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AN ARCHITECTURAL THESIS

BUILDING
RESEARCH
DATA FOR

BILLINGS CHAMBER OF COMMERCE

CHARLES W. SUMNER
MONTANA STATE COLLEGE

1963

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March 6, 1962

Mr. H. C. Rose¹, Director
School of Architecture
Montana State College
Bozeman, Montana

Dear Sir:

I am submitting this "Building Research Data for a Building for the Billings Chamber of Commerce" as partial fulfillment of the requirements of an undergraduate thesis.

There are two reasons why I chose this project. I wanted to do a project that there is a real need for, thus making it very realistic. Then, if possible, I wanted to do something that has not already been done in a similar thesis, or something that has not already been studied by other architects. I feel that this project has fulfilled both these qualifications.

Yours truly,

Charles W. Sumner

Charles W. Sumner

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ACKNOWLEDGMENTS

I am deeply indebted to Mr. Darrell Booth, Manager of the Billings Chamber of Commerce. He has been most generous with his contribution of time and information without which this project would have been impossible.

RESEARCH DATA AND INFORMATION
FOR

Family papers at Montana College: Mr. H. C. Rose,
Director of the School of Architecture, Professor John

Wilson, and of Mr. John F. Mulholland,
English Department.

A BUILDING FOR
THE BILLINGS CHAMBER OF COMMERCE

UNDERGRADUATE THESIS PROJECT

DEPARTMENT OF ARCHITECTURE
MONTANA STATE COLLEGE

H. C. ROSE', DIRECTOR AND CRITIC

CHARLES W. SUMNER

WINTER QUARTER

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ACKNOWLEDGMENTS

I am deeply indebted to Mr. Darrell Booth, Manager of the Billings Chamber of Commerce. He has been most generous with his contribution of time and information without which this project would have been impossible. I would also like to extend my thanks to the following faculty members at Montana State College: Mr. H. C. Rose', Director of the School of Architecture, Professor John DeHaas, School of Architecture, and Professor John P. Parker, English Department.

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Good planning first starts with a
written program of the space required. . .

American Chamber of Commerce Executives

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A. CONDITIONS CREATING A NEED

CONDITIONS CREATING A NEED

"The chamber of commerce has as one of its important functions the job of presenting its community in the most favorable light possible. The sale to a new industry or to a new resident is usually begun at the chamber of commerce building. The chamber of commerce is the show-window of the community."¹

For this reason the physical plant is primary in creating good impressions. The Chamber in Billings is now occupying an old Elks Club lodge. It has had long, hard use and is rapidly wearing out. Billings is a dynamic, progressive community, but this building does not reflect the character of the city.

The third story of the building is unusable because of a lack of fire exits. This accounts for one fourth of the total building area. The building was originally designed as an Elks Lodge. Much of the space being used by the Chamber is makeshift from the intended use. Other areas serve no useful function to the Chamber.

¹Chamber of Commerce of the United States, Building Progress with Better Quarters (Oct. 1962), p. 1.

B. LOCAL CONDITIONS

LOCAL CONDITIONS

Geographical

Billings

Billings is located on the western edge of the Great Plains in south central Montana. The city lies in the rich Yellowstone Valley about 3,000 feet above sea level. It is bounded on the south by the Yellowstone River and on the north and east by buff sandstone cliffs called the Rimrocks. The valley floor is quite flat and has a gentle slope down toward the river. Growth of the city has been primarily westward.²

Chamber of Commerce

The building now occupied by the Billings Chamber of Commerce is located on the northeast corner of North 27th Street and Third Avenue North. It is in the middle of the governmental buildings of the city. The Yellowstone County Court House is across the street and south; the Billings City Hall is diagonally across the intersection; the new Federal Building will be to the north and in the same block.

²City-County Planning Board, Billings, Montana, Billings-Yellowstone County Master Development Plan 1958, p. 3.

Climate

"During the summer months hot weather occurs fairly often in the eastern parts of the State. Hot spells no where become oppressive, however, because summer nights almost invariably are cool and pleasant.

"Winters, while unusually cold, are not continually so. Between cold waves there are periods, sometimes longer than 10 days, of mild but often windy weather. At times, in the so-called "chinook" belt from the Browning-Shelby area southeast to the Yellowstone Valley above Billings, these "chinook" winds can be strong (25 to 50 m.p.h. or more) and persist for several days with only brief interruptions. January (the coldest month) temperature averages 21.7°F for the South Central (upper Yellowstone Valley) Division.

"July (the warmest month) average temperature is 72.1°F for the Southeastern Division. This mid-summer warmth is fairly steady, very seldom severe, and is tempered by normal nighttime minima in the 50's and 60's.

"Generally nearly half the usual (precipitation) long-term average total falls in the 3 months May through July. Most of the larger cities have annual snow fall within the 30- to 50-inch range. Most of the snow falls during the November-March period.

