DESIGN CONTROL PROGRAM BASED ON VISUAL SURVEY: CASE STUDY CHARLESTOWN COMMERCIAL SITE

by

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B. Arch., Wased University
(1964)

SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

MASTERS OF ARCHITECTURE IN ADVANCED STUDIES

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June, 1973

Signature of Author.....
Department of Architecture Environmental Design
Program May 11, 1973

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Accepted by.....
Chairman, Departmental Committee of Graduate
Students

ABSTRACT

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Submitted to the Department of Architecture on May 11, 1973 in partial fulfillment of the requirements for the Degree of Master of Architecture in Advanced Study at the Massachusetts Institute of Technology.

The objective of this study is to construct a design control program regarding the case study site and of its use, based on the result of visual survey of the whole town area and the careful study on the required functions planned on the site such as a theatre, super market, retail store, rental office space, parking space and small shops.

This program, the result of these studies mentioned above, might help physical designers to better create matched physical forms on the site with their surrounding environment in terms of a visual point of view as well as a functional and a social.

Thesis Supervisor: Tunney Lee
Title: Associate Professor of Urban Design

ACKNOWLEDGEMENT

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

Professor Tunney Lee
Thesis Supervisor

Professor William Southworth
Instructor of Thesis Preparation Seminar

Professor Julian Beinart
Instructor of Thesis Preparation Seminar

Professor Gary Hack
Instructor of Thesis Preparation Seminar

To Miss Wendy Mahon Secretary, Environmental Design Program
for assistance in my writing.

To the people of B.R.A. for the information and graphics
they offered.

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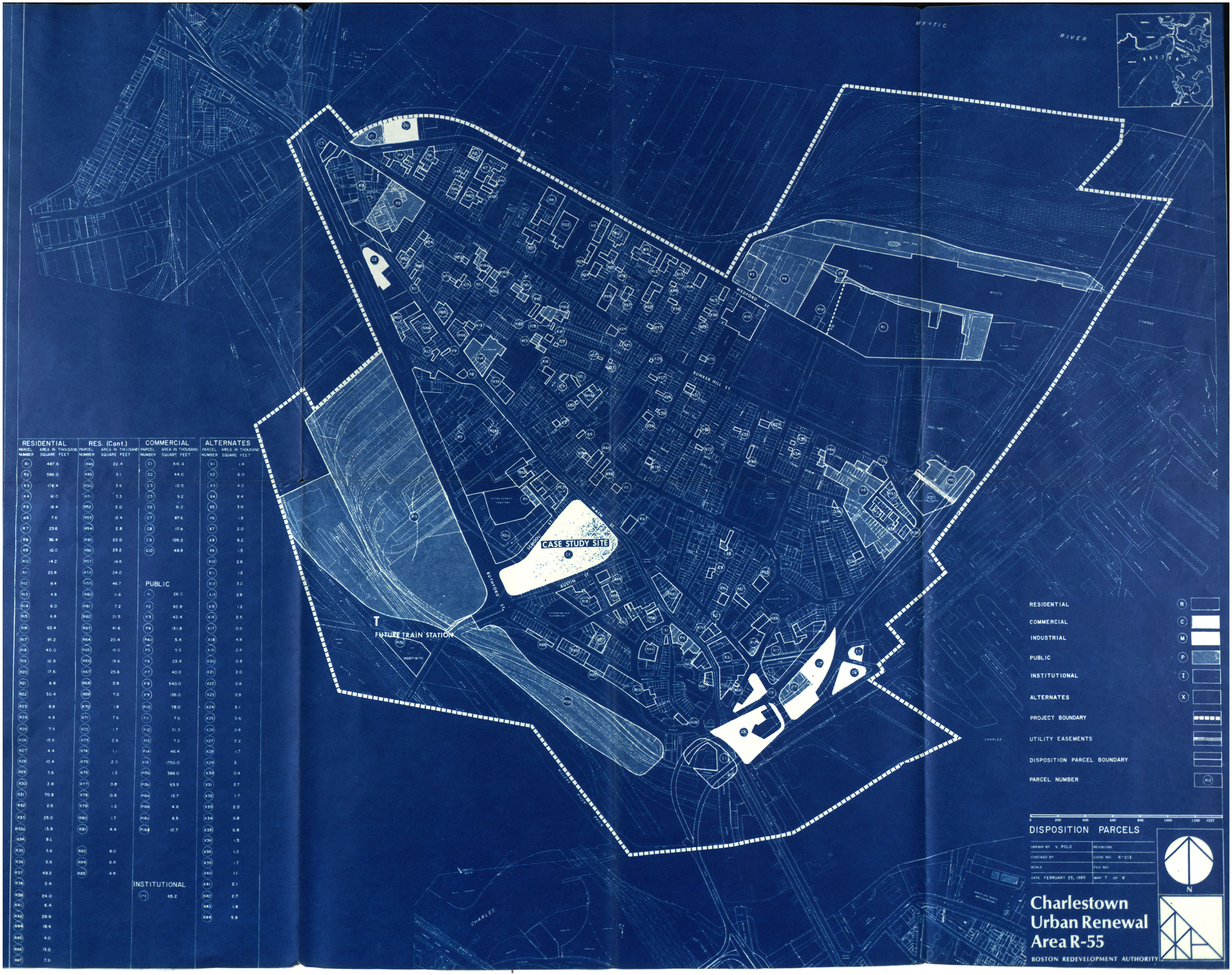

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R3	178.4	R50	3.6	C3	10.0	X3	4.0
R4	16.0	R51	3.3	C5	9.2	X4	8.4
R5	18.4	R52	2.0	C6	31.2	X5	3.0
R6	7.6	R53	12.4	C7	87.6	X6	1.6
R7	23.6	R54	2.8	C8	17.6	X7	2.0
R8	36.4	R55	22.0	C9	109.2	X8	9.2
R9	10.0	R56	29.2	C10	48.8	X9	1.5
R10	14.2	R57	19.6			X10	2.6
R11	22.8	R58	24.0			X11	1.2
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R14	6.0	R61	7.2	P2	92.8	X14	1.2
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R17	91.2	R64	20.4	P4a	5.4	X17	4.8
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R21	8.8	R68	0.8	P8	540.0	X21	0.8
R22	30.4	R69	7.0	P9	136.0	X22	0.9
R23	6.8	R70	1.8	P10	78.0	X23	5.1
R24	4.8	R71	7.6	P11	7.6	X24	0.6
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R26	15.6	R73	2.6	P13	7.2	X26	2.2
R27	4.4	R74	1.1	P14	46.4	X27	1.7
R28	10.4	R75	2.0	P15	1750.0	X28	3
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R37	49.2	R85	4.8			X39	1.1
R38	2.4			INSTITUTIONAL		X40	2.1
R39	24.0			I-1	65.2	X41	2.7
R41	6.4					X42	1.8
R42	29.6					X43	5.9
R44	18.4					X44	
R45	4.0						
R46	13.2						
R47	7.9						

DISPOSITION PARCELS

DRAWN BY V. POLO	REVISIONS
CHECKED BY	CODE NO. R-213
SCALE	FILE NO.
DATE FEBRUARY 25, 1965	MAP 7 OF 8

Charlestown Urban Renewal Area R-55

BOSTON REDEVELOPMENT AUTHORITY

RESULT OF VISUAL SURVEY.

The Result of Visual Survey.

1. In the view from Ruthford Street to the northwest, the physical character of the town is well expressed. On the hill side between Main Street and Bunker-hill Street a group of housing are filling the area with some public facilities. On the top of the hill, where Bunker-hill Street runs between Hayes Square to Sullivan Square a few visually strong characters, such as the monument and the church tower are attaching a flavour to this view. The well expressed physical town characters should be carefully preserved for the local identity when a new construction occurs. (See Photo 1,2)

2. The monument is affecting the town skyline by its height and the church by its unique tower form and green roof. These characters should be carefully accounted for when new construction occurs. (See Photo 3,4,5)

3. At the two major entrances to the town, one is Sullivan Square and the other is City Square, the sense of orientation is very vague and the complicated traffic pattern increases the confusion further. New construction should help to solve this problem as far as possible. (See photo 6,7,8,9)

4. The over-head railway on Main Street negatively affects the residents along the line. The reasons are as follows:

   a) The noise.

   b) The vibration.

c) The interruption of the public air right.

d) The visual abruptness of the columns to the surrounding physical settings.

e) The interruption of the pedestrian view to the automobiles by its columns (pedestrian danger).

f) The cause of the confusion of the transit pattern on Main Street.

If the revitalization of this area is necessary this railway should be relocated to the appropriate place.

(See photo 10)

5. The housings in this town have a strong sense of homogenity for the following reasons:

a) Similar bulk.

b) Similar height. Three to four story.

c) Similar facade pattern.

d) Similar roof form. Flat or gable.

e) Similar wall texture. Wood horizontal siding.
Wood shingle.
Red brick natural finish.

f) Similar wall colour. Brown paint on wood wall.
Reddish brown of brick wall.
(See photo 11,12)

6. The new buildings being built in or near the housing area have a tendency to maintain the sense of visual similarity to the existing old houses. (See photo 13,39, 40)

7. The great number of shops on Bunker-hill Street, the major commercial street of this town, have an appearance similar to the housing in the area. The differences in their physical forms are:

   a) The shop sign on each commercial building.

   b) Greater use of lighter or contrasting colour to that of the basic one on the wall of the ground level of the commercial buildings.

   c) The larger opening of the commercial facilities on the ground level.

   However these differences are not enough to clearly characterize this commercial area because of the similarilty of the other strong visual elements to the housing, such as the walk, the wall texture, the facade pattern and the major colour on the wall.

   In the commercial area the sense of similarity to the housing area might be discouraging the on-street activities.

   (See Photo 14, 15)

8. No entertainment facility such as a theatre, a game center or bowling center exists in this town.

   (See Photo 14,15)

9. A small open space such as a street bench with trees, relating to commercial activities, does not exist on Bunker-hill Street. The only one of that type exists on the west of Medford Street and is intensively used by the public.

   (See Photo 16)

10. The five types of open spaces existing in this town are as follows:

    a) The large sports ground.

    b) The small sports ground with asphalt paving and net wire fencing.

    c) The open space with trees and benches.

    d) The open spaces with play sculpture for infants.

    e) The type mentioned in paragraph 9.

