty, race and medication use in the City of Boston, Gottlieb et al describe how asthma morbidity and mortality disproportionately affect minority populations in the United States but that the causes of such excess morbidity and mortality are not known. The study posits explanations such as higher levels of exposure to agents that cause or exacerbate asthma and the general "lack of access to or use of medical therapies "(Gottlieb et al 1995 p. 29).

3.5 VISUAL QUALITY

The Project site is located in the South End of Boston across Albany Street from and south of BUMC, and west of Interstate I-93 and north of the Massachusetts Avenue Connector. The parcel is bordered on the west by the BioSquare Phase I site and on the east by the Boston Flower Exchange and Frontage Road.

The South End is a stable yet diverse neighborhood in the City of Boston, which has experienced economic growth in the past two decades. The area consists of a variety of land uses including residential neighborhoods, institutional uses such as the BUMC, and commercial and industrial uses (see "Figure 3-5, Photograph of Project Vicinity"). The immediate Project area is comprised of commercial, industrial, transportation and industrial uses.

Asthma Hospitalization Average Annual Rates Among Children Ages 5-14 by Neighborhood,* Boston, 1997-2000

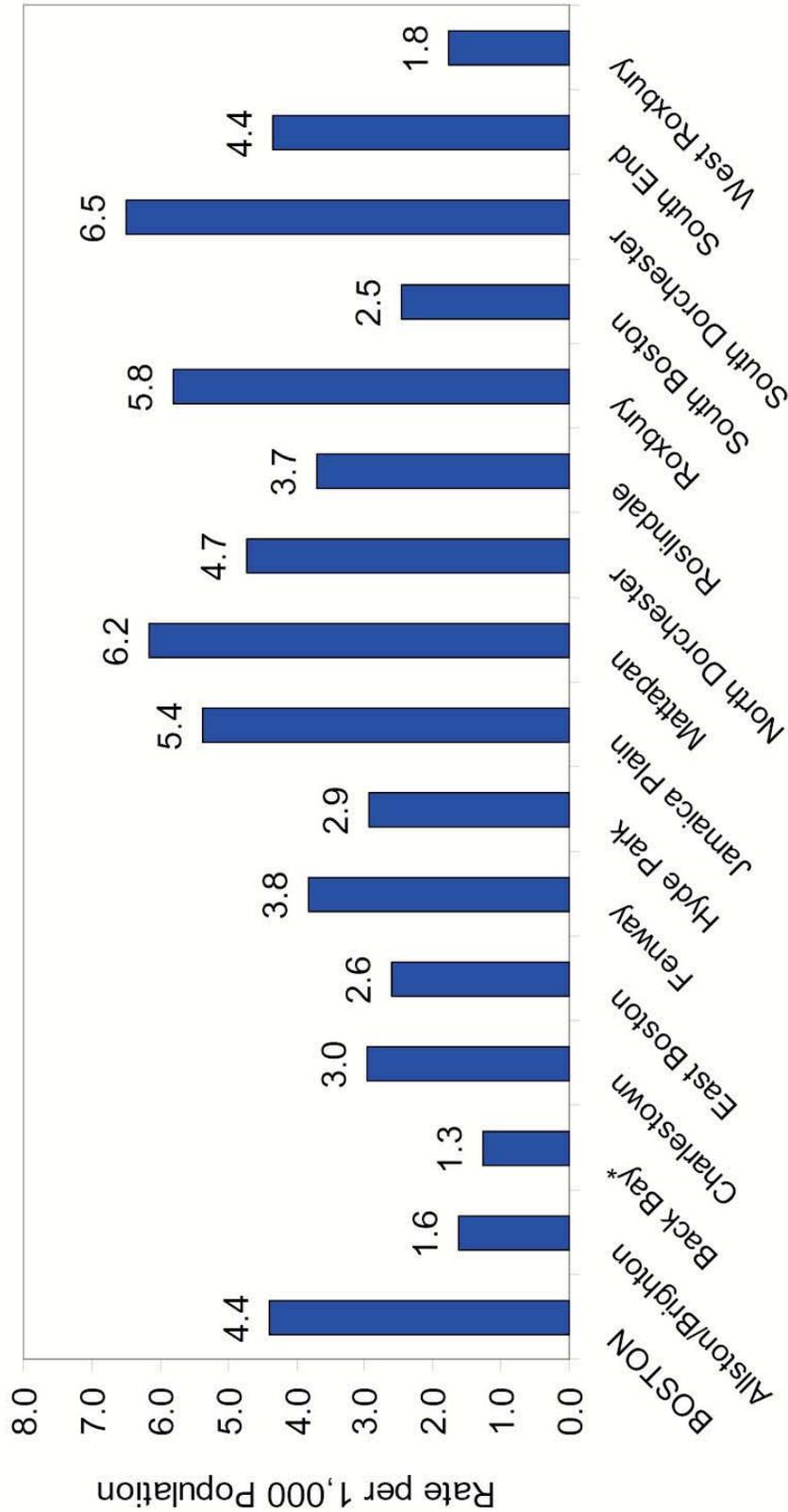


FIGURE 3-4
Asthma Hospitalization Rates by Neighborhood
Source: Boston Public Health Commission

*North End data have been incorporated with Back Bay.
DATA SOURCE: 1997-2000 Acute Case Mix, Massachusetts Division of Health Care Finance and Policy. Rates are calculated using the US 2000 Census for resident population by zip code.
DATA ANALYSIS: Boston Public Health Commission, Research Office

The visual quality of the area is framed by the existing 150-foot high BioSquare Research Park buildings, the BMC Power Plant, the 11-story Suffolk County House of Correction, Interstate I-93 and a variety of large institutional buildings north of Albany Street in the BUMC campus. A section of the adjacent neighborhood, along East Brookline Street, is composed of two and three story brick townhouses.

3.6 NOISE

