

STUDIES INTO THE GROWTH AND
FORM OF AN URBAN ACTIVITY CENTER

by

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B. Arch., Yokohama National University (1964)
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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARCHITECTURE AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1971

Signature of Author *H. Kurano* Department of Architecture

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Accepted by
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ABSTRACT

STUDIES INTO THE GROWTH AND
FORM OF AN URBAN ACTIVITY CENTER

by

Hiroo Kurano

Submitted in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology.

The object of this thesis is to study some aspects of the growth and form of Coolidge Corner, Brookline Massachusetts, with particular attention paid to physical form.

Thesis Supervisor: John Randolph Myer

Lawrence B. Anderson
Dean, School of Architecture and Planning
Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, Massachusetts 02139

Dear Dean Anderson:

In partial fulfillment of the requirement for the degree of Master of Architecture, I hereby submit a thesis entitled, "Studies into the Growth and Form of an Urban Activity Center."

Respectfully,

U
Hiroo Kurano

June 1971

ACKNOWLEDGEMENTS

This thesis was developed in the Urban Design Studio during the spring term of the academic year 1970-1971.

The author gratefully acknowledges invaluable advice and assistance from the following people in the development of this thesis.

Professor John Randolph Myer,
Thesis supervisor, Instructor of Urban Design Studio.

Professor Julian Beinart,
Instructor of Urban Design Studio.

Professor William Lyman Porter,
Instructor of Urban Design Studio.

James Andrew Carr,
Student of Urban Design Studio.

Students of Urban Design I, spring 1970-1971.

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OBSERVATION AND ANALYSIS OF EXISTING BUILT FORM

Title:

REGIONAL CONTEXT 1

Description:

This diagram shows the geographical features of Coolidge Corner and its surrounding areas.

Purpose:

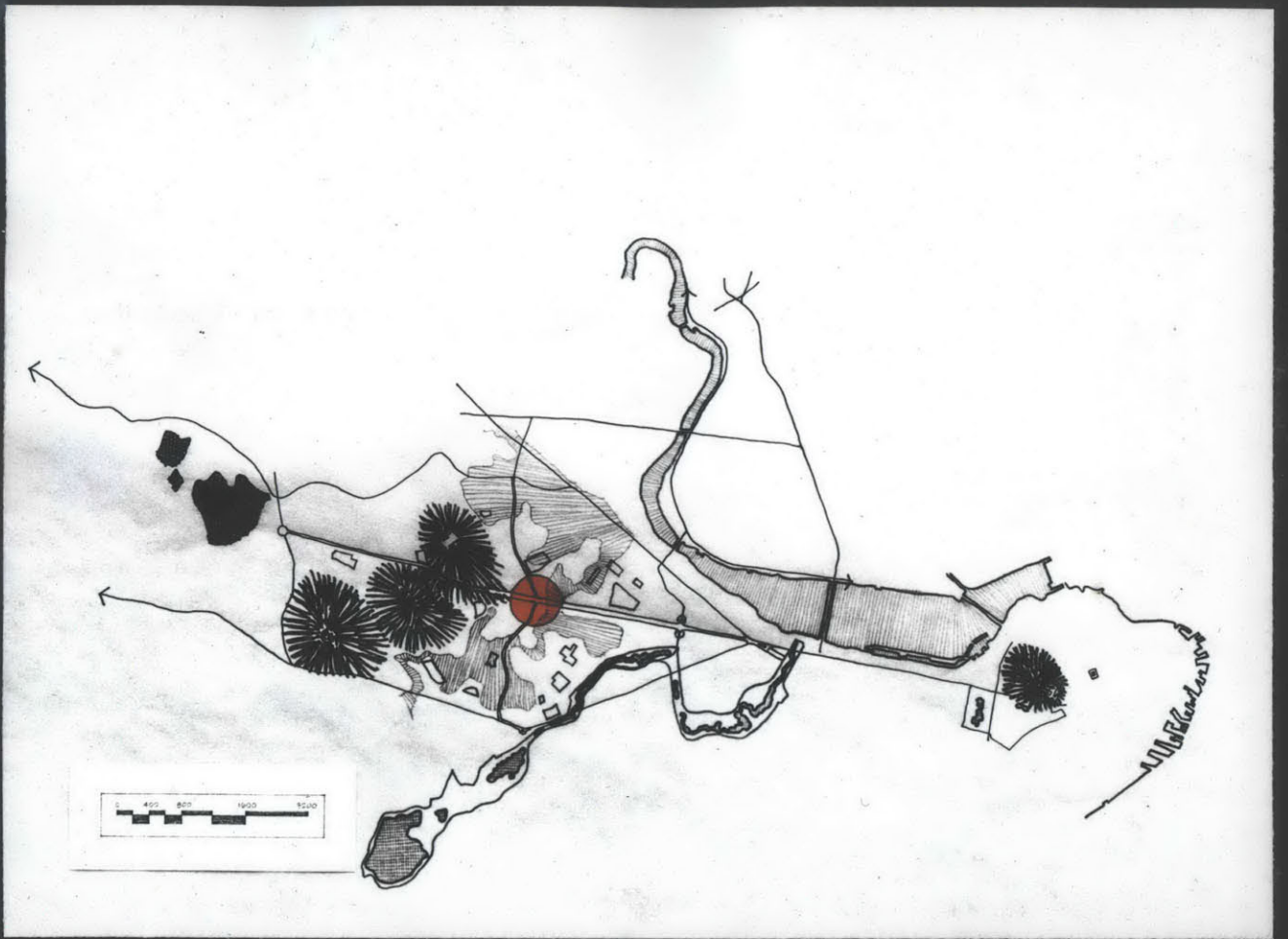
To understand the geographical features of the areas and analyze the opportunities for new built form.

Relation to other drawings:

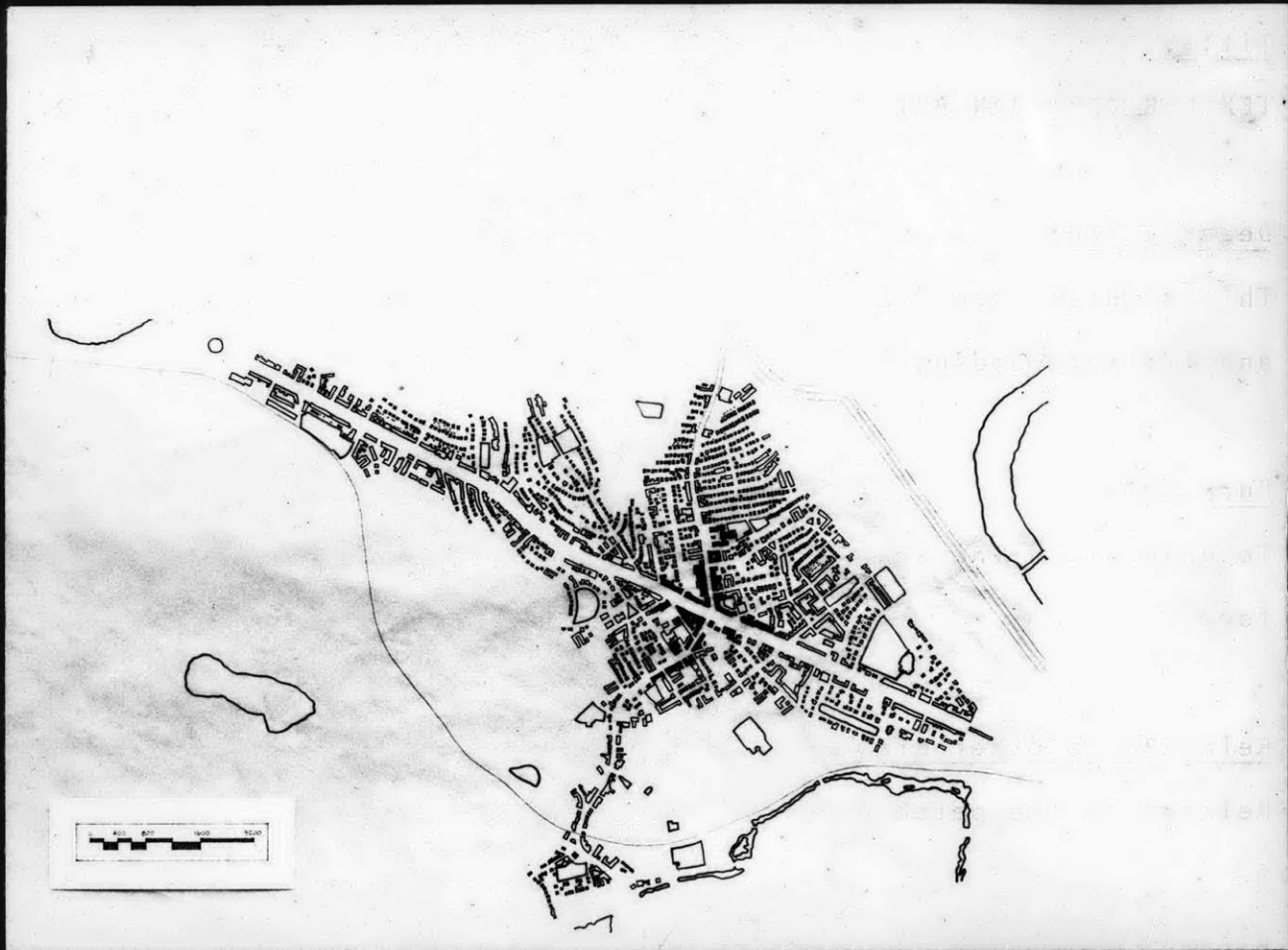
Related to the texture of urban built form, surface area importance, linear building configuration and linear facade configuration.

Difficulties, opportunities and conclusion:

Beacon St. runs between two hills from Cleveland Circle to downtown Boston. Coolidge Corner is situated on a platform half way down from the two hills to the Park River Way and Charles River. These geographical features participate in the experience of the passenger in addition to the vehicular movement at both Beacon St. and Harvard St. so that the new built form should be designed in this context.



REGIONAL CONTEXT
Coolidge Corner • Brookline, Massachusetts



TEXTURE OF URBAN BUILT FORM
Coolidge Corner • Brookline, Massachusetts

Title:

TEXTURE OF URBAN BUILT FORM **2**

Description:

This diagram shows the existing physical form at the corner and its surrounding areas.

Purpose:

To understand the scale and texture of existing physical form.

Relation to other drawings:

Related to the patch diagram.

Difficulties, opportunities and conclusion:

In Lower Beacon St. and at Washington Square, the transition from residential to commercial uses is not abrupt, due to the smaller scale of these areas and to their position and open green space within residential communities. It is at Coolidge Corner that the transition is most abrupt. This abruptness should be reduced.

Title:

LINEAR BUILDING CONFIGURATION AND LINEAR FACADE CONFIGURATION 3

Description:

These diagrams show the arrangement of the physical form and facade of linear buildings which are situated at the edge of Beacon St. and Harvard St.

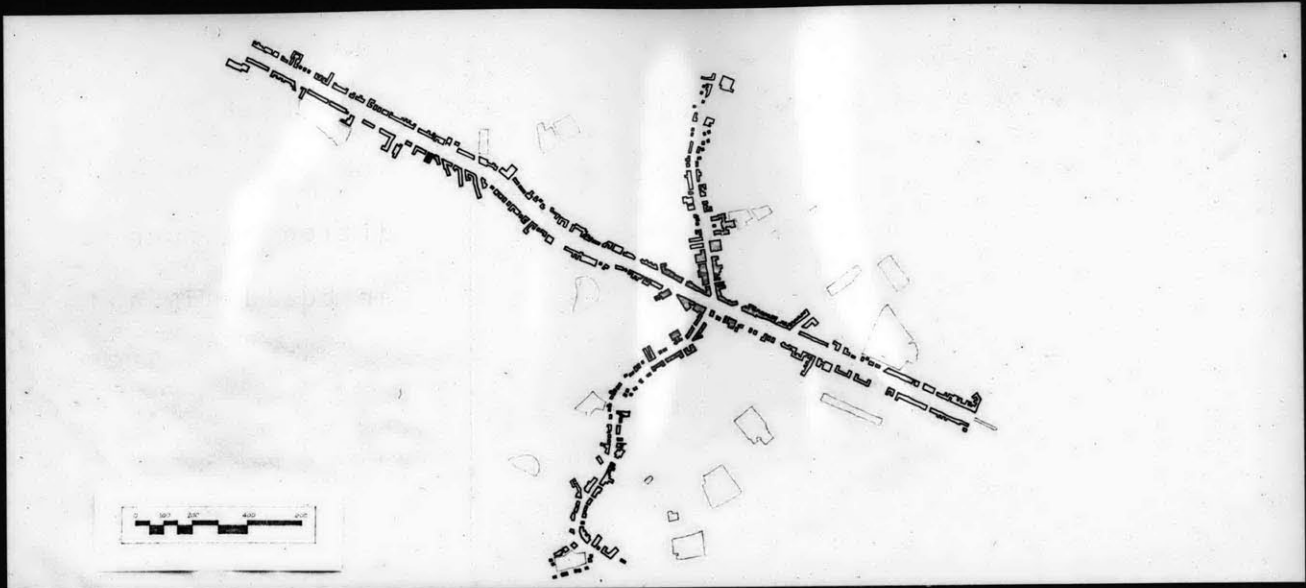
Purpose:

To understand the sequence of the physical forms and facades which are facing Beacon St. and Harvard St., and to analyze the opportunities and difficulties for new built form.

Difficulties, opportunities and conclusion:

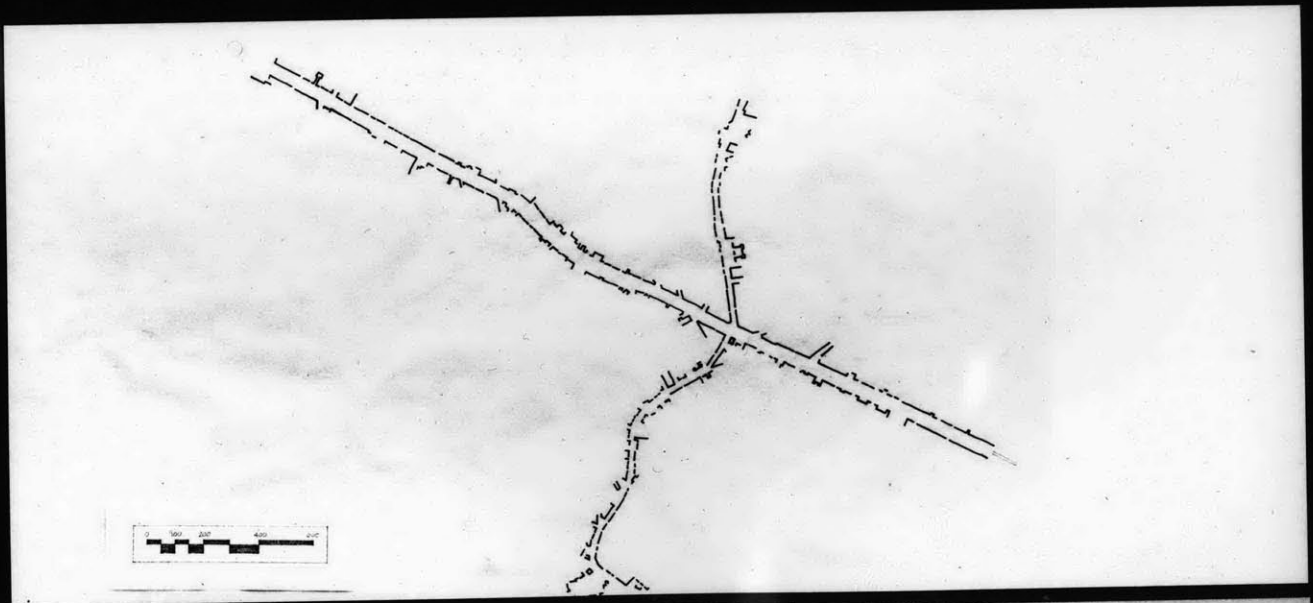
1. Distribution of linear building and linear facade is more continuous on Beacon St. than on Harvard St.
This condition is also more evident at other intersections like Washington Square and Cleveland Circle.
2. The southeast area of Coolidge Corner lacks the sense of sequence due to its poorly formed open area.
3. These features of the linear buildings and facades at the streets as well as the form of the larger region importantly participate in the view of the motorist from the road. The new built form should be designed in such a way as to (1) reduce the monotony of the continuation of linear buildings and facades along Beacon and Harvard Streets, (2) reduce the abruptness of the

transition between commercial and residential uses, (3) reinforce directionality of Harvard St., and (4) achieve a continuity between the condition of openness at Coolidge Corner and the linear buildings and facades of the two streets.