    The types from a) to d) respond well to the public activities. Type d) is intensively used by the public but not sufficiently as it presently exists. One of the combination type of a), b) and d) exists on the north end of the town and slightly away from the housing area, which made this place abandoned during the survey periods.

    (See Photo 16,17,18,19,20)

11. On the commercial street, young and old and both male and female, were observed frequently communicating on the road or at the shop fronts (even the climate conditions were strict at the time.)

    (See Photo 21,22,23)

12. Many youths have a tendency to play on the street; even the playgrounds are vacant at that moment.

    (See Photo 24)

13. Parking areas are used as playgrounds for the youths on holidays.

    (See Photo 26)

14. The industrial plant in the north end of this town has a negative effect on the public for the following reasons:

a) The huge bulk of these plants are abrupt compared with the surrounding houses.

b) The high rise industrial buildings interrupt the view from the northside hill where the old housing exists toward the waterfront.

c) The wide parking area of the industry exposes its gray asphalt surface to the community on the north side hill. No screening by trees exists at present.

d) The extremely wide junk yard of the industry is visible from the community on the north side of Bunker-hill Street.

e) Industrial traffic runs through Bunker-hill Street, a major commercial street of this town, or Medford Street, a residential street.

Where new construction occurs the critical considerations should be taken not to arouse similar negative effects mentioned above to the community

(See Photo 25)

15. The decaying areas of this town are the north end of Medford Street and the area along the overhead rail on Main Street. The decay of these areas relates more closely to the physical settings which have negative characteristics.

(See Photo 10)

16. The open spaces which have good landscaping qualities encourage good maintenance of the surrounding buildings. A good example of this is the well maintained buildings around

Monument Square and Winthrop Square.

(See Photo 27,28)

17. The old public housing located in the east of the town between Medford Street and Bunker-hill Street are still actively used; however, there are many types of vandalism occuring, such as scribblings on the walls, stone casting at the windows and littering on the street and yard.

(See Photo 20,29)

18. These occurrences affect the commercial areas also; the location of their occurrence is where the commercial streets meet the residential,and functionally they occur on the commercial and public buildings.

(See Photo 30)

19. The view from the north hill side residential area toward the north or the south hillside toward the south are both estimable. New construction should not disturb the vista of the residents as far as possible. A special,critical consideration is necessary for the roof form which is clearly visible and affects the residents' vista from the hill sides.

(See Photo 31)

20. Different types of open spaces, visually as well as functionally, enhance each's own visual interest. An example of this is the relation of Monument Square and Winthrop Square to each other; one for youths and visitors and the other for middle to older aged residents.

(SeePhoto 27)

21. The surface type parking spaces located in the high density area with small buildings arouse a sense of discontinuity and eye sore.

On Main Street the two parking spaces, one for the new liquor shop and the other for the shoes shop, are affecting pedestrians similarly as mentioned above.

(See Photo 32)

22. A small vague space, which coincidentally occured, causes an accumulation of litter. (See Photo 33,34,35)

23. The only one outdoor space that has a textured floor in this town is John Harvard Mall near City Square; the brick paved floor clearly characterizes the space from the other pedestrian streets surrounding the mall.

(See Photo 19)

24. The non-rooted large commercial sign on the roof blocks a view from the Main Street toward the hill; on the other hand, the back of this type of sign is an eye sore to the view from the hill due to the exposure of the steel frame. Besides, the size is extravagant to that of the surrounding buildings. This type of sign should be discouraged in the compact residential town like Charlestown.

(See Photo 8, 17)

25. On Main Street and Ruthford Street the view towards the east, the north, and the west are all blocked by the elevated highways. These highways might be called a visual boundary.

(See Photo 36,37,38)

26. The new facilities under construction on the south of Ruthford Street have quite different appearances than those located near the old building area, i.e., those near the old buildings have strong visual similarity and the others have no similarity to the old physical settings.

(See Photo 31,36)

27. This town has a waterfront on the north; however, no visual sign characterizes that special geography, except a view from Monument Square. If it could somehow be done, it might help to characterize the local identity.

28. For the sequential character of Main Street, see the visual survey on colour control, texture control and building form control.

(See Photo 39)

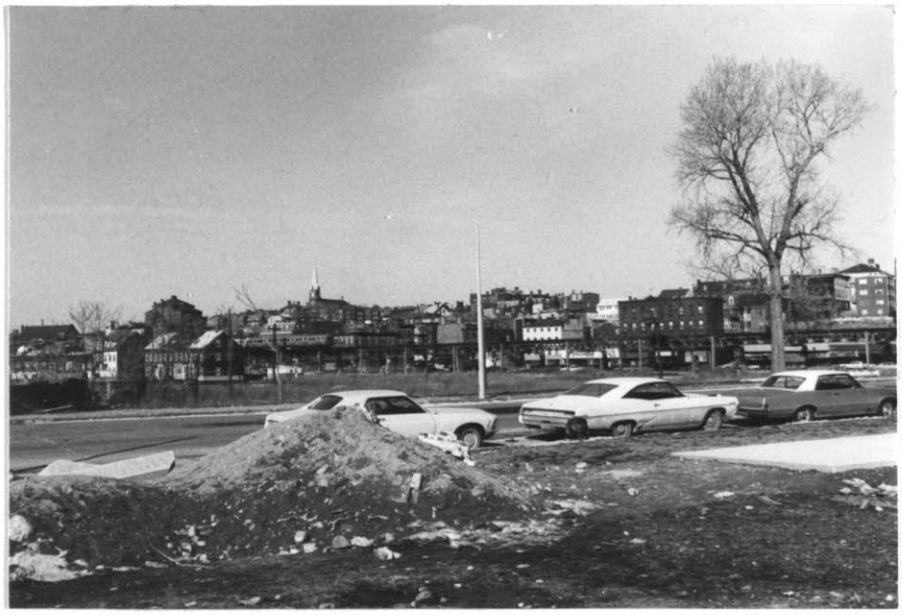
29. For the sequential character of Ruthford Street, see the visual survey on colour control, texture control and building form control.

(See Photo 40)

30. Some of the results are described in the particular section where it applies.

PHOTOGRAPHS OF TOWN.

1



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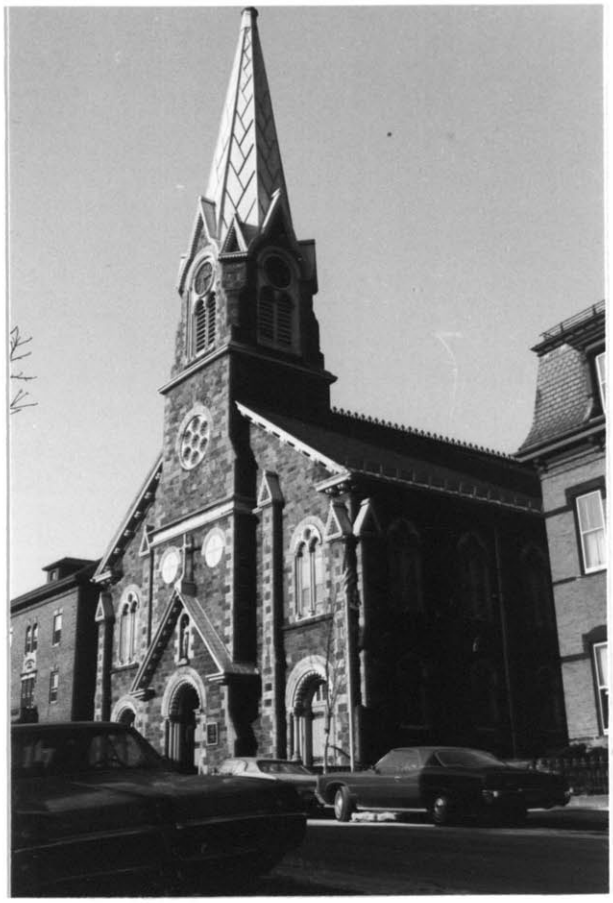

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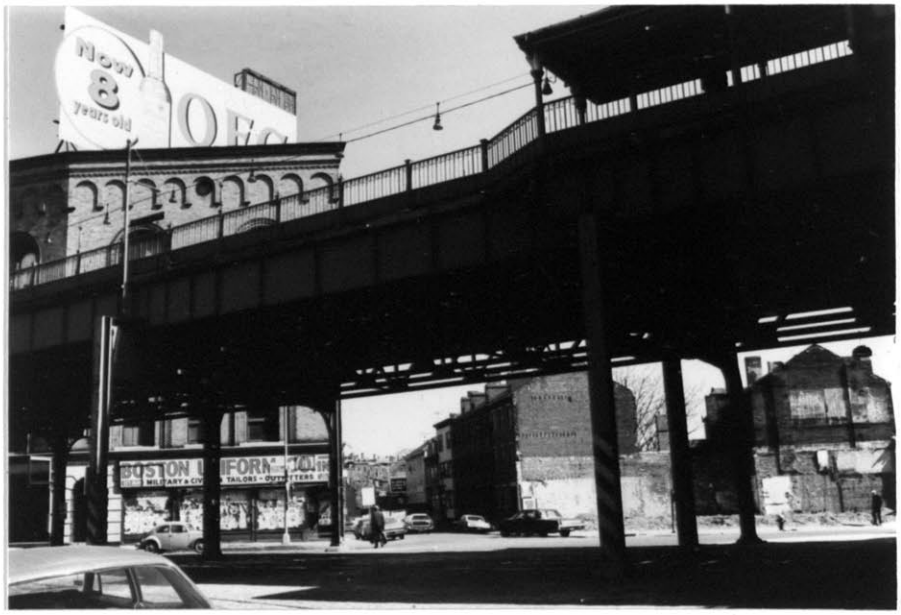

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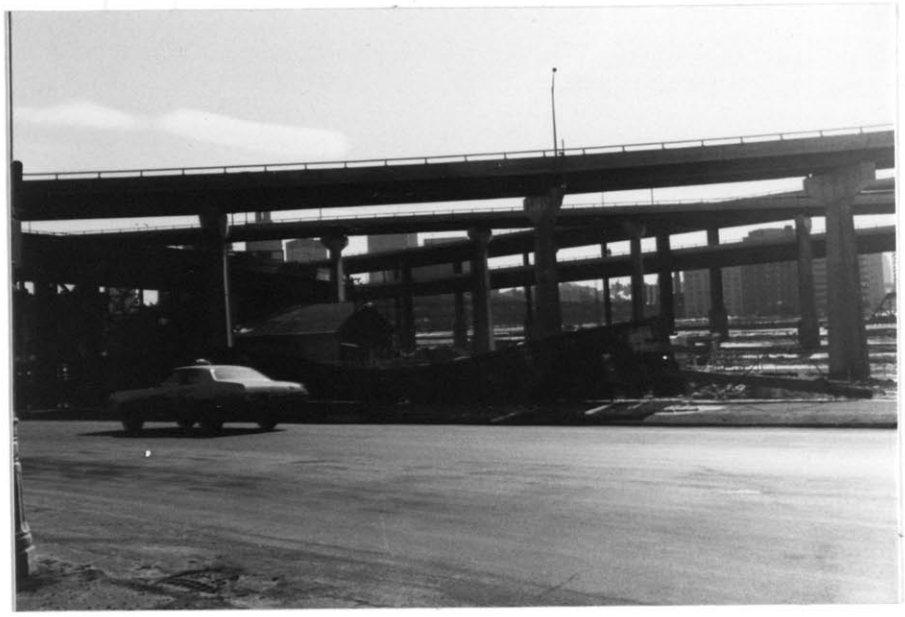


37

38

39

• CASE STUDY SITE

MAIN ST.

