



IMPLICATIONS OF RESIDENTIAL REDEVELOPMENT  
STANIFORD-CHARDON AREA, BOSTON.

By

SHELDON PHILLIP GANS

Bachelor of Architecture, University of Florida  
1954

Submitted in Partial Fulfillment of the  
Requirements for the Degree of  
Master in City Planning

at the

Massachusetts Institute of Technology

May 21, 1960

Signature of Author

Department of City Planning, May 21, 1960

Certified by

Thesis Supervisor

Accepted by

Chairman, Departmental Committee  
on Graduate Students

ABSTRACT

Title of Thesis: IMPLICATIONS OF RESIDENTIAL REDEVELOPMENT  
STANIFORD-CHARDON AREA, BOSTON

Author: Sheldon Phillip Gans

Submitted to the Department of City and Regional Planning  
in partial fulfillment of the requirements for the Degree  
of Master in City Planning, May 21, 1960

This thesis involves the investigation, analysis and proposals in a study of a small area in central Boston which is neglected in the midst of areas undergoing drastic change.

The analysis of the existing conditions is presented at two levels: the conditions existing within the study area, and the existing and proposed conditions of the surrounding areas. Analysis within the area includes the physical, social and economic conditions in order to determine the required level of treatment. The extensive analysis of the surrounding areas and their proposals for change provides the information in order to determine the degree to which the project should function as a part of the larger pattern.

An assumption for residential redevelopment is made to allow a detailed evaluation of the residential reuse objectives. The following analysis presents an extensive evaluation of the objectives and their economic implications, a limited evaluation of the social-benefit implications, and a proposed plan representing the physical implications of the objectives.

Thesis Supervisor: Roland B. Greeley

Title: Associate Professor of City Planning

### Acknowledgements

Since this thesis represents only partial fulfillment for the degree requirements, my acknowledgements extend beyond the scope of the thesis. At the risk of being dramatic, I wish to thank the entire faculty, not only for their assistance with this thesis, but for their willingness to offer their time, their guidance, and their knowledge during the past two years. To Professor Greeley, my thesis advisor, I wish to express my appreciation and admiration for his open mind, his keen insight and morale lifting assistance during the preparation of this thesis. I wish to express my appreciation to Professor Howard whose directional advise was invaluable; to Professor Lynch whose every contact was rewarding; and to the staff of the Boston Planning Board, particularly Seward Weber, for the material made available. The special acknowledgement goes to my wife, Shirley, without whom, I could have neither begun, nor finished.

## TABLE OF CONTENTS

List of Tables	vii
List of Illustrations	viii
Introduction .....	1
Definition of the Study Area .....	3
I. EXISTING CONDITIONS WITHIN THE STANIFORD-CHARDON AREA .....	5
Building Bulk and Residential Density	5
Land Use	8
Use by Floor Areas	10
Building Condition	11
Circulation and Parking	12
School Facilities	13
Recreational Facilities	13
Other Public and Semi-Public Uses	15
Zoning	15
Employment	16
Social Conditions	18
Summary of Existing Conditions	20
II. CONDITIONS AND TRENDS IN SURROUNDING AREAS .....	21
The North Station Area .....	21
Location	21
Use and Trends	21
Proposals for Change	22
Existing and Potential Physical Form	24
Scollay Square and the Proposed Government Center.	26
Location	26
Proposed Uses	26
Additions to Proposed Uses	27
Pertinent Physical Elements of the Plan	28
Pertinent Circulation Elements of the Plan	29
Proposed and Potential Physical Form	31

## II. CONDITIONS AND TRENDS IN SURROUNDING AREAS (Continued)

### The West End and Charles River Park Development .. 33

Location	33
Summary of Proposed Uses	33
Residential Land Use	34
Circulation	35
Community Facilities	36
Existing and Potential Form	36

### School and Recreation in Surrounding Areas ..... 39

Schools	39
Recreation	42

## III. GENERAL PLAN CONSIDERATIONS FOR DETERMINATION OF REUSE ..... 43

Approach and Assumptions	43
General Considerations for Residential Reuse ..	46
Objectives for Residential Reuse	48
Evaluation of Objectives	49

## IV. EVALUATION OF THE OBJECTIVES AND THEIR IMPLICATIONS ..... 50

### Economic Implications ..... 50

Approach	50
Market Implications	51
Assumptions for Middle-Income Rent	55
Assumptions for the Inflexible Components	57
Land Acquisition Costs	60
Demolition Costs	62
Land and Building Costs	62
Land Writedown and Project Cost	71
The Tax Rate as a Component of Rent	74

### Social Implications ..... 76

New Construction for Middle Income Families	76
Mixture of Social Groups	76
Accomodations for Families With Children	77
Advantages of Redevelopment	78

### Physical Form Implications ..... 80

Circulation Elements of Surrounding Areas	80
New Land Use Elements in Surrounding Areas	83
Relating Form Elements to Surrounding Areas	84
Major Considerations Determining the Details of the Project Design	87
Elements of the Project Design	87

V. CONCLUSION ..... 88  
APPENDIX ..... 91  
Bibliography ..... 98

## LIST OF TABLES

<u>TABLE NO.</u>		<u>PAGE</u>
1.	Existing Land Use Areas .....	8
2.	Street Width-Existing Conditions ....	12
3.	Distribution of the Rental Market ...	51
4.	Rent Distribution-West End .....	52
5.	Amount of Income Devoted to Rent ....	56
6.	Land Acquisition Costs .....	61
7.	Comparative Land-Writedown Costs ....	72

## LIST OF MAPS AND ILLUSTRATIONS

MAPSProposed Conditions

Map A. Location of Study Area .....	4
Map B. Proposed General Plan .....	84

Existing Conditions

Map 1. Building Coverage .....	6
Map 2. Dwelling Unit Distribution .....	7
Map 3. Land Use .....	9
Map 4. Assessed Values .....	14
Map 5. Topography .....	17

ILLUSTRATIONS

Figure 1. Density-Cost Relationships .....	65
Figure 2. Land Cost-Rent Relationships .....	68
Figure 3. Typical Apartment Unit .....	85



## INTRODUCTION

After many years of inactivity, the central portion of Boston is beginning to change in both use and form. The West End is the second and presently the most visible example of this change by redevelopment. The proposed Government Center project will, by redevelopment, replace a decaying portion on the fringe of the central business district with a nucleus of new forms and economic activity. The North Station area is planning a change to its existing physical and economic conditions.

In the center of all these changing areas lies the smaller, seven square block, Staniford-Chardon Area. A decaying area, it would remain as a remnant of blight in an otherwise continuous width of new development extending from the Charles River to the edge of the central business district.

More than a larger project, the future of this area depends upon not only the existing conditions within its own boundaries, but upon the land use and physical form of the surrounding areas. In a positive planning approach, the area requires a myriad of considerations for each potential reuse in order to relate the functional and physical requirements of the surrounding areas. Each potential use has economic and physical limitations and advantages implicit within its detail design. In an area such as the Staniford-Chardon, where several reuses are possible at the level of general considerations, a

more detailed analysis of the potential uses individually will promote a rational rather than arbitrary redevelopment policy. The analysis of the Staniford-Chardon Area is presented in a form which attempts to include these necessary considerations.

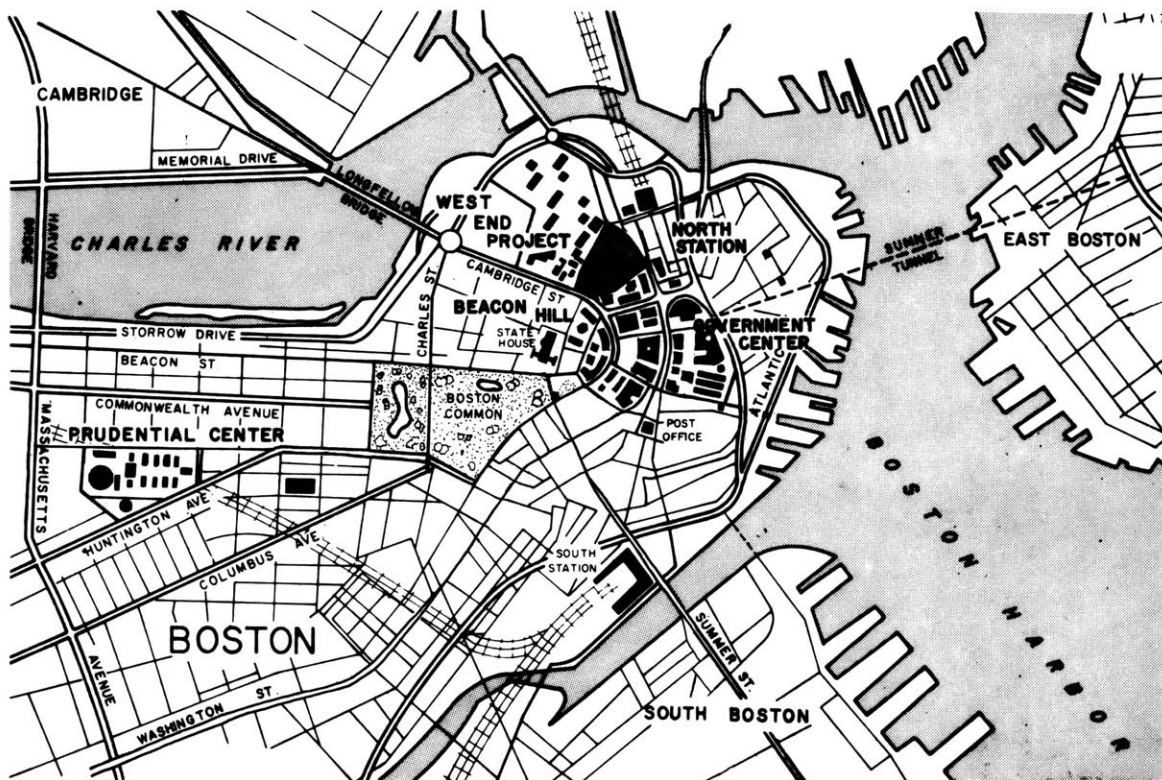
This thesis first presents an analysis of the existing conditions in the Staniford-Chardon Area, outlining the logical need for redevelopment as the necessary level of treatment. The smaller size of the project area and the changing nature of its surroundings then necessitated the analysis of the surrounding areas as to existing conditions, objectives for change, and their relationship to the Staniford-Chardon Area. The conditions of both the project area and its surroundings, together with the general plan considerations, form the basis for, and are followed by, the objectives. To allow comparison with a suggested similar investigation for other potential reuses, the economic, social and physical implications of residential reuse are then evaluated.

It is suggested that such a procedure of detailed analysis of each of the several potential reuses will aid in formulating a basis for a sound redevelopment policy. It is also suggested that the detailed design should further the basis for determining a physical form which is part of a "pattern" of development rather than just an individual "project approach".

## DEFINITION OF THE STUDY AREA

The study area is located in the northwest quarter of the Boston peninsula, bounded by Staniford Street on the west, Merrimac Street on the north, Chardon Street on the east and Cambridge Street on the south. It is an area of approximately  $11\frac{1}{2}$  acres which becomes a logical planning unit as a neglected remnant between the West End and the proposed Government Center redevelopment projects. Cambridge Street marks the southern boundary as a heavily trafficked street south of which, the distinct character of the Beacon Hill residential area forms a separate logical planning unit. Though somewhat related on the Merrimac Street fringe by similarity of uses, the interior residential uses of the Staniford-Chardon Area, as opposed to the interior industrial and commercial uses of the North Station Area, indicate separate considerations of the areas would be desirable. The area is somewhat small to be considered as a planning unit. However, the pressures for determination of its future, the neglect in planning it with either the Government Center or the West End - those adjacent areas of which it was logically a part, have thus justified its separate consideration.

LOCATION OF STUDY AREA



source: government center report, courtesy of adams, howard and greeley

EXISTING CONDITIONS  
STANIFORD - CHARDON AREA

PROPOSED CONDITIONS  
SURROUNDING AREAS

**A**

I.  
EXISTING CONDITIONS WITHIN THE STANIFORD-CHARDON AREA

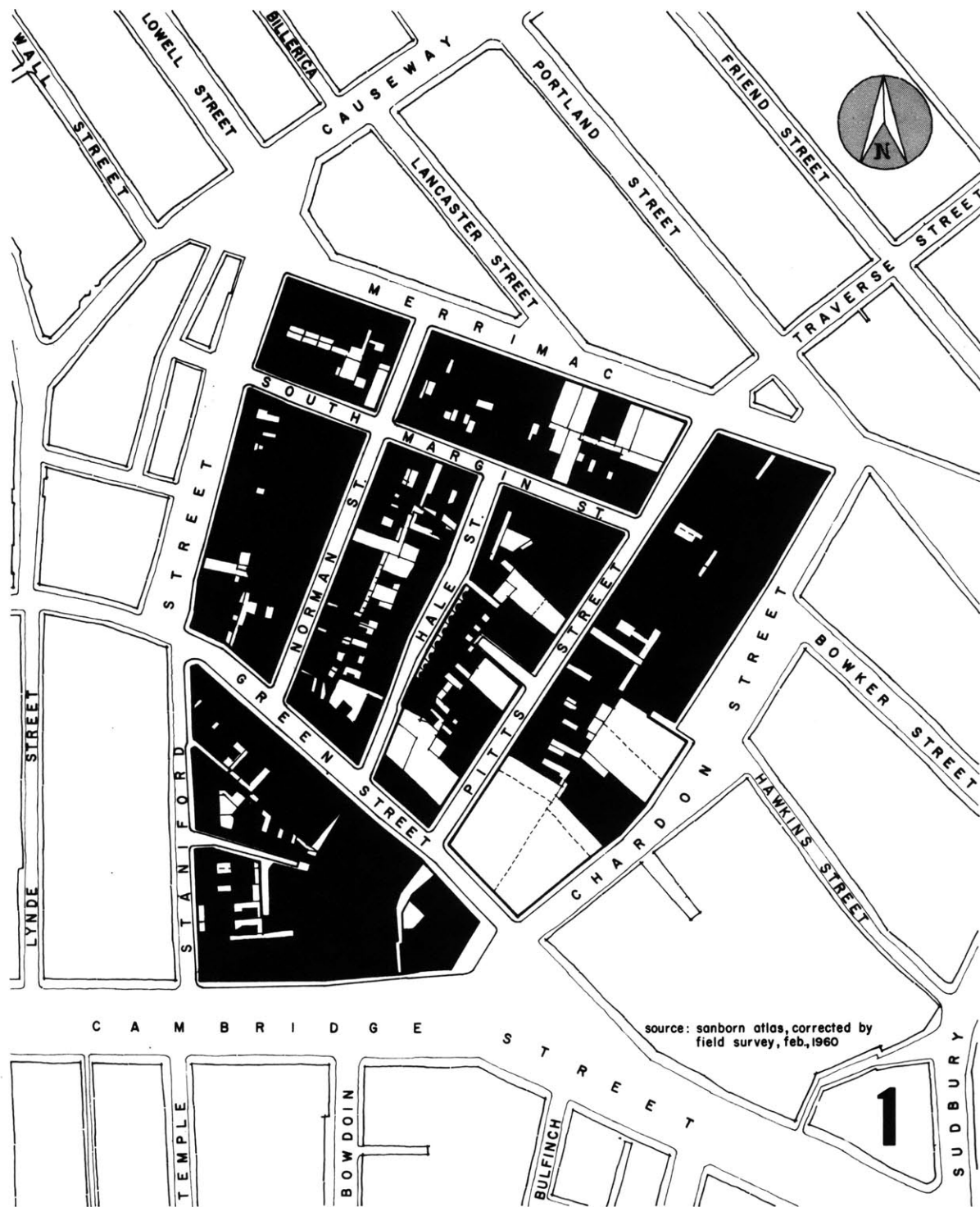
"Lying between the Government Center and the proposed West End project, this [ the Staniford-Chardon Area ] would be the last pocket of dilapidated use in an otherwise continuous sweep of new development, from the Charles River to the central business district."<sup>1</sup>

Building Bulk and Residential Density

Existing Conditions-Map One illustrates the high percentage of building coverage, estimated at approximately 90%. The lack of open space and adequate light and air are the results of this high coverage together with the average floor area ratio of 3.9. These evidence only one aspect of the poor living conditions prevalent within the area.

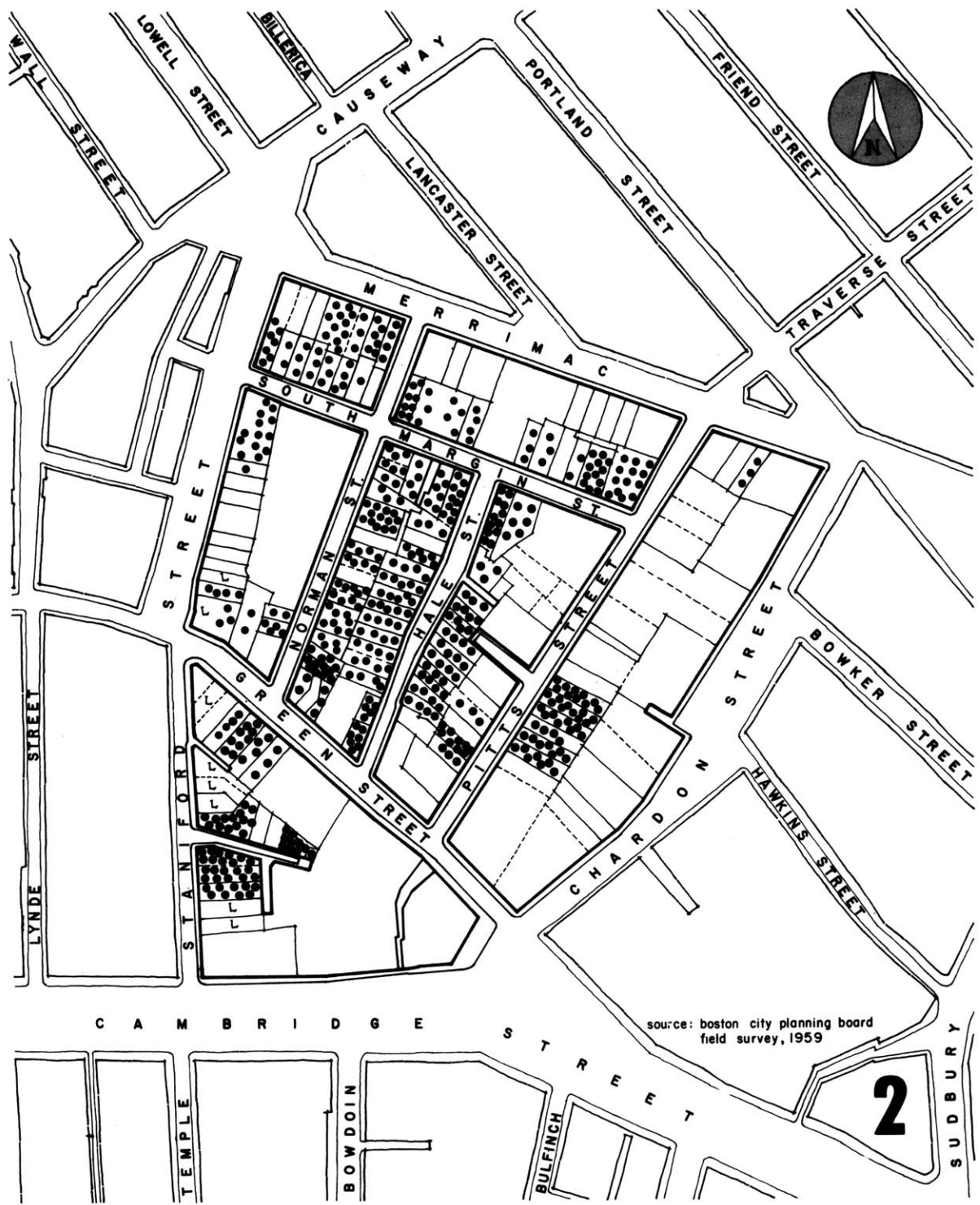
The project area has a net residential density which averaged 169 dwelling units per acre. The scattered distribution can be noted on Existing Conditions-Map Two . This represents a significant difference, above the standard of 48 dwelling units per acre suggested by APHA.<sup>2</sup> This high density coupled with the high building bulk allows only 260 square feet of land per dwelling unit , while APHA suggests 780 square feet is the desirable standard.