The Boston Air Pollution Control Commission regulates noise in the City of Boston based on land use classification. The regulations establish a maximum sound level for residential areas, of 60 decibels (dBA) during the daytime (7:00 am to 7:00 pm) and 50 dBA at nighttime (7:00 pm to 7:00 am). The City of Boston has also established noise limits that apply to nine octave band center frequencies. The state Department of Environmental Protection (DEP) regulates noise from industrial facilities as an "air contaminant". The regulations prohibit activities that increase the broadband sound pressure level more than 10 dBA above the ambient (background) level, or which results in a pure tone condition. The ambient (background) sound pressure level is defined as the background L_{90} level measured when the facility is not operating, but during a time period when it would normally operate. The L_{90} is the measured sound level that is exceeded 90 percent of the time. That is, 10 percent of the time the sound level would be less than this amount and 90% of the time the sound level would be higher than this amount. The L_{90} provides a good representation of the general background sound level since it excludes the impacts from brief spikes in the noise level. A pure tone condition occurs when any octave band sound pressure level exceeds the average of the two adjacent octave band sound pressure levels by 3 dBA or more. The DEP noise regulations are applied at the nearest property line and the nearest residence and they do not regulate noise from moving motor vehicles.

A noise level study was undertaken as part of the 2003 Draft Project Impact Report/Environmental Impact Report for the BioSquare Phase II development project (Fort Point Associates, Inc., 2003), which included the Boston-NBL site. Noise monitoring was performed at the Project site to evaluate the existing ambient sound level (L_{90}) during the quietest time of the day (nighttime). Table 3-9, Summary of Nighttime Sound Level Measurements Taken at and Near the Project Site summarizes the nighttime sound level measurements.

The study results indicate that the main sources of noise during the nighttime sound level measurements are motor vehicle traffic on the Southeast Expressway, traffic on the Massachusetts Avenue Connector, other local roadway traffic, and mechanical equipment (primarily air conditioners). As shown in Table 3-9, the existing nighttime sound levels in most locations already exceed the City of Boston criteria of 50 dBA.

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FIGURE 3-5
Photographs of Project Vicinity
source: Fort Point Associates, Inc.

