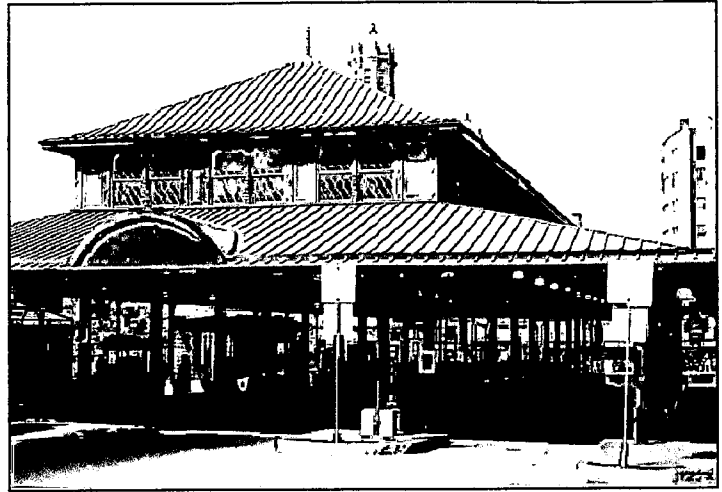


**Biotechnology
Development in
Roxbury:
Determining the
Implications of the
"Biotech Corridor"**



**Prepared for:

Alternatives for
Community and
Environment

Safety Net**

**Rosaura Vega
Ramsay Huntley
Heather Ross**

**Tufts University
Urban and
Environmental Policy
and Planning
Field Projects**

April 2003



Table of Contents

Executive Summary 3

Introduction..... 4

Research Methodology..... 5

History and Demographics 6

 Community Information 6

 Demographic Information 6

 History of ACE 7

 History of the Safety Net Struggle 8

 Previous Developments 8

Master Plans 9

 Roxbury Master Plan..... 10

 LMA Interim Guidelines 10

 Chinatown Master Plan 11

 Introduction to Biotechnology 13

 Risks and Benefits..... 13

 Biotechnology: Research & Development versus Manufacturing..... 14

The Potential Impacts of Biotech Development 14

 Benefits and Drawbacks to an Urban Location 15

 Impacts on Abutters 16

 Established Biotech Industry in Massachusetts and the Greater Boston Region 16

Biotechnology: Political and Economic Considerations 17

 Government Investment 17

 Tax Cuts and Subsidies 17

 Massachusetts Legislation 20

 Empowerment Zones..... 20

 Current Job Training and Readiness Programs..... 21

The Policy Arena in Roxbury 22

 Roxbury Residents 22

 The Mayor’s Office 22

 Governor 23

 MASCO 23

 Developers 24

 Academic Institutions 24

Recommendations 25

 Finalize and Enforce the Roxbury Master Plan 25

 Boost the Existing Local Economy 25

 Consider Other Potential Types of Economic Development..... 25

Conclusion 26

Appendix A..... 27

Appendix B..... 28

Appendix C..... 29

Appendix D..... 31

Appendix E..... 32

Appendix F 33

Appendix G 34
Appendix H 35
References..... 36

Executive Summary

Biotech development is a complicated, unique issue laced with political implications and economic risks. Even so, the city of Boston is vigorously pursuing further development in hopes that it will stimulate the city's economy. It is important for residents and community groups to be aware of the current developments and potential pitfalls that biotech could bring to the city.

With this in mind, this report has been prepared to help inform the stakeholders in the community and give them the information that will be needed to understand the current development issues. This report has been broken into several sections in order to present the research in a concise manner, and more importantly, to make it easy for future researchers to find pertinent information. This report gives a historical background of ACE and Roxbury using demographics and using GIS-generated maps to show the area with which Safety Net is working. Another important issue that has been included is the role of master plans within the community and the government. The Roxbury Master Plan (RMP), the Chinatown Master Plan, and the Longwood Medical Area Interim Guidelines are all examples that will be analyzed to give a perspective on how communities are taking part in development of their neighborhoods. The significance of these plans and the impacts that each has had on development is also discussed.

Development has long been a divisive issue in Roxbury. There are many aspects of development that must be considered. Biotech development is the specific area that is the focus of this research. A detailed discussion of it is included. This section includes an introduction to the biotechnology industry, the top firms and the role in the development within the greater Boston region. It is also important to consider what jobs may be offered and what this would mean for the community. This section also includes research on public subsidies and what the government and essential key players are doing to attract biotech firms into the region and the motivation behind a biotechnology corridor.

The main focus of this project is to produce a report that is not only informative, but also useful to our clients, Alternatives for Community and Environment and Safety Net.

Introduction

The goal of this report is to support Safety Net and ACE in their ongoing process of creating a unified community voice. The purpose is to help residents envision future development in their community and create a long-range plan. This report provides information necessary for residents to better understand what biotechnology is and the implications to their community.

Current biotechnology development has been analyzed to develop an understanding of how it might continue to go forward in the Boston area. The economic impact of biotechnology development on the community is discussed and analyzed specifically for the Melnea Cass Corridor's proposed development. Empowerment zones, such as Roxbury, are unique primarily because government incentives/subsidies promote development in this area. The current budget deficit in Massachusetts is pressuring the government to attract businesses into the region. It is because of these outlined issues that the goals originally set by the Memorandum of Understanding have been adjusted. The adjusted goals of the report have become:

- To identify social and economic considerations of the proposed biotech development in the Melnea Cass Boulevard sector of Roxbury.
- To provide information on the current progress and potential political developments that can influence future development.
- To empower the members of Safety Net/ACE to counteract development initiatives that affect residents. This will be accomplished through the sharing of information obtained through extensive research on biotechnology and the existing stronghold it has on the state of Massachusetts.

Research Methodology

As graduate students from the Urban and Environmental Policy and Planning department at Tufts University, our group has been asked to research the economic impacts of the development of a "biotech highway" along the Melnea Cass Corridor. This report has been prepared for Alternatives for Community and Environment (ACE) and Safety Net.

The first research priority was to become familiar with the background information behind the project and community efforts to participate in the development of the Roxbury Master Plan. As guidance to understand community participation in development, other master plans were analyzed. The team members collected information about the history of the struggles against the intrusion of development along the Melnea Cass Boulevard. Research was then done on the development in Roxbury and the feasibility of biotech development in the area. Specifically, data was collected on the biotechnology industry that the community and ACE were not able to attain. Internet research was used to collect background information on biotech industries and firms. Communication with residents was used to a lesser extent because little is known about biotech within the community. It is the team's job to inform residents about the biotech industry and development. In addition, information was gathered from standard sources such as newspaper articles, relevant writings, and through personal conversations with consultants with the Roxbury Master Plan. Finally, the team participated in a community meeting; the notes of this proceeding were also used to develop the final product.

History and Demographics

Community Information

Roxbury is a diverse community of nearly 82,000 people located in Boston, Massachusetts. The community is a unique and eclectic mix of cultures. It supports large African American, Latino, Creole, and Caribbean populations. This has led to a blending of cultures that is rarely found in the United States. Its prime location (only 3 miles from downtown) would seem to make it a desirable location for both residential and commercial development. Unfortunately, the area has never been as prosperous as the communities that surround it, especially those to the west and north.

Roxbury was founded by English colonists in 1630. At the time it was separated from Boston, but as marshes were filled over the following centuries, it became the geographic center of the city.¹ Roxbury was one of the first suburbs of the city, with train service beginning in 1835 between Providence and Boston. With the advent of electric trolley service in 1887, more people moved into the area and the three-decker style so prevalent in the region began to emerge.² According to the Boston Landmarks Commission, "Dudley Station itself opened in 1901 as the southern terminus of the Boston Elevated Railway, which ran to Sullivan Square in Charlestown and later became part of the Orange Line of the Massachusetts Bay Transit Authority".³ The area diversified in the early twentieth century as a Jewish community began to form in the area around Blue Hill Avenue. The area became predominately African-American in the 1940's and 50's as many African-Americans migrated from the South to Northern urban centers.⁴ This trend is still evident today.

Demographic Information

The following demographics are taken from information collected by Professor James Jennings which includes the groups living within the boundaries used for the Safety Net Catchment Area.⁵ As presented in the table, African-Americans are the largest ethnic group represented in the Roxbury area, making up 45% of the population. The second largest group is Latino, making up 22% of the population. These two ethnic groups account for approximately two-thirds of the population of the catchment area.

¹The Boston Landmarks Commission, Environment Department, 1994. Available from: <http://www.boston-online.com/roxhist.html> Accessed March 25, 2003.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ US Census Bureau, 2000. "Select Social, Demographic, and Economic Characteristics". SF3+.

Population Statistics for Safety Net Catchment Area

African American or Black	36,501	45%
White	13,172	16%
American Indian and Alaska Native	621	1%
Asian	1,822	2%
Native Hawaiian and Other Pacific Islander	0	0%
Latino	17,827	22%
Other Races	11,742	14%
Total Population	81,685	
Population per Square Mile	22,379	

US Census Bureau, SF3+, 2000

History of ACE

Alternatives for Community and Environment (ACE), which is based in Dudley Square in Roxbury, is an organization dedicated to educating and empowering citizens and finding new, creative solutions to problems that the community faces. The group was founded in 1993 by Bill Shutkin and Charlie Lord. ACE “appropriates and institutionalizes the agrarian notion (with a decidedly urban, multi-cultural twist) that the physical condition of America’s communities is a critical factor in the nation’s success as a robust democratic republic”.⁶

Since its founding, ACE has worked to move from being an organization which responded to problems to one which is proactive and helps to define policy and supports proper planning that prevents problems from occurring. ACE has worked for years to build and strengthen community empowerment and organization, and this led them to form Safety Net.