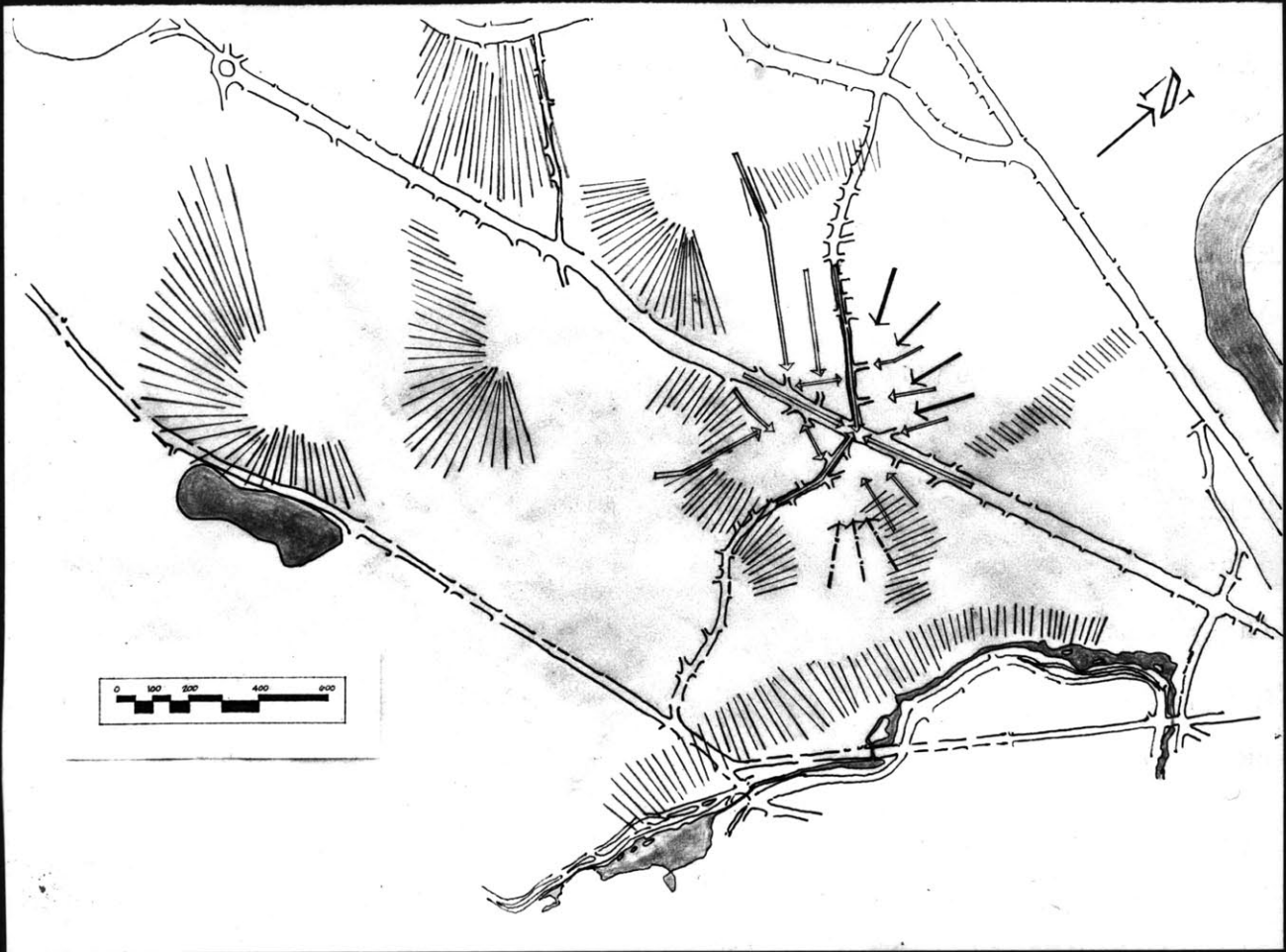
LINEAR BUILDING CONFIGURATION
Coolidge Corner · Brookline, Massachusetts

3



LINEAR FACADE CONFIGURATION
Coolidge Corner · Brookline, Massachusetts

3



sun facing slope |||||
 wind direction ←←←
 movement direction ←←←

SURFACE AREA IMPORTANCE
 Coolidge Corner • Brookline, Massachusetts

Title:

SURFACE AREA IMPORTANCE **4**

Description:

This diagram shows the sun-facing slopes and wind direction of the surrounding areas.

Purpose:

To understand the sun-facing slopes and relation to the wind direction and vehicular and pedestrian movement, and to analyze the opportunities for the directionality of the new built form.

Relation to other drawings:

Related to the regional context, texture of urban built form, linear building configuration and linear facade configuration.

Difficulties, opportunities and conclusions:

The sun-facing slopes of the two hills, those slopes below to the south and southeast and the platform where Coolidge Corner finds itself in combination with the directionalities of the street system create a quality which exists at the larger scale context for Coolidge Corner and might find itself reflected in the smaller built form scale of Coolidge Corner itself.

Title:

STREET PATTERN **5**

Description:

This diagram shows the road network around Coolidge Corner and surrounding centers. The circles indicate a six minute walking distance from each center.

Purpose:

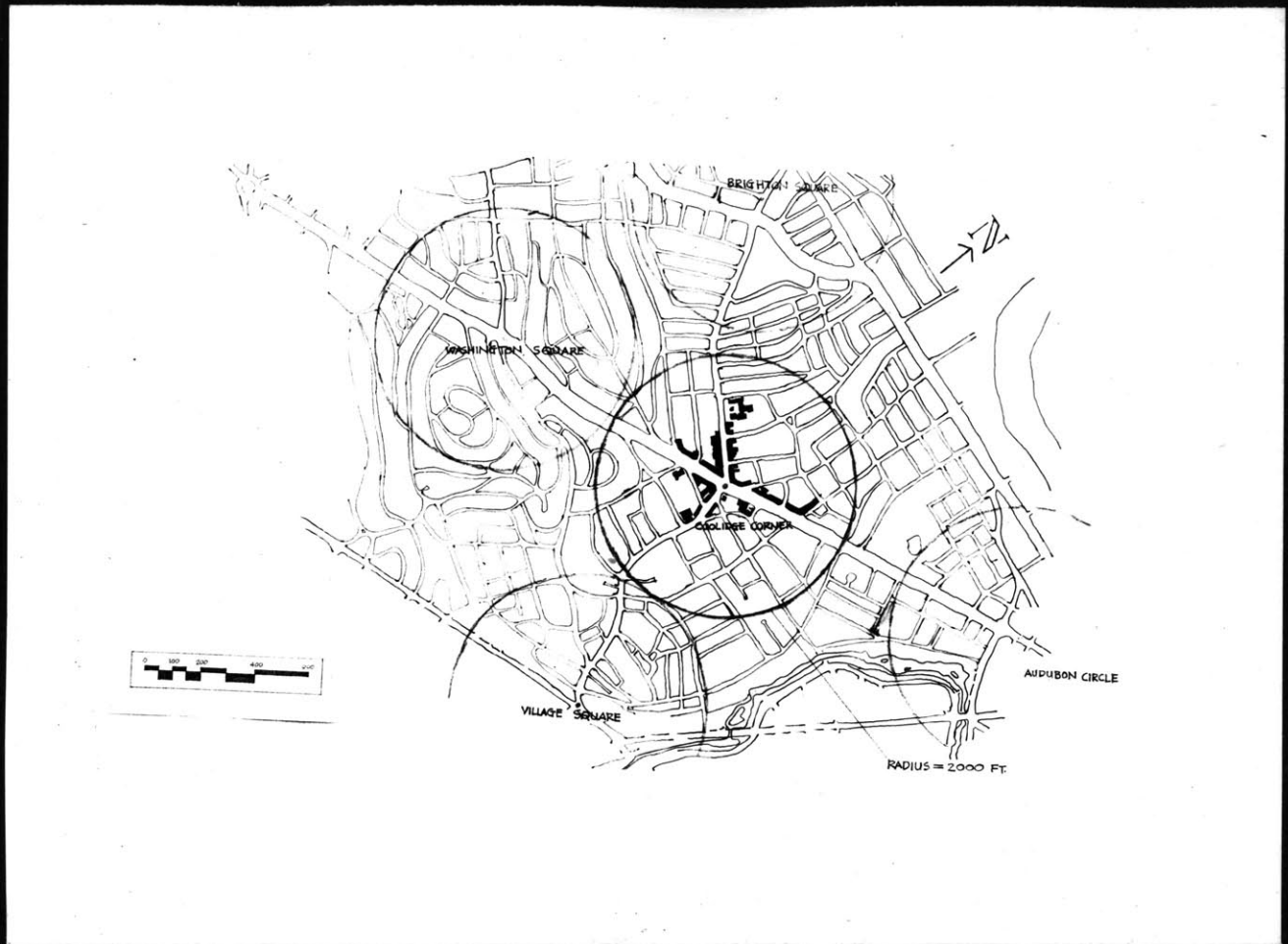
To understand the accessibility to Coolidge Corner and its relationship to the surrounding centers.

Relation to other drawings:

The problems with pedestrian accessibility are directly related to the state of the road network and degree of congestion in the streets.

Difficulties, opportunities and conclusion:

Compared to the grid type road network (i.e. New York, Washington) accessibility to Coolidge Corner is not easy because of a lack of clear geometrical organization and consequent lack of orientation. Steps should be taken to make clear the organization that does exist. The relation between streets and the areas that lie between them being the principal areas to clarify.



STREET PATTERN
Coolidge Corner · Brookline, Massachusetts



parking



PEDESTRIAN LINE

Coolidge Corner • Brookline, Massachusetts

Title:

PEDESTRIAN LINES **6**

Description:

This diagram shows existing pedestrian lines and entrances to retail shops and offices, and parking lots at the corner. There are four town parking lots serving the corner in addition to on-street metered parking.

Purpose:

To analyze problems and opportunities of pedestrian accessibility and parking about the corner area.

Relation to other drawings:

Related to road network and microclimate.

Difficulties, opportunities and conclusion:

1. The high level of vehicular congestion at the Beacon-Harvard St. intersection add to the pedestrian problem.
2. Pedestrian access to the MBTA stops is difficult. The line presents a certain degree of danger both to foot and automobile traffic.
3. Beacon St. is a barrier for pedestrian crossing.
4. Parking:
Double-parking is common on both Beacon St. and Harvard St. The alley connections between public parking areas

and Harvard and Beacon Streets do not provide visual and therefore psychological access between these areas.

Title:

BEACON STREET AND HARVARD STREET DOMAIN **7**

Description:

The spatial characteristics of the corner is that the shopping space at streets have a strong contrast to the back court. This diagram shows the two different spaces and commercial building fronts which are more attractive to pedestrian because of their transparence and trans-lucence.

Purpose:

To define the spatial characteristic of the corner and the limit of the area as a shopping center.

Relation to other drawings:

Related to pedestrian accessibility and microclimate.





Difficulties, opportunities and conclusion:

I. Commercial concentration is facing transportation routes.

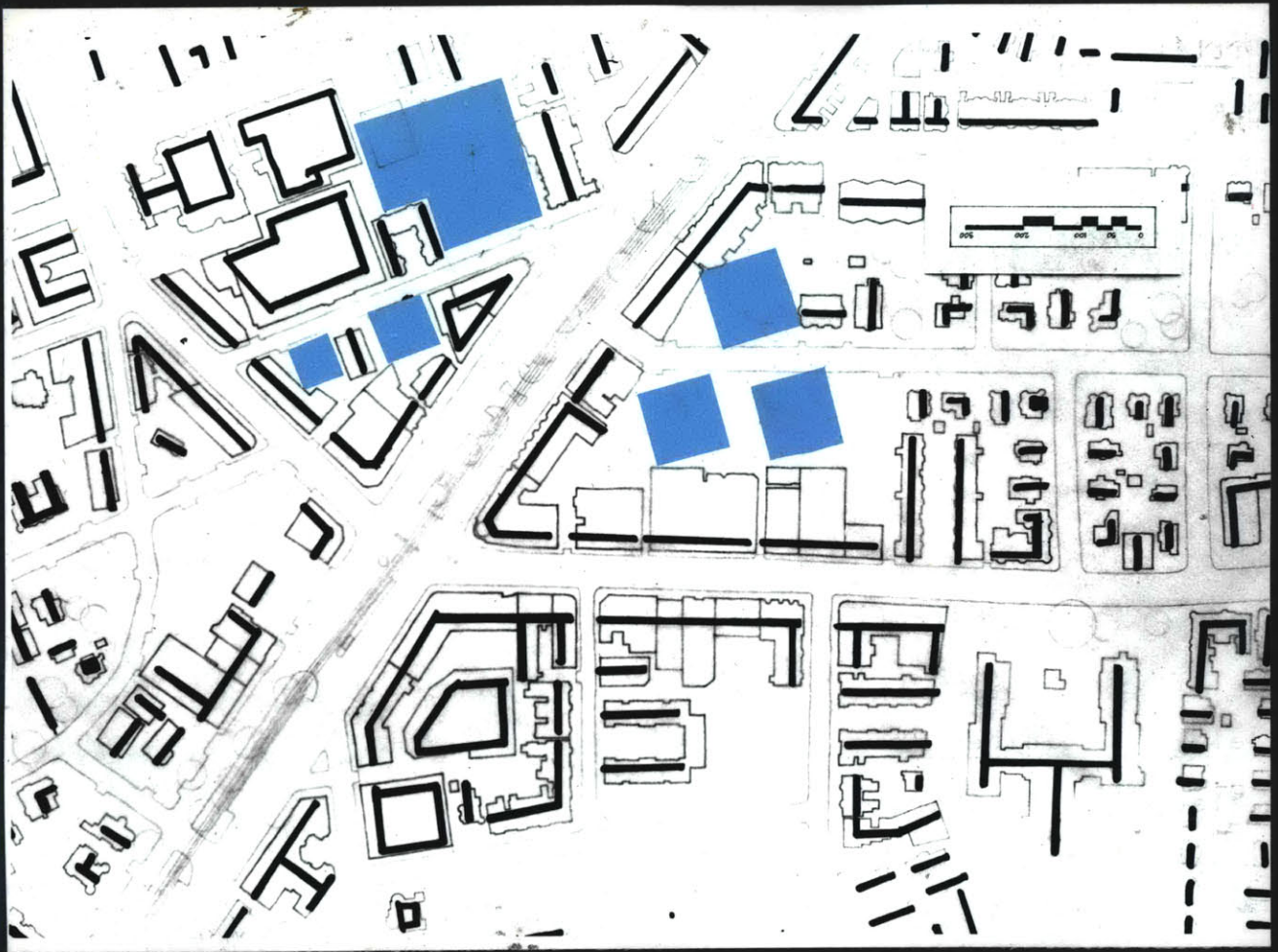
2. Intense contrast between back court yards and street.
3. There is no clear entry from back court yards in spite of the access from parking and houses, and no interaction between the two spaces.
4. One opportunity for growth encompasses the highly accessible areas in the back court yards. If properly treated, they could become better connected visually and psychologically to the new existing prime urban space.
5. Coolidge Corner has no sense of connection to its surroundings.
6. There is no well-formed public space.
7. There is no adequate shelter or resting place for the public.
8. Pedestrian is narrow and noisy.
9. There is nodal intensity at the intersection (of Harvard and Beacon Streets.)
10. Building fronts need attention.
11. Landscaping and street furniture are minimal.
12. The width of Beacon St., the low density of the southeast corner of the intersection, and the level of traffic confusion combine to negate any sense of enclosure of space which might give the corner a more cohesive intensity.
13. Walking distances within each of the areas is by no means extreme. However, in the corner, the uses at

the periphery of the area are not sufficiently strong magnets to generate an even level of pedestrian activity. This is particularly true of the south side of Beacon St.