"Severe storms of several types can occur, but the most troublesome are hailstorms . . . their occurrence is limited mainly to July and August."³

The average temperature in Billings in 1961 was 49.2°F. The long term mean temperature is 47.2°F. Temperature extremes in 1961 varied from a high of 105°F to a low of -18°F. The

³U.S. Weather Bureau, Climates of the States, #59 (Washington: U.S. Government Printing Office, 1941), pp. 1-2.

average yearly precipitation is 13.10 inches. Storm winds are from the west.⁴

Historical

Billings

Coulson, the forerunner of Billings, was founded in 1876-77. In 1882 a small business district was formed two miles upstream from Coulson and was called Billings. The growth of Billings surpassed that of Coulson because of the location of the Northern Pacific Railway station there. The city grew steadily as a result of the prosperous cattle and agricultural industries. It soon became an important wholesale and retail trade center.⁵

Billings has never stopped growing. Its population has increased every decade since it was founded. In the twenty years after 1930 the population doubled; nearly half again as many people were added from 1950 to 1957.⁶ The population of the Billings metropolitan area is presently approaching 80,000.

⁴U.S. Weather Bureau, Summary of Climatological Data, Montana, Annual Summary 1961.

⁵City-County Planning Board, Master Plan, p. 3.

⁶City-County Planning Board, Billings Montana, A Report to the People (Billings, 1957), p. 4.

Chamber of Commerce

The Billings Chamber of Commerce was organized in 1907. It existed concurrently for eleven years with the Billings Commercial Club. In 1918 it was absorbed into the Commercial Club. In that same year the Commercial Club purchased the Elks Club building.⁷ The name was changed back to "Billings Chamber of Commerce" after 1943. The Chamber still occupies the old Elks Club building.

The building soon became "The Civic Center of the Midland Empire." It served as a center for business conferences and conventions, and provided a meeting place for business, social and civic groups.⁸ It still serves many of these functions. The building is a very important part of downtown Billings.

Economic

Billings is the center of a large agricultural region. The great distance from other large commercial centers (900 miles from Seattle and Minneapolis, and 600 miles from Denver) has made the city commercially independent and has given it importance as a trade center. It is serviced by three trans-

⁷Billings Commercial Club, Twenty Five Years of Service (Billings, 1943).

⁸Billings Commercial Club, Building Billings (1939), p. 22.

continental railroads, three interstate highways, three bus lines, two regional airlines and one international airline.⁹

The Billings region is largely agricultural. Livestock is the largest income producer. Billings is the largest wholesale center in Montana and Wyoming, and one of the largest retail centers of the two states.¹⁰

Montana's fourth largest industry is oil refining. Seventy-seven per cent of the refining takes place in Yellowstone County. In addition to the refining, Billings is the administrative center for oil production in Montana, North Dakota, Wyoming, and parts of southern Canada.¹¹

⁹City-County Planning Board, Master Plan, p. 3.

¹⁰City-County Planning Board, A Report, p. 5.

¹¹Ibid.

C. SITE CONDITIONS

SITE CONDITIONS

Topography and Vegetation

The site topography is flat. There is a slight slope to the southwest corner, however, it is not great enough to affect the building design.

There are thirteen large elm trees on the site. Eleven of them are located on the boulevards of the two streets; two are on the alley side of the building. There are small patches of grass between the sidewalk and the building. The trees give a pleasant atmosphere to the area in addition to providing shade. See Figure 4 for the locations of the trees. Also see Figures 5 through 14.

The site has $87\frac{1}{2}$ feet of frontage on North 27th Street and extends the full depth to the alley, approximately 140 feet.

Soil Analysis

The soil analysis data shown in Figure 1 was obtained from J. G. Link Co., Architects in Billings, Montana. The core profile is one that was prepared for the construction drawings for the Federal Building. See Figure 1.