Table 3-9: Summary of Nighttime Sound Level Measurements (dBA) Taken at and Near the Project Site

<i>Location</i>	A-Weighted			Octave Band Center Frequency (Hz)								
	L ₁₀	L ₉₀	Leq	32	63	125	250	500	1000	2000	4000	8000
1	62	56	62	65	65	61	58	54	50	44	35	25
2	66	57	64	64	66	62	60	54	51	45	34	< 25
3	56	54	55	61	63	60	56	52	49	41	29	18

Notes:

Location 1: Near Residences on E. Canton Street

Location 2: Between the Phase II Site and Albany Street

Location 3: Near Boston Medical Center – Newton Pavilion

Each measurement is for approximately 30-minutes, taken with a CEL-593.C1T sound level meter. Measurements were taken between 2:30 a.m. and 4:33 a.m. on Thursday, July 25, 2002.

3.7 AIR QUALITY

3.7.1 AIR QUALITY STANDARDS

The U.S. EPA uses seven "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur (see Table 3-10). These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Massachusetts has established the same air quality standards. The City of Boston is currently classified as being in attainment (i.e. in compliance) with the NAAQS for all of the criteria air pollutants (except ozone).

In 2004, the U.S. EPA designated Eastern Massachusetts as moderate nonattainment for 8-hour ozone NAAQS. However, as shown on Table 3-10, data from the ozone air monitor closest to the project site at Harrison Avenue shows that 8-hour ozone levels in the project area for the past three years have been in compliance with the NAAQS for ozone. Additionally, information from air monitoring data for 2004, recently made available, also show compliance with the 8-hour ozone standard at the Harrison Avenue monitor. Major sources of these ozone precursor air pollutants in urban areas include power plants and motor vehicles. Ozone concentrations in the project area are made up of natural ozone; locally generated ozone; and ozone transported from upwind urban areas. Emissions of VOC and NO_x in the study area have almost no effect on local ozone levels due to their relatively small size and are

insignificant when compared to emissions from the entire region and urban areas upwind (such as Providence, RI; Hartford, CT; and New York City), and do not have a significant impact on ozone levels in the project area.

On January 5, 2005 the EPA published a final rule that designated that the entire Commonwealth of Massachusetts is classified as being in attainment of the fine particulate matter (PM_{2.5}) air quality standards (Federal Register, 2005). These air quality standards have been established to protect the public health and welfare in ambient air, with a margin for safety.

3.7.2 EXISTING AIR QUALITY

The state DEP currently operates air monitors in various locations throughout the City of Boston. The closest, most representative, DEP monitors for nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), fine particulate matter (PM_{2.5}), and ozone are located at Dudley Square (Harrison Avenue Monitor). The closest DEP monitor for lead is located at Kenmore Square, and the closest DEP monitor for particulate matter (PM₁₀) is located at 115 Southamptton Street.

The data from these DEP monitoring stations for the most recent available, complete, three-year period (2001-2003), shown in Table 3-10, Representative Existing Air Quality in the Project Area, reveal air quality measurements that comply with the NAAQS for all air pollutants and averaging periods, and that the existing air quality in the Project area is generally much better than the NAAQS. The highest measured concentrations relative to a NAAQS are for ozone and PM_{2.5}.

3.7.3 AIR POLLUTANT EMISSIONS FROM FUEL COMBUSTION EQUIPMENT

The space heating for the Project buildings would be provided by steam purchased from Trigen, using an existing street distribution system.

The fuel combustion equipment for the Project would consist of three 1,750 kW emergency generators. In the event of a loss of electrical service to the Project, both generators would start under a paralleling arrangement. After starting, the second generator would stop if the load allows. Massachusetts regulations limit the use of emergency generators to 300 hours per year.

