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Reconnecting Urban Communities:

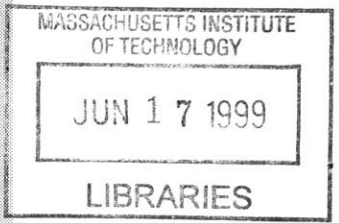
Northeastern University Housing Project
Boston, Massachusetts, U.S.A.

By
Jing Yu

Bachelor of Architecture
Tsinghua University, Beijing, P.R.China
July, 1996

Submitted to the Department of Architecture
in partial fulfillment of the requirements for the degree of
Master of Science in Architecture Studies
at the
Massachusetts Institute of Technology

June, 1999



ROTCH

Signature of Author _____

Jing Yu
Department of Architecture, June, 1999

Certified by _____

Roy Strickland
Associate Professor of Architecture, Thesis Advisor

Accepted by (_____)

Roy Strickland
Chairman, Department Committee on Graduate Students

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Thesis Readers:

Michael Dennis, Professor of Architecture
Reinhard Goethert, Principal Research Associate

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ABSTRACT

This design thesis studies the potential of urban design and urban housing to weave vacant lands, their urban context and the urban communities surrounding them. It focuses on an urban housing project adjacent to Northeastern University in Boston, Massachusetts.

The theoretical background of this thesis partially comes from Aldo Rossi's observation that cities are composed of many distinct districts that were formed as smaller cities. According to Rossi, designers should operate on these districts as the first step toward designing cities as a whole.

Boston is one of the case studies in Kevin Lynch's image theory. The image map he provided is very crucial for my urban design. The thesis proposes a city subcenter based on the image map of the South End.

Moreover, the site is located in one of the low income residential districts in Boston. Social polarization is very obvious between the site, the South End - Harrison Lenox neighborhood, and other residential districts, such as Beacon Hill and Back Bay. Therefore, this thesis also focuses on defensible space design. An effort is made to reduce social polarization, blur the physical boundary of public housing, and

make the neighborhood a desirable place to live.

The first half of this thesis focuses on a background study and provides precedents of university- community tension and affordable housing in Boston. Also included is a site study encompassing the university, the communities and the surrounding area in general.

The second half of the thesis provides design guidelines for future development and an urban design for the site area.

**Thesis Advisor: Roy Strickland
Title: Associate Professor of Architecture**

To My Loving Parents and Lori Geissenhainer

ABSTRACT

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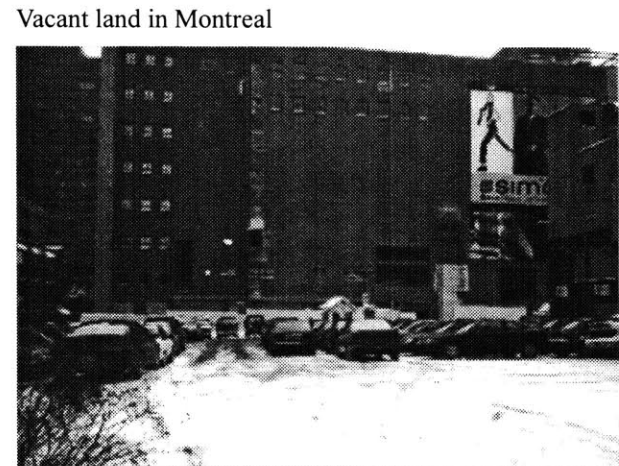
CHAPTER 1 INTRODUCTION

“The city is not by nature a creation that can be reduced to a single basic idea. This is true both for the modern metropolis and for the concept of the city as the sum of many parts, of quarters and districts that are highly diverse and differentiated in their sociological and formal characteristics.”¹ A study and renovation of a city by operating on a limited part of the city is suggested by Aldo Rossi in his book, *The Architecture of the City*. I think this method will be more helpful and realistic when we study big cities with long histories because more complicated urban patterns and structures are involved in such studies.

All over the world, many big cities have all kinds of problems. One of them is the existence of vacant land among built-up areas. These city “scars” destroyed the continuity of the city and make the city fragmented. They came into being during the Urban Renewal movement “without show that new construction will be built.”² In most cases in the US, they are adjacent to low-income communities. This is not only an issue of a city’s physical form, but also a sociological one. One can easily find such vacant lands in old cities, such as



Vacant land in Montreal



Vacant land in Montreal

Boston, New York, Montreal and Beijing, etc. Therefore, the study and redevelopment of these vacant pieces in old cities interest me particularly. I think this is a more realistic approach to achieve our final goal: repairing the city.

“The city has always been characterized largely by the individual dwelling.”³ As the basic element in forming the texture of the city, urban housing can be a potential mediator between urban conditions under complicated circumstances. I am interested in housing as urban infill strategy also because it has a lot of potentials to either melt away passively among disjointed urban pieces or create positively a new focus in the city.

Boston, as a good example of the above theories and concerns, is composed of Back Bay, North End, Beacon Hill and South End, etc. These neighborhoods are obviously different from each other in both social and formal characteristics. In this collision of different urban pieces, one can find easily vacant land which is both a headache and potential chance for an urban designer to start his/her work toward

a harmonious, organic and integrated city.

Therefore, this thesis studies the potential of urban design and urban housing to weave vacant lands and their urban context in Boston. A housing project near Northeastern University in Boston is chosen. The site includes four vacant blocks with only few existing buildings along Tremont Street. The surrounding area of the site is also involved in the design in order to achieve wholeness and continuity. Also, the influence of BHA public housing community, other neighborhoods in the South End, and Northeastern University are considered. Design guidelines are developed during the study process and hopefully will be helpful for not only the site but also other similar sites in Boston.

I would like to begin this design thesis with a background study of Boston, the South End and three urban design theories. Later, the design guidelines and design will be based on the study.



Vacant Land in Boston

1 Rossi, *The Architecture of the City*, pg. 64

2 Wolfe, *Discover Montreal*, pg. 30

3 Rossi, *The Architecture of the City*, pg. 70

CHAPTER 2 BACKGROUND STUDY

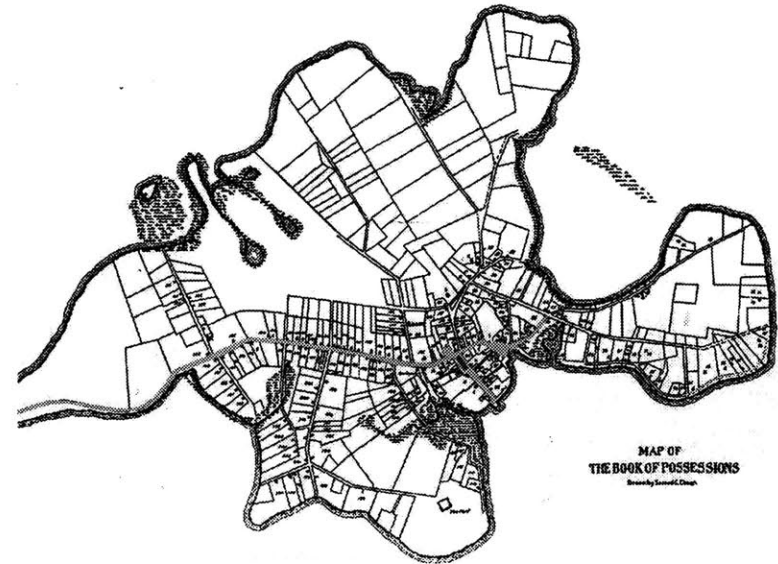
2-1 BACKGROUND OF BOSTON

“Boston, the city directly at hand, is unique in character among American cities, being both vivid in form and full of locational difficulties.”¹

— Kevin Lynch

The thesis site is located in a peripheral area of Boston. With the development of the city over the past four centuries, this area has attracted more and more attention. In order to gain a deep understanding of the site, I will start from the historic background of Boston because, otherwise, we are not able to obtain a solution rooted in Boston’s urban evolution and architectural tradition.

From a hilly peninsula, almost totally surrounded by water with only the narrow neck connected to the mainland in the early seventeenth century, to a modern metropolis in the late twentieth century, Boston’s evolution is very unique among American cities. Because of its special topological and geographical characteristics, and its social and physical complexity, it has at-



Boston map showing civic structure in 1640

tracted a lot of interest from not only urban designers, but also historians, sociologists, economists and many other professionals.

The Image of Boston

Boston also attracted a lot of attention from Kevin Lynch. He writes, “For almost all the persons interviewed, this Boston is a city of very distinctive districts and of crooked, confusing paths. It is a dirty city, of red-brick buildings, symbolized by the open space of the Boston Common, the State House with its gold dome, and the view across the Charles River from the Cambridge side. Most of them added that it is an old, historical place, full of worn-out buildings, yet containing some new structures among the old.”² This is a vivid and unique city image in the mind of Bostonian and visitors. The following paragraphs will look at the topographical history of Boston to know how this image came into being and helped me to develop the image in the later chapters.

City Form and Origin

There are two models of city layout in America according to Aldo Rossi in his book, *The Architecture of the City*:

“Once the pioneers arrived in this country, they had to organize their cities. They followed one of two models: either cities were laid out along grid lines, as is the case in most Latin American cities, New York, and other centers, or they were established as ‘main street’ villages, the image of which has become legendary in film westerns.”³

Boston belongs to the latter. Unlike other American cities, Boston began with crooked streets which have a European flavor. People used to think that the crooked streets in Boston was because of cows, but, in fact, Boston’s city structure came from the typical English prototype. Simply two main streets meet in the most important public space (a market) in the city. State Street, the Old State House and Washington Street formed the basic civic structure of Boston in the early seventeenth century.

Evolution of Boston

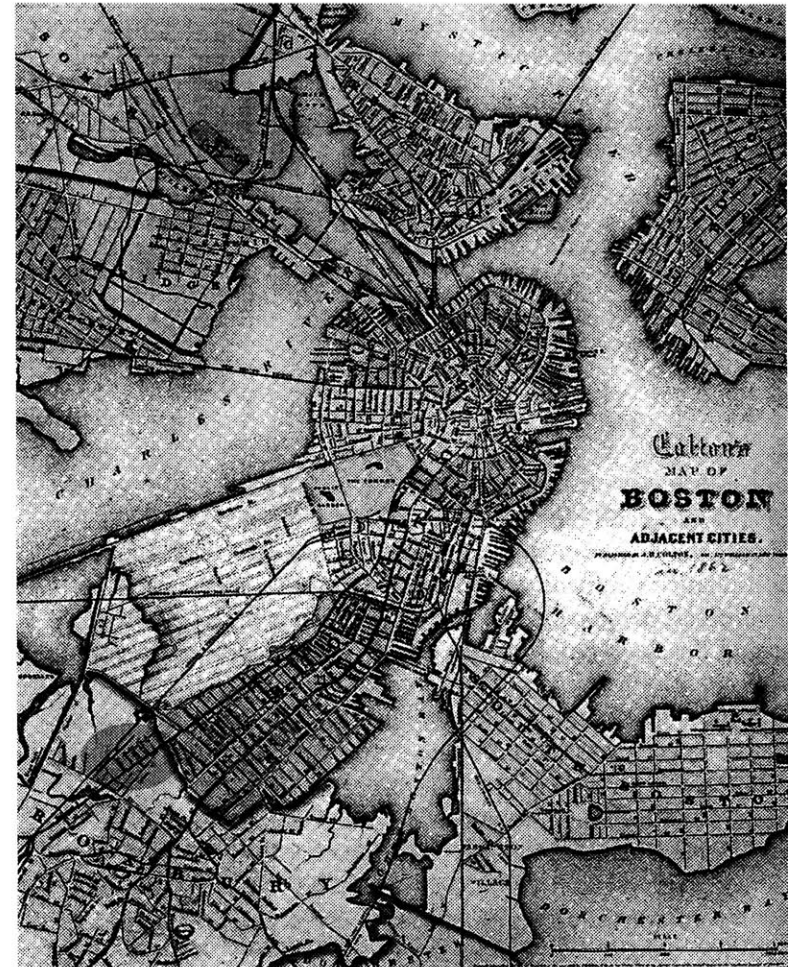
Seventeenth Century

Boston's geographic features gave this city a lot more limitations than those of any other American city. Because of the mountains and the water, Boston was built on limited land. So, from the beginning, land shortage was a big problem for Boston and had to be solved through cutting down the Hills and infilling the water later in the nineteenth century.

Eighteenth Century

The peninsula was still isolated from the mainland in the early eighteenth century because there were more political and social changes than topographical or architectural ones. Boston divided into separate districts sharply during this period of time and an old feud between the Southenders and Northenders last for the whole century. The population remained stable. South End still had only one main thoroughfare, Washington Street, and was "an area of fields, gardens and large houses."⁴

Nineteenth Century



Boston map in 1855 showing the origin of the site area

The nineteenth century was very crucial in the history of Boston. Most of the big changes in the city happened in this period of time. The cutting down of the hills, infilling of the Coves and Back Bay gave Boston more physical complexity and a rich history in terms of city form and architecture. The current residential districts were formed along with the migration of population in the city. Upper-middle class people ran away from South End to Back Bay or Beacon Hill, and the decay of South End became inevitable and fast in the mid-nineteenth century.

Residential Districts in Boston

Boston has many distinctive residential districts, such as Beacon Hill, Back Bay, North End and South End, which were developed during different time period and are very easy to recognize. "Each part of Boston is different from the other. You can tell pretty much what area you're in."⁵ These residential districts, ranging from slum to upper-class housing, give Boston not only diverse urban textures and architectural styles, but also diverse social lives and problems. South End, which is my

focus in this thesis, has been such a problem for almost two centuries.

2-2 THE STORY OF SOUTH END

We all agree that Boston is an "one-sided"⁶ city as Kevin Lynch said in his book, *The Image of the City*. When you walking along the Charles River on the Cambridge side, you are always excited with Boston because of the landscape along the Charles River, the balanced skyline, the elegant red brick townhouses in Back Bay and Beacon Hill. However, on the other side of Boston, when you move along Washington Street from downtown to South End, your experience is totally different. From "an area of fields, gardens and large houses."⁷ in eighteenth century to "a slum region of tenements and lodging houses"⁸, the South End has become one of Boston's problems, which the city government has to confront in the near future.

The old South End is an area bounded by the New Haven Railroad tracks to the north, Lenox Street to the west, Albany Street to the south, and Dover Street to the

east. After 1850, the term South End was applied to the new lands south of Dover Street, developed in the area where the Neck widened as it approached Roxbury. Now, according to the Boston Redevelopment Authority's new definition, the South End neighborhood includes three sub-neighborhoods, which are Columbus, Shawmut and Harrison Lenox.