SOIL CORE PROFILE

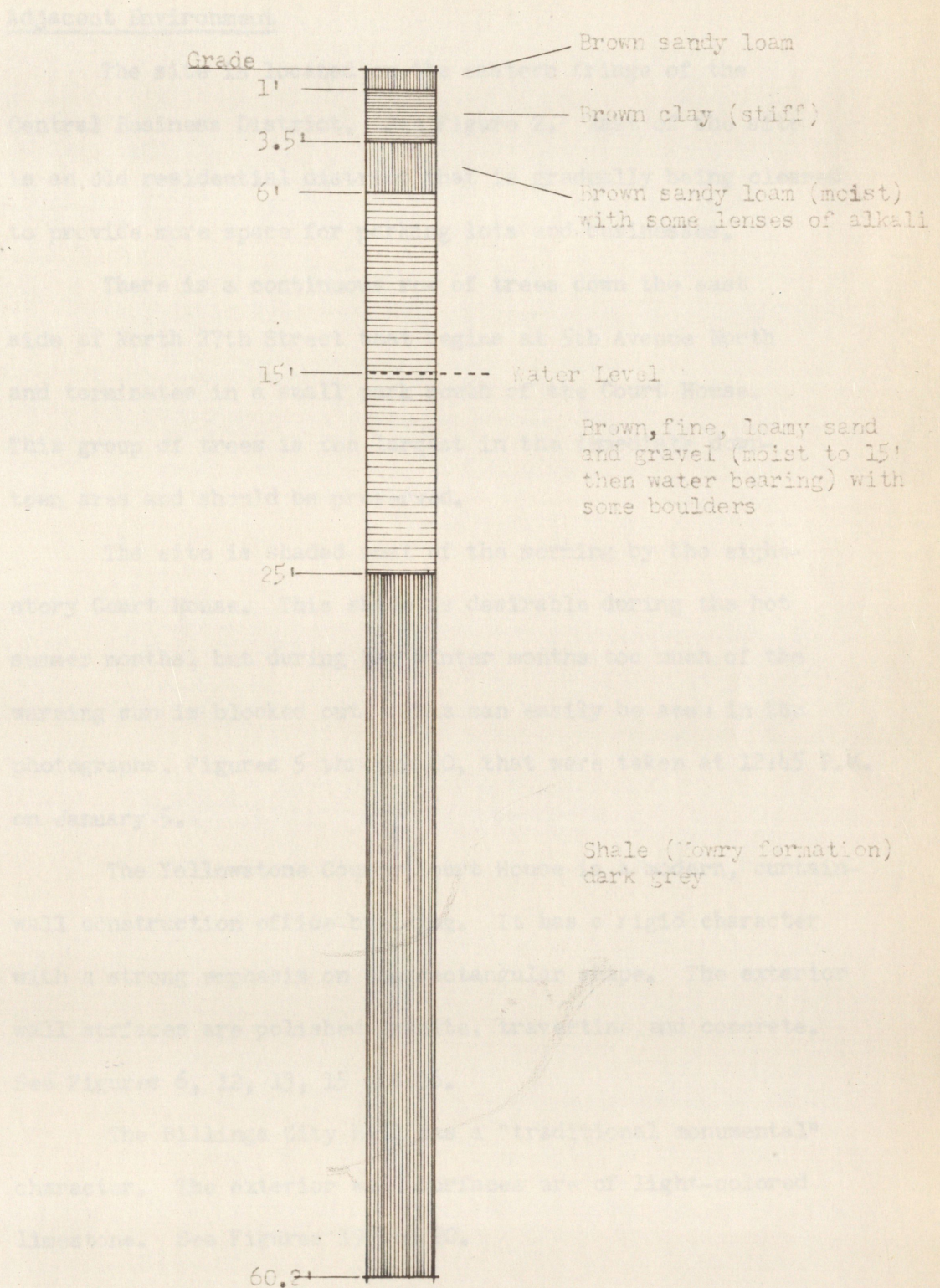


FIGURE 1

Adjacent Environment

The site is located on the eastern fringe of the Central Business District. See Figure 2. East of the site is an old residential district that is gradually being cleared to provide more space for parking lots and businesses.

There is a continuous row of trees down the east side of North 27th Street that begins at 5th Avenue North and terminates in a small park south of the Court House. This group of trees is the largest in the immediate downtown area and should be preserved.

The site is shaded most of the morning by the eight-story Court House. This shade is desirable during the hot summer months, but during the winter months too much of the warming sun is blocked out. This can easily be seen in the photographs, Figures 5 through 20, that were taken at 12:45 P.M. on January 5.

The Yellowstone County Court House is a modern, curtain-wall construction office building. It has a rigid character with a strong emphasis on the rectangular shape. The exterior wall surfaces are polished granite, travertine, and concrete. See Figures 6, 12, 13, 15 and 16.

The Billings City Hall has a "traditional monumental" character. The exterior wall surfaces are of light-colored limestone. See Figures 19 and 20.

Zoning Regulations and Public Utilities

The site is located in a "CG" (Commercial-General) zoning district. The following regulations are taken from Ordinance #2677 "City Zoning Districts," Billings, Montana, June 1, 1960.

- A. Height: Not to exceed seven stories or eighty feet.
- B. Front Yard: No front yard required.
- C. Side Yards: No side yards required.
- D. Rear Yard: No rear yard required.
- E. Parking: One off-street parking space of 250 sq. ft. for every 400 sq. ft. of gross floor area over 3000 sq. ft.
- F. Loading Space: One permanently maintained loading space not less than 10 ft. in width, 20 ft. in length, and 14 ft. in height for each 2000 sq. ft. of lot area. Not more than two such spaces required for a building of gross area less than 80,000 sq. ft.
- G. Permits: Must apply for and secure a building permit before beginning construction.

All necessary public utilities are adjacent to the site and readily available.