Table 3-10: Representative Existing Air Quality in the Project Area with Massachusetts and National Ambient Air Quality Standards (NAAQS)

Pollutant, Averaging Period	Monitor Location	Background Value ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS
CO, 1-hour ^{P/S}	Harrison Avenue, Boston	5,635	40,000 ^a	14%
CO, 8-hour ^{P/S}	Harrison Avenue, Boston	3,220	10,000 ^a	32%
NO ₂ , Annual ^{P/S}	Harrison Avenue, Boston	47	100	47%
Ozone, 1-hour ^{P/S}	Harrison Avenue, Boston	221.5	235 ^a	94%
Ozone, 8-hour ^{P/S}	Harrison Avenue, Boston	150.3	157 ^b	96%
PM ₁₀ , 24-hour ^{P/S}	115 Southamptton St., Boston	43	150 ^b	29%
PM ₁₀ , Annual ^{P/S}	115 Southamptton St., Boston	23	50	46%
PM _{2.5} , 24-hour ^{P/S}	Harrison Avenue, Boston	33	65 ^b	51%
PM _{2.5} , Annual ^{P/S}	Harrison Avenue, Boston	12.5	15 ^c	83%
Lead, Quarterly	Kenmore Square, Boston	0.04	1.5	3%
SO ₂ , 3-hour ^S	Harrison Avenue, Boston	107.4	1,300 ^a	8%
SO ₂ , 24-hour ^P	Harrison Avenue, Boston	62.9	365 ^a	17%
SO ₂ , Annual ^P	Harrison Avenue, Boston	18.3	80	23%

Source: US EPA, <http://www.epa.gov/air/data>.

Notes:

- (1) Annual averages are highest measured during the most recent three-year period for which data are available (2001 - 2003). Values for periods of 24-hours or less are highest, second-highest over the three-year period unless otherwise noted.
- (2) The one-hour ozone value is the highest one-hour value over the 3-year period, the eight-hour ozone value is the 3-year average of the annual fourth-highest values, the 24-hour PM₁₀ value is the 3-year average of the 99th percentile values, the 24-hour PM_{2.5} value is the 3-year average of the 98th percentile values, the annual PM_{2.5} value is the 3-year averages of the annual values – these are the values used to determine compliance with the NAAQS for these air pollutants.

P = primary standard; S = secondary standard.

a One exceedance per year is allowed.

b 98th percentile (PM_{2.5}) (99th percentile PM₁₀) 24-hour concentrations in a year (average over three years).

c Three-year average of annual arithmetic means.

d Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration.

3.8 WASTEWATER/WATER SUPPLY

The Project site is currently used for surface parking and does not generate wastewater flows. Wastewater infrastructure serving the Project vicinity has been recently upgraded. The New Albany Street Interceptor, which serves the Project site, has been designed to carry a theoretical flow of 16 million gallons per day (mgd). The wastewater flows connect from the Albany Street interceptor to the new Massachusetts Water Resources Authority (MWRA) Deer Island Sewage Treatment Plant, which treats the wastewater, which is then

discharged into Boston Harbor. The Deer Island Sewage Treatment Plant has a total flow capacity of 1.2 billion gallons per day. Accordingly, there is sufficient capacity in the system to both convey and treat both current and future wastewater flows.

BUMC operates its current laboratory facilities under a MWRA Discharge Permit #45 006015, which was renewed on October 19, 2004 and expires on August 16, 2006. Plumbing codes and MWRA regulations require that sinks in laboratories drain to a pH adjustment system, where pH and flow monitoring and water sampling take place prior to discharge.

The MWRA supplies the City of Boston and other communities with its public drinking water supply. The primary water source is the Quabbin Reservoir located in western Massachusetts, which holds 412 billion gallons within its 39-square-mile surface area. MWRA has designed and is constructing a new water treatment plant at Walnut Hill that will treat water delivered to the majority of the MWRA's 2.2 million customers in metro Boston. MWRA turned on the MetroWest Water Supply Tunnel, a critical project for water transmission, at the end of October 2003. The new water tunnel has greatly improved water transmission reliability and redundancy since it has gone online and will increase the water delivery system's overall capacity by 450 million gallons per day. The Project would utilize water during construction and operation however; the existing water supply system has been significantly upgraded in the past several years and has more than adequate capacity to service the Boston-NBL facility.