- 
1. Boston City Planning Board, Government Center-Boston , A report prepared by the consultant firm of Adams, Howard and Greeley for the Planning Board (Boston: September, 1959) p.23.
  2. American Public Health Association, Planning the Neighborhood, (Chicago: Public Administration Service, 1948.) This is an interpolation for a four story building of the standard-desirable net dwelling density listed in Table 4, p. 69.



E X I S T I N G C O N D I T I O N S  
**BUILDING COVERAGE**

■ BUILDINGS IN STUDY AREA



source: boston city planning board  
field survey, 1959

E X I S T I N G C O N D I T I O N S

**DWELLING UNIT DISTRIBUTION**

- = ONE DWELLING UNIT
- L = LODGING HOUSE



## Land Use

The area represents a mixture of land uses on adjacent lots as well as within the individual lots themselves. The gross land area of the project is  $11\frac{1}{2}$  acres, comprised of  $9\frac{1}{2}$  acres of net land area and 2 acres ( $17\frac{1}{2}\%$ ) of streets.<sup>1</sup> The following table and Existing Conditions-Map Three indicate the diversity of land uses within the small project area.

TABLE I EXISTING LAND USE AREAS<sup>2</sup>

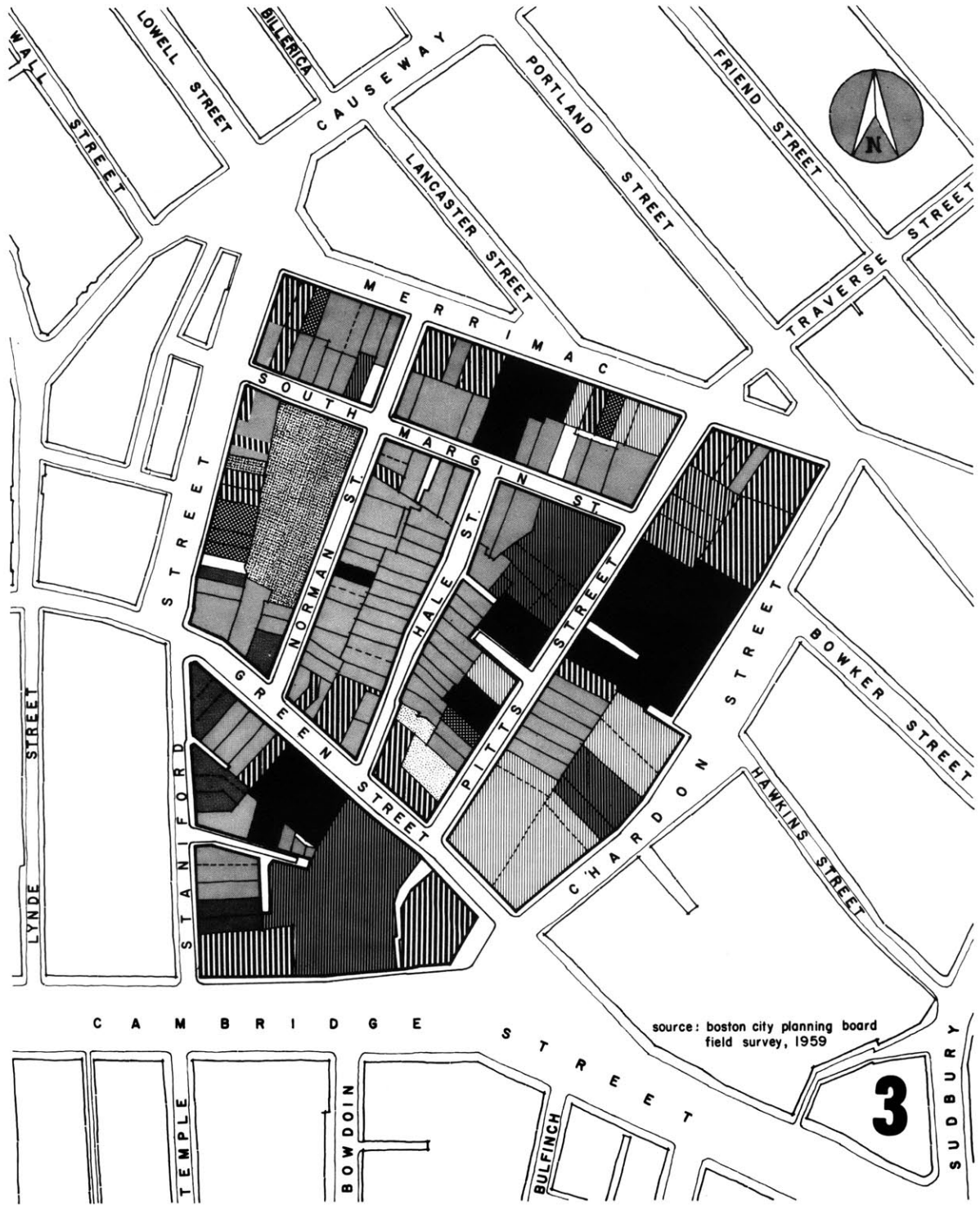
<u>Land Use</u>	<u>Area</u>	Per cent of total
Lodging Houses	.36 A	4%
Residential Units	2.87 A	31%
Office	none	0%
Retail sales	1.39 A	14%
Wholesale, storage	.18 A	2%
Manufacturing	1.37 A	14%
Institutional, public	.76 A	8%
Vacant (including parking lots)	1.22 A	13%
Other nonresidential (includes enclosed parking)	1.38	14%
Total	<u>9.53 A</u>	<u>100%</u>

## Summary

Predominantly non-residential land	5.36A	56%
Predominantly residential land	3.92A	41%
Vacant land (not including open parking)	.27A	3%

- 
1. This does not include the streets bounding the project: Staniford, Merrimac, Chardon and Cambridge Streets.
  2. Boston City Planning Board, Field Survey, September, 1959 Staniford-Chardon Area. Areas represent the predominant use within any one assessors lot.





source: boston city planning board  
field survey, 1959

**E X I S T I N G                      C O N D I T I O N S**

**LAND                      USE**

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li> RESIDENTIAL: GENERAL RESIDENCE</li> <li> PUBLIC and SEMI-PUBLIC BUILDINGS</li> <li> PUBLIC OPEN SPACE - "PLAYGROUND"</li> <li> RETAIL COMMERCIAL</li> <li> WHOLESALE and STORAGE</li> </ul> | <ul style="list-style-type: none"> <li>PARKING: GARAGE</li> <li>                  OPEN LOT</li> <li>RESEARCH LABORATORIES</li> <li>LIGHT INDUSTRIAL</li> <li>VACANT LAND</li> </ul> | <ul style="list-style-type: none"> <li></li> <li></li> <li></li> <li></li> </ul> |
|---|---|--|

shown by predominant use within assessors lots



### Use by Floor Areas

There is a total of 1,599,000 square feet of floor space,<sup>1</sup> including vacant space, within the project area. It is distributed as follows:

residential floor space .....	569,000	35.6%
non residential floor space ....	1,030,000	64.4%

The total vacant area is 199,000 square feet or 12.4% of the total floor space. Nonresidential buildings contain the larger amount of vacant floor space with 153,500 square feet or 15% of the total nonresidential floor area. Vacant residential floor space amounts to 45,300 square/feet, which represents 8% of the total residential floor area.

A comparison of the uses by floor area and land use indicates the area has a higher percentage nonresidential use by floor area than by land area. Though the nonresidential land has a slightly higher floor area ratio, the majority of the percentage increase comes from mixed uses within buildings. From both the predominant use by lot area and the use by floor area, the project is predominantly non-residential. This has a significant bearing upon the program qualification as a State or Federally financed project.<sup>2</sup>

In the past few years the pressure from the relocated residents of the West End may have reduced the vacancy rate

- 
1. All floor space statistics are based upon information gathered by the Boston City Planning Board in a field survey September 1959.
  2. For normal allocation of Title I Urban Renewal Funds, the project must contain over half of the land area in residential use (by predominant use on each piece of property) or over half of the floor area in residential use. This may be before or after redevelopment.

of the residential space. On the other hand, the rumors that this was to become another redevelopment project could have caused a simultaneous exodus and thereby increased the vacancy rate. In either case, the residential vacancy is only slightly above a normal vacancy, while the non-residential is probably twice the rate than should exist in a economically healthy area. It should be noted that these vacancies do not occur in only a few buildings, but are representative of many buildings within all seven blocks of the project.

#### Building Condition

The majority of the buildings in the area are over 50 years old. There have been only four buildings erected in this area since 1911. The Bowdoin Square garage and three other minor buildings, all built in the 1920's, are the only post-1911 buildings.<sup>1</sup>

The lower floors of many of the residential buildings, which were first used for stores and then for storage, now reveal only empty floors behind rotting wooden battens. The few remaining, decaying second-hand stores along Staniford and Merrimac Streets derived the large part of their activity from the old West End, but now will decay further as they serve only the small population of Staniford-Char-don and a few customers from the North End and Beacon Hill.

---

1. Boston City Planning Board, General Plan for Boston-Preliminary Report, 1950 (Boston: December, 1950)p.

The 1950 housing census indicated there were 228 units out of 464 without a private bath and/or running water. This represents 49% of the dwelling units which are considered to be in dilapidated condition by census definition.<sup>1</sup> A survey in 1959 recorded the number of dwelling units had increased to 485<sup>2</sup> which indicates there may have been a splitting of old apartments since no new buildings have been built, and several have been razed, since 1950.

### Circulation and Parking

The interior streets are narrow and clogged with parking by the residents of the area, employees working in the area, and employees from the adjacent North Station and Scollay Square areas. The narrow streets even when used in their present one-way system, do not allow through circulation without "curb jumping" when cars are parked on one side. The following Table II indicates the narrow width of the paved portion of those streets within the project area:

TABLE II STREET WIDTHS

<u>Name of Street</u>	<u>Varying Widths</u>
South Margin	20-22 feet
Pitts	18-25 "
Hale	12-22 "
Norman	16-18 "
Green	22-24 "

The area presently serves as a large parking reservoir for

- 
1. Bureau of the Census, U.S. Census of Housing: 1950, (Washington: U.S. Government Printing Office, 1951)
  2. Boston City Planning Board, "Field Survey, 1950", op. cit. The definition for a dwelling unit was not entirely clear, and as a result the comparison of these and the census figures qualifies any comparative analysis.

adjacent areas. There are 381,000 square feet of interior parking space<sup>1</sup> concentrated in three main buildings, of which one, the Bowdoin Square Garage, (Cambridge Street) comprises almost half of the total. With the inefficiency of these old garages, the area offers indoor parking for approximately 900 cars. The open space parking in the area totals 49,000 square feet or approximately 150 cars, in five parking lots.

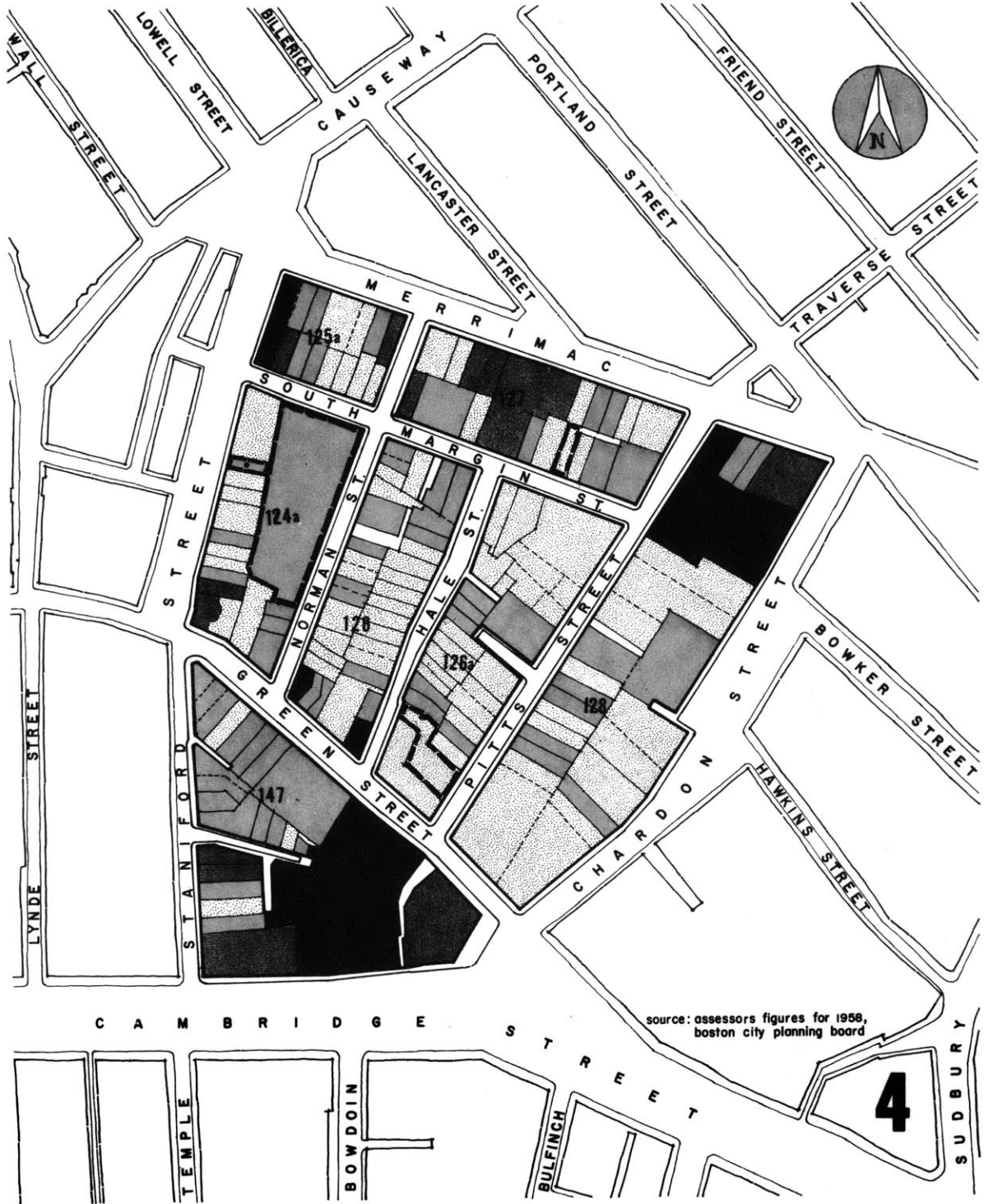
### School Facilities

There are no schools within the project area. The old Washington School on Norman Street is now used for storage and administration for the School Building and Maintenance Department. The Sandborn and Blackstone Schools in the West End are now closed; however, the Blackstone School is scheduled for improvement and reopening. A new elementary school is scheduled for the redeveloped West End with a proposed capacity which will provide for some children outside the new development.<sup>2</sup>

### Recreational Facilities

Within the project area the single "playground", on Pitts Street, is only one-tenth of an acre and is totally lacking in playground equipment. The children welcome Sundays when they can use the large parking lots as clean surface for





- 
1. One other small garage contains the remaining 2500 square feet.
  2. For detailed information see section "Schools in Surrounding Areas", page 40.


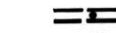



source: assessors figures for 1958,  
boston city planning board

E X I S T I N G C O N D I T I O N S

**ASSESSED VALUES**

 UNDER \$5.00 PER SQUARE FOOT	 \$5.00 TO \$7.50 PER SQUARE FOOT
 \$7.50 TO \$10.00 PER SQUARE FOOT	 \$10.00 TO \$15.00 PER SQUARE FOOT

 CITY OWNED PROPERTY  
 TAX EXEMPT PROPERTY  
 009 ASSESSORS BLOCK NUMBER



ball playing. The rest of the week offers only narrow, car-parked streets, rubbish laden sidewalks, and a few alcoves of the vacated stores as play space.

Other  
Public and Semi-Public Uses

With the exception of the one church mission on Staniford Street there are no other facilities within the semi-public use category. The old Washington School building on Norman Street, now being used by the School Building and Maintenance Department, represents the only public-use building.<sup>1</sup>

Zoning

The existing mixture of uses is not indicative of the present zoning. The area is presently zoned for Retail and Business offices (B 155) with the exception of a small triangular area (.35A) at Staniford Place. This area is zoned for local retail and service stores. (L155) See zoning map .

Land Values

The total assessed value of land and buildings is \$2,505,400<sup>2</sup> including \$165,700 of non taxable property. The average land and building value is \$6.04 per square foot, with block averages ranging from \$3.84 per square foot to \$9.66 per square foot. The highest individual property is valued at only \$15 per square foot, the remaining distribution is illustrated on Existing Conditions-Map Four.

- 
1. The small lot on South Margin Street owned by the city of Boston is undeveloped. See Map Three for location.
  2. Source: Boston City Planning Board, based on 1958 assessed values.

The average assessed value of buildings alone is \$.70 per square foot of building; while the average assessed value of land alone is over three times that, or \$2.52 per square foot of land. Over forty-seven per cent of the assessed value comes from the land value. The taxable property value of \$2,439,000 at the 1959 tax rate of \$101.00 per thousand produces a tax income from the project area of \$246,000.

### Employment

The employment has continually declined since 1947. Employment loss, coupled with the increase in vacant space over a twelve year period, indicate the decrease was due to abandonment of the area rather than merely a decrease in number of employees per firm.