Traffic Patterns¹

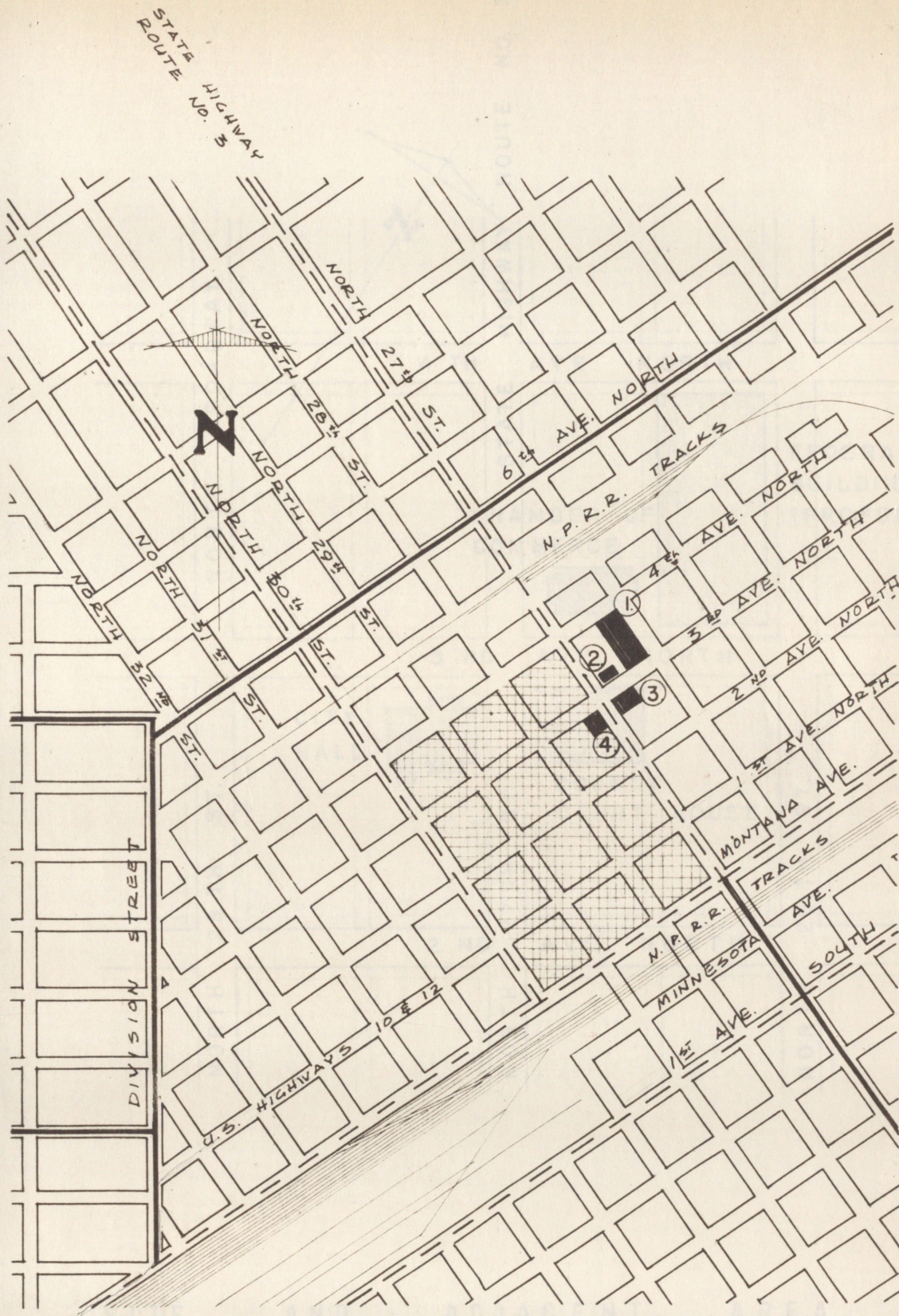
North 27th Street is a primary highway, State Route No. 3. It connects the Route No. 3 truck-by-pass and Logan Airport with both the city center and the truck by-pass-routes of U. S. Highways 10 and 12. North 27th Street is a two-way

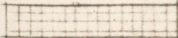
¹¹City-County Planning Board, Master Plan, p. 78.

street with a peak-hour capacity of 920 cars. A 1957 traffic survey indicated that the street was carrying 82 per cent of its capacity.

Third Avenue North is an arterial street that feeds into the Central Business District. It has a peak-hour capacity of 920 cars. In the 1957 traffic survey 3rd Avenue North was a one-way street and had a flow of 75 per cent of capacity.

Future plans indicate that North 27th Street will connect with the new Interstate Highway System at a point south of the city. This will bring an increase in traffic flow onto the street. See Figure 2.



