Improving Environmental Awareness for Chelsea Creek Communities

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ABSTRACT

The project was performed to assist the Urban Environmental Initiative of the US Environmental Protection Agency in assessing traffic and open space in Chelsea and East Boston. The project team conducted traffic studies and documented open space, ultimately mapping results on GIS layers. The project team created an expandable database and a website with the intent to increase awareness in the communities about existing environmental problems.

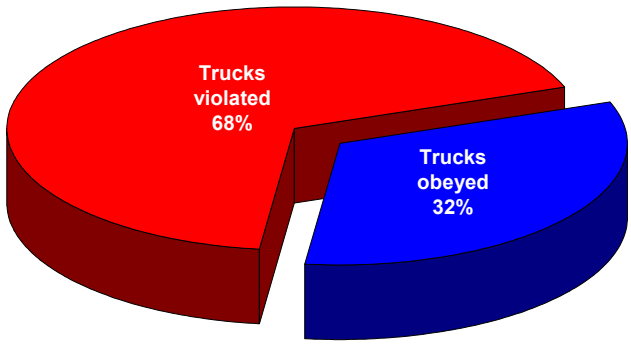
Executive Summary:

This project, building on surveys and questionnaires given by the Chelsea Creek Community Based Comparative Risk Assessment committee in 1997, analyzed and assessed local environmental and heath issues that impact the communities of Chelsea and East Boston. The Chelsea Creek Community Based Comparative Risk Assessment determined the priority issues to be air quality, water quality, traffic, respiratory diseases, noise, and open space. This project team focused on both car and truck traffic and open space--issues identified by the community as their primary concerns.

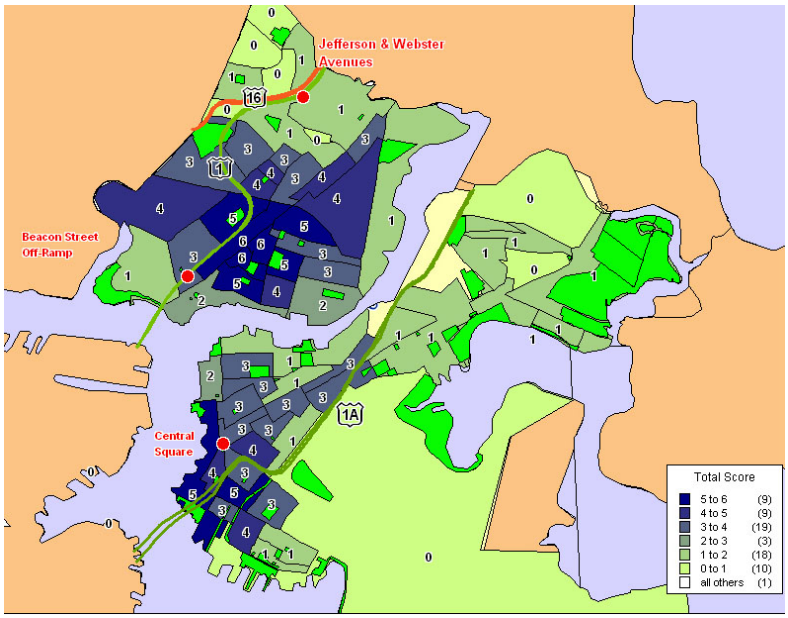
The project team assisted the US Environmental Protection Agency, Urban Environmental Initiative (UEI) in collecting data on traffic and open space and created a database in order to track and maintain this information. The project team also developed an informative website aimed to improve environmental understanding and public awareness about the environmental and public health issues determined by the Chelsea Creek Community Based Comparative Risk Assessment.

All open space locations in Chelsea and East Boston were photo documented and evaluated based on their condition, safety, maintenance, and accessibility. The traffic studies were performed at two intersections in Chelsea (the Beacon Street off-ramp and the intersection of Jefferson and Webster Avenues, both include truck exclusion routes) and one intersection in East Boston (Central Square). The residents identified these intersections as problematic due to heavy truck traffic. Traffic counts were conducted with respect to the type of vehicle and the maneuver it performed. Truck exclusion signs were photo documented and evaluated for authenticity, condition and location.

Our results showed that at each intersection more than 95% of the traffic volume consisted of cars and buses. At the Beacon Street off-ramp, we observed that approximately eighteen trucks violated the truck exclusion on a normal weekday. At Jefferson and Webster Avenues, two out of three trucks violated the truck exclusion as illustrated in the picture to the right. Central Square has no truck exclusions, however we observed that trucks were not problematic at this intersection. The truck activity was at its peak when the car and bus volumes were relatively low. In general, truck volumes at these intersections were not significant. However, a single truck traveling could still be considered a problem for a resident in terms of noise, vibrations and air pollution.



Traffic affects the quality and accessibility of open space locations. Open space locations are not always accessible; nor do they always provide substantial benefits to the residents. The cities of Chelsea and Boston listed and totaled all open space locations in their respective community without considering the practical use, actual acreage, or accessibility. We noticed that total useable acreage for both communities was an overestimate. From our observations and site visits, we found that a number of the parks in Chelsea were closed to the public and that a significant portion of the open space in East Boston is marsh.



This figure shows the "economic justice" score and open space locations. The "economic justice" layer was created by the EPA using data from the 1990 census. A high score, dark regions, indicates neighborhoods with low-income levels and high minority populations. We can conclude that certain neighborhoods, especially the low income and high minority group regions, are underserved. As seen in the picture, the dark areas do not have much open space and/or they are located next to heavy traffic routes.

Traffic can have many negative affects on open space. Traffic decreases air quality and safety. Traffic can prevent an open space location from reaching its greatest environmental and recreational potential. Development of new open space in heavy traffic areas is not appealing as it decreases the value of the open space.

The traffic and open space data was stored in a database and transferred into Geographical Information System (GIS) maps and then displayed on a user-friendly website for residents of Chelsea and East Boston. By providing the information to the community, through the use of the website, we hope that some of these concerns can be addressed by increasing public interest and community action.

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1 INTRODUCTION

The Chelsea Creek Community Based Comparative Risk Assessment, a project of the Chelsea Creek Action Group (CCAG), began in 1997 to determine and assess the environmental and public health concerns of the Chelsea and East Boston communities through surveys and questionnaires. The priority issues were determined to be air quality, water quality, traffic, respiratory diseases, noise, and open space. The communities listed traffic and open space as the top priority issues, and in fact, both problems impact one another: traffic can inhibit the full potential of an open space location.

Due to the heavy industrial and commercial nature of Chelsea and East Boston, the residents are overwhelmed by heavy traffic. The residents are particularly concerned with the trucks traveling through their neighborhoods. This project is intended to help the communities of Chelsea and East Boston understand and address the perceived traffic problem and determine which open space locations have valuable benefits for their communities.

The following chapters provide background information on the issues and focus areas, introduce the methodology used to collect traffic data and evaluate open space, present our results and analyses of the traffic and open space data, and give conclusions and recommendations for the communities of Chelsea and East Boston.

- Chapter 2 provides background information about the Chelsea Creek community, including its residents, organizations, and agencies. It will also discuss the top priority issues: traffic and open space.
- Chapter 3 discusses the methodology used to perform traffic studies, evaluate open space, create the database, and develop a website.
- Chapter 4 explains the results and analyses of our studies.
- Chapter 5 discusses our conclusions and recommendations for further studies.
- Chapter 6 contains the bibliography.
- Appendix A includes the annotated bibliography.
- Appendix B contains additional sponsor information.
- Appendix C has documents from the Chelsea Creek Community Based Comparative Risk Assessment.
- Appendix D includes government organization information.
- Appendix E contains relevant data from previous traffic studies.
- Appendix F contains the data collection forms.

2 BACKGROUND

The Chelsea Creek Community Based Comparative Risk Assessment identified traffic and open space to be top priorities to the residents of Chelsea and East Boston. This chapter discusses Chelsea Creek, the communities of Chelsea and East Boston, the organizations related to Chelsea Creek, and provides information about traffic and open space.

Background about Chelsea Creek, the City of Chelsea, and East Boston allows the reader to understand the demographics, geographical location, and history of these locations. The background about organizations relating to Chelsea Creek provides information about who is involved with the Chelsea Creek communities. Water quality, air quality, noise, traffic, respiratory diseases, and open space were identified as environmental concerns of the public. Since traffic and open space are the top priority issues, we focused on traffic and open space.

2.1 Chelsea Creek

Chelsea Creek is the waterway stretching from Boston's Inner Harbor, between East Boston and Chelsea to the mouth of Mill Creek, between Chelsea and Revere (Figure 1).

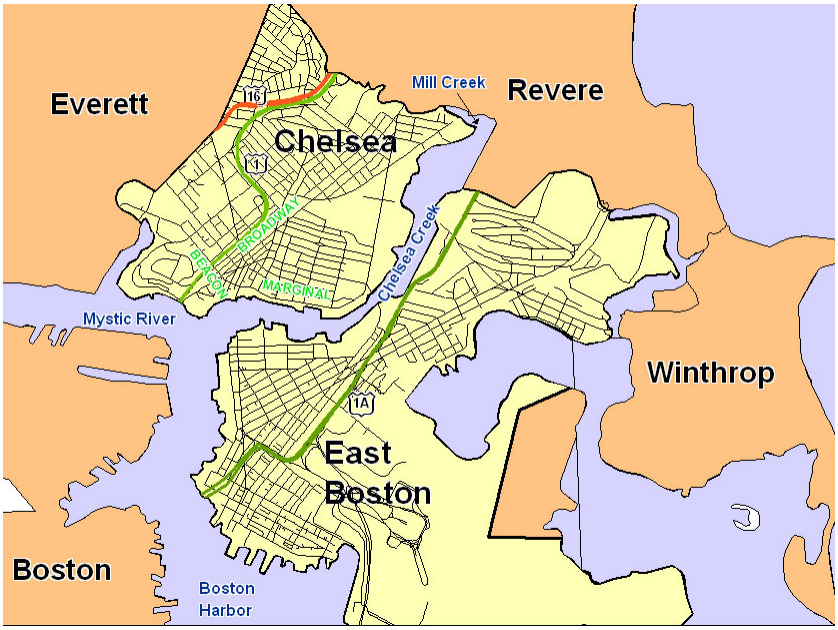

Figure 1 Map of Chelsea Creek

The banks of Chelsea Creek are lined with industries that use the creek to import and export raw materials and finished products. In the past, industries were allowed to dispose of hazardous waste directly into the creek. Currently, regulations limit the amount of contaminants going into the creek.

Chelsea Creek is a very important water body. Many boats make deliveries to the Chelsea Creek industries on a regular basis. Chelsea Creek receives and houses the majority of petroleum deliveries for Boston Harbor. The petroleum tanks along Chelsea Creek store 70% of the heating fuel for homes and businesses in Massachusetts and all the jet fuel for Logan International Airport. Another facility along Chelsea Creek is the dock for Eastern Salt Co., from

which 250 communities in Massachusetts receive their road salt. Chelsea Creek is a Designated Port Area (DPA), which is the stretch of waterfront set aside for industrial and commercial use only.

Water quality became a concern to all residents of the Boston Harbor a few decades ago. Since then, there have been significant clean up projects for the harbor, but Chelsea Creek is still highly polluted and is not open for recreational use. Chelsea Creek is the most polluted tributary of Boston Harbor.[1] Over the years, the residents of Chelsea and East Boston have been pressuring the state government to change the creek's status as a DPA. By removing the DPA status, the creek would be available for recreational and public use. However, the area needs to be cleaned before it can be safely utilized.

2.2 The City of Chelsea

Chelsea (Figure 2) is an urban suburb of Boston, with a diverse population of 35,080. The ethnic distribution is 50% Latino, 40% Caucasian, and 10% other. Chelsea's population is relatively low-income. From the 1990 census, the median household income was $25,144, which ranked Chelsea 342 (out of 351) in the state. The percentage of people living below the poverty level was 24.1% (compared to the state average of 8.9%) and the unemployment rate in Chelsea was 8.8% (compared to the state average of 6.9%).

Chelsea is located to the north of Boston, with a total area of 1.8 square miles with the Mystic River, Island End River, Chelsea Creek, Everett, and Revere bordering it.

Figure 2 Map of Chelsea

Chelsea, originally a part of Boston, was settled in 1624. An act of the legislature passed on January 10, 1739 established Chelsea as a town separated from Boston. The area included present day Chelsea, Winthrop, Revere and part of Saugus. In the 1840's, Revere, Winthrop, and Saugus became a separate township. Self-governance was difficult and it led to debt. In 1857, Chelsea was granted a charter as a city.

There have been two devastating fires in Chelsea. The fire of April 12, 1908 destroyed seventeen miles of streets. Over 2,800 buildings (school buildings, churches, and public buildings) and 280 acres in the heart of the city were burned to the ground. As a result, sixteen thousand people were left homeless. Then

[1] "Neighborhood of Affordable Housing, Summer 2001, River Institute Internship Opportunity" 2001 <http://www.tufts.edu/tie/initiatives/RiverInstitute/NOAH.html> (14 February 2002).

in 1973, another devastating fire destroyed eighteen city blocks. The value of the city was decreased by approximately 20% due to the fires.[2]

After each of the devastating fires, the city was rebuilt over a relatively short period of time. The urban redevelopment was not a gradual process, creating a building contrast. The designs, sizes, and urban characteristics were noticeably different from the buildings that were not destroyed by the fire. In particular, the area destroyed by the 1973 fire was rebuilt as a large-scale commercial and industrial area.[3]

In the late 1980s, Boston University began a partnership with the City of Chelsea. The partnership was designed to improve the educational system for the children of Chelsea. Boston University managed the public schools for a ten-year period. The success of the partnership has lead to an extension of the program into the year 2003.[4]

In 1995, Chelsea began a new charter, which gave authority to the City Council and provided the City Manager executive and administrative powers. This change improved the stability of the Chelsea government. The city has been taking steps to improve the quality of life for its residents by eliminating its debt and undertaking projects. The city has constructed three new schools since the new charter began, completely replacing Chelsea's outmoded school facilities.

2.3 East Boston

East Boston is a neighborhood of Boston, approximately five square miles with 38,413 residents. East Boston is located to the northeast of downtown Boston, right across the harbor (Figure 3). Since East Boston is a neighborhood of Boston, it falls under the jurisdiction of the Boston City Council.

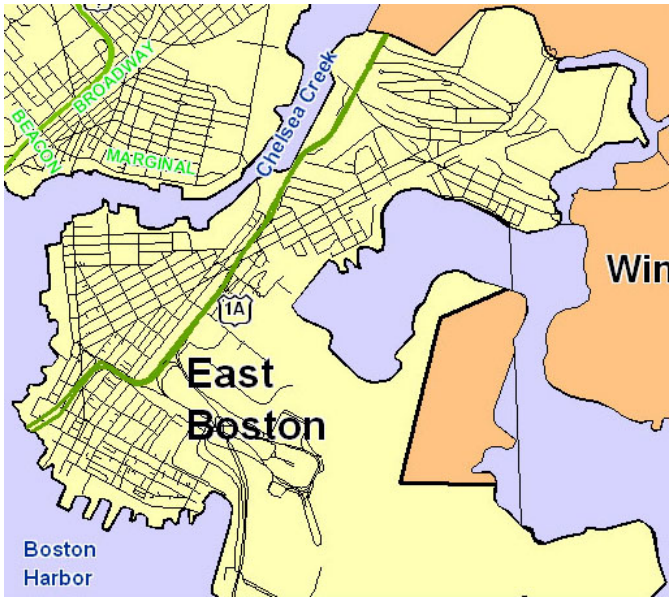

Figure 3 Map of East Boston

In 1833, General William H. Sumner created the East Boston Company in an effort to convert five islands into one landmass where people could build homes and start families outside the city of Boston. Since then, East Boston has grown in size through reclamation of land. East Boston is home to the largest New England airport, Logan

[2]Spence, Lewis H. Chelsea Open Space and Recreation Plan. October 1994.
[3] Ibid
[4]"History of the Boston University/Chelsea Partnership" n.d. <http://www.bu.edu/chelsea/historypart.htm> (14 February 2002).

International Airport. On September 8, 1923, construction of Logan International Airport began on reclaimed land. Today two thirds of the land in East Boston is allocated to the airport.

Out of the 38,413 residents in East Boston, 50% are White, 39% are Hispanic, 4% are Asian or Pacific Islander, 3% are Black, and 4% are some other ethnicity. The Hispanic community with 14,990 residents makes up the largest portion of the minority population in East Boston.[5] The median household income from the 1990 Census was $23,568. The majority of East Boston's houses are triple-deckers with little yard space.

2.4 Environmental Protection Agency (EPA)

The purpose of the EPA is to protect human health and to safeguard the natural environment in the United States. The EPA was established in July of 1970 when the White House and Congress worked together in response to the public concern for better living conditions and environment in the United States. The mission of the EPA is to set national standards and goals for clean air, water, etc. It also regulates pollutants that cause health and environmental problems.[6]

2.4.1 The Urban Environmental Initiative (UEI)

The EPA has ten regional offices around the nation. New England is Region 1. The Urban Environmental Initiative (UEI) is a program that the EPA introduced in Region 1 to target the improvement of environmental and public health issues in urban areas. The UEI is currently active in Boston, MA, Hartford, CT, and Providence, RI. In Boston, the UEI program focuses on environmental and public health issues, implementing educational and prevention programs to reduce the occurrence of lead poisoning and asthma, and increasing the number of public parks and open space. The purpose of the UEI program is not to directly correct the problems that urban areas face, but to work with local community groups to identify concerns and build community capacity to address issues.

2.5 Non-Governmental Organizations (NGO)

There are Non-Governmental Organizations (NGOs) also known as non-profit, community development corporations with environmental objectives currently active in Chelsea and East Boston. Two of the organizations include the Neighborhood of Affordable Housing (NOAH) and the Chelsea Green Space and Recreation Committee (Chelsea Green Space). The Chelsea Creek Action Group (CCAG) is a coalition of NOAH and Chelsea Green Space. These organizations are comprised of residents from Chelsea and East Boston and work to provide community-based solutions for the environmental concerns.

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[5] "Boston Redevelopment Authority" Census 2000 Publications 22 March 2001 <http://www.cityofboston.gov/bra/pdf/publications/census.pdf> (14 February 2002).

[6] For more information about the EPA, refer to APPENDIX B.

2.5.1 The Neighborhood of Affordable Housing (NOAH)

The Neighborhood of Affordable Housing (NOAH) has been serving East Boston since July 1987. NOAH is an organization of local residents working to improve the quality of life for the community. Their focus is to rehabilitate, stabilize, and preserve East Boston's housing for homeowners and renters. A combination of fees for services, real estate development fees, corporate grants, local and national foundations, and public contracts support NOAH. NOAH offers a variety of housing, green space, economic development programs, projects, and services. The organization works collaboratively with residents, business people, newcomers, activists, agencies, governmental officials, and funding partners to build and maintain an urban neighborhood.

2.5.2 Chelsea Green Space and Recreation Committee (Chelsea Green Space)

The Chelsea Green Space and Recreation Committee (Chelsea Green Space) was established in 1994. Chelsea Green Space works to restore and increase open space in Chelsea, and to improve Chelsea's urban environment. The committee focuses on empowering underserved and minority populations to advocate for improvements to Chelsea's environment via environmental education and remediation projects.

2.5.3 Chelsea Creek Action Group (CCAG)

The Chelsea Creek Action Group (CCAG) is a coalition of NOAH and Chelsea Green Space, which began in 1997. They work together to obtain public access to the Chelsea Creek, to get landowners to remediate contaminated land, to educate residents about the value of local natural resources, and to develop new leaders who will demand environmental equity.

The CCAG has been working on a project since January 2000 called the Chelsea Creek Community Based Comparative Risk Assessment (CRA). The Community Based Comparative Risk Assessment is a unique project designed to help address some of the environmental issues of the Chelsea Creek communities. This project collects and shares detailed information with local residents, people from all levels of government, community and environmental groups, and academia.

In the summer of 1999, CCAG staff and volunteers visited shopping malls, intersections and other public locations to conduct surveys for the Community Based Comparative Risk Assessment. They developed two versions of the survey. The long version, which consisted of twenty-two questions, took approximately ten to forty minutes to complete. The goal of the long survey was to obtain detailed information about each resident and his/her concerns of the community. The shorter version consisted of seven questions and took approximately eight minutes to complete. The goal of the short survey was to get a general overview of the respondents concerns regarding any environmental issues that they felt had an impact on the community. The residents had an option to take either versions of the survey.

A questionnaire was also distributed at community meetings and public schools. The questionnaire was given to a large group to obtain more responses in a short period. At the completion of data-collection, 325 people had been interviewed or surveyed, of those respondents, 165 lived in Chelsea and 154 in East Boston (six not reported). The results were then analyzed by the CCAG in order to prioritize the environmental and public health issues relevant to the communities. Through the survey and two community meetings, it was determined that air quality, water quality, traffic, respiratory diseases, noise, and open space were main areas of public concern.

2.6 Traffic

Traffic is a concern for every community. Many public and environmental health concerns of the Chelsea Creek communities are related to excessive traffic. The automobiles and trucks passing through the area produce vehicle exhaust that contributes to air pollution posing health related problems. In addition, the vehicles release metals such as cadmium, chromium, copper, lead, and mercury that settle on the ground and are washed into the creek by rain. Traffic does not only contribute to environmental and public health problems, but also decreases property values, the quality of life, and causes noise pollution.

Many of the residents surveyed listed truck traffic as a primary concern both because of air quality impacts and because of safety concerns for drivers, pedestrians, and residents. The routing of trucks through residential neighborhoods is of particular concern because of the noise created by trucks and because it puts residents in close proximity with the effects of truck traffic.[7]

2.6.1 Location of Major Highways and Routes

Chelsea and East Boston are located in the Boston metropolitan area. Route 1 and Route 16 pass through Chelsea, and Route 1A runs through East Boston (Figure 4). Route 1 has four

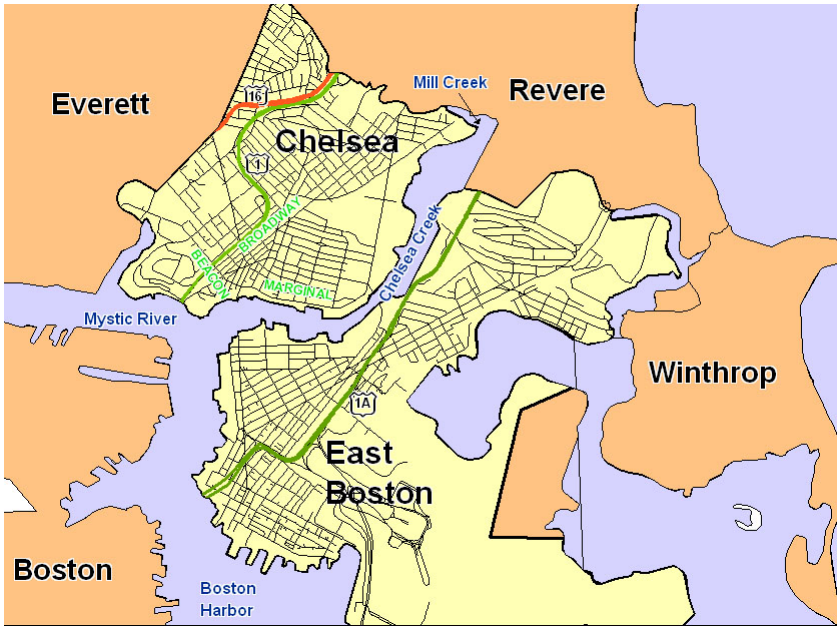

Figure 4 Location of major routes

[7] Chelsea Creek Community Based Comparative Risk Assessment Technical Committee. Chelsea Creek Community Based Comparative Risk Assessment, Chapter 5 Traffic

exits to Chelsea, all of which are located in residential areas. East Boston has the Sumner and Callahan Tunnel connecting to the Logan International Airport and Boston.

Three government agencies regulate the roads in Massachusetts: the Massachusetts Highway Department (MHD), also known as MassHighway, the Massachusetts Turnpike Authority (MTA), and the Metropolitan District Commission (MDC). MHD is responsible for the design, construction and maintenance of 12,600 lane miles of state highway and 2,900 bridges in Massachusetts. The MHD has traffic counts listed by city and town. Average daily traffic counts for Chelsea and East Boston are included in Appendix E Table 4 and Table 5 respectively.

The MTA regulates the Metropolitan Highway System that includes the Boston Extension, which runs for 12 miles between Route 128/I-95 and downtown Boston, and the Sumner-Callahan and Ted Williams Tunnels, which connect to Logan Airport. The Central Artery and Ted Williams Tunnel will also become a part of the MTA after it is completed in 2004 as part of the "Big Dig".

2.6.2 Traffic Concerns in Chelsea and East Boston

The Chelsea Creek community is concerned with traffic, in particular the truck traffic through residential areas. Recently there have been devastating accidents involving trucks exiting too quickly off Route 1. In June of 2000, a truck careened off the Tobin Bridge and crushed a car on Chestnut Street, killing the driver. In May of 2001, a truck exiting from Route 1 lost control and crashed into a home, injuring three residents. These specific incidents have brought the attention of residents to truck traffic concerning traffic safety in residential neighborhoods.

Data has been collected by the Central Transportation Planning Staff (CTPS) specifically for the Chelsea Creek Area. They found that 5,000 trucks cross the Tobin Bridge daily, 775 trucks use the Carter Street exit (Chelsea) off Route 1 daily, and 67 of those trucks using the Carter Street exit are classified as "hazardous". The CTPS also counted the number of trucks that travel through Chelsea and East Boston at different intersections. Although the Central Transportation Planning Staff (CTPS) has conducted truck studies, the data has not been broken down into types of trucks nor does it address truck density within these communities.

Many roads in Chelsea and East Boston are truck exclusions, which have been in place for many years. Although signs are posted on the truck exclusion routes designating weight limits, truck exclusions are sporadically obeyed. The repercussion of truck exclusion roads is that the inclusive roads become heavily congested by the truck traffic.

Under the Massachusetts state law, Chapter 85, all truck exclusions within Massachusetts must include the following characteristics:

- The excluded roadway must be owned by the municipality

- The size of the truck to be excluded must be specified, usually greater than 2.5 tons carrying capacity (a 2-axle, 6 wheeled truck weighs approximately 2.5 tons with no cargo)
- The time period during which the exclusion is in force is specified
- Only through traffic is excluded; local access is allowed
- MHD must grant a permit before any "No Trucks" signs are posted

The MHD is responsible for approving truck exclusion routes. Any city or town interested in adding a truck exclusion road or altering the status of a roadway must submit a proposal of a suitable alternate route to the MHD. There are seventeen truck exclusion route permits for Chelsea and one for East Boston. The mission of the truck exclusion routes in Chelsea is to concentrate the trucks to Marginal Street (a designated truck route), which is lined by petroleum tank farms and the Eastern Salt Company.

Currently there are active projects in Chelsea and East Boston to help improve traffic conditions in these communities. Chelsea Green Space Youth Environmental Crew has conducted traffic studies over two two-hour periods during the work day at the intersection of Marginal and Williams Streets and individual residents have also done traffic counts near their homes. In addition, the Chelsea Waterfront Association has been evaluating and installing signs and other means of diverting trucks through Chelsea. The Beacon Street off-ramp was closed to all traffic after the truck accident in May 2001, but the ramp was reopened in August of 2001 to all traffic except for trucks over 8 tons. The weigh limit excludes tractor-trailer trucks.

The CRA has a number of recommendations to reduce noise, truck exhaust, and traffic violations. They recommend distributing truck exclusion maps to the local trucking companies, checking to see if truck exclusion routes have the proper signs, distributing anti-idling information to buses, trucks, and cars, and conducting more standardized vehicle counts at more intersections.

2.7 Open and Green Space

Historical locations, recreational facilities, public and school playgrounds, and public gardens are examples of open and green space, i.e. public land not used for building purposes. Green space is an area planted with grass, plants, and trees, which offers environmental and public health benefits. Open and green space provides the opportunity to interact with nature through open space, urban gardens, or parks, while improving the neighborhood's image and community interactions and investments. Green space is very important because trees can help cool and clean the air. In residential areas, playgrounds provide a fun and safe place for children to play and for adults to walk, run, or relax. Parks and plazas in commercial areas create a relaxed and friendly environment and attract consumers while reducing pollution and producing oxygen.