<u>Year</u>	<u>Employment</u>	<u>% Decrease</u>	<u>Average % Decrease/yr.</u>
1947 <sup>1</sup>	1490		
1957 <sup>2</sup>	1110	25%	2.5%
1959 <sup>2</sup>	990	11%	5.5%

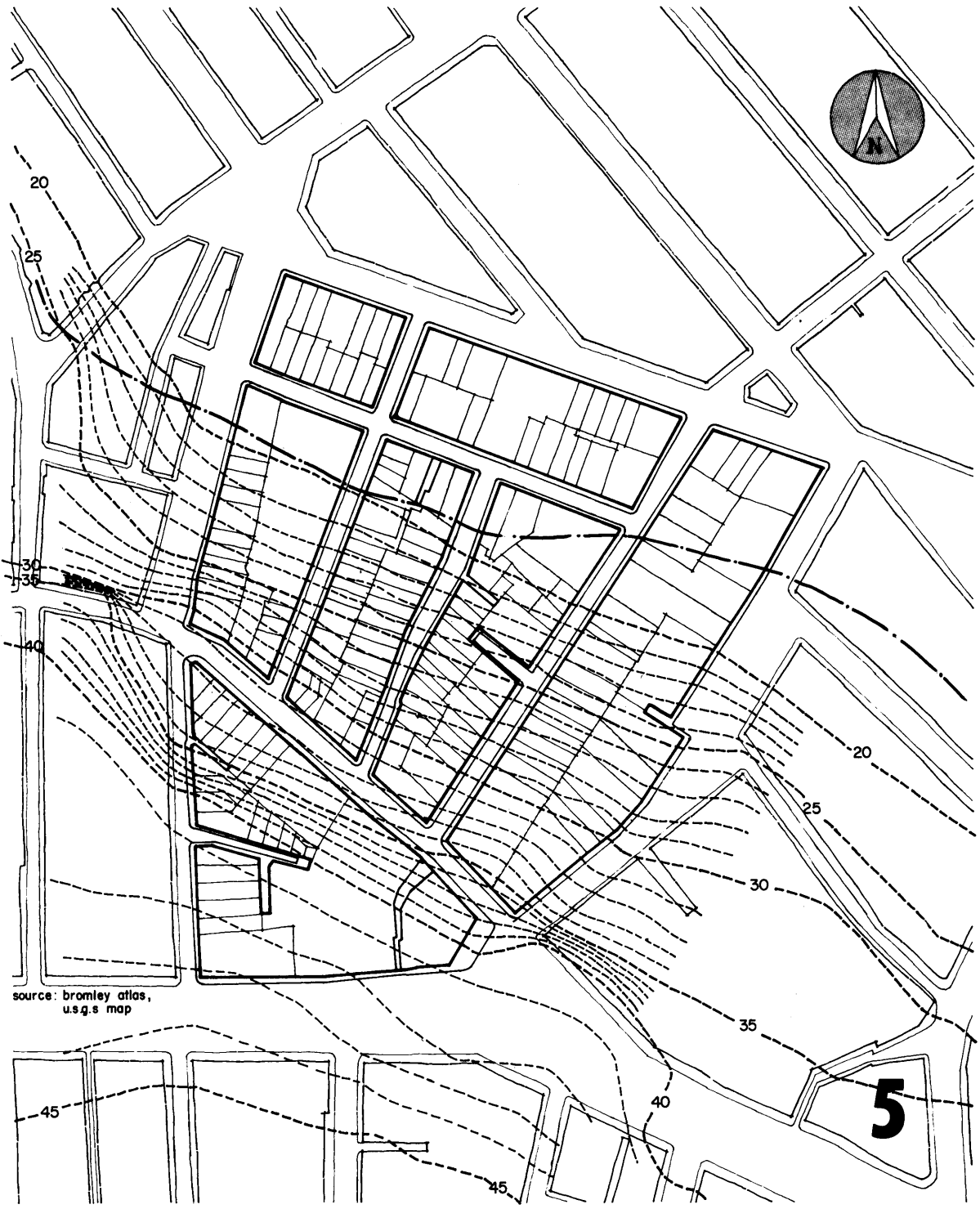
Sixty-five per cent of the 1959 employment is located within the one block between Chardon and Pitts Streets.

The various uses which account for the majority of employment are:

<u>Use</u>	<u>No. of Establishments</u>
Office	2
Retail Sales	63
Wholesale Storage	23
Manufacturing	9

- 
1. Advance Planners Associates, North Station Preliminary Report (Cambridge: January, 1960)
  2. Boston City Planning Board, "Field Survey, 1959" op. cit.





EXISTING TOPOGRAPHY

ONE FOOT CONTOUR INTERVALS  
 - - - ORIGINAL SHORE LINE



Retail sales and office uses are small establishments, averaging only 3500 square feet per store and 700 square feet per office. The future of the existing retail sales seems doubtful since many depended highly upon the population of the now demolished West End for their business. It is doubtful that their lower grade of merchandise will appeal to the high income population of the West End Redevelopment even if their small stores will be able to survive the time gap of redevelopment.

Social Conditions:

According to the 1950 census, the area did not contain a single non-white family.<sup>1</sup> Though it once contained a very large percentage of Jewish families, people of Italian origin or extraction represent the predominant ethnic group today. The demolition of the West End left the present population isolated from a larger similar ethnic group. With their ties to the West End broken and their ties to the North End separated by the expressway and five blocks of North Station industrial uses, elements of a highly organized society are not present.<sup>2</sup>

In 1950 the apartment rent per month by block averages, ranged from \$19.12 to \$32.72 with an average of \$23.36 far

- 
1. Bureau of the Census, U.S. Census of Housing: 1950 op. cit.
  2. William Foote Whyte, Street Corner Society, (Chicago: University of Chicago Press, 1943). The interests of the people are not evidently oriented toward the community as is indicative of the North End. The Staniford-Chardon Area does not contain the church, club and social group organization of the North End as presented by Robert J. Frasca, The Renewal of the North End of Boston, M.C.P. thesis Massachusetts Institute of Technology, 1959.

below the Boston average of \$38.39.<sup>1</sup> In 1959 dollars the project area average rent represents only \$27.32.<sup>2</sup> Owner occupants represented only 6% of the 1959 census total of 464 dwelling units.

The census tract for this area covers portions of the North Station and North End as well. The population of the area has undoubtedly changed considerably in the past four years since the destruction of the West End began. There are approximately forty families known to have moved into the area since the redevelopment began in 1955.<sup>3</sup> The influx of relocated residents from the West End have not been able to decrease the vacancy rate due to the poor condition of the vacant dwelling units and the several completely vacant buildings. The relocatees of the West End who chose the Staniford-Chardon Area have probably caused even further crowded conditions than are indicated by the 1950 census information.

Using the 485 dwelling units recorded in 1959 and discounting the 8% residential vacancy an estimated 446 occupied dwelling units remain. Using the entire census tract average family size of 2.86 the population can be

- 
1. Bureau of the Census, loc. cit. "Building Condition", Census Tract H-4 Blocks 17 through 23. The median rent for the census block average is \$20.24.
  2. Source: National Bureau of Economic Research and Bureau of Labor Statistics; as published in: Chamber of Commerce of the United States, Washington Report, Vol. 3, December 25, 1959, Number 11, (Washington).
  3. From survey work done by Gordon Gottsche in preparation of Masters Thesis on relocation in the West End redevelopment, (unpublished Masters Thesis, Department of City Planning, Massachusetts Institute of Technology: 1960).

estimated at about 1300 persons. An additional 75 persons are estimated to be living in the 10 lodging houses within the project.

#### Summary of Existing Conditions

The existing conditions of the area indicate a poor physical environment for continued residential use. The evidences of the problems in mixed land use, generally poor building condition, lack of recreational facilities, and inadequate light and air within buildings, warrant redevelopment of the residential units. The high vacancy rate in nonresidential buildings coupled with low, constantly decreasing values indicate the area is functioning only partially as a healthy economic unit. The fifty year age of the majority of the buildings suggests there would be little value in attempting their reuse or reoccupancy in a redevelopment plan. The close social ties which were present when the West End was a larger entity have since disappeared. The few nonresidential buildings which are in fair condition and could warrant rehabilitation are scattered and, if retained, would hinder development of a logical pattern of reuse.

The absence of community facilities within the small project area is partially supplemented by the surrounding areas. The adequacy of these facilities in changing adjacent areas is outlined in the following section.

II.  
CONDITIONS AND TRENDS IN SURROUNDING AREAS

The North Station Area

Location

Generally considered adjacent to the Staniford-Chardon Area on its northern boundary, the North Station Area has somewhat indistinct boundaries. In a recent study, the Staniford-Chardon Area has been considered part of the North Station area along with the sections bounded by Merrimac and Lowell Streets and by the Charles River and Washington Street North.<sup>1</sup> Proximity to the Staniford-Chardon Project necessitates the consideration of the North Station Area conditions and proposals, many of which will have an effect on the reuse of the Staniford-Chardon Area.

Use and Trends

Within the latter boundaries the area presently serves three roles within the downtown economy: manufacturing, transportation and wholesaling. Excluding government and self employed the area provided for 6100 jobs in 1957<sup>2</sup> representing a 54% decline from 1947 employment<sup>3</sup>. However the

- 
1. Advance Planners Associates, North Station Preliminary Report (Cambridge: January, 1960) p. ii, map entitled "Boundries of Sub-Areas". The sub-areas designated 1, 2, 3, comprised the focus of their report through the Staniford-Chardon Area (sub-area 4) and a part of the Government Center (sub-area 5) were also included in the study area.
  2. Ibid Table I p. 6. This writer interpolated from a total of 9120, which includes a larger area.
  3. The figures do not represent exactly comparable areas since part of the area was demolished for the Fitzgerald Expressway between 1947 and 1957.

decline in employment took place in only parts of the area. In the Merrimac, Canal and Causeway Street areas there were gains in government employment, business and personal services, and furnishings with its related activities. Though there is conflict as to the trends of the area,<sup>1</sup> several firms presently located in the area have indicated desires to expand within the area<sup>2</sup>.

The area contained 8% vacant floor space<sup>3</sup> in 1953 with a vacancy increase estimated since that time.<sup>4</sup> Many of the buildings in the area are in need of major repairs and renovation. Only about half of the total floor space is in fireproof buildings. Limited open space, high density and patterns of heavy traffic volumes impose parking and circulation problems within the area. The overall appearance of the area is drab; its Merrimac Street facade facing the Staniford-Chardon area being one of the least attractive.

#### Proposals For Change

As proposed by both the Boston Planning Board and the project consultants, the future of the North Station area is planned for continued industrial and general business use. Though there are indications of a decline in the area, there

- 
1. Greater Boston Economic Study Committee, A Report On Downtown Boston (Boston: May, 1959). This report claims that the decorative arts wholesalers were migrating from the North Station to the Back Bay, inferring this was a declining area in this activity. This view is contrary to the claims of the Advance Planners Associates' Report.
  2. Advance Planners Associates, op. cit., p. 2
  3. Ibid, Table 7, p. 13
  4. Interview with D. Grossman, partner of Advance Planners, Associates, March, 1960.

are also several signs of strength and vitality in its continuing, and possible increase in economic health. The North Station Merchants Association initiated the present study of the area, and will probably be active in pursuing the programs which the consultants recommend for the area. The following are pertinent recommended programs of the consultants which are in the policy determination stage as of April, 1960. Each is followed by this writer's opinion of its implications for the Staniford-Chardon Area.

1. "Methods of physically integrating the North Station Area with the adjacent Government Center and West End Projects."<sup>1</sup>

A major conflict lies in the Government Center circulation proposals which visually cut off the North Station Area at the Sudbury Viaduct, and inhibit pedestrian flow from the center by creation of traffic barriers at the street level of the Sudbury-Congress Street expressway entrance. The break in commercial uses from Hanover Street to the proposed Canal Street would tend to further discourage pedestrian flow into the North Station area. Any alterations to alleviate this situation will affect the circulation in and around the Staniford-Chardon Area and should therefore be considered with its design. One of the consultant's proposals places a new Decorative Arts Center on the enlarged site of the Government Center proposed fire station.<sup>2</sup>

---

1. Ibid. p. 3

2. Interview with David Grossman, partner of Advance Planners Associates, March, 1960. The proposed Center was located at the corner of Washington Street North and New Congress Streets (on Government Center plan) in a preliminary proposal to the North Station Merchants Association on March 25, 1960.

## 2. "Development of a parking and circulation plan."<sup>1</sup>

In general policy it is the desire of the consultant planners to reduce internal traffic and facilitate periphery traffic along Causeway, Canal and Merrimac Streets. This would then place heavier volumes than exist now or as anticipated by Government Center plans, on Merrimac as well as Staniford Streets. Increases in parking, for either new uses or presently inadequately served uses, would reduce the parking function of the Staniford-Chardon Area which now provides almost all of its parking facilities for the North Station area and the downtown offices.

### Existing and Potential Physical Form at Staniford-Chardon Boundary

Between the North Station Area and the Staniford-Chardon Project, the common street, Merrimac Street, lacks a discernable general structure. Unorganized diversity is the dominant impression. The varying building heights leave an unpatterned silhouette. There is also a lack of spaces other than the disturbing holes left by removed buildings. The flat facades of the individual buildings are highlighted only by chipped bricks, peeling signs, and an occasional white brick joint. The dirt-greyled windows of the sporadic stores reluctantly reveal unarranged, varied displays. The few boarded openings hint of a past prosperity that may be

---

1. Advance Planners Associates, op. cit. p. 4.



regained in a changing neighborhood. With small spaces created in the Staniford-Chardon Area, combined with a concentration of the second-hand stores to the north side of the street,<sup>1</sup> some of the apparent ugliness of discordant deterioration could be changed to appreciated variety, enhanced by the activity of curious bargain hunters.

---

1. The majority of the commercial uses in the Staniford-Chardon side of Merrimac Street consist of second-hand and pawn shops which could relocate across the street, if encouraged.

## Scollay Square Area and the Proposed Government Center

### Location

Historically the heart of the city, the adjacent area southeast of Staniford-Chardon has evolved from a business center to a well known entertainment center, further to the present mixture of marginal uses, plagued by high and increasing vacancy. The proposed Government Center redevelopment plan<sup>1</sup> covers 56 acres roughly extends south to north from School and Beacon Streets to Chardon Street and Washington Street North; and east to west from the Central Artery to Somerset Street on the slope of Beacon Hill. Though numerous delays have diminished the prospects of bringing the proposed plan to reality,<sup>2</sup> it is an assumption of this thesis that the project is to be realized in concept.

### Proposed Uses

Of the total project area approximately 6 acres will be in building sites which will remain, and 20 acres will be in new streets. Of the balance, 9 acres will be in new open space, 7 acres in new public building sites, and 15 acres in new private building sites. The 2,000,000 square feet of new public office floor space, and the 4,500,000 square feet of new

- 
1. Boston City Planning Board, Government Center Boston, A report prepared by the consultant firm of Adams, Howard and Greeley and Associates for the Planning Boston (Boston: September, 1959)
  2. Ibid. Through the plan was completed by the consultants and published in September, 1959, it was not released by the Planning Board until late March, 1960. The location of the Federal Building was the main object of the delay during that period.

private office floor space will increase the working population from the present 5,600 to an estimated 25,000. On the south side of Cambridge Street at Bowdoin Square, adjacent to the proposed Government Center, the State plans at least one office building which would be in addition to the above figures for the Government Center.

#### Additions to Proposed Uses

Since the publication of the report several developments have taken place which, if incorporated into the plan, would require alteration in details of the published plan. Those developments which will be accepted and considered for purposes of this thesis are:

1. The site for the Federal Building will be returned to the Hanover-Sudbury Street site.<sup>1</sup> (see general plan.) The size requirements will be considered unchanged (1,000,000 square feet of office space).
2. Though considered outside the present boundaries the Government Center, additional State Building requirements<sup>2</sup> will be considered for possible inclusion with the published report area.

- 
1. This position of the Federal Building was originally proposed by the consultants in a preliminary, but unreleased, report: "Government Center Study", June, 1959. At the time of this writing the Federal Government has expressed verbal satisfaction with the location.
  2. "State Buildings to Expand Center", Boston Globe, March 23, 1960, p. 1. The article outlined the desires of the State to provide the following facilities in addition to the office building on the south side of Cambridge Street: (a) mental health clinic and hospital facilities (b) a State Prison reception and classification center and (c) a second State office facility for health, welfare, education, and rehabilitation agencies. In a telephone interview with Mr. James Enright of the office of Commissioner of Administration, State of Massachusetts, on March 25, 1960: Facilities (b) and (c) would require 400,000 square feet of floor space. Requirements for facility (a) were undetermined at this time.

Changes to incorporate these requirements will be made in an attempt to retain the stated objectives and design concepts of the published report. There will be no attempt to redesign the Government Center Project, but only to propose those changes which are considered pertinent to the Staniford-Chardon Street design and circulation.

#### Pertinent Physical Elements of The Plan

Land use in the proposed plan will concentrate government uses at the foot of Beacon Hill, with the City Hall and City Square occupying the focal point along the extended east-west ridge axis, at the base of Beacon Hill. The Federal Building will occupy the adjacent site north of the new City Hall in the fan shape arrangement of blocks as they continue around the base of Beacon Hill. The main State offices and all the County offices will be centered around Pemberton Square further up the hill.

Those uses in the block between the Federal Building and the Staniford-Chardon area are proposed as private buildings, probably of wholesale-commercial, and industrial use,<sup>1</sup> with open parking space for 500 cars. The general plan proposed retaining the New England Telephone Building, the City of Boston Welfare Building, and the Boston Edison Building, all of which are within the Sudbury-Chardon block. The

---

1. William H. Ballard Company, "Reuse Appraisal Plan, Government Center Redevelopment Project, Boston, Massachusetts." Vol. I Prepared for the Boston Planning Board, August, 1959. p. 93.

physical condition and economic value of the Telephone Building does not warrant its removal. With the project considerations enlarged to include additional State office requirements the removal of the smaller Welfare and Edison Buildings may be justified to improve the project as a whole.

#### Pertinent Circulation Elements of the Plan

Proposed circulation in the Government Center radically replaces the present system of a matted tangle of narrow streets. The new system concentrates the traffic on three wide parallel arcs around Beacon Hill, in the general northwest-southwest direction. Connection of the arcs is made by three cross radials: one major radial in the Sudbury Viaduct; and two minor radials in Court and Staniford Streets.