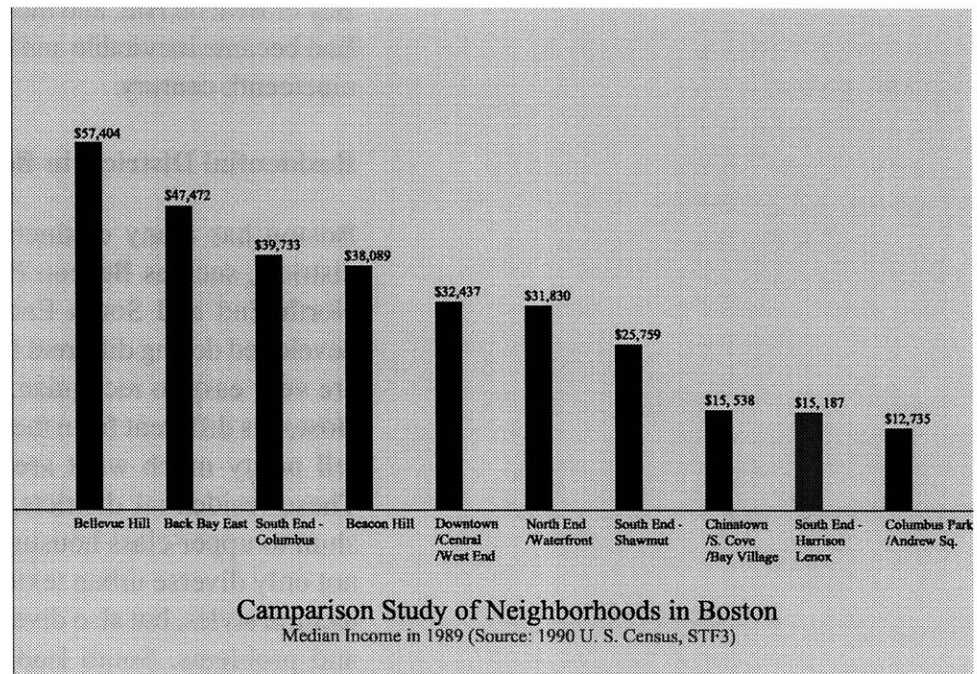
The South End had a chance to become another Beacon Hill before Back Bay was infilled. People thought that it would become "one of the most solid residential sections of Boston"⁹. It was seen as an extension of the downtown center of Boston in the late nineteenth century, and had a tradition of mixed use of commercial and residential. However, since 1863, upper and middle class families had already begun to discard South End. They moved to Beacon Hill or Back Bay, which was infilled and developed in 1859.

According to Professor Albert B. Wolfe, the decay of South End was due to two reasons¹⁰. One is that Columbus Avenue was built up quickly with cheap houses on mortgages. People gave up their houses to

banks during the 1873 Panic. Banks sold these houses much more cheaper later and caused further drops in the value of Columbus Avenue real estate and surrounding land.

The following chart shows the median income of ten neighborhoods in Boston in 1989. The thesis site is located in South

End - Harrison Lenox neighborhood. Comparing other neighborhoods in Boston, we can see that South End - Harrison Lenox has almost the lowest median income and highest minority population among all the residential districts. The median income in this area is only a little higher than Columbus Park/Andrew Square, which is the lowest in Boston.



2-3 THEORETICAL BACKGROUND

*“The city is not by nature a creation that can be reduced to a single basic idea. This is true both for the modern metropolis and for the concept of the city as the sum of many parts, of quarters and districts that are highly diverse and differentiated in their sociological and formal characteristics.”*¹¹

—Aldo Rossi

Study Area

Compared with other American cities, Boston may be the best example of Aldo Rossi’s theory, especially in its formal characteristics. Most American cities were built on grided lines, such as New York, Los Angeles and Chicago, so that it is very hard to tell districts from city maps. However, Boston is an exception. You can easily tell those urban pieces, North End, Beacon Hill, Downtown, Back Bay and South End, which were planned in different “moments” of formation and projected on a horizontal plane, as Rossi said. “With respect to urban intervention today

one should operate on a limited part of the city, although this does not preclude an abstract plan of the city’s development and the possibility of an altogether different point of view. Such a self-imposed limitation is a more realistic approach from the standpoint of both knowledge and program.”¹²

“Study Area”, one of the basic terms in Aldo Rossi’s theory, is thus a very important concept of this thesis. First, since the city is composed of many distinctive pieces, it will be more realistic to study a certain area of the city instead of the city as a whole; second, in order to keep the diversity of a city’s structure, which is considered the nature and beauty of a city, urban designers should focus on the study areas.

Regarding piece-whole relationships, however, I think these urban pieces create a kind of totality and unity over time, like an organism.

Although the city was built up by different individuals over time, it has its own reason, motivation and autonomy which cannot be controlled or fulfilled by indi-

vidual designers. “The city, a social entity, is in psychological terms a product of a collective unconscious. At the same time, as an amalgam of formal artifacts, it is a product of many individuals.”¹³ Therefore, for the individual designer, working on a part of the city, instead of city as a whole, is more meaningful.

“Real time tends to erode and supersede the neatly circumscribed and meticulously observed imagery of a specific urban context.”¹⁴ Urban designers are the ones who repairs the city over time. The single piece we do will be woven into the city’s structure and history. Many eroded urban pieces are repaired by different individuals simultaneously or over time, and this is the metabolic process of the city.

This is the reason, in this thesis, that an eroded area in Boston in a particular urban districts is chosen as a case study.

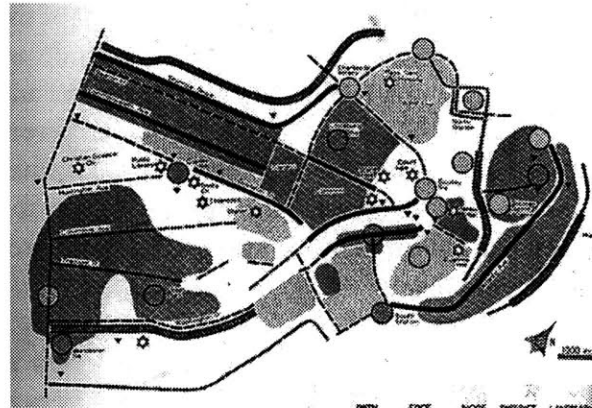
The City Image

Kevin Lynch’s book, *The Image of the City*, gave me a lot of inspiration when looking at Boston and the site. As a matter of fact,

Boston is one of the three case studies in this book. It is very helpful to start a study of a city's physical form from its images so that an urban designer knows what is strong and what is missing and how the city image comes into being.

Lynch created an image map for Boston in 1960 which I think is very helpful. Because he chose the central area within the line of Massachusetts Avenue as the study area, I would like to extend the image map further to South End in order to gain an image of the site area.

The above image study suggests a city subcenter in this area. Also, according to Aldo Rossi, residential districts work as "smaller cities"¹⁵. So, a center/focus is needed in every residential district. The subcenter will include visual and physical signs, and social and economic stimuli in order to create a vivid image for visitors and residents from the surrounding communities. Moreover, enough resident population based on housing has to be provided to allow enough activity in the subcenters.



The visual form of Boston as seen in the field in 1960 by Kevin Lynch



Image map of the site area

Defensible Space

Urban housing is the main issue in this design thesis, so I will also explore Oscar Newman's theory of Defensible Space. The site is located in one of the low-income neighborhoods in Boston. There are many improper physical forms such as alleys, building corners and improperly located entrances which lack natural visual surveillance. Crime control through physical urban design will be a very tough and crucial topic in this thesis.

Briefly speaking, Newman developed four characteristics of defensible space, which I will apply and develop in my design guidelines and design:

I. The capacity of the physical environment to create perceived zones of territorial influence.

II. The capacity of physical design to provide surveillance opportunities for residents and their agents.

III. The capacity of design to influence the perception of a project's uniqueness, isolation,

and stigma.

IV. The influence of geographical juxtaposition with "safe" zones on the security of adjacent projects.¹⁶

1 Lynch, *The Image of the City*, pg. 14

2 Lynch, *The Image of the City*, pg. 17

3 Rossi, *The Architecture of the City*, pg. 13

4 Whitehall, *Boston: A Topographical History*, pg. 34

5 Lynch, *The Image of the City*, pg. 66

6 Lynch, *The Image of the City*, pg. 20

7 Whitehall, *Boston: A Topographical History*, pg. 34

8 Whitehall, *Boston: A Topographical History*, pg. 139

9 Whitehall, *Boston: A Topographical History*, pg. 119

10 Albert B. Wolfe, *The Lodging-House Problem in Boston* (Cambridge, 1906), pg. 15.

11

12 Rossi, *The Architecture of the City*, pg. 64

13 Eisenman, "Editor's Introduction" in *The Architecture of the City*, pg. 9

14 Rossi, *The Architecture of the City*, pg. 64

15 Rossi, *The Architecture of the City*, pg. 65

16 Newman, *Defensible Space*, pg. 50

CHAPTER 3 THE SITE

3-1 THE SITE LOCATION

My thesis site is an area centered on two vacant blocks in the South End, Harrison-Lenox neighborhood, near Northeastern University. It includes four blocks between Tremont Street and Columbus Avenue and both edges of Tremont Street. The surrounding area of the site is also considered in the design in order to achieve wholeness and continuity within the district.

The two vacant blocks are now used as parking lots. The one between Davenport Street and Columbus Place belongs to Northeastern University, as does Columbus Place (an apartment complex), a parking garage on the other side of Columbus Avenue, and another two parking lots beside the garage.

Lenox Street Development, a public housing project by Boston Housing Authority (BHA), is located on the other side of Tremont Street.

Thus the public housing community, Northeastern University, South End



Site location in Boston

Shawmut neighborhood and several other small communities scattered in this area have an influence on the site.

3-2 SITE EXPERIENCE

In order to obtain first hand experience, I visited the site and the surrounding com-



Contemporary Boston map showing the site

my situation because I felt that the people on the streets were obviously not very friendly. The several public housing projects in this area are pretty recognizable and isolated because of their different texture, simple building styles and cheap construction materials. There are many large vacant blocks and small vacant lots along Tremont Street which make the street look worse than Columbus Avenue, one block away. Then, I realized that I was in one of the most decayed and unsafe places in Boston.

munities. The following are my strongest impressions.

Site Experience One

When walking on the site, or in the surrounding communities, I was surprised how fragmented the streets and blocks are. Then I became very alert about

Site impression



Site Experience Two

When I moved several blocks away from the site, walking on Huntington Avenue, I found citizens and students wandering around, drinking coffee, relaxing or shopping. The Boston Museum of Fine Arts, the green line subway, Northeastern University and Huntington Avenue together create a kind of safe, desirable and vivid city life and image.

3-3 EXISTING PROBLEMS

There are a lot of existing problems in and around the site, which is one of the most problematic areas in Boston.

1) Urban fragments

First of all, the area is so fragmented not only in terms of its urban fabric and street experience, but also in terms of social relationship between communities. Comparing the different urban textures around it, the site is like a bombed area and has no pattern at all. If we look at the Boston map twenty years ago, we would know that there was a urban texture in this area. After twenty years or more of demolition without promise of new construction, only

few buildings left.

2) University-Community Tension

University-community tension is a general issue in Boston, a college town. Northeastern University cannot avoid it. The tension mainly comes from the taxation policy on university land, student housing and university expansion, which I will discuss in next chapter.

At the end of nineteenth century, Northeastern University was built based on the YMCA. The university has a long tradition of community-oriented education. Because more than half of Boston's population were either new immigrants or first-generation Americans at the end of nineteenth century, Northeastern University was built in order to help young people to improve their situation.

Recently, people's attention is drawn to the west campus of Northeastern University because of its new development immediately adjacent to the Boston Museum of Fine Arts. It seems that the other side of the campus, along Columbus Avenue, is



Site view showing the existing building and courtyard

Site view showing the vacant lots





Lenox public housing development

too sensitive to be touched.

BHA public housing projects and several South End communities give the site a lot of pressures from many directions. The Lenox public housing adjacent to the site is a group of high density walk-up buildings.

3) Safety

As I described in the first site experience, this area is one of the most unsafe places

in Boston. The reason of the decay was discussed in the previous chapter from a historic point of view.

4) Public housing

Such housing is isolated by urban design and stigmatized by architectural design

5) Lack of open space and community center in the neighborhood

There is not a regional center/focus in this area, for example, a public open space, a commercial street, or a landmark.

View of Tremont Street showing the fragmented blocks





Existing building on the site (facade)



Existing building on the site (back)