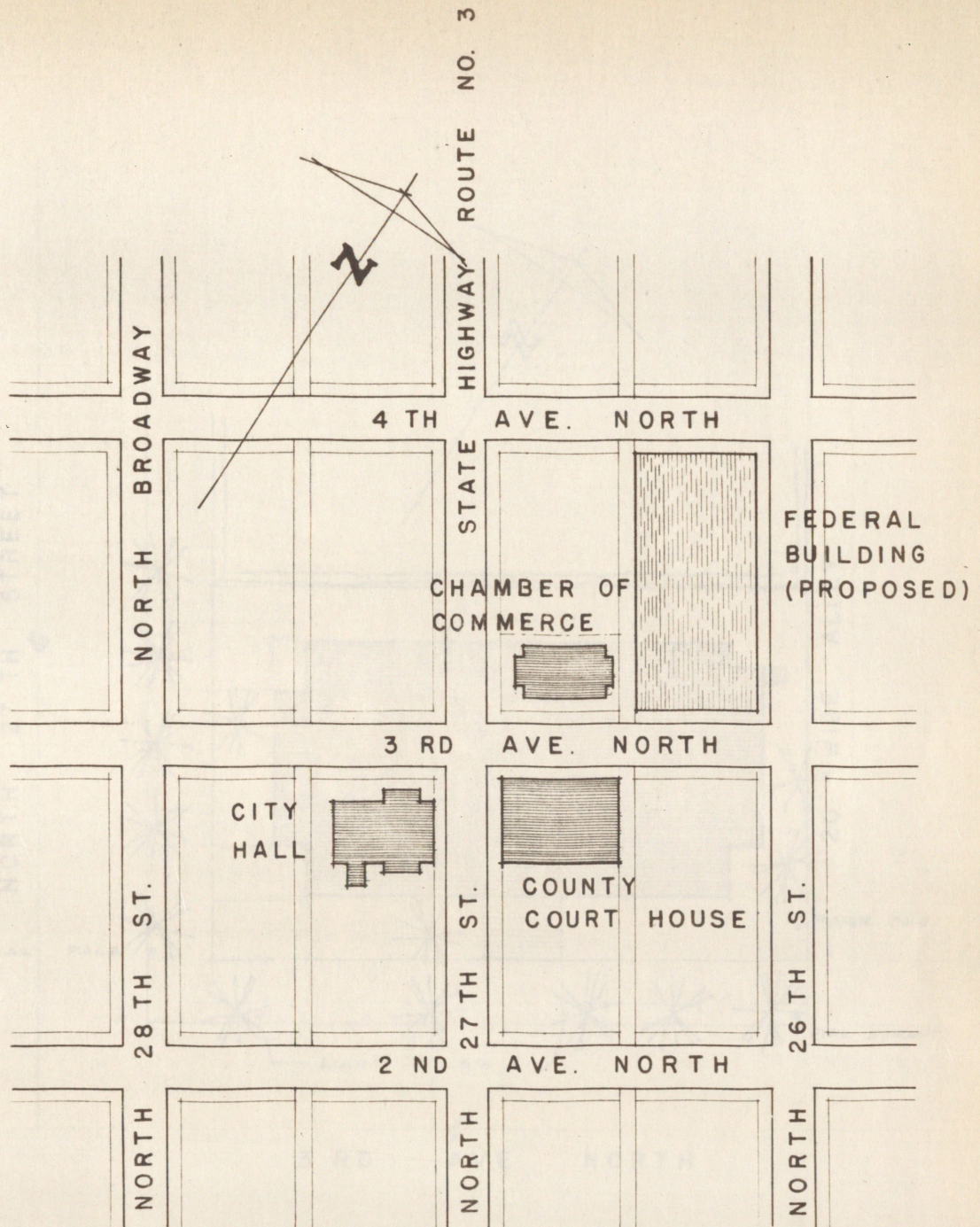
- Primary-secondary highways
- Urban arterials
-  Central Business District

- 1. Federal Building
- 2. Chamber of Commerce
- 3. County Court House
- 4. City Hall

BILLINGS CITY CENTER

Scale 1" = 800'