Some of these types of open space and green space overlap; for example, some parks offer a place to congregate as well as recreational and environmental benefits. The distinction between open and green space,

recreational and non-recreational space is hard to decipher because some areas that are designated as open or green space do not provide the desired benefits to the community.

There are no federal regulations mandating preservation of open space. At the state level, an article in the Massachusetts Constitution prohibits the use of public open space for other uses unless it is approved by two-thirds of the state legislature. Nevertheless, this article does not prevent the reduction of open space. Most Massachusetts communities have detailed open space plans to set priorities for green space preservation and maintenance. This process of open space planning is useful because it sets the priorities and also makes cities eligible for State and Federal funding. However, these plans are not always carried through. For example, the City of Chelsea created an open space and recreation plan in October of 1994. The plan included 32 different rehabilitations, developments, and maintenance projects as a part of a 5-year plan, but most of these goals were not achieved. A new open space and recreation plan is due out May 2002. East Boston also has an open space plan that is included in the City of Boston report. The new plan "Open Space Plan 2002-2006: Renewing the Legacy" is due out this spring by the City of Boston Parks and Recreation Department.[8]

Both Chelsea and East Boston suffer from a shortage of quality open space and in recent years have lost parks and playgrounds because of the construction of new educational facilities. Chelsea needed new educational facilities, but in constructing new buildings the already small number of open space was reduced. Another reason for the lack of open space in Chelsea and East Boston is the

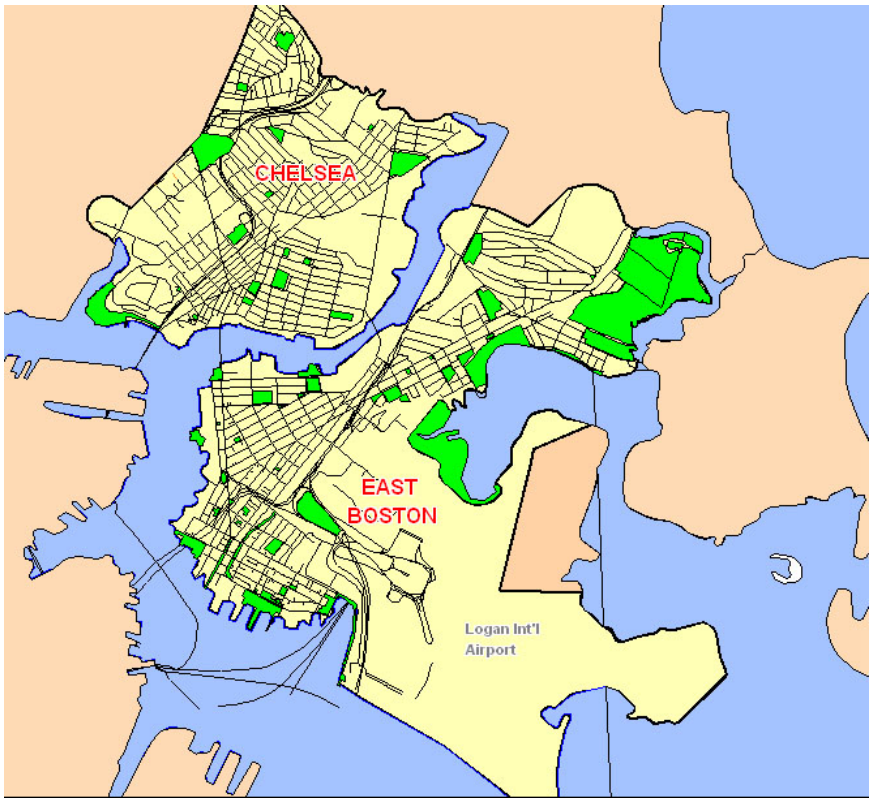

Figure 5 Open and Green Space in Chelsea and East Boston

[8] Chelsea Creek Community Based Comparative Risk Assessment Technical Committee, Chelsea Creek Community Based Comparative Risk Assessment, Chapter 3 Open Space

Designated Port Area (DPA). Since Chelsea Creek is a DPA, this means that the waterfront can only be used for industrial needs. This limits the number of areas that can be used for open space.

The National Recreation and Park Association (NRPA) recommends for every 1000 residents in a community there should be approximately 6-10.5 acres of open space. Chelsea has nineteen parks, including school playgrounds. The acreage total is approximately 65 acres of open space for 35,000 residents. This is equal to 2.0 acres per 1,000 residents. This number is well below the NRPA recommendation, but this figure includes open space locations that are not accessible recreational space. When the figure is calculated only including accessible recreational space it becomes 1.7 acres per 1,000 residents. East Boston has forty-four designated open space locations named by the City of Boston, but not all open space has public access or adequate facilities. There are several different definitions of what is considered open space, so there are different accounts of the acreage of open space in East Boston. The Boston Parks and Recreational Department figure is 9.55 acres of open space per 1,000 residents. The Boston Foundation report estimates that East Boston has 13 acres of open space per 1,000 residents. However, both of these figures include open space locations that are privately owned or do not provide benefits to the public.[9]

The open space acreage per 1,000 residents for East Boston exceeds the NRPA recommendation according to the Boston Foundation figure and is within the range according to the Boston Parks and Recreational Department estimate. Consequently, acreage is not the issue for East Boston. However, over 206 acres of open space in East Boston are located in two sizable salt-water marshes.[10] In addition, in 1966, East Boston lost a large portion of open space when Logan Airport expanded. For both Chelsea and East Boston, the open space is not evenly distributed throughout the neighborhoods, leaving some of the most densely populated neighborhoods without any open or green space areas. It should also be noted that some parks in Chelsea and East Boston are located close to major roadways and the airport, making the park unsafe and noisy.

According to the National Recreation and Park Association, Chelsea and East Boston have less open space per 1,000 residents than many other Boston area neighborhoods. The figures above are helpful in comparing the open space availability to other Boston area neighborhoods, but the figures do not provide information about the location, quality, and accessibility of the open and green space.

2.7.1 Open Space Concerns

From the Chelsea Creek Community Based Comparative Risk Assessment, the residents expressed their concerns for park equipment maintenance and safety. Residents mentioned that drug and gang activity kept them from using the parks. Others mentioned that the locations of the parks limited access. One of the

[9] Ibid
[10] City of Boston "Open Space Plan 2002-2006: Renewing the Legacy Draft" December 21, 2001

main concerns also identified by the Comparative Risk Assessment was the inability to access and utilize the Chelsea Creek as a community resource. The creek and surrounding land are the site of contamination from past oils spills. The area needs to be cleaned before this natural resource can be safely utilized. In addition, the Chelsea Creek area cannot be used until the status as a Designated Port Area has been changed.[11]

There are many vacant lots in Chelsea and East Boston. A group of Boston University graduate students conducted a vacant lot study of Chelsea in 2001. They found 121 vacant lot sites, most of which were just overgrown and littered with trash. Some of the sites were found to be contaminated with industrial waste or lead and would require treatment before the land could be used again. East Boston has not had a vacant lot inventory yet. The potential for new open and green space in Chelsea and East Boston is tangible but it may require intensive clean-up efforts and funding.

[11] Chelsea Creek Community Based Comparative Risk Assessment Technical Committee, Chelsea Creek Community Based Comparative Risk Assessment, Chapter 3 Open Space

3 METHODOLOGY

The goal of this project is to help the Chelsea Creek communities of Chelsea and East Boston by developing a database system to track and maintain environmental data and creating a website that will display environmental and public health information to the communities. The website will improve environmental understanding and increase public awareness about the environmental and public health issues determined by the Community Based Comparative Risk Assessment.

The Community Based Comparative Risk Assessment established six environmental and public health issues. We focused on traffic and open space since these two issues were identified as top priority by the communities and lack sufficient data. There have been no data collected at the local level and we intend to collect discrete data, which can be further analyzed.

To fulfill our overarching goal, our five main objectives are:

1. Inventory open space locations in Chelsea and East Boston.
2. Conduct traffic studies at various intersections in Chelsea and East Boston.
3. Document truck exclusion signs located in Chelsea and East Boston.
4. Create a database.
5. Create a user friendly website that presents environmental information to the residents of Chelsea and East Boston.

Section 3.1 of this chapter shows the graphical location of the Chelsea Creek community. Section 3.2 describes our procedure for evaluating and documenting the open space locations. Section 3.3 summarizes the technique we will use to conduct the traffic studies. Section 3.4 describes the truck exclusion sign documentation. Section 3.5 outlines the structure of the database that provides a system for data entry and maintenance in the future. Section 3.6 explains the design and format of an informative and easy-to-navigate website for the residents of Chelsea and East Boston.

3.1 Study Area

Our project focused on the communities around Chelsea Creek, which consist of the City of Chelsea and the neighborhood of East Boston. The natural environment focus in this area is Chelsea Creek, which merges with the Mystic and Charles River and flows into Boston Harbor.

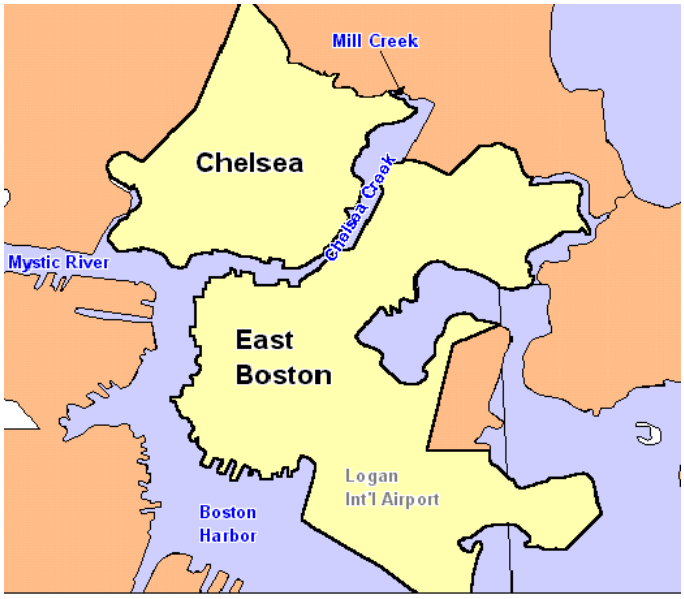

Figure 6 Map of Chelsea and East Boston

3.2 Inventory of Open Space

The definition of open space is a term used broadly to categorize areas of land. Open space is public space which is not built on. Areas that are privately owned or do not provide benefits to the community are not open space. Areas can be categorized as open space, green space, or recreational. The distinction between open and green space is ambiguous. For example, cemeteries are often included in the definition of open space but are often not categorized as "open" and appropriate for public activities. The public benefits and usage of open space in Chelsea and East Boston need to be determined.

Open space data was collected to assess conditions such as cleanliness, safety and category (green, open, recreational, etc). The equipment at the open space locations was inventoried and observed. Equipment includes benches, drinking fountains, swings, and play structures. Every open space lot in Chelsea and East Boston was photographed, and the apparent maintenance, usage, city park information plans, and accessibility were documented. To assess the usage and purpose of the open space area we recorded the type of space (i.e. ball fields/courts, playground, passive space, walking or biking paths, garden, or other). The usage was classified as active recreation, passive recreation, passive space, or none.

Passive space means that there is no significant purpose or use for the space. For example, a small grass square that does not provide any recreational benefits to the community. The characteristics of the open space were recorded (i.e. grass area, shrubbery, paved area, turf, trees, and other), to categorize the area by Open Only (not green or recreational), Green, Recreational, or Green and Recreational. Park hours were recorded based on presence of signage. This helped in evaluating public accessibility. The open space observational form is in Appendix F, Figure 47.

Various factors determined the safety of an open space area such as proper lighting, surveillance, property enclosure, street accessibility, and the presence of broken glass. All of these factors were recorded and described in the results. The number of trash receptacles and presence of litter and graffiti were recorded in order to evaluate the overall cleanliness.

3.3 Collection of Traffic Data

Traffic is a concern for the Chelsea Creek communities, especially truck traffic after the two devastating truck accidents in the residential area. The residents of Chelsea and East Boston believe there is a traffic problem throughout the communities but there has been no evidence to provide a quantitative foundation for their concerns. Since there is little data about the traffic flow through the residential areas, we collected data at various intersections.

Key intersections were identified by the local agencies based on community feedback from the Community Based Comparative Risk Assessment. We covered one intersection in East Boston and two

intersections in Chelsea. It was determined that Central Square in East Boston, the Beacon Street off-ramp of Route 1 in Chelsea, and the intersection of Jefferson Ave and Webster Ave in Chelsea were most likely to be the most dangerous and busiest intersections of Chelsea and East Boston. The Community Based Comparative Risk Assessment has identified other streets; however, we studied only these three intersections due to time constraints. To collect traffic data we used the Traffic Count form in Appendix F Figure 48.

The first step was to visit the intersection to evaluate the complexity of the traffic flows and directions. The number of persons conducting the traffic study depended on the flow of traffic, density of traffic, and the number of possible maneuvers a vehicle could make. A maneuver is a directional path traveled by a vehicle when it encounters an intersection. At an intersection, the vehicles entering the intersection were counted by the maneuver they perform. To minimize human error, one person would examine only one direction of traffic entering the intersection.

Each person was positioned at a "station", the best location to view the traffic flow assigned to study. For example, Figure 7 is a basic four-way intersection. One person would be stationed at each corner to study each direction of traffic entering into the intersection. Station 1 would watch the traffic entering from A, Station 2 would watch the traffic entering from B, Station 3 would watch the traffic entering from C, and Station 4 would watch the traffic entering from D.

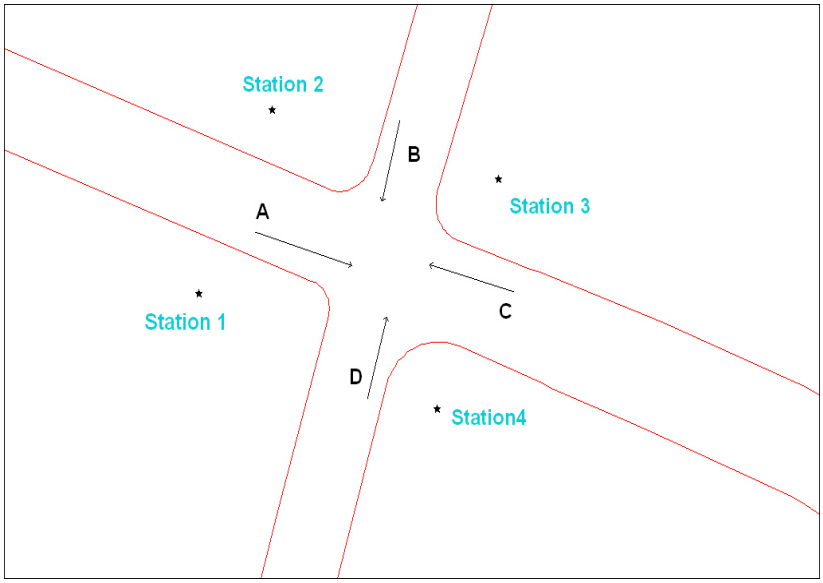

Figure 7 Basic intersection set up

Intersections are not always as basic as illustrated above, so the number of stations would be determined by the complexity of the intersection. For example, the basic intersection may have a traffic light that only allows two directions of traffic to flow at once; in this case, only two stations would be necessary because one person would watch two directions of flow. In another case, the flow of traffic from a certain street may be light, so if manageable, a person would take on two directions of traffic flow. There are many possibilities for the number of stations or number of persons needed to conduct a traffic study but the intersection must be evaluated before the actual traffic study can be performed to determine how to manage the study.

Traffic data was collected on weekdays to indicate traffic trends throughout the week (Monday through Friday). For purposes of repeatability and accuracy, we suggested that the traffic study not be performed on holidays. On four of the five days of the week, a one-hour traffic study was performed; the remaining day was a 12-hour period traffic study from 7:00am to 7:00pm. We suggested the 12-hour traffic study day should be a Tuesday, Wednesday, or a Thursday. We assumed that traffic on those three days is average since they are in the middle of the week.

The traffic counts were done in fifteen-minute intervals. This procedure made a more accurate evaluation of peak traffic times. Every fifteen minutes a line was drawn across the form to separate the time intervals and the new time was marked.

Once all five days of traffic data were collected (one 12-hour period and four 1-hour periods), the four 1-hour period traffic data were extrapolated into a 12-hour period from the ratio of the common time period of 12-hour day to the existing 1-hour period of another day. By extrapolating the data of the four 1-hour days, five consecutive days of 12-hour data can then be used for analysis.

At each intersection, we tracked the distribution of the traffic by maneuvers in order to determine vehicular patterns. We were able to determine the frequency of use for particular roads by the type of vehicle: trucks, buses, and automobiles. Different types of trucks were categorized by the number of axles: two, three, and four or more axle trucks.

The Traffic Count form has a legend for different types of vehicles and we assigned the following codes: C, B, T2, T3, >T4.

C: This category includes all cars, sport utility vehicles (SUVs), motorcycles, vans, and 4-wheeled trucks. Figure 9

B: This category includes all buses: school buses, coach buses, MBTA buses. Figure 8

T2: This category includes all 2-axled trucks with six wheels. Figure 10

T3: This category includes all 3-axled trucks. Figure 11

>T4: This category includes trucks with four or more axles. Figure 12

Figure 8 Example of a B, MBTA bus

Figure 9 Example of a C, pick-up truck

Figure 10 Example of a T2; two-axle truck with 6 tires

Figure 11 Example of a T3

Figure 12 Example of a >T4, a 5-axle truck

3.4 Documentation of Truck Exclusion Signs

The compliance with local truck exclusion is the jurisdiction of the local police. Truck drivers have been known to violate these truck exclusion routes. These routes generally prohibit access for trucks with more than a 2.5-ton carrying capacity, typically all two-axle (six-wheel) trucks, configured for carrying cargo.[12] The truck exclusion routes limit trucks by weight and/or by the number of axles. The Beacon Street off ramp and the Jefferson-Webster intersections contain truck exclusion routes. From the traffic study at these intersections, we could determine if the truck exclusion routes are being violated.

There is one official truck exclusion route in East Boston and there are seventeen official truck exclusion routes in Chelsea. This means the municipalities have permits from MassHighway to post truck exclusion signs along the routes. We performed a site survey for each legal truck exclusion route to make sure that proper and effective signage was posted. Each sign was photo documented. The size and location of each sign is very important because it is used to alert truck drivers of a truck exclusion route. Signs that are not visible or are not sized appropriately are ineffective for marking truck exclusion routes. All of the state truck exclusion routes are displayed on geographical information system (GIS) maps.

3.5 Create Database

The database helps store and organize the environmental data collected. The database within the scope of this project will focus on issues of traffic and open space. We will use Microsoft Access to create the database.

The traffic data included the parameters seen in Figure 13. The "Maneuver_code" is the location number, the station number and the maneuver. The

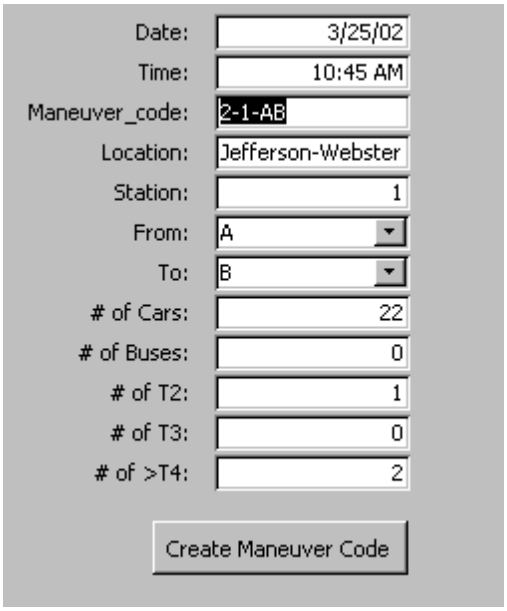

Figure 13 Traffic data entry form

[12] Central Transportation Planning Staff, "Regional Truck Study" September 2001, p 65.

"Maneuver_code" is automatically created after the intersection location, the station number, and the "From" and "To" fields are completed and submitted. The intersection numbers are as follows:

Beacon Street off-ramp: 1

Jefferson-Webster: 2

Central Square: 3

The purpose of this ID is to create a coded filing system.

For the open space data, the parameters can be seen in Figure 14. Each open space location has an identification code that consists of the first four letters of the open space name, a hyphen and the first four letters of the park type. For example, Bellingham Hill Park is a Recreational park the ID is BELL-RECR. The coding for each open space is unique for purposes of identification and entering the information into the database. The ID will be created automatically once the name and park type have been submitted.

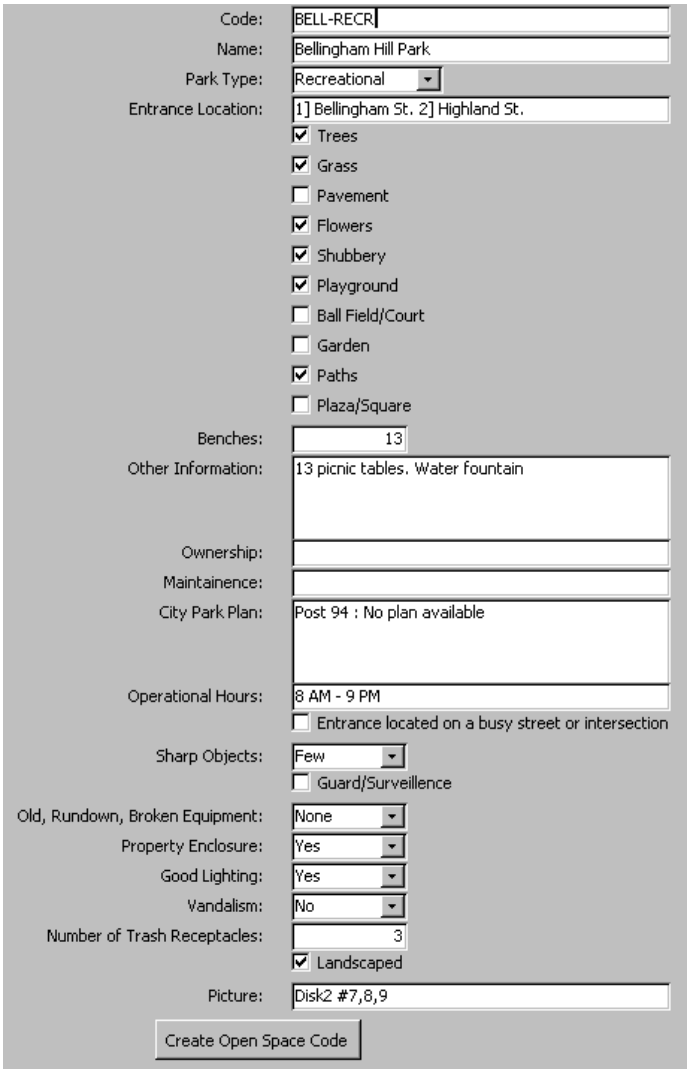

Figure 14 Open Space data entry form

3.6 Create Website

In order to make the communities of Chelsea and East Boston aware of the current environmental situation, a comprehensible and perceptive website will be employed. This website will help in the distribution of the traffic and open space data to the public. The community groups hold public meetings to discuss the environmental and public health issues, but with the website, the public will be able to privately access this information at their leisure.

The residents of Chelsea and East Boston believe there is a traffic problem throughout the communities, but before this study, there was no data to substantiate their beliefs. The traffic data is now posted on the website to inform the residents about the traffic problem.

The website consists of multiple pages with a stationary menu on the left side of the page for easy navigation. Each page includes the title of the page with the 'home' and 'back' buttons for convenient browsing.

The traffic page includes a GIS map that contains the highlighted intersections that were included in the traffic study. Each highlighted area is linked to the information about the traffic flow and traffic counts at that intersection. Another GIS map includes the location of legal signs posted throughout Chelsea and East Boston. The map also includes some signs that were posted by the municipalities without permits. Not all of the illegal signs were documented in our study due to time constraints. The purpose for documenting only some of them was to prove their existence.

For the open space page, the current location of parks and open space are displayed using GIS maps with names next to the map. The user can access the photographs and the detailed information about a specific open space location by clicking on the map or by clicking on the open space name.

There is a page of links for residents who are interested in learning more about organizations involved with the CRA and the six environmental and public issues. A page contains contact information for various individuals and organizations in the event website visitors have questions or comments.

4 RESULTS AND ANALYSIS

Our results rely upon data collected on traffic and open space in Chelsea and East Boston. Computer databases and Geographical Information System (GIS) map layers have been created to store the information and display them for the two topics.

4.1 Traffic

Since truck traffic is the immediate concern to the residents, the analysis will focus mainly on the truck traffic results.

4.1.1 Chelsea

Our traffic study focuses on two intersections in Chelsea, the Beacon Street Off-Ramp and the intersection of Jefferson and Webster Avenues, which are shown in Figure 15. Truck traffic at these intersections is a concern of the residents.

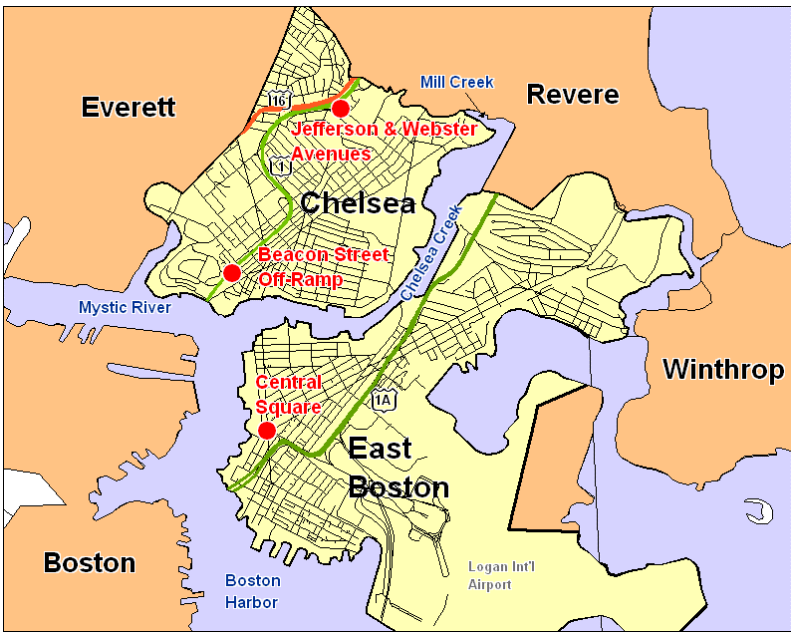

Figure 15 Location of Intersections included in traffic study

The vehicles exiting from Route 1 off the Tobin Bridge create the traffic at the Beacon Street off-ramp. The traffic exiting of Route 1 also is a contributor to the traffic at the intersection of Jefferson and Webster Avenues, where vehicles can connect to Route 16 (a designated truck route). Both these intersections have truck exclusion routes. There is an 8-ton (gross weight) limit for commercial trucks using the Beacon Street off-ramp and Beacon street is closed to all trucks from 7:00am-7:00pm. This means that *most* 2-axle,

6-wheeled commercial trucks are allowed to use the Beacon Street off-ramp, (see weight limits explanation in background sections) and all other trucks are excluded. At Jefferson and Webster Avenues, there is a 2-½ ton weight limit for commercial trucks traveling on Webster Avenue, with the exception of trucks connecting from Jefferson Avenue to Route 16. A 2-½ ton weight limit means that *all* commercial trucks are excluded from traveling south on Webster Avenue.

4.1.1.1 *Chelsea: Beacon Street Off-Ramp*

The Beacon Street off-ramp in Chelsea was designated a truck exclusion route by the state of Massachusetts. The ramp excludes commercial 2-axle trucks over 8-tons and all trucks with three or more axles. The Tobin Bridge speed limit is 35 MPH while the exit ramp speed limit is 15 MPH. The off-ramp has a declination angle of about thirty-degrees. (Figure 16) There is only one stop sign for this 4-way intersection at the end of the off-ramp. However, we observed that most of the drivers could not see traffic traveling into the intersection from Beacon Street from that stopping location. Most of the drivers needed to pull forward in order to see all traffic before proceeding through the intersection. While conducting the study, we witnessed some minor accidents involving vehicles proceeding from the off-ramp.