Site view from the football field





Existing community garden



Existing affordable housing

The football field





Vacant lots on Tremont Street



Vacant lots on Tremont Street

Fragmented Tremont Street

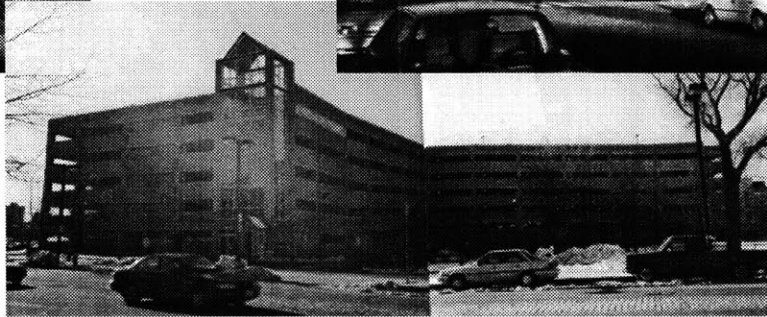




Affordable housing on Columbus Avenue



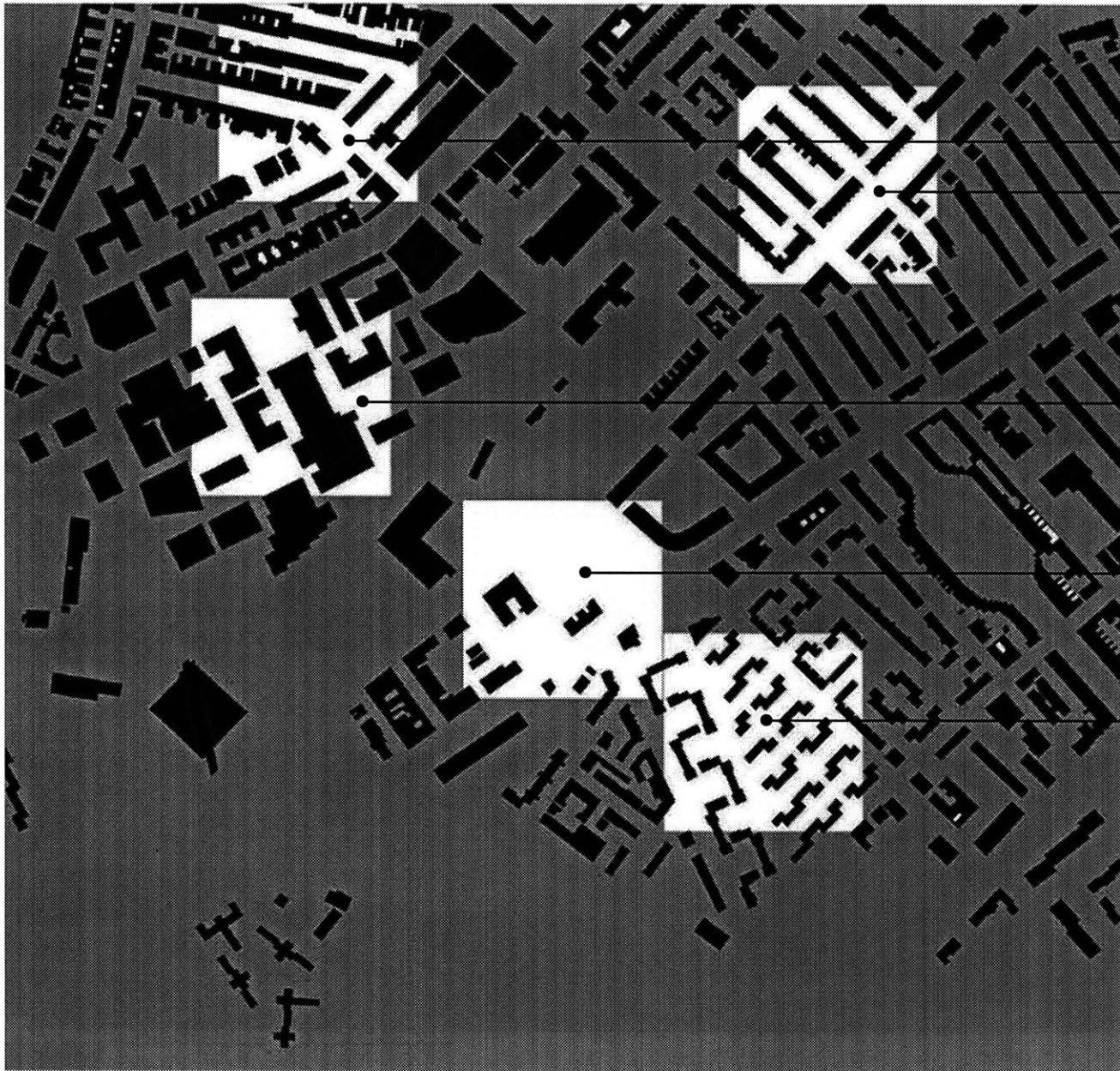
Building types along Columbus Avenue



Parking garage in the existing park along Columbus Avenue

View of Tremont Street showing the Lenox public housing and its community garden





residential area

South End

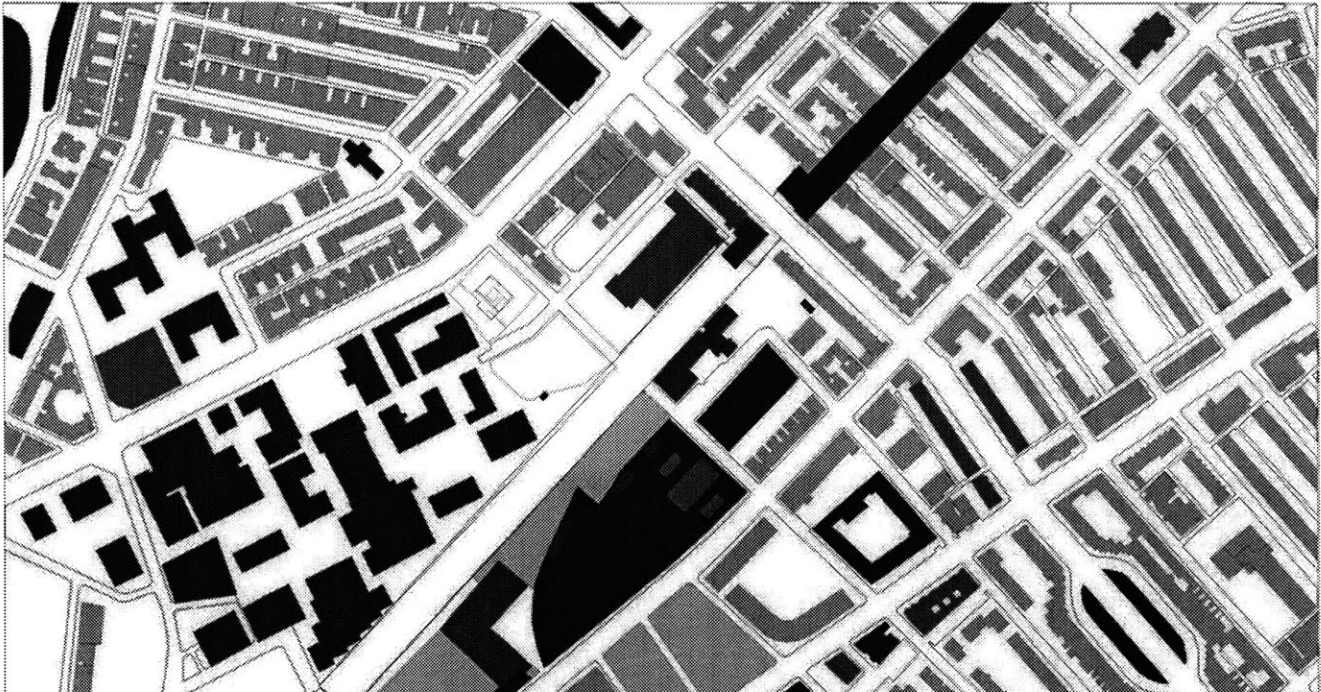
Northeastern University

the site

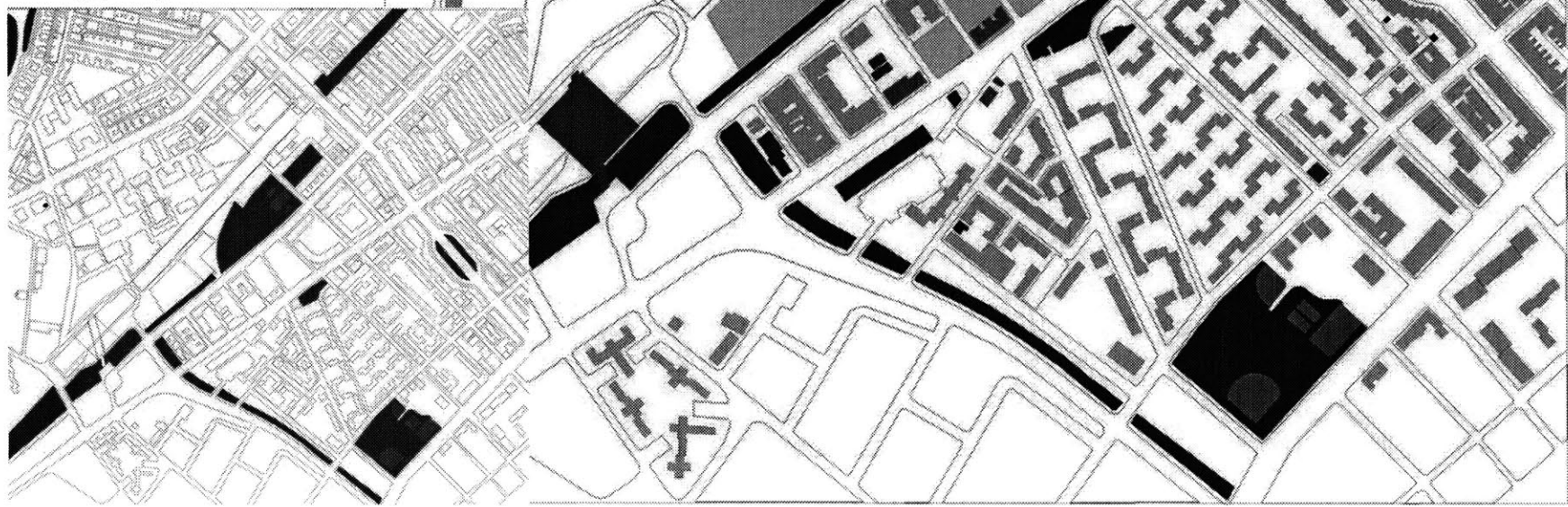
Lenox public housing

Figure-ground
showing the texture study

- residential
- mixed use
- commercial
- green space
- parking
- institutional



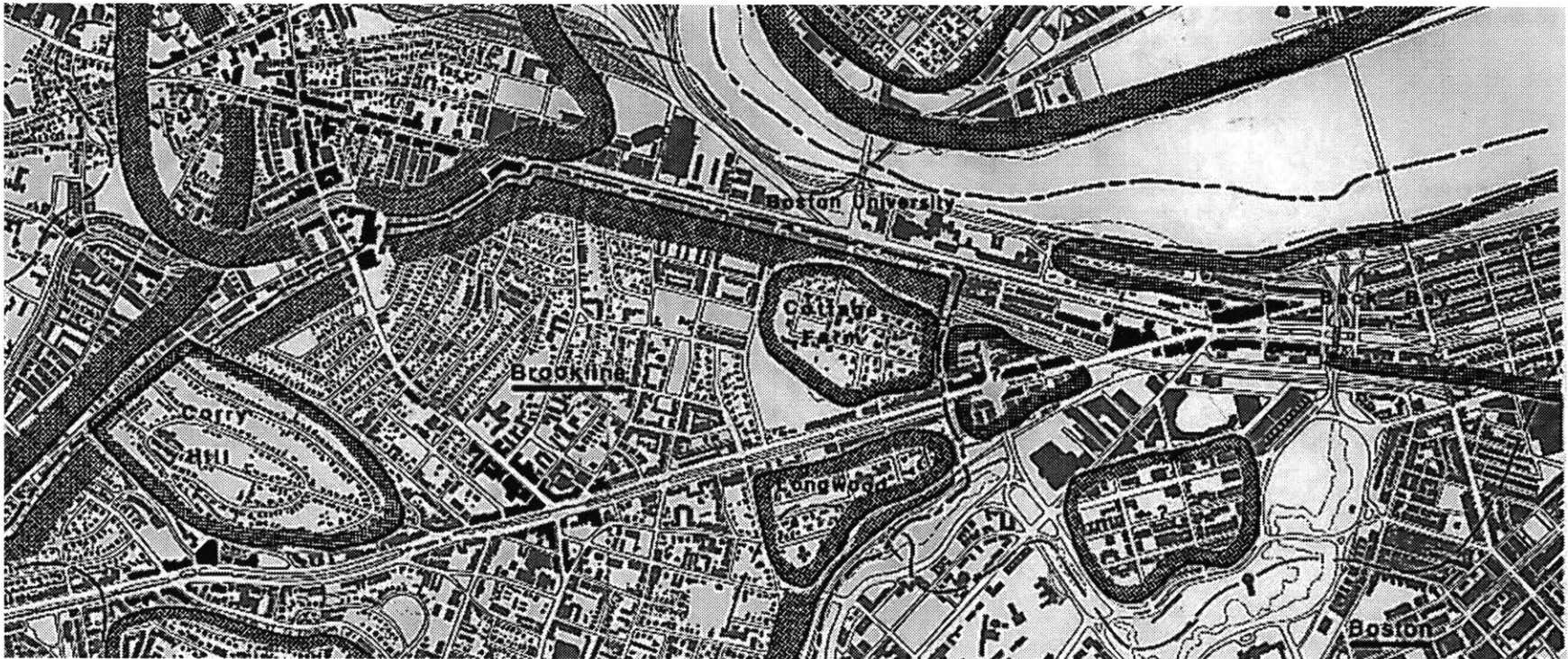
Existing green system



CHAPTER 4 STUDY OF PRECEDENCES

Many of the problems and pressures on the site can be seen around the country. Vacant lots after Urban Renewal, communities struggling against university expansion, isolated public housing and lack of affordable housing face many cities. The following precedents are examples of the efforts to address these issues and will help me understand the site and its potential more.

Communities around Boston University in 1970 by Robert Carroll



4-1 BOSTON UNIVERSITY AND COMMUNITIES

Boston University's relationship to communities is complicated as is common in Boston. Northeastern University and the surrounding communities have similar tensions. The presence of Boston University largely affected surrounding communities, such as Boston, Brookline, Cambridge, Brighton and Allston. There exists a long time tension between Boston University and its surrounding communities because of the following reasons:

1) The Universities' Exemption from Property Taxation

Boston had a land shortage from the beginning because of its special topography. However, 45% of the city's land is tax-exempt because they are occupied by institutions. The tax burden is transplanted on the businesses and homeowners. As a matter of fact, universities occupy only a small portion of the tax-exempt land, but people frequently criticize the universities for the situation.

2) Pressures on the Private Housing Mar-

ket Caused by University People
Housing is extremely expensive around Boston University because of students and young, transient singles. "In all of these communities there is resentment about the universities' effect on the rent structure and the conversion of units to accommodate students."¹

Boston University attempted to provide a large dorm capacity, but the housing issue is still very critical.

3) University Growth and Expansion

Boston University now has a small campus along the Charles River. It was since 1950s that Boston University began to have a main campus and expand. Although it owns several properties in Brookline, Boston University could not expand easily because of the strong resistance from this community. Brookline hopes to keep their current image of a professional class and family oriented area. Students and university people are not welcome.

Most of its expansion has been through purchase and conversion of scattered

buildings so that its campus is not very distinguishable from its surroundings. Therefore, its expansion didn't result in open protests.

4) Parking and Traffic Problems Allegedly Caused by University People

Boston University is served by an inexpensive transit system so that this problem is not as bad as those of other universities in Boston. However, there is not enough parking space on campus, the overflow parking on local streets is quite common.

The university attempted to solve it by school policies, but the policies do not seem to work. At the same time, they try to provide more parking spaces on the limited university owned land.



4-2 TENT CITY

Tent City affordable housing is an urban, mixed-income 269-unit residential community located at the heart of Boston's historic Back Bay and South End. The Tent City site has a long story since 1968. There was a famous demonstration in 1968 by a group of South End residents who camped out there to protest the lack of affordable housing in South End. On the same place where those tents were built 30 years ago,

an affordable housing project was designed by Goody, Clancy & Associates in 1988.

The goals of this project were:

1. Carefully blend new construction into an existing historic urban fabric
2. To make the housing units created available to some of the 2,779 South End families displaced by urban renewal and gentrification between 1962 and 1979.

3. Avoiding distinctions between dwelling unit type, size or location relative to income, race or ethnic background.

The project is composed of a middle rise building and four-story walk up townhouses. Seventy-five percent of its rental units are affordable to low and moderate income household. Twenty-five percent of its units is developed for market rate tenants.

Advantages:

1. All large family duplex units are located in the four story townhouse-type structures with direct rear access to the courtyard.
2. The entrance to street relationship reflects the traditional street/building wall/entry system.
3. Private patios and semi-public space in the sheltered interior courtyard.

Disadvantage:

1. Unit sizes are smaller than middle income standard but higher than traditional affordable housing standard.
2. No five bedroom apartment for larger families.