For the past two years, ACE has been organizing public housing residents along Roxbury’s Melnea Cass Corridor. This area of Roxbury has a high concentration of public housing and publicly owned vacant land. It is one of the main areas of focus for the City of Boston’s Roxbury Master Plan process. ACE and Safety Net are organizing and strengthening the resident voice of this area to solve existing environmental injustices and promote sustainable development for the benefit of existing residents.⁷

In addition to the Safety Net program, ACE also is involved in several other projects. One such project is the T Riders Union, a coalition of community members who are dedicated to improving the service of the MBTA to historically underserved communities. In addition, ACE is also involved with the Roxbury Environmental Empowerment Project (REEP). This program develops environmental justice leadership

⁶ Shutkin, William, 2000: *The Land That Could Be*. Cambridge, MA: The MIT Press. p. 5

⁷ Loh, Penn, 2003. “Community Research Opportunity: Sustainable Development and Environmental Justice in Roxbury”. *Alternatives for Community and Environment*, Roxbury, MA.

among youth in the area surrounding Roxbury through an environmental justice curriculum, internship program, and youth-led projects.⁸

History of the Safety Net Struggle

Safety Net was originally formed by a group of Roxbury residents to respond to encroaching development from the South End. These residents work with Alternatives for Community and Environment (ACE). The group consists of ten public housing developments located in Roxbury along the Melnea Cass Boulevard. For many years, the vacant lots which line the boulevard were acquired through eminent domain after residents from Roxbury, Jamaica Plain, Cambridge, and Somerville organized and stopped the building of a highway. The Boston Water and Sewer Commission relocated its offices to Roxbury in 1998. This was followed shortly thereafter by numerous new development proposals. Safety Net was organized soon after. Boston's mayor, Thomas Menino, has encouraged growth and has welcomed developers to this area in the hopes of creating a "biotech highway". The Boston Redevelopment Authority (BRA) has revised the Roxbury Master Plan (RMP) to reflect this business-driven development. The BRA sought little input from residents while creating its first draft of the RMP, especially those living within the housing developments that would either be displaced or greatly impacted by the development of the "biotech highway". The efforts of Safety Net are specifically targeted at public housing projects that would be most directly affected by the proposed biotech development.

Previous Developments

During the first meeting with ACE representatives Penn Loh and Warren Goldstein-Gelb on January 24, 2003, the history of development throughout Roxbury was discussed.⁹ According to them, the business sector in the area, merchants and business owners, have more of a voice than the residents of the community. However, the residents are most significantly affected by decisions made within the community. Business owners tend to leave the area after operating hours so there is not much of a sense of responsibility or long-term commitment to the community on their part. Speculation about the future economic trends in the Boston area increases during economic booms, which seem to run on a 10-year cycle. In their experience, it seems Roxbury has been "rediscovered" every 10 years, usually following an economic cycle.¹⁰

The discussion with Mr. Loh and Mr. Goldstein-Gelb also focused on the Boston Redevelopment Authority's involvement in Roxbury development plans and the actions ACE and Safety Net had taken against development up until this time.

The first attempt at the Roxbury Master Plan involved mainly business owners. The product was a plan that was geared toward economic development in the area, with little

⁸ Alternatives for Community and Environment. Available from www.ace-ej.org/programs.html Accessed April 14, 2003.

⁹ Personal communication with Penn Loh and Warren Goldstein-Gelb, January 24, 2003.

¹⁰ Ibid.

regard to the needs and interests of residents. The BRA's vision was to create a biotechnology avenue where laboratories would be clustered along the corridor. The idea was to capitalize upon under-utilized land (much of which was already owned by the BRA) between the Longwood Medical Area (LMA) and the Boston Medical Center near Interstate 93.¹¹ The greater Boston region is already a hot spot for biotechnology with the established biotech "cluster" around Cambridge Center, which is located in Kendall Square in Cambridge. The area around LMA is fast developing into another biotech "cluster" as companies move into the area to take advantage of being close to the world-class medical institutes located in the LMA.

Safety Net demanded involvement in the Roxbury Master Plan. As a result of the organization's campaigning efforts, the drafting of the plan was stalled temporarily. ACE's reputation and commitment to community development and involvement probably played a large part in stalling this master plan. In the past, ACE has maintained a positive and forceful voice within the governmental realm in Boston.¹²

In case stalling the master plan did not work, the alternative action was to acquire the land through eminent domain. The area in particular would be Parcel 3 (P3), land where the community could put whatever would meet their needs within the zoning regulations, i.e. a super market. Another alternative that has been discussed is the filing of a Request for Proposal (RFP) after the plan is released but before businesses begin to invest in development in the area.¹³

Master Plans

A master plan is a way to shape a community's vision of its neighborhood into development. It is created as an instrument to build neighborhoods according to a managed and controlled process rather than haphazard development that reflects no sense of place for the residents. Master plans allow for community participation to reflect the community's future vision of their neighborhood. While it is important to create a master plan, completion does not guarantee its use when development occurs. The Roxbury Master Plan (RMP) began 5 years ago after the economic development of Roxbury began to enter another period of rediscovery.¹⁴ The residents approached the Boston mayor, Thomas Menino, and the BRA asking for a comprehensive plan that would include their input into the development of their neighborhood. The mayor hired the development firm of Stull and Lee, Inc. to spearhead the project.¹⁵ This development company has worked on many projects throughout Boston.

The following sections will give a brief overview of master plans similar to the RMP. The first, the Roxbury Master Plan, is intended to cover all aspects of future development in the Roxbury neighborhood; the LMA Interim Guidelines pertains to the Longwood

¹¹ Personal communication with Penn Loh and Warren Goldestein-Gelb, January 24, 2003.

¹² Ibid.

¹³ Ibid.

¹⁴ Personal communication with Penn Loh, January 24, 2003.

¹⁵ Personal communication with Professor James Jennings, April 14, 2003.

Medical Area which is west of Roxbury. This plan has been included because it implies that some aspects of the development might be displaced into the Roxbury area. The Chinatown Master Plan was reviewed to get an idea of how the city might respond to the requests of residents when creating the master plan. The Chinatown Master Plan is an example of dedicated citizens participating democratically in the planning process and then having their voices systematically ignored.

Roxbury Master Plan

The Roxbury Master Plan has undergone several drafting stages. The most current draft, *The Roxbury Strategic Master Plan: Building a 21st Century Community*, is the product of a process initiated by the Roxbury Neighborhood Council aimed at including the community response to previous drafts. The purpose of this document is to create “a strategic planning agenda that will provide the framework to guide change and economic growth in Roxbury for the next ten to twenty years.”¹⁶ Community members, businesses, elected officials, and consultants have participated in an extensive review process of the master plan, which is currently in its second draft stage. The active involvement of the community in the initial process of developing the plan was achieved through the creation of the Roxbury Working Group, which served as a forum for all interested residents and other stakeholders. The vision of Roxbury articulated by this group is that of “a vibrant, safe, affordable, accessible, culturally diverse community with a sustainable economy and physical environment – a place residents of all ages and incomes can take pride in calling home.”¹⁷

The Roxbury Strategic Master Plan recognizes the many assets of the community, including its location near the downtown area, its history of racial and ethnic diversity, and its youth.¹⁸ The conservation of the historical and cultural heritage of Roxbury is an over-arching priority for the future of Roxbury. The master plan focuses on land use and economic development, particularly open space and underutilized land. The main goal of the plan is to “enhance the quality of life for Roxbury residents, businesses, and visitors.”¹⁹ Particular emphasis is placed on education and enabling the youth in the community to be the forgers of the future. Businesses are called to conserve resources, abide by sound public health principles, and practice environmental justice.

LMA Interim Guidelines

In February 2003, the Boston Redevelopment Authority (BRA) released its interim guidelines for the Longwood Medical Area (LMA).²⁰ These guidelines are the current development guidelines and are in effect for approximately 18 months while the BRA

¹⁶ Boston Redevelopment Authority, 2002. *The Roxbury Master Plan: Building a 21st Century Community* (Draft as of November 7, 2002). Boston, MA, November.

¹⁷ Ibid

¹⁸ Personal communication with Professor James Jennings, April 14, 2003. See Appendix A: *Foundations of the Plan: Principles and Values*.

¹⁹ Ibid

²⁰ Boston Redevelopment Authority, 2003. *Longwood Medical and Academic Area Interim Guidelines* Boston, MA. February.

and affected stakeholders prepare a Master Plan for the LMA. These guidelines will be the basis for the BRA to consider projects that are proposed during that time. While these guidelines are in effect, the existing zoning and approval processes will not change.²¹

These guidelines were designed to cover a broad array of issues surrounding development in the area. The three biggest issues that are discussed are transportation, urban design, and workforce development. These guidelines seek to mitigate the negative repercussions of growth in the LMA, but do little to address the areas that abut the LMA.²²

The potential for problems arises when these abutters are not considered in this interim plan. While the LMA and its institutions will benefit from these guidelines, there is little direction given as to what may happen beyond the borders of this area. Safety Net has become involved in order to give the community a voice in the planning for areas outside of the LMA.

Chinatown Master Plan

James Jennings²³ has been actively involved in the development of the Roxbury Master Plan. During a class lecture on community development and planning held on April 14, 2003, he explained his role in the draft process of the Roxbury Master Plan²⁴. From his perspective, there has been little, if any, communication between the Chinatown and Roxbury communities. It is important to include this recent incident as it gives insight as to what residents of Roxbury may face during their struggle to participate in the master plan process.

Residents of Chinatown are organizing a campaign to hold the BRA accountable for their input of the Chinatown Master Plan²⁵. The Campaign to Save Chinatown was started because community organizers believe that the Chinatown Master Plan is being violated by the state. The mayor's vision to build a new Boston was discussed in a conversation with ACE's executive director, Penn Loh.²⁶ An important question which has been asked by many community members is: who is behind these new building projects? There is an air of mistrust and many community members feel that the plan was used as a way to divert their attention so developers can start doing what the city really wants to happen in Chinatown, which is to gentrify the area.