Cars	Buses	T2	T3	>T4
4373	128	119	13	5

Table 1 Average number of vehicles by type in a 12-Hour Period

Figure 16 Beacon Street Off-Ramp Inclination

Even though the Beacon Street off-ramp is an official truck exclusion route, illegal trucks still use the route. From our data, Table 1, approximately eighteen trucks illegally used the Beacon Street off-ramp on a regular business day. This number includes the trucks with three-axles or trucks with four or more axles. There are six truck exclusion signs on the Tobin Bridge displaying the truck exclusion route for the Beacon Street off-ramp.

An anonymous Massachusetts state police officer interviewed on-site stated that state police officers are stationed at the Beacon Street off-ramp approximately ten times a month, on random days, to enforce the truck exclusion route. The officers pick random days so the truck drivers cannot predict when an officer will be present; therefore, the possibility of a fine will deter the truck drivers from using the exit. This strategy has decreased the number of violating trucks from using the Beacon Street off-ramp significantly but as Table 1 portrays the occurrences of these trucks using the exit-ramp still exist.

In the course of data collection, we recorded the number of vehicles by type and by the maneuver the vehicle made. The average total number of vehicles traveling through the Beacon Street off-ramp intersection for a 12-hour period on a regular weekday is 5,024 vehicles. Figure 17 shows that 94% of the

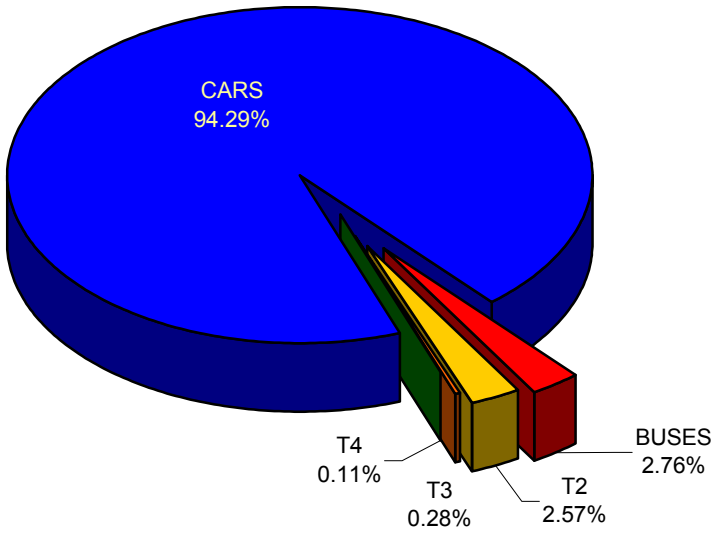

Figure 17 Percentage of vehicle types for a 12-hour period

traffic consisted of cars. Commercial trucks, 3-axles or more are prohibited from using the Beacon Street off-ramp. From the results of our study, we determined that on average, fifteen three-axle trucks and three tractor-trailer trucks violate the truck exclusion route per day at the Beacon Street off-ramp.

From Figure 18, it is observed that Wednesday is the highest traveling day for vehicles at the Beacon Street off-ramp intersection.

The estimated total number of vehicles by day are broken down by type of vehicle in Figure 19, with the three axle and tractor-trailers summed together (as T3+) since those are the trucks that are over the weight limit of 8 tons and are not permitted to use the off-ramp.

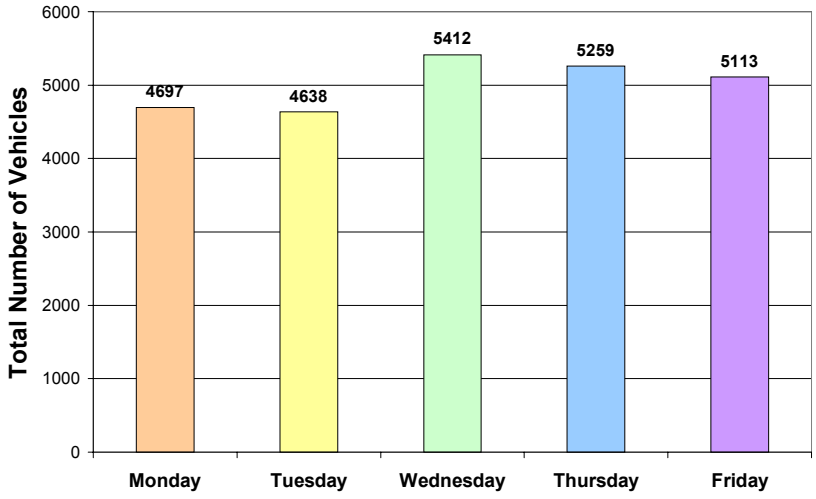

Figure 18 Estimated total number of vehicles by day

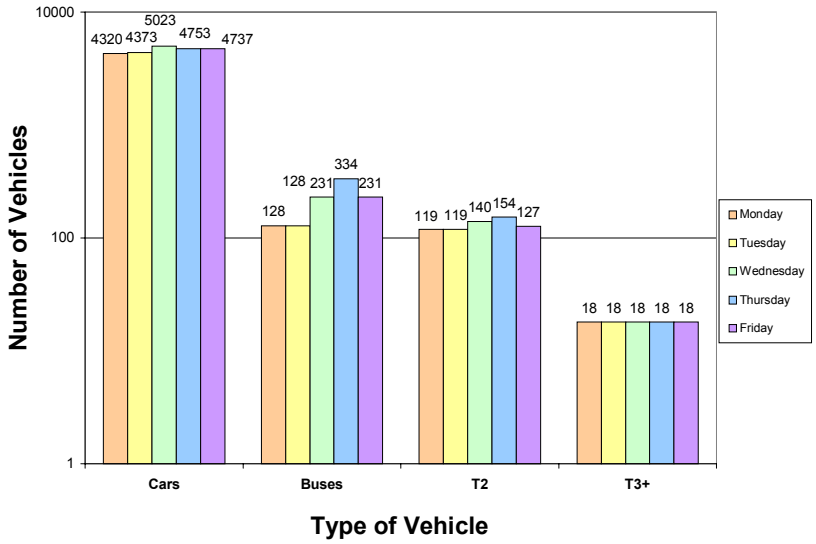

Figure 19 Estimated total number of vehicles by type and day

The data collection for the 12-hour period was conducted on a Tuesday (3/26/02). The counts for the other weekdays were done for a 1-hour period. The extrapolations of 12-hour periods for other days were based on the ratio of counts from the common 1-hour time period for all days. The ratio between the days for the 1-hour period at Beacon Street was 1:1. Consequently, the graph shows the same number of T3+ for the whole week and does not specify that exactly eighteen T3+ trucks traveled everyday. Figure 19 also shows that the truck activity is heavier on Thursday.

Figure 20 displays a lot of information about the vehicular patterns throughout the course of the day. The automobile traffic is steady throughout the day, with peak times at 8:00 am and 3:00 pm. On average, there were 441 vehicles traveling through the intersection between 8:00 am and 9:00 am and 503 vehicles traveling through the intersection between 3:00 pm and 4:00pm. The public school day usually ends between the hours of 1:00 pm and 3:00 pm, contributing to this rush traffic period. The bus traffic is irregular throughout the day with peak times at 7:00 am and 1:00 pm. At these times, the majority of the buses were school buses, since school usually starts between 7:00 am and 8:00 am and usually ends between 1:00 and 3:00pm. In addition, there is a Massachusetts Bay Transit Authority (MBTA) bus stop at the corner of Beacon and Chestnut Street. Every hour except 9:00 am there was at least one MBTA bus traveling through the intersection every fifteen minutes.

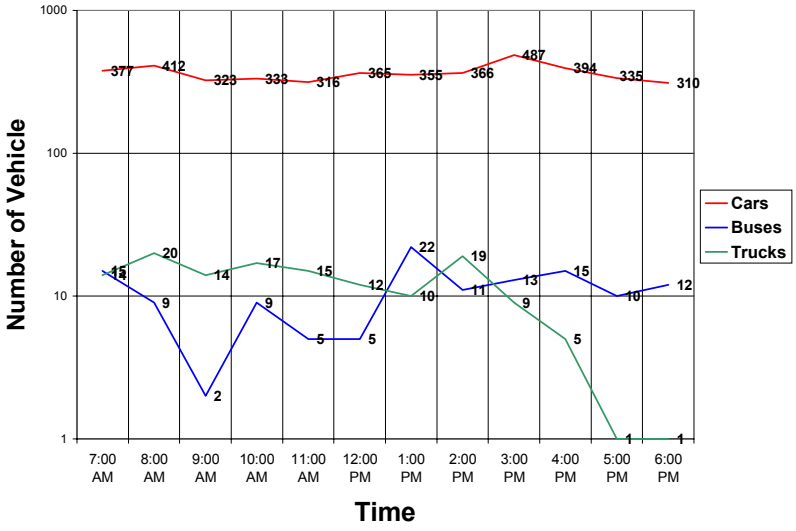

Figure 20 Traffic activity throughout the day

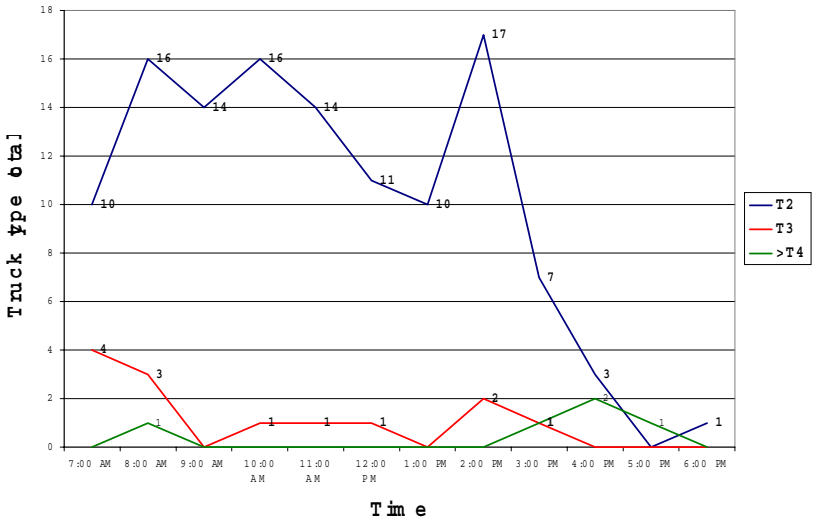

Figure 21 Truck type totals throughout the day

Truck traffic had very little deviation between the hours of 7:00 am and 2:00 pm. Figure 21 breaks down the total number of trucks into the three types of trucks for the day. As explained above, the majority of the trucks observed were two-axle (six tire) trucks, which are allowed to use the Beacon Street off-ramp if they weigh less than 8-tons. The larger trucks, (T3 and >T4) which are not allowed to use the ramp, did not have a pattern during the 12-hour study period. The larger trucks used the off-ramp most during the morning hours, from 7:00 am to 9:00 am. We noted that some of the larger trucks hesitated when they approached the intersection. We assume that they pulled over to read a map because they were unfamiliar with the vicinity.

Figure 22 shows the maneuver possibilities for the intersection. Chestnut Street is a one-way street and at the end of the ramp, there is a stop sign. Chestnut Street connects to Williams Street, which is a designated truck route and is a dense commercial and industrial area. Considering the close proximity of the exit ramp to commercial/industrial area, the truck traffic at the Beacon Street intersection is not even comparable to the truck traffic on Williams Street.

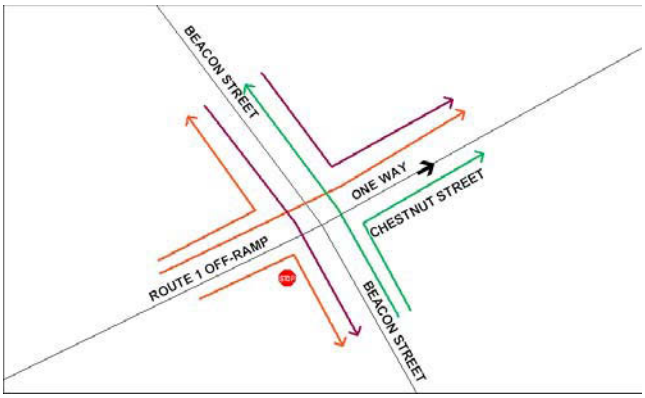

Figure 22 Beacon Street off-ramp set up

4.1.1.2 *Chelsea: Jefferson and Webster Avenues*

The intersection of Jefferson and Webster Avenues accommodates a combination of traffic exiting off Route 1 onto Jefferson Street and traffic traveling to and from Route 16 on Webster Avenue. The intersection is located in a residential area. All trucks are prohibited from traveling on Webster Avenue in both directions except trucks exiting off Route 1 to connect to Route 16. There are two signs posted on Jefferson Avenue and three posted on Webster Avenue. The average total number of vehicles traveling through the intersection of Jefferson and Webster Avenues on a weekday is 11,599. Table 2 displays the average traffic counts for each vehicle type for a 12-hour period.

Cars	Buses	T2	T3	>T4
11,214	71	224	59	32

Table 2 Average traffic count for a 12-hour period

Figure 23 Picture of intersection from Jefferson Avenue

The residents living in this area are concerned with the truck traffic. Webster Avenue connects to Route 16, which is a designated truck route. The traffic in this area is heavy, but 96.68% of the traffic is from automobiles. Only 2.7% of the traffic is truck traffic, with the remaining consisting of bus traffic.

Figure 25 shows the percent distribution of traffic. However, this chart does not display the number of trucks violating the truck exclusion route but simply verifies that the majority of the traffic at Jefferson and Webster is comprised of automobiles.

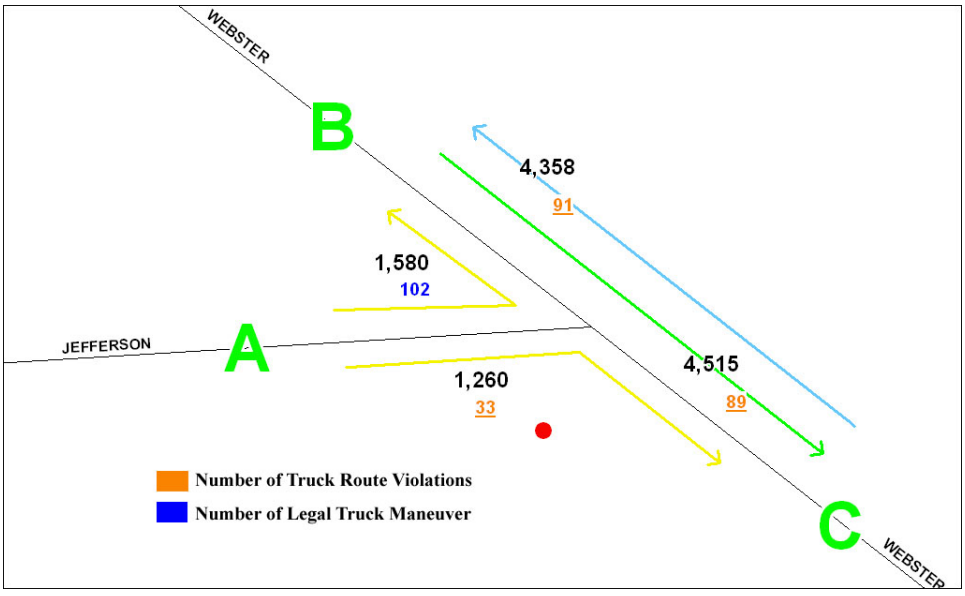

Figure 24 Total number of vehicles and trucks by maneuver direction

Commercial trucks are permitted to use the exit from Route 1 to Jefferson Avenue, but they are only permitted to travel north on Webster Avenue to connect to Route 16. Using our methodology (counting traffic by vehicular maneuver), we were able to determine how many trucks traveled on Webster Avenue, violating the truck exclusion.

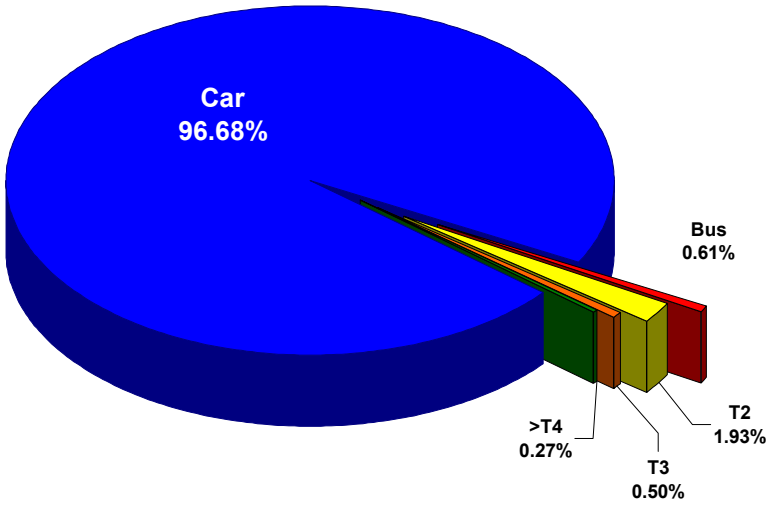

Figure 25 Percentage of vehicle types for a 12-hour period

From Figure 24, a total of 213 or 68% of the trucks violated the truck exclusion route. However, these numbers include Waste Management and Public Works trucks, which are exceptions to the truck exclusion routes. This figure also shows the total number of vehicles traveling in each direction. Figure 26 shows that the truck traffic has a consistent trend between 7:00 am and 4:00 pm. The truck activity was lower at noontime and after 4:00 pm.

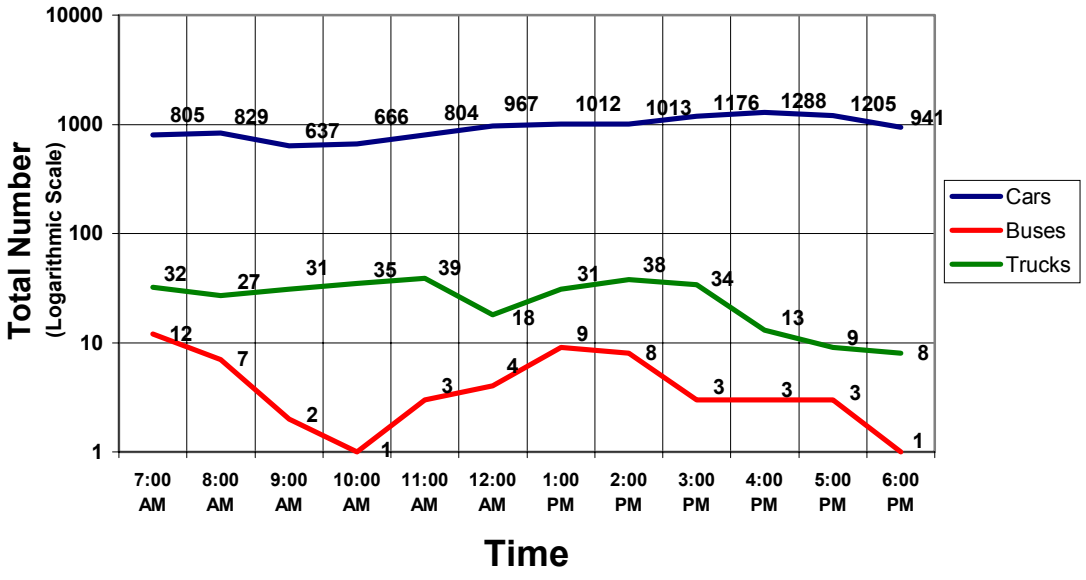

Figure 26 Time distribution of vehicle types

4.1.2 East Boston

Central Square is located in a commercial area, including a green space area and a shopping plaza. The general location is shown in Figure 15. The intersection at Central Square is extremely complex. The intersection had to be divided into two parts because it was impossible to follow every vehicle from its origin to its destination route. Due to this complexity, the human percent error was greater.

Cars	Buses	T2	T3	>T4
17,999	533	342	43	24

Table 3 Average number of vehicles during a 12-hour period

An average of 18,914 vehicles traveled through this intersection on a regular workday. The vehicle traffic flow consistently increased throughout the day with a peak time at about 4:00pm (Figure 27).

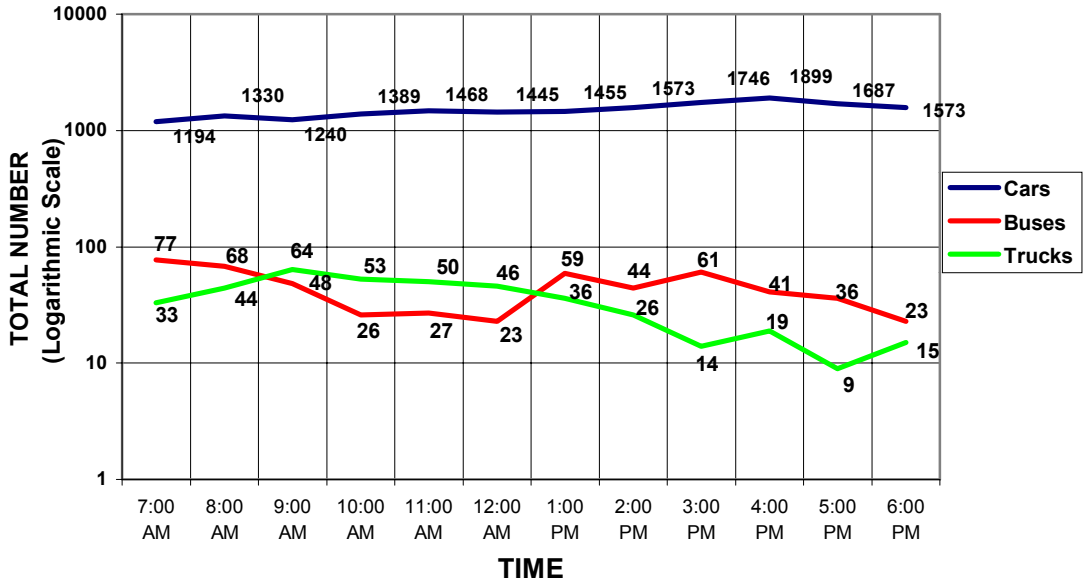

Figure 27 Time distribution of traffic

With an hourly average of 1,579 vehicles plus the large number of pedestrians traveling through the intersection, there is constant traffic congestion throughout the day.

Figure 29 shows the hourly trends of the trucks traveling through the intersection. The majority of the trucks travel through Central Square between 9:00 am and 12:00 pm. At these times, most people are at work and children are in school.

There are no truck exclusion routes included in this intersection; however, trucks were not the main contributors of the occasional traffic congestion and backups. There are four bus stops located in the

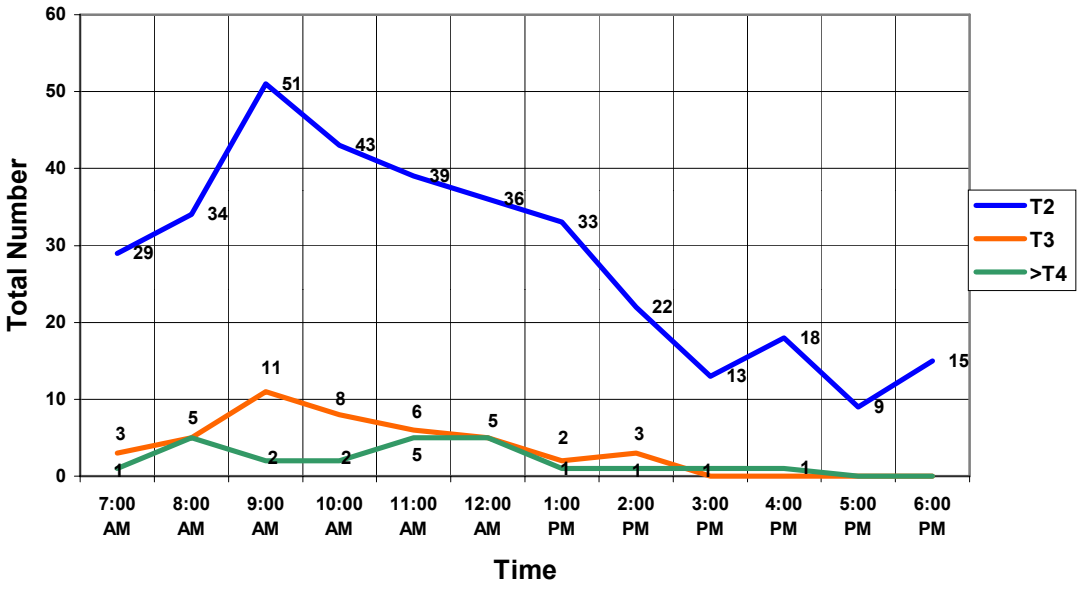

Figure 29 Truck trends

intersection. Throughout the day there was approximately four buses traveling through the intersection every fifteen minutes. During heavy travel times, (morning and evening rush periods) there was an average of fifteen buses traveling through the intersection every fifteen minutes. The frequent bus stops located in the center of the intersection caused the most traffic congestion, followed by the passenger pedestrian traffic traveling to and from the bus stops.

Using our methodology, counting vehicles by maneuvers, we were able to determine which was

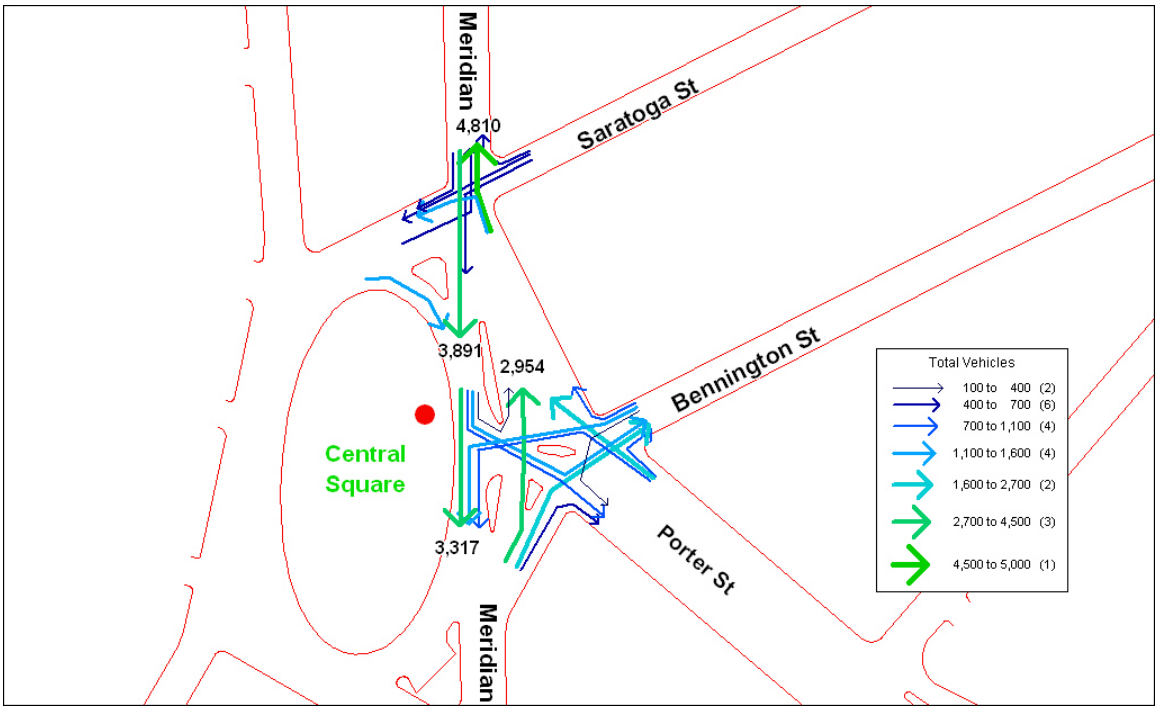

Figure 28 Total traffic count by maneuver

routes were the most traveled. In Figure 28, Meridian Street is the most traveled route for incoming and outgoing traffic volumes for Central Square.