Building Data

Unit Configuration and Mix:

| Unit Type | Basic Unit | Handicapped Unit | Total |
|------------------|------------|------------------|------------|
| Studio | 1 | 0 | 1 |
| 1 Bedroom Flat | 86 | 7 | 93 |
| 2 Bedroom Flat | 85 | 7 | 92 |
| 3 Bedroom Flat | 22 | 3 | 25 |
| 3 Bedroom Duplex | 41 | 0 | 41 |
| 4 Bedroom Flat | 0 | 1 | 1 |
| 4 Bedroom Duplex | 16 | 0 | 16 |
| Total | | | 269 |

Typical Unit Size:

| | |
|-----------|---------------------|
| 1 Bedroom | 600 SF - 650 SF |
| 2 Bedroom | 825 SF - 850 SF |
| 3 Bedroom | 1,130 SF - 1,200 SF |
| 4 Bedroom | 1,450 SF - 1,525 SF |

Total Site Area:

3.3 Acres

Housing Densities:

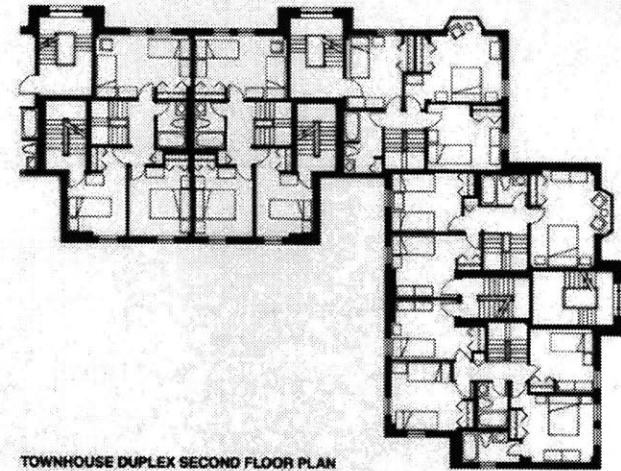
81.5 Units/Acre

Parking Densities:

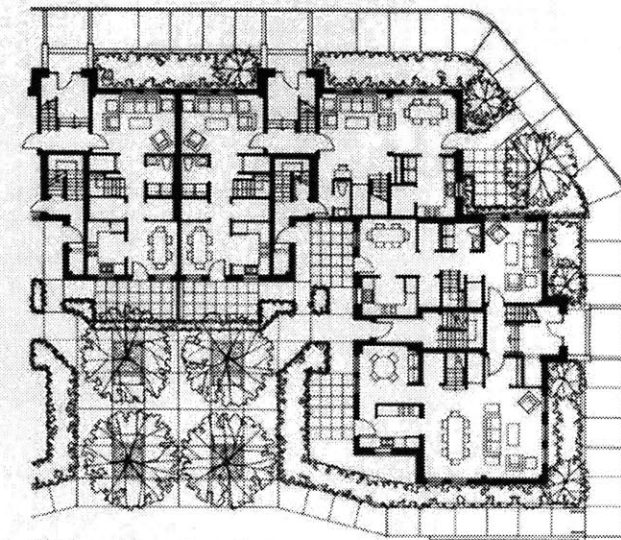
212 Space/Acre

Total Underground Parking:

698

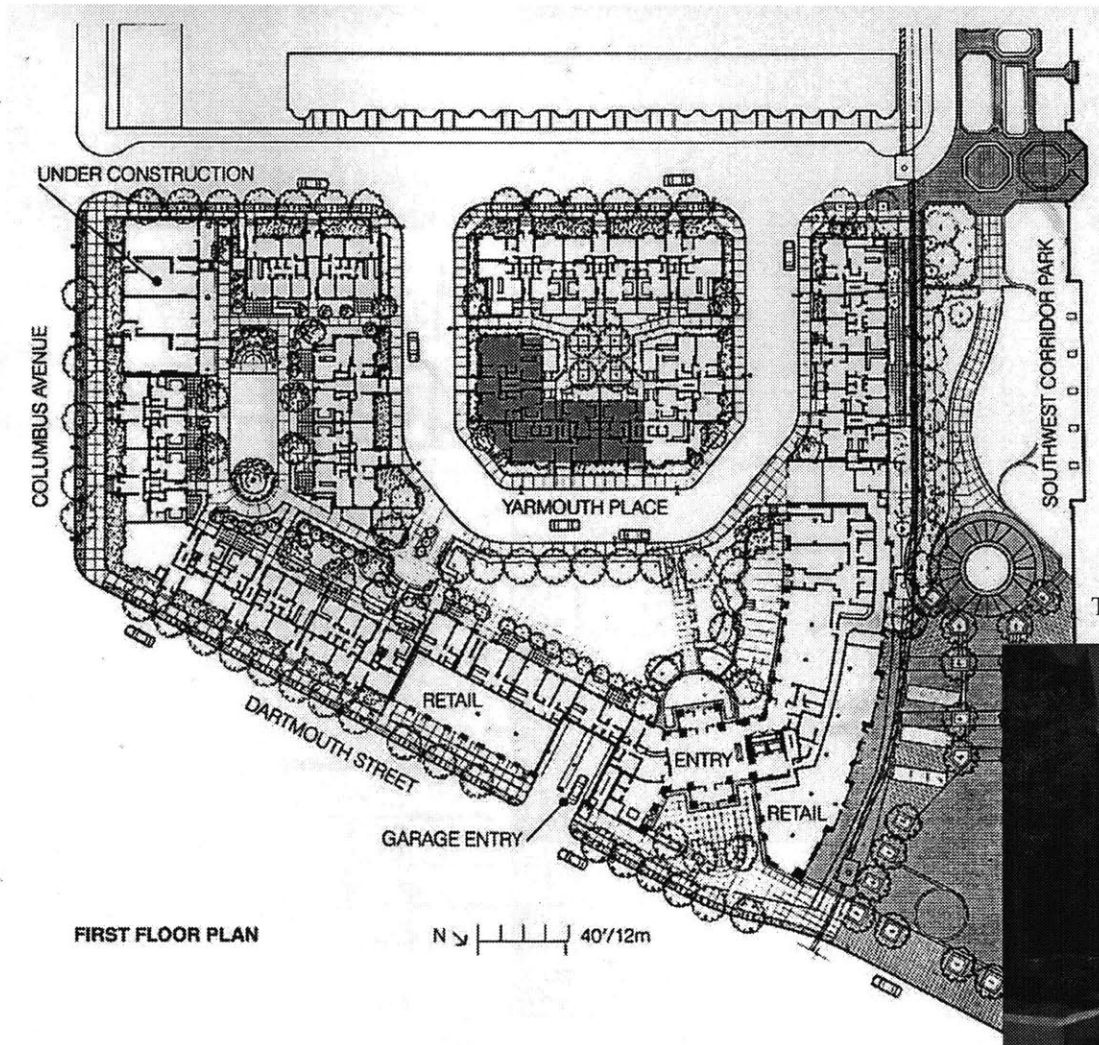


TOWNHOUSE DUPLEX SECOND FLOOR PLAN



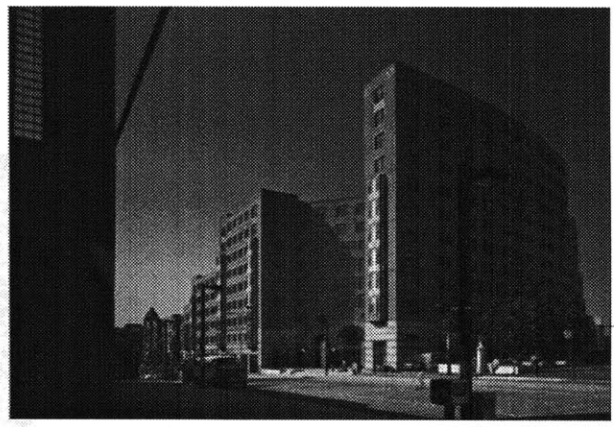
TOWNHOUSE DUPLEX FIRST FLOOR PLAN

N 1/20' = 0m

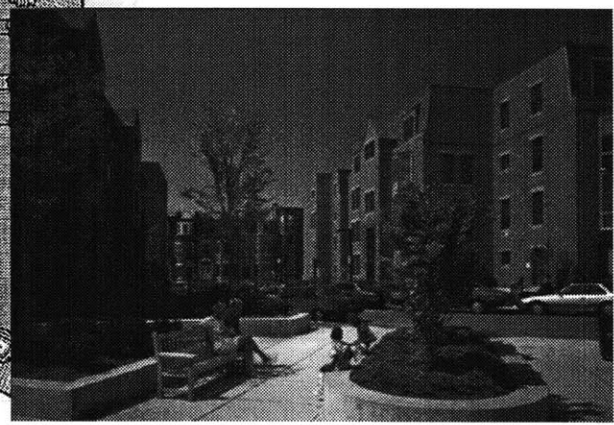


FIRST FLOOR PLAN

N 40'/12m



Tent City exterior view

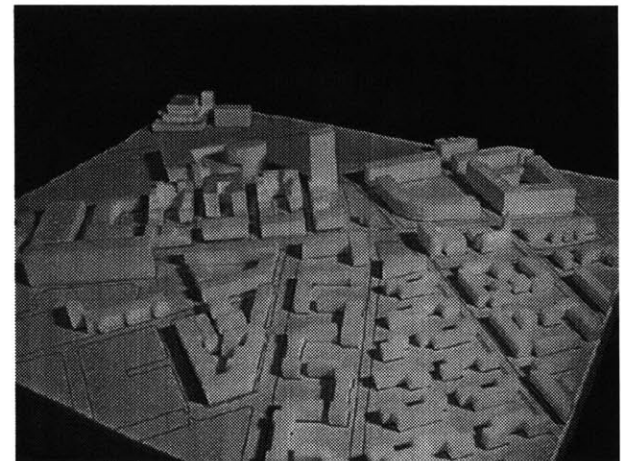


Tent City interior courtyard

CHAPTER 5 GUIDELINES AND DESIGN

5-1 DESIGN CONCEPT

This design thesis attempts to reconnect fragmented communities through urban design. At the same time, urban housing is explored as an approach to create a housing based city subcenter and commercial street. The design also incorporates defensible space strategies in order to create a safer low income residential district.



5-2 PROGRAM

Affordable housing
students
singles
young couples
senior citizens
low income families
moderate income families

Mixed use housing with street-front retail shops on Tremont Street to create a continuous commercial street as an extension of the downtown shopping street

Commercial center

Community lounge/meeting facilities

Management Office

Childcare facilities

Gym attached to the existing parking structure in order to dissociate the structure or remove the parking structure to another site

Open space (South End Plaza)

Green space and community garden
Outdoor community garden
Green house for the winter

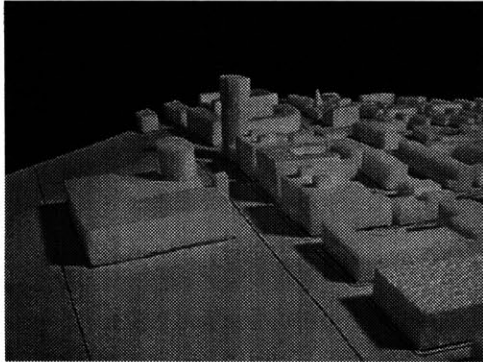
Parking (street level and underground parking, 1.3 spaces/unit)

5-3 DESIGN GUIDELINES

In this project, half of the site belongs to Northeastern University, and the other half belongs to the city and the community. Therefore, a mixed use housing project is proposed for students, transient singles employed by the university, local community members and migrants from other South End higher income communities.

In order to diminish the university-community tension, in the proposed housing project, enough housing and parking for students are designed to reduce the university pressure on surrounding communities. University expansion projects should cooperate with the communities and the city government. A participatory design process should be introduced as the next step.

The following design guidelines are developed for the design and future development of the site:



Contrast between void open space and solid buildings

1. Urban fabric

- a. Considering the old South End fabric and referring to the urban fabric before urban renewal;
- b. Extending the existing urban fabric around the site;
- c. Keeping the mass and density of this area.

2. Street Pattern

- a. Bringing back the old street pattern in this area;
- b. Creating a hierarchy of main street and side street, including street views, widths and 3- dimensional experiences.

3. Space

- a. Creating more open space for community activities;
- b. Emphasizing the contrast between void open space and solid buildings.

4. Site plan

- a. Responding to the location of the existing buildings in the site area;
- b. Exploring defensible space design, including a hierarchy of private, semi-private, semi-public, public spaces and locations of entrances.

5. Building

- a. Diverse housing types with commercial spaces should be proposed in order to give diverse lifestyles in the area;
- b. Architectural design should respond to the existing buildings on the site.

6. Units

- a. Diverse units type should be proposed to meet the different needs of different age, ethnic and income groups
- b. Unit sizes reflect both middle income housing standards and affordable housing standards, such as Tent City, etc.

7. Materials

- a. Respond to the existing concrete building (Columbus Place) and red brick buildings (South End traditional townhouses and public housing) in order to melt the new construction into urban context and reduce the isolation of the public housing;
- b. A gradual transition between two different material systems should be made.

8. Height

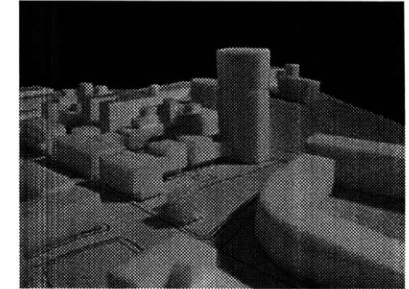
Four height limitations should be imposed on new buildings in order to create a variety of 3D space, blur the boundary of the public housing and mediate between three story public housing to seven story Columbus Place.

- a. The new building along Tremont Street should follow height of existing four story South End townhouses.
- b. The new building along Columbus Avenue should respond to the Columbus Place in order to create a continuous street

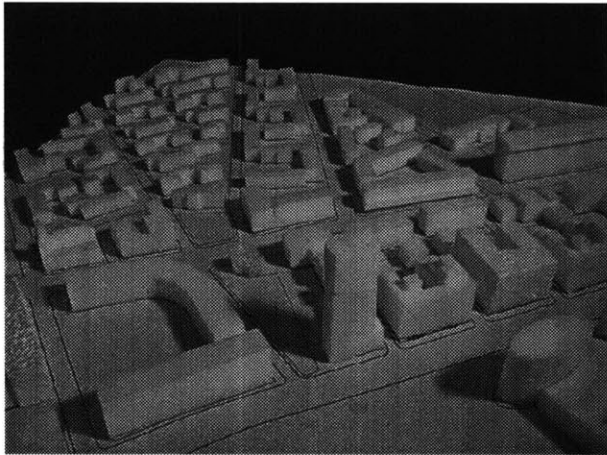
surface. Along the side street, the new building should mediate between 7 story middle rise and 4 story townhouses;

- c. Three story single family houses should be proposed as a transition between the above two building heights;

- d. One high-rise building should be proposed as part of the community center in order to provide distant landmark.