The main consideration of the traffic system will be focused on: (1) those streets immediately surrounding the Staniford-Chardon area, and (2) those elements of the total system which require reconsideration with inclusion of the recent developments.<sup>1</sup> The elements of the Government Center circulation plan which warrant reconsideration can be summarized:

1. The Staniford Street volume is estimated at 1200 vehicles per day.<sup>2</sup> The volume would be

---

1. Those listed as accepted developments on page 27 and those accepted objectives of the North Station Area listed on page 23.
2. As indicated on the detailed traffic and circulation plans by DeLeuw, Cather and Company, Traffic Consultants for the Government Center redevelopment plan August, 1959.

substantially increased if Causeway Street were improved as a major street.<sup>1</sup> The result of this improvement would then reduce the large volume entering Washington Street North destined for the CBD area south of the Government Center. A further proportion of the 8200 vehicles per day<sup>2</sup> entering the center from Washington Street North are north-traveling cars on the expressway. They would find it more convenient to enter the downtown shopping and financial districts over a connection with the proposed improved Atlantic Avenue.<sup>3</sup>

2. The intersection of Washington Street North and New Congress Streets carries a large number of vehicles (16,400 per day),<sup>4</sup> most of which make a left turn at the intersection. A large amount of this volume is traffic not destined for the Government Center, but for the financial and shopping districts. Though the volume may be reduced as much as 5000 vehicles per day by the improvements named in (1) above, this remains a difficult movement for large volumes of traffic. It is felt that further consideration is required for the possible elimination of the intersection or the rerouting of the traffic not destined for the Government Center. Reconsideration is also necessary to coordinate the objectives of the North Station Area.<sup>5</sup>
3. The replacement of the Federal Building to the Hanover-Sudbury block necessitates enlarging the block to meet Federal requirements for office space, thereby shifting the alignment of the Sudbury Viaduct.<sup>6</sup> Considerations of (1) and (2) above allow for possible elimination of the Viaduct, with State buildings occupying the Sudbury-Chardon block, the philosophy of the Viaduct as a visual and functional separator of government and private functions is no longer valid. The circulation plan for the entire area, including Staniford-Chardon, depends heavily upon the design of Sudbury Street.

---

1. An accepted objective of the North Station Area. See page 23.
2. DeLeuw Cather and Company, loc. cit.
3. Interview with Robert Murphy, Boston City Planning Board March 15, 1960.
4. DeLeuw Cather and Company, loc. cit.
5. See page .
6. Boston City Planning Board, "Government Center Study" June, 1959.

4. The splitting of the traffic on New Congress Street into Merrimac and Portland Streets conflicts with the North End objectives to circulate major traffic volumes around the area. This system also creates a difficult sharp S-turn for the estimated 4900 cars per day<sup>1</sup> at the Portland-Causeway intersection. Alteration of this circulation affects the Merrimac Street section at the northern boundary of the Staniford-Chardon Area.

Proposed and Potential Physical Form  
at Staniford-Chardon Boundary

Criticism of the design of the Sudbury-Chardon block as a lavish use of land has been made by the Real Estate Consultant.<sup>2</sup> This criticism is valid only in the way the space is designed. From the Staniford-Chardon area the Government Center turns its back on the Chardon Street facade. Its backyard sea of cars will be the dead sideyard of the Staniford-Chardon area. It will not be a pedestrian street, for there will be little to beckon the interest of the walker other than the isolated Welfare and Edison Buildings. The commercial buildings all face other streets and will offer only their rear entrances beyond the platform of car roofs. The buildings together define large u-shaped space, which open to Chardon Street will focus upon the inconsequential Welfare-Edison Buildings as well as apparently increasing the importance of the parking lot space. From most any point along Chardon Street the form arrangement lacks any hint or introduction to the wonderful spaces of the Government Center, as well as any directional revelation of

---

1. DeLeuw Cather and Company, loc. cit.

2. William H. Ballard Company, op. cit. p. 60.

how to get there. Though the main emphasis should be on the Cambridge Street entrance, this will only be the primary auto entrance from the west when the driver is to pass through the center, or park in a lot within the center. Pedestrian entrances, from fringe parking or from the uses in the West End and Staniford-Chardon area may travel another path, and should not be ignored completely.

It is felt the Sudbury-Chardon block warrants redesign with the Staniford-Chardon block for the following reasons:

1. Proximity to Staniford area.
2. Consideration of recent developments in Federal Building site, additional State office requirements, and coordination with objectives for the North End.
3. Inadequacy in building arrangement to link the block with the adjacent Staniford-Chardon area.
4. The block is still in the proposal stage and is considered by the designers to be open to reconsideration and change.<sup>1</sup>

---

1. Based upon interview with Mr. Kevin Lynch and Mr. Jack Meyer, Design Associates of the Consultant Firm of Adams, Howard and Greeley, originators of the proposed plan for the Boston Planning Board.



## The West End and Charles River Park Development

### Location

The North Station and Government Center are areas proposed for change, while the adjacent area to the west of Staniford-Chardon is in the advanced stages of redevelopment. In April, 1960 the area was over 75% demolished and the redevelopment project, the Charles River Park Development, received State and Federal approval,<sup>1</sup> including approval of revised land assembly and redevelopment plans.<sup>2</sup> The approved plans provide for 2400 dwelling units, commercial, and community facilities on a forty-five acre site, bounded by Charles Street, Allen, Blossom, Cambridge, Staniford, and Lowell Streets.

### Summary of Proposed Uses

It is assumed that the Charles River Park Development will be completed as proposed.<sup>3</sup> Many of the details of the development provide supplementary facilities and therefore will have a significant effect on the redevelopment of the Staniford-Chardon Area. The main uses within the West End Redevelopment Project and their respective area are:

- 
1. Project number U-R Massachusetts 2-3, as a federally assisted Urban Renewal project provided under Title I Housing Act 1949.
  2. Boston Redevelopment Authority, West End Land Assembly and Redevelopment Plan, Revised June 1959.
  3. As listed in West End Land Assembly and Redevelopment Plan, op. cit. and: Boston Redevelopment Authority, Supporting Documentation to the Revised Redevelopment Plan, op. cit.

Residential (5 parcels) including parking for 1600 cars .....	25.5 A
Commercial	
Cambridge Street .....	3.9 A
Off Allen Street .....	.2 A
Public	
Blackstone School (total) .....	1.7 A
New Elementary School .....	2.4 A
New Library .....	.5 A
Semi-Public	
West End Church .....	.5 A
Otis House Museum .....	.4 A
St. Josephs Catholic Church and reservation of land for future parochial schools .....	1.9 A
Other Semi-Public, (2 parcels) probable church sites .....	.5 A
Institutional	
Retina Foundation .....	.7 A
"Buffer zone" at Mass. General Hospital ...	.1 A
Streets .....	8.3 A
Total	<u>46.6 A</u> <sup>1</sup>

### Residential Land Use

The 2400 dwelling units will be approximately distributed:

<u>Building Type</u>	<u>D.U.'S/ Parcel</u>	<u>No. of Parcels</u>	<u>Approx. Total</u>
16 story rectangular elevator apts.	455	5	2275
23 story square elevator apts.			
2½ story walk up "town houses"	18	5	90
			Total <u>2365</u>

1. As proposed in West End Land Assembly and Redevelopment Plan, op. cit.

Breakdown estimates by dwelling unit size:<sup>1</sup>

1 bedroom apartments and efficiencies	65%	1440 dwelling units
2 and 3 bedroom apartments	35%	960 " "

The average net residential density is 96 dwelling units per acre. Though the units were originally planned for rents starting at \$90 per month,<sup>2</sup> depending upon the size of the apartment, later figures indicate efficiencies will start at \$130 per month. The lowest rent of the larger apartments will be \$50 per room per month, with higher rents for river-front apartments and "town houses".<sup>3</sup>

Circulation

The development will be entirely served from the periphery streets; through streets have been eliminated.<sup>4</sup> Cul-de-sacs penetrate the residential parcels from Charles, Allen, Blossom and Staniford Streets. The shopping center, the new library, the Otis House (museum) and the West End Church have access on Cambridge Street. The proposed Retina Foundation research building has access on Staniford Street, within 300 feet of Cambridge Street.

- 
1. Boston Redevelopment Authority
  2. Boston Redevelopment Authority Supporting Documentation to the Revised Redevelopment Plan op. cit. p. 24.
  3. Interview with Mr. R. McGovern, Boston Redevelopment Authority Real Estate Specialist.
  4. There is tentative provision for a right-of-way connecting the cul-de-sacs on Blossom and Allen Streets, but plans indicate this would function more as a service road even if connected.

Pedestrian circulation has been provided in a public foot-path through the center of the project, connecting Staniford and Charles Streets.<sup>1</sup>

#### Community Facilities

The public and semi-public uses listed on the previous page were designed to partially serve a population outside the area as well as the development itself. The final area for the shopping center enlarged the site over original use-allocations on the basis of its commanding position on Cambridge Street and the presence of adjacent residential population (Beacon Hill). The proposed West End Branch Library near the shopping center was estimated to provide 35% of its facilities for a population outside the development. Provisions for four churches within the area are also expected to serve different denominations from outside the project area as well. The school capacities and facilities have been listed on page .

#### Existing and Potential Physical Form at the Staniford-Chardon Boundary

The prominent features of the Staniford Street facade will be the one square and one rectangular closely spaced towers. From either end of Staniford Street, the slight slope and curve of the street will give visual continuity at eye level, though the low buildings are actually separated. When the street is viewed from a Cambridge Street approach, there will

---

1. Public footpath location is only tentative, however the Redevelopment Authority advises that any changes will be in minor realignment only.

be a hint of spaces along the facade, but their shape and size will be weakly defined. From other viewpoints along the street, the facade lacks a strong statement of organization other than an effective combination of towers and low buildings to form a barrier to the open spaces beyond. This seemingly loose creation of several spaces allows a certain flexibility of forms which may be harmoniously created in the Staniford-Chardon design. The facade which the West End presents to Staniford Street is not consistent with the qualities attributed to it from other views. The individuality of its towers, informally disposed within large green areas, is not evidenced in the Staniford Street character. From this view the West End buildings will lack a sense of pedestrian activity as the residents disappear into the connected garages and then enter the residential towers from the back or sides. The one attempt to reduce the scale at the pedestrian level is produced by the smaller dimensions of the low buildings. Near the Merrimac end of Staniford Street even this attempt at smaller scale will be negated by the massive area of the impersonal garage. The proximity of the two towers, their different distance from the street, combined with the low buildings which vary in their cautious approach to the street line will create an overall vibrant facade. The Staniford-Chardon design can, by reflecting these spaces at the low building level, strengthen the definition of the Charles River Park spaces. By creating coincident

spaces as setbacks in its building line, the Staniford-Chardon design can create a physical compatibility to the West End while rejecting repetition of its tower-and-expansive-spaces scale. A design for the Staniford-Chardon Area could then adopt a smaller scale which would be more harmonious with the character of Boston as a whole.

## Schools and Recreation in Surrounding Areas

Schools1. Winchell School<sup>1</sup>

LOCATION: off Cambridge Street, near Massachusetts General Hospital

GRADES: K-6

CLASSROOMS: 18

CAPACITY: 450 pupils

ENROLLMENT: 157 pupils

DISTANCE FROM PROJECT:  $\frac{1}{2}$  mile

ROUTE: Along, but not crossing, Cambridge Street; crossing: Staniford Street, proposed shopping center entrance, and proposed widened Blossom Street.

YEAR BUILT: 1885, with an addition in 1907

BUILDING CONSTRUCTION:  $3\frac{1}{2}$  floors totaling 8220 of non-fireproof construction; wood floors and beams with brick exterior walls

SCHOOL YARD: .18 acres

ANTICIPATED IMPROVEMENTS: Junior playground proposed by Planning Board, but no indication of action in near future

2. Peter Faneuil Elementary School<sup>2</sup>

LOCATION: South Russell Street, north side of Beacon Hill

GRADES: 1-8

CLASSROOMS: 17

CAPACITY: 400 pupils

ENROLLMENT: 1959: 303 pupils (221 in 1-6 and 82 in 7-8)<sup>3</sup>

DISTANCE FROM PROJECT:  $\frac{1}{4}$  mile

ROUTE: Crossing, then along, Cambridge Street; along minor Joy or South Russell Streets (secondary-local streets)

YEAR BUILT: 1910

BUILDING CONSTRUCTION:  $3\frac{1}{2}$  floors totaling 7868 square feet of fireproof construction

SCHOOL YARD: .43 acres

ANTICIPATED IMPROVEMENTS: none

---

1. Source: Boston City Planning Board

2. Ibid.

3. The 82 pupils in grades 7-8 are from temporarily closed Blackstone School.

3. "Charles River Park" Elementary School (proposed)<sup>1</sup>

LOCATION: Lowell Street at north-eastern boundary of the West End project

GRADES: K-6

CLASSROOMS: 13 plus three special training rooms

CAPACITY: 450 pupils

ENROLLMENT: Estimated to serve 400 pupils from the West End, 50 from outside the area

DISTANCE FROM THE PROJECT:  $\frac{1}{4}$  mile

ROUTE: Crossing Staniford, then either through pedestrian path of West End or along Staniford and Lowell Streets

YEAR BUILT: Expected in 1960

BUILDING CONSTRUCTION: Planned as one floor, fireproof construction

SCHOOL SITE: 2.43 acres

4. William Blackstone Jr. High<sup>2</sup>

LOCATION: Blossom Street in the Charles River Park Development

GRADES: 7-9

CLASSROOMS: 26

CAPACITY: 450 pupils

ENROLLMENT: 1959 closed due to West End redevelopment

DISTANCE FROM PROJECT:  $\frac{1}{4}$  mile

ROUTE: Through the West End project crossing only Staniford Street

YEAR BUILT: 1916

CONSTRUCTION:  $4\frac{1}{4}$  floors of fireproof construction totaling 11,759 square feet

SCHOOL YARD: .49 acres

ANTICIPATED IMPROVEMENTS: In 1960; an addition of 1.09A (new total improvements than 1.71A) for new gymnasium and accompanying facilities

The lack of schools in the small Staniford-Chardon Area is compensated by the proximity of the two present and one proposed elementary schools. The proposed elementary schools

---

1. Boston Redevelopment Authority, Supporting Documentation to the Revised Redevelopment Plan, op. cit., p. 26

2. Ibid.



will replace the antiquated Mayhew School, which was demolished with the West End. Elementary school needs of Staniford-Chardon would be most conveniently served by the proposed West End school; however, the other elementary schools have the capacity to serve approximately five hundred additional students.<sup>1</sup>

Blackstone Junior High, when reopened, will have the capacity for 250 pupils from outside the Charles River Park project.<sup>2</sup> After subtracting the 82 pupils now enrolled in grades 7-8, the Blackstone School would still have the capacity for approximately 170 additional pupils.

There are general and technical high schools serving the Boston area, all located at some distance from the area.<sup>3</sup> The nearest parochial schools are located in the North End, but most are in poor condition and overcrowded.<sup>4</sup> Provision has been made for the possible addition of a parochial school in the Charles River Park Development. Saint Josephs Roman Catholic Church has 1.49A reserved for a possible school site once the new population is established.

In summary, the existing elementary schools are now operating under capacity; however, the buildings are in generally poor condition and they lack outdoor recreational space.

- 
1. In Winchell and Faneuil Schools, at 25 pupils for classroom.
  2. Based upon an estimated Charles River Park enrollment of .08 pupils per D.U. for 2400 dwelling units or 200 pupils.
  3. The specialized schools such as Latin School, High School of Commerce, Technical High School are located within the central area but offer training to students from the entire city.
  4. Robert Frasca "The Renewal of the North End of Boston" (unpublished Masters Thesis, Department of City Planning, Massachusetts Institute of Technology: 1959.)

As proposed, the Charles River Park School will alleviate the situation only slightly, for as now planned it will provide for only fifty additional students from outside the new development. An additional capacity also exists in the junior high grades. The addition to the Blackstone School will bring junior high facilities to a more adequate level, though a newer building would be more desirable.

### Recreation

The most convenient playground recreation for the Staniford-Chardon Area would be in the Charles River Park Development, at the proposed elementary school. Some senior playground facilities will be available in the proposed Blackstone School addition, though the site is somewhat smaller than desirable standards.<sup>1</sup>

The Metropolitan District Commission recreational facilities along the Charles are within  $\frac{1}{2}$  mile, with access over one existing pedestrian bridge. The proposed public pedestrian path<sup>2</sup> through Charles River Park would allow access from Staniford-Chardon to swimming or wading pools, tennis courts, ball fields and park facilities.

- 
1. Boston senior playground recommendation is three acres minimum. With additions completed, Blackstone will have approximately one acre of open play space.
  2. An additional bridge is planned by the M.D.C. at the north corner of New Allen and Charles Streets.

III.  
GENERAL PLAN CONSIDERATIONS FOR DETERMINATION OF REUSE

Approach and Assumptions

The necessity for redevelopment is evident in the physical and social conditions of the Staniford-Chardon Area; this necessity is reinforced by its position as a remnant of deterioration in the center of a surrounding area in which redevelopment and rehabilitation are taking place. These existing conditions present a logical need for redevelopment at this time; however, the implications of the reuse proposals must be evaluated before the final policy for redevelopment is made.

The evaluation of a proposed reuse is partially dependent upon the time at which the particular reuse is being considered. The time context of evaluation is therefore a necessary factor in determining the potential reuse. The project should consider the implications of both the social and economic factors in a proposed reuse and give proper weight to the feasibility of economic success at the time the project is proposed for redevelopment. Those reuses which are considered feasible at the time should then be further evaluated for their long range implications. Since the existing conditions of the Staniford-Chardon Area present a need for redevelopment at this time, the reuse evaluation is presented within the same time context.

The nature and diversity of the surrounding areas indicate any one of several reuses could be functionally compatible

within the general plan considerations for reuse. Three of the surrounding areas are in the process of change, or have been proposed for change, and each will represent different uses in their changed state. As an extension of any one of these changing areas the Staniford-Chardon area would combine with it to form a pattern of land use larger than its limited 11 acre area. Because of the nature and location of this area, any reuse will have to link with one similar reuse and serve as a transition area to the remaining surrounding uses. The detailed physical design of a project plan would serve better as a basis for evaluating the implications of a proposed reuse than a reuse determination at the general plan stage.

It is the purpose of this thesis to determine a redevelopment policy considering only the implications of residential reuse. It is proposed that evaluation of this reuse, for this project area, within this time context necessitates a detailed investigation of the economic, and social implications of the objectives upon the physical form.

This assumption of residential reuse is not intended to represent the best possible reuse for this land. It is presented as a reuse which is logical from the general plan considerations. Further assumption suggests a similar procedure for other reuses which, based upon the foregoing analysis of existing conditions, will then present a logical reuse at the general plan stage. The final determination of the best reuse for the area and thus a final redevelopment policy for the area, will depend upon further evaluation of

the implications of the objectives of each reuse. Detailed analysis of several reuses may not be warranted in all redevelopment projects, for the nature of the surrounding uses in combination with a proposed reuse may indicate incompatibility in the general plan stage. However, many redevelopment projects today are planned as large areas, and their compatibility to surrounding uses can be largely dependent upon the plan. The internal arrangements of buildings can determine, by design, the measure of compatibility to the surrounding uses. This can only be measured if a potential reuse is carried to a three-dimensional stage. Each use, within the limitations of economic and social objectives at a defined time, has further limitations of the type and arrangement of the forms which will adequately fulfill those objectives. The objective of a more rational organization of the form of the city, as well as the activity pattern, further stresses the need for carrying each potential reuse analysis to the design stage.

A three-dimensional form of the Staniford-Chardon Area, redeveloped for residential reuse, could then be evaluated with the project plans for other reuses, and judged on its relative ability to further the larger pattern of a city form. As planning strives for an organized pattern of uses, it should also strive for an organized pattern on the three-dimensional level.