• CITY SQ.

40

• SULLIVAN SQ.

MAIN ST.

• CASE STUDY SITE

GENERAL POLICY.

General Policy

1. This center should provide not only a place of intensive commercial activity but a place of informal communication and entertainment for the public.

   a) This town lacks spaces in commercial areas where people have more opportunity to start a coincidental communication than in other areas.
   b) Only one such small space exists in front of the new public housing on east of Medford St. The space is always used intensively by the people from adjacent areas.
   c) A sense of crowdedness, aroused by both commercial activity and informal communicative and entertaining activity helps each other and stimulates each other.

2. This center would have a character of town gate as well as a character of social core as described in the paragraph 1. According to that point of view, an identity and visibility of physical characters on this site should be emphasized to make the public clearly understand the location, the function and the internal activity of this center.

   a) This center would have direct accesses from new public transportation systems. (Train and bus.)
   b) Ruthford Street is a major automobile access to this town from adjacent areas.
   c) This center would be located in the middle of the town, so the people in the housing area could reach this center in a maximum of a twelve minutes walk.

d) Two other entrances, City Square and Sullivan Square, have no enchanting characteristics nor clear indications for orientation.

3. The physical form of this center should help to minimize the weakness of the existing townscape and to maximize the strength, as well as to enhance the characteristics described in paragraphs 1 and 2.

a) A sense of homogeneity of physical settings is very strong in this town and in the housing area it might be encouraged, however in the commercial area that kind of character is a negative factor at present.

b) In terms of visual sequential point of view, the character of homogeneity arouses a sense of monotony. This monotony should be broken to apply a visual rhythm.

c) The space, form and material of this center should correspond well to minimize the minor public violences, such as casting a stone to windows and littering streets and yards.

4. Minimize visual and traffic abruptness if it occurs. Maximize public micro climate in and near the site as far as possible.

BASIC STUDY OF FUNCTION.

The Basic Study of the Function.

The following information regarding land use and feasible floor area is taken from the result of the feasibility study done by experts hired by the Boston Redevelopment Authority.

Use	Building floor area
Retail store.	50,000 square feet
Rental office space.	45,000 square feet
Small shops.	32,000 square feet
Food market.	23,500 square feet
Theatre.	8,000 square feet
TOTAL LAND AREA	272,000 square feet

Location and Relation of the Two Major Characters.

1. In this project the major characters to generate shopper activities are:
   a) The retail store.
   b) The supermarket.
2. The two major facilities should be located separately to maximize a distance of pedestrian (shopper) flow between them. (Later use the pedestrian flow for the small shops.)
3. However the distance of the two major facilities should not exceed 600 feet.
4. A visibility from the major roads to the facilities should be maximized, i.e., the facilities should be located near the major roads.

5. The supermarket calls for more automobile traffic than the retail store, in terms of the shoppers and service needs.

   a) The supermarket should be located near the major automobile traffic street, i.e., Ruthford Street.

   b) The retail store should be located near the major pedestrian street, i.e., Main Street. (See graph 1.)

Location of the Theatre and the Rental Office Building.

1. The theatre and the office building should be located in such a way to help increase the visibility and identity of the center, i.e., located near the major roads.

2. The theatre by its unique building form and the office building by its bulk could help to increase the identity and visibility of the center.

3. The bulky form of the office building might be appropriate for automobile drivers to identify, i.e., located near Ruthford Street. The unique but small form of the theatre might be appropriate for pedestrians to identify, i.e., located near Main Street.

4. Each facility should be located in such a way as not to interrupt the other's visibility and identity from the major streets. (See graph 2.)

Location of the Small Shops.

1. The small shops should be located along the pedestrian flow which is generated by the separation of the two major facilities.

2. The small shops should be located on both sides of the pedestrian flow to generate more shopper activity, which is more efficient than on one side for this purpose.

3. This pedestrian access should connect each different facility in the site well.

4. The activities in the small shops area should be well enclosed so as not to disturb the surrounding community if any exists, by noises, smells and eye stimuli. (See graph 3.)

Pedestrian and Automobile Access.

1. The accesses of pedestrians and automobiles should not disturb each other, i.e., minimize the cross points of these two.

2. The automobile accesses as well as pedestrian should not be concentrated in one place which might cause traffic congestion, i.e., should be divided appropriately.

3. The major pedestrian accesses from the outside of the site are as follows:

   a) From the surrounding community on the north of the site, pedestrians might come along Main Street to the site. For that reason one major pedestrian entrance is necessary on Main Street to the site.

b) From the community on the east and west side of the site pedestrians might come along Ruthford Street. Another major entrance is necessary on Ruthford Street to the site.

c) From the new train station pedestrians might come through the over-bridge, the location where the bridge meets the site is the same as that of b),co-use this entrance with b) and c). (See graph 4.)

4. The major automobile accesses from the outside of the site are as follows:

a) From the east of Ruthford Street drivers could take a right turn to Austin Street or to School Street. On School Street automobile entrances to the site should be provided as well as on Austin Street.

b) From the west of Ruthford Street drivers have to take a left turn to Austin Street. Provide automobile entrances on Austin Street to the site.

5. The service entrances should be located on the same streets mentioned above; however, they should be separate from the shoppers' entrances and well screened from the public view. (See graph 4.)

Location of the Parking Area.

1. The parking area should be located in a balanced way to each automobile entrance and exit.

2. The parking area should be located for easy access of shoppers who have come by automobile to each facility.

3. The parking area should be divided in to small units to minimize being an eye-sour to the public.

4. The parking area should be screened from the public view on the outside of the site.

5. Parking area need is decided as follows:

   a) For the theatre particular parking area is not necessary due to the peak time difference between the theatre and the other facilities, i.e., the theatre could use the parking of the other facilities.

   b) For the rental office building parking is not necessary since the total floor area of the office building does not exceed more than 20% of all the facilities.

   c) Approximately 10% of the total floor area of all the facilities is used for service purposes, such as a corridor or storage; for these parking is not necessary.

d) This center could be determined as an in-town commercial center by the following reasons:

i) Closer relation to the train station. Walking time to the site from the station is 6 minutes.

ii) The location of this facility would be approximately at the center of the surrounding community. Walking time from the community to the center would be a maximum of 12 minutes.

Generally an in-town center needs 1500 square feet of parking area for each 1000 square feet of building floor area.

e) The computation of parking area need.

A. The total building floor area.

50,000 + 45,000 + 32,000 + 23,000 + 8,000 = 158,000 s.f.

B. Subtract a), b) and c) from A.

158,500 - (8,000 + 31,700 + 15,850) = 102,950 s.f.

C. Multiply 1.5 to B. This is the parking area for this center.

102,950 x 1.5 = 152,425 s.f.

Approximately 150,000 s.f. of parking area is required.

(See graph 5.)

MAIN ST.

THOMPSON SQ.

RETAIL STORE

SCHOOL ST.

SHOPPERS FLOW

AUSTIN ST.

SUPER MARKET

RUTHFORD ST.

N

GRAPH - 1

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

SCHOOL ST.

AUSTIN ST.

SUPER MARKET

RENTAL OFFICE

RUTHFORD ST.

N

GRAPH - 2

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

SCHOOL ST.