The Chinatown Master Plan was co-written by the community and the City of Boston in 1990. The plan set guidelines for developers to follow that are appropriate for Chinatown and its land uses. Affordable housing is the main priority for residents and this was clearly stated by the community in the master plan. Height limitations of no more than 8-

²¹ Boston Redevelopment Authority, 2003. *Longwood Medical and Academic Area Interim Guidelines* Boston, MA. February.

²² Ibid.

²³ James Jennings is a professor at Tufts University in the department of Urban and Environmental Policy and Planning.

²⁴ Personal communication with Professor James Jennings, April 14, 2003.

²⁵ The Campaign to Save Chinatown. <http://www.protectchinatown.org/> Accessed March 11, 2003.

²⁶ Personal communication with Penn Loh, January 23, 2003.

10 stories were also outlined in the plan.²⁷ The developers presented a plan that did not comply with the original demands of the residents. Liberty Place was presented to the residents to fill Parcel 24 which lies within the boundaries outlined in the master plan. It is a 30 story building that exceeds the original height limitations set by the master plan. The unit will have 400 market-rate housing units and only 70 affordable housing units out of the 500 that will be included in the building.²⁸ This is a blatant disregard of the Chinatown Master Plan and therefore a disregard for the residents of Chinatown.

The next section introduces biotechnology and the social, economic, and political impacts of development of a “biotechnology highway” on the community of Roxbury. The Roxbury Master Plan is the deciding factor; the plan is being created to find the best way to re-vitalize the community economically in a way that will sustain the residents for many years to come. Master plans are essential in helping residents shape their visions for community.

²⁷ The Campaign to Save Chinatown. <http://www.protectchinatown.org/> Accessed March 11, 2003.

²⁸ Ibid.

Biotechnology: Social Considerations and Development

Introduction to Biotechnology

The domestication of plants and animals and the use of bacteria in fermentation processes are some of the human applications of simple biotechnology. Over time the role of biotechnology within the life sciences has grown and its applications have expanded to into other industries. More recently the process has been incorporated into the production of diverse goods, particularly in the pharmaceutical and agricultural industry. The vast set of applications of biotechnology has rendered the field with a vague definition, which varies depending on the source.

In general, biotechnology is a “technique that uses living organisms (or parts of organisms) to make or modify products, to improve plants or animals, or to develop microorganisms for specific uses”.²⁹ The type of organism used, the process of modification, and the nature of the product are some of the elements that can vary in an industry-by-industry basis. The role of biotechnology in health, agriculture, and even environmental protection is expanding. In practice, the long-term effects of many bioengineered products, once released into the environment, remains uncertain.

Risks and Benefits

Various states in the United States, Maryland and Virginia, for example, have demonstrated interest in bringing biotechnology firms into their area.³⁰ The primary incentive for states wanting to bring biotech into their area is the increased tax base these firms can generate.³¹ Major medical and agricultural research institutions can be benefited from the establishment of biotechnology firms in their area through of the increased funding and employment opportunities they would provide. On the other hand, residents do not derive any real direct benefits from the establishment of these firms in their communities, unless the firms employ them. Indirect benefits, such as an increased investment on the community, are more likely outcomes of the proposed development.

Biotechnology industries established near a residential area could have certain negative repercussions on the character of the area. Depending on the amount of people commuting to work, residents can expect a proportional increase in traffic. Gentrification could occur due to the increased appeal of the area to the employees of these firms, who may be better able to afford the increasing price of real state. The risk of gentrification tends to be higher when dealing with high tech industries, since the jobs created require special training that may not be readily available to community residents.

¹⁸ Krimsky, Sheldon, 1991. *Biotechnics and Society: The Rise of Industrial Genetics*. Praeger: Westport, Connecticut. p. 22.

³⁰ Krasner, Jeffrey. “In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage”. *Boston Globe*. February 12, 2003.

³¹ Ibid

More specific to biotechnology/biomedical industries is the risk presented by bio-hazardous substance handling, transport, and disposal. There are four levels of threat to consider when dealing with biological substances in a laboratory; each with a set of corresponding safety measures (see Appendix B).

A biosafety level-four biodefense³² laboratory is being proposed by Boston University (BU) Medical Center – a consortium of the BU medical school and the Boston Medical Center, near their South End campus.³³ The bidding started in February; other universities in California, Texas, and Illinois are also competing to locate this facility in their premises.³⁴ Level four facilities have the strictest guidelines to ensure the safety of the employees and the community; nonetheless the risks of managing biological agents such as anthrax, small pox, and Ebola are significant. These substances are life threatening and easily dispersed via the aerosol route.

Biotechnology: Research & Development versus Manufacturing

The industrial processes of biotechnology can be divided into two major areas. Research and development (R&D) consists of the process of scientific testing and trials sets the foundation for future discovery in the field. Employment in this sector of biotechnology is limited to a small group of individuals with the extensive educational background. Manufacture (bioprocessing) is the more labor-intensive area of biotechnology.

Bioprocessing is “a type of advanced manufacturing that involves chemical, physical, and biological processes employed by living organisms or their cellular components.”³⁵ The demand for bioprocessing is increasing through out the country, as it is increasingly being used worldwide for the creation of new commercial products, particularly in biotechnology.

The Potential Impacts of Biotech Development

There are some crucial issues that must be considered when discussing biotech development in an urban area such as the Longwood Medical Area (LMA) or Roxbury section of Boston. Some of these issues include:

- Urban development of biotech
- Increased traffic in the development area
- Economic tradeoffs
- Impacts on abutters

³² Biodefense refers to laboratories experimenting with biological warfare.

³³ Smith, Stephen, 2003. “Menino backs biosafety lab plan”. *The Boston Globe*. Boston, MA, January 18.

³⁴ Ibid.

³⁵ National Agricultural Library. *Biotechnology for the 21st Century: New Horizons*. Available from <http://www.nal.usda.gov/bic/bio21/bioproc.html> Accessed February 5, 2003.

Benefits and Drawbacks to an Urban Location

An urban location presents potential benefits and drawbacks that may not be of concern in other locations. A potential benefit is that an urban location will most likely have better transportation infrastructure than an outlying site. This infrastructure not only applies to the road system, which is likely to be better developed, but also to the public transit and pedestrian infrastructure. Boston already has a well-developed public transportation system in place. The area around the LMA is served by the Orange Line and Green Line rapid transit service. The city is also working to improve its pedestrian and bicycle corridors, with projects such as the South Bay Harbor Trail, which will link the LMA with the waterfront.³⁶ The city also offers other necessary infrastructure, such as readily available sewer and water systems. There are drawbacks to the inner city location as well.

While the urban locations may have better developed street systems, this does not necessarily mean that these streets can handle additional capacity. The capacity problem of Boston's existing street network is a seriously limiting factor on future growth in some areas. An even more pressing auto-based problem is a serious lack of parking. The large number of single-occupant vehicles entering the Boston area each day, along with an already densely built core, has led to a parking deficit. This problem is especially acute in the area surrounding the Longwood Medical Area. The LMA is a little over 200 acres, abuts several residential neighborhoods, and brings in 30,000 workers every day. The area has about 14 million square feet of building space, with an additional 2.6 million proposed, and only 13,000 parking spaces.³⁷ In addition to the parking problems, these additional vehicles worsen the local air quality in an area that is plagued with some of the worst asthma rates in the state already.

There are economic tradeoffs when it comes to selecting a location. A biotech company, with their requirements for top-flight scientists and readily available infrastructure, is not going to choose to build just anywhere. Most of these companies could arguably build cheaper and easier in a suburban area. According to David Dixon of Goody, Clancy, and Associates, the lead designer for Merck's new campus in the LMA, "It's very expensive to build laboratory space this high because of having to run everything up for ventilation. And there's no room for surface parking. The spaces all have to go underground, which ups the cost from \$15,000 per space in the suburbs to \$50,000 per space here."³⁸ However, there are significant advantages for these companies to locate in an area where other companies and researchers are already located. This is one of the reasons that the LMA is such an attractive area to add more development, what with the major research institutions already located there. The tradeoff comes when a company must choose to pay less at the outset for a location that may not be centrally located or pay more to locate in a densely built urban setting.

³⁶ City of Boston, 2003. "South Bay Harbor Trail". Boston, MA. Available from <http://www.ci.boston.ma.us/environment/harbortrail.asp> Accessed April 11, 2003.

³⁷ Palmer, Thomas, 2003. "Marching Orders on Longwood". *The Boston Globe*, Boston, MA. January 19, p. H1.

³⁸ Restuccia, Paul, 2002. "Biotech landing in Longwood area". *The Boston Herald*, Boston MA. March 22, p. 43.

Impacts on Abutters

The final issue that might cause friction is interaction with the abutters. This is a significant urban issue that can largely be avoided in suburban office parks or industrial areas. In a heavily populated area such as Boston, there are likely to be residential areas that may be adversely affected by any significant new commercial development. Depending on this factor, and the neighborhood's political power, this could derail an otherwise acceptable project. There is often strong opposition to any new commercial development in populated areas such as those found around the LMA. A recent planned expansion of the Joslin Diabetes Center ran into strong opposition from community members; ultimately the project was reduced from 41 stories to 29 stories.³⁹ In order to help make these new projects more appealing to the affected neighborhoods, the BRA is requiring that in return for being allowed to build new buildings, the hospitals and colleges must "agree to hire and train city residents for some of the jobs they create".⁴⁰ Some of their objections may be based upon factors of property value, unwanted traffic, gentrification, pollution, NIMBYism, or other factors.

Established Biotech Industry in Massachusetts and the Greater Boston Region

The wealth of universities and research hospitals in Massachusetts has attracted 456 bioscience companies (as of October 2000), which employ approximately 26,000 people. These statistics indicate Massachusetts has the largest concentration of biotechnology firms anywhere in the world.⁴¹ Some of the major biotechnology centers/research parks in the Greater Boston area include:

- *Massachusetts Biotechnology Research Park* → Located adjacent to the University of Massachusetts Medical Center.
- *BioSquare* → Affiliated with the Boston University School of Medicine and Boston Medical Center.
- *University Park at MIT* → Located next to MIT.