Central Square has a passive recreational park in the center and many bus stops. However, the intersection is not pedestrian friendly. There is only one traffic light with a walk signal. The walk signal does not have mandatory pedestrian crossing times; the walk signal is only active when a person pushes the walk button. Nevertheless, from observation while performing the traffic study at Central Square, we found that the majority of pedestrians did not wait for the walk signal. We noticed that many of the pedestrians were impatient and when there was a small gap in the traffic flow, they would take the chance to cross the road. Other pedestrians would not wait for traffic gaps; they would just walk into the road, hoping that the vehicles would stop for them. As a result, the pedestrians impatience caused the driver to become frustrated.

4.2 Truck Exclusion Routes

Truck exclusion routes play a crucial role in rerouting truck traffic around populated residential areas. Currently there are seventeen permits for truck exclusion routes in Chelsea (see Figure 30) and there is one permit for truck exclusion routes in East Boston (see Figure 31).

Throughout our truck exclusion documentation, we found a number of "No Trucks" signs posted on roads that do not have permits from MassHighway. According to Massachusetts Laws and Regulations,

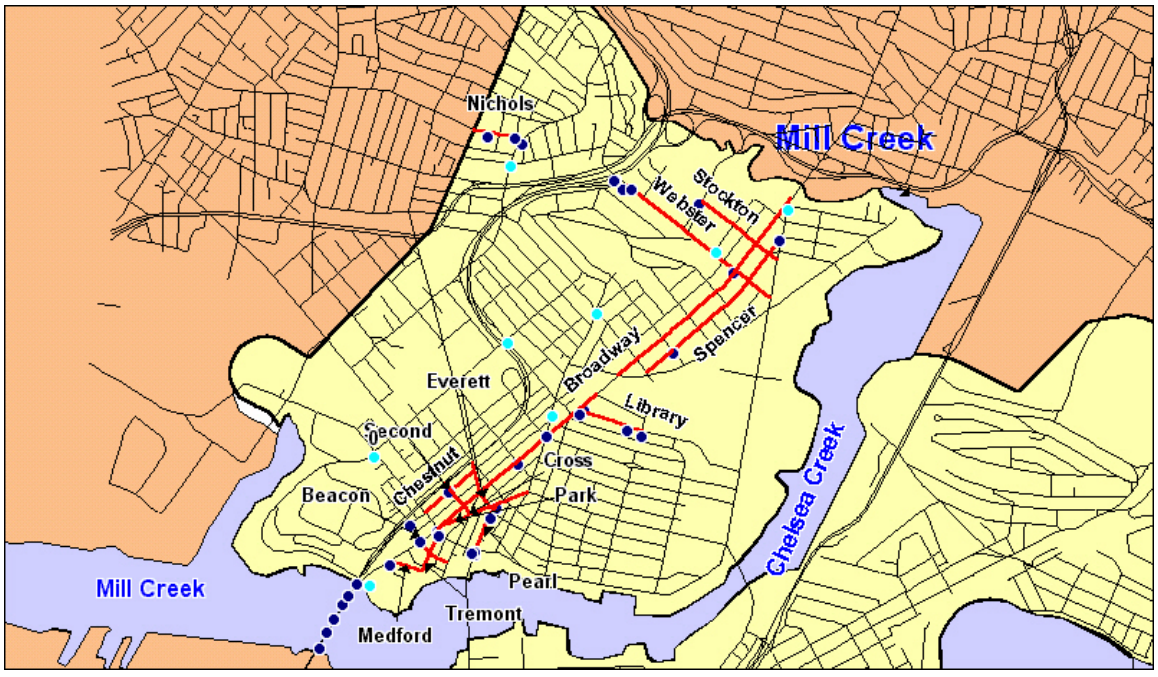

Figure 30 Truck exclusion routes and posted signs in Chelsea

Chapter 85, a municipality must submit a request to MassHighway for approval of a truck exclusion route and subsequently obtain a permit in order to post any "No Trucks" signs.

Figure 30 and **Figure 31** display the truck exclusion signs in Chelsea and East Boston respectively. The dark blue dots are signs posted on truck exclusion routes with permits. The light blue dots are signs posted on routes that do not have permits from MassHighway.

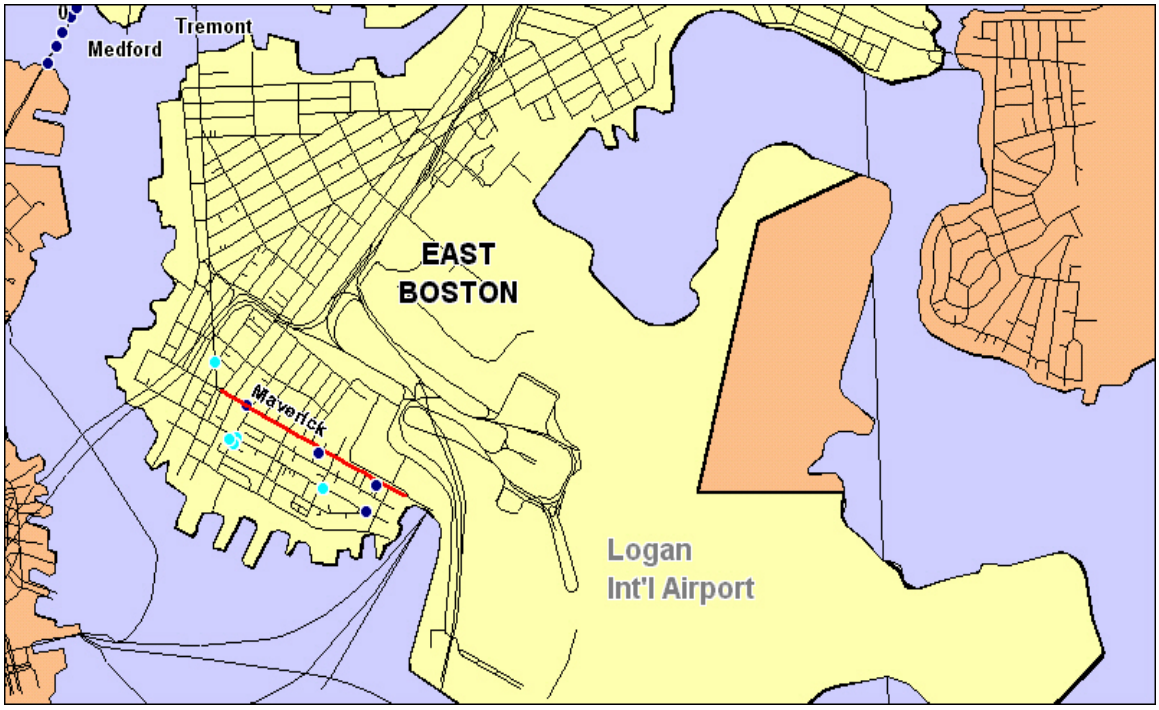

Figure 31 Truck exclusion routes and posted signs in East Boston

In this case, Chelsea and East Boston have many signs posted without permits (illegally). Municipalities are allowed to post signs at the leisure (without permits from the state) and they are allowed to enforce these illegal truck routes and fine trucks for using them. There is not an agency that restricts municipalities from posting unofficial signs. For the most part, truck drivers do not know if a truck route is legal or illegal. In many cases, if a truck driver is fined for using an unofficial truck exclusion route they will just pay the fine and avoid the hassle of seeking legal defense. Since the truck drivers cannot distinguish an official route from an unofficial route, they tend to obey all signs posted. Recent studies found that truckers will not use these roadways because they do not want to be cited for a moving violation for fear of jeopardizing their commercial licenses.

Chelsea has seventeen permits to post official truck signs to exclude trucks from using certain routes. East Boston has only one permit to post official truck signs to exclude trucks from using

Maverick Street. However, this information is not published or easily available to truck drivers and businesses. Currently there are legal disputes between municipalities in the Boston area over truck exclusion routes. In the future, the state of Massachusetts is planning on making 'official truck exclusion maps' to distribute to all businesses and legal enforcement agencies

The City of Chelsea has seventeen permits for truck exclusion routes. However, from our study we found that some of the truck exclusion routes do not have proper signage. In some cases, a municipality chooses not to post truck exclusion signs after they have received a state permit. The state and MassHighway are not responsible for a follow up after a truck exclusion permit has been granted. In other words, no one checks to see if the municipality has posted proper signs or if the route has enforcement.

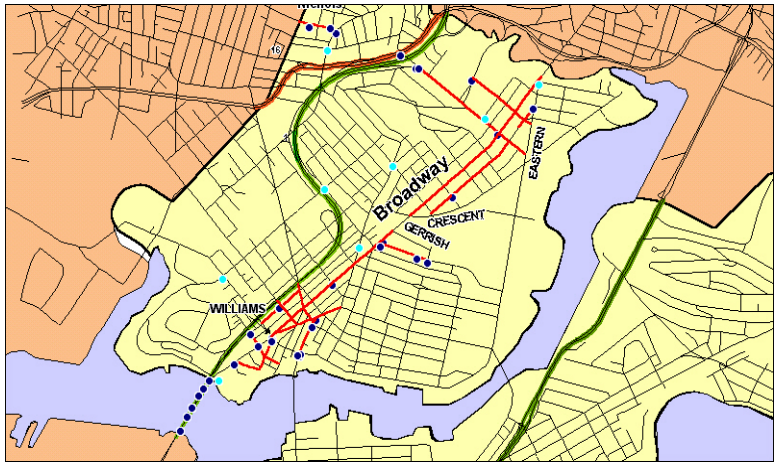

Figure 32 Broadway truck exclusion route

From our documentation, we found that Broadway Street does not have proper signage. The truck exclusion route stretches from Eastern Avenue to Crescent Avenue and then from Gerrish Avenue to Williams Avenue. This truck exclusion route nearly stretches across the entire city (Figure 32), yet there is only one sign posted on Broadway Street. However, this sign is not facing traffic flowing on Broadway Street. The sign (Figure 33) is posted on the corner of Fourth and Broadway Streets, facing the one-way traffic on Fourth Street. The sign position does not clearly show which street is the truck exclusion route.

Figure 33 Sign posted on the corner of Fourth and Broadway Streets

According to the Department of Transportation, Chapter 2B Regulatory Signs, "the selective exclusion signs should be placed on the right side of the roadway at an appropriate distance from the intersection so as to be clearly visible to all road users turning into the roadway that has the exclusion".

Figure 34 Bent sign on Pearl Street

In addition, throughout our documentation, we found that some of the signs were damaged and/or not properly secured. In particular, a sign posted on Pearl Street is located at a MBTA bus stop. When a bus pulls away from the curb, the side view mirror hits the sign. Consequently, the sign is bent away from the street and does not serve its purpose (Figure 34).

Tremont Street is a truck exclusion route with a sign posted. However, the sign does not face either direction of traffic on Tremont Street. For another example, the sign posted at the end of Stockton Street on a telephone pole is properly located, but the sign is not secured to the pole making it harder to read.

4.3 Open Space

Each open space lot in Chelsea and East Boston was documented and photographed. Figure 35 and Figure 39 show the locations and names of the open and green space locations in Chelsea and East Boston respectively. Each park was assessed and given a condition based on the safety, accessibility, and equipment/maintenance condition. Each open and green space location was photographed, but for the purpose of this report, only one example for each community is provided in this section.

4.3.1 Chelsea

There was little open space data that was collected before this project. Many of the residents do not know what open space locations are available or what condition an open space is in. The locations of each open and green space are shown in Figure 35 and all the characteristics are explained individually for each open and green space location below.

This map is a little deceiving because a few of the open space locations include buildings or parking lots. High School/Carter Park, Mary C. Burke Elementary School, Williams Middle School, Shurtleff School, Highland Park, and Mary O'Malley Waterfront Park have parking lots and/or buildings included in their open space acreage measurement. In other words, this map does not represent the actual acreage of available open space.

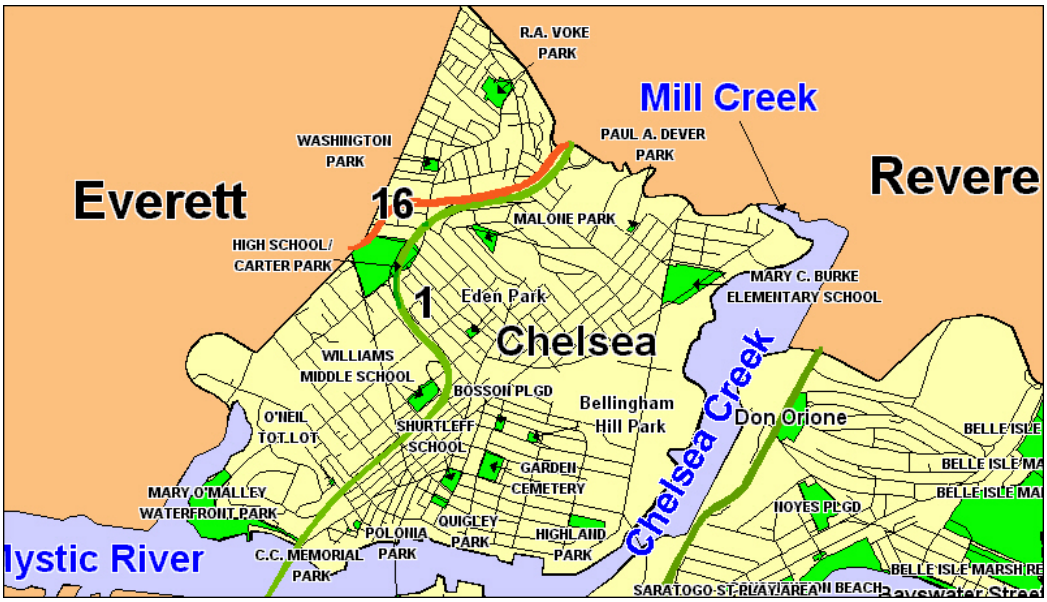

Figure 35 Open and Green Space locations in Chelsea

Bellingham Hill Park

Figure 36 Entrance to Bellingham Hill Park

Entrance Location(s): Corner of Bellingham St and Highland St
Size: .38 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active Recreation
Type: Recreational
Equipment: 13 benches, 1 picnic table, 1 tot lot, 1 water fountain
Condition: Very Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Bellingham Hill Park is one of the newer parks in Chelsea. The entire park is enclosed by fencing; it contains two light fixtures for the evening hours. The park is well maintained. There is light residential traffic in this area.

Figure 37 Bellingham Hill Park

Figure 38 Bellingham Hill Park Rules

Bosson Playground
Entrance Location(s): Grove and Bellingham Streets
Size: .73 acres
Operational Hours: Under Construction
Current Use: None
Type: Playground
Equipment: Under Construction
Condition: Under Construction
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: This site is currently under construction; low maintenance play equipment, trees and shrubs, and security improvements (new lighting and fencing) are planned as part of the renovation.
(City Park Plan, 1994). The park is located a few blocks from downtown Chelsea, but in this vicinity there is light traffic.

Carter Park/Memorial Stadium High School
Entrance Location(s): Carter Street, Orange Street, Everett Avenue, and Revere Beach Parkway
Size: 3.9 acres
Operational Hours: School hours
Current Use: Active recreation
Type: School
Equipment: 1 football/soccer field, 1 track, ticket booth, grandstands, 2 baseball/softball diamonds with bleachers, tot lot with 3 benches
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Tot lot is partially enclosed by fencing and the play area equipment is fairly new. All the fields have stadium lighting (only on for night games/practices). The entire facility is clean and well maintained. The area is surrounded by Routes 1 and 16, with heavy traffic.

Charles Ciepiela Memorial Park
Entrance Location(s): Medford Street (one way street) and Elbridge Place
Size: .04 acres
Operational Hours: Not Posted
Current Use: Passive Recreation
Type: Recreational
Equipment: 4 benches, 1 chess table, 3 spring-mounted animal figures
Condition: Fair
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: C.C.Memorial Park is an older park that needs some attention. The play equipment is rusted, the wooden benches are rotted, and the landscaping is not maintained. The area is very small, and close to Polonia Park. The park was not included in the 1994 City Park Plan for renovations. The park is located in a quiet neighborhood, with minimal traffic.

Paul A. Dever Park
Entrance Location(s): Gillooly Road and Stockton Street
Size: .28 acres

Operational Hours: Not Posted
Current Use: Active Recreation
Type: Recreational
Equipment: 1 basketball court, 3 benches, 2 tables, 1 play area, 2 swings
Condition: Fair
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: The park equipment was upgraded and/or refurbished (according to the 1994 City Park Plan). The basketball court does not have hoops. The court has a historical painting of the Chelsea area. This park is located down the street from a busy shopping center, but is also located on a truck exclusion route. The area is generally quiet.

Eden Park
Entrance Location(s): Eden Street and Addison Street
Size: .22 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active Recreation
Type: Recreational
Equipment: 9 benches, tot lot
Condition: Very Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Eden Park is a new park. It is very well maintained. It is located in a highly populated neighborhood. It is a small, quaint, relaxing location.

Garden Cemetery
Entrance Location(s): Central and Shawmut Streets
Size: 3.14 acres
Operational Hours: No Public Access
Current Use: None
Type: Cemetery
Equipment: None
Condition: Fair
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: The cemetery is completely enclosed by an iron fence, which is always locked. There is litter around the inside perimeter of the cemetery.

Highland Park
Entrance Location: Willow Street
Size: 3.33 acres, including parking area
Operational Hours: Not Posted
Current Use: Active recreation
Type: Recreational
Equipment: 1 soccer field with grandstands, 2 basketball courts, 1 softball diamond, 1 tot lot, 6 picnic tables
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea

Description: The soccer field is large enough to accommodate two soccer games; the field is well-maintained. The tot lot is completely enclosed by a link fence and the entrance has a latch to close the gate. The picnic area has some glass and the tables have graffiti. The entire park has decent lighting. The park is located across the street from the Boys and Girls Club. The soccer field has a second entrance on Marginal Street which is always locked.

Malone Park
Entrance Location(s): Summit and Lafayette Avenues
Size: 1.46 acres
Operational Hours: Not Posted
Current Use: Passive recreation
Type: Recreational
Equipment: 6 benches
Condition: Good
Ownership: Commonwealth of Massachusetts
Management Agency: Commonwealth of Massachusetts
Description: This park is located next to the Soldiers Home, at the top of hill. The park has a walking/biking path, and a large grass area for other outdoor activities such as Frisbee, kite flying, or ball playing. Along the Lafayette side, there are trees with paths to the top of Malone Park. The benches near the corner are located across the street from the bus stop on Summit Avenue.

Mary C. Burke Elementary School
Entrance Location(s): Crescent Avenue and Louis Street
Size: 4.9 acres, including school and parking lots
Operational Hours: School hours
Current Use: Active recreation
Type: School
Equipment: 4 basketball hoops (half courts), 1 playground, 3 benches, 2 baseball fields
Condition: Very Good
Ownership: City of Boston
Management Agency: City of Chelsea
Description: The elementary school is fairly new. The school has surveillance cameras on each corner of the building facing the play area and ball fields. It is well maintained. Louis Street is restricted to buses during beginning and ending school hours.

Mary O'Malley Waterfront Park
Formerly known as Chelsea Navel Hospital Park
Entrance Location: Commandant's Way
Size: 19.1 acres
Operational Hours: Not Posted
Current Use: Passive recreation
Type: Recreational
Equipment: 2 tennis courts, 15 picnic tables, 19 benches, 2 pavilions, 2 play structures, 6 swings, restrooms, 1 pier
Condition: Good
Ownership: Metropolitan District Commission
Management Agency: Metropolitan District Commission
Description: This is the largest passive and active recreational park in Chelsea and the only park with a view of the waterfront. The park has two old wooden play structures which could splinter easily. The public

bathrooms are often locked and inaccessible. The 1994 City Park Plan includes extending the existing sidewalk to Broadway Street, improving public access by providing a shuttle bus service, and increasing the number of parking spaces.

Polonia Park
Entrance Location: Tremont Street (one way)
Size: .39 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active recreation
Type: Playground
Equipment: 9 benches, 1 water fountain, 2 swings, 2 play structures
Condition: Very Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Polonia Park has recently been renovated. This park is well maintained, relaxing, and located on a quiet street. There is good lighting along the pathways and the park has an iron fence along Tremont Street (entrance location).

Quigley Park
Entrance Location: Essex Street (one way)
Size: .55 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active recreation
Type: Recreational
Equipment: 10 benches, caged area for kickball, paved area with hopscotch and four square, playground with 2 slides
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Quigley Park is located in a densely populated neighborhood. This park accommodates recreational activities for all ages. Sections of the fence are missing and there are no light fixtures for evening use.

Shurtleff School
Entrance Location: Shurtleff Street
Size: .14 acres
Operational Hours: School hours
Current Use: Active recreation
Type: School
Equipment: 1 play area
Condition: Very Good
Ownership: City of Boston
Management Agency: City of Chelsea
Description: Shurtleff School is fairly new and well maintained. There is no public access and school children are allowed to use the play area during school hours only. The play area has surveillance cameras and is enclosed by a chain linked fence with a gate that is locked all the time. The school is located on a moderately traveled street.

Richard A. Voke Park
Entrance Location(s): Washington and Springvale Avenues, and Annese Road
Size: 3.27 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active recreation
Type: Recreational
Equipment: 2 tennis courts, 2 basketball courts, 1 baseball diamond, tot lot, 1 bocce court, 20 benches,
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: The baseball field entrance is located on a busy street. The baseball field and courts have stadium lights for night use. One of the basketball courts is missing the hoops and both courts are missing nets. The tot lot has good enclosure and has a second entrance (not located on a busy street) with good accessibility for the neighbors. The tot lot has some vandalism on the play equipment and picnic table. The bocce court tends to contain grocery carts.

Washington Park
Entrance Location: Washington Avenue, Nichols, Hancock, and Franklin Streets
Size: 1.68 acres
Operational Hours: 8:00am-9:00pm
Current Use: Passive recreation
Type: Square
Equipment: 4 benches
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: Washington Park is located near a very busy intersection. There is a short stone wall for the property enclosure. The benches are old and rotting.

Williams Middle School
Entrance Location: Walnut Street (one way) and Arlington Street
Size: 4.04 acres, includes school and parking lots
Operational Hours: 7:30am-5:15pm
Current Use: Active recreation
Type: School
Equipment: 2 basketball courts and paved area
Condition: Good
Ownership: City of Boston
Management Agency: City of Chelsea
Description: There is no grass play area or any playground equipment for the students. The play area is enclosed by a chain linked fence with two gate entrances and an entrance from the school. The entrance on Arlington Street is always locked. There are surveillance cameras located on the corners of the building directed towards the play area. There are light fixtures included in the play area. The entrance on Walnut Street is moderately busy, but it is only a one way street.

Zaitz O'Neil Tot Lot
Entrance Location: Beacon and High Streets
Size: .09 acres
Operational Hours: 8:00am-9:00pm

Figure 39 Open and Green Space in East Boston

Current Use: Active recreation
Type: Playground
Equipment: 1 play area
Condition: Good
Ownership: City of Chelsea
Management Agency: City of Chelsea
Description: This park is located on Beacon Street, a truck exclusion route, near the Tobin Bridge off-ramp. High Street is a dead end street, with minimal traffic. There is good lighting for evening use and the equipment is fairly new. The play area is not enclosed and there is some vandalism on the play equipment. There is some litter and a few pieces of glass.

4.3.2 East Boston

The East Boston residents are also concerned about the open space availability in East Boston. From Figure 39, East Boston neighborhoods do not appear to lack open space. However, 206 acres of the open space is salt-water marsh which does provide many recreational benefits to the community. On top of that, there are six squares in East Boston that are accounted for as open space. However, the main purpose of these squares is to direct traffic in certain directions. In addition, five of the open and green spaces are privately owned and/or locked at all times.

Al Festa Field
Entrance Location(s): Corner of Curtis and Horace Streets
Size: .90 acres
Operational Hours: 8:00am-9:00pm
Current Use: Active Recreation
Type: Recreational
Equipment: 1 baseball diamond, grandstands, 1 water fountain, 6 benches
Condition: Good
Ownership: Massport
Management Agency: Massport
Description: The park cannot be used without permission from a Massport authority. The Al Festa entrance is locked unless being used by teams with permission. The park is well maintained. There are stadium lights on the baseball diamond for night events. The bench area has a large sand area for young children to use.

Figure 40 Baseball diamond

Figure 41 Bench area outside of the baseball diamond

Alighieri School
Entrance Location(s): Gove Street
Size: 0.51 acres
Operational Hours: School Hours
Current Use: Active Recreation
Type: School
Equipment: 1 playground, 6 benches, 5 picnic tables, paved area with games
Condition: Very Good
Ownership: City of Boston
Management Agency: City of Boston
Description: This school play area is completely paved. The right side of the school building has a nice painted mural. The entire play area has a high chain linked fence and both of the entrances have gates that can be locked. The area is well maintained and all the equipment is fairly new. There are surveillance cameras on the corners of the school building monitoring the play area.

American Legion Playground
Entrance Location(s): Condor, Glendon, and East Eagle Streets
Size: 3.38 acres
Operational Hours: Dawn to dusk
Current Use: Active Recreation

Type: Playground
Equipment: 1 baseball/softball diamond, 2 basketball courts, grandstands, 6 benches, 1 water fountain, 2 play structures, 1 field house
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The playground equipment is fairly new, with good property enclosure. The entrances do not have gates to lock the park after hours. The basketball courts are located directly across the street from uncovered salt piles. The grandstands are old concrete stands which are deteriorating.

Bayswater Street
Entrance Location(s): Bayswater Street
Size: 1.7 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Promenade
Equipment: None
Condition: Very Good
Ownership: Massport
Management Agency: Massport
Description: The Bayswater Street Walkway is very well maintained and landscaped. There are flowers, shrubs, and light fixtures along the waterway. The walkway does not have a sidewalk overlooking the water.

Belle Isle Marsh Reservation
Entrance Location(s): Lawn and Leverett Avenues, Palermo and Haven Streets
Size: 139.42 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Marsh
Equipment: None
Condition: Good
Ownership: Metropolitan District Commission
Management Agency: Metropolitan District Commission
Description: This area is mostly marsh; there is a small grass area with some walking paths through the marsh. The marsh area could be used for canoeing

Bennington Street Cemetery
Entrance Location(s): Bennington Street
Size: 3.62 acres
Operational Hours: Not posted
Current Use: Passive
Type: Cemetery
Equipment: None
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The entrance gate is locked at all times; there is no public access.

Bonito Square
Entrance Location(s): Walley Street, Orient and Faywood Streets
Size: 0.23 acres
Operational Hours: Not applicable
Current Use: Passive
Type: Square
Equipment: None
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: There appears to be no community benefit from this square. The property is not enclosed and there is no sitting area.

Brophy Park
Entrance Location(s): Sumner, Lamson, Seaver, and Ruth Streets
Size: .69 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Recreation
Equipment: 21 benches, 1 water fountain
Condition: Very Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: There two walkways crossing over at the center with benches along the walkways and a flag pole at the center of the crossings. There are light fixtures along the walkways and the perimeter of the park is enclosed by an elegant iron fence. This is a highly populated area close to Logan Airport. Sumner Street is a one way, therefore the traffic at the entrance ways is light to moderate.

Central Square - Alfred L. Bertulli Park
Entrance Location(s): The intersection of Meridian, Border, Bennington, Porter and Saratoga Streets
Size: .92 acres
Operational Hours: Park closes at 11:30 pm except for walk-through traffic
Current Use: Passive Recreation
Type: Square
Equipment: 22 benches
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The central square area is heavily traveled by vehicles and pedestrians. There are four bus stops in the area. Central Square provides a resting area for pedestrians passing through the area and/or waiting for a bus. The location is extremely dangerous for pedestrians and is not a safe place for young children. All the benches are located on the outside of the fence. There is no ball playing or roller-blading allowed in the park.

Condor Street Overlook
Entrance Location(s): Condor Street
Size: 11.4 acres
Operational Hours: No operational hours
Current Use: None
Type: Water

Equipment: None
Condition: Not applicable
Ownership: Boston Conservation Commission
Management Agency: Boston Conservation Commission
Description: This site is completely underwater.