- area experience boundary 
- major retail 
- minor retail 
- backyard area 

BEACON STREET AND HARVARD STREET DOMAIN
Coolidge Corner · Brookline, Massachusetts



place with sense of space ■

DIRECTIONALITY OF BUILT FORM
Coolidge Corner • Brookline, Massachusetts

Title:

DIRECTIONALITY OF THE BUILT FORM **8**

Description:

Directionality of a built form is defined by one's perception of its major axis which may direct the pedestrian's movement as well as their view from one place to another.

Purpose:

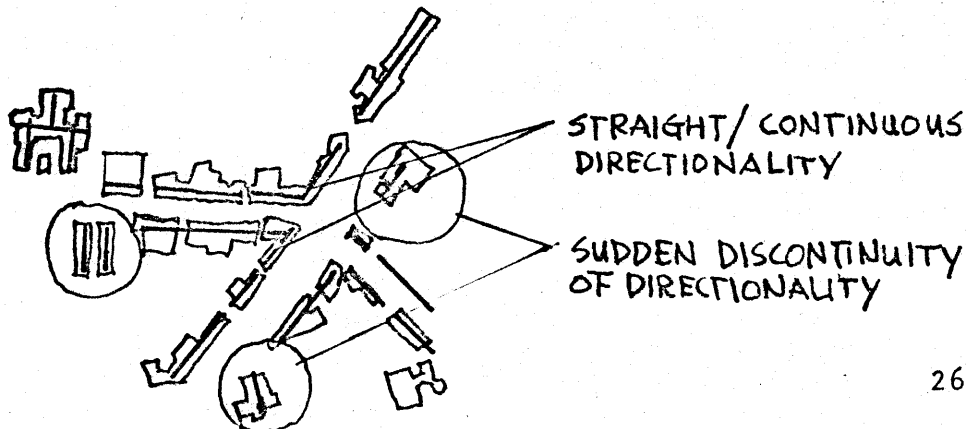
To analyze the directionality of the existing built forms.

Relation to other drawings:

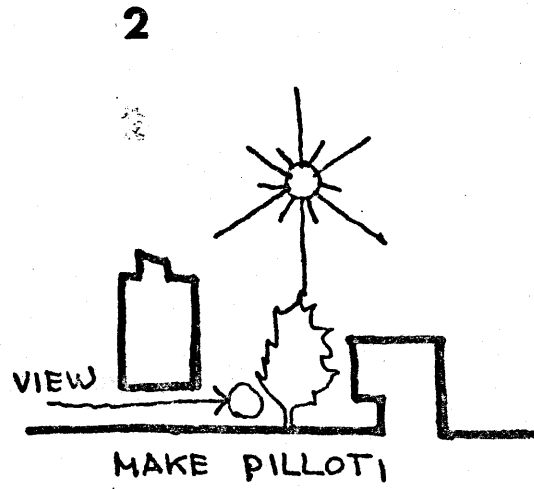
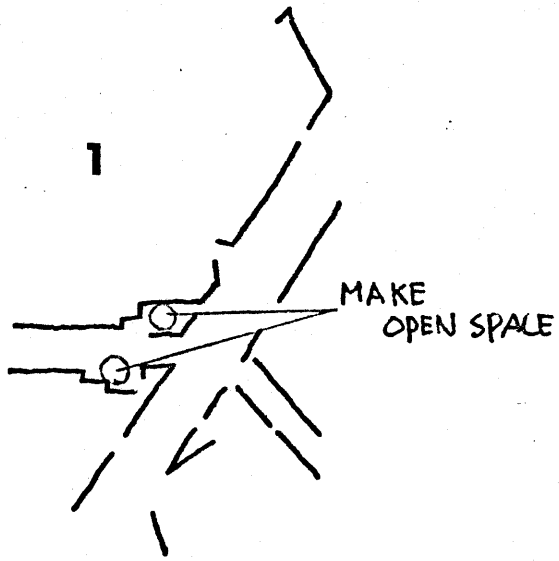
Related to the character of the space and pedestrian movement.

Difficulties, opportunities and conclusion:

1. Straight and continuous directionality of the northwest corner of Harvard St. exhibit strong directionality as do those of Beacon St.
2. Discontinuity of the southeast corner of the intersection negates any sense of enclosure or space.



3. The following pictures show possible alternatives to uninterrupted directionality.



Title:

PATCH DIAGRAM 9

Description:

This diagram shows the size and place of the existing patch, that is, the identifiable stretches of territory which have a continuity of quality in that locus.

Purpose:

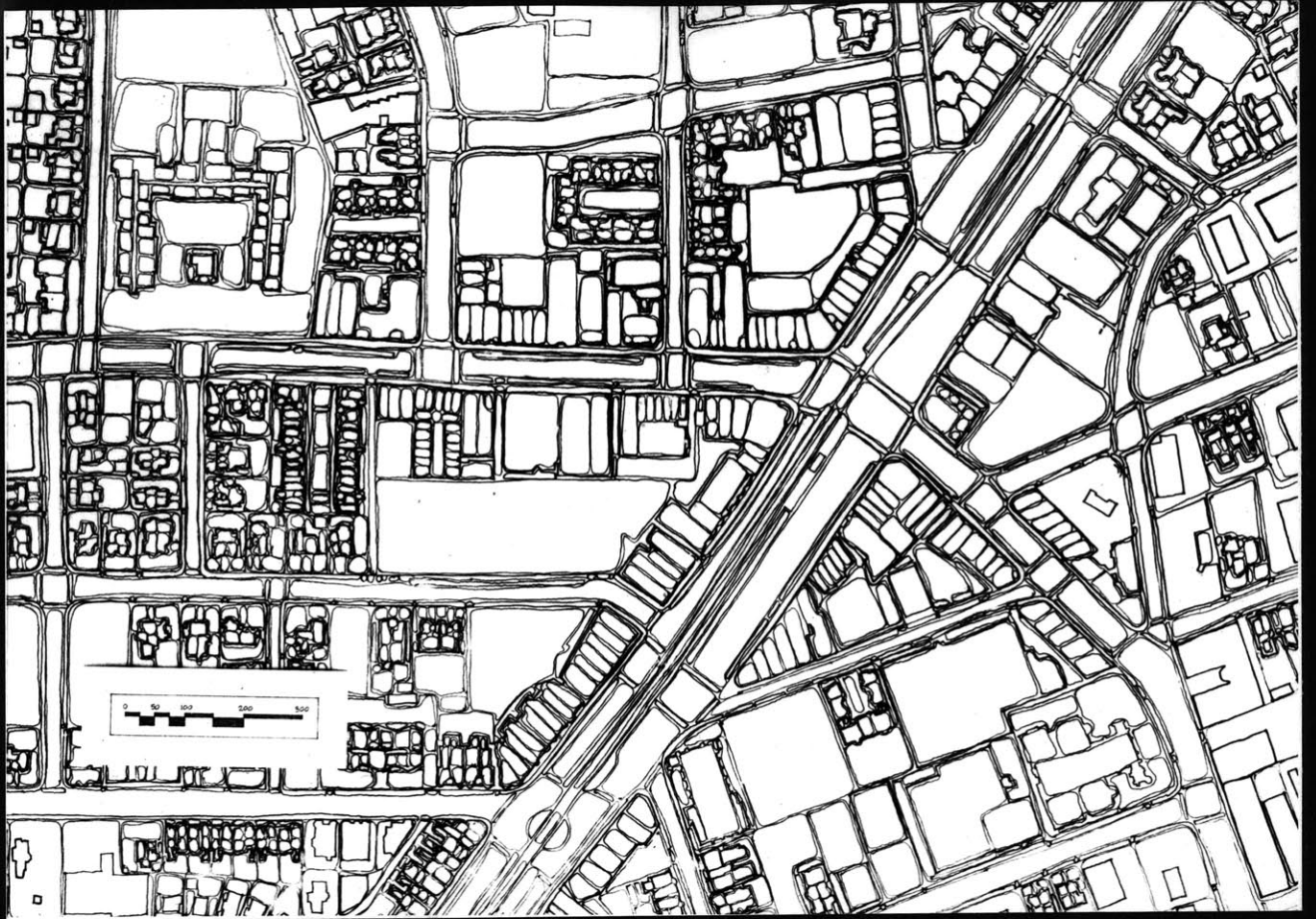
To understand the existing patch size and place.

Relation to other drawings:

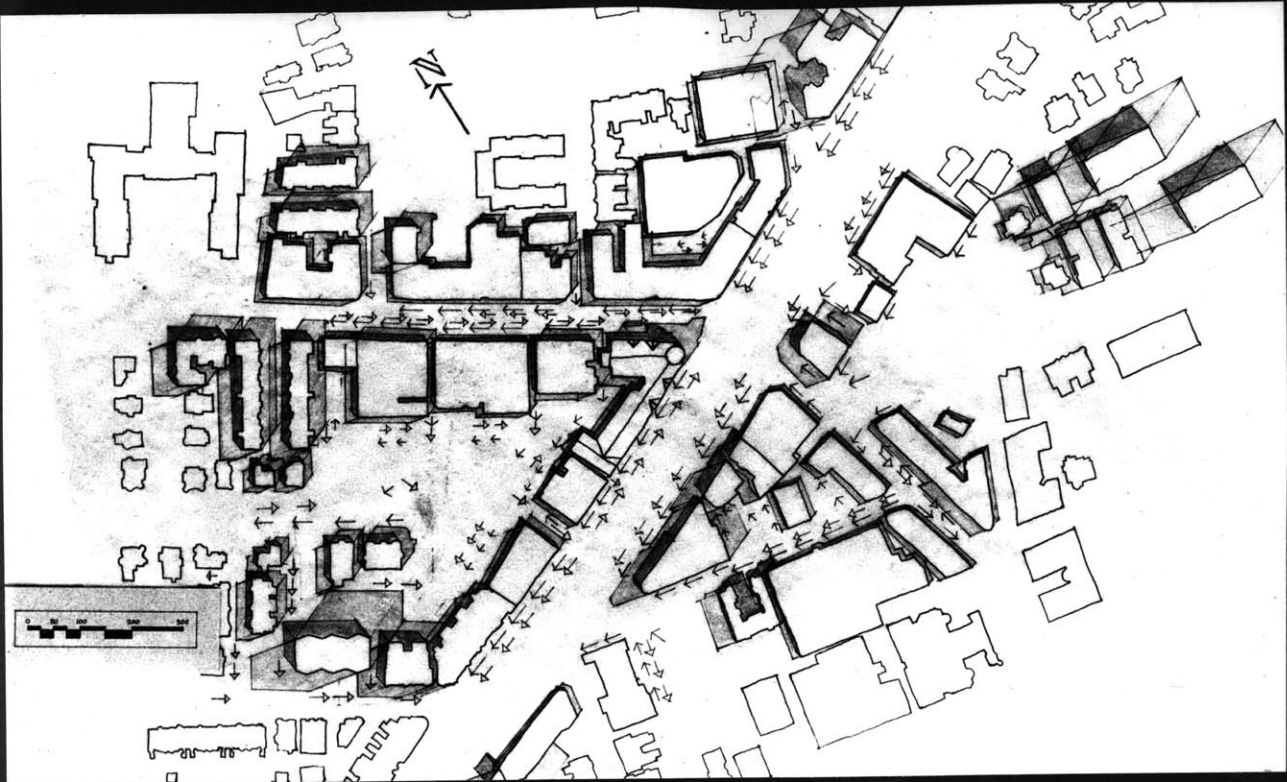
Related to the texture of the existing urban built form.

Difficulties, opportunities and conclusion:

1. Transition of the patch size from residential to commercial is abrupt.
2. Small commercial patches concentrate on the edge of the traffic streets and are also abrupt in this.
3. These difficulties could be solved by introducing different relationships between patch sizes (i.e. open space or institution location between commercial and residential patches.)



PATCH DIAGRAM
Coolidge Corner • Brookline, Massachusetts



shadow / June 21
wind / March · April

MICROCLIMATE I
Coolidge Corner · Brookline, Massachusetts

10



shadow / December 21

MICROCLIMATE II
Coolidge Corner · Brookline, Massachusetts

10

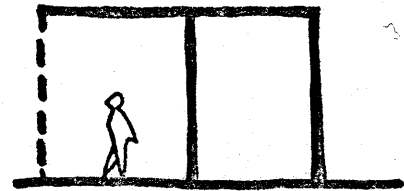
Title:

MICROCLIMATE 10

Description:

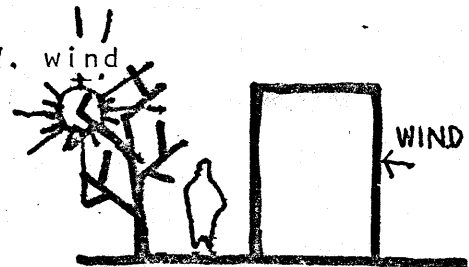
- a. Microclimate for bad weather.

Avoidance of rain
snow
cold wind



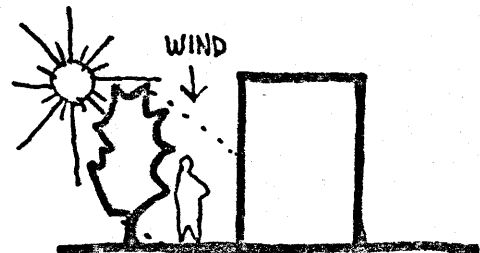
- b. Microclimate for cool and cold day.

Sun
Avoidance of cold N.W. wind



- c. Microclimate for hot day.

Cool S.W. wind
Avoidance of hot sun



The two diagrams show the shadow condition at the corner on June 21 and December 21, (Architectural Graphic Standards, p. 71 Solar Angles) and wind directions which are observed on March 28 and April 2, 1971.

Purpose:

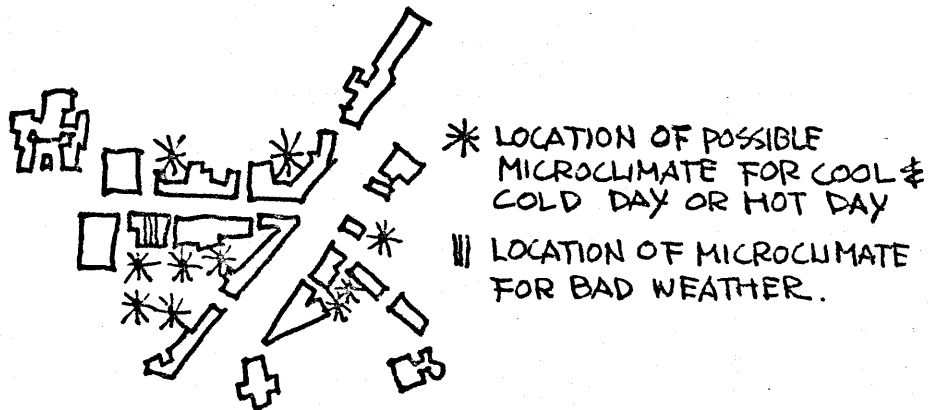
To find the existing good microclimates and the possible good microclimate locations.

Relation to other drawings:

Related to the character of the spaces at the corner and pedestrian access.

Difficulties, opportunities and conclusion:

1. There are good possible microclimates in the back court yards which are presently used for parking or service areas without good vegetation.



2. There is only one microclimate for bad weather.
3. There is no concentration of shopping, business and amusement activities in existing microclimates.

SOLUTION I

Description:

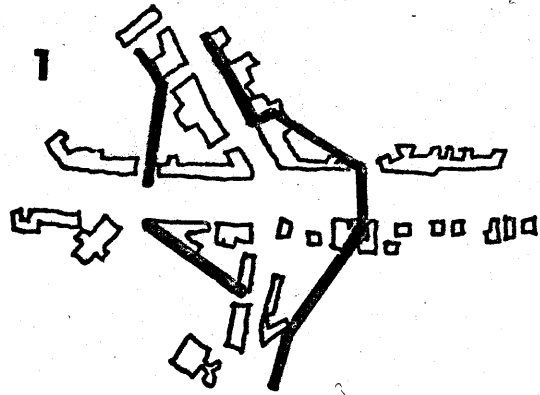
This model shows the proposed diagrammatic general scheme of the built form in the Coolidge Corner. In this step any detail of activities and staging of the building are not included.