Listed below are some of the biotechnology firms in Greater Boston; most of these are located in research parks in the Cambridge area.⁴² Three of these firms (Amgen, Genzyme, and Biogen) are among the top five selling biopharmaceutical companies worldwide. Amgen leads the way with over three billion dollars in sales as of 1999.⁴³

- Genzyme
- Biogen

³⁹ Van Voorhis, Scott, 2003. "Smaller Version of Joslin Tower OK". *The Boston Herald*, Boston, MA. April 3, p. 54.

⁴⁰ Greenberger, Scott, 2003. "City Pushes Local Jobs at Longwood". *The Boston Globe*, Boston, MA. March 14, p. B1.

⁴¹ Biotechnology Industry Organization. *State Government Initiatives in Biotechnology 2001*. Available from <http://www.bio.org/tax/battelle.pdf> Accessed April 13, 2003.

⁴² Cambridge Chamber of Commerce. www.cambridgechamber.com Accessed April 13, 2003.

⁴³ Penhoet, Edward. *The Biotechnology Enterprise: The State of the Industry*. Available from <http://www.ehcca.com/presentations/Penhoet.pdf> Accessed April 13, 2003.

- Amgen
- Wyeth
- Transkaryotic Therapies, Inc.
- Alkermes
- Whitehead Institute

Biotechnology: Political and Economic Considerations

Government Investment

Cities and states often throw substantial subsidies at biotech companies, convinced that the municipality can ride these companies to new levels of economic growth. Not only are there financial incentives that are often granted, there is often large infrastructure improvements that are financed by the city. Unfortunately, in many cases, this expenditure has not proven as worthwhile as hoped. According to *Signs of Life*, a 2002 study by the Brookings Institute, these companies can often take 10 years or more to generate any sort of marketable product.⁴⁴ Even in cities such as Boston (the second largest biotech center in the US), no biotech ranks in the top 25 of regional employers. Cities must weigh whether this financial risk is in their best interest. This is an especially important point considering that many biotech startups end up folding and going out of business. Even well-established midsize and large companies can run into substantial problems if a particular drug or process is not approved. Many of the smaller biotech companies are dependent on venture capital investment or on grants from the National Institutes of Health or pharmaceutical companies to sustain their businesses; this is a particularly risky business model.

Tax Cuts and Subsidies

Currently Massachusetts offers R&D firms (including bioscience programs) several tax credits. These are non-transferable, but may be carried forward for up to three years. The following are major tax credits/subsidies that apply to biotechnology in Massachusetts (descriptions have been taken from the *State Government Initiatives in Biotechnology 2001* report)⁴⁵.

1. *Credit against corporate excise tax*

A manufacturing corporation, or business corporation engaged primarily in research and development may claim a credit against the corporate excise tax of three percent of the cost or other basis for federal income tax purposes of qualifying tangible property acquired, constructed, reconstructed, or erected during the taxable year. Qualifying property also includes tangible personal

⁴⁴ Cortright & Mayer, 2002. *Signs of Life: The Growth of Biotechnology Centers in the U.S.*. The Brookings Institute, Washington, DC. June 11.

⁴⁵ Biotechnology Industry Organization. *State Government Initiatives in Biotechnology 2001*. Available from <http://www.bio.org/tax/battelle.pdf> Accessed April 13, 2003.

property and other tangible property such as buildings and structural components of buildings acquired by purchase.

2. *Credit against excise tax for leased personal property*

A manufacturing corporation, or a business corporation engaged primarily in research and development, may claim a credit against its excise due for tangible personal property leased. The amount is calculated as three percent of the lessor's adjusted basis in the property for federal income tax purposes at the beginning of the lease term, multiplied by a fraction, the numerator of which shall be the number of days of the taxable year during which the lessee corporation leases the tangible personal property and the denominator of which shall be the number of days in the useful life of such property.

3. *The tax credit for corporation renting or leasing tangible property otherwise qualifying for the credit from a regional business development corporation or authority is three percent of the value of qualifying property leased and placed in qualified use during the taxable year.*

4. *R&D tax credit*

Massachusetts grants a tax credit for foreign and domestic corporations engaged in research and development in the state. Like the investment tax credit, it is available to offset a corporation's excise tax liability; but the R&D credit is limited to a percentage of the qualified research expenses incurred in a given year.

In attracting biotechnology firms, the state of Massachusetts has a considerable advantage in that it has recognized universities and research hospitals with state-of-the-art facilities and a wide breadth of professionals in high-tech fields. Other states have launched significant efforts to attract biotechnology firms to their area through the creation of additional big-money incentive programs.⁴⁶ For instance, in an effort to make Iowa the leader in bioengineered protein development, its governor, Tom Vilsack, has proposed a \$50 million incentive program.⁴⁷ Michigan and Pennsylvania are using the money allocated to them from the tobacco litigation settlement to create incentives.⁴⁸ Pennsylvania has used this money to develop three programs, one of which provides \$240 million in venture finding for start-ups.⁴⁹ The state of Massachusetts, with a \$3 billion budget deficit looming over public agencies for the upcoming year, cannot provide such high cost benefits to any sector; nonetheless there is an overwhelming interest to maintain its regional advantage in the field despite the lack of funds.⁵⁰

Governor Romney has met with chief executives of biotechnology and pharmaceutical firms and with the Massachusetts Biotechnology Council to express his interest in

⁴⁶ Krasner, Jeffrey, 2003. "In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage" *The Boston Globe*. Boston, MA. February 12.

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ Klein, Rick, 2003. "Report Hits Tax Cuts for Fiscal Crunch". *The Boston Globe*. Boston, MA, February 18, p. B1.

supporting biotechnology in the Commonwealth. Two ideas were proposed to allow biotech firms to qualify for more tax breaks. First is the “changing of the definition of a ‘research and development company’ to allow biotech firms that do not have revenues make use of sales and tax exemptions”.⁵¹ The other proposal was the creation of a mechanism by which companies can trade net operating losses. By facilitating the process of establishment of new biotechnology and pharmaceutical companies, the state can potentially maintain its regional advantage without having to resort to excessive spending.

The Romney administration has been receptive to the claims of the biotechnology groups in Massachusetts. This is reflected in the unprecedented willingness of the administration to meet with leaders in the field to discuss the issues that the industry faces in the area.⁵² The product of these meetings is a set of ten recommendations for ‘immediate action’ generated by the Massachusetts Biotechnology Council⁵³:

1. Reinstate the position of secretary of economic affairs with a mandate and the resources to capture economic development opportunities in the life sciences.
2. Appoint a science and technology senior advisor who is respected by the life-sciences cluster and aware of the challenges it faces. The senior advisor should report directly to the governor and steer the key initiatives undertaken by the new administration.
3. Introduce and support legislation (including legislation on stem-cell research and biodefense) that will enable life-sciences organizations to operate and innovate within a clear and predictable framework.
4. Work with industry, public agencies, and local communities to identify promising sites for future biotech development, streamline the permitting process, and plan the physical infrastructure.
5. Establish a science education advisory board to define the priorities, identify curriculum synergies across the state’s different school systems, and initiate changes at all levels of education.
6. Make a commitment to stabilize the tax environment and make the investment tax credit permanent at 3 percent.
7. Change the legal definition of an R&D corporation and file appropriate legislation to ensure that all life-sciences start-ups can benefit from the status.
8. Encourage state pension funds and other public investment funds to invest in start-ups and early-stage venture capital funds.
9. Promote collaboration initiatives among public universities, public agencies, and the industry, in particular on homeland-security issues.
10. Communicate broadly and often about the importance of biotechnology to the state in order to create positive perceptions of biotechnology in the minds of decision makers and the public.

⁵¹ Krasner, Jeffrey, 2003. “In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage” *The Boston Globe*. Boston, MA. February 12.

⁵² *Ibid.*

⁵³ Massachusetts Biotechnology Council. *MassBiotech 2010*. Available from http://www.massbiotech2010.org/pdf/massbiotech2010_report.pdf

Biotechnology groups, particularly the Massachusetts Biotechnology Council, are actively pursuing these recommendations in hopes of redefining future development. The most significant new development in this process is the introduction of legislation that would simplify the process of establishing new firms in Massachusetts, thus aiming to capture a comparatively higher market share of the new market.

Massachusetts Legislation

Since the beginning of the biotechnology industry, approximately 25 years ago, Massachusetts has been a major center for the establishment of these companies. Currently, according to the Massachusetts Biotechnology Council, there are approximately 280 biotechnology companies in the state. Some of these are among the world's largest pharmaceutical companies, including Abbott, AstraZeneca, Merck, and Pfizer.

In recent years, the race amongst states for the establishment of biotechnology has intensified, and Massachusetts fears it might lose its stronghold of the industry along with the tax dollars and jobs it generates. The Massachusetts Biotechnology Council (MBC) has proposed two bills for submittal to the legislature, each of which emphasizes different aspects that would facilitate the establishment of biotechnology firms in Massachusetts.

The full documentation on these bills can be accessed through the MBC website; their legislative numbers have not been determined (as of April 2003).⁵⁴ Nonetheless, it is important to note that these proposed bills are in their preliminary form. The first proposed bill is referred to as *An Act to Support Economic and Community Development*. This bill aims to streamline the procedures of issuance of the land use and development permits, so that less time is spent in the process. The second proposed bill, *An Act to Encourage the Growth of Biotechnology Industry in Massachusetts*, aims to provide the biotechnology industry with an array of tax breaks and credits, as an incentive that would reduce the immediate costs of their establishment in the state.

Empowerment Zones

It is important to note that much of Roxbury falls into an empowerment zone (see map in appendix G). Empowerment zones were created in the early nineties by the Clinton administration. The program was created to empower communities which fell below the poverty line. Empowerment zones provide businesses with tax incentives to re-locate or establish their business or industry in areas that have been economically depressed and where many of the residents are unemployed. The idea is to re-vitalize these communities through the generation of capital and economic development.