In summary, the assumption of residential reuse is presented as logical reuse for the Staniford-Chardon area in

order to formulate a redevelopment policy. The formulation of the final redevelopment policy will depend upon the evaluation of the objectives for residential reuse as well as those for other potential reuses. Evaluation of economic, social and physical form objectives, for both present feasibility and long-range implications, are presented in the following section.

#### General Considerations for Residential Reuse

Residential reuse of Staniford-Chardon Area would combine with the new Charles River Park Development to the west to form a continuous pattern of residential land uses from the Charles River to the edge of the Government Center. The adjacent Beacon Hill provides a large area of residential use and, though somewhat different in character, it enlarges the pattern of residential use in the area. With the estimated increase of 20,000 employees in the Government Center, Staniford-Chardon could serve as a place of residence for those who would desire to live closer to their work.

The North Station Area has several elements which require consideration in the redevelopment of the Staniford-Chardon Area. The proposed Decorative Arts Center will have an indirect effect upon the circulation system of the Staniford-Chardon area; however, the proposed periphery circulation system and the drab Merrimac Street facade of the North Station Area will have a direct effect upon the boundary of the Staniford-Chardon area.

The success of the entrance to the Government Center area and its pattern of physical form will depend upon the design of the Staniford-Chardon block. The proposed radial circulation system of the Government Center will be connected to other surrounding areas either through, or at the periphery of, the Staniford-Chardon Area. Its success depends upon the transition of the radial system to the adjacent circulation pattern.

Though the smaller size of the Staniford-Chardon area would limit the extent to which it could furnish the necessary community facilities within its own boundaries, the facilities proposed for the West End could furnish or supplement many of the necessary facilities such as schools, recreation and local shopping.

With the Charles River Park concentrating its residential occupancy in smaller apartments, a few large but expensive apartments, and a "high-rise" type of development, the residential reuse of the Staniford-Chardon Area can direct its attention to fulfilling the need for other types of residential development.

The preceding sections on existing conditions have presented the details of these considerations which are considered pertinent to the reuse of the Staniford-Chardon Area. From the consideration of the pertinent elements, a fundamental emphasis for the residential redevelopment of the Staniford-Chardon Area can be formulated. The desired fundamental emphasis is summarized in the following objectives.

## Objectives for Residential Reuse

The basic objectives for the redevelopment of the Staniford-Chardon Area for residential reuse are:

- 1) To provide a residential area within the central core with an environment and supporting facilities which will be conducive to family living thereby providing an alternative, which does not now exist, to suburban flight.
- 2) To promote the possibility of a variety of social groups within the central core, providing rental possibilities for an income group now forced by neglect to reside elsewhere: the middle income group (\$6000-\$7000).
- 3) To reinforce the visual objectives of the Government Center to establish that project as a focal point and as a gateway to the government seat.
- 4) To provide a circulation system which will integrate with the Government Center proposals, the West End and the North Station Area to permit the high accessibility required by the nature of the adjacent Government Center.
- 5) To provide a basis for a visual design within the Staniford-Chardon area which will be within the smaller scale and character of the central area of Boston, and not detract from the natural topographic features of adjacent Beacon Hill.



- 6) To provide a development which is financially feasible at the present time, and one which optimizes the return to the city in taxes and land sales, after consideration of other objectives.

#### Evaluation of the Objectives

While the evaluation of the objectives depends on the degree to which they are incorporated into a proposed plan, the general nature of the objectives, though necessary, obscures many implications. An evaluation of the objectives and their implications, rather than just an analysis of the proposed plan, is presented in the following section. The major emphasis has been placed on the economic implications, followed by the social and physical implications; the latter taking the form of a proposed plan.

IV.  
EVALUATION OF THE OBJECTIVES AND THEIR IMPLICATIONS

Economic Implications

Approach

Financial analysis at any particular time, involves a combination of those components which are flexible or adjustable within a wide range, and those which are fixed within a narrow range of adjustments. The adjustment of the flexible components has an effect on both the immediate feasibility of the project and the long-range economic considerations. The rent components of: 1) architectural and miscellaneous fees, 2) financing costs, 3) operating costs, and 4) vacancy rates are all relatively inflexible or unadjustable by the project policy maker. The 5) land costs, 6) building costs, and 7) taxes are the more flexible components and can be manipulated, within limits, by the policies of the project. The economic evaluation of the objectives concentrates on the adjustable components, with the inflexible components assumed within the most favorable conditions.

The assumptions which are necessary to make in an investigation of probable economic feasibility also make it impossible to obtain absolute accuracy in the results. The results of this method provide only an "average probable" rent for they are computed with "average" estimated unit costs. In order to maximize the accuracy of the results in this thesis, the latest available data are used to provide unit costs.

### Market Implications

The market surveys to date give inconsistent indications of the available market in high-and middle-cost rental housing. The Boston Housing Authority prepared a report in 1954<sup>1</sup> which indicated that 43,944 dwelling units (for all categories of cost per month) were needed in Boston between 1954 and 1960. However, the number of units required in the \$90 per month and above category is only 11,054. The table below indicates the distribution.

TABLE 3: DISTRIBUTION OF THE RENTAL MARKET<sup>2</sup>

<u>D.U. Cost Per Month</u>	<u>% of Fam. Able to Pay</u>	<u>Cumulative Percent</u>	<u>No. of Units</u>	<u>Cumulative Units</u>
\$90-\$99	5.06	79.94	2222	35,112
\$100-\$109	8.08	88.74	3860	38,972
\$110-\$119	4.40	93.14	1930	40,902
\$120- & over	6.23	100.07	3042	43,944

Though the West End originally planned to rent its units starting at \$90 per month, more recent figures indicate rents start at \$130 per month for efficiencies. Larger apartments are expected to rent as listed in Table 4 .

- 
1. Boston Housing Authority, Need for State-Aided Development, (Boston: June, 1954)
  2. Boston Redevelopment Authority, Supporting Documentation to the Revised Redevelopment Plan, op. cit. p.24.

TABLE 4 : RENT DISTRIBUTION-WEST END<sup>1</sup>

<u>Apartment Type</u>	<u>Rent Per Mo.</u>	<u>No. Apts. Per Parcel</u>	<u>Tot. Apts. 5 Parcels</u>
Efficiency	\$130	90	450
Efficiency	\$140	40	200
1 Bedroom	\$185	88	440
1 Bedroom	\$190	90	450
2 Bedroom	\$250	103	515
3 Bedroom	\$300	44	220
3 Bedroom in "Town Houses"	\$325 \$350	18	90
		473	2365
	Totals		

This increase reduces their statistical market from 11,054 to 3,042, a much narrower margin; leaving a surplus of only 640 units to be filled by the rest of Boston. The 80 units in the new 330 Beacon Street apartments and the planned 1000 units in the Prudential Center<sup>2</sup> indicate the predicted high rental market will be operating at, or over, its capacity.

The Housing Authority market analysis is limited in its application by the expiration date of the predictions. If the assumptions are extended for five years to include Staniford-Chardon, there would be an estimated market for approximately 2500 additional units in the \$120 per month and over category. However, the Boston Planning Board does not

- 
1. Revised May 12, 1960, in telephone interview with Mr. Cass of the Charles River Park Development Corporation.
  2. This writers estimate using procedure listed in Appendix A , with known land costs (\$4.00/sq.ft.) and taxes (20% of gross income) indicate the units would rent for a minimum of \$50 per room per month. Rents would then be roughly equivalent to Charles River Park. Land and tax cost source: William H. Ballard Company, op. cit. p. 150.

agree with the population increase assumption<sup>1</sup> for the market analysis to 1960 and does not agree with the extent of the market, at the present time, for high rental apartments. The study by the Planning Board Staff in 1958 (L. Shaeffer) concludes that the West End, Beacon Street and Prudential projects will be the extent of the high rental market in Boston for several years to come.

An FHA report for the period October, 1954, to December, 1955, indicated a effective demand for 13,400 units<sup>2</sup> in all income categories; but their more recent opinion is against any further high-income housing in the Central Boston area.<sup>3</sup> The FHA has indicated, in response to luxury apartment proposal for the waterfront area, that there are too many luxury apartments already planned and they were in an over extended position. However, it would consider a project if the per room cost ranged below \$50/room/mo.<sup>4</sup>

This opinion is shared by two other real estate experts of the local area: William H. Ballard Company and M. Kargman of

- 
1. The assumption was that the 4% population increase between 1940-1950 would occur in 1950-1960 if housing were made available. Boston Redevelopment Authority, Supporting Documentation to the Revised Redevelopment Plan, op. cit. p.24.
  2. FHA Housing Market Analyst, An Analysis of the Boston Standard Metropolitan Area, (Boston:1954)
  3. R.J. Armour, "Report on the Development of the James M. Sampson Property", (An unpublished report of the Harvard Graduate Business School, Real Estate Research Elective: December, 1959).
  4. Ibid.

Center Realty Corporation. Both men feel doubtful as to whether the high-income market will even be able to support completion of the Charles River Park at the planned rents.<sup>1</sup> Accordingly, in their opinion, further prospects of a high rental market are very doubtful for some time to come.

"If some day there is a further 'taking' northwest of Chardon Street to Staniford Street, and if at the time the demand exists, this may be a very appropriate section for further residential reuse."<sup>2</sup> The particular location of the Staniford-Chardon site is, in the opinion of both the real estate experts, good for middle rental and poor for high rental residence. In Mr. Ballard's opinion, the river front location of the Charles River Park project will enable it to demand and receive higher rents; but the more distant location of the Staniford-Chardon Area, as well as the east portion of the Charles River Park Development, would logically demand lower rents.<sup>3</sup>

This means the rents of the Staniford-Chardon project would have to be considerably below \$50 per room average of the West End. Mr. Kargman estimates 15% to 20% lower,<sup>4</sup> or not over \$40-\$42 per room per month. At this per room rate, the rent for apartments larger than 3½ rooms (one bedroom) would then be out of the middle-income range. Mr. Ballard feels that larger apartments which would appeal to families,

---

1. Based on this writer's interviews with Mr. Kargman and Mr. Ballard.

2. W.H. Ballard Company, op. cit. p. 105

3. Interview with W.H. Ballard, April 1, 1960

4. Interview with Mr. Kargman, March 14, 1960

and be within the middle-income-range, has excellent market possibilities.

In summary, the existing market analyses are somewhat contradictory. The more recent Boston Planning Board analysis indicates further construction of high-rental housing is not warranted at this time. The verbal opinions of the market by the FHA and two experts support the lack of a high-rental housing market and indicate a market for middle-rental housing. The market exists for smaller apartments which could rent for \$40-\$42/room/month, but these same rents for larger apartments produce rents which are no longer in the middle-income range, and therefore have a doubtful market.

#### Assumptions for Middle-Income Rents

Generally, middle-income housing attempts to provide for those families which have incomes too high to be eligible for public housing and too low to pay the rents in conventionally financed housing on land from private sales.<sup>1</sup> Boston Public Housing eliminates most incomes over \$5,000<sup>2</sup>, but the lack of substantial quantities of new building on private purchased land in Boston negate this as an accurate method of determining the neglected middle-income range in new construction.

- 
1. Citizens Housing and Planning Council of New York, Governmental Aids for Private Middle Income Housing in New York City: (New York: 1957)
  2. Varies according to size of family

In order to provide a range above public housing, and within a range which can serve a large growing segment of the population, an income range of \$6,000-\$7,000 is assumed.<sup>1</sup> These incomes can be translated into a range of rental by applying a general range of 15% to 30% of income to be devoted to rent;<sup>2</sup> as illustrated in Table 5 .

TABLE 5 : AMOUNT OF INCOME DEVOTED TO RENT<sup>3</sup>

INCOME	Percentage of Income							
	15%		20%		25%		30%	
	/Yr.	/Mo.	/Yr.	/Mo.	/Yr.	/Mo.	/Yr.	/Mo.
\$6000	\$900	\$75	\$1200	\$100	\$1500	\$125	\$1800	\$150
\$6500	\$975	\$81	\$1300	\$108	\$1625	\$135	\$1950	\$163
\$7000	\$1050	\$87	\$1400	\$117	\$1750	\$146	\$2100	\$175

1. "Family Income in the United States: 1955", by the U.S. Bureau of the Census indicates the median family income increased 67% between 1945 and 1955 with the greatest increase in the low-and middle-income bracket. In 1955 35.5% of the family total-money-income was in the \$5,000 and over category. U.S. Department of Commerce figures of April 18, 1960, published in "U.S. News and World Report", (May 2, 1960, p. 42) indicate 9.9 million families, or 18% of the total, earn between six and eight thousand dollars per year. The article claims the "average family" had an income of \$6,520 in 1959. Limited in use by the lack of source or derivation, the \$6,500 "average" is presented only to indicate the assumed "middle-income" bracket of \$6000 to \$7000 is reasonable.
2. Derivative Studies Section, Boston Planning Board, "Method For Determining Economic Feasibility Of Residential Design Standards", Economic Series, Staff Report number 6: September 28, 1959. p. 15.
3. These figures, as will all reference to rent in this thesis, include utilities. See page 61 for details.



The shaded portion of Table 5 represents the range of rents assumed for purposes of this thesis. The use of the 20 to 25 per cent range of income devoted to rent, permits project rents between \$1200 and \$1750 per year, or \$100-\$146 per month, for the income between \$6000-\$7000. For wage earners of \$115 to \$135 per week this range is felt to be representative of the "middle" to "high-middle" income range.

Assumptions for the Inflexible Components of Rent

1) Architectural and Miscellaneous Fees:

	<u>Estimated % of Bldg. Cost</u>
Architectural and Engineering Fees .....	3.5%
FHA fees- Application, Commitment & Inspection .....	.5%
Financing Costs .....	5.0%
Building Loan	
Financing Charges	
Appraisal and Inspection Fees	
Interest	
Permanent Financing Fees	
Brokerage Fees	
Title Searching and Recording	
Organizational, Audit and Legal Fees .....	.5%
Real Estate Taxes During Construction .....	.5%
	<hr/>
TOTAL ESTIMATED	10.0%

- 
1. National Housing Act, U.S. Code, Title 12; Regulations of the Federal Housing Commissioner, Code of Federal Regulations, Title 24, Chapt. II
  2. Estimated from cost listed in Exhibit One, R.J. Armour, op. cit.
  3. Ibid.

## 2) Financing Costs:

The FHA mortgage insurance offers several financing advantages over conventional commercial bank or insurance company mortgages. There are two main advantages which are both attractive to potential investors and aid in reducing the yearly expenses (thus lowering the required rentals):

- a) The loan covers the cost of building and the land, and an allowance for professional and other miscellaneous fees.
- b) The loan amounts to 90% of the replacement costs. The replacement cost may include the land, the proposed physical improvements, utilities, architects fees, taxes, interest during construction.<sup>1</sup>

The financing charges are limited by law to  $5\frac{1}{4}\%$  and  $5\frac{3}{4}\%$ ,<sup>2</sup> depending upon the program. An average of  $5\frac{1}{2}\%$ , including service charges, is assumed to be representative of current practice.

A maximum mortgage term of 39 years 3 months to 39 years 11 months is allowed<sup>3</sup> if satisfactory to the FHA Commissioner. A 40-year term is assumed in this thesis for purposes of estimating required rents under the most favorable conditions.

- 
1. National Housing Act, Title I, op. cit. Section 211 as amended Sept. 23, 1959
  2. National Housing Act, Title I, op. cit. Section 213
  3. National Housing Act, Title I, Section 207 Regulation R232.5 and Section 220 and 221, Regulation R263.1.

Yearly payments for the above mortgage term are taken from Ellwood Annual Compound Interest Tables.<sup>1</sup> These are based upon a level payment mortgage contract with the principal amortized over the term of the contract.

### 3) Operating Costs

Operating costs differ for walk-up and elevator apartments. Those which are used in this evaluation are the result of average costs experienced in other cities, and the estimate of local real estate operators. The 1956 average between four cities<sup>2</sup> of \$88 per room per year for walk-up apartments could be reduced to \$80 per room per year in Boston<sup>3</sup>.

Elevator apartment operating costs averaged \$128 per room per month in three cities.<sup>4</sup> However, the studies of operating expenses in New York represent a system based on good management practice and efficient methods of operation.<sup>5</sup> Their estimates of \$100

- 
1. L.W. Ellwood, Ellwood Tables for Real Estate Appraising and Financing ( Ridgewood, New Jersey: by the Author, 1959)
  2. Los Angeles, Chicago, Washington, and New York; as listed in: L. Winnick, ACTION-Rental Housing Opportunities for Private Investment, (New York: McGraw-Hill, 1958) p. 280
  3. Interview with M. Kargman, President Center Realty Corporation, March 15, 1960.
  4. Chicago, Washington, and New York. as listed in L. Winnick, loc. cit.
  5. The Charles F. Noyes Company Inc., as reported in "Resale Reappraisal", Penn. Station South Slum Clearance Plan (New York City, Planning Board: 1957)

per room per year are considered feasible for this area.<sup>1</sup>

Included within operating cost estimates are:

- a) Payroll (elevator apartments w/automatic elevators)
- b) Fuel
- c) Water
- d) Insurance
- e) Repairs
- f) Gas and electricity (including tenant consumption)
- g) Painting and decorating
- h) Reserve or replacements
- i) Supplies
- j) Management and brokerage
- k) Miscellaneous expenses

### Land Acquisition Costs

To achieve the objective<sup>2</sup> of a physical environment which is conducive to family living, the building types associated with the lower densities offer significant advantages over higher-density building types. Within the economic evaluation each density range has implications of land value and costs. Since redevelopment offers the possibility to "write down" the land costs as a major inducement in the program, manipulation of this component of rent is most often used for achieving objectives. However, the amount of land write-down must be considered as a cost to the local or Federal Government.

The acquisition costs of the property are the point of departure for determining the net project costs.<sup>3</sup> Table 6

- 
1. Interview with M. Kargman , loc. cit.
  2. Number One, See p. 50
  3. As defined in: Housing and Home Finance Agency, Local Public Agency Manual, (Washington: U.S. Government Printing Office, amended September, 1959). Part II Chapt. 10, Sec. I. Land costs isolated would be the difference between the acquisition costs plus demolition and the sale price or lease price capitalized.

represents the estimates of acquisition costs for the Staniford-Chardon Area.<sup>1</sup>

TABLE 6 :LAND ACQUISITION COSTS

<u>Assess. Block No.</u>	<u>Ass'd Value of Private Property</u>	<u>Est.% Inc.for Acquis.</u>	<u>Tot.Cost Private Property</u>	<u>Value Public Property</u>	<u>McGovern Rounded Estimate</u>
124A	134,000	100%	268,000	150,000	420,000
125A	119,700	40%	167,700		170,000
126	222,600	25%	278,100		280,000
126A	207,300	25%	259,300	8,300	265,000
127	242,100	25%	302,600	1,700	300,000
128	626,400	60%	1,001,400		1,000,000
147	782,500	25%	978,500		950,000
TOTAL					3,385,000

The total amount of acquired property is 415,496 square feet (9.53 acres) which, according to Table 6, equals \$8.20 per square foot. The additional two acres of streets, which the city is not allowed to include in the gross project cost,<sup>2</sup> can then be added to the acquired property at no additional cost. This will reduce the unit land cost to \$6.80 per square foot.