Choice of scheme:

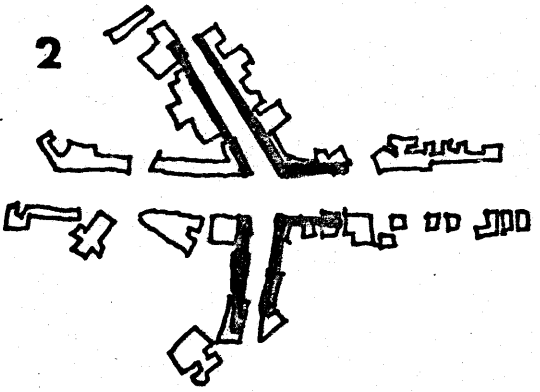
There are many important alternatives for growth. (See diagram on next page.) Among the alternatives, the "enclosing scheme" has been developed.

1. There is an enclosing frame of reference already strongly existing which defines the corridor edges of Beacon and Harvard Streets.
2. When an important crossing of Beacon St. takes place, such as at Harvard St., a new and important opportunity occurs with that added cross direction; several areas develop in the corners. These areas have a different character than the place in either of the two corridors in that they have important dimensions in two directions. In short, a new and valuable experience can be offered to the pedestrian or users which is hospitable and habitable. The public space is no longer simply subordinated to a movement corridor, a place to move through, but is rather a place to be in.

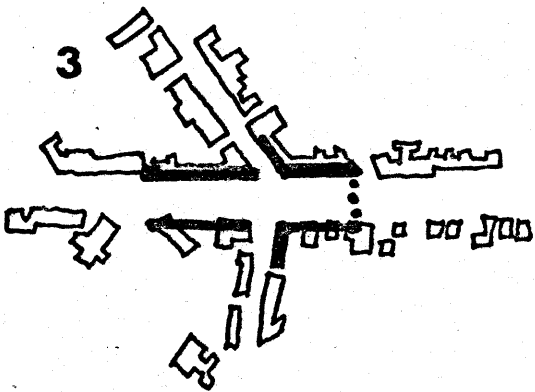
ALTERNATIVES OF THE SCHEME



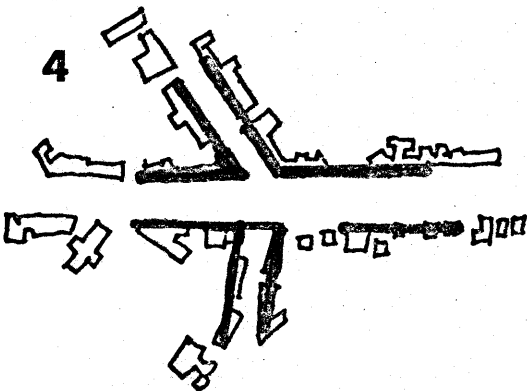
ENCLOSING ALTERNATIVES



CROSSING ALTERNATIVES (1)
Direction of Harvard
Street should be
upgraded to equal
that of Beacon Street



CROSSING ALTERNATIVES (2)
Direction of Beacon St.
should be stronger in
the corner



CROSSING ALTERNATIVES (3)
Combination of (2) and (3)

3. While there are several important "forms" (see alternative diagrams) which reinforce a place to be, one of the important form possibilities appears to be that which continues the frame of reference of "enclosure" of the two corridors but moves it "out" or "back" to include or be inclusive about those places to be. The specific form reference here appears to be the enclosure of the spaces to be occupied, whether it be some other place on Beacon St. or Harvard St. or at the corners.

Purpose of this solution:

1. To study the directionality, closedness and openness of higher density building in the corner; here a form alternative has been developed which projects as a principal characteristic a sense of partial enclosure of the corner.
2. To study the opportunities for good microclimates.
3. To study the opportunities for a pedestrian way and places.

Difficulties of this solution:

1. The dimension of the proposed buildings is in general too big to be feasible due to the limited dimension of the existing parcel size and built form.
2. The partially enclosing form is to some degree exclusive of the area exterior or back of it.

3. What happens if one part grows and not others?
4. What happens if different scales of growth occur -
small increments to large increments?
5. Does it have adequate parking for each area of growth?
6. Is the presence of the tower important to the scheme?
Will its absence make other attributes of the scheme
invalid?

SOLUTION II

Purpose of this solution:

1. To identify and solve the difficulties contained in Solution I.
2. To show the possibilities of staging for different scales of growth.
3. To indentify the activities intended for each area.
4. To identify the basic criteria implied by the urban form projected in Solution II and the criteria which are necessary in detail for the area.

Staging and Activity:

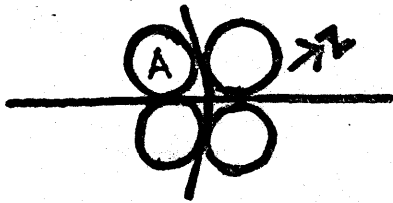
Staging is shown in diagram #13 and succeeding photographs.
Activity is shown in diagrams #14, 15, and 16.

One possibility of staging of activity and building is as follows.

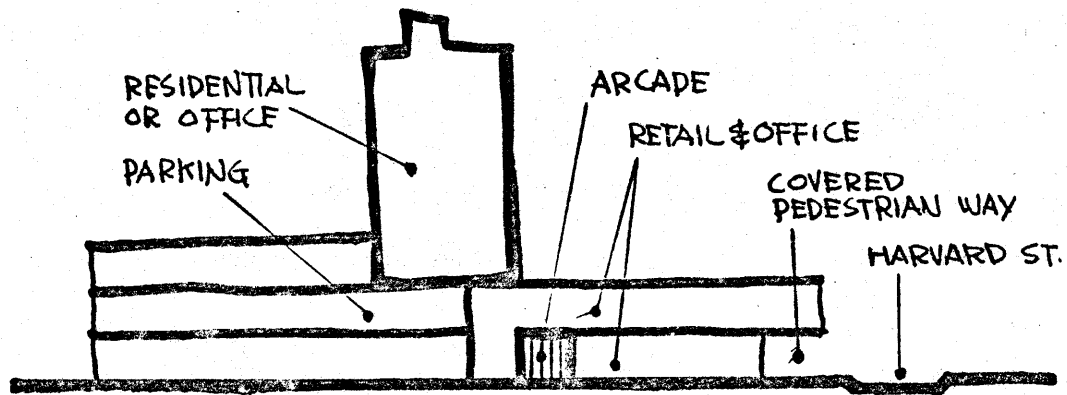
Staging criteria:

1. Land vacancy.
2. Demolition priority.
(Studied by Michael P. Buckley, see diagram #11)
3. Ownership.
4. Parcel aggregation.
5. Desirability of activity at proposed time of development.

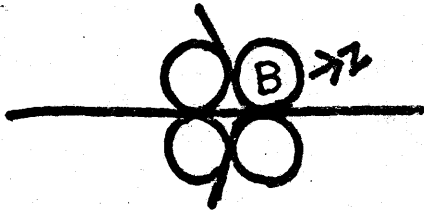
AREA A/Shopping Area



Stage 1	Ground Fl.	Shopping Arcade
		expansion of the existing arcade at Harvard St., connection from existing Harvard St. shopping way to Beacon St. shopping way. retail - restaurant - parking
	2nd Fl.	retail - restaurant - professional office
Stage 2	Ground Fl.	South Part
		lobby - arcade - residential service - parking
	2nd Fl.	parking
	3rd Fl.	hotel or residential
		North Part
	Ground Fl.	small shopping plaza - retail
	2nd Fl.	retail - restaurants - office



AREA B/Shopping and Entertainment Area.



Stage 1 Ground Fl. small shopping and entertainment plaza

seating, eating and talking place - connection from Harvard St. shopping way to Beacon St. shopping way - retail - restaurant - residential service

2nd Fl. pedestrian way - retail - restaurant

Stage 2 Ground Fl. North Part

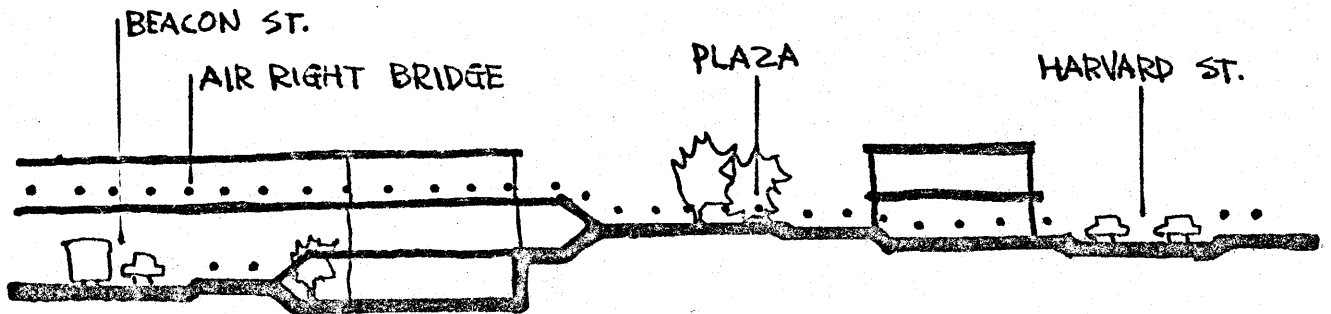
lobby - residential service - parking

2nd Fl. retail - professional office

3rd Fl. office or residential

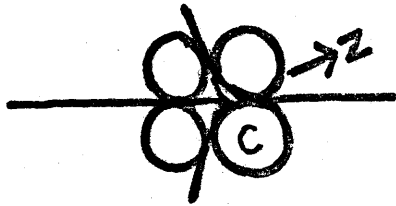
Stage 3 Ground Fl. existing retail

2nd Fl. office or residential



SECTION OF AIR RIGHT BRIDGE & PLAZA

AREA C/Entertainment and Information Area



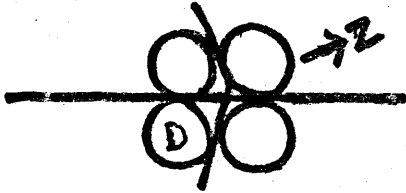
- | | | |
|---------|------------|--|
| Stage 1 | Ground Fl. | plaza and city room

the first hand information and ideas that form the general interest of every citizen are distributed from the moment of the re-entry of a spaceship to the announcement of international crisis, national events and weather forecasting - retail - post office - restaurants |
| | 2nd Fl. | air-right bridge - retail - restaurant - office |
| | 3rd Fl. | office |
| Stage 2 | Ground Fl. | East Part

residential service - retail restaurant - office - service for theatre |
| | 2nd Fl. | theatre - office |
| | 3rd Fl. | office |
| Stage 3 | | East Part

residential or office |

AREA D/Residential Area



- Ground Fl. play field or park - parking -
 super market - gas stand -
 residential service - lobby
- 2nd Fl. nursery school - office -
 residential service -
 roof garden
- 3rd Fl. residential



cleared site
 demolition potential

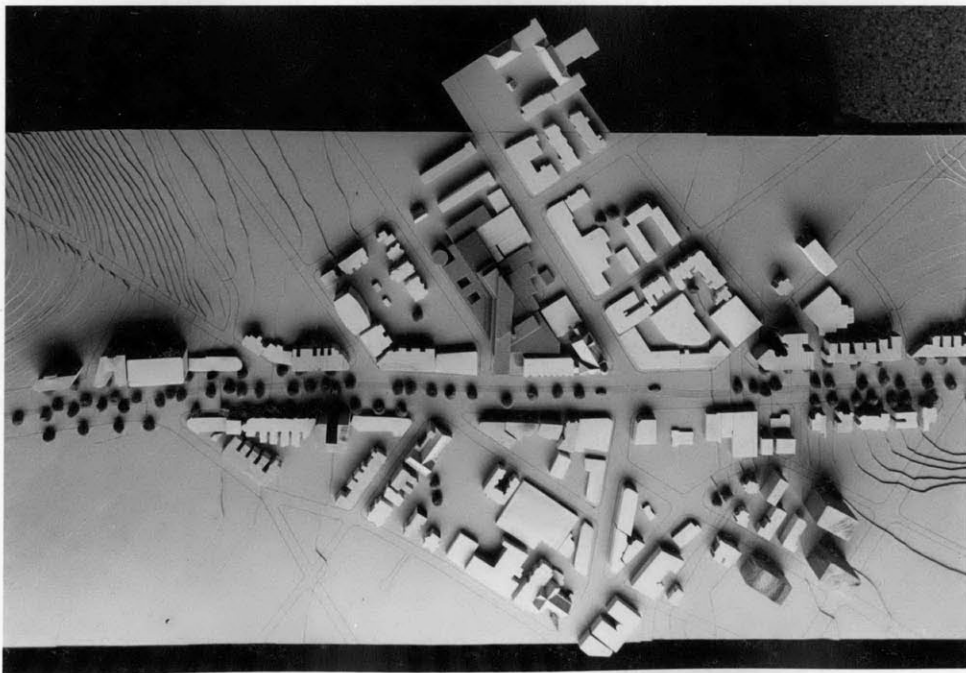
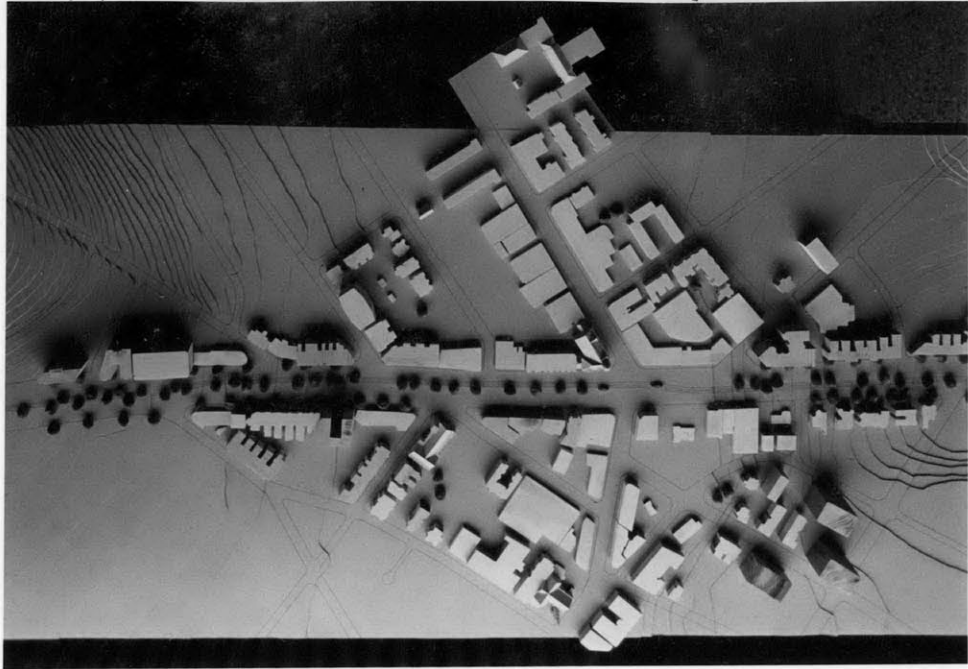
DEMOLITION POTENTIAL / CLEARED AREAS
 Coolidge Corner • Brookline, Massachusetts