SMALL SHOPS

SHOPPERS FLOW

SMALL SHOPS

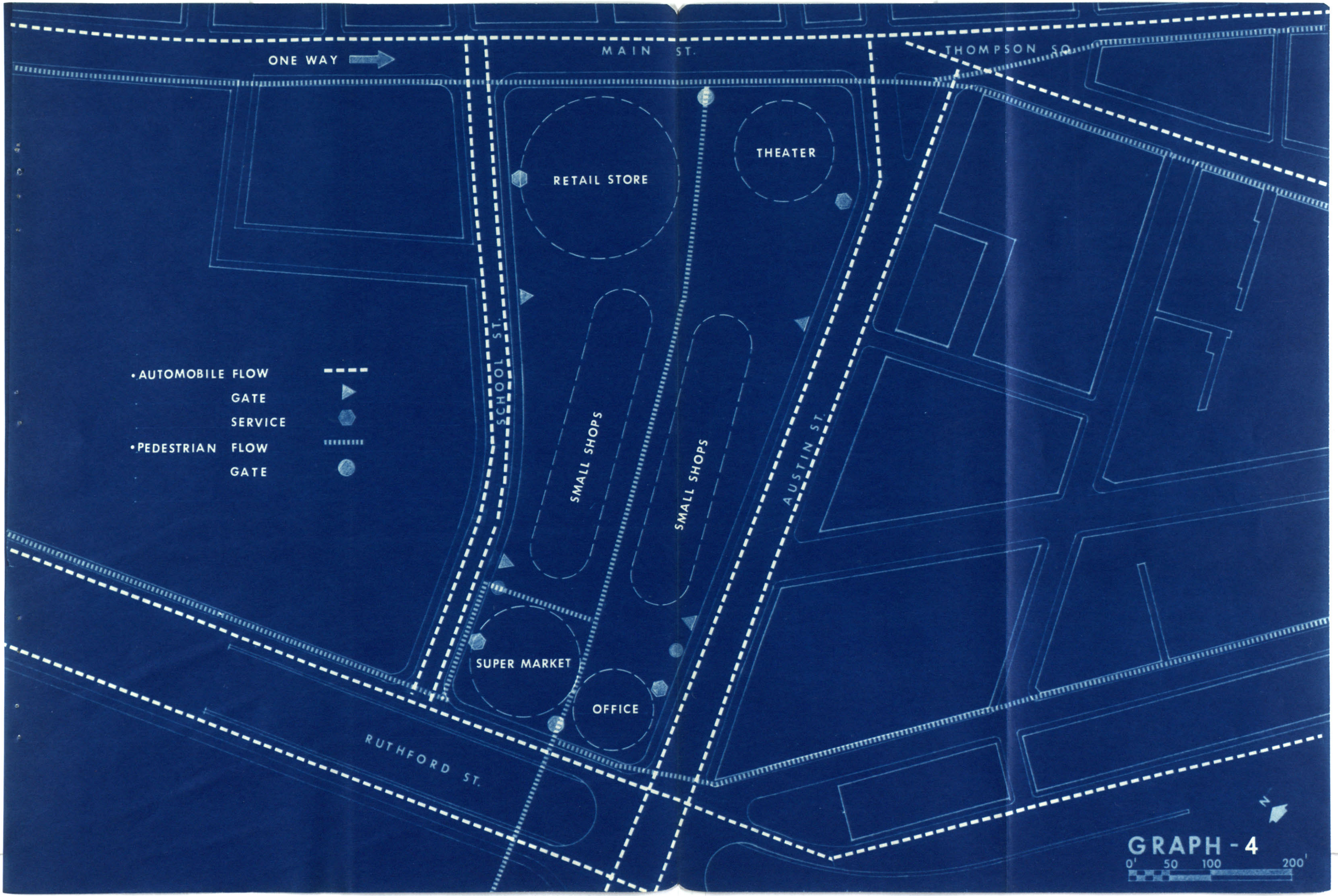
AUSTIN ST.

RUTHFORD ST.

N

GRAPH - 3

0 50 100 200


ONE WAY
MAIN ST.
THOMPSON SQ.
RETAIL STORE
THEATER
SCHOOL ST.
SMALL SHOPS
SMALL SHOPS
AUSTIN ST.
SUPER MARKET
OFFICE
RUTHFORD ST.
• AUTOMOBILE FLOW
GATE
SERVICE
• PEDESTRIAN FLOW
GATE
N
GRAPH - 4
0' 50 100 200'

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

SCHOOL ST.

PARKING AREA
150,000 S.F.

• SMALL SHOPS ABOVE

AUSTIN ST.

SUPER MARKET

OFFICE

RUTHFORD ST.

N

GRAPH - 5

0 50 100 200

DESIGN CONTROL PROGRAM.

Urban Space Control.

Problem.

The concentration of the major pedestrian accesses might occur on the north gate of the mall. This occurrence would arouse a pedestrian congestion on that spot. This congestion should be solved.

The access concentrated on the northgate of the mall:

a) Main Street, a major pedestrian access from the north, the east and the west to the site.
b) The new pedestrian over-bridge from the subway station.
c) Pedestrians from the theatre and the retail store.
d) Pedestrians from the bus and taxi stations.

Control 1.

Provide an open area on that place according to the expected intensity of the pedestrian flow. The building facade lines should respond well to minimize the congestion. (See graph 6,7)

Problem.

The concentration of minor pedestrian accesses might occur on the south gate of the mall. This occurrence should cause a pedestrian congestion also. This congestion should be solved.

The access concentrated on the south gate of the mall.

a) Ruthford Street, from the east and the west.
b) Pedestrians from the public facilities on the south side of Ruthford Street through the over-bridge.

(pedestrian congestion cont.)

c) Pedestrians from the new train station through the over-bridge.

d) Pedestrians from the bus and taxi station.

Control 2.

Provide an open area on the place of the congestion. For this purpose use the ground level of the office building for the public open area. (See graph 6,7)

Problem.

On Main Street the visibility of the theatre by pedestrians is important because of its unique character. However from the west of Main Street, the theatre might be scarcely visible because of its small bulk. This visibility should be increased.

Control 3.

The north side edge of the theatre should be projected toward the north from that of the retail store which increases the visibility from the west of Main Street. (See graph 6,7)

Problem.

On Ruthford Street from the east toward the north, the visibility of the supermarket might be poor. Maximize that visibility for the automobile drivers from the east.

Control 4.

The use of the ground level of the office building to the public open area maximizes the visibility of the drivers to the super market. (See graph 6,7)

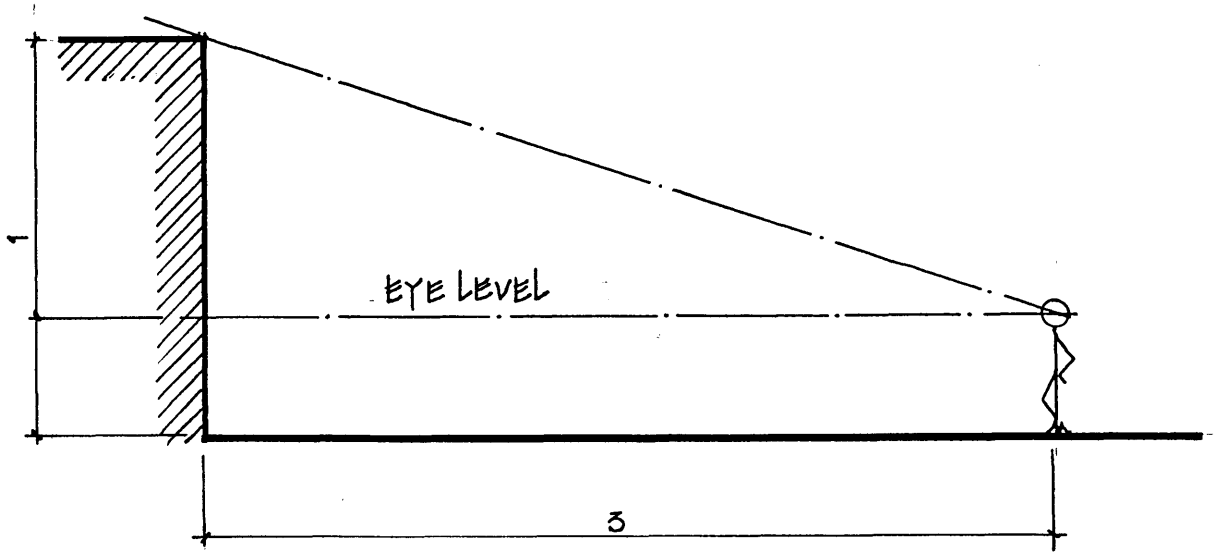
Problem.

On Main Street where intensive pedestrian activities are expected, provide a sense of enclosure to enhance the activities further.

Control 5.

According to the vertical view angle of the human eye, the sense of enclosure is aroused if the ratio of the wall height to the distance of the viewer is 1 to 3.

The average street width in that area is 100 ft. According to the theory mentioned above, building height should be a minimum of 25 ft. in that area.



Small Open Space Control.

Problem.

After shopping or during shopping, people need a place for rest; this is especially important for the elderly.

Control 1.

The place for rest should be located along the major pedestrian access in and near the center. This type need not be too large. Arrange each 5 to 6 seater bench along the pedestrian access.

(See graph 8)

Problem.

In this town, the public outdoor space related to commercial activity is quite rare; only one of that type exists on the east of Medford Street and is intensively used.

Control 2.

Provide that type of space in this center. It might be more useful to relate to the small shops rather than to the supermarket or the retail store, since the purpose of this space is for informal communication and eating. (See graph 8)

Problem.

People who use the bus or taxi need a place to wait for these vehicles.

(Open Space Continued.)

Control 3.

Provide one or two 6-seater benches according to the need of the users; use of public transportation is important for this center. This space should be well related to the major pedestrian access to the center and that of the major street too.

(See graph 8)

Problem.

After or before shopping, people need a meeting place, especially those who carry many goods.

Control 4.

Provide benches near the entrance of the supermarket and the retail shop.

(See graph 8)

Building Form Control.

Basic Information.

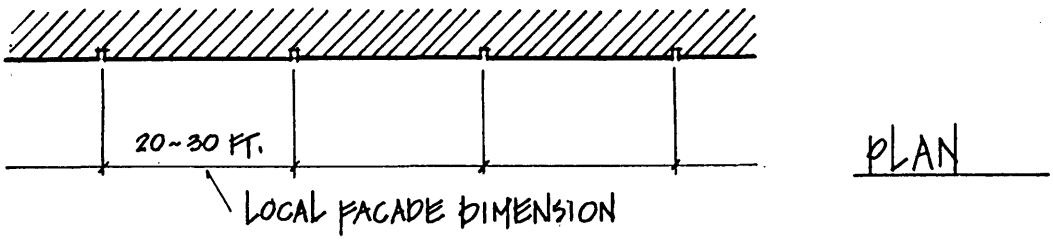
1. Judging from the result of functional study,on Main Street the facade of the retail store might be extremely wider than that of existing small shops.
2. On Austin Street the side wall of the theatre and the back wall of the new small shops on the mall are both going to be extremely wider than that of the existing old houses on the opposite side of this street.
3. On Austin Street the wall of the rental office building is going to be extemely higher than that of the existing buildings.
4. In the view from the hill toward the south to the site, the grain of the new facilities might be extremely greater than that of the surrounding buildings.

Conclusion of the visual survey.

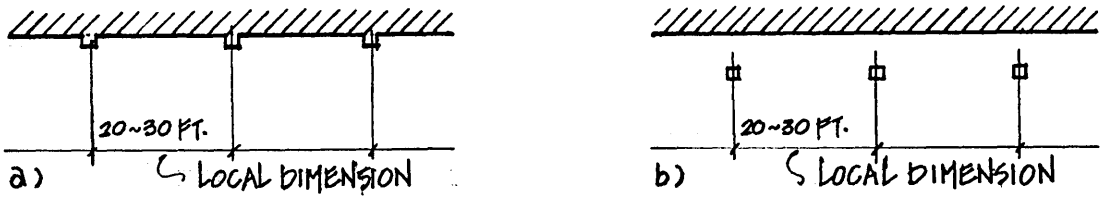
The abruptness mentioned above should be solved by appropriate means.