⁵⁴ Massachusetts Biotechnology Council. "Law and Policy". Available from http://www.massbio.org/lawpol/PDF/support_text.pdf and http://www.massbio.org/lawpol/PDF/growth_text.pdf Accessed March 10, 2003.

Boston's empowerment zones cover an area of 5.8 square miles and include 57,640 residents throughout Chinatown, Roxbury, Dorchester, Jamaica Plain, Mission Hill, South End, Seaport District, and South Boston. A non-profit agency, Boston Connects, Inc. (BCI) has been selected to implement the "long-term vision of the Strategic Plan: Providing for Economic Self-Sufficiency for Individuals, Families and Communities."⁵⁵ BCI connects residents living within the zone to job training and readiness programs offered by various community groups, organizations, and community development corporations (CDC). The training programs offer classes that will give opportunities to the residents to attain jobs such as ESL and GED classes. Inez Foster, a representative of the Education and Job Readiness department at BCI, provided information about their job readiness programs.⁵⁶ Due to the uncertainty surrounding the expansion of biotech, BCI has not implemented any biotech training programs, but BCI is aware of the issue and is currently under consideration. Ms. Foster said that the training programs tend to follow the industries that re-locate to the zone areas. Therefore, it would not be feasible for the organization to start a training class in biotech before any of the industries move into the zone areas.

Current Job Training and Readiness Programs

In the Boston area there are several organizations that provide educational opportunities in biotechnology related fields. The Massachusetts Biotechnology Council (MBC) offers training classes for individuals interested in working with a biotech firm. The classes are expensive and a bachelor's degree is a prerequisite. Specific to empowerment zones is the Boston Connects, Inc. program, which offers a range of classes geared to residents in areas that have been depressed due to the lack of jobs or lack of skills needed to obtain work.

As noted above, the number of jobs brought into an area by biotech development often is low and often reserved only for those with an advanced college degree. There is a current program with Roxbury Community College (funded in part by the Massachusetts Biotechnology Council) to provide skilled lab workers for the needs of biotech companies. After students finish the program, they will receive a certificate in Bio-manufacturing.

According to the Boston Redevelopment Authority, the Training Institute (an initiative between several LMA institutions) will also help train local residents for work in the LMA. While these jobs may be available to Roxbury citizens, once again, the number of available jobs is relatively low.⁵⁷ The larger percentage of jobs for those holding advanced degrees may also bring these new employees into the surrounding neighborhoods, leading to gentrification.

⁵⁵ Boston Connects, Inc. Available from <http://www.bostonez.org/> Accessed February 6, 2003.

⁵⁶ Personal communication with Inez Foster, Boston Connects, Inc., April 9, 2003.

⁵⁷ Boston Redevelopment Authority, 2003. *Longwood Medical and Academic Area Interim Guidelines* Boston, MA. February.

The Policy Arena in Roxbury

This section will address individuals involved in the biotech struggle by assessing the power distribution that ACE is working with while continuing its campaign for equal access in the development plans for the Roxbury neighborhood. It is important to understand who all the parties and stakeholders are and what their role and position of authority is in regards to decision-making, as well as the actions taken by each player and what the consequences will be in the development process. The hierarchy of power within the realm of politics is important in strategizing and planning. A diagram⁵⁸ was created by Penn Loh to assess what has happened so far in regards to stalling the development plans for the area. ACE is a unique organization that really relies on its ability to empower residents and ensure that the decision making power is in the hands of the community, not just in the hands of developers and politicians.

ACE just finished a strategic planning agenda which focused on building power- starting in Roxbury, Dorchester, and Mattapan. The strategic plan for ACE calls for a shift to a membership organization. This would allow the members (groups and people who are directly in action) to use a resident-lead framework to combat systemic issues and establish effective decision-making resources.

Roxbury Residents

The community of Roxbury and surrounding cities such as Dorchester and Mattapan are key components in this campaign to be heard and for effective involvement in development. ACE prides itself on being an organization that promotes civic responsibility and community participation. The support of residents and the active involvement in regards to active voters and the distribution of information is the only way that decision-making power will be shifted into the hands of the residents. Politicians are not scared by a community that does not take pride and an active role in their rights as citizens. Voter participation as well as engagement in the political system will allow residents and Safety Net along with ACE to get their voices heard when decisions are being made about the Roxbury Master Plan.

The Mayor's Office

Mayor Thomas Menino has thus far been supportive of allowing residents of Roxbury to have a firm say in the strategic planning of Roxbury.⁵⁹ The mayor hired consultants who have worked with community development and planning projects to ensure community participation with the Roxbury Master Plan. The mayor has ultimate authority on projects that are undertaken in the city. Therefore, if Safety Net is able to gain the ear of the mayor, the group will have a better opportunity to guide change in a direction that positively benefits all of the community.

⁵⁸ See "Safety net Campaign Power Analysis" included at the end of this report.

⁵⁹ Personal communication with Professor James Jennings, April 14, 2003.

Governor

Republican Governor Mitt Romney's administration has demonstrated the state's willingness to attract more biotechnology firms into the already existing "hot spot"⁶⁰. With the Commonwealth in a fiscal crisis (the state faces a potential budget deficit of three billion dollars⁶¹), the governor would like to see more biotech development, along with the additional revenue it would bring to the state.⁶² Since Massachusetts has already established itself as a leader in biotechnology commercialization,⁶³ the government seems to welcome the idea of building even more biotechnology science parks such as the one along the Kendall/MIT stop off the Red Line.

MASCO

MASCO is an acronym for Medical Academic and Scientific Community Organization, Inc. In 1972, MASCO was formed by representatives from the Longwood Medical Association (LMA) to address commonly held issues and concerns. Its mission is to promote programs that foster a sense of community among the citizens of the LMA and to "lessen the burdens of the government with regard to planning, development, and enhancement of the LMA."⁶⁴ The LMA community consists of roughly 30,000 people, 10,000 of those being students. It is estimated that one million patients enter the hospital for medical care every year. The LMA generates over \$2.5 billion in revenue each year.⁶⁵ MASCO Services, Inc. is a tax-exempt parent corporation that provides a range of services for the LMA, these services include:

- Facilitating the flow of traffic
- Coordinating development plans
- Serving as liaison with the Greater Boston community
- Acting as a general community planner for the LMA

MASCO also implements various programs but the one of particular interest to Safety Net and this report is the Area Planning and Development. This program is advertised as "a successful prototype of business improvement districts that are now forming across the country."⁶⁶ The primary objectives of the planning department are to maintain good and friendly relations with the surrounding community while ensuring that the LMA operates efficiently.

⁶⁰ Krasner, Jeffrey, 2003. "In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage" *The Boston Globe*. Boston, MA. February 12.

⁶¹ Klein, Rick, 2003. "Report Hits Tax Cuts for Fiscal Crunch". *The Boston Globe*. Boston, MA, February 18, p. B1.

⁶² Krasner, Jeffrey, 2003. "In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage" *The Boston Globe*. Boston, MA. February 12.

⁶³ Cortright & Mayer, 2002. *Signs of Life: The Growth of Biotechnology Centers in the U.S.*. The Brookings Institute, Washington, DC. June 11.

⁶⁴ Medical Academic and Scientific Community Organization, Inc. Available from http://masco.org/aboutMasco_facts.htm Accessed March 11, 2003.

⁶⁵ Ibid.

⁶⁶ Ibid.

Developers

The architectural firm of Stull & Lee, Inc. has been appointed by Mayor Menino to work on the Roxbury Master Plan. Stull and Lee, Inc.⁶⁷ is an architect, urban design, and planning firm formed in 1966 by two graduates of the Harvard Graduate School of Design. The firm has established itself within Massachusetts through its work on a number of projects throughout Boston. The following is a list of some of the firm's Neighborhood Revitalization projects in Massachusetts:⁶⁸

Urban Design and Planning

- Parcel 18 Master Plan (Ruggles Center), Boston, MA
- Blue Hill Avenue Plan, Boston, MA
- Dudley Square Station Area Development, Roxbury, MA
- Egleston-Jackson Strategic Plan, Roxbury, MA
- 1,000 car parking garage for Northeastern University, Boston, MA

Academic Institutions

Boston College, Boston University, and Northeastern University are all within close proximity to Roxbury. Northeastern University has had a history of development within Roxbury including a parking garage beside the Ruggles T station on the Orange Line. Universities have a vested interest in biotechnology development. It serves their community of professors and students well because of the increased availability to research and research grants. Though it has not been openly documented, the universities surrounding Roxbury and the proposed areas for development are more than willing to allow a biotechnology corridor within this area. The power and strong political voice of these institutions will more than likely be a factor in shaping the decisions behind the introduction of biotechnology development.

⁶⁷Stull and Lee, Inc. Available from <http://www.stullandlee.com/leadership.html> Accessed April 17, 2003.

⁶⁸ Harvard Graduate School of Design. Available from <http://www.gsd.harvard.edu/people/faculty/lee/cv.html> Accessed April 17, 2003.

Recommendations

The following recommendations are based on the research conducted for this report. Comments are interpretations and reflections of the team members. They are analytical statements based on the research and personal communication obtained throughout the semester.

Finalize and Enforce the Roxbury Master Plan

To finalize the RMP, there must be a strong organization of community groups in support of community involvement in development and planning. Some of the organizations that will be included in this drive are: the Roxbury Neighborhood Council, Safety Net, Chinatown and Roxbury residents, state and local officials such as Gloria Fox and Chuck Turner, and community development corporations (CDC's).

The Democratic National Convention will be held in Boston in 2004. The mayor and his associates want this convention to go as smoothly as possible. As such, these groups, among other things, could use the threat of demonstrations at the convention in order to get attention. This is also a leveraging tool to create a strong political voice and to ensure their visions will be included in the RMP.