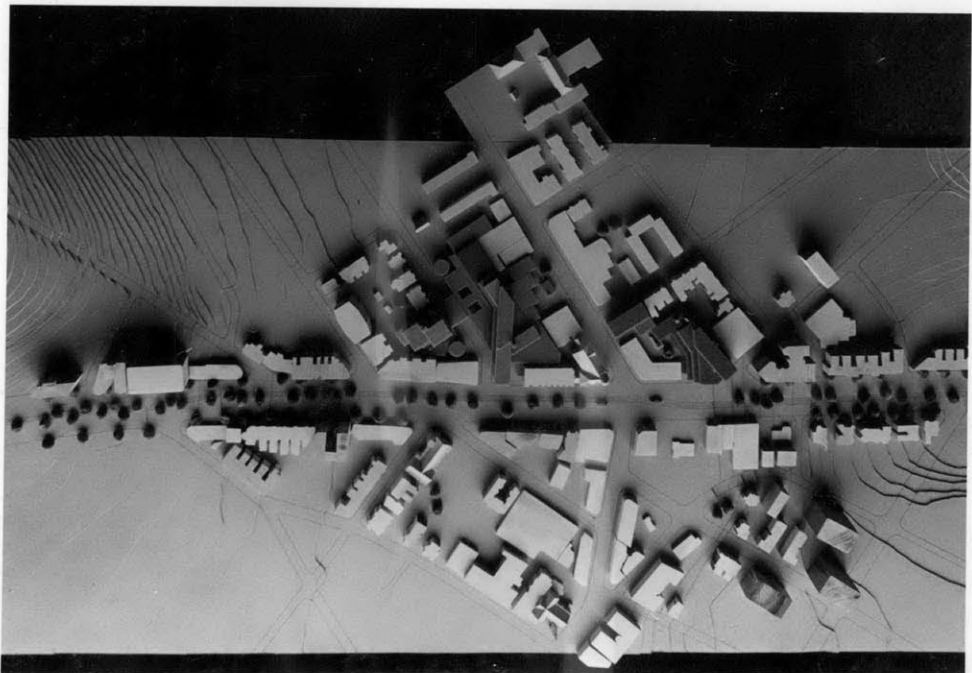
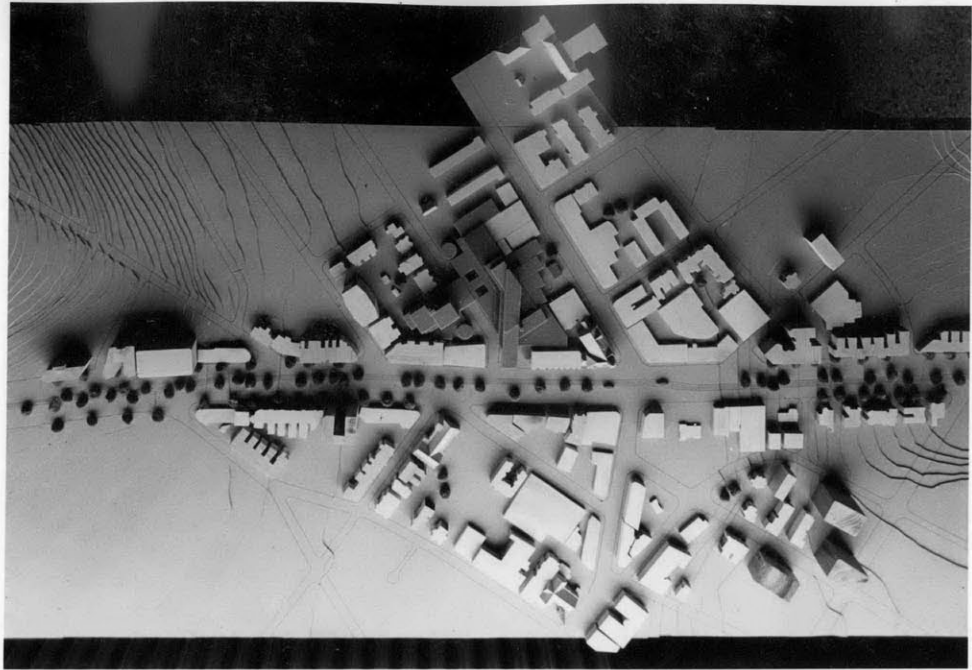


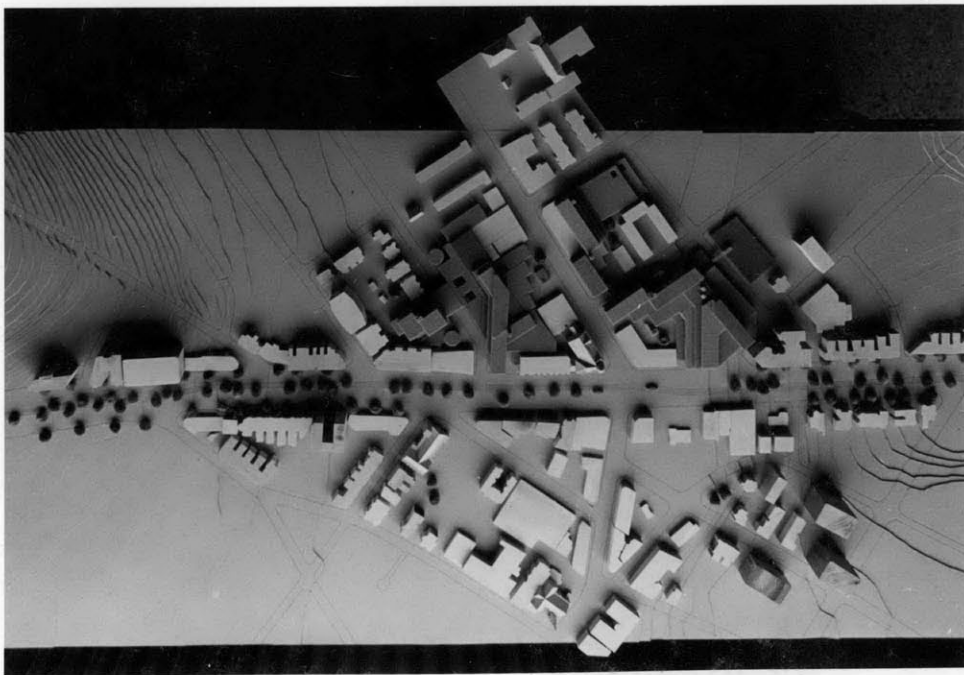
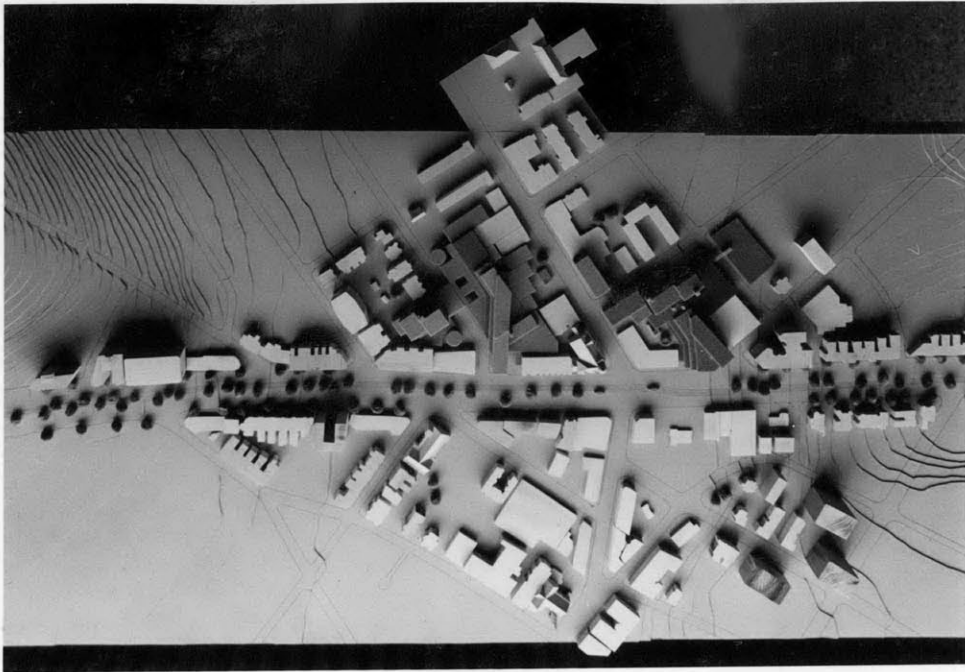
PARCEL CONFIGURATION
Coolidge Corner • Brookline, Massachusetts

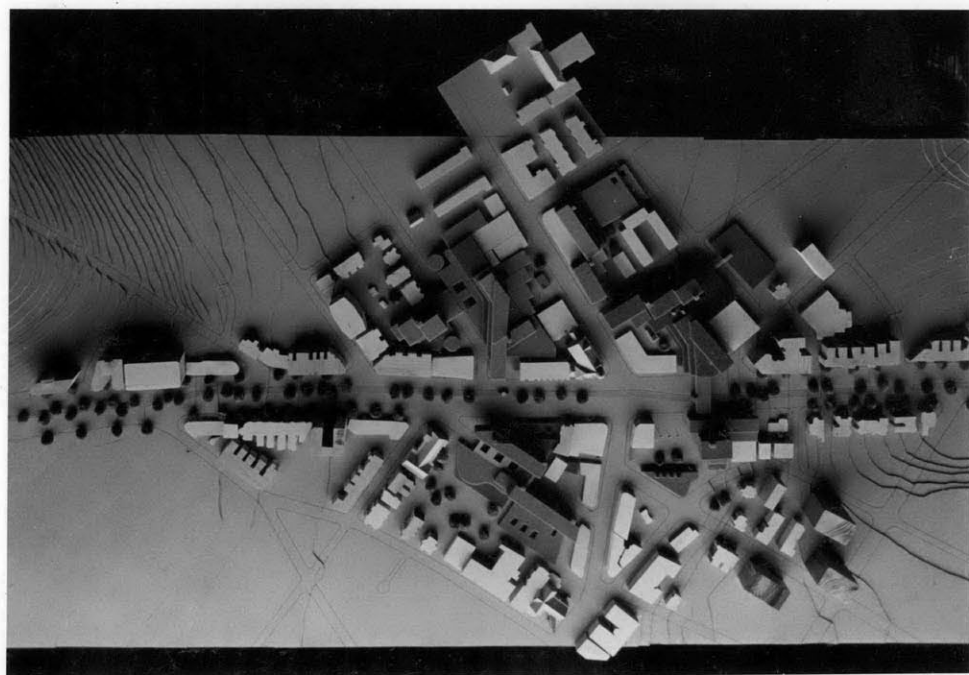
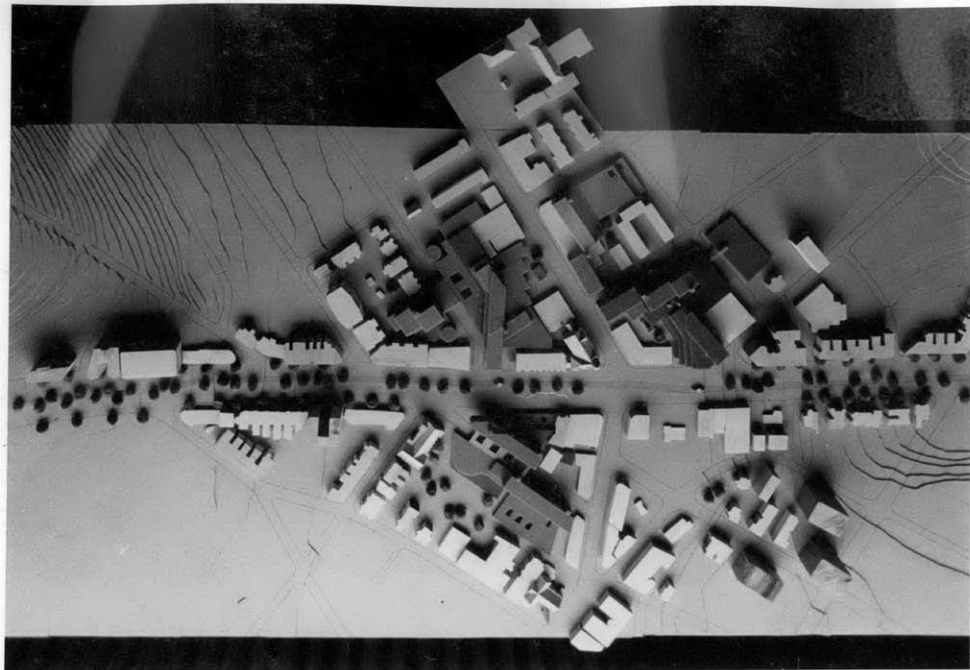


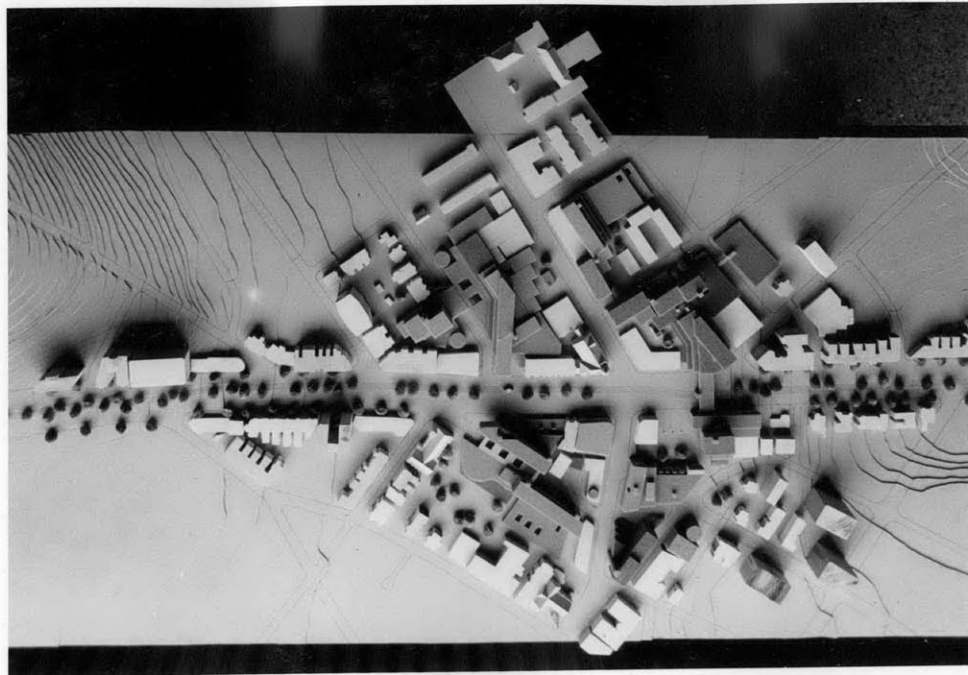
SOLUTION 2 / STAGING
Coolidge Corner • Brookline, Massachusetts