The Solutions. (Control Program.)

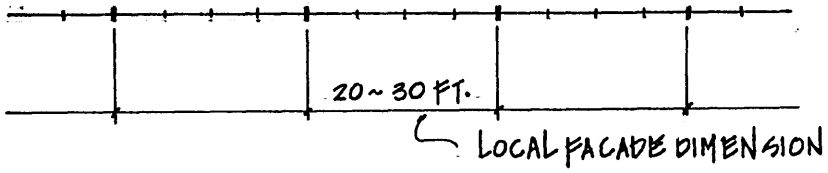
1. If the wall is extremely wide, emphasize each vertical groove line according to the local facade dimension. This solution is appropriate where the exposure of the column is not suitable functionally or environmentally.



2. Emphasize the column line according to the local facade dimension. This solution is appropriate if the size of the column is not too large.



3. If the facade is glass, emphasize the major mullions according to the local facade dimension.
This solution is for the wide glass facade.

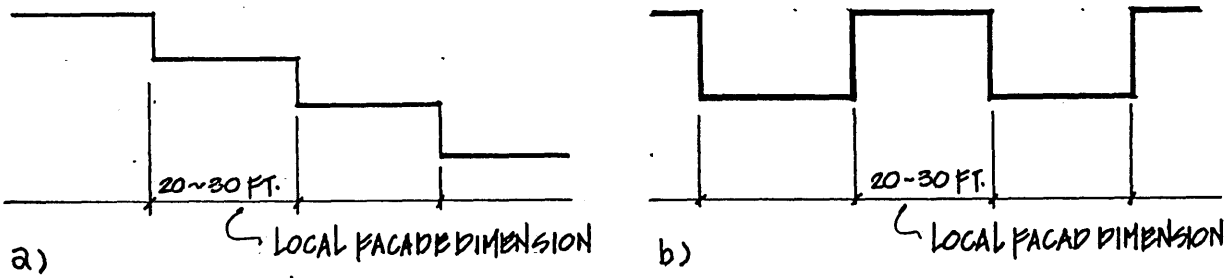


4. If the wall, either glass or not, is too wide, apply the break down method according to the local facade dimension.

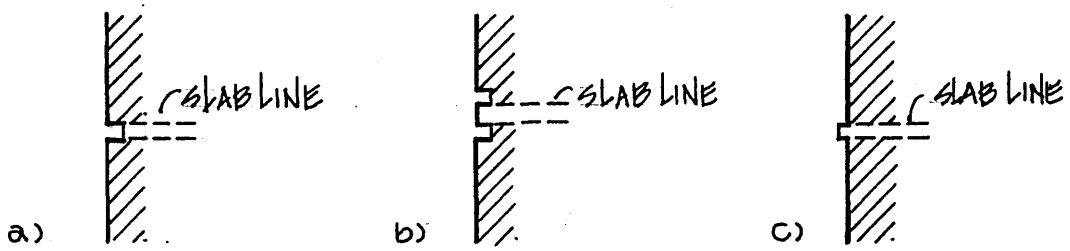
   a) This solution is the most visually efficient compared with others.

   b) This form has a maintenance difficulty. The accumulation of litter is intense on each recessed corner. (Visual survey)

   c) This form is difficult for the efficient use of space, if it is critical.

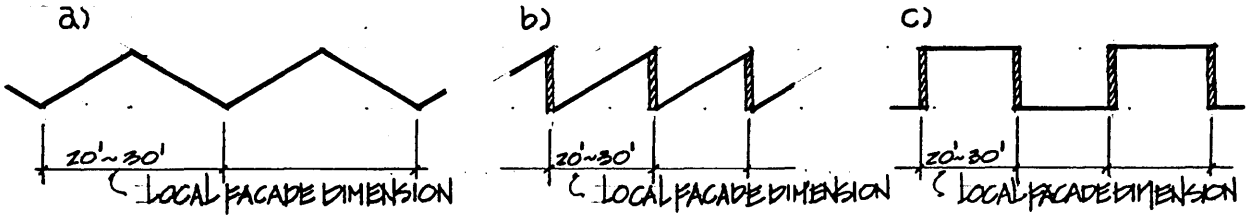


5. If the wall is too high compared with that of the existing buildings, emphasize horizontal important characters, such as floor line or beam line.



6. If the wall is too high, apply the local detail proportions from minor to major on the wall. The local detail refers to the typical window proportions of surrounding buildings or that of a traditional important building near the site.

7. If the roof is too large, apply a local roof pattern for break down to match the local grain. This relates to the structural solution too.



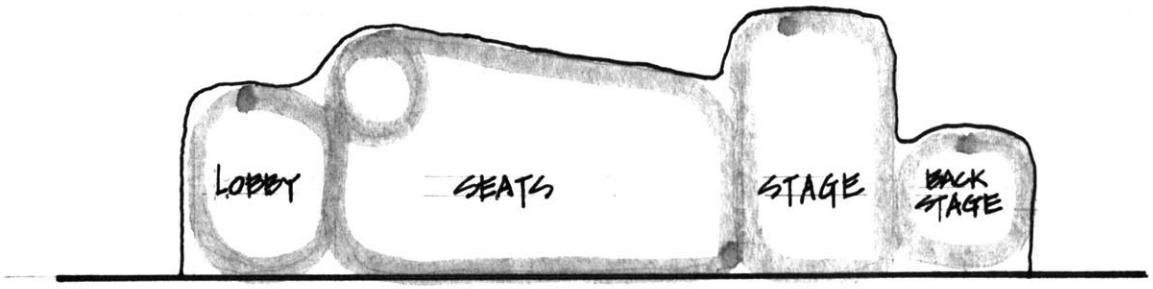
8. Utilize the functional solutions, such as a sky light or vent dome, to increase a sense of detail on a roof. This solution relates to visibility of activities through the roof opening.

9. An exposure of mechanical equipment should be minimized on roofs. Minimumly exposed equipment should be well arranged.

10. The office building should not block the view to the hill side from the new train station and Ruthford Street. For this purpose the facade on Ruthford Street should be minimized as much as feasible.

11. The office building should express the directionality of the access well from the new train station to the community.

12. The theater should express well its internal space relations to the outside which might help the form break down to match the local grain visually and express the identity well.



For locations of the use of each program, see the number on the graph.

(See graph 9)

Opening - Location and Direction - Control.

Problem.

The opening should be located where the visibility of the inside activity enhances the outside activity, or vice versa.

Control 1.

The most intensive pedestrian activities might occur on Main Street. For the retail store the maximum opening on this side would enhance the sense of activity both on the street and in the shop.

For the theatre exposure of the main lobby activities to the major pedestrian access is appropriate; for that purpose the main lobby of the theatre should be located on this side.

The other streets have no intense pedestrian activities, because of their street characters.

(See graph 10)

Problem.

The opening should be located where the visibility of inside activities enhances the other inside activities.

Control 2.

For this purpose, one opening could be from the retail store to the supermarket and the other between the small shops in the mall.

Problem.

The opening should be located where small exposure of the activities minimizes the monotony of the street.

(See graph 10)

(Opening Continued.)

Control 3.

Near the residential facilities, large exposure of commercial activities is discouraged. However a continuity of blind wide walls would arouse a sense of monotony. For this purpose small openings would attach a detail to the wall.

Problem.

The opening should be located where the local vista is important.

Control 4.

From the open space on the mall the view toward the hill is important; on the other hand the view to the mall from the hill too. For this purpose an opening is necessary on the top of the mall.

For the office building, the important views are the downtown complex, the coply square complex and the hill on the north. The view to the northwest, where industrial plants exist, is not more important than the others. The office core should be located on this corner.

(See grpah 10)

Problem.

Glass is broken often on corners where commercial streets meet residential streets.

Control 5.

Avoid openings on these corners; at least 30 ft. from these corners there should be a solid wall.

(See graph 10)

Colour Control 1. - Wall

Basic Information.

1. On Main Street from City Square to the site.

   a) The major repeating colour is dark brown, painted on the wood horizontal siding walls.

   b) The secondarily used colour is the reddish brown on the brick walls.

   c) Occassionally the dark gray of the masonry walls is observed. One is the wall of the church tower on the corner of Devens Street meets Main Street, and the other is the wall of the bank building on Thompson Square.
   In this case the hue is different from that of the major colour and the saturation and brilliance is similar.

   d) Near Thompson Square a new liquor shop has a concrete block wall painted by a light thin green. The hue and brilliance are different from those of the major colour on this street; however the saturation is similar.

   e) Near Thompson Square the other side of the liquor shop mentioned in paragraph d), a new shoe shop is standing. The wall of the shop is a concrete block painted by a light thin brown. In this case the hue and saturation are similar to the major colour of the street and the brilliance is different.

2. On Main Street from Sullivan Square to the site.

   a) The major colour and the secondarily used colour are repeated on this street similarly as those of paragraph 1. The one important occurrence on this street is the colour and form of the new public housing which uses the similar colour and form (roof and bulk) to that of the old houses surrounding them.

   b) A new, flat, drive-in bank is standing between Allen Street and Middlessex Street; the wall of this building is the gray of exposed concrete finish. This gray is lighter than that of the masonry. In this case the hue and brilliance is different from those of the major colour of the street; however the saturation is similar.

3. View from the site toward the north.

   a) From the middle of the hill to the top, the major colour of the wall is the same as that of Main Street.

   b) On the north side of this site, opposite side of Main Street, a great number of small shops exist. Basically, the difference of the hue and brilliance is the tendency of the colour on a wall; however the frequency of the use of different colour on a wall is increasing in this place more than in the other part of the street.

c) A contrast of saturation, not observed on the walls on Main Street, is made by the shop signs especially intensively in this area. However the lack of an order among them reduces their visual efficiencies and disturbs the street vista.