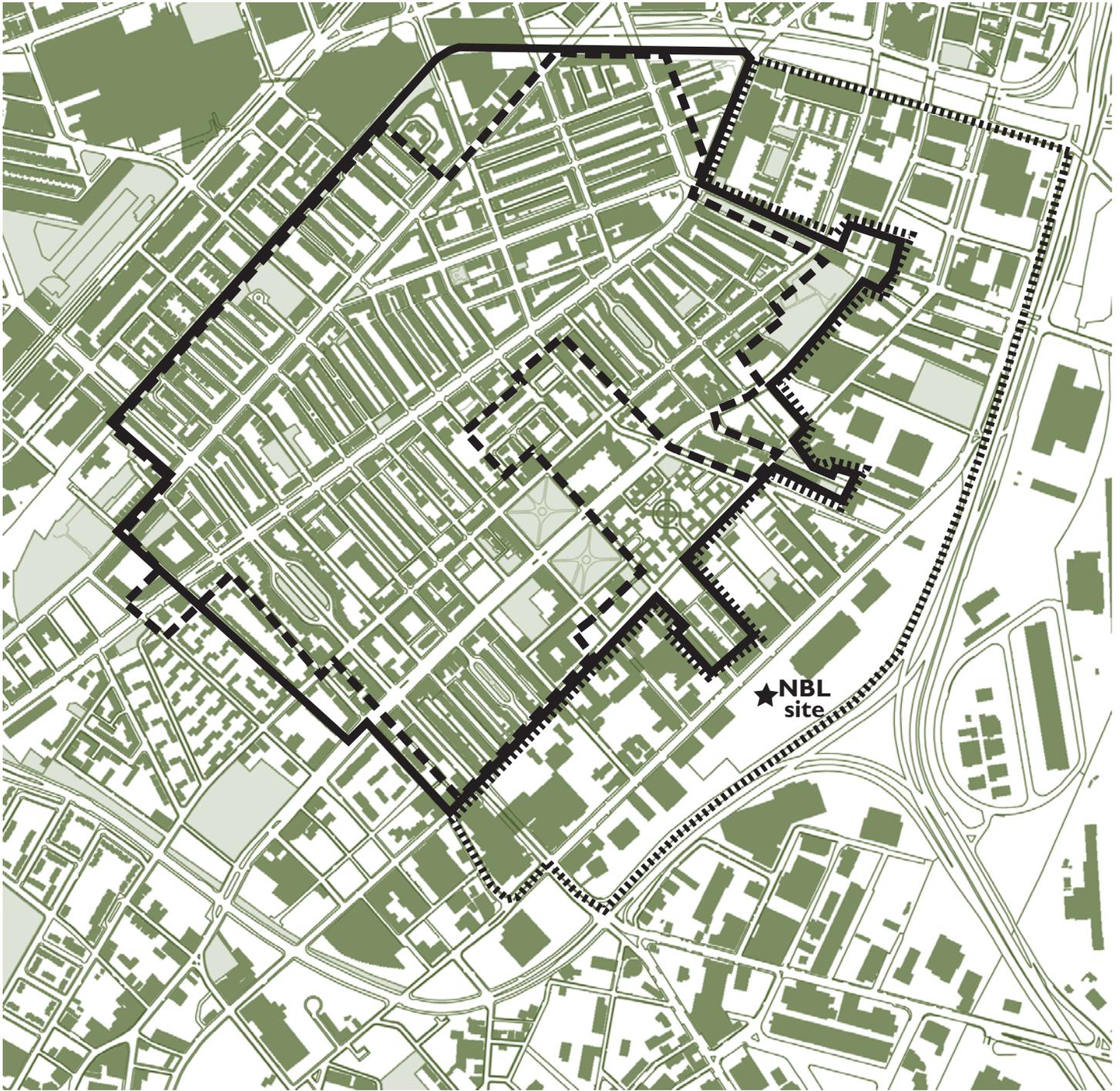
3.9 HISTORIC RESOURCES

Portions of the South End are included in the South End National Register District, which contains the largest intact Victorian row house district in the country. The district was listed in the National Register of Historic Places in May 1973 and is included in the State Register of Historic Places. A slightly expanded area of the South End was designated as a Boston Landmark District by the City of Boston in November 1983 (see "Figure 3-6 Photographs of South End Landmarks District"). In the same year, the City of Boston also created the South End Harrison/Albany Protection Area "so as to maintain a transitional area adjacent to the Landmark District".