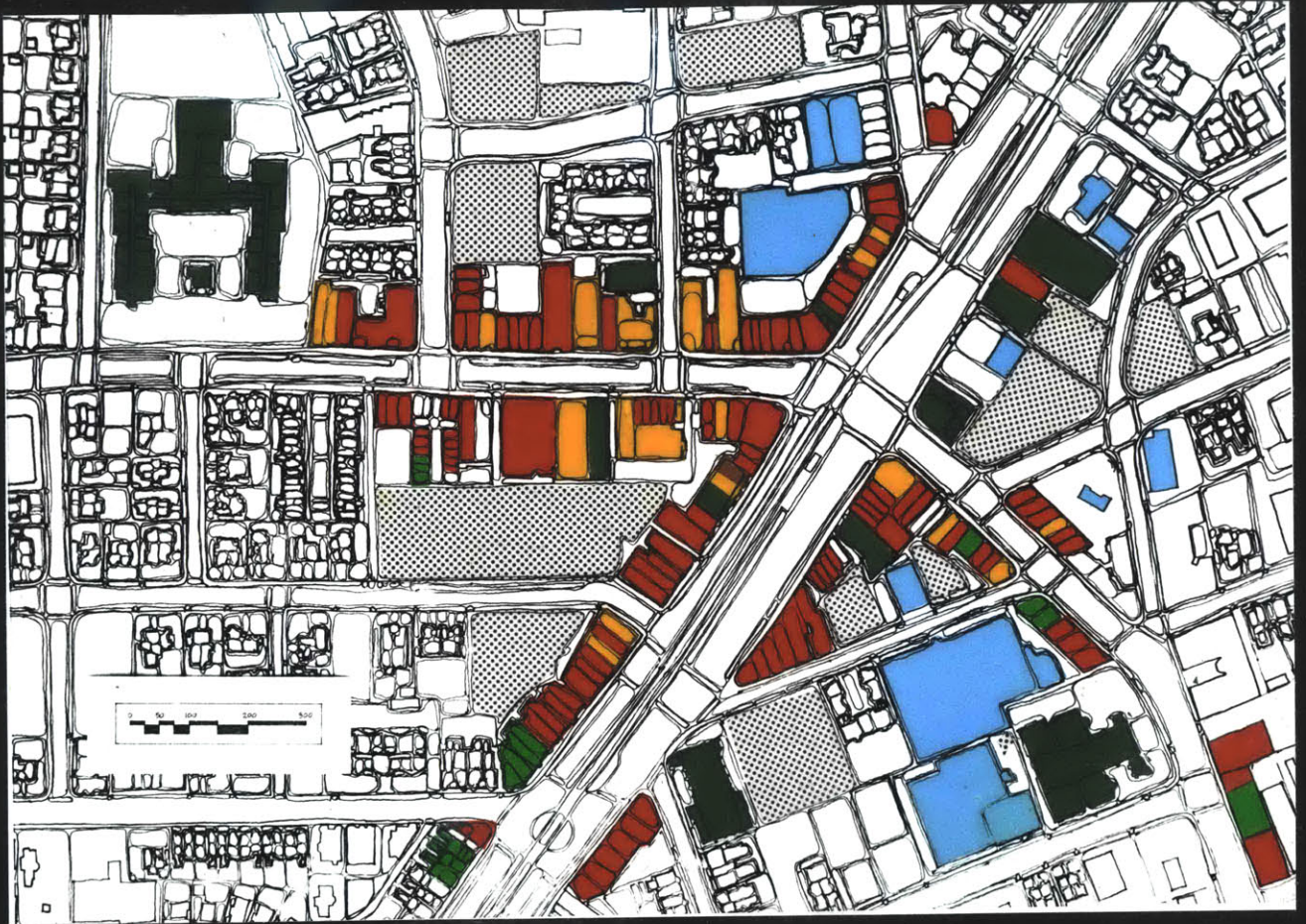












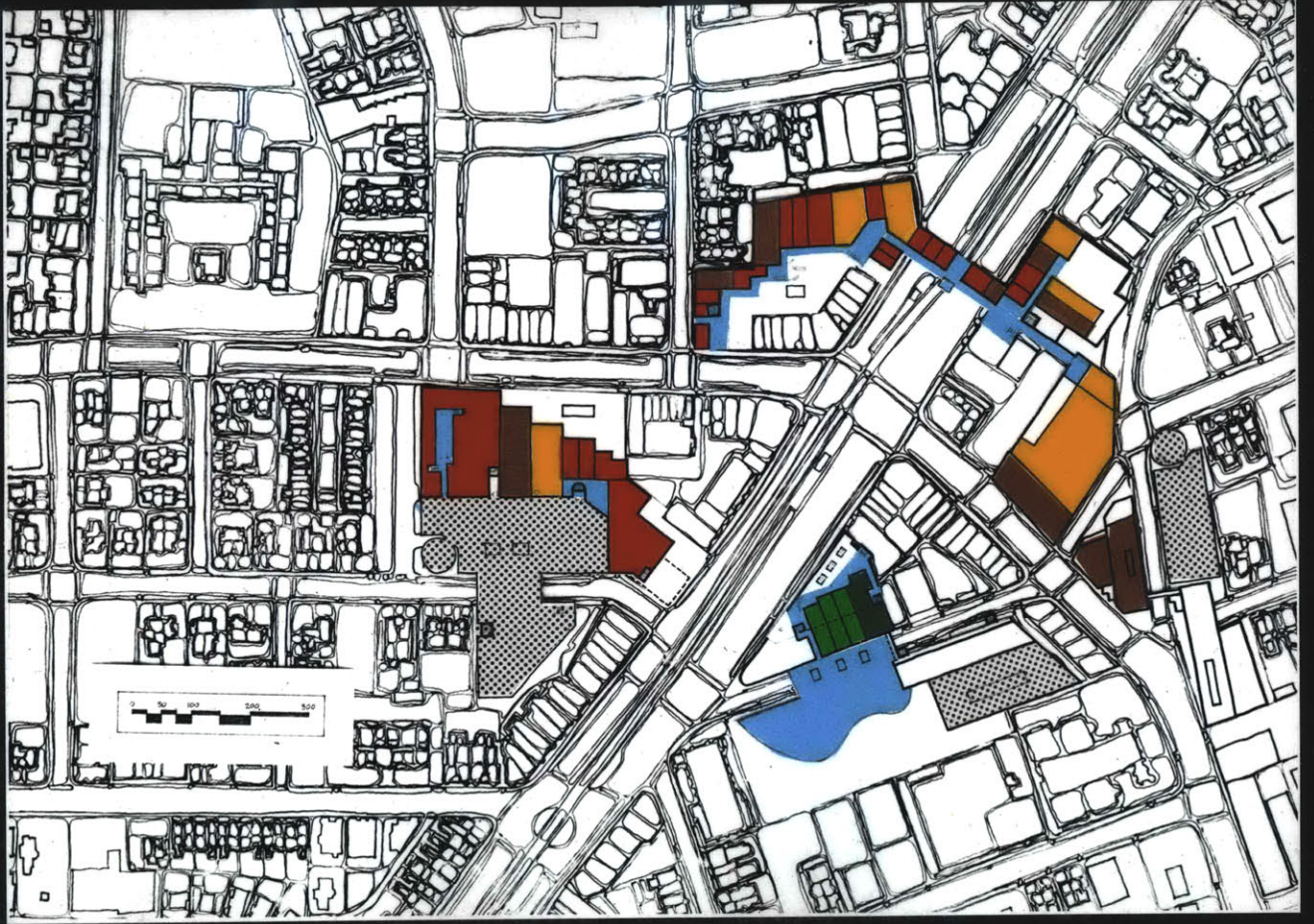
- retail
- entertainment
- residential services
- professional offices
- business
- residential
- parking
- institution



EXISTING USAGE
Coolidge Corner • Brookline, Massachusetts



SOLUTION 2 / GROUND LEVEL USAGE
Coolidge Corner • Brookline, Massachusetts



pedestrian concourse

SOLUTION 2 / SECOND LEVEL USAGE
Coolidge Corner • Brookline, Massachusetts



covered pedestrian
uncovered pedestrian
traffic

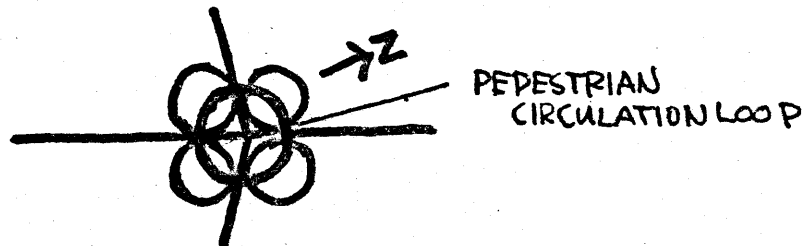


SOLUTION 2 / PROPOSED PEDESTRIAN AND TRAFFIC CIRCULATION
Coolidge Corner • Brookline, Massachusetts

EVALUATING CRITERIA

A/Pedestrian:

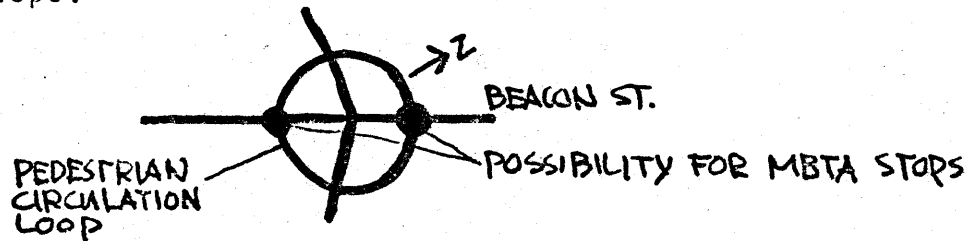
1. The pedestrian circulation loop provided for Solution I and Solution II consisting of a series of MBTA stops, covered pedestrian paths and pedestrian plazas where shopping, business and amusement activities take place.



This pedestrian circulation loop has three functions:

- a. To protect the pedestrian from the high level of friction and confusion of vehicular at the intersection.
 - b. To connect the activities of the four blocks at the corner.
 - c. To minimize the barrier of Beacon St. for pedestrian crossing by including the air-right-pedestrian way at Beacon St.
- 2: The pedestrian loop should have good microclimates for bad weather, cold and hot days.
 3. The pedestrian loop should have shelter and resting places for the public.
 4. The pedestrian loop should have concentration of shopping, business and amusement activities.

5. The pedestrian loop should provide a direct access to MBTA stops.



- a. It should minimize the degree of danger presented by the friction and confusion of the MBTA stops at the intersection of Harvard and Beacon Streets.
- b. The level changes between ground and the air-rights pedestrian way should be minimized through building section manipulation.

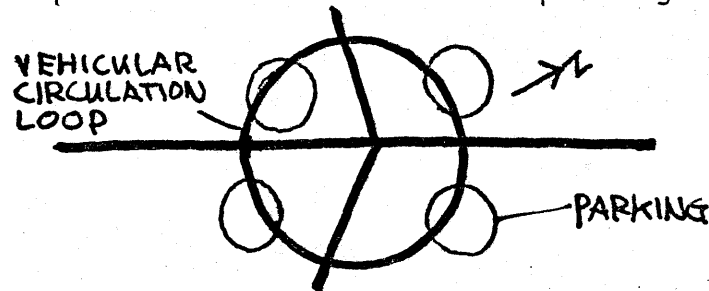
B/Location of high density building:

The solutions suggests some rejoining of the high density building.

1. The location of high density building should make a sense of enclosure and space as previously discussed.
2. Directionality of the high density building should indicate the direction of one or more possibilities of pedestrian movement.
3. The high density physical form should be designed to insure sense of entrance to the corner both from Beacon St. and Harvard St.
4. The shadows, wind patterns, etc., of the new, higher density structure should not negatively effect the microclimate of the pedestrian environment or that of existing surrounding residential structures.

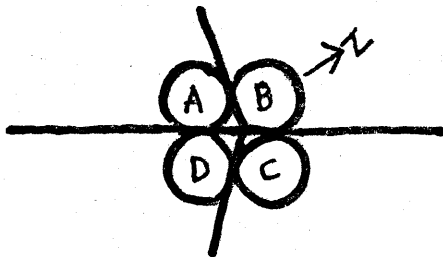
C/Vehicular movement and parking:

1. The solution should facilitate through traffic movement on Harvard and Beacon Streets and provide a vehicular circulation loop to accommodate movement between streets.
2. It should provide direct access to parking on the loop.



3. It should provide adequate parking at all stages of development.
4. It should minimize conflict of vehicular and pedestrian circulation.
5. It should develop a service network for goods distribution.

D/Criteria specific to public space at Coolidge Corner areas A, B, C, and D.



1. Area A
 - a. The solution should connect the existing shopping activities at Harvard and Beacon Streets with a sheltered pedestrian way as a continuation of existing arcade at Harvard St.

- b. It should provide a shopping plaza at Harvard St. which is easily accessible from the proposed pedestrian way .
- c. It should provide a clear entry for the pedestrian access from Center St.

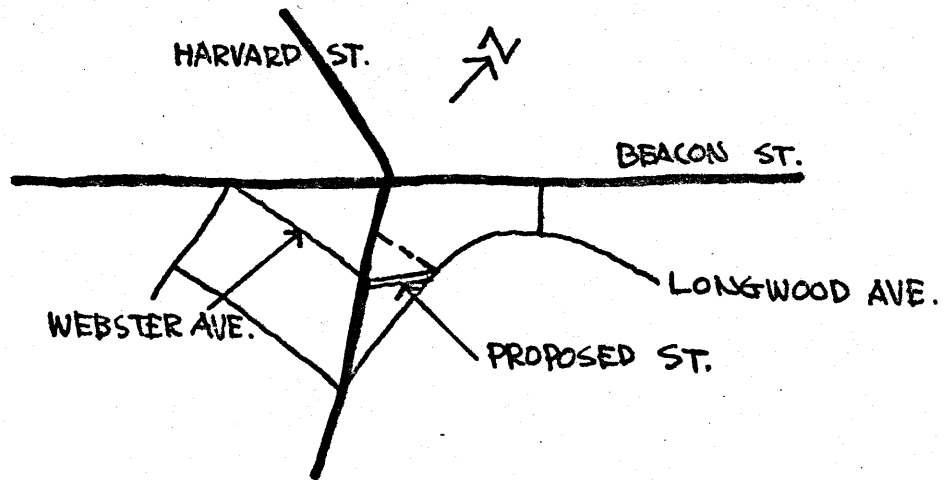
2. Area B

- a. The solution should provide a shopping and entertainment plaza in the court yard areas of the existing buildings.
- b. It should include an air-right pedestrian way to reduce the effect of Beacon St. as a barrier for pedestrian crossing.
- c. It should maximize the difference of the ground levels between harvard St. and lower Beacon St. to minimize the feeling of level change at the access to the air-right pedestrian way.
- d. It should provide a clear entry from the back residential area.
- e. It should provide a good microclimate for the shopping and entertainment plaza and the pedestrian way.

3. Area C

- a. The solution should provide a main plaza with entertainment and information activities.

- b. It should connect Webster St. to Longwood Ave. to complete the vehicular circulation loop.



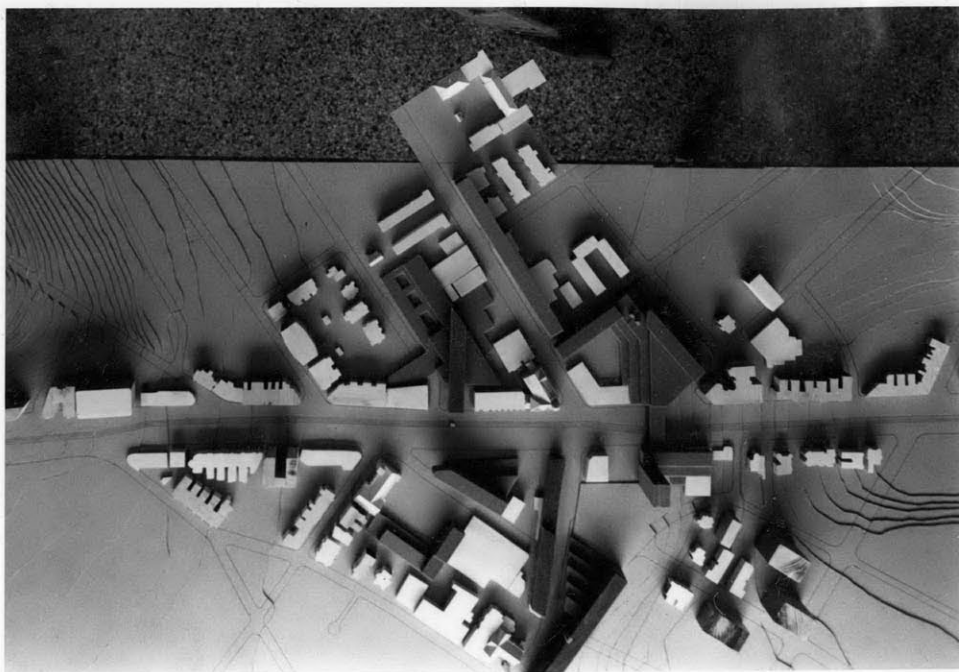
- c. It should provide a good microclimate for the main plaza and the pedestrian path.