- 
1. Made by Mr. R. McGovern, Real Estate Specialist of the Boston Redevelopment Authority.
  2. Housing and Finance Agency, op. cit. Part 2, Chapt. 10 Sect. 4.

### Demolition Costs

The estimated demolition costs used in the West End (2.5¢ per cubic foot of building)<sup>1</sup> represent the most recent basis for estimate, as well as the most comparable for a similar building type and height:

Total amount of floor space....	1,599,000	sq. ft.
Estimated average floor height.	<u>X 10</u>	feet
TOTAL	15,990,000	cu. ft.
Estimated demolition cost ....	<u>X 2.5¢/cu. ft.</u>	
TOTAL DEMOLITION COST	\$400,000	

The total demolition cost adds 80¢ per square foot to the cost of the total 11½ acres of project land:

Acquisition Cost.....	\$6.80	per square foot
Demolition Cost .....	<u>\$.80</u>	" " "
TOTAL	\$7.60	per square foot

### Land and Building Cost as a Component of Rent

Income and density implications of the objectives have the largest effect on land cost. Though closely interconnected, these implications are separated for purposes of this evaluation.

The range of the variable costs depends on many factors, however density is one factor which is considered an important part of the planning process. The lower density determined for Staniford-Chardon is made as a result of specific

---

1. Boston Redevelopment Authority, Supporting Documentation to Revised West End Redevelopment Plan op. cit. p. 30

objectives. The establishment of the density for the project area not only implies a certain character in terms of physical environment, but also in terms of the social and economic environment.

If middle income is accepted as an objective and the density were considered variable, Tabulations I and II<sup>1</sup> illustrate a comparison of results. This comparison indicates that a land cost of \$1.00 per square foot would require a rent of \$142 per apartment per month for a density of 25 families per acre, while a density of 100 families per acre would require a rent of \$193 per apartment per month for the same size apartment. The only two assumptions which have changed are the unit building costs, an increase from \$16 to \$24 per square foot, and an increase in the operating costs from \$80 to \$100 per room per year.

Tabulation III,<sup>2</sup> illustrates the result of trying to meet the \$142 per month rent in an elevator-apartment-high-density situation while retaining the same assumptions used in the two previous Tabulations. The figures show that manipulation of the land costs alone will not allow the desired rent; but, even if the building costs are reduced to the walk-up apartment unit price (\$16/sq.ft.) the land cost must then be reduced to zero.

Within the limits of the assumptions, the necessity of placing elevator apartments on expensive redevelopment land

---

1. See Appendix A  
2. Ibid.

for purely land cost reasons is not justified. Figure 1 illustrates the relationships between land costs, building costs, and density. Working in actual costs, the graph illustrates that as the density is increased, a higher cost of land ( $\$10/\text{sq. ft.}$ ) yields a sharp decrease in the cost of land per dwelling unit. At the higher-density-higher-land cost, the decrease in land cost tends to offset the increased cost of building resulting in a lower total land and building cost at the higher density. However, at the lower land cost ( $\$1/\text{sq. ft.}$ ) the increased cost of building at the higher density is not offset by the decreased cost of land. The building cost increases at a much faster rate than the relatively flat curve of the decreasing land costs.

When the building cost figures are utilized in a project tabulation the difference between the building cost at the different densities is magnified even further by the architecture and miscellaneous fees, the interest costs and the taxes. These components increase as a percentage of the building costs, causing a  $\$1/\text{sq. ft.}$  building cost to increase the yearly expenses to over  $\$1.15$ <sup>1</sup>. The increased operating costs of elevator apartments also contribute to the spread of possible rents between the lower and higher densities.

It is necessary to note that these figures only have significance in the lower values of land costs. The optimum density will change with the unit land costs as well as with the difference between elevator and walk-up unit costs, the size of the apartment, and other assumptions. However,

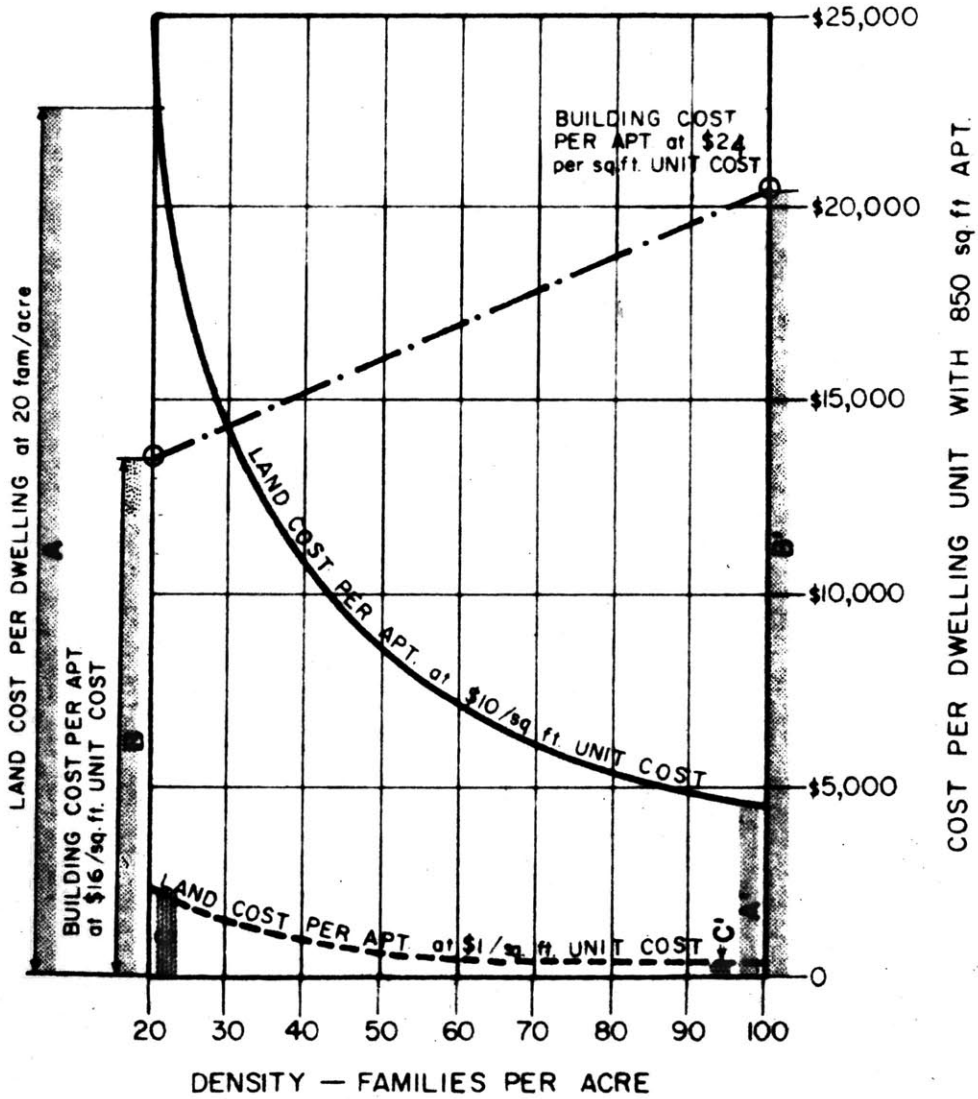
---

<sup>1</sup> Operating costs, as illustrated in Appendix A



# FIGURE 1

## DENSITY - COST RELATIONSHIPS



EXAMPLE: TOTAL COST OF DWELLING UNIT = A (land) + B (building)

$$A + B > A' + B'$$

$$B + C < B' + C'$$

desireable rental of \$142-\$210 per month would require the land costs to be within a lower range, (\$1-\$7/ sq.ft.) even when other costs are assumed to be the most favorable conditions in today's market. The optimum density between the illustrated 20 families per acre and 100 families per acre (Figure 1) is more difficult to determine, for it would require accurate building costs per square foot for elevator buildings at various heights. A graphic illustration of such a tabulation (cost per dwelling unit) would most likely be a "stepped line" increase, reflecting a unit cost increase at three-to four-story separations, rather than the "straight line" increase indicated on Figure 1 . To determine this rate of cost increase the wide range of building methods and materials would require the study of an individual project using rigorous cost estimate procedures. The building costs for various densities between a walk-up density ( 25 f/a or 2-3 floors) and an elevator-apartment density ( 100 f/a or above 13 floors) are not easily determined. However, it is valid to assume a cost difference between the two extremes.<sup>1</sup> Tabulation III,<sup>2</sup> also shows that even if the building cost at the densities (25 f/a and 100 f/a) were identical, (\$16/ sq. ft.) the land must be "given away" at the higher density in order to meet a desired rent of \$142 per month.

---

1. Joint Committee on Building Costs, Building Cost Manual, (New York: J. Wiley & Sons, 1957)

2. See Appendix A

The difference between the land cost necessary for high-income rents and middle-income rents are illustrated by Tabulation IV and V.<sup>1</sup> These Tabulations assume the desired family income is \$15,000. If the family were willing to spend 20%<sup>2</sup> of its income on rent, the desired yearly rent would be \$3,000, or \$250 per month. Tabulation IV illustrates that this rent would allow a land cost of \$10.00 per square foot at a density of 25 f/a and \$23 per square foot at a density of 100 f/a.

Within the bounds of these assumptions, Figure 2 indicates the general relationships between density land costs and monthly apartment rents. With equal land costs of \$1 per square foot the lower density allows a lower rent, but with the increase of land costs the necessary rent at lower density increases 4 times faster (approximately \$10/apt./mo.) than the higher density (approximately \$2.50/apt./mo.). The graph allows several insights within the bounds of the assumptions:

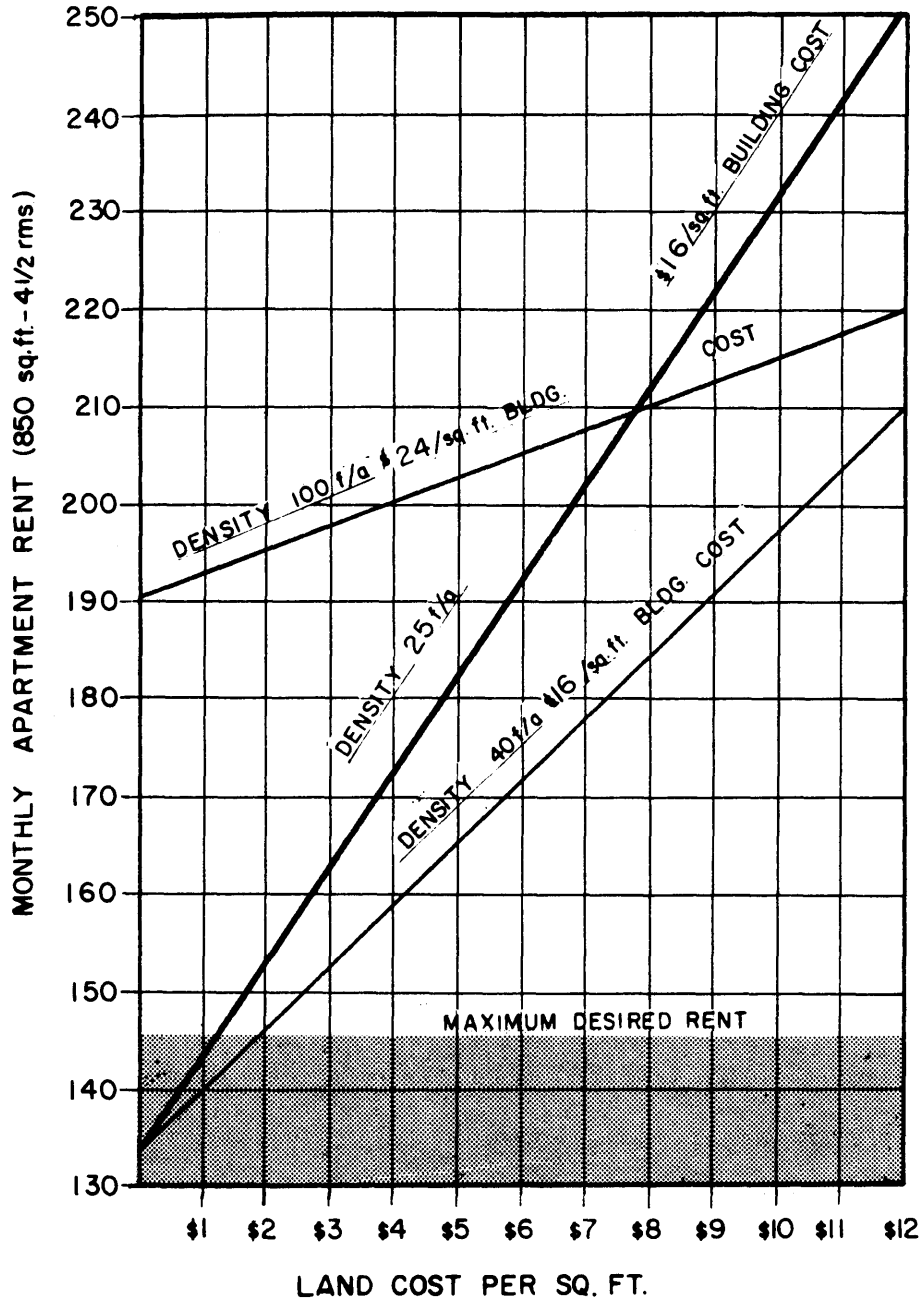
- 1) With an objective of any rent below \$210 per month the lower density will allow a higher cost of land (thus less of a writedown); however, with any rent above \$210 per month, the higher density will allow the higher land cost for the same rent.

---

1. See Appendix A
2. Consumer indices show higher incomes spend a smaller percentage of their income for rent than lower incomes.
3. Though the densities are represented as a straight line, the effect of the 3% vacancy rate would give an error of about \$3 per month at \$10/sq.ft.(land cost)at 25 f/a and \$.70 at \$10/sq.ft.(land cost)at 100 f/a.

# FIGURE 2

## LAND COST - RENT RELATIONSHIPS



- 2) With an objective of low density, but unrestricted rent limitations, the land cost may increase to \$7.60 per square foot before the lower density will no longer allow the lowest rent, at any given land cost.
- 3) For each \$1 per square foot of land cost, with the desired density of 25 families per acre, the rent is changed by approximately \$10 per apartment per month; while in the higher density of 100 families per acre, each \$1 per square foot of land cost changes the rent by approximately \$2.50 per apartment per month.
- 4) In the Staniford-Chardon Area the middle income rental objective is best combined with a lower density (rather than a higher density) to allow the city an optimum return from the sale of land.

To be able to charge no more than the maximum desired rent outlined in the objectives, the maximum allowable cost of land is \$1.30. This represents the cost at the desired 25 families per acre for 10 of 11½ acres of project land. Figure 2 also illustrates that if the walk-up apartment density could have been increased to 40 families per acre,<sup>1</sup> the land could then be sold for \$2.00 per square foot and still have

---

1. The APHA "desireable" standard for a 3-story apartment building. Planning the Neighborhood, op. cit., Table 4, p. 39.

allowed the apartments to be rented within the range of the objectives. However, the design implications of other objectives such as private open space, recreation and surrounding form considerations manifest a maximum density of 25 families per acre. (See General Plan , Map B)

To allow rentals within the lower range of desired rents (\$100 to \$117 per month<sup>1</sup>) further adjustments must be made of components other than land cost. For if the land cost is "zero", and other assumptions represent the most favorable conditions, the lowest possible rent is \$132 per apartment per month.

To optimize the objectives of middle income rent first, followed by a minimized land writedown cost to the city<sup>2</sup>, the most favorable rent-land-cost combination is \$141 per apartment per month and \$.90 per square foot. This represents the rent halfway between the maximum desireable rent (\$146) and the zero rent at land cost (\$132). This represents a land cost of approximately 90¢ per square foot for 10 acres of the project land.

The remaining 1½ acres are high-density residential and retail commercial. This small amount of high-density residential use is mainly a result of the physical form objectives, however, it also has economic implications. The retail commercial use utilizes the Cambridge Street frontage to economic advantage while remaining consistant with other objectives.

---

1. See Table 5 p. 56.

2. Objective number 6 see page 49

As the market analyses indicated, high density was feasible, but would have to be within middle-income range rental. Figure 2 indicates \$190 per month is the minimum rent for a 4½ room apartment at a density of 100 families per acre. This high income rental indicates a smaller apartment, which would consist of 1 to 3 rooms, will be necessary in order to fall with the potential market. Tabulation II indicates, at \$1 per square foot, land cost offers the following advantages:

- 1) A rent of \$41.50 per room per month which is within the \$42 per room estimated by the real estate expert<sup>1</sup> to be the maximum rental for the Staniford-Chardon Area.
- 2) A rent of \$274 per square foot per year, which in turn allows a 640 square foot apartment within the maximum middle-income rent of \$146 per apartment per month.

It is evident that a land writedown is necessary in order to meet the objectives.

#### Land Writedown and Project Cost

The total land acquisition and demolition costs have been estimated at \$3,385,000 (or \$7.60/sq.ft.). The net project cost for the land portion of the redevelopment costs will represent the difference between the above costs and the amount received from the sale of the land. A comparison of project cost with various incomes and densities provides a basis for relative evaluation of the objectives.

---

1. See page 54.

TABLE 7: COMPARATIVE LAND-WRITEDOWN COSTS							
	Mon. Rent \$	Salary Range		Land Cost/ SqFt. \$	Write down /SqFt. \$	Total Writedown Cost \$	City Share Wdn. Cost \$
		25%	20%				
middle income apartments 25 ft/a 40 ft/a WITHIN OBJECTIVES	133	6,200- 7,750		0	-7.60	3,385,000	1,128,000
	142	6,600- 8,300		.90	-6.50	3,260,000	1,087,000
	146	7,000- 8,750		1.30	-6.30	3,150,000	1,000,000
	133	6,200- 7,750		.30	-7.30	3,660,000	1,220,000
	145	6,600- 8,300		1.75	-5.85	2,940,000	980,000
	146	7,000- 8,750		2.00	-5.60	2,815,000	786,000
high income walk-up apartments 25 ft/a 40 ft/a ABOVE OBJECTIVES	178	8,400-10,500		4.50	-3.10	1,550,000	517,000
	202	9,600-12,000		7.00	- .60	300,000	100,000
	182	8,400-10,500		7.60	- 0		
	210	9,600-12,000		12.00	+4.40	2,210,000	737,000
	208	9,600-12,000		7.00	- .60	300,000	100,000

Within the range of middle-income rental objectives (limited by manipulation of land costs), the land portion of the project costs will vary from \$3,385,000 to \$2,310,000. The local share of this portion of project costs would range from \$770,000 to \$1,250,000. The project illustrated in the general plan would involve a land-portion project cost of \$3,260,000<sup>1</sup> or a \$1,087,000 cost to the city. The market considerations of the near future reinforce the necessity of this cost if the area is to be redeveloped for residential reuse at this time. The possibilities of higher income

1. Includes 1½ acres of high density and commercial use at \$.90 per square foot.



residential reuse at a later date could reduce the local-land portion of the project cost to a range between a \$516,000 writedown "loss" and a \$2,210,000 "profit".<sup>1</sup>

A comparison with land acquisition cost in other areas serves as a further basis for evaluation. In a project approximately  $2\frac{1}{2}$  miles from the center of the city, the Whitney Street project, land cost will be \$4.60<sup>2</sup> per square foot. If the Staniford-Chardon project and objectives were undertaken at that land cost, the land portion of the project cost to the local government would range from \$270,000 to \$770,000. This represents a cost which is \$500,000 less than that which is necessary with the actual land costs in the Staniford-Chardon Area.