The Project site is not located within the South End National Register District or within the South End Landmark District (see "Figure 3-7, South End Historic Resources"). The site is located within the South End Harrison/Albany Protection Area. The Proposed Action would construct a building within the commercial, industrial and institutional area near the South End National Register District. The proposed building would be visible from within the



FIGURE 3-6
Photographs of South End Landmarks District
source: Fort Point Associates, Inc.



- — — — — South End National Register District
- South End Landmark District
- South End Landmark Protection Area

FIGURE 3-7
South End Historic Resources
source: Boston Landmarks Commission

District, but would be consistent with the architecture of surrounding commercial and institutional buildings and would have no direct effect on the District.

The Boston Landmarks Commission established standards and criteria for the South End Harrison/Albany Protection Area "to protect views of the adjacent Landmark District, to ensure that new development of major alteration adjacent to the District is architecturally compatible in massing, setback, and height, and to protect light and air circulation within the District."

3.10 RESOURCES NOT AFFECTED

3.10.1 SOIL

The Project site consists of urban fill and is currently used for surface parking to support the BUMC and the BioSquare Research Park. Roughly 50% of the site is asphalt-paved and 50% is compacted gravel. There are no buildings on the site. Soil in general consists of fine sand, silt and clay with small amounts of cobbles and red brick. Soil density generally ranges from loose to medium dense with isolated areas of dense and very dense soil. Ground water is present at depths ranging from 5-11 feet below ground surface.

RATIONALE FOR NO FURTHER DISCUSSION

Soil resource would not be affected by operation of the Boston-NBL facility. During construction, soil excavation and displacement would occur in the area under and immediately adjacent to the proposed building.

Soil erosion controls would be used to minimize impacts during construction. Following construction, the areas outside of the building footprint would be landscaped and/or paved. No material generated by operation of the Boston-NBL facility would be released to the soil.

3.10.2 GEOLOGY

Based on observations made during subsurface investigation activities conducted to date, subsurface conditions at the site include urban fill material with significant quantities of subsurface wood and lumber that were likely the remnants of the former wharfs or piers or other buildings. Large, subsurface void spaces characteristic of urban fill are also present. Starting from the bedrock and extending upward the soil generally consists of a variable thickness of glacial till, stiff to medium gray clay, varying in thickness from 40 feet to over 100 feet, a relatively thin and discontinuous deposit of sand, overlain by peat and organic silt, which in turn is overlain by the granular fill.

RATIONALE FOR NO FURTHER DISCUSSION

The Project site consists of urban fill underlain by coastal deposits and marine clay. The building foundation would be designed to provide structural support for the Boston-NBL facility.

3.10.3 FLOODPLAINS

Executive Order 11988 requires that the Project be assessed to determine if activities would occur within a floodplain.

RATIONALE FOR NO FURTHER DISCUSSION

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Program Flood Insurance Rate Map (FEMA, 1983), the site is not located within a 100-year flood zone and therefore no impacts to such resources would result from the Project. The proposed Boston-NBL facility would not be located within a 100-year flood plain and therefore requirements of Executive Order 11988 do not apply. No additional analysis of impacts is required.

3.10.4 WETLAND AND RIPARIAN AREAS

The DHHS General Administration Manual (U.S. DHHS, 2000) defines wetlands as those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and, that under normal circumstances do support, a prevalence of vegetation or aquatic life that require such conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas.