4. Area D

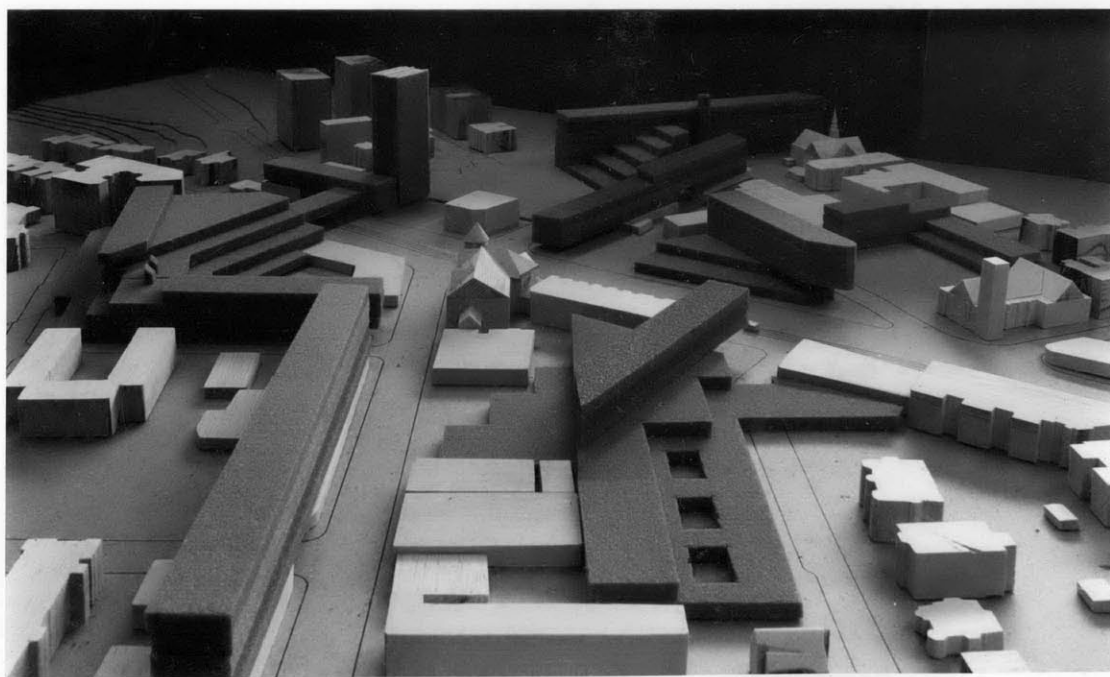
- a. The solution should provide a pedestrian path to connect the activity of area A with that of area C.
- b. It should provide a play field or park for the residential area.
- c. It should provide a good microclimate for the pedestrian path and play field.

- 18 Solution 1 • plan
- 19 Solution 1 • view from Harvard Street/west
- 20 Solution 2 • plan
- 21 Solution 2 • view from Harvard Street/west
- 22 Solution 1 • view from Harvard Street/east
- 23 Solution 2 • view from Harvard Street/east
with tower
- 24 Solution 2 • view from Harvard Street/east
without tower
- 25 Solution 1 • view from lower Beacon Street
- 26 Solution 1 • view from upper Beacon Street

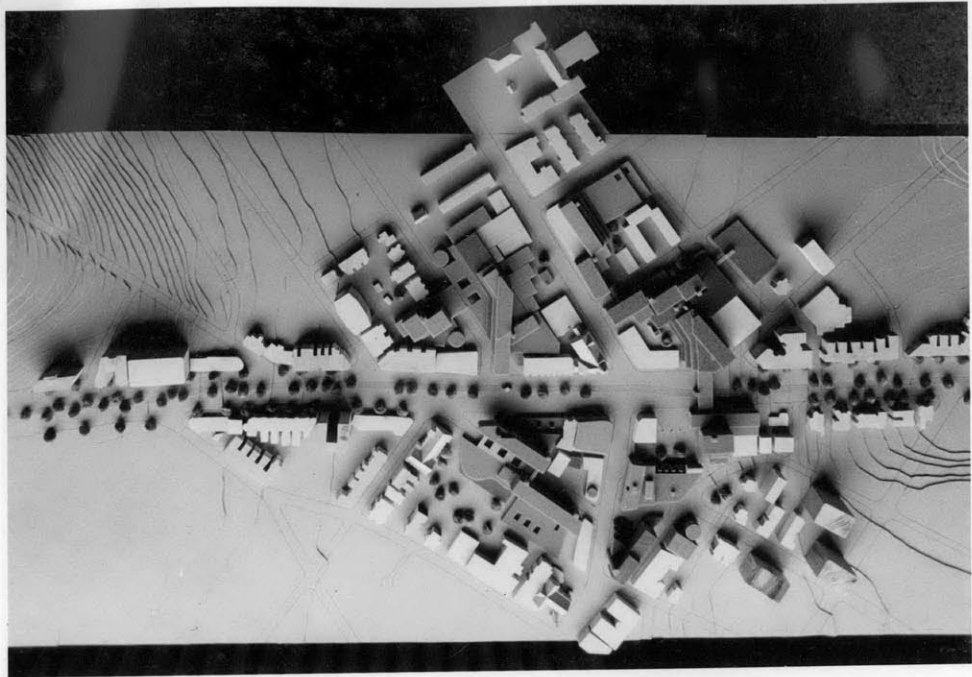
MODEL PHOTOGRAPHS



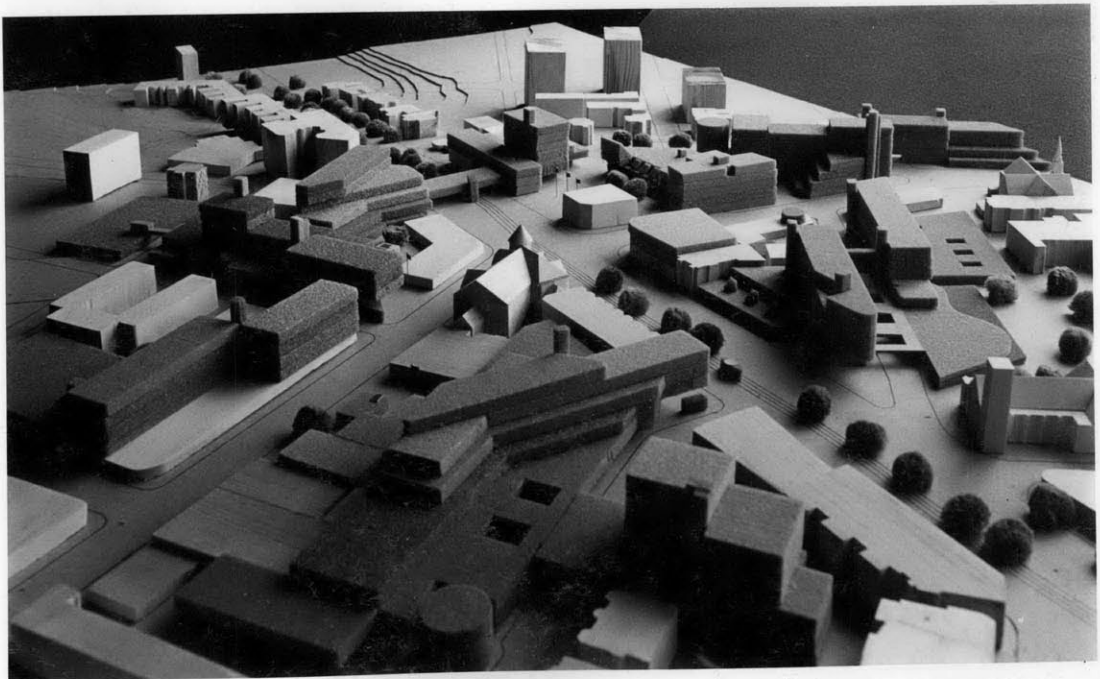
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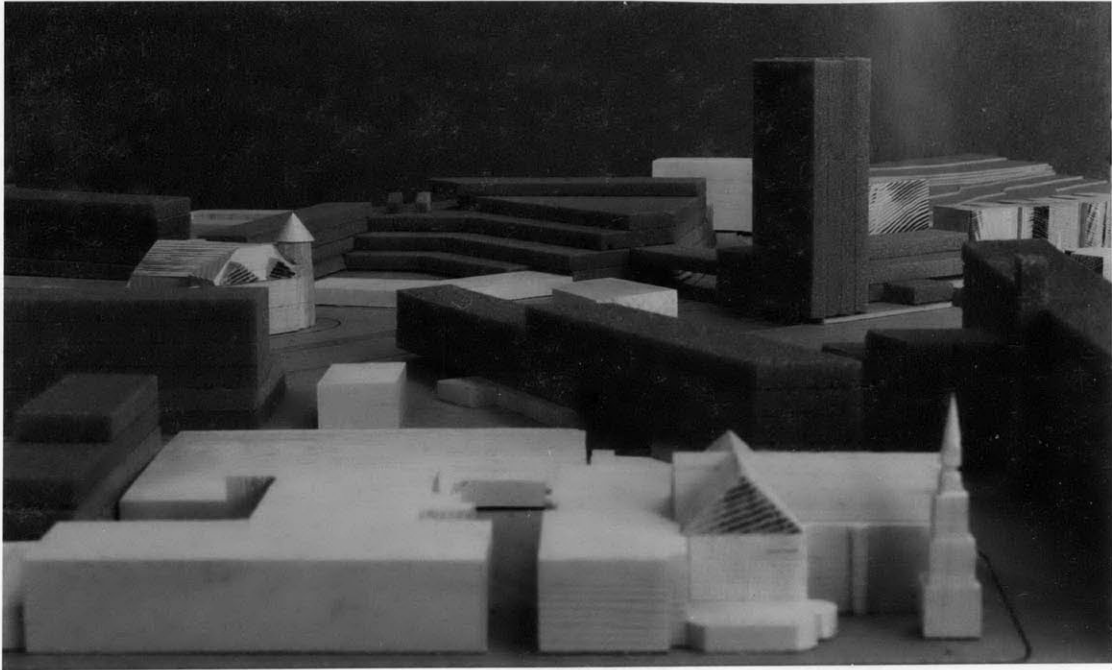
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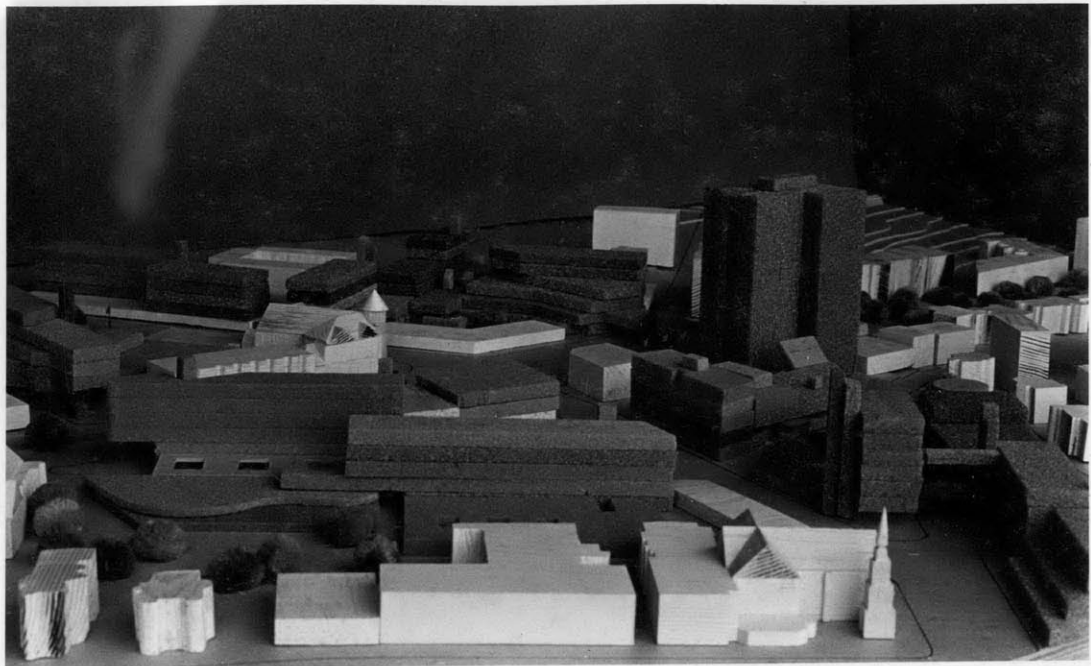


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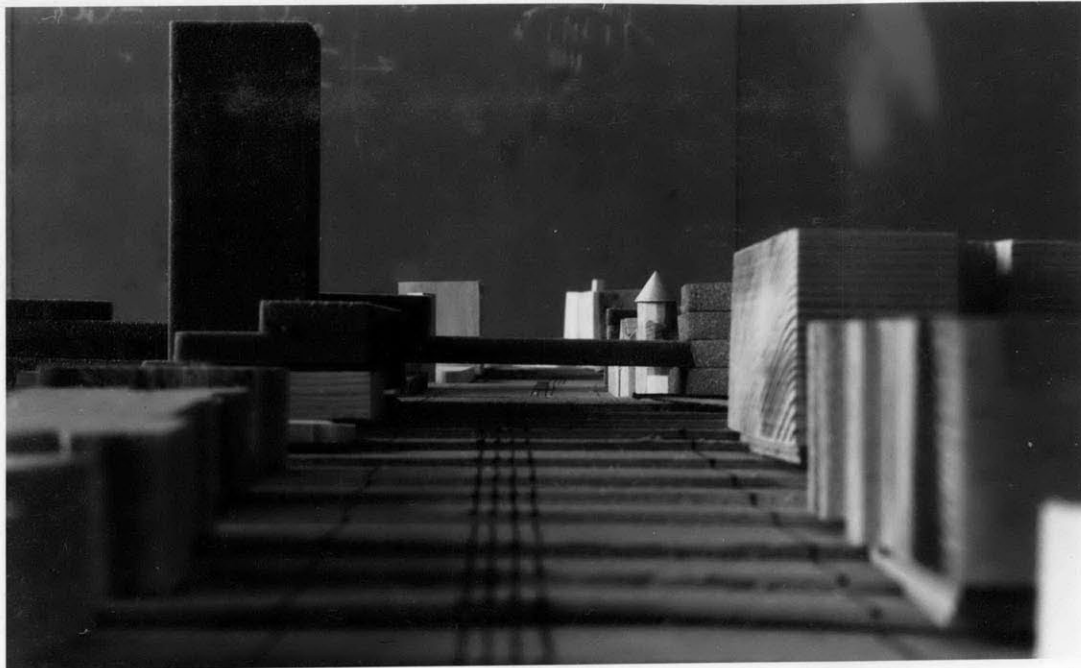




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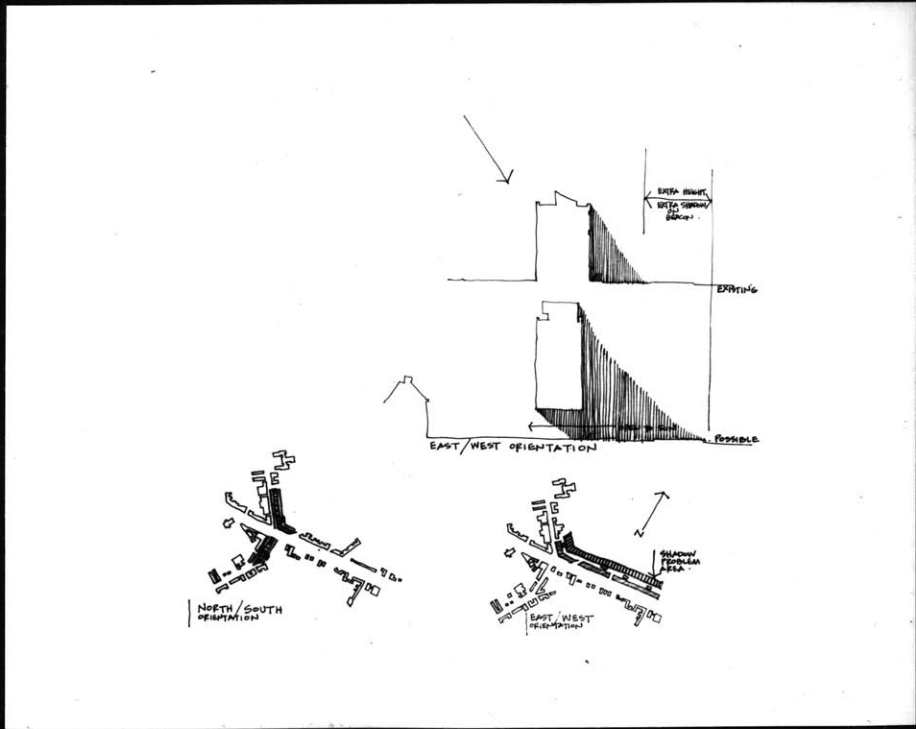
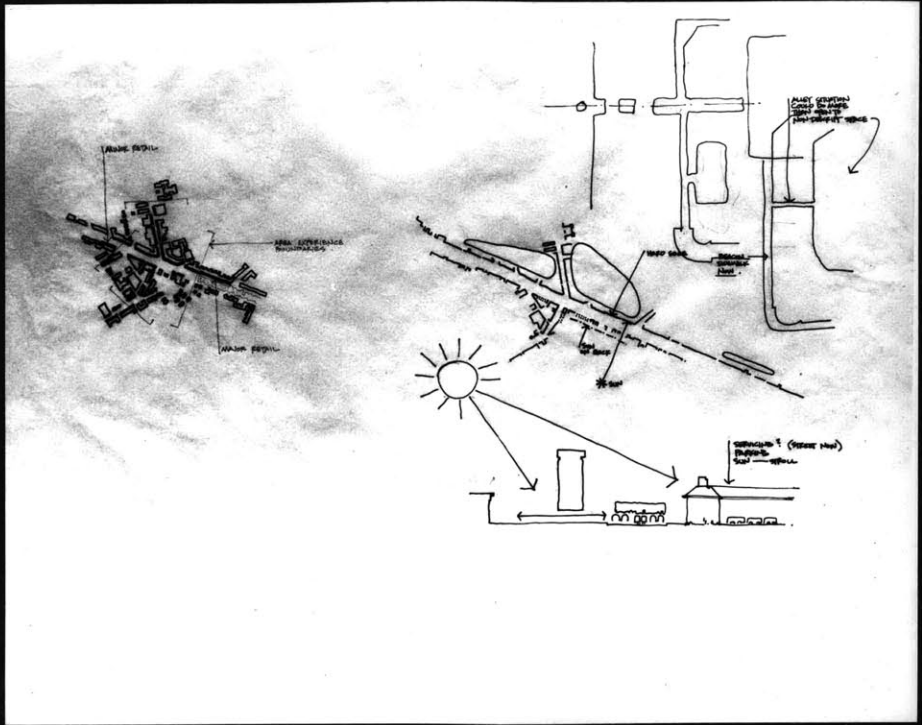