Condor Street Urban Wild
Entrance Location(s): Condor Street
Size: 4.47 acres
Operational Hours: Not accessible to public
Current Use: None
Type: Urban Wild
Equipment: None
Condition: Poor
Ownership: Boston Conservation Commission
Management Agency: Boston Conservation Commission
Description: This land is not developed or accessible to the public. There are plans to begin construction in April 2002 to develop the land into a "nature" park along the Chelsea Creek.

Constitution Beach
Entrance Location(s): Bennington and Coleridge Streets
Size: 25.36 acres including parking area
Operational Hours: Closed 9:00pm-9:00am
Current Use: Passive and Active Recreation
Type: Beach
Equipment: Tot lot with 6 benches, restroom facilities, 7 pavilions, 10 picnic tables, 1 ice rink, 1 basketball court, 2 racquetball courts, 2 baseball diamonds, 2 bleachers, 4 drinking fountains, 20 benches, 2 tennis courts
Condition: Good
Ownership: Metropolitan District Commission
Management Agency: Metropolitan District Commission
Description: The beach has a footbridge from Bennington Street; it has a handicap accessible ramp. The walking paths have sufficient lighting for evening use. The beach is well maintained. The tot lot equipment is fairly new with some vandalism. There was some broken glass on the overpass ramp. The baseball diamonds are not very well maintained. The benches and picnic tables are new (plastic) for easy maintenance and no splintering.

Decatur & Meridian Park
Entrance Location(s): Decatur Streets
Size: .32 acres
Operational Hours: 6:00am- 11:30pm (gate is locked at all times)
Current Use: Passive Recreation
Type: Square
Equipment: None
Condition: Poor
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The entire park is fenced off and the entrance gate is locked all the time, there is no public access. The bench seats are missing or undergoing renovations.

Dom Savio Athletic Field
Entrance Location(s): Bennington and Westbrook Streets
Size: 3.1 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Recreation
Equipment: Football/soccer field with track around the perimeter
Condition: Good
Ownership: Private
Management Agency: Private
Description: This field is a multi-purpose active recreational field. The field is completely enclosed with a chain linked fence and the entrance is locked unless being used for athletic events with permission from the private owner.

Don Orione
Entrance Location(s): Faywood Street (one way street)
Size: 4.7 acres
Operational Hours: Not posted
Current Use: Location for Don Orione Cross
Type: Urban Wild
Equipment: None
Condition: Good
Ownership: Private
Management Agency: Private
Description: There is no official entrance to Don Orione; there is a guard rail to cross over to get onto the property from Faywood Street. The property has a beautiful view of East Boston, Chelsea, Winthrop, Revere, and the Chelsea Creek. At the top of the hill is the Don Orione Cross which is lit at night. The land has no equipment or any safe recreational use since the cliff has no fencing.

Eagle Hill Memorial Park Garden
Entrance Location(s): Border Street
Size: .15 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Garden
Equipment: 4 benches, water faucets
Condition: Good
Ownership: City of Boston
Management Agency: Residents
Description: The Eagle Hill Memorial Park Garden is maintained by the residents of Eagle Hill. The entrance is locked when the residents are not present. Border Street has moderate traffic. There is no lighting within the garden fence. There is some graffiti along the front gateway on the granite posts.

East Boston Greenway
Entrance Location(s): Marginal and Porter Streets
Size: 3.22 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Promenade

Equipment: None
Condition: Fair
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The Greenway has walking/biking paths stretching for 3 ½ miles. The path is expected to be expanded to connect Piers Park past the East Boston Memorial Stadium and the proposed Bremen Street Park to the Belle Isle Marsh Reservation. The path is also expected to have passive areas incorporated along the walking/biking path. The path is very littered but well lit.

East Boston High School
Entrance Location(s): White, Putnam, Brooks, and Falcon Streets
Size: 1.82 acres
Operational Hours: School Hours
Current Use: Passive
Type: School
Equipment: None
Condition: Good
Ownership: City of Boston
Management Agency: City of Boston
Description: The High School is located in a highly populated area, with light to moderate residential traffic. There are no facilities or equipment at the East Boston High School location, and the closest fields are at American Legion Playground at the bottom of the hill. The high school green space area is well maintained.

East Boston Memorial Park
Entrance Location(s): Porter Street, underneath the Airport T stop
Size: 17.67 acres
Operational Hours: closes at 9:30pm
Current Use: Active Recreation
Type: Field
Equipment: 1 turf field with grandstands and track, 2 baseball diamonds, 1 wooden play structure, 1 passive area, 1 soccer field (turf), 16 benches, 4 sets of bleachers, ½ practice turf soccer field
Condition: Fair
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The field is located in the center of the airport traffic and near Route 1A and is enclosed by a chain linked fence. The fence is partially damaged (vandalized). The fields have stadium lights for evening events. There is a sign posted on the fence that reads, "No Playing on Field without Permit". There is a lot of trash and some graffiti on the fencing and near the passive sitting area. The play structure is older (wooden and metal) which is more dangerous for children. Cars drive through the park on the sidewalk to get to the turf soccer field, but there is a sign posted that says cars are not allowed to drive through the park gate.

Golden Stairs
Entrance Location(s): Marginal and Ruth Streets
Size: 0.3 acres
Operational Hours: Not posted
Current Use: Passive
Type: Urban Wild

Equipment: Staircase
Condition: Good
Ownership: Boston Conservation Commission
Management Agency: Boston Conservation Commission
Description: This staircase connects Marginal Street to Ruth Street. It allows residents easier access to Piers Park. The stairs have recently been renovated, there is one street light at the end of the stair case.

Harborside Walkway
Entrance Location(s): From Porzio Park
Size: 3.5 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Promenade
Equipment: 1 pavilion, 1 tot lot, benches, pathways
Condition: Very Good
Ownership: Massport
Management Agency: Massport
Description: This walkway can be accessed from Porzio Park or from a Massport building inside the airport. The park is fairly new and very nice, well-maintained. There are police officers on patrol. The walkway is along the Boston Harbor. There is not a constant barrier along the waterway to prevent users from falling into the water.

Joseph Ciampa Community Garden – Marginal Street Gardens
Entrance Location(s): Cottage Street
Size: 0.22 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Garden
Equipment: 2 benches
Condition: Good
Ownership: Boston Natural Areas Fund
Management Agency: Boston Natural Areas Fund
Description: This community garden has a locked gate. Garden area not maintained. There is not proper lighting for night time activities or patrolling.

Joseph W. Cuneo Park
Entrance Location(s): Saratoga and Byron Street
Size: 0.23 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Playground
Equipment: 1 tot lot, 4 spring-mounted animal figures, 4 benches
Condition: Poor
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The entrance on Saratoga Street has a locked gate at all times; the entrance on Byron Street is locked occasionally. The entrance location is across the street from a convenience store which makes the entrance way dangerous for young children. The park is very clean and well maintained. There are no lights

within the park, just street lights on the outside curbs. The tot lot equipment is fairly new and there is no vandalism on the property.

Lewis Street Mall
Entrance Location(s): Sumner Street
Size: 1.67 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Square
Equipment: 1 stone fountain
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: This brick walkway just serves as a passive area for walking. There are flowers, shrubs, and trees planted throughout the pathway. It is very clean and well-maintained. There is no enclosure but it is not located on a busy street. The walkway is also equipped with sufficient lighting for evening use.

London Street Play Area
Entrance Location(s): Sumner Street
Size: 1.67 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Recreation
Equipment: 1 stone fountain
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: This brick walkway just serves as a passive area for walking. There are flowers, shrubs, and trees planted throughout the pathway. It is very clean and well-maintained. There is no enclosure but it is not located on a busy street. The walkway is also equipped with sufficient lighting for evening use.

LoPresti Park
Entrance Location(s): Sumner Street
Size: 10.67 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Recreation
Equipment: 3 basketball courts, 2 play structures, 12 benches, and 1 pier walkway
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: LoPresti Park is one of the few waterfront parks in East Boston. The park is located next to the 1500-resident Maverick public housing development. The park is well maintained. The park serves many residents with many activities. The play structures seemed to be in relatively new and in good condition.

Marverick/Scarmella Square
Entrance Location(s): Maverick, Sumner, and Meridian Streets
Size: 0.61 acres

Operational Hours: Not posted
Current Use: Passive
Type: Square
Equipment: 2 benches
Condition: Fair
Ownership: Commonwealth of Massachusetts
Management Agency: Commonwealth of Massachusetts
Description: This area is all paved. It is the exit/entrance area for the Maverick T stop and also where many MBTA buses have major transfer stops. There are not any recreational or passive purposes that the community can benefit from.

McKay School
Entrance Location(s): Cottage and Gove Streets
Size: 1.76 acres
Operational Hours: School Hours
Current Use: Active Recreation
Type: School
Equipment: 2 tot lots, 1 paved area with painted games (4 hopscotch, 1 tic tac toe, 1 four-square), 2 passive sitting areas, 1 funnel ball, 9 benches,
Condition: Very Good
Ownership:
Management Agency:
Description: There are essentially two separate play areas for the school, the front play area on Gove Street has two entrances with gates (neither gates have locks). The entire park is enclosed by the gate though. There is one tot lot with a turf ground. There are many lights on the sides of the school building to light the play area. There is also one passive sitting area with benches and a concrete seating area. The rear play area has a larger paved area with vines, bugs, and lily pads painted on the pavement. There is also a passive sitting area. The play area has an entrance that is always open (no gate) to Cottage Street. The tot lot play structure is sectioned off in an area with wood chips.

McLean Playground
Entrance Location(s): Bennington Street
Size: 0.43 acres
Operational Hours: Closed at 9:30pm
Current Use: Active Recreation
Type: Playground
Equipment: 1 basketball court, 14 benches, 1 hopscotch, 1 multipurpose paved area
Condition: Fair
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The playground is located on a busy street, and the property is not completely enclosed. The pavement areas had some trash and broken glass. There is no rollerblading or skating available.

Mendoza Square
Entrance Location(s): Bennington and Frankfort Streets
Size: 0.70 acres reported by the city, but in actuality it is approximately 0.07 acres
Operational Hours: Not applicable
Current Use: Passive
Type: Square

Equipment: None
Condition: Good
Ownership: Massachusetts Bay Transportation Authority
Management Agency: Massachusetts Bay Transportation Authority
Description: There appears to be no community benefit from this square. The property is not enclosed and there is no sitting area.

Noyes Playground
Entrance Location(s): Boardman and Saratoga Streets
Size: 8.31 acres
Operational Hours: 6:00am-11:30pm
Current Use: Active Recreation
Type: Playground
Equipment: 1 basketball court, 1 play structures, 6 swings, 1 baseball diamond, 1 water fountain
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: There is some vandalism on the playground equipment and some broken glass near the basketball court. The baseball field has stadium lights for evening games. The property has fencing around the perimeter.

O'Donnell School
Entrance Location(s): Lexington and Trenton Streets
Size: 0.63 acres
Operational Hours: School Hours
Current Use: Active Recreation
Type: School
Equipment: 2 play structures
Condition: Good
Ownership: City of Boston
Management Agency: City of Boston
Description: The playground equipment is new and the area is rubber turf (safer than blacktop). The play area is enclosed with gates. There are surveillance cameras to monitor the play area.

Otis School
Entrance Location(s): Marion and Paris Streets
Size: 0.78 acres
Operational Hours: School Hours
Current Use: Active Recreation
Type: School
Equipment: 1 basketball court, paved area with painted games
Condition: Good
Ownership: City of Boston
Management Agency: City of Boston
Description: The play area is black top with a few planted trees and shrubs along the perimeter. The basketball court has no hoops. There are two entrances and both have gates with locks. The area is well maintained and there is no surveillance for the play area.

Paris Street Playground
Entrance Location(s): Paris Street
Size: 1.27 acres
Operational Hours: Not posted
Current Use: Active Recreation
Type: Playground
Equipment: 1 basketball court, 1 play structure, 13 benches, 3 chess tables, 4 swings
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The chess tables have trees nearby to provide shade for players and spectators. The playground equipment is fairly new. The park is somewhat clean with no vandalism. This park is located in a relatively quiet neighborhood. There is no gate at the entrance that is locked. There are a few lights available for evening use.

Piers Park
Entrance Location(s): Marginal Street
Size: 16.0 acres
Operational Hours: Summer Hours: 7:00am-11:00pm; Winter Hours: 8:00am-8:00pm
Current Use: Active Recreation
Type: Recreation
Equipment: 2 play structures, more than 30 benches, 1 pier walkway with pavilion, 4 swings, 1 water fountain, 15 picnic tables, bathrooms, stadium/cove for music/art performances
Condition: Very Good
Ownership: Massport
Management Agency: Massport
Description: There is no ball playing on green areas. There is a guard on duty during operational hours. A cast iron fence encloses the park with 2 entrances on Marginal Street with locked gates. The park is very well maintained and all the equipment is like brand-new. The pier walkway has some historical events of East Boston engraved along the walkway and on the four posts of the pavilion.

Porzio Park
Entrance Location(s): End of Sumner Street (dead end)
Size: 2.38 acres
Operational Hours: Closes at 9:30pm
Current Use: Active Recreation
Type: Recreation
Equipment: 2 tennis court, 1 street hockey rink, 1 playground with swings, 2 handball courts, 1 basketball, 1 water fountain (bubbler), 19 benches, 7 picnic tables
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: Porzio Park is located in a quiet dense neighborhood, on a dead end street with a view of the Boston Harbor. The park is also located near Logan Airport though. The park is well-maintained; there is minimal trash and no vandalism. The play equipment is new with benches in the area for parents. There is proper fencing/guard rails along the waterfront pathways.

Prescott Square
Entrance Location(s): East Eagle, Trenton , and Prescott Streets

Size: 0.28 acres
Operational Hours: Not posted
Current Use: Passive Recreation
Type: Square
Equipment: 4 benches
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: This Square serves as a resting/sitting area. It is not safe for young children because it is located within an intersection. The area is enclosed by a fancy cast iron fence with two entrances on either side. There are short walking paths across the square to the different benches. There are no lights for the square at night, only the street lamps.

Putnam Square
Entrance Location(s): Putnam, Trenton, and White Streets
Size: 0. 263 acres
Operational Hours: Not posted
Current Use: None
Type: Square
Equipment: None
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: The Putnam Square is enclosed by an iron fence. There are no benches in the square. There are small amounts of litter, but there are no trash receptacles. The neighborhood is relatively quiet. There is no lighting for the square at night (only street lights).

The Rockies
Entrance Location(s): Marginal Street
Size: 0.7 acres
Operational Hours: Not applicable
Current Use: Passive
Type: Urban Wild
Equipment: None
Condition: Good
Ownership: Boston Parks and Recreation Parks
Management Agency: Boston Parks and Recreation Parks
Description: This area is sometimes considered to be a part of the Golden Stairs; the area together makes 1 acre. There is no property enclosure or lighting.

Sumner and Lamson Street Playground – Jason Magliano Tot Lot
Entrance Location(s): Sumner and Lamson Streets
Size: 0.48 acres
Operational Hours: Closes at 9:30pm
Current Use: Active Recreation
Type: Playground
Equipment: 2 tot lots, 10 benches, 1 basketball court
Condition: Good
Ownership: Boston Parks and Recreation Parks

Management Agency: Boston Parks and Recreation Parks
Description: Tot lot areas are clean, no vandalism, no glass. The equipment is fairly new. There is no lighting for the evening hours even though the park does not close till 9:30pm. The park is located in a densely populated quiet neighborhood.

Temple Ohabei Shalom Cemetery
Entrance Location(s): Woodsworth Street
Size: 2.3 acres
Operational Hours: Not posted
Current Use: Cemetery
Type: Cemetery
Equipment: Not applicable
Condition: Good
Ownership: Private
Management Agency: Private
Description: The cemetery has two entrances, both which are locked at all times. The property is enclosed with a high cast iron fence. There are a few lights facing the cemetery at the two entrances. The area is well maintained and very clean.

Umana Barnes School Park
Entrance Location(s): Border Street
Size: 2.38 acres
Operational Hours: Closed during school hours
Current Use: Active Recreation
Type: School
Equipment: 2 basketball courts, 1 tot lot, 2 benches, skate park
Condition: Good
Ownership: City of Boston
Management Agency: City of Boston
Description: All the equipment is brand-new. The park has some broken glass and some vandalism. There is good lighting for evening use. The school is located off a moderately busy street.

Wood Island Bay Marsh
Entrance Location(s): Coleridge Street
Size: 68.1 acres
Operational Hours: Not applicable
Current Use: Passive
Type: Marsh
Equipment: None
Condition: Good
Ownership: Massport
Management Agency: Massport
Description: This land area is all marshland.

5 CONCLUSIONS AND RECOMMENDATIONS

This project focused on the concerns of traffic and open space. We accomplished the goal of providing a database for the storage of data, which can be expanded in the future to encompass other environmental issues. The website we created is a powerful tool to inform the residents about these issues and the expansion of the website is necessary for it to be fully utilized.

5.1 Traffic

The traffic study was conducted at three intersections identified by the community as being congested or dangerous due to heavy truck activity. The truck activity at the intersections of study was not found to be of an alarming rate. At each of the intersections more than 94% of traffic was contributed by cars.

5.1.1 Beacon Street Off-Ramp

Chelsea is situated in an industrial zone; however it is also densely populated. An average of eighteen trucks violate the exclusion on a given day. Chestnut Street connects to Williams Street, which is a designated truck route and connects to the huge industrial and commercial area. Ideally commercial trucks should not be allowed to use the Beacon Street off-ramp, but considering the proximity of the industries to the off-ramp, there are not significant truck route violations at this intersection. The only way to ensure absolute exclusion is with everyday enforcement.

5.1.2 Jefferson & Webster Ave

This intersection includes a truck exclusion route and also connects to a designated truck route. The traffic in this area is heavy, but 96.86% of the traffic is accounted by automobiles. The number of trucks is negligible compared to the total traffic count. However, the truck compliance is only 32% with an average of 213 trucks disobeying the law on a daily basis.

5.1.3 Central Square

During the course of the study at this intersection, it was observed that pedestrians are at risk. High traffic volumes at Central Square created situations where pedestrians and vehicles were in conflict. Pedestrians were often seen to cross the streets outside of crosswalks suggesting a level of impatience. Due to the complexity of this intersection a pedestrian study is suggested to evaluate steps to make this intersection more pedestrian friendly.

5.1.4 Traffic Recommendations

- The traffic data was collected only on weekdays. A traffic count on weekends is encouraged to find out vehicle activity.
- A traffic count near open space locations can help judge the value of the open space in terms of usability and congestion. This can also help evaluate the risk of a certain part of the neighborhood.
- There is raw data from our traffic studies tallied by the vehicular types. Air emissions at these intersections can be determined using air pollution models.
- A comprehensive truck exclusion route study should be conducted in order to determine if certain truck exclusion routes are affected or should be altered. Also a truck exclusion study should be conducted at intersections where unofficial signs are posted.
- Intersections near industrial zones can help determine truck pattern behavior and can be compared to industrial zones in other cities.
- A simultaneous pedestrian and traffic study is suggested at Central Square to evaluate the design of the intersection for further analysis of traffic crosswalks and effectiveness of present traffic signal.

5.2 Open Space

5.2.1 Chelsea

From our observations and site visits, we found that a number of the parks in Chelsea were closed to the public. In particular, Mary C. Burke Elementary School, Williams Middles School, and Shurtleff Elementary School are all closed after school hours and have locked gates. In addition, Garden Cemetery is locked at all times. These locations are shown in orange in Figure 42.

Figure 42 Current status of open space in Chelsea

Figure 43 shows the open space distribution versus the population of neighborhood blocks. Open space in Chelsea is not evenly distributed to suit the needs of the more populous regions. The figure shows that the northern part of Chelsea (750-1000 people per region) has only two parks, Washington Park and Voke Park, for the residents to use. This figure also illustrates the majority of the densely populated areas either have no open space available or very little open space available to them. For example, Dever Park, only 0.28 acres, is the only park available for 1,331 residents. The most populated areas, dark purple have almost no open space available within their neighborhood blocks. The neighborhood along the Chelsea Creek with a population density of 1,111 has the Mary C. Burke elementary school, however, the school playground can only be used by the school children during school hours

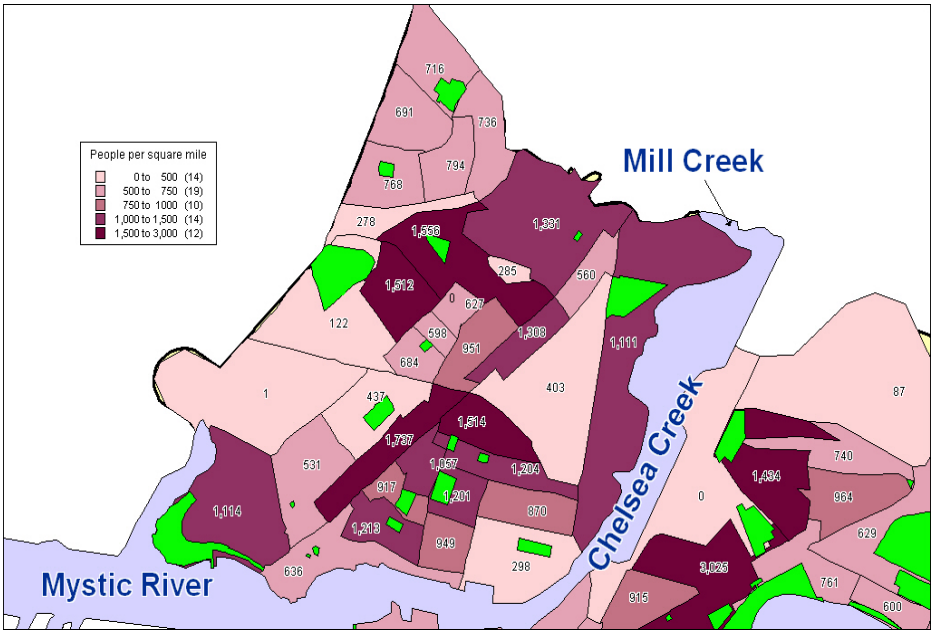

Figure 43 Open Space and Population density of Chelsea

5.2.2 East Boston

The total acreage of the open space locations in East Boston is significant, but 206 acres of the total open space consists of salt-water marshland, Wood Island Bay Marsh and Belle Isle Marsh Reservation (Brown areas in Figure 44). However, Wood Island Bay Marsh is not accessible to the public unless traveling by boat. Currently there are eight open space locations that are privately owned or are not available for public use (Orange areas in Figure 44). There are six open space locations that are squares, which are used for road layouts and serve no recreational purposes (Purple areas in Figure 44). There are two schools in East Boston that are not open after school hours for residents to use. Also a few of the open space locations are located on very busy roads or next to the highway (Route 1A) or in the middle of Logan Airport traffic, which makes them dangerous for the park user and more polluted. Figure 45 shows that there are not enough open space locations in the heavy populated areas (dark areas) and the open space locations above that were named as either private, closed, marshland, or open space locations that have no community benefit.

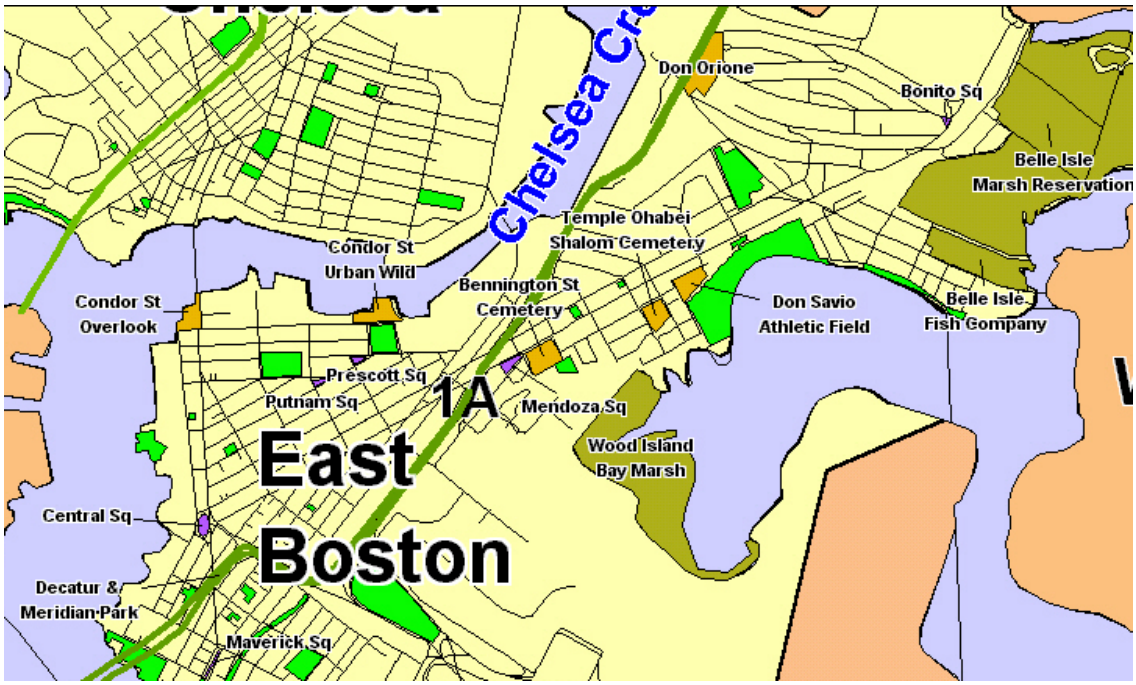

Figure 44 Current status of open space in East Boston

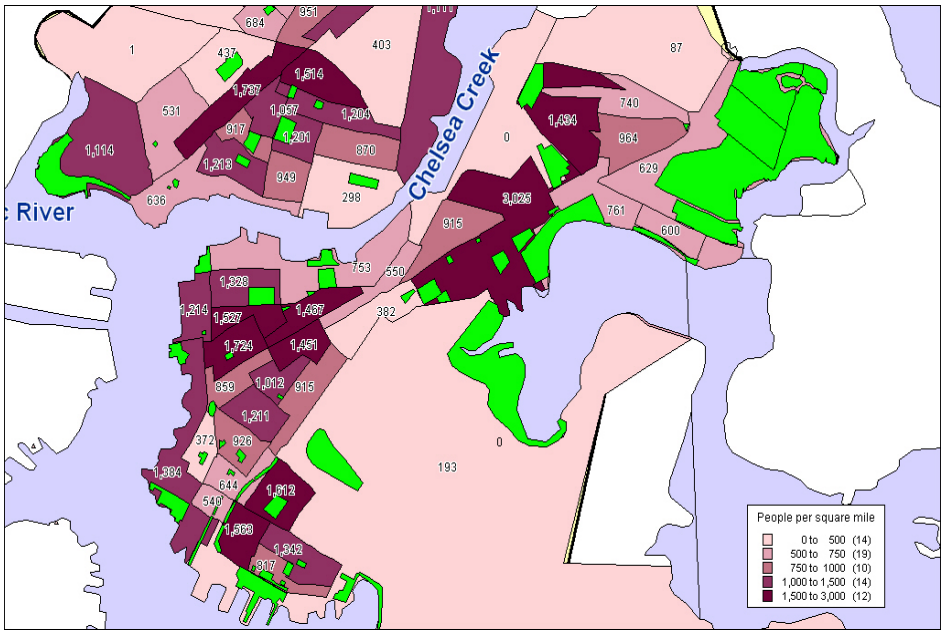

Figure 45 Open Space and Population density of East Boston

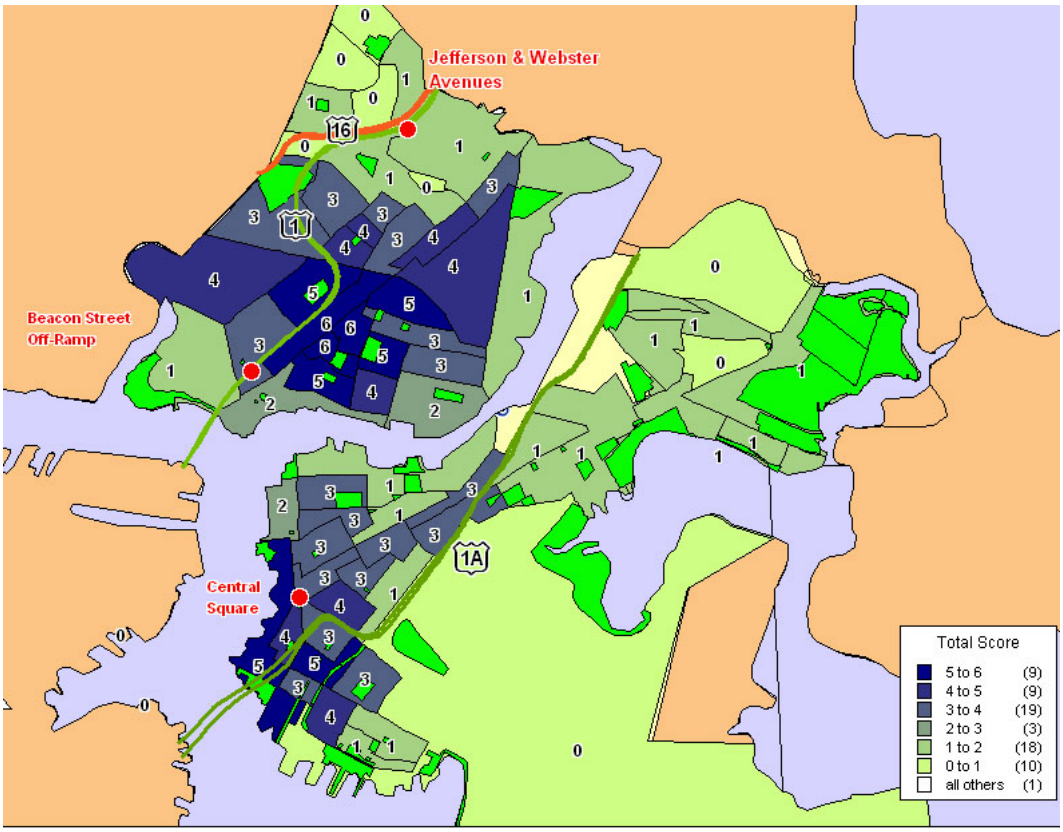

Figure 46 Economic Justice

The total score for the layer in Figure 46 is based on a scoring system with respect to income levels and minority populations. A high score indicates regions with low-income levels and populations with high minority populations. Using existing GIS layers that include 1990 Census data, we can conclude that certain neighborhoods, especially the low income and high minority group regions are underserved. Also observed is that the locations of underserved neighborhoods are near high volume traffic and near major highways.