Executive Order 11990, Protection of Wetlands, 42 CFR 2691 (1977) as amended by Executive Order 12608, 52 F 34617 (1987), and 42 U.S. Code 4321 direct each federal agency to minimize destruction, loss or degradation of wetlands and to preserve and enhance such wetlands in carrying out their program responsibilities. Consideration must include a variety of factors such as water supply, erosion, and flood prevention, maintenance of natural systems and potential scientific benefits.

The Project site is located in a developed area and there are no surface water bodies or wetland areas in the general vicinity.

RATIONALE FOR NO FURTHER DISCUSSION

The site does not contain any wetland resources and therefore no impacts to such resources would result from the Project.

3.10.5 VEGETATION

Of the open space on the site, roughly 50% is asphalt-paved and 50% is hard-packed gravel. The site is currently used for vehicle parking. The site's limited vegetation consists of weeds.

RATIONALE FOR NO FURTHER DISCUSSION

The Project would have no adverse impacts on vegetation.

3.10.6 FISH

RATIONALE FOR NO FURTHER DISCUSSION

The Project site is not located near any surface waters and thus would have no impact on fish resources.

3.10.7 WILDLIFE

The Project site is located in an urban area and does not contain any natural vegetation or landforms.

RATIONALE FOR NO FURTHER DISCUSSION

The Project site does not contain any natural vegetation or landforms and therefore, no impact to wildlife resources would result from the Project.

3.10.8 THREATENED AND ENDANGERED SPECIES

According to the Massachusetts Natural Heritage Atlas, 11th Edition (Commonwealth of Massachusetts Division of Fisheries and Wildlife, 2003) there are no habitats of rare or endangered wildlife species and no certified vernal pools on the Project site.

RATIONALE FOR NO FURTHER DISCUSSION

The Project site is located in a developed area and does not contain any threatened or endangered species and therefore, no impact to such resources would result from the Project.

3.10.9 SURFACE WATER

The Project is not located in proximity to any surface water bodies. Fort Point Channel, a coastal water body, is located approximately 0.9 miles west of the project site. The Project stormwater will be pretreated and discharged into the Boston Water and Sewer Commission's storm drainage system which ultimately discharges into Fort Point Channel.

RATIONALE FOR NO FURTHER DISCUSSION

The Project site does not contain nor is located near any surface water bodies. The construction of the facility would not affect any surface water resources. The construction work would fall under a federal National Pollution Discharge Elimination System (NPDES) General Permit for construction related stormwater and dewatering discharges and would require the installation of erosion and sedimentation control devices during construction. Post construction stormwater runoff from the site would be designed in compliance with the state DEP stormwater guidelines.

3.10.10 GROUNDWATER QUALITY

Groundwater is present on the site at depths 5 to 11 feet below ground surface. Based on local topography, the groundwater at the site is expected to flow generally northeasterly toward the Fort Point Channel which is nearly 1 mile away from the site. The Project area is heavily urbanized and there are no known drinking water wells or resource areas in the Project vicinity. The grade at the site would be increased by 1 to 2 feet above existing grade. Because the proposed building does not have a basement but would consist of a concrete slab foundation constructed to a depth of 4 to 8 feet below the finished grade of the site, there would be no penetration of the groundwater table.

Based on recent groundwater chemical analyses results, it has been concluded that groundwater at the site contains low levels of contaminants below the applicable standards and poses no significant risk to human health, safety, public welfare or the environment. Thus, no remediation on groundwater is required. Based on the soil chemical analyses results and the completion of a Method I Risk Characterization, there is a condition of No Significant Risk of soil outside the footprint of the proposed Boston-NBL building. Soils excavated during construction would be handled and disposed of in accordance with a Release Abatement Measure (RAM) Plan filed with the state Department of Environmental Protection.

RATIONALE FOR NO FURTHER DISCUSSION

No discharge to groundwater is proposed by the Project; therefore, no impacts to this resource would result from the Project.

3.10.11 COASTAL ZONE

The Project site is located outside of the Massachusetts Coastal Zone.

RATIONALE FOR NO FURTHER DISCUSSION

Project activities would not adversely affect any resources located in the coastal zone and therefore no impacts to this resource would result from the Project.

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