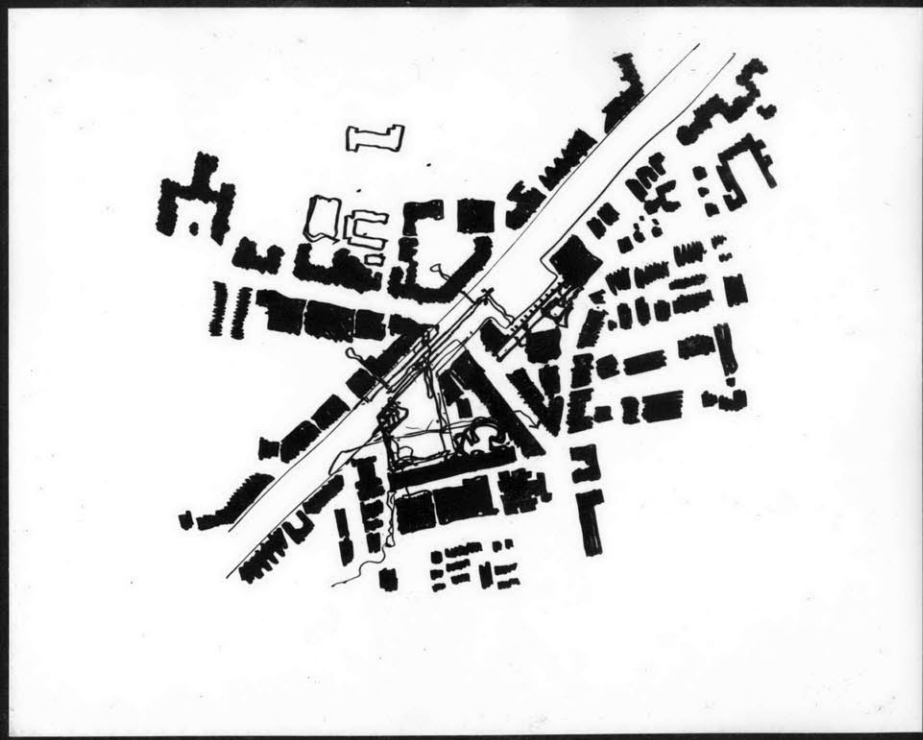
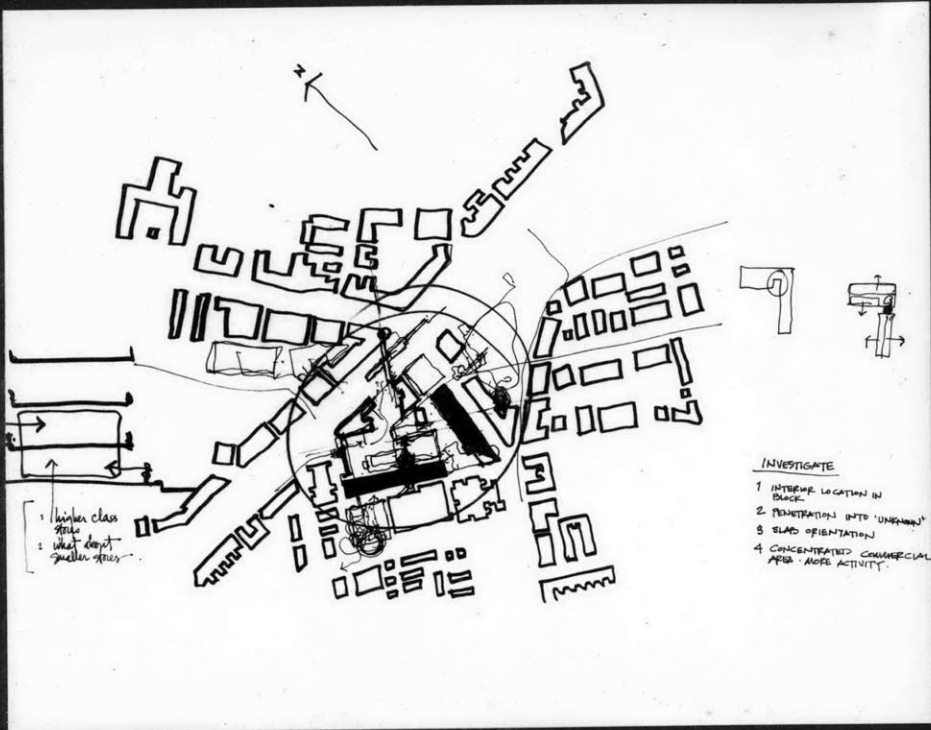
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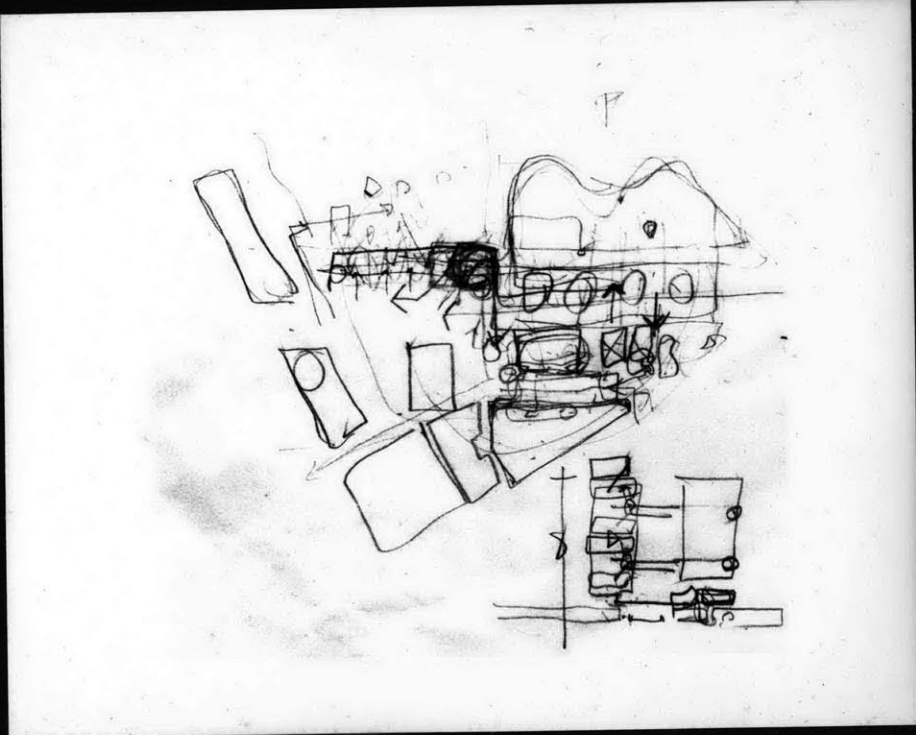
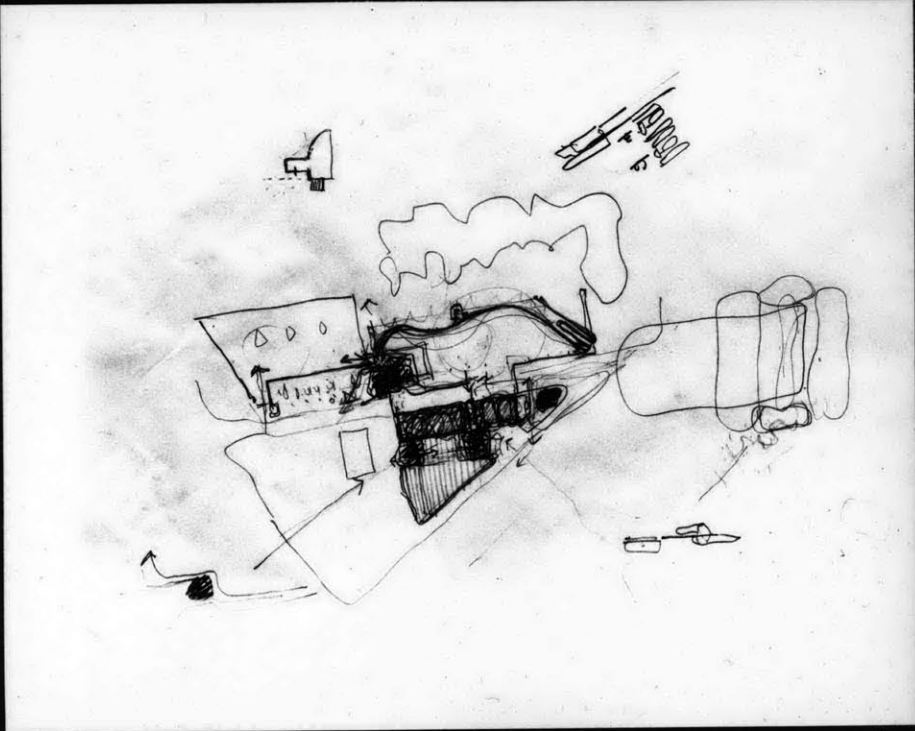


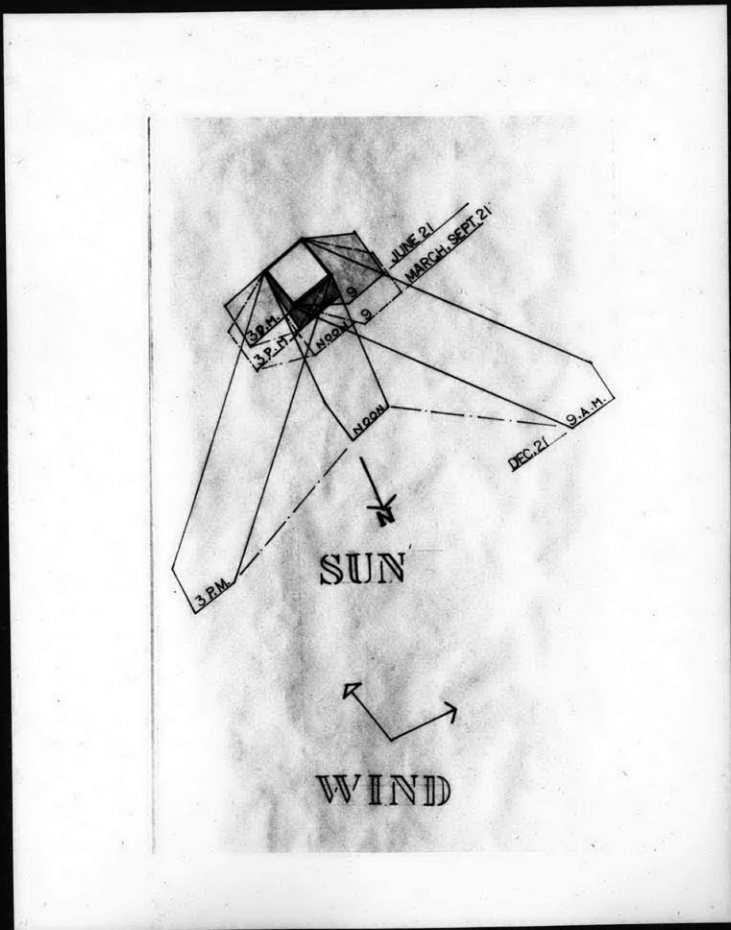
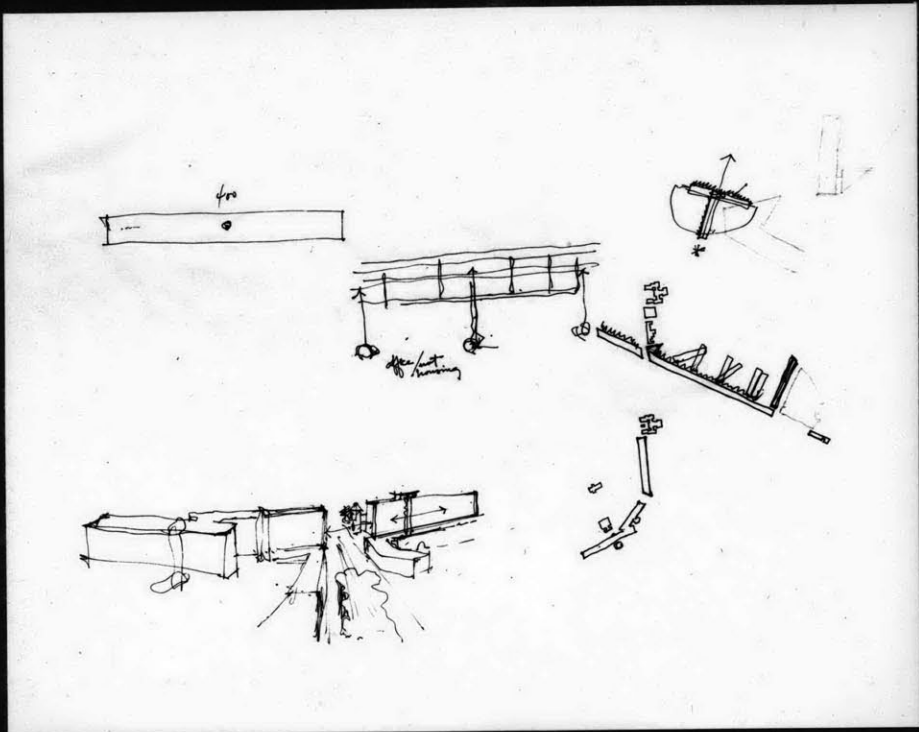
26

PROJECT SKETCHES • SITE PHOTOGRAPHS











1 2 3 4 5 6
UPPER BEACON - SOUTH SIDE



7 8 9 10 11 12
HARVARD CROSSING 7-9



13 14 15 16 17 18
OP STREET DOWN ST.



19 20 21 22 23 24
16-33 NORTHERN SIDE - BEACON ST.



28 29 30 31 32 33



34



35



36



37



38



39

CONTINUE UP BEACON - NORTH SIDE (34-40)



40



41



42



43



44



45



46



47



48



49



50



51

PARKING LOT BEHIND S.S. PIERCE (45-51)



52



53



54



55



56



57

EASTERN SIDE - HARVARD (NORTH END) (53-63)



58



59



60



61



62



63



66

67

68

HARVARD ST. EASTERN SIDE (CONTINUE FROM 62) (64-74)



69



70



71



72



73



74



75



76



77



78



79



80

HARVARD ST. WESTERN SIDE - SOUTH END (75-98)



81



82



83



84



85



86



87



88



89



90



91



92



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