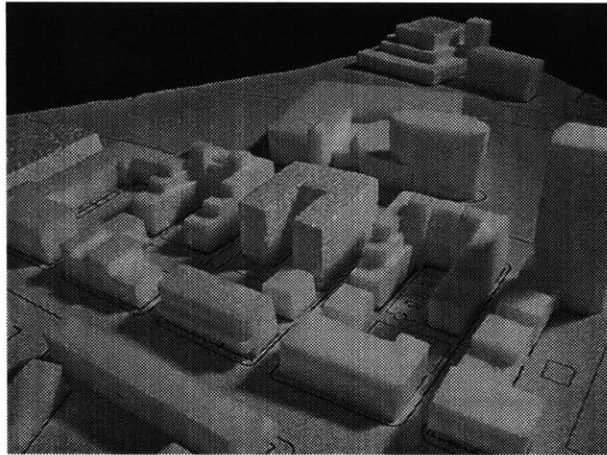


Model showing the plaza and distant landmark



Overall view from the football field

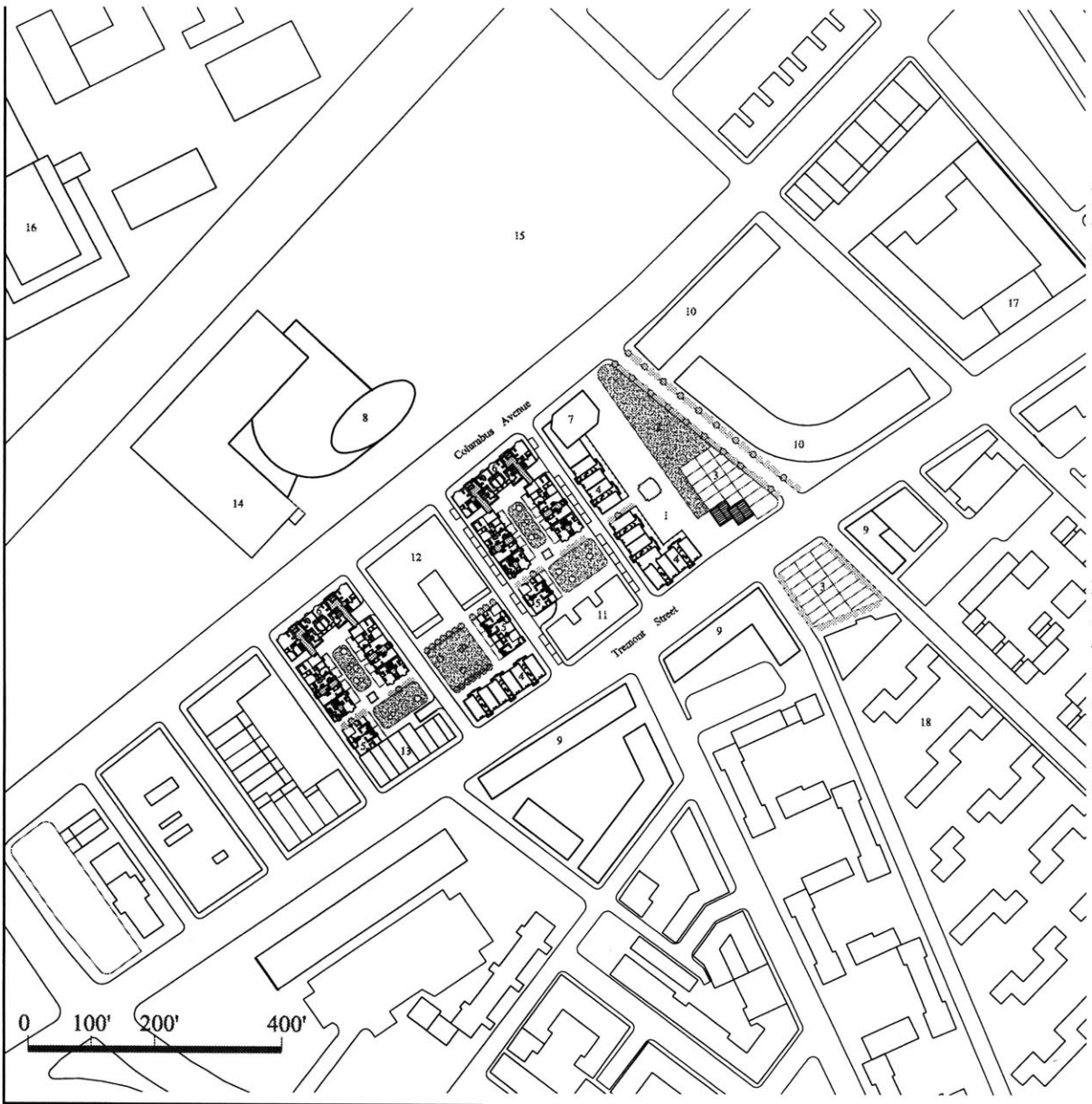
Model showing height limitations



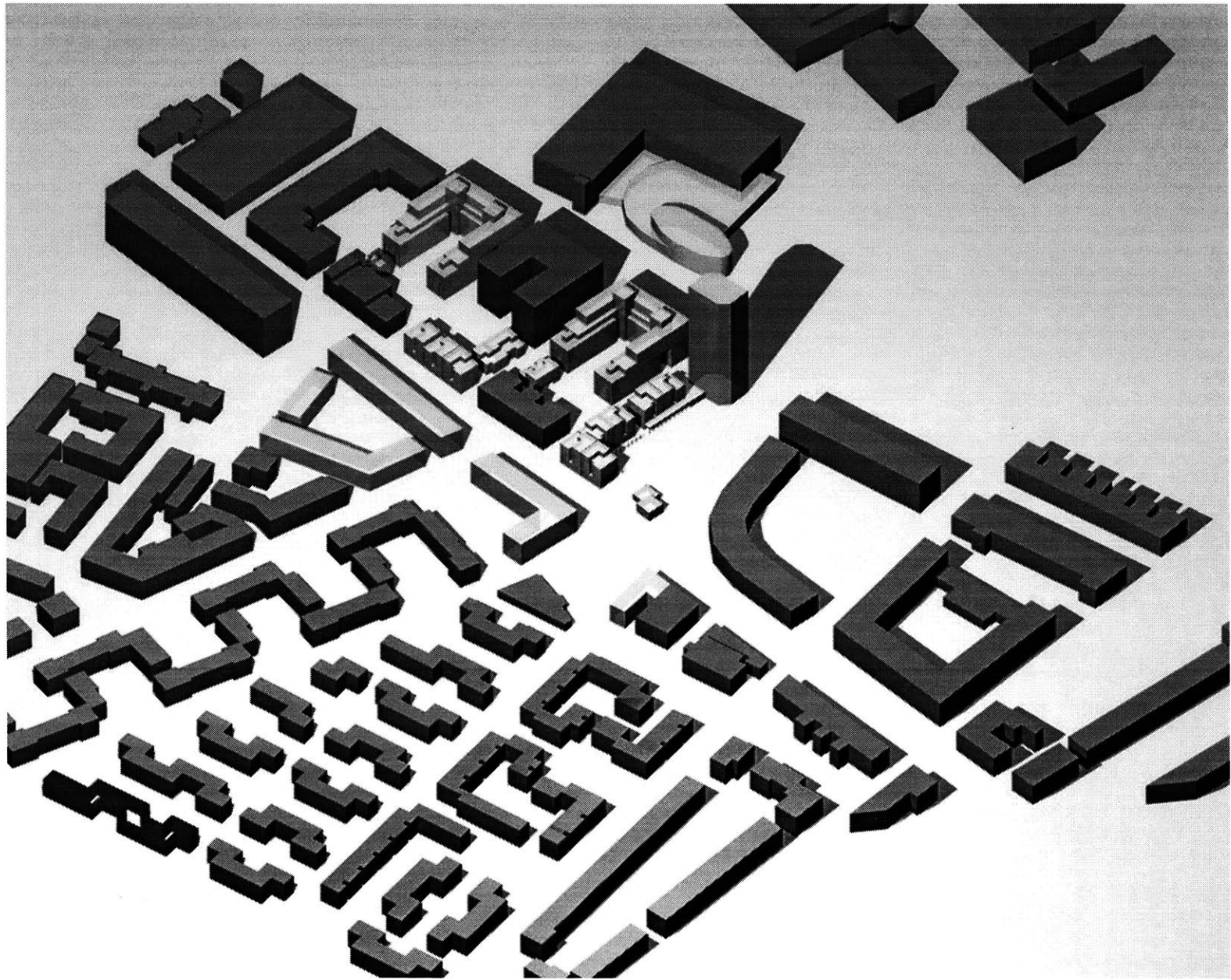
c

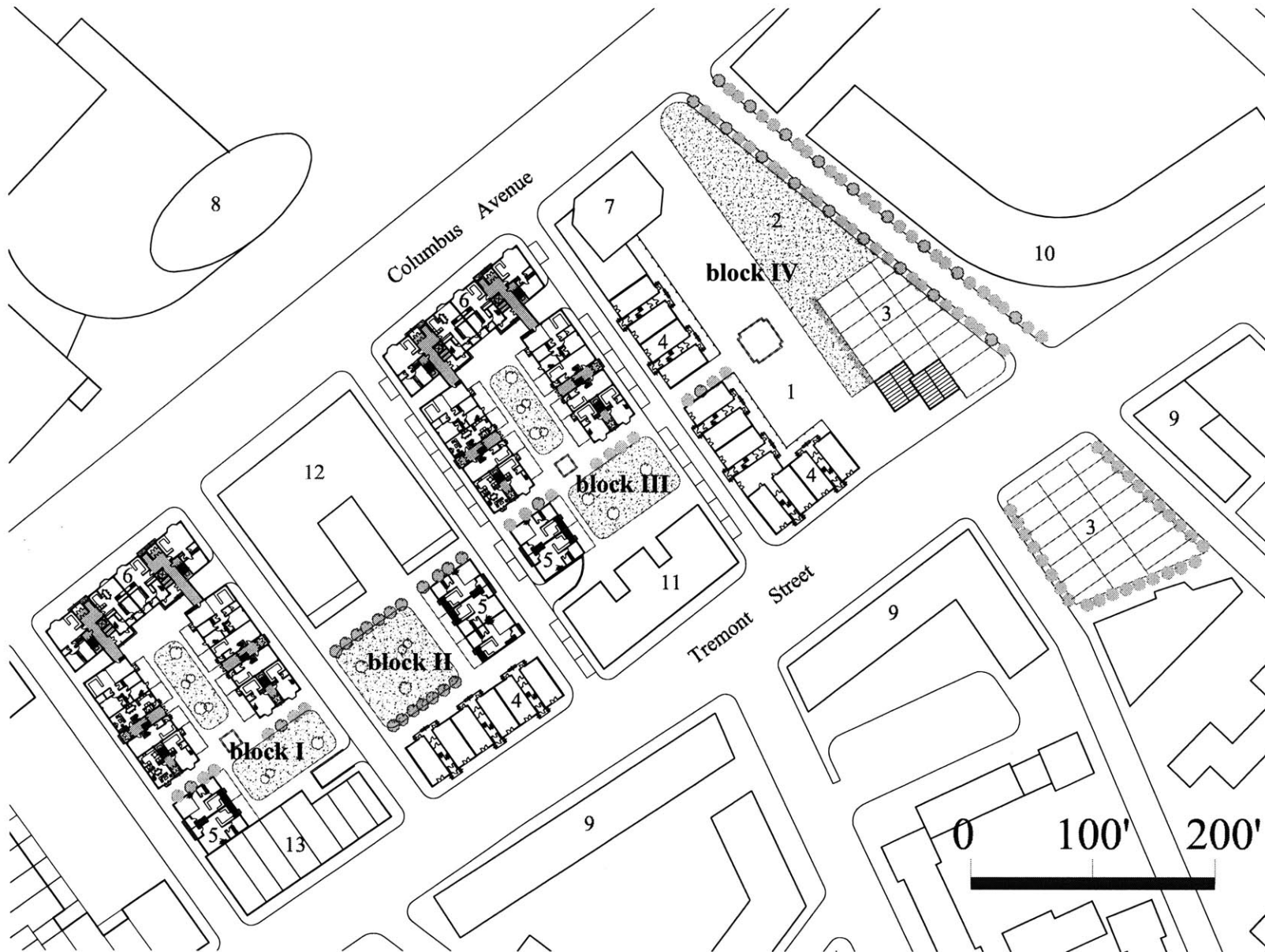
5-4 DESIGN

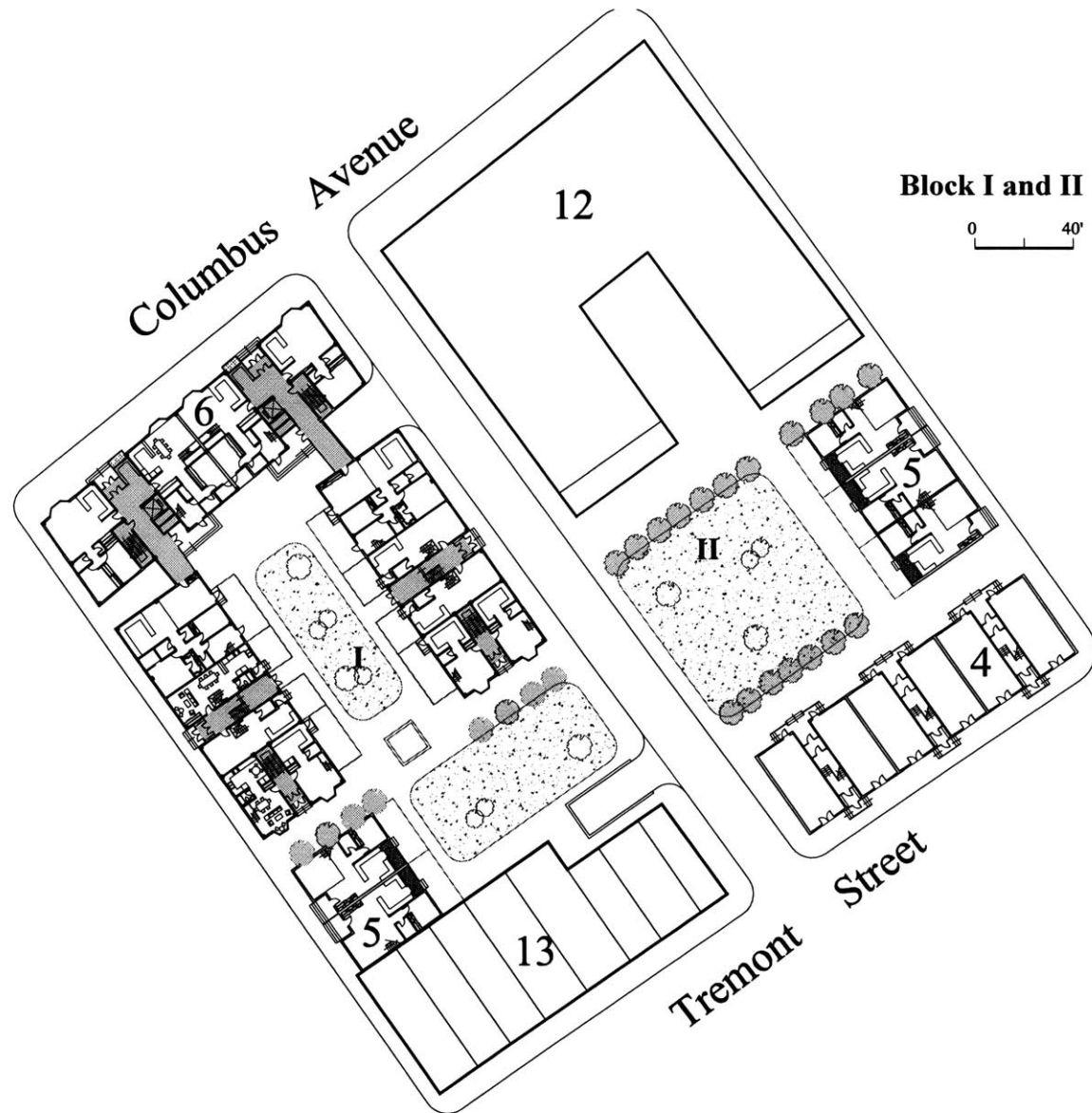
An urban housing design is proposed following the above guidelines. This design attempts to interpret the guidelines.