In the North End, an area a few blocks further from the central business district than the Staniford-Chardon Area, assessed values indicate the majority of the area would produce acquisition costs between \$5 and \$10 per square foot.<sup>3</sup> These costs are almost the same as the acquisition costs of the Staniford-Chardon Area and thus would produce a similar project cost for the land portion of redevelopment costs.

In summary, the present economic feasibility and the implications of the rent-limiting objective requires a project cost (for land costs only) which is \$250,000 to \$3,500,000,

- 
1. Which would then be applied to the other project costs
  2. Estimated by R. McGovern, real estate specialist for the Boston Redevelopment Authority. Based upon a \$3.80/sq.ft. acquisition cost and an \$.80/sq.ft. demolition cost.
  3. R. Frasca, op. cit. p. 79

higher than a project developed for high-income rentals. The local share of this potential difference is \$83,000 higher<sup>1</sup> if project rents were allowed to go as high as \$175 per month (at a density of 25 f/a) and \$1,067,000 higher if project rents were allowed to go as high as \$200 per month (and the density were 40 f/a). To realize the rental objectives in another area within the central core<sup>2</sup> the land portion of project costs would be almost the same as the Staniford Area. Further from the center of the city the rent-limiting objectives may be achieved at a lower cost to the city. These project costs are based upon manipulation of land costs (and thus a density) which afforded the most favorable condition. Taxes, the remaining "adjustable component" of rent, must also be based upon the most favorable conditions to produce these project costs.

#### The Tax Rate as a Component of Rent

The present tax rate in Boston is one of the largest deterrents to a new development.<sup>3</sup> Typical tax rates on office buildings in Boston are now consist of \$1 to \$1.25 per square foot or 50 to 60 per cent of the gross income.<sup>4</sup> The 1959 tax rate was \$101.20 per thousand, which legally, should be based upon an assessed valuation which represents 100% of replacement value.<sup>5</sup> This basis for taxation is the only legal method for tax concessions other than those

- 
1. As compared to \$146/apt./mo. local-share cost.
  2. Such as the North End
  3. W.H. Ballard Company, op. cit., pp. 17-19
  4. Ibid. pp. 106-110
  5. For new construction

allowed for redevelopment projects.<sup>1</sup> This allows a tax concession if the project is a limited-dividend development. The limited dividend restricts the investor to a 6% return of equity.

The taxes resulting from the use of a limited dividend program are necessary to allow a rent within the objectives. If the normal tax rate is applied to the Staniford-Chardon Project, using the most favorable assumptions for other rent components and a land cost of \$1 per square foot, the necessary rental would be \$242 per apartment per month.<sup>2</sup> With a limited-dividend tax rate but all other assumptions the same as above, the rent is \$142 per apartment per month.<sup>3</sup>

- 
1. Massachusetts General Laws, Chapter 121A, June 23, 1945. Section 10 of the provisions allow for tax exemption of limited dividend property for a period of 40 years. A payment in lieu of taxes must be made which consists of 5% of the gross income plus an amount equal to \$10 per thousand on the value of the redevelopment property. A third provision states the in-lieu-of-tax payments "shall not in any year be less than an amount equal to that which the city or town would receive for taxes, at the rate for such year, upon the average of the assessed values of the real estate held by such corporation for the three years preceding the acquisition thereof". It is the opinion of Mr. Max Kargman that this provision is not applicable to land obtained under Title I of the National Housing Act of 1949. Prior to the National Housing Act Chapter 121A provided for direct acquisition of decedent property by a private housing corporation who would demolish and then redevelop the property. In Mr. Kargman's opinion, as a lawyer the land received by the private corporation under the National Housing Act is vacant land acquired by the Redevelopment Authority and then resold to the development corporation without encumbrances of former value. The infrequent use of Chapter 121A coupled with the unusual situation in which the new taxes would be less than those presently received have not yet presented a court decision which tests this differentiation; it remains as the interpretation of Mr. Kargman. The Tabulations I-V, presented in Appendix A are according to Mr. Kargman's interpretation; Tabulation VII is presented using the taxes received in 1959 as the minimum tax rate.
  2. See Tabulation VI Appendix A
  3. See Tabulation I, Appendix A

## Social Implications

An evaluation of the social implications of the objectives requires a method which is similar to the economic evaluation. The ability of the objectives to fulfill a need comprises the social benefits while the social cost is determined by the degree of infringement or disruption to the social pattern. Since there are always infringements with any redevelopment, and the ability to reduce these infringements, or social costs, depends upon an effective relocation program, the social implications of residential reuse in the Staniford-Chardon area have been restricted to the social-benefits implications of the objectives.

### New Construction for Middle Income Families

The middle income family, with children, has been offered little opportunity for rental residence in new construction within proximity of the center of Boston.

The majority of new rental construction in Boston, and that which is being planned at the present time, demands high rentals for the large apartments, as in the case of the new West End and Beacon Street projects. The smaller one to three room apartments are within the middle income range, but these cannot offer desirable or adequate space for the family with children.

### Mixture of Social Groups

In order to provide a mixture of social groups within the central city, new construction for middle income families is

needed to supplement the other forms of middle-income housing.

The present "filter down process" of housing is working only to a limited extent. In many cities the higher income families have been retaining housing below their means, thus stifling the opportunity for middle income to occupy this housing.<sup>1</sup> The limited amount of the rental housing which is available through this process offers low standards of open space. These standards are so far from the advantages of suburbia, couples with children have moved to suburbia because there is no logical alternative.<sup>2</sup> "Rehabilitation cannot accomodate more than a part of the middle income market; a vigorous subsidy program [for new construction] is required"<sup>3</sup>. Though the married couples with school age children are a very small part of the market for new housing in the city, it would be a mistake to acknowledge this fact and thereby perpetuate the imbalance<sup>4</sup>.

#### Accomodations for Families With Children

Provision for walk-up apartments would offer a type of residence almost totally neglected by other new construction in central Boston, and would be one factor used to attract the family with children to the central city.

The new construction in the West End offers 95% of its 2400 units in elevator apartments. It has been suggested

- 
1. L. Winnick, op. cit. p. 210
  2. The Editors of Fortune, The Exploding Metropolis, (New York: Doubleday, 1958)
  3. Ibid. , p. 6
  4. Ibid. , p. 17

that a mixture of dwelling types aids in promoting a variety of interest and social groups needed within the city.<sup>1</sup>

A recent study indicates people with children tend to prefer "low-rise housing"<sup>2</sup>. One of the advantages which low apartment buildings can offer is easy access to open space. The advantages of low buildings increases if the open space can be designed as either private open space, play space for children of pre-school age, or as a place for general outdoor family activities.

#### Advantages of Redevelopment

The redevelopment program offers the opportunity for the city to provide social benefits in the form of an accepted subsidy. In the Staniford-Chardon area, the combination of advantages in a redevelopment program would provide for a social group and environment, which is not possible at this time through other inducements and controls. The financial analysis indicates the combination of tax relief and land writedown, possible only through redevelopment at the present time, will still allow only a limited range of rents within the means of a middle-income family. The exercise of this govermental power to provide for a social group otherwise neglected by existing economic pressures results in an immediate and direct social benefit. The long range social

---

1. Editors of Fortune, op. cit. p. 10

2. Ibid. p. 18

advantages are present in that this redevelopment can provide for a future pattern. If a variety of social groups is considered a valid objective at this time, its incorporation into redevelopment provides the nucleus to further this social objective.

### Physical Form Implications

The relationship between any objectives and their resultant physical form is not a direct one. The proposed design for the Staniford-Chardon Area is only one combination of the physical implications of the objectives.

The objectives for the residential reuse for the Staniford-Chardon Area have two levels of consideration which determine the elements of the plan. The first and controlling considerations are those which determine the design elements in relation to the surrounding areas. The second level involves those considerations which determine the design elements of the project alone.

### Circulation Elements of Surrounding Areas

The streets surrounding the Staniford-Chardon Area may be incorporated in the basic radial circulation system proposed in the Government Center without providing any major traffic street through the project area itself. A circulation system which includes the objectives of the Staniford-Chardon Area, the North Station Area and the Government Center can best be achieved if several changes are made within the Government Center circulation plan: (See General Plan Map B)

- 1) Eliminate the Sudbury Viaduct in the Government Center<sup>1</sup> and replace it with a two-street circulation pattern. Sudbury Street as a one-way street at grade, would then carry the traffic from the Sumner Tunnel, the Central Artery, and Washington Street North to the Government

---

1. As proposed in the report Government Center, Boston, September, 1959



Center. Hanover Street would carry the traffic from the Government Center to the Central Artery, the new Sumner Tunnel and the North End (via North Street).

- 2) With the new ramp system proposed in the general plan (Map B) the large amount of traffic entering the area at Washington Street North and traveling through, but not destined for, the Government Center, would be dispersed over several possible routes. North-bound expressway traffic would be able to enter the area by the existing Clinton Street exit or Causeway Street exit. South-bound expressway traffic, destined for either the Sumner Tunnel or the financial district would use a proposed common exit ramp which would divide above North Street. This ramp would direct tunnel traffic directly to its entrance and would direct financial district traffic under the expressway for a short distance to Commercial Street, then south along Commercial Street to the base of the Customs Tower at the intersection of State Street.

Within the new, larger pattern proposed above, the streets surrounding the Staniford-Chardon project would become a part of the radial pattern with the following functions:

- 1) Merrimac Street, an extension of a main radial of the Government Center, is proposed to be widened along its entire length from the Government Center boundary to the intersection of Staniford and Causeway Streets. This would eliminate the Government Center proposal

which divided Merrimac Street and allowed the traffic in the North Station area along Portland Street. This proposal should be accompanied by an improvement of Lowell Street to allow through traffic directly to the Leverett Circle.

- 2) Chardon Street is proposed as a straight, four-lane, divided radial. If the north end of Bowdoin Street were slightly curved towards the State office building it would permit access directly opposite Chardon Street . The proposed planted divider would serve as a screen and would denote the change of use between the proposed State buildings to the east and the residential uses of the Stanifore-Chardon Area to the west.
- 3) Staniford Street is expected to be an important radial in a traffic circulation pattern which could take place at the periphery of the entire central area. The improvements to Causeway Street<sup>1</sup>, Atlantic Avenue, and Beacon and Water Streets would further the development of a circumferential pattern of traffic.

#### New Land Use Elements in Surrounding Areas

Those uses which have been suggested in the area outside the Staniford-Chardon Area<sup>1</sup> are confined to three blocks within the Government Center:

- 1) The Chardon-Sudbury block uses are proposed to include the additional requirements of the State office space<sup>2</sup>

---

1. See pages 29-31 for reference of this change

2. See page 27 for reference of this change

and the New England Telephone Building. The Welfare and Edison buildings would be replaced by the State office requirements.

- 2) The Hanover-Sudbury block contains the Federal building and a parking garage, as proposed in the original Government Center plan.
- 3) The block containing the fire station has been enlarged and the Decorative Arts Center, proposed by the consultants for the North Station Area, has been located on the enlarged site.

#### Relating the Form Elements to Surrounding Areas

- 1) The single tall building proposed<sup>1</sup> for the east side of the Staniford-Chardon block shields the poorly designed Telephone Building while combining with the Telephone Building and the new State office building to form cluster of tall buildings which emphasize the entrance to the Government Center.
- 2) The radial pattern of building disposition proposed in the Staniford-Chardon project will reinforce the radial street pattern of the area.
- 3) The Staniford Street facade offers an eye level reflection of the spaces of the Charles River Park Development, while offering several smaller scale pedestrian ways which would interest the walker. The Staniford-Chardon facade offers similar spaces to the pedestrian on Chardon Street.

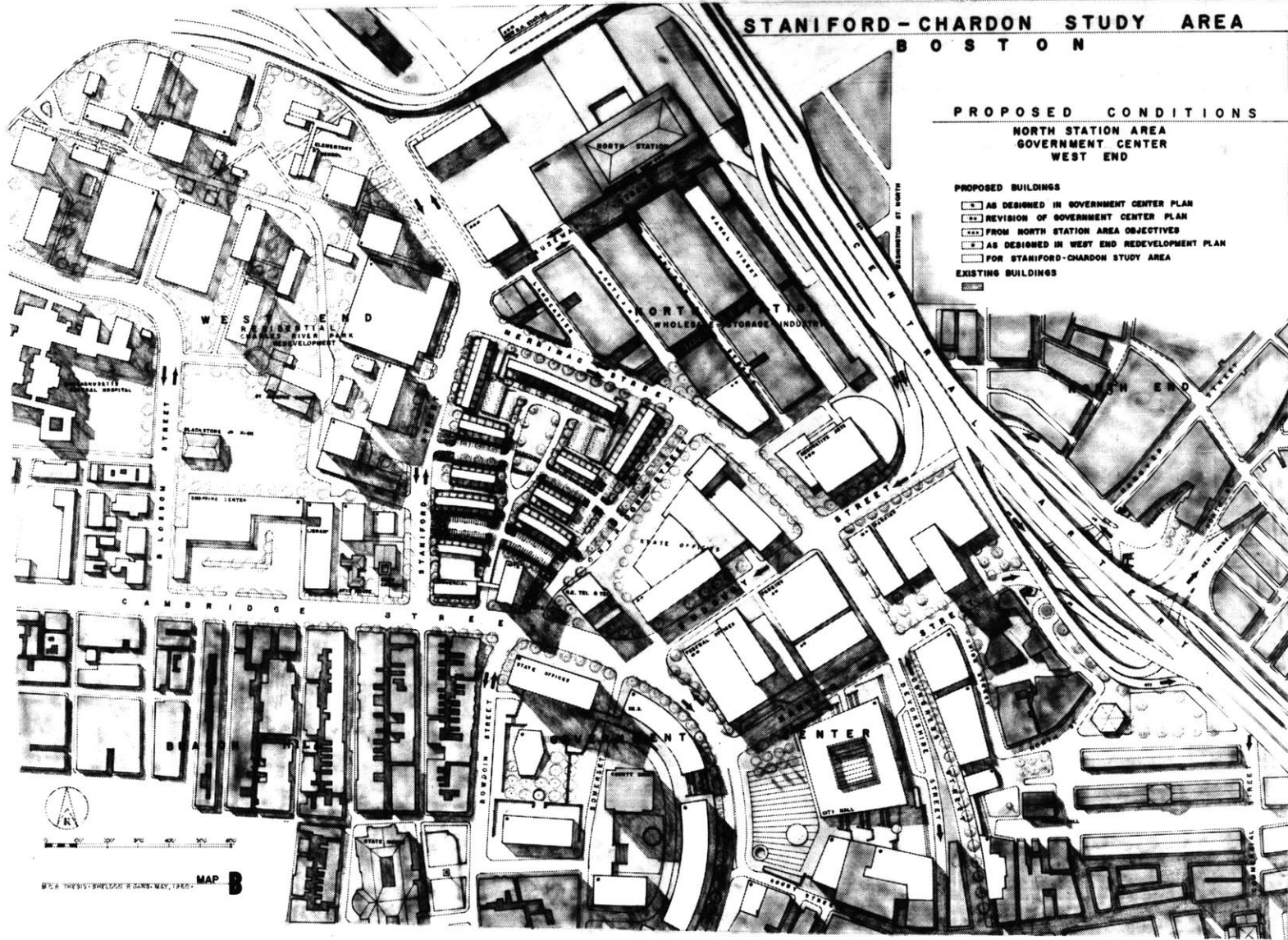
---

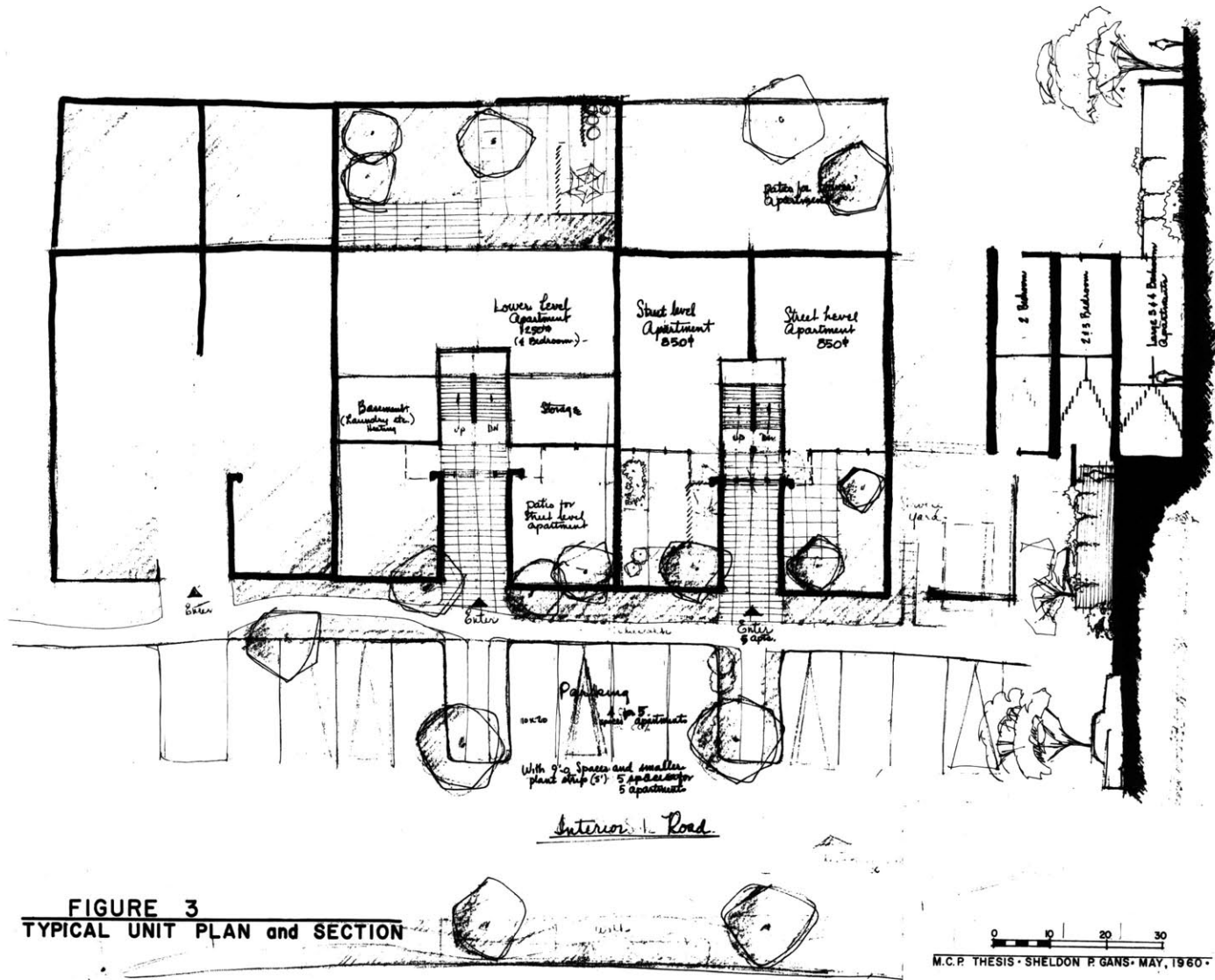
1. An 18-20 story apartment building

**STANIFORD-CHARDON STUDY AREA**  
**B O S T O N**

**PROPOSED CONDITIONS**  
**NORTH STATION AREA**  
**GOVERNMENT CENTER**  
**WEST END**

- PROPOSED BUILDINGS**
- ▣ AS DESIGNED IN GOVERNMENT CENTER PLAN
  - ▣ REVISION OF GOVERNMENT CENTER PLAN
  - ▣ FROM NORTH STATION AREA OBJECTIVES
  - ▣ AS DESIGNED IN WEST END REDEVELOPMENT PLAN
  - ▣ FOR STANIFORD-CHARDON STUDY AREA
- EXISTING BUILDINGS**
- ▣





**FIGURE 3**  
TYPICAL UNIT PLAN and SECTION

- 4) The Merrimac Street boundary has created a shallow, simple U-shaped space to face the North Station area. In the center of this space an arch will give the hint of a connection to the open space in the interior of the Staniford-Chardon design.