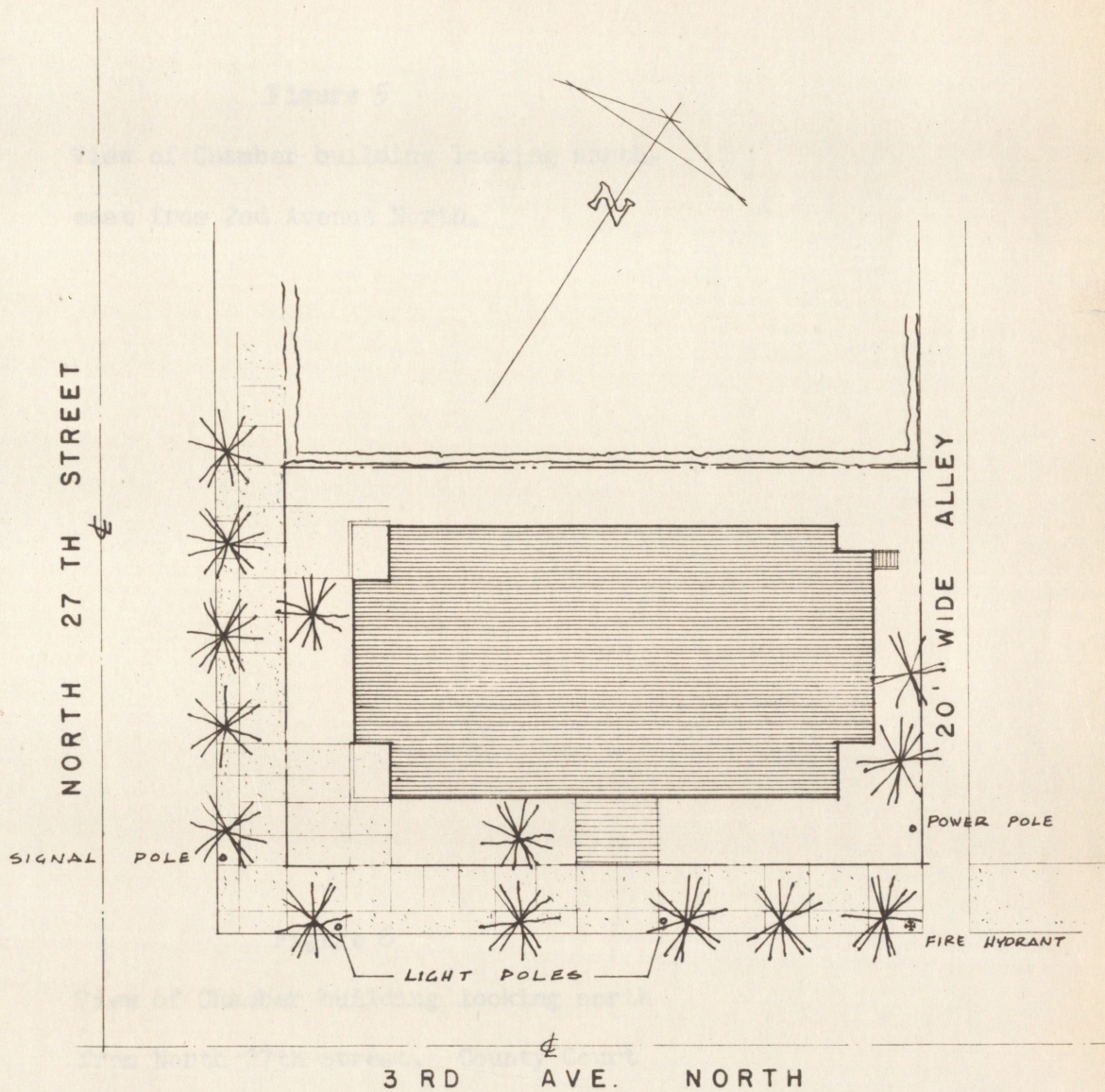
FIGURE 2



SITE AND ADJACENT AREA

SCALE 1" = 200'

FIGURE 3



EXISTING SITE PLAN

SCALE 1" = 40'

FIGURE 4

Figure 5

View of Chamber building looking north-
east from 2nd Avenue North.

Figure 6

View of Chamber building looking north
from North 27th Street. County Court
House appears on right.



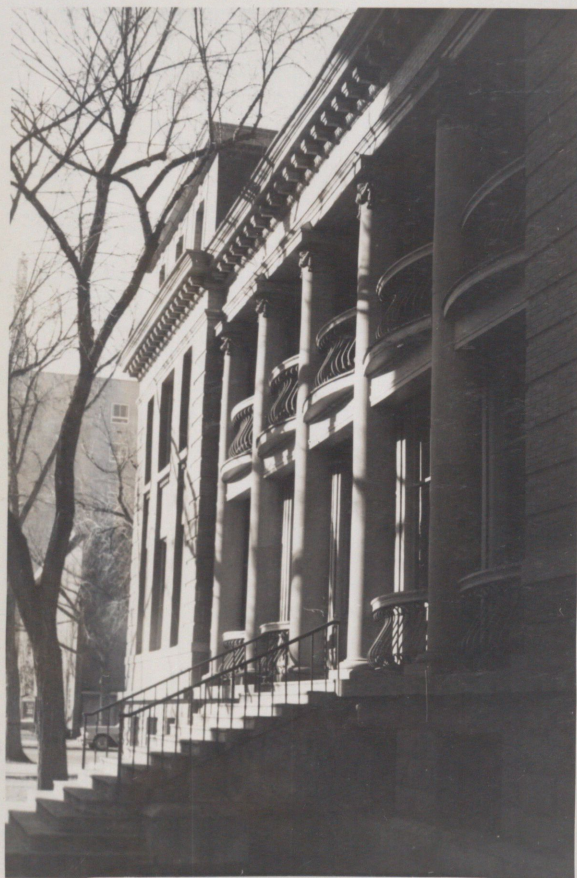


Figure 7

Close-up view of south elevation of
Chamber building.

Figure 8

View of Chamber building looking west
on 3rd Avenue North. Midland and Security
Bank buildings are visible in the distance.

Figure 9

Close-up view of corner entrance looking
north on North 27th Street.

Figure 10

Looking north from Court House to parking
lot, site of proposed Federal Building.
Southeast corner of Chamber building
appears on left.