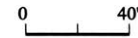
- 1. Proposed South End Plaza
- 2. Green Space
- 3. Proposed Community Garden
- 4. Housing Type III
- 5. Housing Type II
- 6. Housing Type I
- 7. High-rise Student Dorm
- 8. Proposed Community Activity Center
- 9. Proposed Mixed Use Housing with Street-front Retail Shops
- 10. Existing Affordable Housing
- 11. Existing Building I
- 12. Columbus Place (Northeastern University)
- 13. Existing Building II
- 14. Existing Parking Garage
- 15. Football Field
- 16. Northeastern University Campus
- 17. Old Piano Factory
- 18. Lenox Public Housing Redevelopment (BHA)



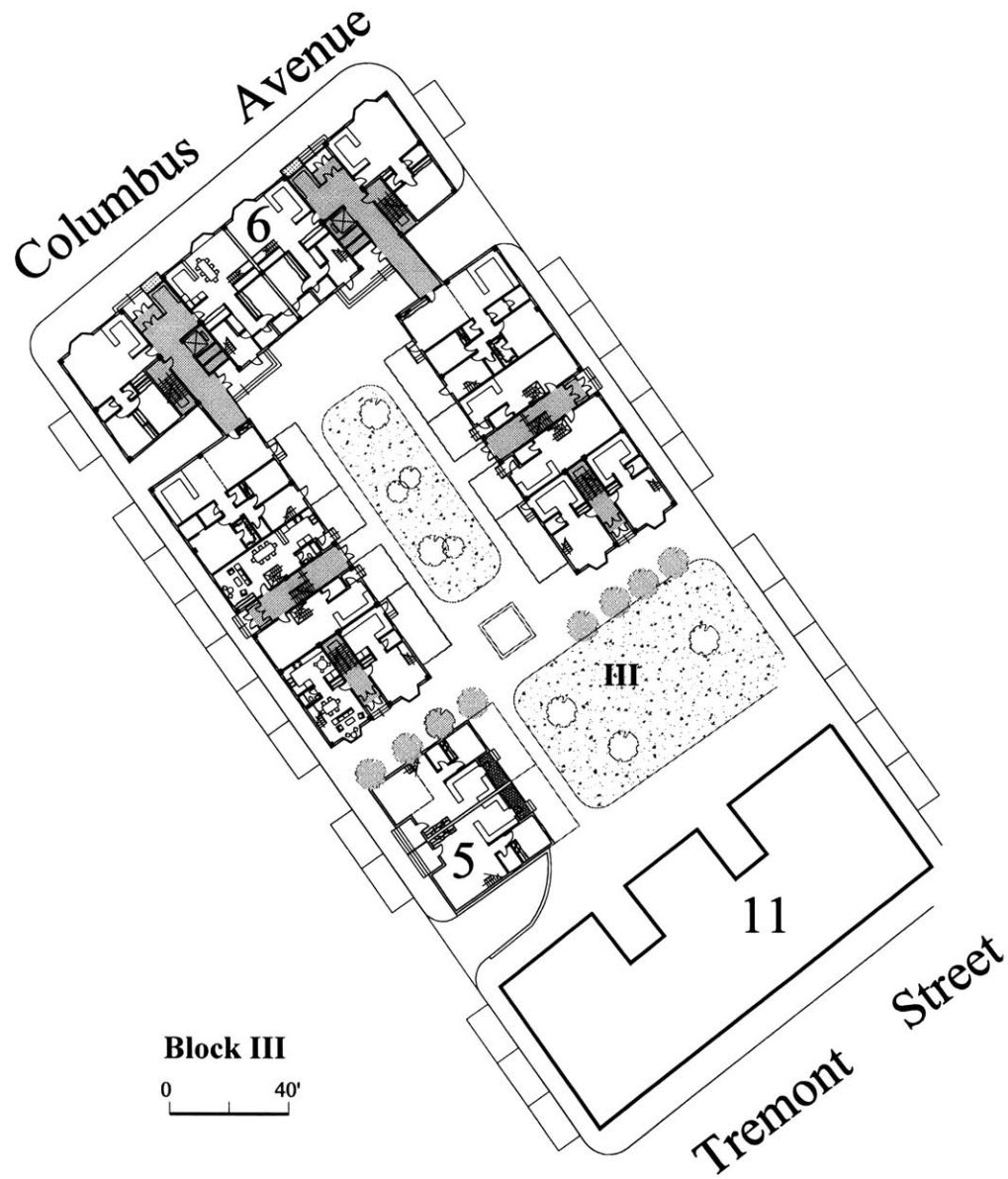




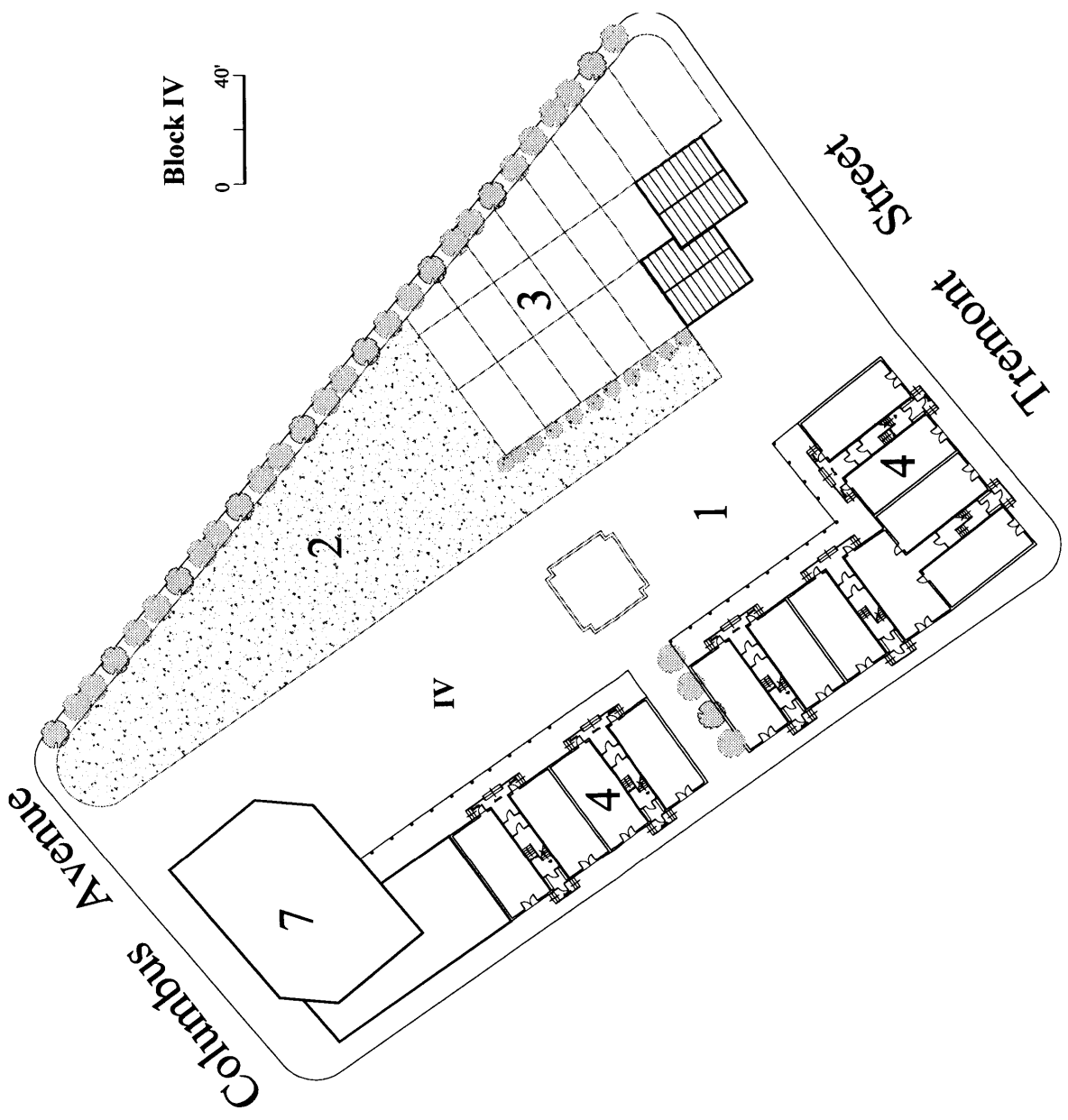
Block I and II



1. Proposed South End Plaza
2. Green Space
3. Proposed Community Garden
4. Housing Type III
5. Housing Type II
6. Housing Type I
7. High-rise Student Dorm
8. Proposed Community Activity Center
9. Proposed Mixed Use Housing with Street-front Retail Shops
10. Existing Affordable Housing
11. Existing Building I
12. Columbus Place (Northeastern University)
13. Existing Building II
14. Existing Parking Garage
15. Football Field
16. Northeastern University Campus
17. Old Piano Factory
18. Lenox Public Housing Redevelopment (BHA)



Block III
0 40'



Block IV
0 40'



Defensible Space Design

1. Territory

The unit, the private backyard, the interior courtyard, the “green pedestrian” and the street are proposed. This hierarchy of territory creates private, semi-private, semi-public and public spaces.

2. Natural surveillance

The proposed housing type I has set-backs from the fourth floor in order to provide more natural surveillance to the interior courtyard from balconies;

Bay windows and more openings on the first and second floors provide direct surveillance to the streets;

The entrances of the units are located along the streets in order to obtain surveillance from the streets;

3. Reducing the stigma and isolation of public housing

The boundary of public housing is blurred

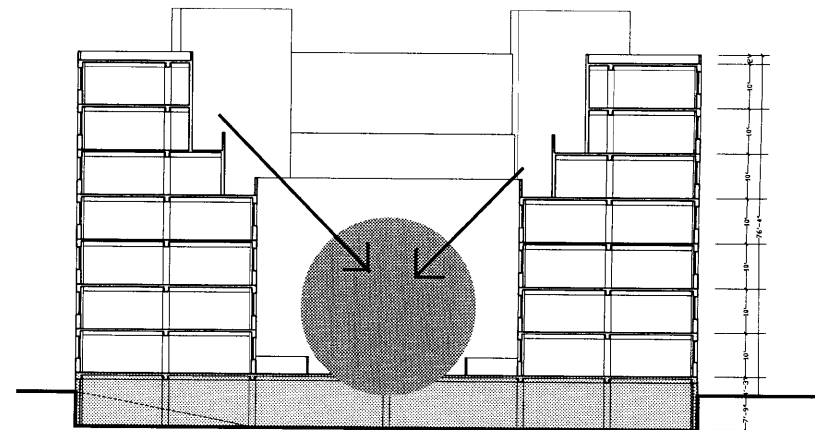
by using similar construction materials (red brick) on housing type III;

Imposing height limitation (4-5 story) on housing type III to emphasize the transition from 3 story public housing to 7 story buildings along Columbus Avenue;

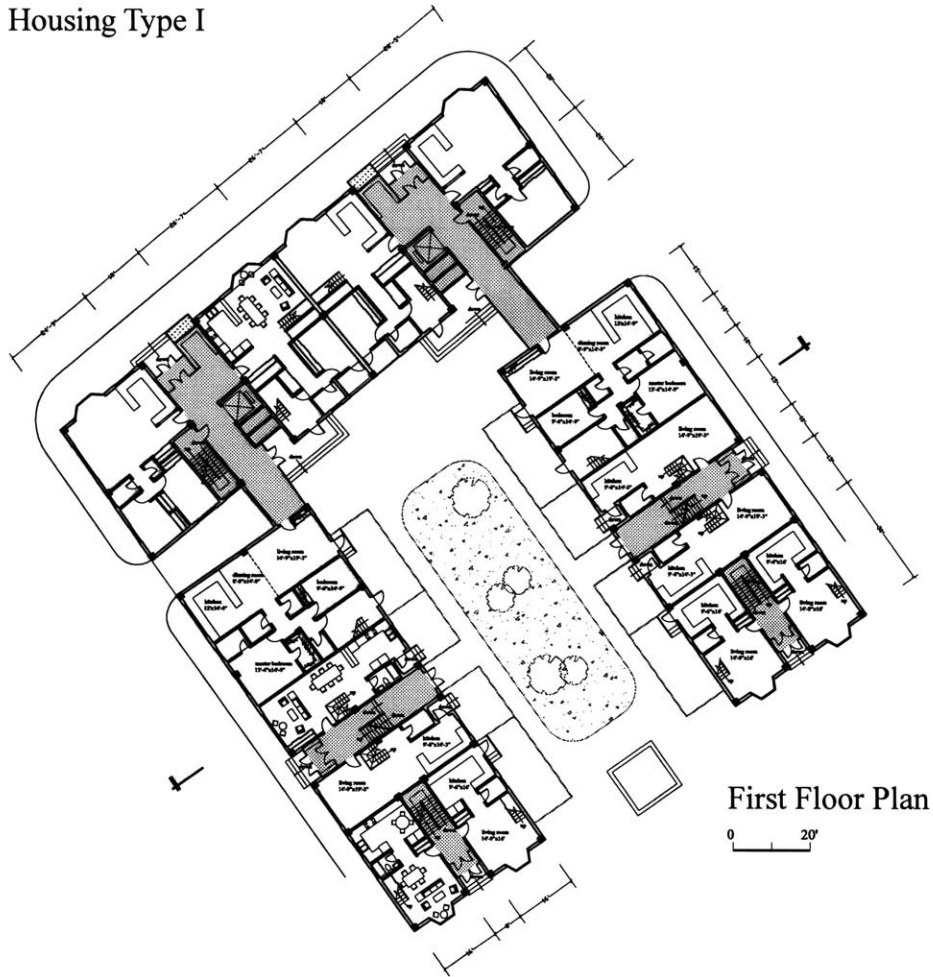
Changing the orientation of the community garden and locating half of the community garden on the other side of Tremont Street to suggest more activities outside the isolated area;

Population migration from the public housing to the proposed mixed income housing is encouraged.