Boost the Existing Local Economy

With Roxbury's diverse population, and aggregate income of \$906.8 million in 2000,⁶⁹ there is a market that should be tapped. In addition, with 70% of the population holding a high school degree (and 19% holding a college degree)⁷⁰, there is also a knowledge base that is not currently being fully utilized.

Supporting local businesses and micro-enterprises will also help to boost the already existing economy within Roxbury. The BRA and the mayor want to invite developers into Roxbury, overlooking the established businesses. This is not a sustainable move for the community. Generation of capital and wealth coming from community members and residents allows capital to circulate among the residents; this also empowers residents and provides them with a certain amount of control. Introducing an industry into the community will only provide jobs and limited income; supporting and expanding already existing businesses will create a sustainable economy.

Consider Other Potential Types of Economic Development

Although the Romney administration has demonstrated great interest in bringing biotechnology to the city of Boston, the state of Massachusetts is currently undergoing a budget situation that may prevent this sort of large investment. However, there is potential for other types of development in the Roxbury area. The BRA might do well to review other economic development possibilities. A potential candidate might be light

⁶⁹ US Census Bureau, 2000. "Select Social, Demographic, and Economic Characteristics". SF3+.

⁷⁰ Ibid.

industrial manufacturing, which could be done in conjunction with biotech development in the area. Beyond this, the BRA should consider tapping into the power of the local economy as potential new growth generator. This could be in the form of a small business incubator or additional community investment funding. This could make the economy of the area more diverse and therefore more resilient to the funding and economic whims of the biotech industry.

Conclusion

In conclusion, while we believe biotech development could bring benefits to the Roxbury neighborhood, there are serious doubts surrounding the current proposals. Based on our research, there is no clear reason to believe that biotech development would bring jobs into Roxbury to meet the employment needs of residents.

Furthermore, we believe that the planning process for development (biotech or otherwise) needs to become more democratic. The BRA and Mayor Thomas Menino present the development of the Roxbury Master Plan as a democratic process that involves residents. Based on our understanding of the process of the formation of the Chinatown Master Plan and its disregard, the completion of a master plan does not guarantee implementation of the community's vision. It is important to create a counter-balance to the BRA and the government to ensure that the development process will proceed in line with the suggestions and demands of the community.

The purpose of our research was to provide key information about biotech development and its implications to the residents and organizers working with Safety Net. The idea is for them to use this information and these recommendations to create an even stronger political voice within the policy arena and to move towards a more sustainable community. In our understanding of sustainable communities, this would mean Roxbury residents take an active role in the visioning and planning process and start taking control of the economic and social capital throughout their communities.

Appendix A

I. FOUNDATIONS OF THE PLAN

Principles and Values

The following core principles and values frame the Roxbury Strategic Master Plan. These principles and values reflect Roxbury's integral relationship with the rest of the city and the metropolitan area and the neighborhood's potential as a model for other Boston neighborhoods in its racial and ethnic diversity.

The Roxbury Strategic Master Plan recognizes the neighborhood's enormous potential resources and assets, including:

- Its prime location in the city and the region
- The substantial amount of open space and underutilized land
- The diverse and substantial housing stock
- The youth and their potential contributions
- The elderly and their knowledge and experience
- The history and lessons of struggles aimed at improving living conditions in this neighborhood
- The history of racial and ethnic diversity
- The many community-based organizations and the interest and commitment of the residents to the neighborhood.

The Roxbury Strategic Master Plan identifies activities and institutional relationships that enhance opportunities for youth to become involved in the civic life of the community.

The Roxbury Strategic Master Plan identifies institutional and programmatic linkages between economic development, housing and transportation.

The Roxbury Strategic Master Plan can help to increase residential stability by developing institutional, programmatic and social connections between:

- People and organizations within and outside the neighborhood
- Youth and elderly
- Roxbury and the city
- Roxbury and the region

The Roxbury Strategic Master Plan identifies institutional, programmatic and policy mechanisms to generate and keep wealth in the neighborhood.

The Roxbury Strategic Master Plan identifies mechanisms to increase opportunities for existing small businesses in the community to better serve Roxbury and also to broaden their trade areas beyond the neighborhood.

The Roxbury Strategic Master Plan suggests ways to utilize public dollars to leverage additional private dollars and resources.

The Roxbury Strategic Master Plan advocates for increased housing opportunities at different income levels and the retention of existing affordable housing.

The Roxbury Strategic Master Plan advocates the enhancement of educational, cultural and recreational activities in the neighborhood.

The Roxbury Strategic Master Plan illuminates the importance of public infrastructure investment, particularly in transportation, as a key tool for economic development and as a symbol of community stability.

The Roxbury Strategic Master Plan will be implemented in ways that enhance civic awareness and increase the public involvement of residents, institutions, neighborhood organizations, community agencies, faith-based organizations and businesses in issues that impact the Roxbury community

Overall Goals and Objectives

Using the principles and values of the Roxbury Strategic Master Plan as context, the Plan has the following goals (sections of the Plan that discuss these goals in more detail and offer strategies to achieve these goals are listed in parenthesis):

- Enhance civic life and the cultural and environment in which residents participate (Arts & Cultural Heritage)
- Actively promote a sustainable and diverse economy focused on job opportunities and creation of wealth (Economic Development & Job Creation)
- Provide a safe and convenient pedestrian, public transit and automobile transportation network (Transportation)
- Provide a wider range of housing options for residents of diverse socioeconomic and age groups (Housing)
- Create a public realm that is a comfortable, lively and safe environment that reflects the unique physical and social character of the neighborhood (Community-Wide Urban Design Guidelines)
- Enhance community participation and empowerment and increase the accountability of various groups and entities to the Roxbury community, including institutions, government agencies and businesses (Implementation & Governance)
- Integrate and connect Roxbury with the larger network of parks, transit corridors/boulevards and business and cultural centers throughout the city (Open Space & Transportation)
- Raise the community's awareness of Roxbury's many historic assets and strong architectural legacy; promote historic and cultural preservation as a tool for neighborhood revival (Historic Preservation)
- Create a healthy environment and a rich array of cultural, educational and economic opportunities for the elderly and the youth of the community (Arts & Cultural Heritage & Economic Development & Job Creation)

Appendix B

Table 1: Biosafety level and their corresponding operation precautions

BSL	Agents	Practices	Safety Equipment (Primary Barriers)	Facilities (Secondary Barriers)
1	Not known to consistently cause disease in healthy human adults.	Standard animal care and management practices, including appropriate medical surveillance programs	As required for normal care of each species.	Standard animal facility No recirculation of exhaust air Directional air flow recommended Handwashing sink recommended
2	Associated with human disease. Hazard: percutaneous exposure, ingestion, mucous membrane exposure.	ABSL-1 practices plus: Limited access Biohazard warning signs Sharps precautions Biosafety manual Decontamination of all infectious wastes and of animal cages prior to washing	ABSL-1 equipment plus primary barriers: containment equipment appropriate for animal species; PPEs: laboratory coats, gloves, face and respiratory protection as needed.	ABSL-1 facility plus: Autoclave available Handwashing sink available in the animal room. Mechanical cage washer used
3	Indigenous or exotic agents with potential for aerosol transmission; disease may have serious health effects.	ABSL-2 practices plus: Controlled access Decontamination of clothing before laundering Cages decontaminated before bedding removed Disinfectant foot bath as needed	ABSL-2 equipment plus: Containment equipment for housing animals and cage dumping activities Class I or II BSCs available for manipulative procedures (inoculation, necropsy) that may create infectious aerosols. PPEs: appropriate respiratory protection	ABSL-2 facility plus: Physical separation from access corridors Self-closing, double door access Sealed penetrations Sealed windows Autoclave available in facility
4	Dangerous/exotic agents that pose high risk of life threatening disease; aerosol transmission, or related agents with unknown risk of transmission.	ABSL-3 practices plus: Entrance through change room where personal clothing is removed and laboratory clothing is put on; shower on exiting All wastes are decontaminated before removal from the facility	ABSL-3 equipment plus: Maximum containment equipment (i.e., Class III BSC or partial containment equipment in combination with full body, air-supplied positive-pressure personnel suit) used for all procedures and activities	ABSL-3 facility plus: Separate building or isolated zone Dedicated supply and exhaust, vacuum and decontamination systems Other requirements outlined in the text

This table was taken from the 4th edition of the "Biosafety in Microbiological and Biomedical Laboratories" Handbook.⁷¹

Biosafety Level 4

Biosafety level four is applicable for work with dangerous and exotic agents that pose a high individual risk of life-threatening that [can] be transmitted via the aerosol route and for which there is no available vaccine or therapy. All manipulations of potentially infected materials and isolates pose a high risk of exposure and infection to personnel, the community, and the environment. The facility is a specially designed building with specialized ventilation and waste management systems to prevent release of viable agents to the environment.

⁷¹ <http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm>

Appendix C

Safety Net Meeting with Whittier Street Residents

Thursday, February 27, 2003

6:30 – 9:00 PM

Agenda, Notes and Reflections

The purpose of this meeting was to go over the Longwood Medical Area's Interim Guidelines. The Boston Redevelopment Authority's most recent plan for the LMA seemed to imply that undesirable development may be placed in the Roxbury neighborhood. Klare Allen has set the agenda and invited residents from the Whittier Street Housing unit to come and give feedback on the Interim Guidelines. Before the meeting, she forwarded a copy of the guidelines for residents to look over. She highlighted sections of the guidelines that Safety Net should be concerned about; as the meeting continued, these sections were discussed and brought to the attention of the residents.

The plan that the LMA has proposed would be to expand its existing resources into the surrounding areas. The language in the report is meant to be vague but for members of the ACE team who have familiarized themselves with similar documents, the ideas presented in the report are very clear. The LMA wants to expand and will do so without consultation from the community but ensuring Roxbury residents that any new growth will benefit them in several ways: housing, economic development, and jobs; the three main issues that lure residents into a trap.

“There are also significant impacts on the environment, urban design and the surrounding residential neighborhoods, as well as opportunities for economic and workforce development, that need to be addressed.”