Overall, open space and traffic are indeed serious concerns that affect the quality of life for the residents. High volume traffic volumes prevent the open space locations to reach their full potential.

5.2.3 Open Space Recommendations

The status of the conditions of open space varies over time. This project has completed the inventory of the open space locations in the cities of Chelsea and East Boston until the month of May 2002.

- Future evaluation and analysis of these open space locations should be done and entered into the database, which has been already created. This enables one to make comparisons to see if the status of these locations have improved or deteriorated.

- Update City Park Plans when the new plans come out this year. Currently the open space descriptions include the City Park Plans of 1994 for Chelsea.
- Another comparative study of open space could be to compare the open space locations in Chelsea and East Boston with another city with the same population density and income levels in order to give a relative understanding of distribution.
- Inventory of all vacant lots is suggested and the vacant lots GIS layer can be overlapped with the current open space GIS map to evaluate lots that can be easily developed into active parks in areas that are underserved

5.3 Website

One of the objectives of this project was to provide the communities of Chelsea and East Boston with a comprehensive yet simple website that improves the environmental understanding of the residents. The format of the website provides the core structure for other environmental issues, identified by the community based Chelsea Creek Comparative Risk Assessment. The website is a powerful informational tool and can be further utilized to display updated environmental information of the six identified issues.

To reach the target population of Chelsea and East Boston it is also recommended that the website be translated in Spanish. The website should be indicative of the current environmental situation in Chelsea and East Boston so it needs to be updated frequently as data becomes available. Linking the website to the environmental database can help accomplish the upkeep of future data entry. Authorization will be required to provide access to the appropriate user.

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The purpose of the Green Space and Recreation Committee is defined. Current open space projects of Chelsea are explained and provide actions that need to be taken.

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<http://www.ci.boston.ma.us/environment/rfp.asp> (30 January 2002).
This web page describes the Chelsea Creek Action Group (CCAG) and gives a description of the projects undertaken by the CCAG.

"The Greater Boston Urban Resources Partnership, 1999". n.d.
<http://www.cityofboston.gov/Environment/success.asp> (20 January 2002).
This document gives a description of the Chelsea Creek Action Group (CCAG). There is some background information of the Chelsea community along with a project description of what the CCAG did in Chelsea.

"Mass.Gov". n.d. <http://mass.gov> (20 Jan 2002).
This website has links to the department of Health and Human Services, information about public transportation, and information about the government of Massachusetts.

"Department of Health and Human Services Agencies" 24 January 2002
<http://www.hhs.gov/agencies/> (31 January 2002).
This website lists Health and Human Services Agencies that help and protect the public and their specific purposes.

"Department of Transportation". n.d. <http://www.dot.com> (20 Jan 2002).
This website has information about the public transportation and the regulations.

"East Boston-Chelsea Creek Action Group Meeting Minutes November 17, 1999" 24 November 1999. <http://www.eastboston.com/ChelseaCreek/ebCreekCh111799min.htm>
(20 January 2002).

This web page contains the minutes from a November 17, 1999 East Boston- Chelsea Creek Action Group meeting which discusses some of the action residents in the group were doing to help clean the creek.

"Mission and History" n.d. <www.hud.gov/library/bookshelf18/mission.cfm>
(6 February 2002)
This website gives all the information about the laws and history of the HUD in pdf draft forms.

"The Trust for Public Land" n.d. <http://www.tpl.org> (6 February 2002).
This non-profitable government agency helps the states preserve their open space. This agency has coverage and press releases for East Boston about their efforts to increase their open space and to create a boardwalk that stretches the length of the harbor.

Chelsea and East Boston

"City of Chelsea, MA". n.d. <http://www.ci.chelsea.ma.us/> (20 Jan 2002).
This is the official website for Chelsea which includes businesses, schools, government, and community events.

Boston Redevelopment Authority "Census 2000 Publications" 22 March 2001
<http://www.cityofboston.gov/bra/pdf/publications/census.pdf> (14 February 2002).
This file provides the census 2000 data for all of Boston. Each neighborhood is displayed with the amount of residents and the percentage that they make up of their community.

"Chelsea, city, United States". n.d.
<http://www.bartleby.com/65/ch/Chelsea.html> (20 January 2002).
This web page gives some general demographics about Chelsea. The data is reported from 1990, however it gives an estimate of what to expect in Chelsea.

"Community Health Status Report". n.d. <http://www.communityhealth.hrsa.gov>
(20 Jan 2002).
A report of Suffolk County Massachusetts from July 2000 containing data sources, definitions, methods, and calculations.

"Chelsea Record" n.d. <http://www.chelseaindependent.com/pages/1.htm> (14 February 2002).
This web site has information about the status of the Chelsea government. In particular, there are examples of how stable the government has become since the change of the charter.

"History of the Boston University/Chelsea Partnership" n.d.
<http://www.bu.edu/chelsea/historypart.htm> (14 February 2002).
This web page provides the historical background about the Boston University/Chelsea Partnership.

"Boston.com Real Estate" 2002
<http://realestate.boston.com/communities/profiles/2000/boston_east_boston.html>
(14 February 2002).
This site provides information about East Boston for people who are looking to buy a home. There is some historical information along with current day information about the tax rate, public schools, and the form of government.

Mashberg, Tom. "Citizens up a Creek; Chelsea, E. Boston group call oils spills just the latest

degradation" The Boston Herald, 25 June 2000, sec. News, p. 3.
This article alerts the reader the conditions that the citizens of Chelsea deal with on a day to day basis. Examples are tractor-trailer traffic and accidents, the polluted creek, and the lack of open space.

Duran, Rebecca. "Blasting Causes East Boston 'Quakes" Project Involves Chelsea Creek" The Boston Globe, 1 September 2001, sec. Metro/Region, p. B7.
In this article, the residents of East Boston complain about the blasting in Chelsea creek. The blasting is done by the Army Corps of Engineers to deepen the Chelsea Creek from 35-38 feet to all oil tankers to better navigate the harbor.

Laidler, John. "Citizens' Group Works to Clear Creek Chelsea Waterway Choked By Weeds, Tons of Garbage" The Boston Globe, 14 October 2001, sec. North Weekly, p.9.
This article describes the community effort to clean up Chelsea Creek and to restore Mill Creek, a 48-acre estuary that is part of Chelsea Creek. The clean up effort will include removing the weeds and sediments that have accumulated because of highway runoff. The restoration is the first time in history that has allowed public access to the creek.

"New England in Brief / East Boston; Boat Yard Owner Sentenced to Jail Again." The Boston Globe, 18 November 2001, sec. Metro/Region, p. B2.
This newspaper clipping describes a local situation about an East Boston Boat Yard owner who violated the regulations because he failed to raise and remove a sunken vessel from his property in the Chelsea Creek. The city's law department and Department of Inspectional Services investigated the violation.

"Uneasy in Eastie" The Boston Globe, 17 January 2001, sec. Editorial, p. A12.
Although this article is not directly related to Chelsea, it describes the battle of the marine industry against development for public attraction on the harbor.

Watson, Jamal E. "More Salt in Wound Calling Huge Pile an Illegal Eyesore and Health Hazard, Residents Get Icy Response." The Boston Globe, 31 August 2001, sec. B, p. 1.
The residents of Chelsea are suing the company that owns the salt pile because the company is breaking state laws. This gives us some insight to what has happened recently in Chelsea.

Watson, Jamal E. "Truck Crash Surprises Few Chelsea Residents Have Long Complained of Danger at Tobin Bridge Off-Ramp" The Boston Globe, 30 May 2001, sec. B, p. 1.
This article demonstrates one of the types of problems Chelsea deals with everyday. Traffic is a concern and this tractor-trailer crashed into a two-family home. The citizens fear everyday that something terrible will occur due to the traffic and they feel that nothing will be done until a child is killed in an accident.

Traffic

"Massachusetts Highway Department (MHD)" 13 August 2001 <http://www.state.ma.us/mhd/> (3 February 2002).
The MHD is also known as MassHighway. MassHighway is responsible for the design, construction and maintenance of 12,600 lane miles of state highway and 2,900 bridges in the Commonwealth.

"Massachusetts Turnpike Authority (MTA)" 1998 <http://www.massturnpike.com/> (3 February 2002).

The MTA regulates the Metropolitan Highway System that includes the Boston Extension, which runs for 12 miles between and Route 128/I-95 and downtown Boston, and the Sumner-Callahan and Ted Williams Tunnels, which connect to Logan Airport.

"Federal Highway Administration" 14 February 2000 <http://www.fhwa.dot.gov/>
(7 February 2002)
This website gives us the information of the safety, quality and maintenance

Open Space

"Campaign To Protect Our Open Space" Massachusetts Student Public Interest Research Group
(30 January 2002).
This web page is produced to alert residents of Massachusetts to the reduction of open space. MASSPIRG is trying to get people involved to help prevent the loss of the open spaces and preserve those areas. This could help us understand what open space exists.

Massachusetts Student Public Interest Research Group "Campaign to Protect Our Open Space"
<http://www.masspirg.org/student/openspace.html> (30 January 2002).
This web page is produced to alert residents of Massachusetts to the reduction of open space. MASSPIRG is trying to get people involved to help prevent the loss of the open spaces and preserve those areas. This could help us understand what open space exists.

Environmental Quality

"State of New England Environment 1970 – 2000". n.d
<http://epa.gov/region01/ra/soe00/soe2000.pdf >
This web brochure chows the strategies that EPA can help implement for the community. It shows case studies and successful projects all over the country.

"City of Boston, Environment Department Programs" n.d.
<www.ci.boston.ma.us/environment/envprograms.asp> (30 January 2002).
This web site opens pages, which provides up to date information on water quality, air quality, testing and results, and government agencies. It allows you to search by county and city for results of the tests.

"Ecological Risk Assessment" n.d. <http://cfpub.epa.gov/ncea/cfm/ecologic.cfm>
(29 January 2002).
This website is from the EPA, it includes guidelines, assessments, and methods that quantify risks to ecosystems from multiple stressors at multiple scales and multiple endpoints.

Koren, Herman, and Micheal Bisesi. Handbook of Environmental Health and
Safety. 3rd ed. Vol. 1. New York: CRC Press, Inc., 1996
This book describes environmental health problems, modes of surveillance and evaluation, standards, practices, and techniques.

Thomas, William A., ed. Indicators of Environmental Quality. New York:
Plenum Press, 1972.
This book qualitatively and quantitatively describes environmental quality. The environment quality cannot be understood only with data. This book gives some explanations that increase the understanding of the collected data.

Methodological References

"Section 2 Introduction to Traffic Monitoring" U.S Department of Transportation. 1 May 2001 <http://www.fhwa.dot.gov/ohim/tmguide/tmg2.htm> (6 February 2002).
This web page provides a more recent method for monitoring traffic than received in the previous source from the U.S. Department of Transportation. This information may be more suitable for our use since it uses new techniques. The disadvantage is could be that the new techniques use devices we will not be able to access.

U.S. Department of Transportation. Traffic Monitoring Guide. 1985.
This technical report describes methods for monitoring traffic. From the data collected, it also demonstrates some uses of the data. This report should be useful since we are going to be collecting data pertaining to traffic in Chelsea.

Bowes, John E. "Communication and Community Development for Health Information: Constructs and Models for Evaluation" December 1997 <http://nnlm.gov/pnr/eval/bowes/> (3 February 2002).
This document goes into depth about community and communication. It describes how communication with in communities can improve health problems. It suggests methods and models to have mass communication and how to communicate with the rural and hard-to-reach groups.

"A Distributed Traffic Monitoring and Information System" Journal of Geographic Information and Decision Analysis, vol.3, no.1, pp. 31-40, 1999 <http://publish.uwo.ca/~jmalczew/gida_5/Kosonen/Kosonen.htm> (6 February 2002).
This has a section about GIS and Internet interfaces, which may be potentially useful if we design a system that the residents can access.

Conference on Road Traffic Monitoring and Control. Great Britian: Centeno Ltd., 1992.
This book contains papers that were presented at the Sixth International Conference on Road Traffic Monitoring and Control at the Institution of Electrical Engineers in London, UK. Many of the papers contain methods of measuring traffic with electronics, however some papers are a little more general which may provide some insight of how to "count" cars, since we most likely will not have electronic devices.

"City Visions: Public Access Television for San Francisco" 2002 <http://www.sfctc.org/strategicplan.htm> (3 February 2002).
This website gives an example of community access for San Francisco; it includes their mission statement and strategy. The program is called Community Television Corporation (CTC). The CTC mission is to strengthen the fabric of community life by enabling open communication through public access television and other electronic media.

"Community Based Approaches" September 2001 <http://www.epa.gov/ecocommunity/tools.htm > (4 February 2002)
This government websites explores various case studies where community models and participation has proven to be successful. This also lists various useful human dimension tools like communicating with the community on ecological issues. This would help us build the structure for our information system.

"Establishing an Environmental Information System for Palestine" May 1996 <http://www.arij.org/pub/Establishing%20An%20Environmental%20Information%20System%20for%20Palestine.pdf> (4 February 2002)

This pdf gives a method of implementing an EIS for Palestine, but could be adopted for Chelsea. It demonstrates using FoxPro to link various databases and GIS. Has section about the dissemination of information also.

Raffensperger, Carolyn "The Science and Environmental Health Network (SEHN), Article I. Editor's Note: Media and Environment" June 1998 <http://www.sehn.org/Volume_3-2_1.html> (3 February 2002).

This article focuses on the media and how the public responds to the environmental and public health stories. This network began because of a misprint of information about an antibiotic and the public was very concerned. The article also describes how medical information is reported and how it is determined to be valuable.

APPENDIX B. SPONSOR INFORMATION

The EPA provides leadership in the nation's environmental science, research, education and assessment efforts. The EPA works closely with other federal agencies, state, and local governments to develop and enforce regulations under existing environmental laws. The EPA is responsible for researching and setting national standards for a variety of environmental programs and delegates the responsibility for issuing permits, monitoring and enforcing compliance to the states. When national standards are not met, the EPA can issue sanctions and take other steps to assist the states in reaching the desired levels of environmental quality. The agency also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.[13]

Since the 1970's, the EPA has implemented numerous environmental statutes (such as the Clean Air Act, Clean Water Act, Toxic Substances Control Act, and many others). Using regulatory approaches, toxic emissions into the environment from smokestacks, wastewater treatment facilities, and solid and hazardous wastes sites have been significantly reduced. As a result, the EPA has made significant strides in reducing "end of the pipe" pollutant releases, to such an extent that regional and global scale problems, including habitat alteration, loss of biodiversity and non-point source pollution, are now recognized as greater risks to ecosystems than site specific problems.[14]

Among the environmental laws enacted by Congress, the following are relevant to this project:

1948 Federal Water Pollution Control Act (also known as the Clean Water Act)

1955 Clean Air Act

1965 Solid Waste Disposal Act

1970 National Environmental Policy Act

1970 Pollution Prevention Packaging Act

1972 Ocean Dumping Act

1974 Safe Drinking Water Act

1976 Toxic Substances Control Act

1986 Emergency Planning and Community Right to Know Act

1988 Ocean Dumping Ban Act

1990 National Environmental Education Act

[13] "About EPA" n.d. <http://www.epa.gov/epahome/aboutepa.htm> (30 January 2002).

[14] "Ecological Risk Assessment" n.d. <http://cfpub.epa.gov/ncea/cfm/ecologic.cfm> (29 January 2002)

APPENDIX C. COMPARATIVE RISK ASSESMENT

The following document contains the results of the Chelsea Creek Comparative Risk Assessment (CRA) report that includes survey and interview results. It also describes how the six environmental and public health issues were chosen. Following the report are the two sample surveys and the questionnaire the CRA used.

Comparative Risk Assessment Stage 1 Report (Survey & Questionnaire)

Introduction

The Chelsea River, commonly known as the "Chelsea Creek" is the most polluted tributary to the Boston Harbor. Most of the Creek is zoned a "Designated Port Area" which limits public access, instead providing access solely for industrial water-dependent uses. Much of the land along Chelsea Creek is abandoned, underutilized or contaminated. Chelsea Creek connects East Boston and Chelsea - two under-served low-/moderate- income ethnically diverse communities. These communities suffer from a disproportionate amount of negative environmental impacts and a lack of open space.

However, active groups of residents on both sides of Chelsea Creek, including the Chelsea Creek Action Group (CCAG) have engaged some of these challenges –CCAG is a collaborative effort of the Chelsea Green Space and Recreation Committee and Neighborhood of Affordable Housing (NOAH) in East Boston. The organization's goal is to build public awareness, promote public access and transform the Chelsea Creek into a recreational, educational, and economic resource for our communities and the region. Resident groups convene monthly meetings in Chelsea and East Boston to address environmental issues at specific shoreline areas.

As these groups gain momentum on site-specific issues, CCAG has been investigating ways to promote more widespread understanding and interest in Chelsea Creek. The Chelsea Creek Comparative Risk Assessment (CRA) is one tool to understand and prioritize resident concerns, and make use of the information collected to benefit community interests. The CRA process, as used by the Environmental Protection Agency (EPA) in several regional watersheds, consists of broad outreach to identify a range of community concerns, collecting technical information about those identified concerns, and working with the two data sets to identify means to improve the quality of life for residents. The CRA process also provides an opportunity to enhance the relationship between agencies and residents – in this case, the EPA has provided funding for the project, and other agencies will be targeted for involvement as issues emerge.

There is a range of potential goals for a CRA process, including increasing resident participation, advocacy, and/or action plans on specific issues. The focus of the CRA is determined by the residents in that community. The resident committee has not yet focused on specific goals for this project, the first task of the Chelsea Creek CRA was to capture broad public opinion on issues regarding public health, the environment, and quality of life.

Methodology

Tools:

CCAG staff and volunteers gathered information through a variety of methods. The primary questionnaire, developed for longer one-on-one encounters, consisted of approximately 18 standard questions, with the opportunity to probe and ask about other topics that came up in conversation. Respondents for the questionnaires were identified through groups, referrals, or existing networks. These interviews lasted anywhere from ten to forty minutes, and were transcribed afterwards into narrative field notes.

The shorter questionnaire (7 questions) captured respondents who had less time, and could take just a few minutes to talk. This questionnaire was used especially for on-the-street situations, such as parks and shopping areas, and was delivered in both Spanish and English. Again, written notes were transcribed and collected.

One-on-one interviews are the best method for collecting substantial quality information. However, they also take significant amounts of staff time. In order to raise the number of respondents and reach out to a larger population, staff and volunteers also used a one page written open-ended survey in Spanish and English. The survey was most useful in large group meetings, such as classrooms, meetings for other organizations, and in any situation where the interviewer would not have time to talk to every individual in the group. Survey quality was boosted where possible by the interviewer "talking through" the survey with respondents, and recording their answers on the form.

Both the survey forms and the questionnaire answers were entered into a computer database to facilitate categorical comparisons.

Goals:

In all of these methods, questions were designed to elicit the following information from the respondent:

1. Their evaluation of the biggest health risks coming from the environment, and Chelsea Creek specifically (both risks to them as individuals and to the community)
2. Their evaluation of the biggest community assets
3. Their concerns with the local quality of life.

The longer form of the questionnaire also attempted to discern residents' current level of interaction with the environment (measured by amount of time spent outside, awareness of local environmental issues, and sense of belonging in the community).

Because of the densely developed surroundings, "environment" was defined as encompassing land, water, air, and other natural systems, under varying degrees of human manipulation. Any issues such as noise (a form of air pollution) and litter (humans interacting with their landscape) were considered "environmental". While all interview information would be recorded, issues focusing on interactions exclusively between humans (for example, gang activity) will not be researched under the CRA process.

Clearly, CCAG has a particular interest in the Chelsea Creek, but the questionnaires avoided asking too specifically about that one resource. Residents have almost no opportunity to interact with the creek, except when they pass over it on a bridge. Chelsea Creek is an unlikely current focal point for local environmental concerns, except for heavily involved committee members.

In both the questionnaire and survey, participants were asked to list health concerns for themselves and their families, and then health concerns for the community at large. Links between health and the environment were not mentioned specifically in those first questions. However, on both the written survey and the questionnaire, the next questions asked if any of those health concerns were related to living in Chelsea/East Boston, and if so, how. The series was designed to prevent interviewer biases from influencing answers. By starting broadly, people could list all of the health concerns that seemed most important to them, and following questions could probe which of those concerns were linked to the environment.

Results

At the completion of the data-collection portion of the project, 325 people had been interviewed or surveyed. Of those respondents, 165 live in Chelsea, and 154 in East Boston (6 not reported) . The survey and questionnaire was not designed to capture significant demographic information about the respondents, however, 119 of the respondents either completed a survey in Spanish or otherwise identified themselves as primarily Spanish speaking.

Surveys made up the bulk of the contacts. In Chelsea, all but 19 of the contacts were made through the survey form, although some of the surveys were "talked through". In East Boston, 24 of the contacts were through questionnaires and the remainder was surveys.

Public Health and Environment

A significant number of people did not answer questions about their individual health (124 respondents), and a lesser but still significant number also did not supply information about community health concerns (86 respondents). These people commonly felt they were "pretty healthy" and that environmental conditions in East Boston or Chelsea met their expectations. Others recognized that there were environmental risks to living in the city, but felt that people should understand and accept them:

> "You catch a crab, you eat a crab. You catch a lobster, you eat a lobster. If you die, you die…if we didn't have cars, and buses, and airplanes, how would we get around?" (EB)

Of those that did respond, there was little if any distinction between individual and community health concerns. A few respondents mentioned a specific individual affliction, and connected that to the environment:

> "My husband was born here. My daughter has asthma. We ask ourselves about the long-term health effects of living near the airport."(EB)

However, most participants indicated that what affected them was also affecting the community in general. Very few people responded to the question about the connection between health problems and location, perhaps because they felt this had been made clear from their response to the other questions (if they responded "airport pollution", for example, it is obviously a local issue). Others seemed to feel that there was not a clear enough link between the environmental factor and the health symptom, although they had suspicions. One woman mentioned that asthma was not a hereditary factor in her family, and yet

within a few years of moving to Chelsea, her children started to suffer respiratory problems. She has noticed that whenever they leave the city, the symptoms disappear. However, she did not draw clear lines between Chelsea's air quality and the asthma.

Logan Airport was not cited as a top concern in itself. However, it was frequently mentioned as the cause of many of the other problems on this list, including noise, respiratory problems, air pollution, and traffic. They were also described as emotionally and socially disruptive, causing sleepless nights and jangled nerves. One Chelsea resident described the nervous feeling from living near airplane traffic:

> "If you see them coming, you duck."

Clearly, the airport is a large part of the whole East Boston and Chelsea ambience, and difficult to separate from other issues.

The broad-to-specific survey question design described in the methodology section had benefits and drawbacks. Because of the opening general questions, some concerns were raised which have no environmental relevance (for example, health insurance). Also, some surveys were administered in school settings, or at meetings, in conjunction with a presentation. In those cases, people had just heard about other Chelsea Creek Action Group initiatives when they filled out the survey, and the potential for bias was still present. Undoubtedly, some were moved to list the river as a concern, even if they had not thought of it before. One woman was introduced to our project, and filled out a survey. Most of the fields were left blank, but under health concerns for her family, she wrote

> " Since I live so close…could the oil or any chemicals that are in the creek affect my son?"

This kind of answer is important and valid – in the best instances, indicating heightened awareness and involvement with local issues.

Of issues mentioned ten or more times in all of the collected responses, air pollution was an outstanding concern. Cars, buses, airplanes, and ships were all listed as culprits. Trash is a general term encompassing concerns for cleanliness of homes, streets, and public areas, and received significantly more attention than second-tier issues, which included respiratory problems, water quality and noise. Respiratory problems and asthma were not sometimes but not always linked to air pollution by the informants, so they were listed as separate categories.

Issue	Number of mentions
Air pollution	86
Trash	65
Respiratory problems	42
Water quality (drinking water or unspecified)	33
Noise	34
health care/insurance	30
Rodents/insects	28
Cancers	22

River concerns -oil, &c.	22
Drugs	19
Noxious odors	18
airport concerns	14
Traffic	12
STD's/pregnancy	10

Quality of life

Besides specific health risks, residents reported a number of concerns about life in East Boston and Chelsea. Slightly under half of the respondents supplied information on this question (approximately 44%, 144 out of 325).

Unlike the health concerns category, no particular quality of life issue was obviously more important. Instead, the higher ranked concerns echoed important topics from previous questions – for example, cars and buses are the cause of both air pollution, noise (health problems) and traffic (a quality of life problem). However, housing issues (affordability, availability, and condition) garnered some attention for the first time under quality of life, and several other issues were listed, although with relatively few occurrences.

Trash concerns were to some degree linked with the "civic pride" category. Some of the respondents felt that neighbors did not care about the city, expressing their apathy through littering or some other inappropriate behavior. Older Chelsea residents remembered times when neighbors pitched in, and called for increased personal responsibility for the city's problems:

> "I don't think complaining to the city manager is the solution. Can a manager do all that? It's up to the people to keep it clean." (C)

However, some people's comments also indicated that civic pride suffered as a result of governmental corruption or neglect. One woman spoke about the damaging effects of industry along the creek, and the lack of municipal controls for those businesses:

> "Other cities say no, and it's no. But in Chelsea, they work something out". (C)

Of the remaining issues, violence and gang activity were also connected for some of the respondents, and at least one specific area in East Boston was identified as troublesome.