4. View from the site to the east.

a) A group of old wood apartments is standing on this side. The major characteristics of the wall colour are the same as those of Main Street.

b) A few of them have a light gray, light brown or green from dark to light on their walls. In this case again the differences of hue or brilliance and the saturation is similar to that of the major background colour.

5. The Other directions

The other sides of the site except mentioned above are vacant at present; however judging from the tendencies of the design of new houses near the site, they might not have greater differences of appearance.

The south side of the site, on the opposite side of Ruthford Street, new public open space is planned and its visual characters are unknown.

Conclusions of Visual Survey.

1. The major colour used on the walls of the surrounding area is the brown painted on wood siding or reddish brown of the brick wall. Both have similar hue, brilliance and saturation.

(Conclusions of Visual Survey Continued.)

2. The colours differing from the major one are due to the difference of the hue or brilliance but not by saturation.

3. The difference of the hue and/or brilliance increases from the east and west end of Main Street toward the site. This sequence is important to decide a colour for the new center.

Colour Decision Policy.

1. The new colour should match the local colour sequence and help to emphasize the rhythm according to the tendency of the sequence.

2. The new colour should establish the identity of the center well.

3. The new colour should not be exceedingly stimulating to the surrounding community, especially to the residents in the housing area.

4. a) According to policy 1., the strong emphasis of the hue or the brilliance of the major local colour (brown) is appropriate, such as green from dark to light or light thin brown, light yellow, light thin orange or equivalents. However, the emphasis of the saturation is discouraged except on the new shop signs.
(Review the conclusion of the survey for understanding of this decision.)

   b) For policy 2., the major objective of this center is to arouse intensive informal social as well as commercial activities as mentioned in the abstract policy. (Find the reason in the abstract policy.) For that purpose colour should help to enhance a cheerfulness, a liveliness and activeness. By these reasons a light thin brown and one of its group is better than that of the green

c) For policy 3. an emphasis on the saturation is discouraged. Specifically on Austin Street and School Street where the great number of houses exist closer to the site, particular care should be taken to the sign boards, too.
(See sign control)..)

Wall Colour Control.

Based on the result of the study about the policy, the major wall colour should be a light brown, light thin yellow, light thin orange or equivalents. One of these recommended colours should be used on all the walls of this center to arouse a sense of unity between each different facility.
Very limited use of the contrast colour is allowed where it is critically necessary, such as on the inside walls of the major entrance of the mall, to control a pedestrian flow.

Colour Control 2. - Outdoor Floor.

Basic Information.

1. In this town, a texturing or colouring of street and outdoor floor is quite rare. The material mainly used for these purposes are a concrete paving block or cast in-place concrete. The resulting appearance of the outdoor floor is uncharacteristic and the street character vague.
   The major colour of the outdoor floor on Main Street as well as the whole town is gray.

2. Only one textured and coloured floor exists in John Harvard Mall on Main Street near City Square. The floor is paved with red brick; however, the absorbent character of brick makes its surface dull with dirt stains.

3. No sequential character exists on the outdoor floor of the nearby streets and open spaces.

Conclusions of Visual Survey.

1. As mentioned in the basic information, no particular character exists in the surrounding environment floor. If the new center has a well designed outdoor floor, the existence of textured and coloured floor itself will establish an identity.

2. For the reason mentioned above, the colour of the new outdoor floor should be decided according to the colour of the wall and the users' need.

Colour Decision Policy.

1. The major colour on the outdoor floor should differ from that of the wall by the hue or brilliance but not by the saturation. (Application of this policy of the wall is due to the largeness of the outdoor floor.)

2. However in the commercial center the food and drink stains, as well as dirt, are intensive. The brilliance should be low (Dark).

3. The view from the hill to the street and the outdoor floor should be considered.

4. The colour of the floor should not be eye stimulating to the users and public.

   a) For policy 1., according to the wall policy the colours are green or brown, from light to dark.

   b) Policy 2. defines the hue i.e., a dark green or dark brown are appropriate.

   c) For policy 3. check back the colour of the roof (light green). For this purpose a dark brown is better than green to minimize visual confusion from the hill.

   d) Policy 4. defines the saturation and brilliance, i.e., not exceedingly vivid and minimizing the sun's reflections by lowering the brilliance.

Outdoor Floor Colour Control.

Based on the study of each requirement, the major colour of the outdoor floor should be a dark brown or equivalents. Minor use of the contrast colour and neutral colour is allowed (10 to 15% of total colour) for good design and helping the functional purposes, such as:

1. Good floor pattern enhances the pedestrians' view.
2. Contrasting colours indicate directionality of function.

(See graph 11)

Colour Control 3. - Roof.

Basic Information.

a) On Main Street the view from the street to the roof of the surrounding buildings is almost blocked by their facades.

b) The gable roof slightly reveals its surface to the pedestrians on Main Street; however, the colour of the roof of that type is mainly the gray of the slate roofing.

c) A few of the church towers in this town have a colour of green by copper roofing; however, that type does not exist on Main Street.

d) Viewing from the hill to the south, all the roof characters near the site are visible, a dark gray of asphalt roofing on the brick building, same dark gray of slate roofing on the wood building and a few green copper roofing on the church towers. This should be taken as a local roof character.

Conclusion of the Visual Survey.

1. The major colour of the roof near the site is dark gray.

2. The green of the church tower enhances the view from the hill as well as that of the pedestrians on the street.

3. This pattern should be taken as a local roof character.

Colour Decision Policy.

1. The colour of the new roof should match that of the local roofs in terms of the whole town character.

2. The colour of the new roof should express well its identity.

3. The colour of the new roof should not disturb the view of the pedestrians on Main Street as well as that of the hill.

   a) For policy 1.,this center has symbolic meaning to the community as mentioned in the general policy, such that the green is appropriate for that purpose which matches well the gray of the small surrounding roofs as a local pattern, according to policy 1.

   b) For policy 2., most roofs near the site are dark gray in colour, and any colour except gray is identifiable.

   c) Policy 3. concerns mainly the saturation. The view from Main Street or other streets near the site might not be much disturbed by the colour of the roof; however, the resident on the hill side might be strongly affected. For that purpose the saturation should be low.

Roof Colour Control.

Based on the comment a), b), c) the roof colour should be medium green.

Material Control. 1. - Wall.

Basic Information.

From the result of the visual survey, the typical materials used on the walls near the site as well as the whole town area are as follows:

a) Horizontal wood siding. ——— Approximately 4 in. high. This type most frequently used.

b) Red brick. ——— Approximately 2 1/3 in. by 8 in. This type secondarily used.

c) Wood shingle. ——— Approximately 8 in. by 8 in. This type same as b) in frequency of use.

d) Masonry. ——— Approximately 2 ft. by 4 ft. max. This type not often used. Mainly for old churches and old schools.

Conclusions of the Visual Survey.

1. Those materials listed above should be called as the local materials for their frequent appearance on the old buildings.
2. On Main Street the existing buildings are 2 to 4 story old buildings. Judging from basic function study, the front width of the new building on this side might be extremely large compared with those of the existing old buildings.

3. On Austin Street the type of existing buildings is 3 to 4 story wood buildings and the major use is housing. Again the walls of the new facilities under project might be extremely large in width, and the rental office building in height.

Material unit size decision policy.

1. Judging from the result of basic function study, the visual abruptness of new wall of the project facilities to the existing buildings in its scale should be minimized by application of local material unit size.
2. Well textured walls arouse a sense of human scale and that kind of sense is extremely necessary on this type of facilities, going to be located in the housing area.
   a) For policy 1., the application of local material unit size on the new walls arouses a sense of continuity which helps to minimize a visual abruptness between them.
   b) For policy 2., the people could get a sense of scale from the fine texture on the wall;on the other hand, if the wall is completely flat, such as stucco or plaster finish, people might lose a sense of scale to that object.

Material unit size control.

According to a) and b) the new wall should have a material 2 2/3 in. by 8 in., 8 in. by 8 in. or similar size.

Material surface condition decision policy.

1. The wall surface should be easier for maintenance.
2. For scribbling, the wall surface should leave the users the alternative to keep them or not.
3. The material should respond to the public conformity.
4. The material should not change the visual potency by the effect of climate, mainly by rain.
5. a) In this type of center the stains of food and drink are an extensive maintenance concern; the material should be gloss or semi-gloss, nonabsorbent.

   b) For this purpose nonabsorbent material is appropriate.

   c) The reflection of sun should be reduced. For that purpose, the material should be mat or semi-gloss.

   d) When the material is wet, it reduces the brilliance value and increases the hue value. To minimize that kind of effect, material should be semi-gloss, nonabsorbent.

The material surface control.

According to a) and d) the material should have a nonabsorbent, semi-gloss surface.

Material Control 2. - Outdoor Floor.

Basic Information.

As mentioned in the visual survey of the outdoor floor colour, this area as well as the whole town has no clue for obtaining a criteria for the floor material control. Therefore, outdoor floor material should be considered by relating it to that of the wall.

Material decision policy.

1. For the reason mentioned above, take the criteria of the wall.
2. The material should maximize the pedestrians' safety.
   This policy is added by the difference of its character from that of the wall.
   a) In accord to wall material control, the material should have some grid textures, and the surface should be non-absorbent, semi-gloss.
   b) For policy 2., the surface should be non slippery. For that purpose appropriate coarseness is necessary on the surface of the material.

The material control.

The material should have semi-gloss, modest coarse surface and and be nonabsorbent. The grid texture 2 2/3 in. by 8 in. to 18 in. by 18 in. is encouraged.

Micro Climate Control.

Problem.

If any pedestrian nodes exist in the site, people at these places should be protected from rain, snow and cold wind in winter.

Control 1.

Major pedestrian nodes would exist on the north and south entrance of this center. The south entrance could be well protected from rain and snow by the pedestrian overbridge and office building. The north entrance might need a protection of a roof from rain and snow. Both entrances could be well protected from the northwest wind in the winter.

(See graph 12)

Problem.

The places where the pedestrian movement is slow in regards to the social and commercial activities should be protected from rain, snow and cold wind in winter.

Control 2.

The mall corridor might be the place where pedestrian movement is slow in regards to the commercial and social activities, such as talking with each other or watching the show windows. Provide a roof for protection from rain and snow on the mall. The row of small shops on each side of the mall would protect pedestrians well from cold wind in winter.