Section showing natural surveillance to the interior courtyard from balconies



Housing Type I

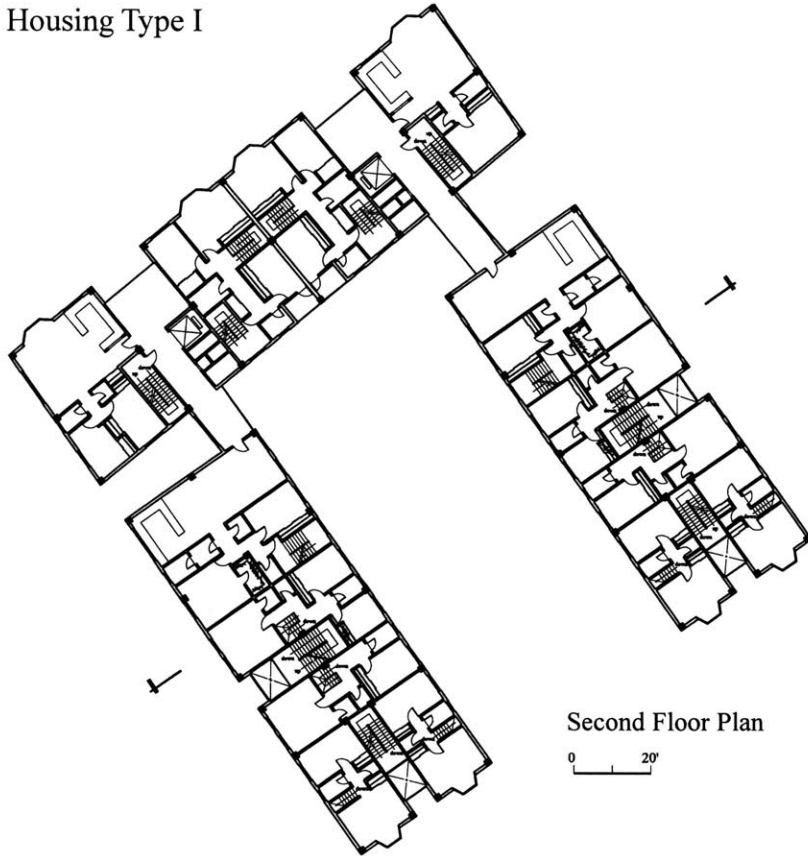


Buildings

3 housing types are designed on the site.

Housing type I responds to the existing Columbus Place on the site. It is composed of a variety of unit sizes from studio to 5 bedroom duplex. Most of the two, three and four bedroom units for families with children are located on the lower floors in order to avoid putting children into elevator served units. One and two bedroom apartments are also designed on lower floors for handicapped people and senior citizens. On the higher floors are studios and one bedroom apartments which could be used by students, singles or young couples.

Housing Type I



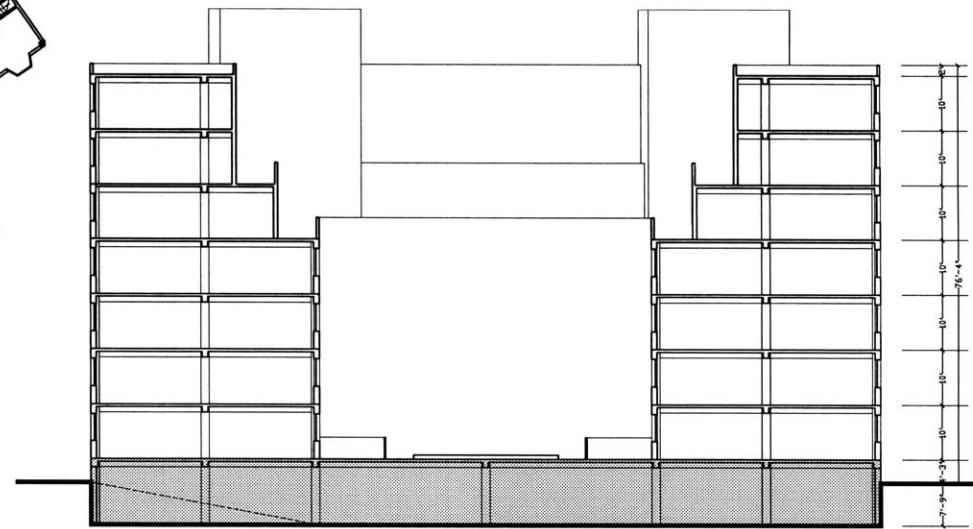
Second Floor Plan

0 20'



South-West Elevation

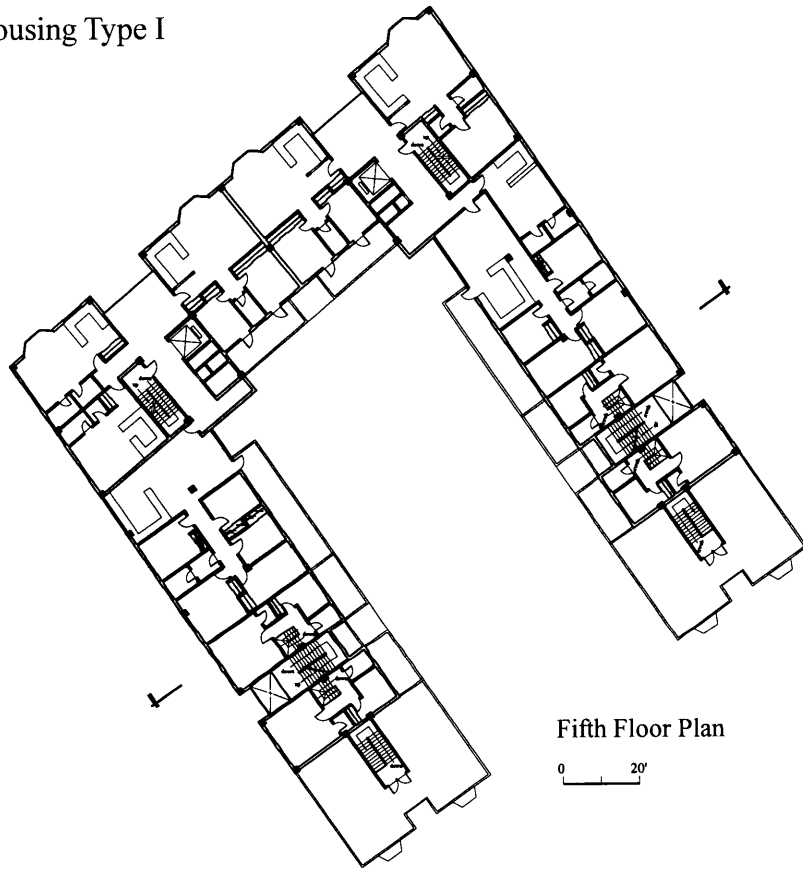
0 20'



Section I-I

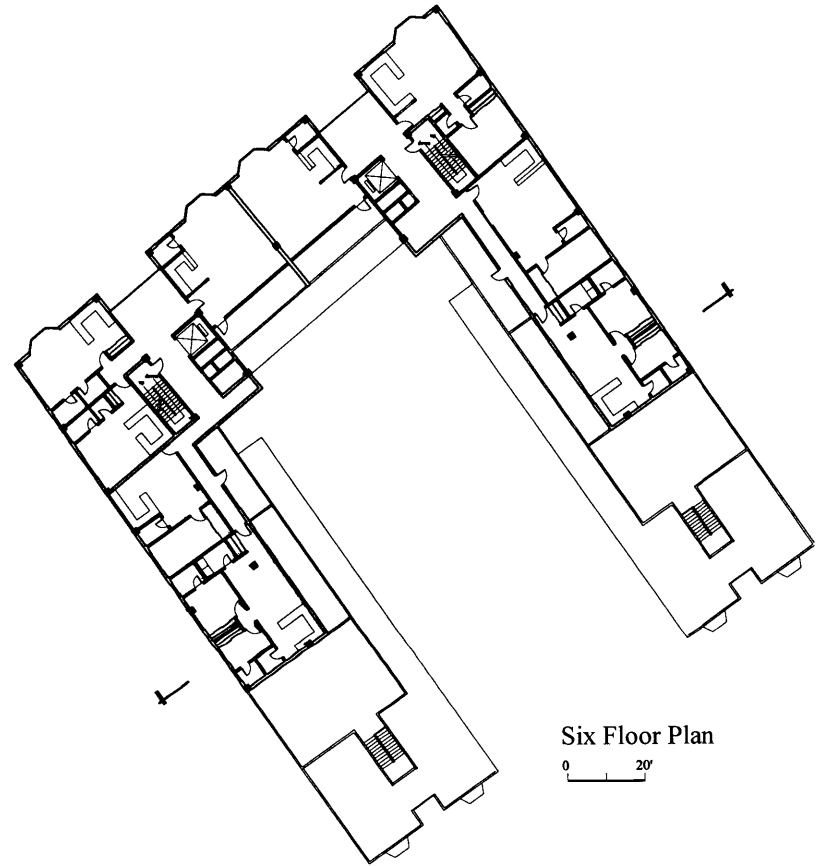
0 20'

Housing Type I



Fifth Floor Plan

0 20'



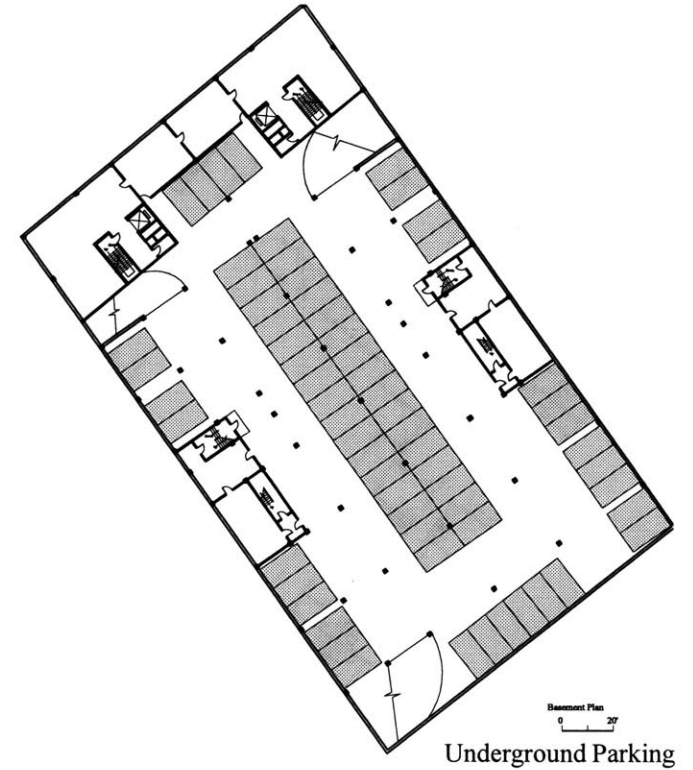
Six Floor Plan

0 20'

Housing Type I

Unit Configuration and Mix:

| Unit Type | Basic Unit | Handicaped Unit | Total |
|------------------|------------|-----------------|-----------------|
| Studio | 10 | 0 | 10 |
| 1 Bedroom Flat | 15 | 1 | 16 |
| 2 Bedroom Flat | 5 | 1 | 6 |
| 2 Bedroom Duplex | 10 | 0 | 10 |
| 3 Bedroom Flat | 9 | 0 | 9 |
| 3 Bedroom Duplex | 2 | 0 | 2 |
| 4 Bedroom Flat | 0 | 0 | 0 |
| 4 Bedroom Duplex | 6 | 0 | 6 |
| 5 Bedroom Flat | 1 | 0 | 1 |
| 5 Bedroom Duplex | 1 | 0 | 1 |
| Total | 59 | 2 | 61 Units |



Typical Unit Size:

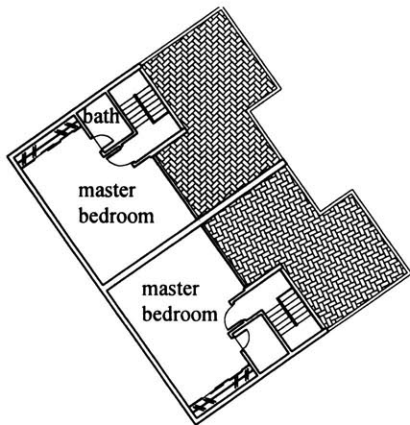
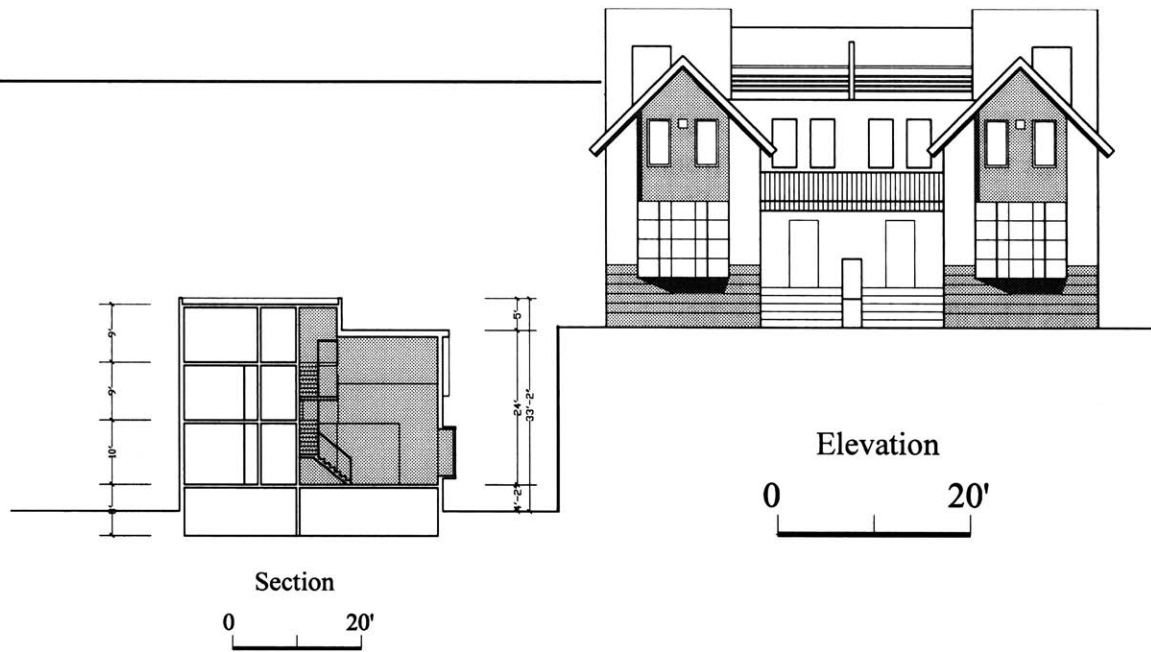
| | |
|-----------|-------------------------|
| Studio | 425 S.F. - 650 S.F. |
| 1 Bedroom | 550 S.F. - 850 S.F. |
| 2 Bedroom | 950 S.F. - 1,180 S.F. |
| 3 Bedroom | 1,285 S.F. - 1,390 S.F. |
| 4 Bedroom | 1,675 S.F. - 1,785 S.F. |

Housing type II is single family housing. Two or three units attach to each other in order to shape street space. These houses should keep the tradition of American single family housing and be designed by different architects. It will be the most flexible and private element on the site.