The report goes on to say that the LMA will develop a master plan along with the BRA and the Office of jobs and Community Services and the participation of community residents beginning in February 2003.

“The LMA Master Plan will guide future change in the LMA and at the same time seek to direct institutional expansion to appropriate locations [elsewhere] within the City of Boston.”

This line from the guidelines is very significant. Klare has taken this and turned it into a campaign slogan called the “elsewhere” project. The LMA cannot build anymore buildings in the Fenway Park area due to regulations and zoning because of the height restriction. The only area where they can conceivably build is on the opposite of the Ruggles' T stop which is adjacent to the Whittier Street housing units. The idea is for LMA to build more parking structures and dormitories for their employees and to expand the biotech facilities.

MASCO is a managing system that was thought to be in charge of hiring and the distribution of paychecks and human resources but it turns out to be much more; it controls the transportation and seems to have a lot of pull in regards to the planning process. It distributes parking passes and T passes to students and employees. Parking and transportation is a serious issue. The parking situation is very unfair. Residents do not receive the benefits of the parking structures; they are not given passes and subsidized parking passes. A representative of Gloria Fox's office was at the meeting; her suggestion was for us to take a look at the study that was conducted by Rutgers University in regards to discrimination within Metropolitan Areas in regards to its workforce, Boston was one of the highest ranked in terms of blatant discrimination.

The problem Safety Net is finding is the BRA's ambiguity in regards to this master plan submitted by the LMA. In meetings with the BRA, ACE asks whether or not they are taking this proposal serious and they say no, however, the LMA seems to be proceeding as if this master plan is the one that has been decided upon. There seems to be no straight answers coming from the BRA or LMA.

There are reports that City Hospital is pushing to bring in biomedical research into the area with level four status. Level four is what is what the Center for Disease Control in Atlanta is operates at which handles very dangerous and deadly diseases for research in regards to weapons on mass destruction. This is very frightening to many residents, not to mention the potential to catastrophic disaster with all the surrounding universities and with the heightened terrorist threat level which the government is warning the nation about.

The next phase of the meeting was to set an agenda for Safety Net for the next four to six months. The question: how does ACE influence the decisions around the master plan? Penn handed out a diagram which analyzed the power structure. We are using this diagram to assess the "players" that influence the direction of what will taken in regards to the planning and development of Roxbury.

Appendix D

On February 27th Safety Net members met in the Whittier Street Housing Development. The Whittier Street developments are located across from the Ruggles T stop on the Orange Line. The notes from the meeting are included in this report along with reflections of the meeting and the resident's comments (Appendix B). Also included is the next step strategies that Safety Net hopes to embark on in the following four to six months.

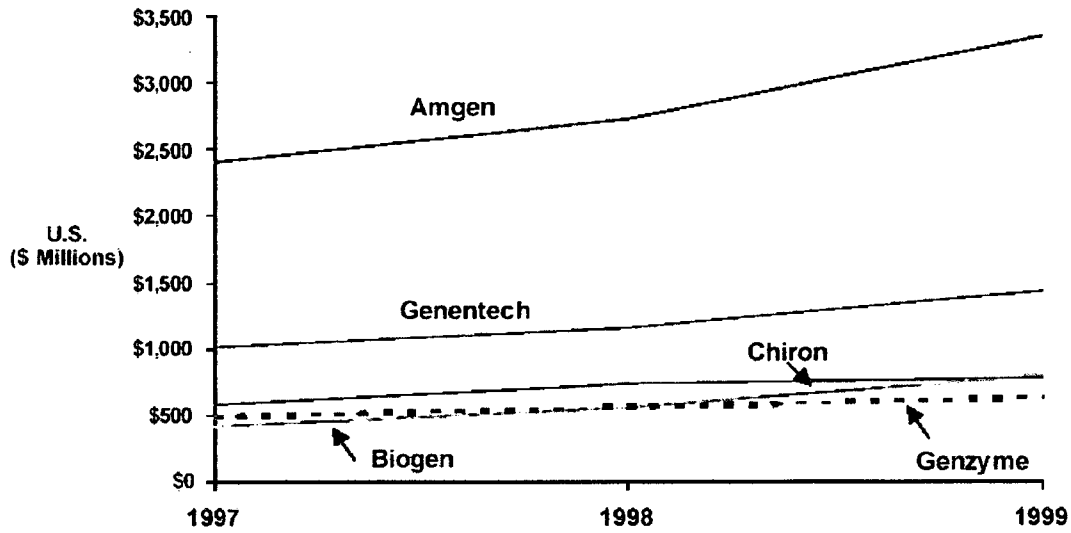
Safety Net Priorities:

(as expressed by members in their February 27th meeting)

- 1) RMP- to follow up and to make sure that the demands of the community are represented in the final draft of the plan.
- 2) Satellite parking should be banned; the residents agrees that they do not want this within the community
- 3) P-3 Community Advisory Committee (which is elected by the Mayor); the idea is to keep an eye on the development of this parcel and to make sure that decisions are not being made without the input of the residents
- 4) LMA seems to be proposing things that seem to be against ACE's agenda; strategize as to what can be done about this
- 5) Strengthen Safety Net and the Guardians (see diagram for reference)
- 6) Urban Ring; follow the developments and ensure that whatever does proceed with this that residents of Roxbury, Dorchester, and Mattapan are not left out of the loop, literally
- 7) Leadership development- building the capacity for residents to participate by setting the right priorities
- 8) Democratic National Convention is coming to Boston; Senator Kerry is running for the Presidential ticket and does not want any bad press. ACE and Safety Net can use this to their advantage by organizing a campaign against the BRA and other political alliances. It would be a great opportunity for a media platform
- 9) Voter education is key. ACE would like to get the youth involved and this is one way to do so. Roxbury must have active voters or else their demands will have absolutely no weight. Politicians listen to active voters, this is very, very important

Appendix E

Top Five U.S. Biopharmaceutical Companies by Worldwide Sales



Source: Sales figures; Burrill & Company.

<http://www.ehcca.com/presentations/Penhoet.pdf>

Appendix F

Table 1: State Bioscience Strategies

State	Bioscience Strategic Plan	Technology Strategic Plan Including Bioscience Focus	Year Adopted
Arkansas	X		2000
Connecticut		X	1998
Florida	X		1998
Hawaii	X		1999
Louisiana		X	2000
Maryland	X		1991
Massachusetts		X	1993
Michigan	X		2000
Minnesota	X		2001
Missouri	X		2000
New Mexico	X		1999
New York	X		NA
Oregon	X		1999
Vermont		X	1996

Source: <http://www.bio.org/tax/battelle.pdf>

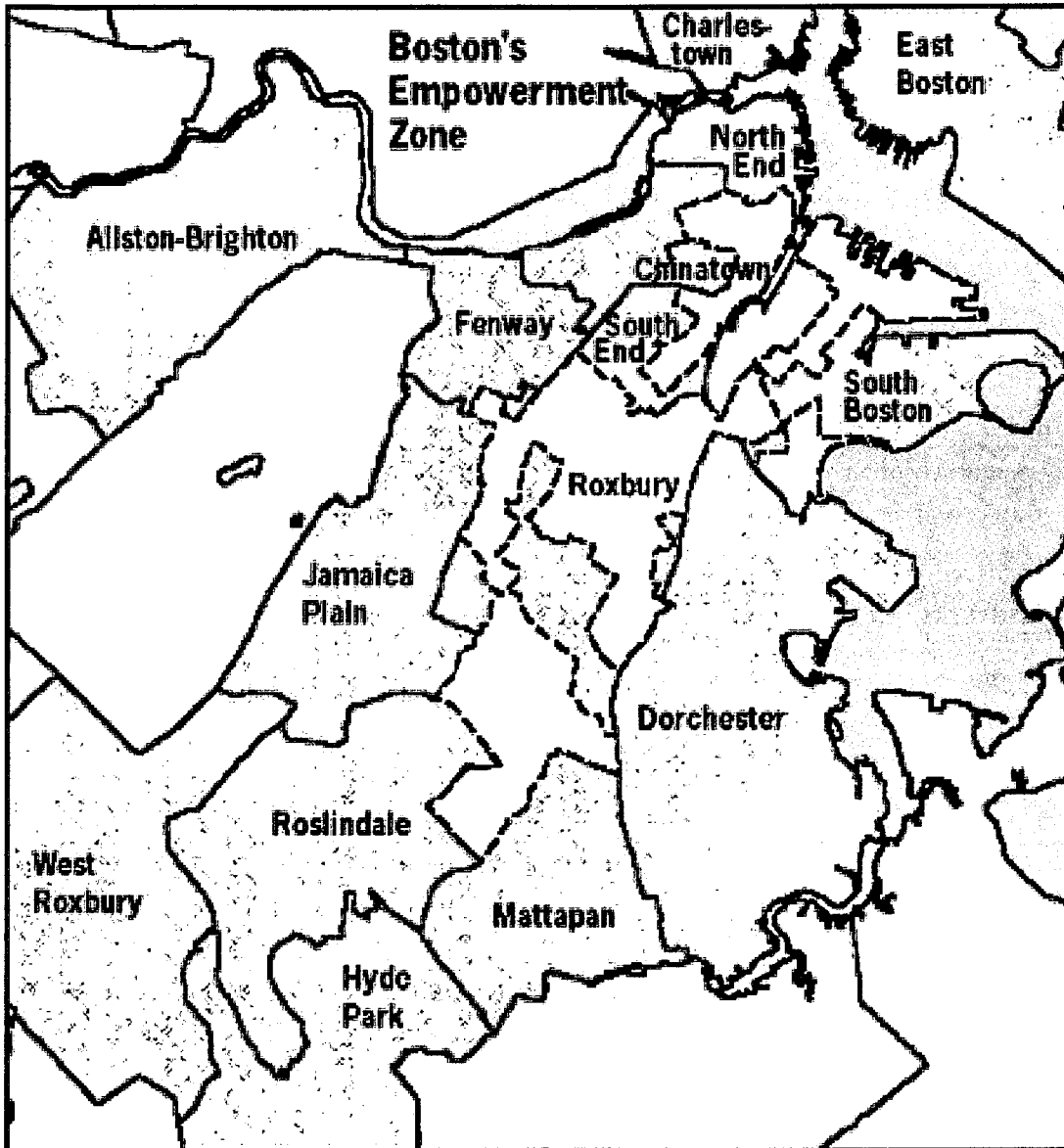
Table 2: Publicly Supported Bioscience Seed and Venture Funds