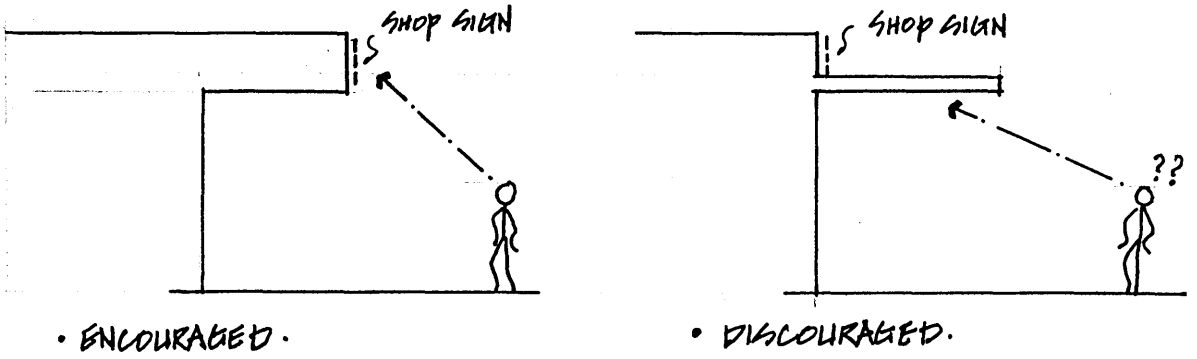
(See graph 12)

Problem.

The place where the exit or entrance of the commercial or entertainment facility exists might be crowded by the pedestrian flow, and the direction of the flow is related to the major pedestrian access. The place of crowdedness and the pass to the major access should be protected from rain and snow.

Control 3.

The retail store, the supermarket and the theatre would be these places (see location on the graph 7). Provide an eaves according to the direction of the pedestrian flow. (See graph 12)



Problem.

The outdoor space where people stay tolerably longer to eat, rest and communicate should be protected from rain, snow and cold wind in winter.

Control 4.

The open space on the center of the mall might be that type of space. Provide a roof for rain and snow and lower wall (approx. 42 in. from floor) for cold wind in winter. A shade in summer should be provided by planting too. (See planting control.)

Problem.

The place where people wait for transportation near the site should be protected from rain, snow, and cold wind in winter and sun in summer.

Control 5.

The bus and taxi stand should have a roof for rain, snow and shade. For cold wind in winter a wall should be provided; however, it should be transparent to maintain a visibility to note the coming vehicles.

Problem.

If any high rise or mid-high rise building exists in the site, it should not overly shade the surrounding housing area.

Control 6.

The most negative effects of building shadow occur on a February 22nd at 2:00 p.m. At that time the altitude angle is 30° $30'$ and the bearing angle is 35° degree north-east. According to that data, the south side corner is the most appropriate location to minimize building shadow effect to the outside area.

Commercial Sign Control.

Problem.

On Main Street the signs of the existing small shops have no order between each other which makes their purpose inefficient and arouses a visual distraction on the shop appearance.

Control 1.

To avoid the situation mentioned above, the shop sign of this center should have an order in colour, size, type and location.

According to that point of view, the new major verbal shop sign on Main Street should have the following conditions:

a) The shop sign should be flat on the wall type, no vertical mount type or roof type allowed.

b) The size of one item should be 26 in. by 26 in. and background 30 in. by 30 in.

c) The level of each major sign should be the same, not lower than 15 ft. from the street level.

d) Maximum number of items allowed in one sign should be fifteen.

e) Use of two colours is allowed; however, one of these should be a light thin colour.

f) If illuminated, the light source should be concealed; no bare bulb or neon sign is allowed.

g) The location should be well related to its function; non-rooted signs should not be allowed in this center.

(See graph 13)

Problem.

Use of iconic or symbolic signs are encouraged as far as these are well designed and help to express their appropriate functions non-verbally. These types are now rare on this street.

Control 2.

a) Maximum surface area should be 16 sq.ft.

b) The bottom of the sign should not be lower than 12 ft. from the street.

c) The location of these types should be determined not to disturb other verbal signs.

d) Other controls are the same as control 1.

(See graph 13)

Problem.

On Austin Street and School Street where the residential buildings exist closer to the site, an exposure of the eye stimulus object is discouraged.

Control 3.

a) A direct exposure of any commercial signs is prohibited on these two streets.

b) Two signs, one on the retail store, the other on the supermarket, both directed towards the parking area, are allowed. However it should be well screened by plantings (see planting control) from the residential area. Control of these signs should be the same as control 1.

(See graph 13)

Problem.

On Ruthford Street the shop signs should respond well to the automobile drivers and distant view from the new train station.

Control 4.

a) The size of the shop sign should be larger than that of the pedestrian street but not extravagant.
According to that policy the size of one item should be 32 in. by 32 in. and background size 36 in. by 36 in.

b) Other control should be the same as control 1.

(See graph 13)

Problem.

The major entrances of the center should be well indicated by the verbal signs.

Control 5.

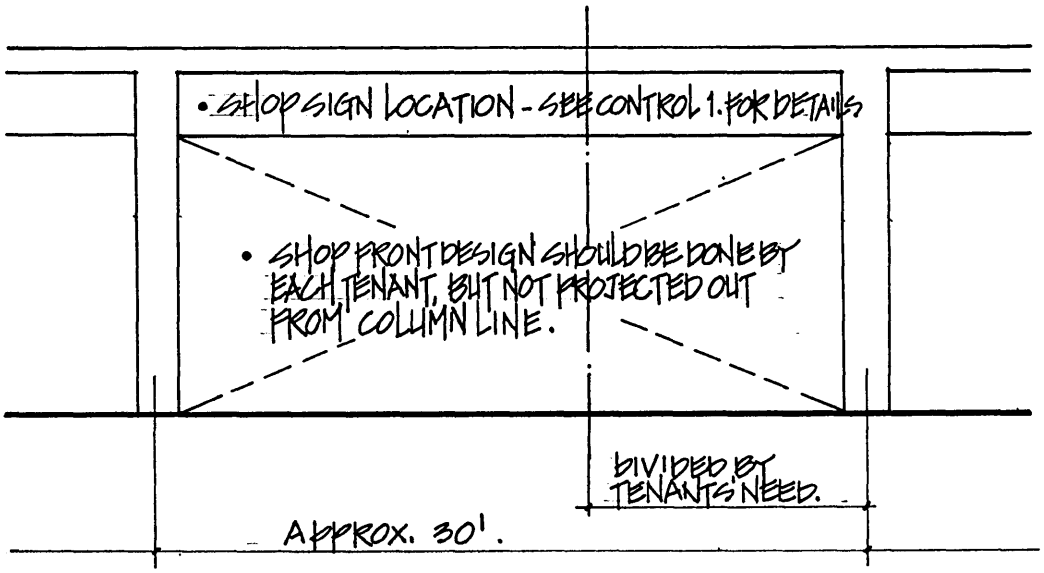
The major entrances can be well expressed by other means too, such as strong colours on the wall and floor, architectural forms and canopies. The signs need not be too large for these reasons. The size of each item should be 18 in. by 18 in. and should be located on the facia of the canopy towards the major street.

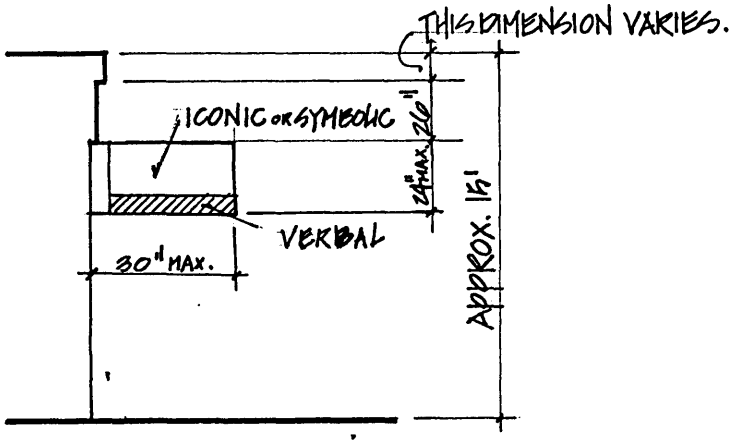
(See graph 13)

Problem.

The small shops in the mall should be different from the existing local small shops by their appearances.

Control 6.


• SHOP SIGN LOCATION - SEE CONTROL 1. FOR DETAILS
• SHOP FRONT DESIGN SHOULD BE DONE BY EACH TENANT, BUT NOT PROJECTED OUT FROM COLUMN LINE.
DIVIDED BY TENANTS NEED.
APPROX. 30'.


THIS DIMENSION VARIES.
ICONIC OR SYMBOLIC
24" MAX.
VERBAL
30" MAX.
APPROX. 15'

Planting Control.

Problem.

The outdoor spaces where people stay relatively longer should have shade in summer and sun in winter.

Control 1.

In this project the major place of this type is the open space in the center of the mall. Provide deciduous trees for the purposes mentioned above. (See micro climate control)

(See graph 14)

Problem.

On Austin Street and School Street the residents in the housings need a screening for privacy and an eye shield from such stimuli as shop signs and night lights.

Control 2.

Provide evergreen trees for this purpose; lower bushes are encouraged for screening the parking from the residents' view.

(See graph 14)

Problem.

The place where a long, flat wall is going to be built should be visually enhanced by trees.

Control 3.

The micro details of trees and bushes such as leaves, branches, patterns on trunks and casted shadow on walls hould help to enhance the monotonous wall visually. Judging from the basic study, the wall of the retail store on Main Street and the

back side walls of the mall on School Street and Austin Street together might need the effects mentioned above.

(See graph 14)

Problem.

The place where the large glass facade is going to be placed, near the intense public activities, has a great danger of accidents. This danger should be minimized.

Control 4.

provide lower bushes as a buffer between the glass facades and the public. Both the north side of the retail store and the theatre, the southeast corner of the supermarket might need this buffer.

(See graph 14)

VISIBILITY

MAIN ST.

THOMPSON SQ.

SCHOOL ST.

AUSTIN ST.

• MAJOR PEDESTRIAN FLOW

• PLACE OF CONGESTION

RUTHFORD ST.

VISIBILITY

N

GRAPH - 6

0 50 100 200

VISIBILITY

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

UP

UP

PARKING

SMALL SHOPS

SCHOOL ST.