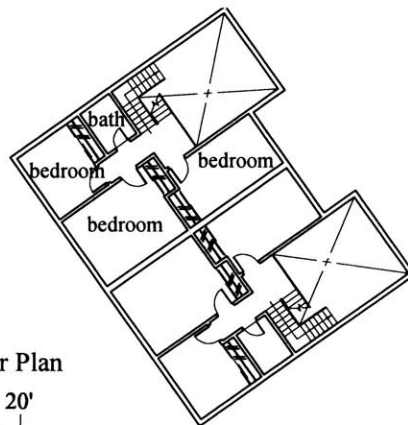
Unit Size

4 Bedroom

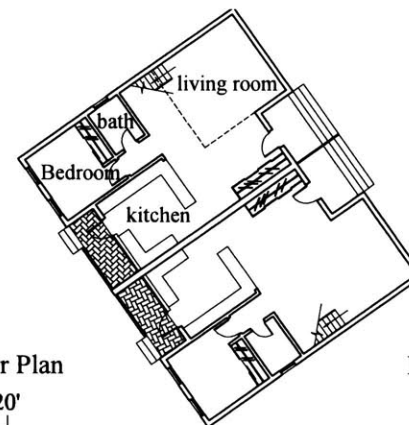
1,960 SF



Third Floor Plan



Second Floor Plan



First Floor Plan

Housing type III is 4-5 story walk-up buildings with retail shop street frontage on both sides of Tremont Street. Studios and one or two bedroom apartments are designed for students, singles and small families who like the main street life.

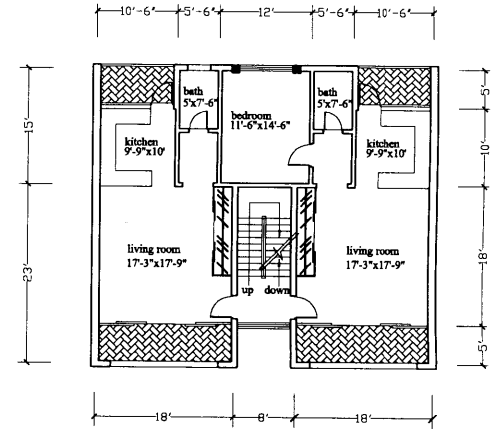
Housing Type III

Unit Configuration and Mix:

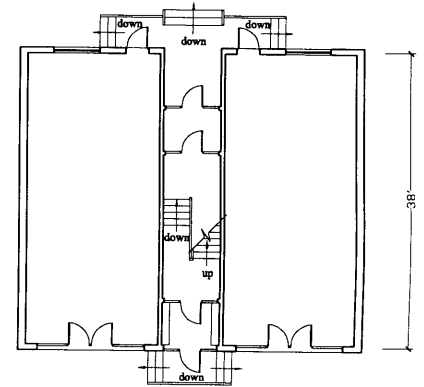
| | |
|------------------|---------|
| Unit Type | Unit |
| Studio | 2 |
| 1 Bedroom Flat | 1 |
| 2 Bedroom Duplex | 2 |
| Total | 5 Units |

Typical Unit Size:

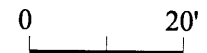
| | |
|-----------|----------|
| Studio | 570 S.F. |
| 1 Bedroom | 750 S.F. |
| 2 Bedroom | 960 S.F. |

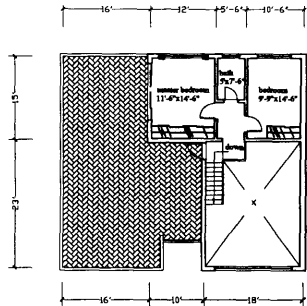


Second Floor Plan

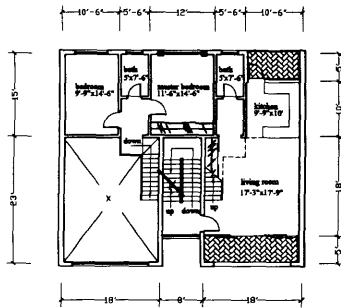


First Floor Plan

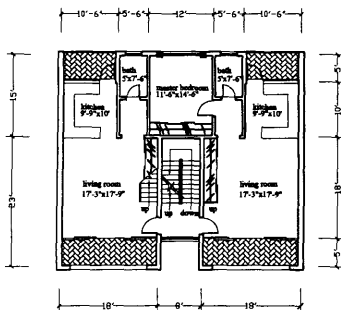




Fifth Floor Plan



Fourth Floor Plan



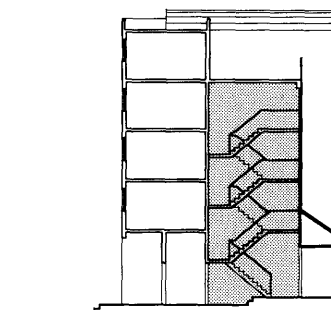
Third Floor Plan

0 20'

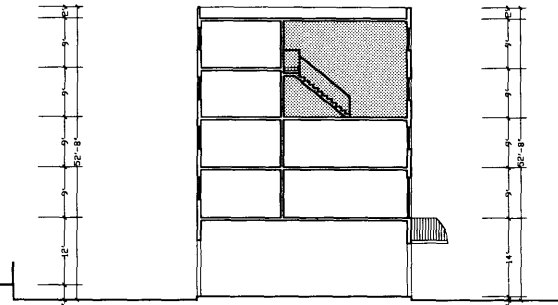


South-East Elevation

0 20'



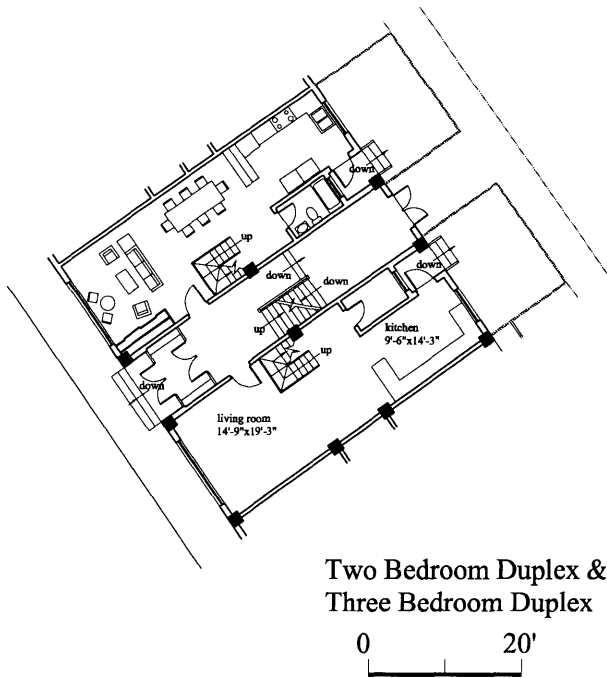
0 20'



0 20'

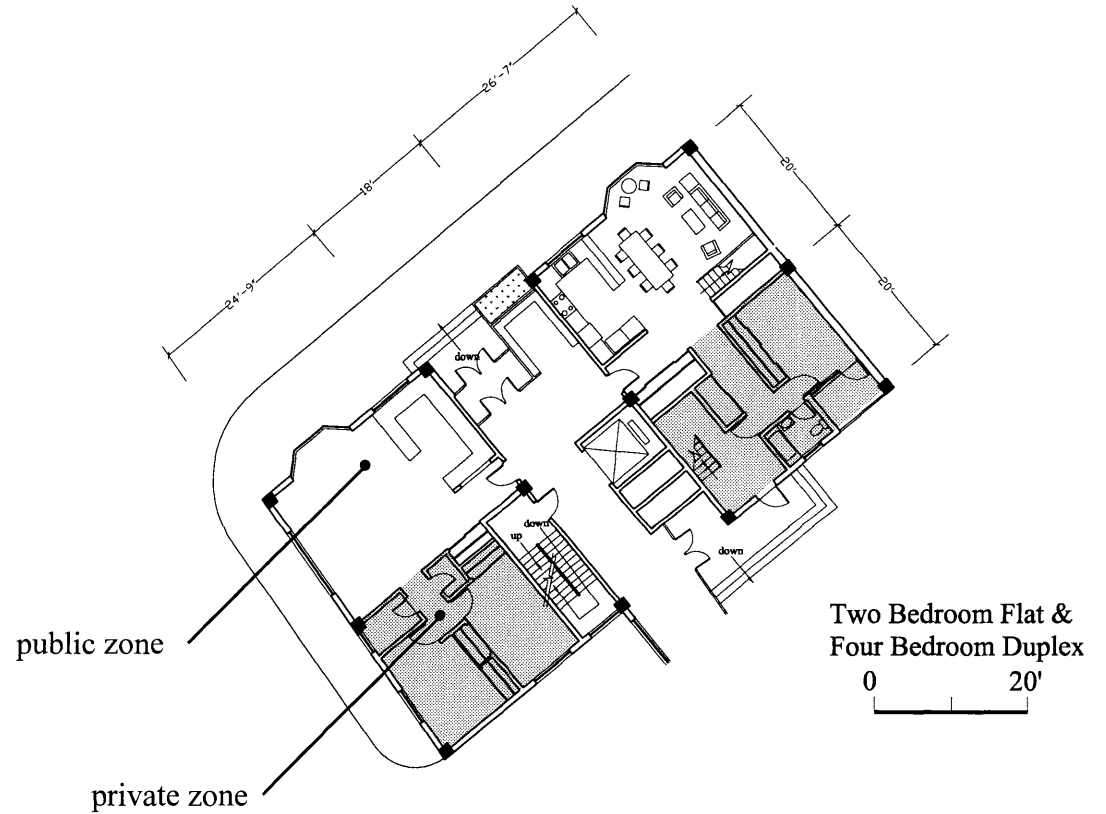
Units

The unit sizes in this design are a little higher than Tent City because the project want to attract more middle income residents;



Two Bedroom Duplex & Three Bedroom Duplex

0 20'

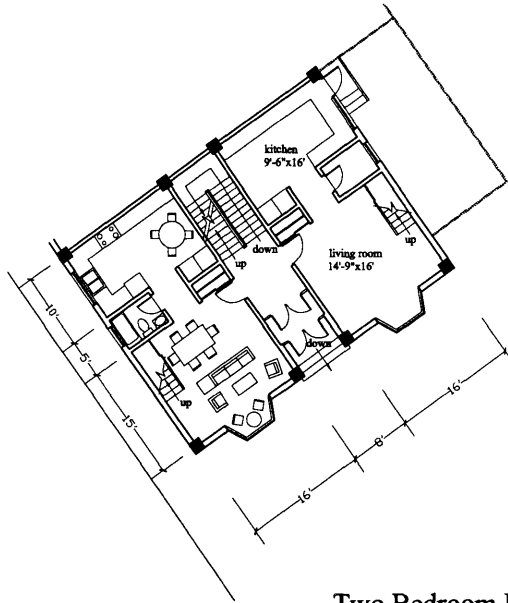


Two Bedroom Flat & Four Bedroom Duplex

0 20'

Public activity area - living room, dining room and kitchen - is separate from the private activity area - bedroom and bathroom;

All the kitchens and bathrooms have natural ventilation and light.



Two Bedroom Duplex



Green Space

Main green space links Tremont Street and Columbus Avenue and brings the community to the existing park's football field.

Secondary paved pedestrian connects the four blocks and leads people to the open space.

DENSITIES

| | Units | Acre | Units/Acre | Population(x4)/Acre |
|--------------------------------|-------|------|------------|---------------------|
| Gross Area | 383 | 7.14 | 53.5 | 214 |
| Below Grade Parking | | 128 | | |
| Street Level Parking | | 42 | | |
| Total Parking (on site) | | 170 | | |

CHAPTER 6 CONCLUSION

As I discussed in the previous chapters, this design thesis explored three urban design theories, and then applied them in the design and guidelines of a housing project adjacent to Northeastern University.

The decay of many urban districts is facing big historic cities. The thesis is an attempt to provide a solution for their future redevelopment. The site has a general meaning because of its typical physical and social problems not only in the US but also in other big historic cities in the world. These issues are vacant blocks, fragmented urban fabric, public housing isolation and stigmatization, etc. The site also has its own characteristics, for example the university-community tension, which is unique in the US, especially in Boston.

Through the study of some precedent works in Boston and the design process, I studied the validity of the three urban design theories.

Rossi's theory of "Study Area" has the most important meaning to the author. It gave me the starting-point and motivation

about the whole urban design work. He elaborated the concept of "study area" in his book, *The Architecture of the City*, and said it was a more realistic approach to operate on a limited part of the city. Combined with Peter Eisenman's comments about urban design, I have begun to develop my own theory of the relationship between urban pieces and the whole city. Briefly speaking, cities are composed of distinctive parts designed by individual designers, but they are not separate phenomena. They are different "moments" of formation in the history of the city and part of the collective unconscious. That is to say, the city has its own autonomy and its own growth path over time, like an organism. Individual designers cannot control the metabolic process of this organic city. This is my initial motivation to work on a piece of the city instead of the city as a whole. As a matter of fact, Boston is such an amalgam of individual works.

Tent City is a good example of all the three theories. Some of the defensible space strategies were also applied and proved to be successful in such affordable housing project in Boston in the past ten years. A

The improper infill in historic residential district in Beijing





The successful urban housing infill (left) and improper one (right) coexist in Beijing, the latter is predominant

contemporary interpretation of traditional residential scale and form enables Tent City to be a new distant landmark and commercial node in the historic area of Back Bay and South End. The new image it provides to Boston is vivid.

The guidelines and design in this thesis are a combination and reflection of all the three theories. A piece of the city is studied and designed following the piece-whole philosophy. Defensible spaces are provided to improve the neighborhood safety condition. A city subcenter with “distant landmark” and a commercial “node” is created between two main paths, Columbus Avenue and Tremont Street. Because of the node, these two main paths could be extended and strengthened. A street “surface” along Tremont Street is also created for more vivid city images.

Furthermore, I explored the different housing types in the US, especially the single family housing type which has become much more popular in the US than in any other countries after WWII. In my design, the single family house is both a metaphor and one of the diverse housing types in

the design.

Political and economic issues are not the focus of this design thesis. However, the government, the university, the community and the urban designer should work together on such projects. The next step following this thesis will be participatory design with the community and the university in order to obtain more feedback about the validity of the guidelines and the design. Government plays an important role by providing rental subsidies to the low and moderate income tenants.

The study of these kind of public projects has an even wider meaning for cities in other countries. They may have problems distinct from those in the U.S., but we can still see a lot of similarities. According to my background and knowledge, there are many improper infills of public housing in Beijing. They destroyed the historic fabric and city images, isolated themselves from their surroundings and made the city more fragmented. The redevelopment of the improper infill in Beijing will be an urgent and promising field for me to explore in the future.

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