Issue	Number of mentions
Trash	29
Traffic	28
Noise	27
Housing	26
Drugs	23
Open space	15
Gangs	13

Parking	11
Civic Pride/attitudes	10
Violence	10

Assets

Clearly, both communities have great assets as well as great challenges. Two hundred and fourteen respondents identified a best part of life in this area. People often spoke of the city being a welcoming place for them. Some had personal ties, either friends or family, and some had a lifetime of history and associations. One recent arrival wrote that he had found East Boston to be a community of like-minded people. Despite the flaws, people seemed glad to be living where they were.

> "you can go to the most beautiful places, and then you come back, you smell Chelsea, you say 'I'm home". (C, lifetime resident)

However, by far the most commonly mentioned asset was accessibility. This category describes two related qualities – one being that services and destinations within the city were easy to access. People especially noted the ease of getting to hospitals and shopping. While some criticized transportation systems, finding their services either poor quality or insufficient, more people had good experiences with public transportation. As one woman remarked:

> "you can get on a bus from Chelsea and go anywhere in the world" (C)

Quality	Times mentioned
Accessibility	63
People	22
Diversity	20
Community feeling	18
Educational opportunities	17
Family, friends	15

Chelsea/East Boston Differences

Results from East Boston and Chelsea generally did not demonstrate significant differences. Quality of life concerns showed no large differentiation, and in the responses for health concerns, air pollution and respiratory problems ranked fairly equally across the two areas. Trash and water quality concerns were raised about twice as often in Chelsea than in East Boston. However, the numbers in general are not high enough to indicate that Chelsea and East Boston should have different priorities or approaches overall.

East Boston residents are more likely to view accessibility as one of their greatest assets, and less likely to list diversity as one of their biggest assets. Again, the numbers are small enough to indicate no significant difference between the two.

ISSUE	Chelsea mentions	East Boston mentions
- *Health*		
Air quality	39	46
Trash	42	23
Respiratory ailments	19	23
Water quality	22	11
Noise	12	20
- *Quality of life*		
Trash	15	14
Traffic	17	11
Noise	16	12
- *Assets*		
Accessibility	27	49
Diversity	16	8

Discussion

Additional Information from Questionnaires:

The long questionnaire provided some opportunities to investigate potential reasons behind the answers. Not unsurprisingly, people who felt like they did not know the neighborhood, or had little recall of local environmental issues from the media, were less concerned about topics from the questionnaire. The most detailed responses came from people with significant involvement in the community, even if that involvement was not specifically in environment or health.

There was no clear consensus among respondents on the role of the creek in the neighborhood. Some people felt that it served as a no-man's land between East Boston and Chelsea, and others felt that it was an important part of local ambience. There was no strong correlation between large amounts of time spent outside and particular health concerns, although people who did spend large amounts of time outside were more likely to give thorough answers.

Potential Influences on Collected Data:

The study was designed to be qualitative, although it contains some quantitative elements. As a qualitative instrument, it reflects both the opinions of individual people and of groups who talked about these issues together as they filled out their survey. It is important to recognize that the survey and questionnaire were designed to provoke discussion and thought between people, and this technique naturally produces "pockets" of similar recorded information.

Clearly, air quality is seen as a primary problem, while the quality of the river did not generate much concern. This may be due to the long history of the river as an industrial area, and low expectations about the creek's potential. People are often limited by what they can imagine – many of the people who

mentioned open space issues as a quality of life concern were active in their communities, and often the same people had helped create alternative visions for the area. Without exposure to alternatives, people may accept the status quo as unalterable.

APPENDIX A: Community Meetings

CCAG sponsored two meetings in December of 1999 (one in Chelsea, one in East Boston) to present the results of the survey to the community and to get resident reactions to the preliminary information.

Goals: The primary goals of these meetings/focus groups were to:

- Check to see if the list of issues we had gathered was complete
- Fill out the issues with details, understand how the issues affect day to day resident life
- Develop a list of ideas for handling some of the problems.

Results:

Both the East Boston and Chelsea meetings were comprised almost completely of people who had not participated in the initial survey stage. After a presentation about the project, participants were given a chance to react to the list of issues that was generated during the survey and questionnaire period. In each of the breakout groups, participation was universal and lively.

The 4 breakout groups independently confirmed many of the most common issues from the survey stage as big local issues, including air pollution, traffic, water pollution, respiratory problems, trash, and noise. No group suggested that any issue from the survey was inappropriate or not a concern. Additionally, participants in the breakout groups listed a number of other issues, including the local miscarriage rate, indoor air quality, hunger, and street repair. These topics were added to the broader list for later consideration by the Resident Advisory Committee.

In the second section of the evening, participants were asked to share their own stories regarding these issues. Everyone had compelling narratives to relate, ranging from the difficulties of dealing with absentee landlords, to the physical pain they suffer from continually breathing fumes, to the frustration they feel when out-of-towners dump loads of garbage in Chelsea parking lots. During this segment, residents heard remarks made by others in the group, and had the chance to react to and build on those comments. As the discussions evolved, several overarching themes emerged, including

- Image: (especially mentioned in Chelsea) The city suffers from a poor image, fueled in part by negative media. Changing the image of a place can be a big part of changing individual behaviors. One element that might help turn image around is a one-time, coordinated, big infusion of energy and capital. When something starts to look good, other parts fall into place.
- Fatigue: Residents mentioned the strain of living every day with the noise, pollution, and stress from local industry. Some eventually resign themselves to it or adapt in order to get on with their lives. Also, there is such a wide range of problems, it is difficult to work on one problem and see improvement.
- Historical significance: (especially in East Boston) The historical significance of the area needs to be explored and tied in to restoration.

In the final portion of the meetings, residents were asked to identify ways they had seen either this area or other areas successfully tackle some of the problems they had identified. Many positive ideas were mentioned, including

- Partnership Building: Residents mentioned successful partnerships with schools, the police, and other organizations that have made a difference (the weed & seed program & DARE were cited as examples). Mustering more organizational resources can increase an activities impact.
- Changes in Laws or Policies: Residents mentioned specific legal changes that could help the situation as well as more broad policy shifts. Changes included altering traffic signs and routes, and rules in specific areas, removing pollution exemptions for specific industries, a specific design for a housing equity program, and improved enforcement. Policy shifts included designating more money for affordable housing.
- Learning from Examples: the Dudley Street Neighborhood Initiative was cited as an example of a successful community campaign against trash, which contributed to a changed image for the area. One group suggested publishing photos of businesses that care for and keep up their properties, and photos of irresponsible businesses. This could promote social pressure to improve the area.
- Using more than one model: A variety of things can help the variety of people that live here. Residents mentioned that more options were needed for teens who weren't drawn to after-school programs.
- Community initiatives: Residents mentioned a variety of helpful initiatives, including educational campaigns against trash, protests or more vigorous activism, memorial or celebratory plantings to connect people around green space, and multicultural outreach.

The community meetings, besides being a useful way to familiarize a broader audience with the CRA process, did provide an additional degree of certainty to the initial list of issues. As the resident advisory committee and technical committee continue to work on prioritizing and exploring the issues, they will be able to use the additional detail to focus and refine potential actions or suggestions.

CHELSEA CREEK ACTION GROUP

COMPLETE QUESTIONNAIRE

Introduction: Hi, I'm (name), and I work with the Chelsea Creek Action Group, which is made up of groups of people from East Boston and Chelsea. In East Boston, there's a group called the East Boston Chelsea Creek Action Group, and in Chelsea, there's a group called the Chelsea Greenspace committee. Have you heard of either of those groups?

These groups have gotten funding to get information from the community about people's health and quality of life in this environment. Part of the project is to talk to a lot of people who live in the areas surrounding Chelsea Creek. We will make a list of all people's issues, and we'll get a sense of what the biggest concerns are. Another part of the project is collecting scientific information to back up those community concerns.

At the end of the project, we will write a report that will be available to everyone in the community. Having the information in hand will help decision-makers make smart choices about the future of East Boston & Chelsea, and will also help residents find good steps to tackle the problems themselves.

We expect the interview to last about 1/2 hour, although you can stop at any time. I'm free until x, so I'm glad to listen for as long as you want to talk to me!

Again, this project is dealing especially with the area around Chelsea Creek.

Do you have any questions about this project?

I. Warm-up

1) (is it okay if I take notes/tape this?)
2) Where do you live?
   -what are the neighborhood boundaries? Geographical or other?
3) How long have you lived in that neighborhood?
4) Do you work in the area?
   - if so, what work do you do?

II. Question A

5) How much time in a week do you spend outside?
(prompt if necessary– in your yard, in parks, walking, waiting for the bus)
6) Can you remember hearing about local environmental issues in the news? (prompt about air quality, noise, water if necessary)
   - if so, what do you remember about it?
7) How well do you feel like you know East Boston/Chelsea? (not well, fairly well, very well)
8) What makes you feel like you know this area?
9) How do you feel about the Chelsea Creek?
   - what makes you think about it?
   - (alternative question) Do you feel like East Boston ends on the shoreline, or do you feel that Chelsea river is a part of the neighborhood? Why?

III. Question B

10) What are your biggest health concerns?
   -if there are no health concerns:
   10A) Compare East Boston/Chelsea to other nearby areas (such as South Boston or Cambridge..) do you feel it is healthier, less healthy, or equally healthy to live here?
   10B) Think about Chelsea/East Boston as a community. Are there health problems that exist for that community?
   (if no)Other people have mentioned the following health problems. Which do you think is the biggest problem for people living in this area?
   - lung problems
   - lou gehrig's disease
   - problems from trash/infected insects
   - (others as they come up)

11) (if there are health concerns) Do you think any of those concerns are related to the area where you live?
    - if so, how?

12) (if not addressed) Do you think this area is polluted?
    - if so, with what kinds of pollution?
    - Do you think this pollution causes health problems?
    - if so, what kind of pollution causes the problems?
    - what kind of health problems come from pollution in this area?

IV. Question C

13) *Think fifteen years into the future. In your opinion, what should happen regarding x concern? (ask for all concerns listed)*

V. Question D

14) What are the best things about living in this area?
15) Besides health problems, what are the biggest problems, living in this area? - (if only people/people problems mentioned, prompt on ?open space, recreation, public access to river?)
    -if there are no quality of life concerns:
    15B) Other people have mentioned the following concerns about living in (chelsea, E.Boston). Do you feel that any of these things are problems here?
    - traffic
    - noise
    - communication gaps between different groups
    - (others as they come up)

    What makes this a problem?
16) *What are the biggest hindrances towards solving x problem? Y problem?*

VI. Question E

17) Thinking 15 years into the future again, what should be done regarding x concern? (repeat for all concerns listed)
18) *What should be done to preserve x good thing you mentioned (repeat for all)?*
19) Get name & contact information
20) Do you have any questions you want to ask me?
21) Who else should I be talking to? Can I say you referred me?
22) There are other ways to be involved in this process. Later we will have focus groups, which will discuss these issues with a group of people. We are also looking for people who can

help us with the technical information about these problems. Would you be interested in participating in another way?
- if so, take telephone number

CHELSEA CREEK ACTION GROUP

SHORT QUESTIONNAIRE

Intro explanation: The Chelsea Creek Action Group has received funding to get information from the community about people's health and quality of life in this environment. Part of the project is to talk to a lot of people who live in the areas surrounding Chelsea Creek. We will make a list of all people's issues, and we'll get a sense of what the biggest concerns are. This is a quick survey - there will be other opportunities to give input in the future.

We will also be collecting scientific information to support people's concerns. At the end of the project, we will write a report that will be available to everyone in the community. Having people's concerns and the matching scientific information will help decision-makers make smart choices about the future of East Boston & Chelsea, and will also help residents find good steps to tackle the problems themselves.

1. Do you live in East Boston or Chelsea? (*if no, maybe this isn't someone you want to talk to*.)
2. What neighborhood do you live in?
3. Do you think there are health risks that come from living in East Boston/Chelsea?
   -if so, what specific risks are you concerned about? (list)
   3B) Other people have mentioned the following health problems. Which do you think is the biggest problem for people living in this area?
   - lung problems
   - lou gehrig's disease
   - problems from trash/infected insects

   (others as they come up)
4. Are any of those risks related to the Chelsea River? If so, how?
5. Besides health problems, what are the biggest problems, living in this area? (prompt: open space, recreation, public access)
   5B) Other people have mentioned the following concerns about living in (chelsea, E.Boston). Do you feel that any of these things are problems here?
   - traffic
   - noise
   - communication gaps between different groups
   - (others as they come up)

   What makes this a problem?
6. What are the best things about living in this area?
7. Who would be a good person to talk to? Can I say you referred me?

Thanks!

Short Questionnaire Goal:

to gather information on :
A. What residents consider to be the biggest health risks coming from their environment (specifically Chelsea creek & related hazards).
C. What residents consider to be the most important quality of life issues related to their environment, in a positive and negative sense.

QUESTIONAIRE

The Chelsea Creek Action Group has received funding to collect information about people's health and quality of life in this community. The people who live and work in this community are the primary source of information, and we need your help to determine what the priorities of this study should be. This survey is only the first step in this project. We will be working with the Environmental Protection Agency and other groups to collect technical information and to produce a report that will be available to everyone in the community. Working together to coordinate the concerns of the community with existing scientific data will help decision-makers make smart choices about the future of East Boston and Chelsea. Please help us by filling out the short survey below.

- Do you live in East Boston or Chelsea?
- What neighborhood do you live in (area or street)?
- What are the primary health concerns for you and your family, if any?
- What are the biggest health concerns for people in this community, if any?
    - Are any of those concerns related to living in Chelsea/East Boston? If so, how?
- What are the best things about living in this community?
- Besides health problems, do you have any other concerns about living in this community?
- We are using several methods to try and get the most complete information possible. Would you like to participate in a more detailed survey or a group discussion about your environmental concerns? If so, please provide your phone number :
- Can you recommend other community leaders or neighbors for us to talk to? Please provide contact information so that we may call them.

APPENDIX D. GOVERNMENT ORGANIZATIONS

Department of Transportation

The Department of Transportation (DOT) was established by an act of Congress, signed into law by President Lyndon B. Johnson in 1966. The mission of the DOT is to develop and coordinate policies that will provide an efficient and economical national transportation system, with due regard for the environment. It is the primary agency in the federal government with the responsibility for shaping and administering policies and programs to protect and enhance the safety, adequacy, and efficiency of the transportation system and services.

The Department of Transportation contains the Office of the Secretary and twelve individual operating administrations: the United States Coast Guard, the Federal Aviation Administration, the Federal Highway Administration, the Federal Motor Carrier Safety Administration, the Federal Railroad Administration, the National Highway Traffic Safety Administration, the Federal Transit Administration, the Maritime Administration, the Saint Lawrence Seaway Development Corporation, the Research and Special Programs Administration, and the Bureau of Transportation Statistics.

Department of Health And Human Services

The Department of Health and Human Services (HHS) is the United States government's principal agency for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves. The department includes more than 300 programs, covering a wide spectrum of activities. Our group would be interested in the agency called 'Agency for Toxic Substances and Disease Registry' (ATSDR). It works with states and other federal agencies to prevent exposure to hazardous substances from waste sites. The agency conducts public health assessments, health studies, surveillance activities, and health education training in communities around waste sites on the U.S. Environmental

Protection Agency's National Priorities List.[15] Other relevant agencies in region 1 include the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA).

Department of Housing and Urban Development

The US Department of Housing and Urban Development (HUD) was established in 1965. HUD's mission is to promote adequate and affordable housing, economic opportunity, and a suitable living environment without discrimination for all Americans. This is possible by working with partners in the public and private sectors, with community groups, and with families and individuals. HUD has a budget of approximately0 $32 billion, which enables it to have a big impact on American communities.[16] Some key objectives for the HUD are:

- Creating opportunities for homeownership
- Providing housing assistance for low-income persons
- Working to create, rehabilitate and maintain the nation's affordable housing
- Enforcing the nation's fair housing laws
- Spurring economic growth in distressed neighborhoods
- Helping local communities meet their development needs

The background on this department is included because its objectives are to stimulate the economic growth in communities. It would be difficult for the communities of Chelsea to empower themselves without economic growth.

Federal Aviation Administration (FAA)

The Federal Aviation Administration (FAA) is the element of the U.S. government with primary responsibility for the safety of civil aviation. The FAA was originally designated the Federal Aviation Agency when established by the Federal Aviation Act of 1958. The present name was adopted in 1967 when the FAA

[15] "HHS Agencies" 24 January 2002 <http://www.hhs.gov/agencies/> (31 January 2002).
[16] "Fiscal Year 2001 Annual Performance Plan" March 2000 <http://www.hud.gov/app2001.pdf > (7 February 2002)

became a component of the Department of Transportation. Background on the FAA is required to gather knowledge on the noise constraints that are enforced in the New England area.

APPENDIX E. RELEVANT DATA

STA.	CITY/TOWN	ROUTE/STREET	LOCATION	1993	1994	1995	1996	1997	1998	1999	2000
8010	CHELSEA	BEACON ST.	UNDER RTE.1			1,100			1,500		
S002	CHELSEA	CRESCENT AVE.	EAST OF EASTERN AVE.	1,300							
S001	CHELSEA	CRESCENT AVE.	WEST OF EASTERN AVE.	2,300							
S004	CHELSEA	EASTERN AVE.	NORTH OF CRESCENT AVE.	16,000							
S001	CHELSEA	EASTERN AVE.	NORTH OF GRIFFIN WAY					17,500			
S003	CHELSEA	EASTERN AVE.	SOUTH OF CRESCENT AVE.	15,000							

Table 4 Average Daily Traffic Counts for Chelsea collected by MassHighway

STA.	CITY/TOWN	ROUTE/STREET	LOCATION	1993	1994	1995	1996	1997	1998	1999	2000
S019	BOSTON (EAST BOSTON)	CHELSEA ST. BRIDGE	AT CHELSEA C.L.					21,800			
S018	BOSTON (EAST BOSTON)	MERIDIAN ST. (McARDLE)BRIDGE	AT CHELSEA C.L.					24,900			
8008	BOSTON (EAST BOSTON)	PORTER ST.	NORTH OF CHELSEA ST.								
8108	BOSTON (EAST BOSTON)	RTE. 1A	AT RAMPS TO LOGAN AIRPORT					31,600			
9003	BOSTON (EAST BOSTON)	RTE. 1A	CALLAHAN TUNNEL (OUTBOUND)	42,962	47,978	49,567	36,494				
9002	BOSTON (EAST BOSTON)	RTE. 1A	SUMNER TUNNEL (INBOUND)	45,468	45,651	47,093	44,414	41,518	37,392		35,119
8009	BOSTON (EAST	SARATOGA ST.	WEST OF BOARDMAN	9,300			7,500			8,100	

	BOSTON)		ST.								

Table 5 Average Daily Traffic Counts for East Boston collected by MassHighway

APPENDIX F METHODOLOGICAL DATA COLLECTION FORMS

OPEN SPACE

ID# _____

Name: _____

Entrance Location: _____

Characteristics:		Use:	
Trees	☐	Playground	☐
Grass Area	☐	Ball field	☐
Pavement	☐	Garden	☐
Flowers	☐	Paths (Walking/Biking)	☐
Shrubbery	☐	Plaza/Square	☐

Other (specify):

Equipment:

Operational Hours: day of the week from to

Photograph Disk and Number(s):

Safety Criteria:

Entrance located on busy street or intersection	yes	no	
Guard on duty/surveillance	yes	no	
Sharp objects (glass, metal, etc)	none	few	many
Old, rundown/broken equipment	none	few	many
Property enclosure (fence, wall, etc)	no	partial	yes
Good Lighting	no	partial	yes
Vandalism (graffiti)	no	partial	yes

Cleanliness:

Number of trash receptacles _____

Landscaped yes/no

Figure 47 Open Space Form

Date (MM/DD/YY): _____ S M T W Th F S Station#: _____

TIME																					
	C	B	T2	T3	>T4	C	B	T2	T3	>T4	C	B	T2	T3	>T4	C	B	T2	T3	>T4	C

LEGEND:
C = car, pickup, SUV, van, motorcycle, **B** = MBTA, coach bus, school bus
T2 = 2 axle trucks (6 tire), **T3** = 3 axle trucks, **>T4** = 4 or more axle trucks (tractor-trailer)

Figure 48 Traffic Count Form

APPENDIX G CRA CHAPTERS

CHELSEA CREEK COMMUNITY BASED COMPARATIVE RISK ASSESSMENT
CHAPTER 4 TRAFFIC

Overview of Traffic in the Chelsea Creek Community

Traffic is a concern to every community. Traffic poses risks of injury to pedestrians and children playing near the street plays an integral role in the public and environmental health of a community. Both Chelsea and East Boston are densely populated communities located adjacent to several major roadways serving the City of Boston, including Routes 1, 1A and 16. Chelsea and East Boston are also home and adjacent to many industries that use trucks to transport their goods. As a result, there are a large number of trucks that pass through these communities on a daily basis.

There are many public and environmental health concerns related to traffic. Vehicle exhaust, fumes from gas stations and fuel storage, tire dust, and evaporating paints from auto body shops contribute to air pollution, affecting human health[17] (for more on Air Quality and Noise, see Chapters 2 and 6). The water quality of local rivers like the Chelsea Creek is also affected by transportation. Cars and other vehicles release metals such as cadmium, chromium, copper, lead, and mercury as a result of tire and brake wear, as well as through the exhaust pipe. These metals settle on the ground and are washed by rain into rivers. Water also becomes polluted as a result of improperly disposed of motor oil. In addition, it is estimated that 250 million gallons of oil leak from motor vehicles each year. Oil and road salt that are deposited on roadways also wash into water bodies such as the Creek. In addition to the air and water quality issues surrounding transportation, heavy traffic has been found to lower property values, undermine the cohesiveness of a community, increase crime, and cause noise pollution.

Even though there are many environmental and public health problems associated with traffic, there is no one agency that regulates traffic and its effects. The Federal EPA establishes water and air quality standards that relate to traffic such as the Non-point Source Management Program and vehicle emission standards, and the Massachusetts Department of Environmental Protection (DEP) implements these regulations. Roadways are also regulated by more than one governmental body. Jurisdiction of roadways fall under Federal, State, or local regulations, and under policies of independent authorities. Some of the highways are controlled by the Massachusetts Highway Department (MHD), and others by the Massachusetts Turnpike Authority (MTA) and the Metropolitan District Commission (MDC). Local governments also

[17] *City Routes, City Rights: Building Livable Neighborhoods and Environmental Justice by Fixing Transportation*. Conservation Law Foundation. June 1998, page 13.

have the power to impose truck exclusions under Chapter 85 of the Massachusetts General Laws. Given this complexity of oversight, it can be difficult for a community to get information on the regulatory process let along alone change traffic patterns and use of a particular roadway.

Review of Existing Chelsea and East Boston Traffic Information

There is little data on traffic within the communities of Chelsea and East Boston, and the research that exists has been conducted as part of a more comprehensive study of the greater metropolitan area. Much of the research has focused on trucks most likely due to the size and weight of trucks and the potential for trucks to impact road conditions and air quality. Many of the residents surveyed as part of the Comparative Risk Assessment specifically mentioned trucks as a traffic concern. Specific available data, gathered by the Central Transportation Planning Staff (CTPS), includes the following:[18]

- 775 trucks use the Carter Street exit (Chelsea) off of Route 1 daily
- 67 of these trucks are classified "hazardous," 8.6% of the total number of trucks exiting on a daily basis
- The Tobin Bridge carries over 5,000 trucks daily

In addition to the data above, research has been done by the CTPS on the number of daily truck trips within Chelsea and East Boston. The data is not broken down into types of trucks, nor is truck density within these communities addressed.

Average daily vehicle counts are also available for specific intersections and roadways. The Massachusetts Highway Department publishes Massachusetts Traffic Volume Counts each year for different intersections. The data from Chelsea and East Boston is listed below in Table 1.

Table 1 Average Daily Traffic Counts for Chelsea and East Boston

	1995	1996	1997	1998	1999	2000
Chelsea						

18Ibid, 40

Beacon Street Under Route 1	1100			1500		
Eastern Ave., North of Griffin Way			17,500			
East Boston						
Chelsea St. Bridge			21,800			
Meridian Street Bridge			24,900			
Route 1A at Ramp to Logan Airport			31,600			
Route 1A, Callahan Tunnel Outbound	49,567	36,494				
Route 1A, Sumner Tunnel Inbound	47,093	44,414	41,518	37,392		35,119
Saratoga Street, West of Boardman Street		7,500			8,100	

Massachusetts Highway Department, Massachusetts Traffic Counts

Community members have also done some traffic counts along major truck routes. The Chelsea Green Space and Recreation Committee Youth Environmental Crew counted cars, diesel trucks, buses, and other vehicles at the heavily trafficked intersection of Marginal Street and Williams

Street. The study covered two two-hour periods during the work day; an average of 3400 vehicles, 285 of which were trucks, entered the intersection during each 2 hours period.

While all traffic is a priority issue to residents, truck traffic in residential areas is of particular concern. Chapter 85 of the Massachusetts General Laws grants municipalities in Massachusetts the power to exclude trucks from a section of roadways. All truck exclusions within Massachusetts must include the following characteristics:[19]

- The excluded roadway must be owned by the municipality
- The size of the truck to be excluded must be specified, usually greater then 2.5 tons carrying capacity
- The time period during which the exclusion is in force is specified
- Only through traffic is excluded; local access is allowed
- MHD must grant a permit before any "No Trucks" signs are posted

All truck exclusions must be approved by the MHD. A municipality interested in changing the status of a roadway to exclude trucks, must submit a proposal to the MHD. The proposal must include significant analysis supporting its application and show that "a suitable alternate route is available."[20] There are a number of truck exclusions in place within both Chelsea and East Boston. These exclusions are outlined in Table 2. All truck exclusions listed are in effect 24 hours a day.

[19]Ibid, 25

[20]Ibid, 26

Table 2 Truck Exclusions in Chelsea and East Boston					
Municipality	**Permit Number**	**Exclusion Street Name**	**From**	**To**	**Alternate Route**
Chelsea	E-B-057-6040	Broadway	Crescent Ave.	Eastern Ave.	Truck route established by city
	E-B-057-6040	Broadway	Gerrish Ave.	Williams St.	Truck route established by city
	E-B-057-6040	Chestnut St.	Williams St.	Everett Ave.	Truck route established by city
	E-B-057-6040	Cross St.	Broadway	Park St.	Truck route established by city
	E-B-057-6040	Everett Ave.	Tobin Bridge On-Ramp	Broadway	Truck route established by city
	E-B-057-6040	Library St.	Highland St.	Broadway	Truck route established by city
	E-B-057-6040	Nichols St.	Eustis St.	Everett city line	Truck route established by city
	E-B-057-6040	Park St.	Williams St.	Central Ave.	Truck route established by city
	E-B-057-6040	Pearl St.	Williams St.	Park St.	Truck route established by city
	E-B-057-6040	Second St.	Arlington St. Extension at NE X-Way	Park St.	Truck route established by city
	E-B-057-6040	Spencer Ave.	Cary Ave.	Eastern Ave.	Truck route established by city
	E-B-057-6040	Stockton St.	Eastern Ave.	Parkway Plaza	Truck route established by city
	E-B-057-6040	Webster Ave.	Tobin Bridge Off-Ramp	Eastern Ave.	Truck route established by city
	E-B-058-7019 A	Tremont St.	Medford St.	Williams St.	Broadway, Williams St., Winnisimmet St.
	E-B-058-7019 A	Medford St.	Broadway	Tremont St.	Broadway, Williams St., Winnisimmet St.
	E-B-058-7019 A	Beacon St.	Broadway	Winnisimmet St.	Broadway, Williams St., Winnisimmet St.
	E-B-058-7019 B	Beacon St.	Broadway	Chestnut St.	Broadway, Williams St., Chestnut St.

East Boston	13129	Maverick St.	Chelsea St.	Airport Rd.	

3. Analysis of Existing Traffic Data

The data that are available for Chelsea and East Boston do not fully portray the impacts on air quality, noise, and road congestion that traffic imposes on the community. Traffic counts do not reflect the impact of air quality of vehicles idling in traffic jams or along curbs. Road congestion increases the number of vehicles standing idling. Idling by trucks, buses, and cars as they wait to load or unload passengers or cargo also represents a source of air pollutants. Unless a vehicle requires engine power to be maintained, idling for more than five minutes is against Massachusetts state law (Massachusetts General Law Chapter 90, Section 16A). Data on the prevalence of idling vehicles is not available.