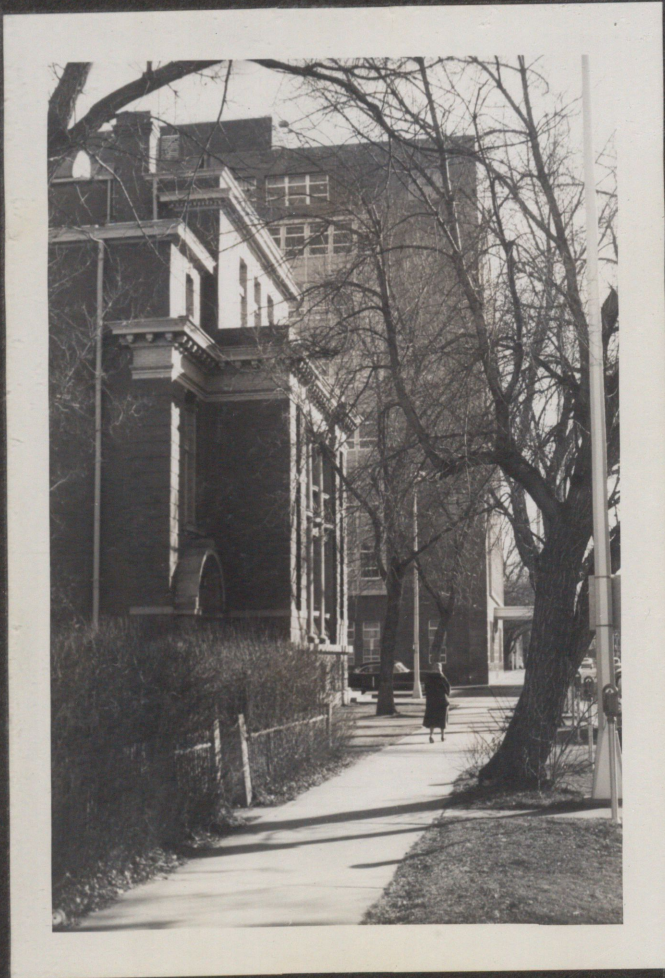


Figure 11

Looking south on North 27th Street to
west elevation of Chamber building.
Court House is visible in background.

Figure 12

Looking southeast across North 27th
Street to Chamber building and Court
House.

Figure 13

North elevation of Court House. City
Hall appears in lower righthand corner.

Figure 14

East elevation of Chamber building.





Figure 15

View north on North 27th Street from
2nd Avenue North intersection.

Figure 16

South elevation of Court House viewed
from the intersection of 2nd Avenue
North and North 27th Street.

Figure 17

Looking southwest across North 27th
Street to the First Congregational
Church, west of the Chamber building.

Figure 18

Looking west on 3rd Avenue North from North
27th Street. First Congregational Church
appears in foreground and Midland Bank
appears in background.





Figure 19

Looking northwest across North 27th
Street to the City Hall.

Figure 20

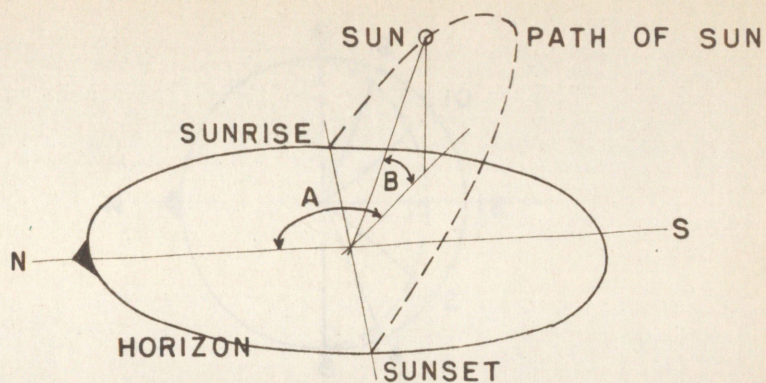
View of City Hall from Chamber building.

A.M.	P.M.	AZIMUTH	ALTITUDE
12:00		150°-40'	23°-30'
10:00	2:00	151°-30'	16°-00'
9:00	3:00	138°-40'	10°-40'
8:00	4:00	127°-30'	2°-30'
7:40	4:20	125°-30'	0°-40'

WINTER - DEC. 22

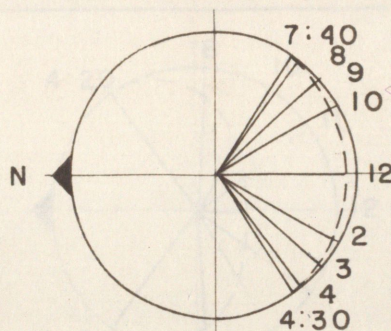
FIGURE 21

S O L A R A N G L E S



ANGLE A - AZIMUTH
ANGLE B - ALTITUDE

E X P L A N A T I O N



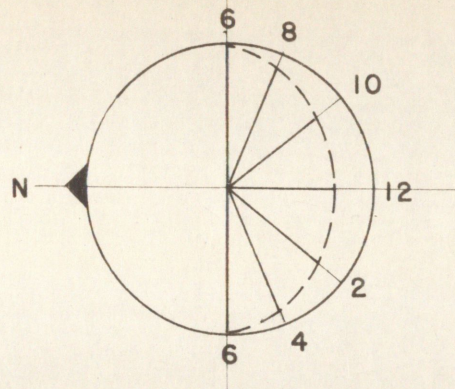
A.M.	P.M.	AZIMUTH	ALTITUDE
noon		180°-0'	21°-30'
10:00	2:00	151°-30'	16°-0'
9:00	3:00	139°-0'	10°-0'
8:00	4:00	127°-30'	2°-30'
7:40	4:20	124°-30'	0°-0'

W I N T E R - D E C . 2 2

FIGURE 21

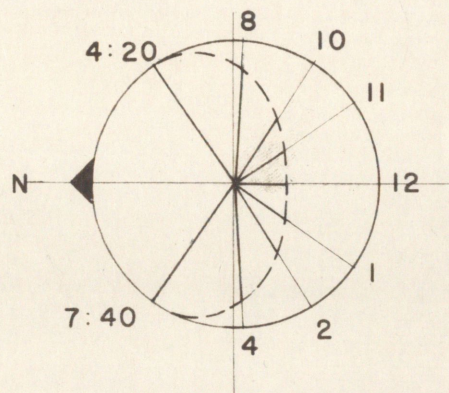
S O L A R

A N G L E S



A.M.	P.M.	AZIMUTH	ALTITUDE
noon		180°-0'	45°-0'
10:00	2:00	141°-0'	38°-0'
8:00	4:00	112°-0'	20°-30'
6:00	6:00	90°-0'	0°-0'