#### Major Considerations Determining the Details of the Project Design

- 1) The topography (see Existing Conditions Map 5)<sup>1</sup> offers the opportunity to provide a terraced arrangement of 3-story walk-up apartments, while providing 2 floors with private open space. (See figure 4)
- 2) The form and uses of the surrounding areas indicate a design for the successful residential use of the area will focus upon its own internally created spaces.
- 3) The proximity to heavily trafficked areas required a circulation system within the project which will discourage through traffic.

#### Elements of the Project Design

##### 1) Walk-up apartment

Area .....	10 acres
Total number of dwelling units ...	256
Average size of dwelling units ...	850 sq.ft./d.u.
Amount of private open space .....	
66% of d.u.'s have .....	500-600 sq.ft./d.u.
Total number of parking spaces ...	250

---

1. See page 17 .

## 2) Elevator apartment

Area .....1½ acres  
Total number of dwelling units .....220  
Average size of dwelling units .....650 sq.ft.  
Approximate number of parking spaces .....200  
(garage below)  
1 story commercial space .....6000 sq.ft.

V.  
CONCLUSION

If the Staniford-Chardon Area is redeveloped for residential reuse within the stated objectives there are several qualifications which must be accepted. These qualifications are intended to be later compared with those which will develop for other possible uses in the area. From a comparison of the qualifications of each reuse, a final redevelopment policy can be formulated. The details of these qualifications, listed within the social, economic and physical implications, can be summarized:

The existing living conditions in the area indicate a need for improvement of the physical conditions for the people now within the area. The conditions also indicate total redevelopment is the necessary level of treatment. The existing conditions for nonresidential uses indicate the area is only partially functioning as an economically healthy area. The mixture of the scattered salvagable buildings and the prevailing older age of the buildings indicate partial redevelopment or rehabilitation would be unwise in the long range considerations.

The economic implications indicate that residential reuse, within the objectives, is economically feasible at this time or within the next, say, five years. It also indicates that the middle-income limitations may be the only feasible objectives at this time. While there is little to indicate the middle-income rents should be for



larger apartments, (to accomodate families with children) the need for smaller apartments in this range seems limited since a large number of smaller apartments within a middle-income range are to be offered in the new West End. The low density, which allows this middle-income development at less of a land writedown than would a higher density development, can only be accomplished if all the conditions of rental finance are within the most favorable assumptions. The largest deterrent to meeting this desired rent is the normal taxing method. However, when the taxes are reduced to a special rate for redevelopment, the total received by the city in the proposed plan amounts to less than half of that amount the city is now receiving. A portion of the reduced taxes results from the low density development, and a portion from the reduced tax rate. The long range implications of this are more of a disadvantage than the small increased write-down cost which results from the lower density. However, if the area is redeveloped at this time for residential use this must be accepted as one of the costs; for the alternatives have a limited present-economic feasibility. The existing nonresidential use of the area requires that it be residential after redevelopment if a normal allocation of Federal renewal funds are to be utilized.

The social implications indicate there is a need for the proposed type of development with its accompanying mixture of social groups. The need is presented as one which should provide this mixture within a smaller scale

than is prevalent in most redevelopment today. If providing this social benefit is coupled with the need for physical improvement in the area, the economic disadvantages are reduced in importance. The analysis indicates the desired social benefits would not be provided at a substantially lower cost unless the project was further from the center of the city; and only if it was part of a redevelopment program. The physical implications illustrate the project can be designed to be compatible with the surrounding areas; but to do so it must have an internal focus .

Providing this internal focus necessitates the location of some residential buildings at the project boundary in order to retain an overall density which will be reasonable from an economic point of view. The necessity of placing buildings at the project boundary requires that a buffer zone, between the residential uses of Staniford-Chardon and other adjacent uses, be of minimum size and thereby only partially effective. The inadequacies and inconsistencies of the circulation proposals of the surrounding areas are magnified when the connecting link of the Staniford-Chardon Area is viewed as part of a larger system. Rationalization of these various proposals into a single, efficient system necessitates compromises in each of the individual proposals.

# TABULATION I

# APPENDIX A

CONSTANTS: 1) DENSITY: 25 f/a 2) LAND COST: \$1.00/sq.ft.

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$1 /sq. ft.	435,000				
BUILDING COST	\$16/sq. ft.	3,390,000				
FEES-arch. & misc.	10% of bldg. cst.	339,000				
<b>TOTAL COSTS</b>		<b>4,164,000</b>				
<b>YEARLY EXPENSES:</b>						
FINANCING COSTS	.06320/yr. 5 1/2% interest for 40 yrs	236,000				
land	24,800		96	6%	.11	8.00
building	193,000		770	45%	.91	64.20
fees	19,000		76	4%	.09	6.30
EQUITY RETURN	8 1/2% on 10% equity	32,000	128	8%	.15	10.70
OPERATING COSTS	\$80/rm./yr	90,000	360	21%	.42	30.00
TAXES-real estate	\$10/1000 5% gross	34,000 21,000	220	13%	.26	18.30
<b>TOTAL EXPENSES</b>		<b>413,000</b>	<b>1650</b>	<b>97%</b>	<b>1.94</b>	<b>137.50</b>
<b>INCOME</b>						
w/ vacancy		413,000	1650	97%		
w/o vacancy	3%	425,000	1700	100%	2.00	141.60
						\$31.40/rm./mo.

### ASSUMPTIONS:

- 1) Walk-up apts.
- 2) 25 f/a for 10A=250 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms./apt.
- 5) mortgage 90% of costs

M.I.T.

# TABULATION II

# APPENDIX A

CONSTANTS : 1) DENSITY: 100 f/a 2) LAND COST: \$1.00/sq.ft.

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$1 /sq. ft.	435,000				
BUILDING COST	\$24/sq. ft.	20,400,000				
FEES-arch. & misc.	10% of bldg. cst.	2,040,000				
<b>TOTAL COSTS</b>		<b>22,875,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	.06320/yr. 5 1/2% interest for 40 yrs	1,300,000				
land	24,800		25	1%	.03	2.10
building	1,160,000		1160	50%	136	97.00
fees	115,000		115	5%	.14	9.50
EQUITY RETURN	8 1/2% on 10% equity	194,000	194	8%	.23	16.10
OPERATING COSTS	\$100/rm./yr	450,000	450	20%	.53	37.40
TAXES-real estate	\$10/1000 5% gross	204,000 102,000	306	13%	.36	25.40
<b>TOTAL EXPENSES</b>		<b>2,250,000</b>	<b>2250</b>	<b>97%</b>	<b>2.65</b>	<b>187.50</b>
<b>INCOME</b>						
w/ vacancy		2,250,000	2250	97%		
w/o vacancy	3%	2,320,000	2320	100%	2.74	193.00
						<b>\$43.00/rm./mo.</b>

### ASSUMPTIONS :

- 1) Elevator apt.
- 2) 100 f/a for 10A = 1000 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms/apt.
- 5) Mortgage 90% of costs

# TABULATION III

# APPENDIX A

CONSTANTS : 1) DENSITY: 100 f/a 2) RENT: \$142/apt./mo.

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	- /sq. ft.	0				
BUILDING COST	\$16/sq. ft.	13,650,000				
FEES-arch. & misc.	10% of bldg. cst.	1,365,000				
<b>TOTAL COSTS</b>		<b>15,015,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	.06320/yr. 5 1/2% interest for 40 yrs.	854,000				
land						
building						
fees						
EQUITY RETURN	8 1/2% on 10% equity	128,000				
OPERATING COSTS	100/rm./yr	450,000				
TAXES-real estate	\$10/1000 5% gross	136,000 82,000				
<b>TOTAL EXPENSES</b>		<b>1,650,000</b>	<b>1650</b>	<b>97%</b>	<b>1.94</b>	<b>137.50</b>
<b>INCOME</b>						
w/ vacancy		1,650,000	1650	97%	1.94	
w/o vacancy	3%	1,700,000	1700	100%	2.00	142.00

### ASSUMPTIONS :

- 1) Elevator apt.
- 2) 100 f/a for 10A = 1000 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms./apt.
- 5) 90% mortgage

M.I.T.

# TABULATION IV

# APPENDIX A

CONSTANTS : 1) DENSITY: 25 f/a 2) RENT: \$250/apt./mo.

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$10 /sq. ft.	4,960,000				
BUILDING COST	\$16 /sq. ft.	3,390,000				
FEES-arch. & misc.	10% of bldg. cst.	339,000				
<b>TOTAL COSTS</b>		<b>8,689,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	5 1/2% interest for 40 yrs.	494,000				
land						
building						
fees						
EQUITY RETURN	8 1/2% on 10% equity	74,000				
OPERATING COSTS	/rm./yr	90,000				
TAXES-real estate	\$10/1000 5% gross	34,000 36,000				
<b>TOTAL EXPENSES</b>		<b>728,000</b>	<b>2920</b>	<b>97%</b>	<b>3.44</b>	<b>244.</b>
<b>INCOME</b>						
w/ vacancy		728,000				
w/o vacancy	3%	750,000	3000	100%	3.52	250.
					\$55.50/rm./mo.	

### ASSUMPTIONS :

- 1) Walk-up apartment
- 2) 25 f/a for 10A = 250 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms./apt.
- 5) mortgage 90% of costs

## TABULATION: v

## APPENDIX A

CONSTANTS : 1) DENSITY: 100 f/a 2) RENT: \$250/apt./mo.

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$23 /sq. ft.	9,960,000				
BUILDING COST	/sq. ft.	20,400,000				
FEES-arch. & misc.	% of bldg. cst.	2,040,000				
<b>TOTAL COSTS</b>		<b>32,400,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	06320/yr. 5 1/2% interest for 40 yrs.	1,842,000				
land						
building						
fees						
EQUITY RETURN	8 1/2% on 10% equity	278,000				
OPERATING COSTS	\$100/rm./yr.	450,000				
TAXES-real estate	\$10/1000 5% gross	204,000 146,000				
<b>TOTAL EXPENSES</b>		<b>2,920,000</b>	<b>2920</b>	<b>97%</b>	<b>3.44</b>	<b>244.00</b>
<b>INCOME</b>						
w/ vacancy		2,920,000	2920	97%		
w/o vacancy	3%	3,000,000	3000	100%	3.52	250.00
<b>\$55.50/rm./month</b>						

## ASSUMPTIONS :

- 1) Elevator Atpt.
- 2) 100 f/a for 10A = 1000 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms./apt.
- 5) Mortgage 90% of costs

## TABULATION : VI

## APPENDIX

**A**

CONSTANTS : 1) DENSITY: 25 f/a 2) LAND COST: \$1/sq.ft.  
3) TAXES: 100% of bldg. cost @ \$101/1000

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$1 /sq. ft.	435,000				
BUILDING COST	\$16/sq. ft.	3,390,000				
FEES-arch. & misc.	10% of bldg. cst.	339,000				
<b>TOTAL COSTS</b>		<b>4,164,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	0.06320/yr. 5 1/2% interest for 40 yrs	236,000				
land	24,800					
building	193,000					
fees	19,000					
EQUITY RETURN	8 1/2% on 10% equity	32,000				
OPERATING COSTS	\$80/rm./yr	90,000				
TAXES-real estate	100% cost @ \$101/1000	340,000	1360	49%	1.60	113.00
<b>TOTAL EXPENSES</b>		<b>698,000</b>	<b>2800</b>	<b>97%</b>	<b>3.30</b>	<b>233.00</b>
<b>INCOME</b>						
w/ vacancy		698,000	2800	97%		
w/o vacancy	3%	720,000	2900	100%	3.40	242.00

## ASSUMPTIONS :

- 1) Walk-up Apts.
- 2) 25 f/a for 10A = 250 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms./apt.
- 5) Mortgage 90% of costs

M.I.T.



# TABULATION: VII

# APPENDIX A

CONSTANTS : 1) DENSITY: 25 f/a 2) LAND COST: \$1/sq.ft.  
3) TAXES; same as now receiving from the area.\*

Item	Basis for Estimated Cost	Estimated Total Cost	Rent / Apt. / Year	% of Total Rent	Rent /sq.ft. /Year	Rent /Apt. /Month
LAND COST	\$1 /sq.ft.	435,000				
BUILDING COST	\$16 /sq.ft.	3,390,000				
FEES-arch.& misc.	10 % of bldg.cst.	339,000				
<b>TOTAL COSTS</b>		<b>4,164,000</b>				
<b>YEARLY EXPENSES :</b>						
FINANCING COSTS	.06320/yr. 5 1/2% interest for 40 yrs	236,000				
land	24,800					
building	193,000					
fees	19,000					
EQUITY RETURN	8 1/2 % on 10 % equity	32,000				
OPERATING COSTS	\$80/rm./yr	90,000				
TAXES-real estate	same as now rec.*	178,000*		32%		
<b>TOTAL EXPENSES</b>		<b>536,000</b>	<b>2140</b>	<b>97%</b>	<b>2.52</b>	<b>178.00</b>
<b>INCOME</b>						
w/ vacancy		536,000	2140	97%		
w/o vacancy	3%	553,000	2210	100%	2.61	184.50

ASSUMPTIONS : \* less \$40,000 which would be the estimated taxes received on remaining 1 1/2 acres of high density and commercial (based upon taxes of Tabulation II.)

- 1) Walk-up apartments
- 2) 25 f/a for 10A = 250 d.u.'s
- 3) 850 sq.ft./apt.
- 4) 4 1/2 rms/apt.
- 5) Mortgage 90% of costs

M.I.T.

## BIBLIOGRAPHY

Public Documents

Bureau of the Census. U.S. Census of Housing, Block Statistics-Boston, Massachusetts:1950. Vol. V, Part 21. Washington: U.S. Government Printing Office, 1951.

Bureau of the Census. U.S. Census of Population, Census Tract Statistics-Boston, Massachusetts and Adjacent Area: 1950. Vol. III, Chapter 6. Washington: U.S. Government Printing Office, 1951.

Commonwealth of Massachusetts. General Laws, Chapter 121A-Urban Redevelopment Corporations. House of Representatives No. 89. July 23, 1945.

Housing and Home Financing Agency. Local Public Agency Manual. Washington: U.S. Government Printing Office, as amended September, 1959.

Books

Editors of Fortune. The Exploding Metropolis. New York: Doubleday, 1958.

Ellwood, L.W. Ellwood Tables for Real Estate Appraising and Financing. Ridgewood, New Jersey: By the Author, 1959.

Joint Committee on Building Costs. Building Cost Manual. New York: J. Wiley & Sons, 1957.

Winnick, L. ACTION- Rental Housing Opportunities for Private Investment. New York: McGraw-Hill, 1958

Reports

Advance Planners Associates. North Station Preliminary Report. Cambridge: January, 1960

American Public Health Association. Planning the Neighborhood. Chicago: Public Administration Service, 1948.

Boston City Planning Board. General Plan for Boston-Preliminary Report, 1950. Boston: December, 1950.

Boston City Planning Board. Government Center-Boston. A Report prepared by the City Planning Consultant Firm of Adams, Howard and Greeley. Boston: September, 1959.

Boston Redevelopment Authority. Supporting Documentation to the Revised Redevelopment Plan. ( West End Land Assembly and Redevelopment Project, U.R. Massachusetts 2-3. Boston: Revised June, 1959.

Boston Redevelopment Authority. West End Land Assembly and Redevelopment Plan. Boston, Revised June, 1959.

Citizens Housing and Planning Council of New York. Governmental Aids for Private Middle-Income Housing in New York City. New York: 1957.

New York City Planning Board. Penn Station South Slum Clearance Plan. New York City: 1957.

#### Unpublished Material

Armour, R.J. "Report on the Development of the James M. Sampson Property". A financial study of a tract of Boston waterfront property by the Harvard Graduate Business School, Real Estate Research Elective, December, 1959.

Boston City Planning Board. "Field Survey-Stanford Chardon Area." Boston: September, 1959.

Boston City Planning Board. "Government Center Study." A preliminary report by Adams, Howard and Greeley and Associates for the Planning Board. Cambridge: June, 1959.

Frasca, R.j. "The Renewal of the North End of Boston." M.C.P. Thesis, Massachusetts Institute of Technology, 1959.

William H. Ballard Company. "Reuse Appraisal Plan-Government Center Redevelopment Project, Boston, Massachusetts." Vol. I. August 1959. A Report prepared for the Boston Planning Board as the real estate appraisal for the Government Center Plan proposed by Adams, Howard and Greeley and Associates.

#### Other Sources

Boston Redevelopment Authority. Personal interviews with R. McGovern, Real Estate Specialist for the Authority. January and February, 1960.

First Realty Company of Boston-Kargman, Mitchell and Associates. Commercial Real Estate and School Consultants. Personal interviews with Dr. Max Kargman, President. March, April and May, 1960.

William H. Ballard Company. Real Estate Appraisal and Management Firm, Boston Massachusetts. Personal and telephone interviews with William H. Ballard, President March and April, 1960.