State	Fund
Existing Funds	
California	CalPERS Biotechnology Program
Massachusetts	BioVentures Investors LLC
North Carolina	NC Bioscience Fund
Ohio	EBTC BioInvestment Fund
Wisconsin	State of Wisconsin Investment Board
Funds Under Development	
Ohio	BioVentures Development Fund

Source: <http://www.bio.org/tax/battelle.pdf>

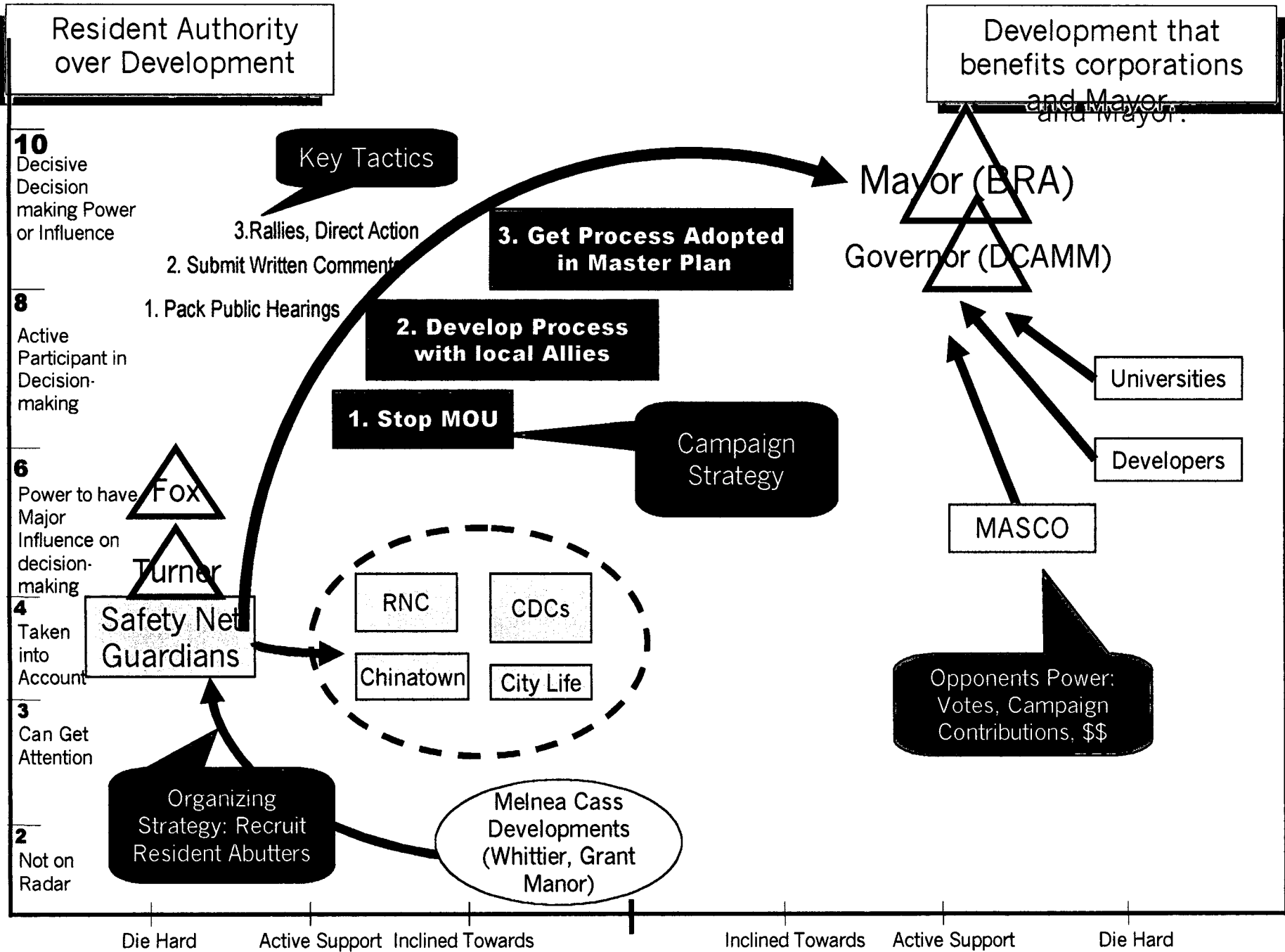
Appendix G

Map of Boston's Empowerment Zones⁷²



⁷² This map was taken from the Boston Connects website. Boston Connects, Inc. offices and staff coordinate the workshops and training programs along with Community Development Corporations and community based organizations; <http://www.bostonez.org/about/ami/htm>

SAFETY NET CAMPAIGN POWER ANALYSIS



Appendix H

References

1. Alternatives for Community and Environment. Available from www.ace-ej.org/programs.html Accessed April 14, 2003.
2. Biotechnology Industry Organization. *State Government Initiatives in Biotechnology 2001*. Available from <http://www.bio.org/tax/battelle.pdf> Accessed April 13, 2003.
3. Boston Connects, Inc. Available from <http://www.bostonez.org/> Accessed February 6, 2003.
4. Boston Redevelopment Authority, 2002. *The Roxbury Master Plan: Building a 21st Century Community* (Draft as of November 7, 2002). Boston, MA, November.
5. Boston Redevelopment Authority, 2003. *Longwood Medical and Academic Area Interim Guidelines* Boston, MA. February.
6. Cambridge Chamber of Commerce. www.cambridgechamber.com Accessed April 13, 2003.
7. City of Boston, 2003. "South Bay Harbor Trail". Boston, MA. Available from <http://www.ci.boston.ma.us/environment/harbortrail.asp> Accessed April 11, 2003.
8. Cortright & Mayer, 2002. *Signs of Life: The Growth of Biotechnology Centers in the U.S.* The Brookings Institute, Washington, DC. June 11.
9. Greenberger, Scott, 2003. "City Pushes Local Jobs at Longwood". *The Boston Globe*, Boston, MA. March 14, p. B1.
10. Harvard Graduate School of Design. Available from <http://www.gsd.harvard.edu/people/faculty/lee/cv.html> Accessed April 17, 2003.
11. <http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm>
12. http://www.massbio.org/lawpol/PDF/growth_text.pdf Accessed March 10, 2003.
13. <http://www.nal.usda.gov/bic/bio21/bioproc.html> Accessed February 5, 2003.
14. Klein, Rick, 2003. "Report Hits Tax Cuts for Fiscal Crunch". *The Boston Globe*. Boston, MA, February 18, p. B1.
15. Krasner, Jeffrey, 2003. "In Biotech Race, Mass. Lacks Big-Money Support State is Looking at Low-Cost Ways to Keep Regional Advantage" *The Boston Globe*. Boston, MA. February 12.
16. Krimsky, Sheldon, 1991. *Biotechnics and Society: The Rise of Industrial Genetics*. Praeger: Westport, Connecticut. p. 22.
17. Loh, Penn, 2003. "Community Research Opportunity: Sustainable Development and Environmental Justice in Roxbury". *Alternatives for Community and Environment*, Roxbury, MA.
18. Massachusetts Biotechnology Council. "Law and Policy". Available from http://www.massbio.org/lawpol/PDF/support_text.pdf
19. Massachusetts Biotechnology Council. *MassBiotech 2010*. Available from http://www.massbiotech2010.org/pdf/massbiotech2010_report.pdf
20. Medical Academic and Scientific Community Organization, Inc. Available from http://masco.org/aboutMasco_facts.htm Accessed March 11, 2003.
21. National Agricultural Library. *Biotechnology for the 21st Century: New Horizons*. Available from

22. Palmer, Thomas, 2003. "Marching Orders on Longwood". *The Boston Globe*, Boston, MA. January 19, p. H1.
23. Penhoet, Edward. *The Biotechnology Enterprise: The State of the Industry*. Available from <http://www.ehcca.com/presentations/Penhoet.pdf> Accessed April 13, 2003.
24. Personal communication with Inez Foster, Boston Connects, Inc., April 9, 2003.
25. Personal communication with Penn Loh and Warren Goldestein-Gelb, January 24, 2003.
26. Personal communication with Penn Loh, January 23, 2003.
27. Personal communication with Penn Loh, January 24, 2003.
28. Personal communication with Professor James Jennings, April 14, 2003.
29. Personal communication with Professor James Jennings, April 14, 2003. See Appendix A: *Foundations of the Plan: Principles and Values*.
30. Restuccia, Paul, 2002. "Biotech landing in Longwood area". *The Boston Herald*, Boston MA. March 22, p. 43.
31. Shutkin, William, 2000: *The Land That Could Be*. Cambridge, MA: The MIT Press. p. 5.
32. Smith, Stephen, 2003. "Menino backs biosafety lab plan". *The Boston Globe*. January 18.
33. Stull and Lee, Inc. Available from <http://www.stullandlee.com/leadership.html> Accessed April 17, 2003.
34. The Boston Landmarks Commission, 1994. Environment Department. Available from: <http://www.boston-online.com/roxhist.html> Accessed March 25, 2003.
35. The Campaign to Save Chinatown. <http://www.protectchinatown.org/> Accessed March 11, 2003.
36. US Census Bureau, 2000. "Select Social, Demographic, and Economic Characteristics". SF3+.
37. Van Voorhis, Scott, 2003. "Smaller Version of Joslin Tower OK". *The Boston Herald*, Boston, MA. April 3, p. 54.