While a survey of road signs revealed that most of the truck exclusion routes are marked with a sign indicating limits on vehicle size, exclusions may not be strictly enforced. Compliance with local truck exclusions is the jurisdiction of the City Police. In addition, the establishment of truck exclusions concentrates truck traffic on other streets. A comprehensive truck route evaluation should be conducted in order to determine if truck patterns should be further altered.

Although truck traffic has particular impacts on the communities of Chelsea and East Boston, non-truck traffic affects the community as well. Chelsea has one of the highest car insurance rates in the state of Massachusetts. The number of traffic accidents in the community has been sited as a reason for this. However, there has not been a study to determine how many of the accidents involve drivers from outside of Chelsea. A survey of police accident reports would serve to determine the percent of accidents that involve residents. Further, a traffic study would serve to determine the percentage of truck and non-truck traffic within Chelsea and East Boston.

Chelsea is located just a few miles from the city of Boston, yet the commute for some residents can take as long as 2 hour, and can involve two or three transfers.[21] This is due to a lack of comprehensive public transportation. In 1995, the cities of Boston, Chelsea, Everett, Somerville, Cambridge, and Brookline signed a compact in which each of these cities "commit to identify economic development, social services, retail, educational, residential and parkland projects to be integrated with the MBTA's circumferential transit project and to incorporate both the transit elements and other projects into each municipalities' General Plan."[22] The Circumferential Ring Regional Planning Compact hinges on the development of a 14 mile circular transit corridor which would connect the "spokes of Boston's downtown-centered transit system." Although the proposed Urban Ring would carry as many passengers as the orange and red lines, there has not been any move to begin this project.

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21 Conservation Law Foundation: *Where is the Urban Ring*? http://clf.org/advocay/urban1.htm

22 Ibid

4. Potential Concerns for Public Health and the Environment

Air
Vehicles emit a number of pollutants which negatively impact public health. Table 3 lists some of the pollutants emitted by vehicles, and the potential health implications of these pollutants.

Table 3 - Potential Health Implications of Vehicle Emissions

Pollutant	Potential Health Implication
Hydrocarbons	React with nitrogen oxides and sunlight to form ground-level ozone. Ozone irritates the eyes, damages the lungs and aggravates respiratory problems. A number of exhaust hydrocarbons are toxic, and have the potential to cause cancer.
Particulate Matter (PM2.5)	Very small particles can be inhaled into the lower respiratory system. PM2.5 can cause asthma and other respiratory problems. PM2.5 has also been linked to heart attacks and lung cancer.
Carbon Monoxide	Reduces the flow of oxygen to the bloodstream. In urban areas where carbon monoxide is more concentrated, the central nervous system and heart are affected. Symptoms include headache, fatigue, and dizziness.
Carbon Dioxide	Does not directly impair human health, but it is a greenhouse gas and thus contributes to the potential for global warming

A link has been established between pollutants produced by traffic and increased asthma incidence. Researchers have found that as levels of certain air pollutants increase, the number of asthma-related hospital admissions also rises. For example, a study in Birmingham UK showed that children with diagnosed asthma were more likely to live within 500 meters of a main road than children admitted for non-respiratory reasons, or children chosen at random from the community. This conclusion is further demonstrated by a study of paved road dust conducted by members of the Environmental Engineering Science Department of the California Institute of Technology. In the study more than 30 different biologic source materials were found in paved road dust. Among the materials identified were: pollen, pollen fragments, animal dander, mold, exhaust particulates, tire dust, brake lining wear dust and plant fragments. These materials are known to exacerbate allergenic disease in humans. Most significantly, the study found that when paved road dust is re-suspended into the atmosphere by passing vehicle traffic, allergen concentrations in the air are increased above the levels that would occur without the vehicle traffic.[23]

A study of childhood asthma attacks during the 1996 Summer Olympics in Atlanta supported these findings. During the Olympic Games, traffic count dropped considerably because of

23Miguel, Ann et. al. "Allergens in Paved Road Dust and Airborne Particles." *Environmental Science Technology*. 33 (23), 4159-4168, 1999

efforts to discourage residents from driving into the city. The reduction in traffic corresponded to improved air quality and a 42 percent reduction in medical visits for asthma attacks (Friedman, et al., 2001).

In addition to triggering asthma attacks, air pollutants such as ozone may also cause asthma in exercising children (McConnell, et al., 2002). This is of particular concern since many of the parks in Chelsea and East Boston are located close to major roadways (see Chapters 3 and 4).

An analysis of nationwide emissions has shown that vehicular emissions account for more than 50 percent of all hazardous air pollutants (HAPs) released to the atmosphere. The impact of traffic on air quality is directly linked to the number of vehicle miles driven, and therefore, community planning and development to encourage other modes of transportation should be implemented to reduce traffic and vehicular emissions. For more information on the links between traffic, air quality, and asthma, see Chapters 2 and 5.

Noise

Residents of Chelsea and East Boston have expressed concern over noise and vibrations generated by traffic, specifically truck traffic, through their communities. Parameters that contribute to traffic noise and vibrations include: pavement surface roughness, vehicle weight, vehicle speed, and the vehicle suspension system.[24] Another source of noise related to traffic is Jake brakes. Jake brakes are engine compression brakes that are used by truckers on steep grades and when a trucker wishes to save wear and tear on a truck's normal brakes. It is possible to ban the use of Jake brakes if it can be shown that they are not necessary in the specified area.[25] More information on noise is included in Chapter 6.

Diesel Exhaust

Although diesel engines use less fuel per mile traveled than gasoline engines, diesel burning vehicles produce some of the emissions with the highest impact on health. Diesel produces a large quantity of nitrogen oxides (NO_x) which contributes to the formation of ozone (O_3) smog. Diesel also produces particulate matter (PM) consisting of small particles (less than 2.5 microns in diameter). These particles are the most harmful type of particulate matter because they can be inhaled more deeply into the respiratory system.[26] Diesel is used extensively by trucks, buses, construction equipment, and by some trains.

24Ibid, 88

25Ibid

26*City Routes, City Rights: Building Livable Neighborhoods and Environmental Justice by Fixing Transportation*. Conservation Law Foundation. June 1998, page 56

Small particulate matter produced by diesel combustion has been linked to heart attacks and asthma, and there is increasing evidence that diesel exhaust or diesel particulate matter may cause lung cancer in humans. Non-cancerous effects such as lung damage and respiratory problems are also associated with exposure to diesel exhaust.[27]

Traffic Injuries
Over recent years there have been several accidents involving trucks exiting too quickly off the Tobin Bridge and crashing into the homes of Chelsea residents. In June of 2000, a truck careened off the Tobin Bridge and crushed a car on Chestnut Street. The woman driving the car was killed. In May, 2001, a truck exiting from Route 1 beyond the Tobin Bridge lost control and crashed into a home, injuring three residents. These incidents have highlighted the concerns of the residents about traffic safety and trucks in residential neighborhoods.

5. GIS Maps of Available Traffic Data and Information

The attached map shows the primary routes through and around Chelsea and East Boston. The roads shown in green are part of the National Highway System (NHS), meaning that federal funds may be used for road maintenance. Some of these routes are owned by the state, others are locally owned but have a state route number, and others are owned by the MDC. Routes within the NHS generally cannot have truck exclusions, and parkways with existing truck exclusions (such as Storrow Drive) which were included in the NHS had to have alternative truck routes designated.

The map also shows local roads through Chelsea and East Boston where truck exclusions are already in place. As shown in pink, there are numerous exclusions in Chelsea, which concentrates truck traffic on Marginal Street.

There is not enough traffic count data to produce a map showing the areas that might be impacted most by traffic, but the map produced for noise impacts (See Chapter 6) shows the locations of industrial and commercial enterprises which might contribute to heavy traffic flow. Residential areas which are likely to be the most impacted by noise and traffic are also shown on this map.

6. Current Traffic Projects or Activities in Chelsea and East Boston

Chelsea and East Boston residents have long worked to improve traffic conditions in the community as they relate to traffic injuries, air quality, traffic congestion, and parking. The Chelsea Green Space and Recreation Committee conducted traffic surveys over a two-day period at the Marginal Street and Williams Street intersection, and individual residents have done traffic

27Ibid

counts near their homes to assess the impact of trucks and other vehicles. A broader effort to study traffic in the Chelsea Creek community could be built on these efforts.

The Chelsea Waterfront Association has been working on two traffic related projects: closing and rerouting of trucks from the Beacon Street off-ramp and the implementation of resident-only parking restrictions near the court house. The Beacon Street off-ramp closed to all traffic after the truck accident in May 2001, and the re-opening of the ramp in August 2001 to all traffic except for trucks over 8 tons is being evaluated. Signs and other means of diverting trucks are currently being installed and evaluated.

7. Greatest Traffic Concerns for Residents

Many of the residents surveyed listed truck traffic as a primary concern both because of air quality impacts and because of safety concerns for drivers, pedestrians, and residents. The routing of trucks through residential neighborhoods is of particular concern because of the noise created by trucks and because it puts residents in close proximity with the effects of truck traffic.

Other vehicular traffic including passenger cars, buses, barges, and construction equipment are also a concern because of their contributions to air pollution, congestion, and traffic injuries. Limited access to public transportation and city planning that encourages car-dependency are two longer-term issues that should be addressed in order to reduce vehicular traffic through the community.

8. Recommendations to Address the Greatest Traffic Problems

The highest priorities for Chelsea Creek residents fall into two categories: efforts to mitigate the effects of truck traffic and longer-term traffic planning work.

Community Actions

- Work with the Cities of Chelsea and Boston to improve signage throughout the community. Truck exclusion routes should be checked to see if they are marked, and missing signs should be noted and reported.
- Distribute truck exclusion map to local trucking companies
- Distribute anti-idling information to buses, trucks, and cars and work with local police to increase enforcement of anti-idling laws.
- Conduct vehicle counts at more intersections using standardized methodology

Longer-Term Priorities

- Work with U.S. EPA, truck companies, and Massachusetts Port Authority to encourage the use of low-sulfur diesel in trucks and buses. Prioritize industries related to airport services and buses.

- Work with neighboring communities to conduct traffic and truck route planning. The impacts of increased parking capacity and new construction should also be included
- Work to improve public transportation to East Boston and Chelsea. Evaluate ridership and MBTA investment and the feasibility of light rail.
- Establish alternative transportation methods such as bike and walking lanes and carpooling.
- Review traffic accident data (police reports, 911 calls) to determine the percentage of traffic accidents that involve out-of-town drivers, and the percentage that involve drivers from Chelsea and East Boston.
- Urge the Cities of Chelsea and Boston to conduct a study to examine the impacts of airport and airport related traffic on the region

Personal Choices

- Limit vehicle use by using public transportation or carpooling.
- Choose a high fuel efficiency car

9. Contact List

The following is a list of government agencies and community organizations which are involved in transportation planning and traffic issues.

Boston Metropolitan Planning Organization ..... (617) 973-7100
www.ctps.org/bostonmpo

Central Transportation Planning Staff, Bill Kuttner ..... (617) 973-7132
www.ctps.org

Massport Community Affairs Office, Dorothy Steele ..... (617) 568-3705

Publications:

Brugge, Doug, Zenobia Lai, Christina Hill, William Rand. *Traffic Injury Data, Policy and Public Health: Lessons from Boston Chinatown*. 2001 (Draft Publication)

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CHELSEA CREEK COMMUNITY BASED COMPARATIVE RISK ASSESSMENT
CHAPTER 3: OPEN AND GREEN SPACE

1. Overview of Open and Green Space in the Chelsea Creek Community

Open and green space play a critical role in the vitality, livability, and environment of cities. There are many different types of open and green space, each with particular benefits. Open space such as plazas or squares provide residents the opportunity to gather and socialize. Playgrounds and ballparks provide a place for recreational activities. Community gardens can replace the negative impacts of vacant lots with productive, vital space and build personal investment in a neighborhood. In addition to these direct benefits, the availability of recreational space has been correlated with physical health and reduced obesity. Providing youth the option of outdoor recreation has been shown to reduce juvenile crime in cities, and exposure to nature on open and green space has been found to increase attention span and improve brain functions of children and adults (Wells, 2000). Green space, or areas planted with grass, plants, and trees, also offers environmental and public health benefits. Green space improves the air quality of a community and provides environmental benefits. Trees provide natural cooling which reduces the production of ozone, a major air pollutant in cities, and block dust dispersion. Trees also remove carbon dioxide from the air which helps counteract the greenhouse effect and global climate change (Nowak, 1999). Some areas can be considered both open and green space, for example, some parks offer a place to congregate as well as recreational and environmental benefits. However, the distinction between open and green space and recreational and non-recreational space is important because not all areas that are designated as open or green space provide the same benefits.

In spite of the importance of open and green space to the quality of life of residents, there are no federal regulations mandating preservation of open space. At the state level, an article in the Massachusetts Constitution prohibits the use of public open space for other uses unless it is approved by two-thirds of the state legislature, but this has not prevented the loss of open space. Some Massachusetts communities such as Boston, Cambridge, and Brookline have detailed open space plans which set priorities for green space preservation and maintenance. Open space planning identifies open space preservation objectives and potential projects, and the process of open space planning also makes cities eligible for State and Federal funding. However, the planning process does not ensure implementation of projects. The City of Chelsea conducted open space planning in 1994. The plan outlines 32 different rehabilitation, development, and maintenance projects as part of a 5-year projection, but most of these goals were not achieved. The plan is currently being updated and should be available by May 2002.

East Boston open space planning is included in the City Boston report, "Open Space Plan 2002-2006: Renewing the Legacy" which will be released by the this spring by the City of Boston Parks and Recreation Department.

Both Chelsea and East Boston have a shortage of quality open and green space and have lost parks and playgrounds because of the construction of new schools. The Chelsea Creek is a unique natural resource for both Chelsea and East Boston, and one that could provide recreational and educational benefit to the community, but there is currently no access or recreational space available to residents along the Creek. The area along the Creek is a Designated Port Area (DPA), meaning that development along the Creek must be consistent with water-related and port uses which tend primarily to be industrial. Massachusetts Coastal Zone Management allows some non-water dependant industries to be sited along a DPA, as long as that activity does not impair the long-term water dependant usage of the Creek or industrial port activity, but recreational uses have not traditionally been allowed. Currently, the Creek is lined with industries including oil storage depots, a shipyard, a salt storage pile, and large scale parking or car storage lots.

Review of Existing Chelsea and East Boston Open/Green Space

The East Boston community lost a large portion of open and green space when Logan Airport was constructed in 1966. In recent years, the development of Piers Park, Harbor Walk, the East Boston Greenway, and four public school yards have provided some open space, but not all open space has public access or adequate facilities. There are several different accounts of the acreage of open space in East Boston; the difference may be attributable to different definitions of what is considered open space. In fact, there is not a consistent definition of open and/or green space, so different organizations and government agencies have their own definitions. For example, the Boston Parks and Recreational Department figure is 9.6 acres of open space per 1000 residents. The Boston Foundation report, "The Wisdom of Our Choices: Boston's Indicators of Progress, Change and Sustainability 2000" estimates that East Boston has 13 acres of open space per 1000 residents. For the purposes of this report, several different categories of open space will be calculated: total open space, total green space, and total recreational space. Recreational and green space are both subsets of total open space. Areas that are privately owned or do not provide benefits to the community are not included in this count. A full listing of open space including the total acreage and a description of facilities is provided in Table 1.

Table 1 - Open Space in East Boston

Name	Acres	Green?	Recreational Facilities*	Comments
Alighieri School	.51	no	2,3	
American Legion Playground	3.4	yes	2,3	
Bayswater Street	1.7	yes		Not included in open space calculation
Belle Isle Fish Company	1.7	no		Contaminated site- not included in open space calculation

Belle Isle Marsh	143	yes	1,4	
Bennington Street Cemetery	3.6	yes		Cemetery
Brophy Park	.69	yes	1	
Central Square	.9	yes	1	
Condor Street Overlook	11.4	no		Underwater - not included in open space calculation
Condor Street Urban Wild	4.5	no		Site will be developed into a park but is currently not accessible to public.
Constitution Beach	25.4	yes	3,6	
Cuneo Park (Saratoga St.)	.23	no	2	
Decatur & Meridien Park	.3	yes		
Dom Savio Athletic Field	3.1	yes	3	Private property
Don Orione	4.7	yes		
Eagle Hill Memorial Park Garden	.2	yes	5	
East Boston Greenway	3.2	yes	4	
East Boston High School	1.8	yes	1	
East Boston Memorial Park	17.7	yes	1,2,3,4	Right next to highway and airport
Golden Stairs	.3	yes		
London Street Play Area (Decatur Street)	.13	yes	2,3	
LoPresti Park	10.7	no	2,3	
Marginal Street Gardens	.26	yes	5	
Maverick Square	4.4	no		Not included in open space calculation
McLean Playground	.43	no	1,3	
McKay School	1.7	no	2,3	
Noyes Playground	8.3	yes	2,3	
O Donnell School	.63	no	2,3	
Otis Elementary School	.78	no	2,3	
Paris Street Playground	2.3	no	2,3	
Piers Park	16	yes	2,6	
Porzio Park	2.4	no	2,3	
Prescott Square	.28	no	1	

Putnam Square	.3	yes	1	
Suffolk Downs Infield	28.3	no		Not included in open space calculation
Sumner and Lamson Street Playground	.48	no	2	
Temple Ohabei Shalom Cemetery	2.3	yes		Cemetery
Umana Barnes School Park	2.4	no	2,3	
Wood Island Bay Marsh	68.1	yes		Private property - not accessible to public

* Use of Open/Green Space

1-passive space
2-playground
3-ballfields/courts
4-walking or biking path
5-garden
6-other

Based on this table, the total open space in East Boston is 8.3 acres per 1000 residents. This is lower than the City of Boston estimate because certain sites were not included. For example, the Suffolk Downs Infield and Maverick Square were removed from the open space list because they are heavily trafficked areas which do not provide open space benefits to the public. The total green space in East Boston is 4.3 acres per 1000 residents, approximately half of the open space because much of the open space is paved without grass or trees. Recreational space is slightly lower, at 3.2 acres per 1000 residents. While there are benefits of non-recreational open space, areas such as the Wood Island Bay Marsh or the cemeteries are not accessible to the public or appropriate for community use.

Chelsea is surrounded by potential waterfront open space areas, but much of that land falls within the Designated Port Area and has no public access. The City of Chelsea has 18 parks, including school playgrounds. The parks give Chelsea approximately 65 acres of open space for 35,000 resident. This is equal to 2.0 acres per 1,000 residents. However, when only accessible recreational space is included in this calculation, the figure becomes 1.7 acres per 1000 residents (see Table 2).

Table 2 - Open Space in Chelsea

Name	**Acres**	**Green?**	**Recreational Facilities**	**Comments**
Bellingham Hill Park	.38	yes	1,2	
Bosson Park	.73		2	under construction
Carter Park/High School	3.9	yes	2,3	Part of High School Complex
Dever Park	.28	yes	2,3	
Eden Park	.22	yes	2	

Garden Cemetery	3.14	yes		
Highland Park	3.33	yes	1,2,3	
Malone Park	1.46	yes		
Mary C. O'Burke Elementary School	4.9	yes	2,3	
Mary O'Malley Park	35	yes	2,6	
Memorial Stadium	7.39	yes	3,4	Part of High School Complex
Polonia Park	.39	yes	2	
Quigley Park	.55	yes	2,3	
Shurtleff School	.14	no	2	
Voke Park	3.27	yes	2,3	
Washington Park	1.68	yes	1	
Williams Middle School		no	3	
Zaitz O'Neill Tot Lot	.09	no	2	

1-passive space
2-playground
3-ballfields/courts
4-walking or biking path
5-garden
6-other

Development and preservation of open space and parks is often limited by the availability of land. Vacant lots are an opportunity to add open space and take advantage of an underutilized resource. Vacant lots often represent negative impacts to a community; they attract illegal waste dumping and activity, but can potentially be converted to community gardens or tot lots, adding much needed open or recreational space to dense urban areas. Approximately 121 vacant lots have been identified in Chelsea (Chelsea Greeenspace, 2001). An inventory of these sites found many to be overgrown and littered with trash. Others may be contaminated with industrial waste or lead and may require some treatment before the land can be safely used. Soil sampling is a tool that can be used to determine whether or not a vacant lot is contaminated.

More information about the vacant lots including whether the owner is known, if taxes are paid on the property, and if contamination is likely to exist should be collected so that the potential for conversion of these lots into useable public space can be assessed. The City of Chelsea currently has a program to encourage the owners of abandoned houses to rehabilitate property or turn the lots over to receivership. A similar program for abandoned vacant lots could be implemented to return these lots to productive use.

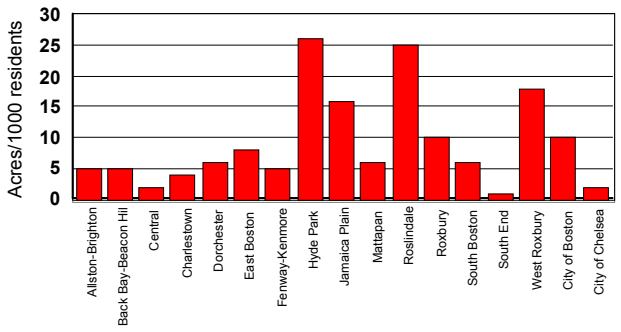
Vacant lots have not been identified in East Boston; a similar study should be conducted in order to determine the potential for green space development in East Boston.

3. Analysis of Existing Open Space Data

The definition of open and green space typically includes areas that would be accessible to residents such as recreational space, and conservation land, as well as some areas that might not be accessible to the public such as parkways (green areas along roads) and cemeteries. As calculated above and shown in Figure 1 (graph), Chelsea and East Boston have less open space per 1000 residents than many other Boston area neighborhoods. The area of developed park land, as defined by the availability of public facilities such as playground equipment or ball fields is much lower than the National Recreation and Park Association recommendation of 6 to 10.5 acres per 1000 resident.

The numbers, while useful for comparison, do not provide information about the location, quality, and public access to open and green space and the level of maintenance invested. The 1994 survey of Chelsea residents conducted for the Open Space Plan as well as the survey conducted as part of the CRA found that many residents were dissatisfied with the current parks. Equipment maintenance and safety were the two primary issues of concern. Residents mentioned that drug and gang activity kept them from using the parks. Others noted that the locations of the parks made it difficult for residents to use them. Mapping shows that the existing parks are not evenly distributed throughout the community. As shown on the attached map, some of the most densely populated residential areas close to the Creek do not have parks.

Figure 1 Open Space in the Boston Area



Note that only East Boston and Chelsea numbers have been verified

- **Potential Concerns for Public Health and the Environment**

As the natural resources available to Chelsea and East Boston are developed or dedicated to industrial uses, the benefits associated with open and green space are lost. The designated port area limitations have not allowed community residents to use or enjoy the Chelsea Creek as a natural resource; instead the communities are surrounded by industrial and commercial facilities which add to the degradation of water and air quality and contribute to public health problems including asthma and respiratory disease (see previous chapters).

It should also be noted that many of the parks and ball fields of Chelsea and East Boston are located close to major roadways or the airport. A recent study suggests that children who participate in sports in heavily polluted communities have a higher chance of developing asthma (McConnell, et al., 2002).

The reduction in green space in East Boston and Chelsea may have impacts on the immediate environment; trees have been found to reduce the temperature, noise, and pollution levels of

urban settings. Areas planted with trees and grass also improve water quality by filtering pollutants that run off of roads before they can reach the Creek. The opportunity to interact with nature through open space, urban gardens, or parks improves a neighborhood's image and provides an opportunity for community interactions and investment. Participation in the community reduces crime by increasing the "willingness to intervene on behalf of the common good" and by providing opportunities for youth activities. Individual stress, created by the impacts of urban noise and pace, are mitigated through interactions with green space. Rates of cardiovascular disease, the highest cause of death among the elderly, can be lowered through walking or other recreational activities; green and open space provides the opportunity for these activities.

These intangible benefits have been quantified through psychological profiles and studies of real estate value. A study of apartment residents found that satisfaction with a community was correlated to proximity to trees, green space, and areas for walking and recreation. Studies have shown that urban property is more valuable when located close to city parks or greenways (Phillips, 2000).

- **GIS Maps of Open Space Data**

The attached maps show the locations of open space listed in Table 1. Open space without public access, parks with facilities such as ball parks, and tot lots with playground equipment are color coded to clearly show the availability of facilities to different neighborhoods.

- **Current Open Space Projects and Activities**

Many organizations including Chelsea Green Space and Recreation Committee (Green Space), Neighborhood of Affordable Housing (NOAH), the City of Boston, Boston Natural Areas Fund, and the Urban Ecology Institute have been actively working to improve and augment open space in the two communities. Current projects include the following:

Condor Street Urban Wild - The conversion of this parcel of contaminated land into useable park lands has been a goal of East Boston and Chelsea residents for over five years, but the funds needed to conduct remediation and create a safe recreation area were not available until this year. Development of this site is scheduled for 2003.

Mill Creek - Community groups have worked to revitalize the City's only salt marsh and improve access to the marsh for recreation and environmental education. In addition to marsh revitalization, a community visioning process for the adjacent 38 acre commercial site, slated for redevelopment, has been conducted. The community envisions a waterfront park with walkways and bike paths along the Mill Creek.
Conrail Site – The City of Chelsea and developers have committed to create a waterfront pocket park adjacent to the Creek and abutting a recent development on a former oil tank farm.

Community Gardens – There are two community gardens in the City of Chelsea and two in East Boston (Boston Natural Areas Fund). These locales provide gardening areas for approximately numerous families and youth groups.

Vacant Land Study – A group of Boston University graduate students conducted a study of

all of Chelsea's vacant lots. The purpose was to provide an inventory of all lots that could be developed into pocket parks, sidelots, and/or community gardens. Work is continuing to identify which sites are best for potential open space redevelopment.

Tree Inventory – A citywide inventory of all sidewalk trees in Chelsea has enabled the city to apply for Tree City USA status that would provide Chelsea with monies annually for new trees, and tree replacements. Although Chelsea has not yet been named a Tree City, more than 30 trees have been replaced or added to the city's sidewalks.

- **Open Space Concerns for Chelsea and East Boston**

Public access to open and green space for Chelsea and East Boston residents is a primary concern. The Creek and the soil contain much contamination; past oil spills must be cleaned up and other sources of pollution that exist must be mitigated before this natural resource can safely be utilized (see previous chapters). The other restraint which prevents the community from using of the Creek is its status as a Designated Port Area. The definition and regulation of a DPA make it difficult to convert designated areas for public access, but access to the Creek would provide numerous benefits to the community.

The other potential sites for open space development are vacant lots which may require intensive sampling and clean-up efforts. The conversion of vacant lots to small local pocket parks and community gardens could provide residents from different neighborhoods access to recreation while removing a source of negative impacts, but it will require technical and financial resources.

- **Recommendations**

4. Conduct a vacant lot inventory of East Boston and identify abandoned properties and tax lien lots to determine the potential for increasing open and green space.
5. Work with City government to implement sampling and clean-up and conversion of vacant lots and identification of abandoned buildings and property that could be converted to open space.
6. Continue to work to improve community access to Chelsea and Mill Creek
7. Complete work on the East Boston Greenway
8. Work with City government to produce new open space plans which include priority actions for increased open and green space.
9. Work with City government to block any more losses of public open space for other uses.

- **Contacts**

Chelsea Green Space and Recreation Committee, Roseann Bongiovanni ..... (617) 889-6080
Neighborhood of Affordable Housing, Stacey Chacker .....(617) 569-0059 x13
City of Chelsea, Department of Planning, John DePriest ..... (617) 889-8237
Boston Natural Areas Fund, Inc., Laurie Webster..... (617) 542-7696

National Recreation and Park Association: http://www.nrpa.org
Trust for Public Land: http://www.tpl.org
The Urban Parks Institute: http://urbanparks.pps.org

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