SMALL SHOPS

PARKING

AUSTIN ST.

•MAJOR PEDESTRIAN FLOW

SUPER MARKET

OFFICE

RUTHFORD ST.

VISIBILITY

N

GRAPH - 7

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

UP

UP

UP

SCHOOL ST.

PARKING

SMALL SHOPS

SMALL SHOPS

PARKING

AUSTIN ST.

SUPER MARKET

OFFICE

RUTHFORD ST.

N

GRAPH - 8

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

SCHOOL ST.

RUTHFORD ST.

AUSTIN ST.

7, 8, 9 RETAIL STORE

2b, 3

2a, 3

4

UP

THEATER 12

PARKING

SMALL SHOPS

1

SUPER MARKET 7 8 9

10 11 OFFICE

5

6

N

GRAPH - 9

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

RETAIL STORE

UP

THEATER

UP

SCHOOL ST.

PARKING

SMALL SHOPS

SEE ④ FOR ROOF

SMALL SHOPS

AUSTIN ST.

PARKING

• LOCATION OF OPENING ---

SUPER MARKET

OFFICE

RUTHFORD ST.

N

GRAPH - 10

0 50 100 200

MAIN ST.

THOMPSON SQ.

RETAIL STORE

UP

THEATER

UP

UP

PARKING

SCHOOL ST.

SMALL SHOPS

AUSTIN ST.

SMALL SHOPS

PARKING

SUPER MARKET

OFFICE

RUTHFORD ST.

• NON-BASIC COLOUR

N

GRAPH - 11

0 50 100 200

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

UP

PARKING

SMALL SHOPS

SCHOOL ST.

AUSTIN ST.

SUPER MARKET

OFFICE

RUTHFORD ST.

• MICRO CLIMATE

N

GRAPH - 12

0 50 100 200

MAIN ST.

THOMPSON SQ.

RETAIL STORE

UP

THEATER

UP

UP

PARKING

SCHOOL ST.

SMALL SHOPS

SMALL SHOPS

AUSTIN ST.

PARKING

UP

UP

SUPER MARKET

OFFICE

RUTHFORD ST.

• COMMERCIAL SIGN ------

N

GRAPH - 13

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

RETAIL STORE

THEATER

UP

UP

UP

UP

PARKING

SMALL SHOPS

SMALL SHOPS

PARKING

SCHOOL ST.

AUSTIN ST.

SUPER MARKET

OFFICE

RUTHFORD ST.

• TREE

• BUSH

• SEE GRAPH - 4 FOR

N

GRAPH - 14

0' 50 100 200'

CONCEPTUAL DESIGN

BASED ON CONTROL PROGRAM.

MAIN ST.

A A

THOMPSON SQ.

B-B

SCHOOL ST.

PARKING AREA 150,000. S.F.
SMALL SHOPS ABOVE

AUSTIN ST.

B-B

RUTHFORD ST.

A-A

N

LOWER LEVEL PLAN

GRAPH - 15

0 50 100 200

MAIN ST.

THOMPSON SQ.

T

RETAIL STORE

UP

THEATER

UP

DN

UP

SCHOOL ST.

MALL

AUSTIN ST.

DN

UP

SUPER MARKET

CORE

DN

OFFICE

RUTHFORD ST.

T

N

UPPER LEVEL PLAN

GRAPH - 16

0' 50 100 200'

MAIN ST.

THOMPSON SQ.

SCHOOL ST.

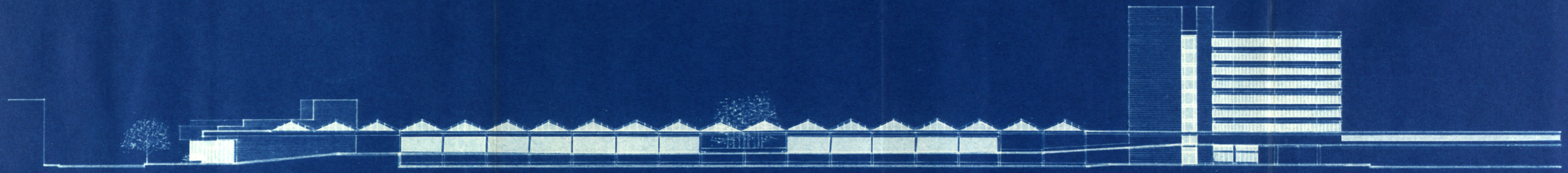
AUSTIN ST.

RUTHFORD ST.

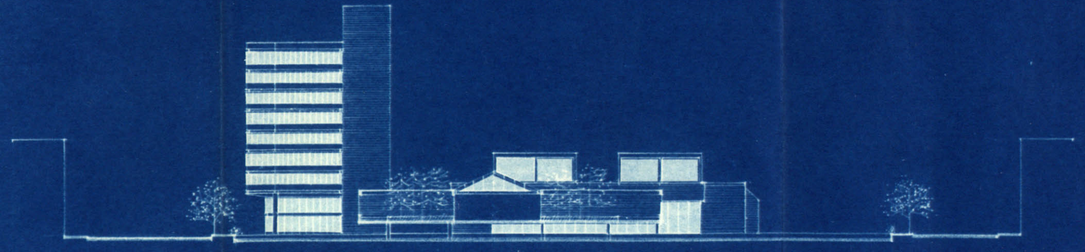
ROOF PLAN

GRAPH - 17

0' 50 100 200'



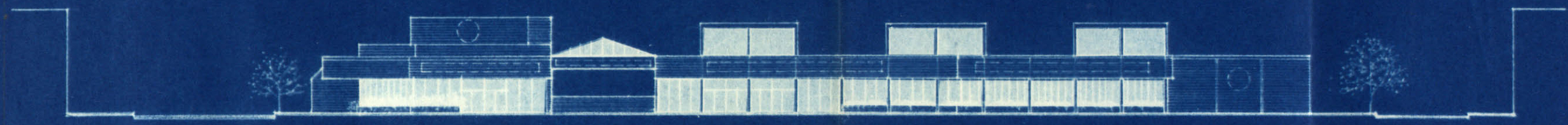
SECTION A - A



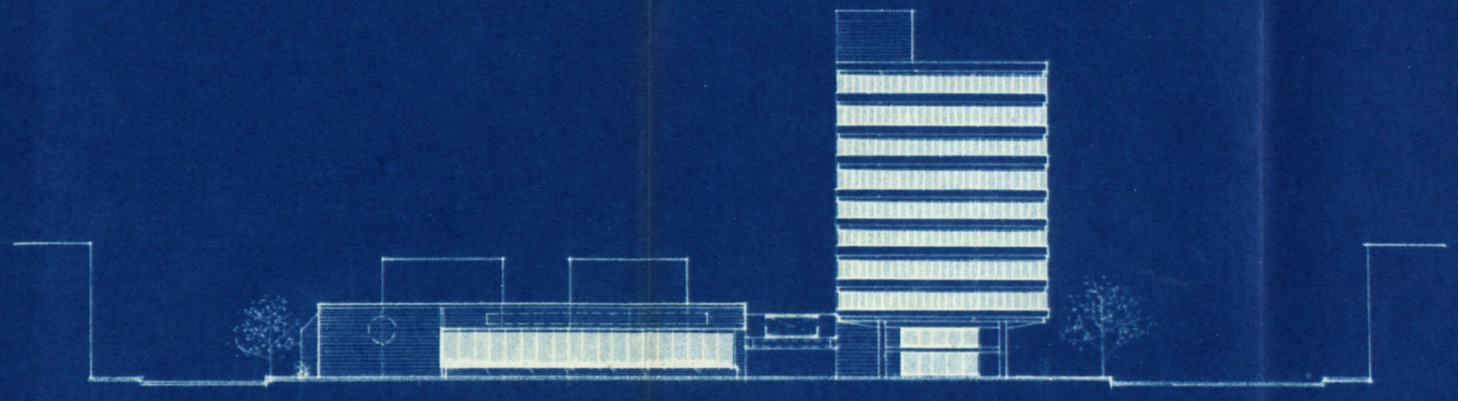
SECTION B - B

GRAPH - 18

0' 50 100'



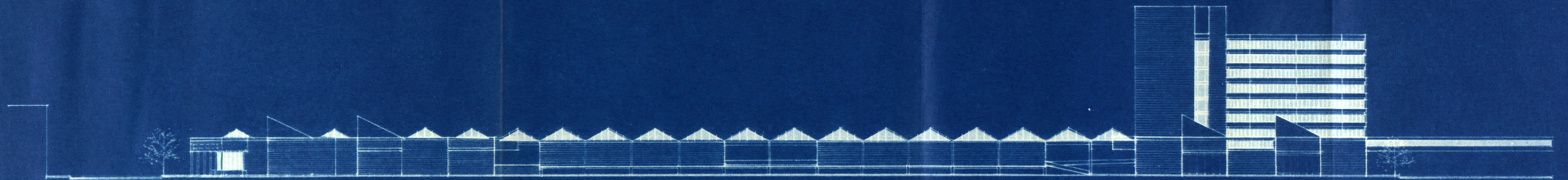
NORTH ELEVATION



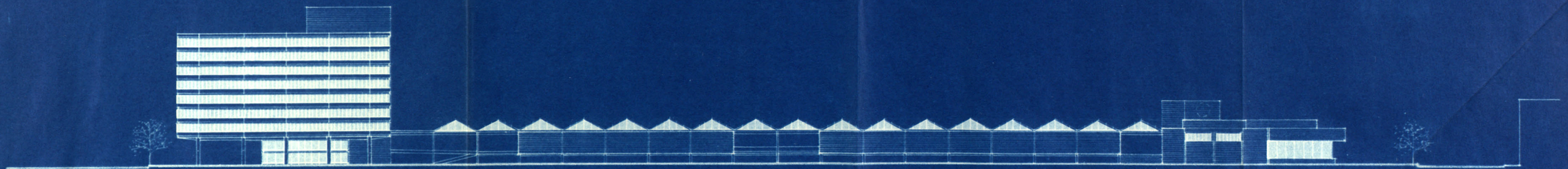
SOUTH ELEVATION

GRAPH - 19

0' 50 100'



WEST ELEVATION



EAST ELEVATION

GRAPH - 20

0' 50 100'

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