SPRING - MAR. 21
FALL - SEPT. 23



A.M.	P.M.	AZIMUTH	ALTITUDE
noon		180°-0'	68°-30'
11:00	1:00	145°-30'	65°-30'
10:00	2:00	121°-30'	57°-30'
8:00	4:00	93°-0'	37°-30'
4:20	7:40	55°-30'	0°-0'

SUMMER - JUNE 22

FIGURE 22

D. AESTHETIC CONSIDERATIONS

AESTHETIC CONSIDERATIONS

The site is in an area of relatively tall buildings, the eight-story Court House to the south, the five-story Federal Building to the west, the four-story City Hall to the southwest, and the eight-story Midland Bank one half block west. These tall buildings create two basic problems for the site. The site is shaded much of the day by the tall structures. This problem can be partially overcome by using "warm" materials on both exterior and interior surfaces.

The second problem is that of relative scale. The proposed building will be much smaller in mass than most of the surrounding ones. It can be contrasted to the taller buildings by placing stronger emphasis on horizontal lines, thus creating a long, low effect. The existing trees will also help to lower the vertical scale around the site.

The surrounding buildings have no apparant continuity of kinds of materials or of styles of architecture. Generally the exterior surfaces are of stone, concrete or glass. These materials could easily be contrasted by using "softer" and "lighter" materials. The smaller scale of the proposed building also indicates the use of these materials. Large areas of glass should be avoided.

Since the building generally represents Montana and

especially Billings, native Montana materials should be used as much as possible. There are many building materials produced in Montana. Travertine, granite, sandstone, limestone, brick, timber, plywood and glue-laminated lumber are just a few.

In discussing the mood and character of the building let me first mention what the character should not be. It should not be a "rustic" building nor should it be early twentieth century "western." It should not be characteristic of the past history, but should look more towards the future. It should express a character of Montana in 1975. It should express the progressive character of Billings. It should be inviting and business-like, but not like an office building or business establishment. It should express a semi-public character rather than a private one. It should not look like just another business in the downtown area. The building also represents business and professional people and should reflect this character by being dignified and not jazzy or loudly outspoken.

E. ASSUMPTIONS

ASSUMPTIONS

For the purpose of this thesis I assume the construction of a new building for the Billings Chamber of Commerce. Alternate possibilities would be remodeling of the existing building, moving into another building, or building a new structure and sharing it with other businesses.

I also assume the Chamber will build the new structure on the site they are presently using. This will necessitate razing the existing structure.

The Chamber now provides meeting rooms and catering service to business and service organizations. I assume that the Chamber will continue to provide these services.

The Chamber also provides office space for certain civic and public organizations. I assume the continuation of this function in a new building.

F. *FUNCTION OF THE BUILDING*

FUNCTION OF THE BUILDING

General

The existing Chamber of Commerce building provides space for three main functions:

1. Facilities for the Chamber.
2. Meeting rooms and catering service.
3. Rental office space.

The Chamber requires space for office work, conference, and reception. The executive staff is composed of a manager and sixteen directors which include the following: a president, three vice presidents, and a treasurer. The manager is the only permanent, full time executive. He is responsible for the over all administrative and organizational work. At the present time his office staff consists of three full time secretaries and one part time secretary. Their responsibilities are:

1. Assistant manager (administrative assistant) -- general office management, secretary of six committees.
2. Receptionist -- answer direct inquiries, telephone operator, secretary of three committees.
3. Bookkeeper -- bookkeeping, stenographic work, general office work, filing.
4. Stenographer -- (part time) stenographic work, information, mailing, office machine operation.

The office staff will increase to a maximum of ten: manager, assistant manager, department head, and seven clerical secretaries.

The Chamber has from eighteen to twenty regular committees. Each of them has about twelve meetings annually. There are many sub-committees and they have a total of about 360 meetings annually.

The building provides meeting rooms and catering facilities at inexpensive rates. Most of the local business and civic clubs and organizations meet there. Many of these groups have luncheon and dinner meetings.

Total Number of Meals Served

<u>Year</u>	<u>Per Day</u> (aver. 5 days/week)	<u>Total</u>
1958	112	35,085
1959	135	42,221
1960	141	43,806
1961	145	45,134
1962	150	46,745

On page 49 is a list of clubs and organizations that hold regularly scheduled meetings in the Chamber building.

Noon Luncheon--Weekly

Kiwanis Clubs (2)	100 each
Lions Club	165
Yellowstone Bar Association	200

Monthly or Bi-monthly

Geologists	75
American Red Cross	20
Tuberculosis Association	20
Chamber committees (20)	20-30 each

Other

Jaycees	
Traffic School	
Billings Traffic Bureau	
Montana-Wyoming Credit Association	15-20
Republican Women	175
Zonta	
Altrusa	
United Commercial Travelers	
Billings Board of Realtors	
D A R	60
American Business Women	
Billings Business and Professional Women	
Retired Teachers	
Monday Women's Club	
Women's Bowling Association	
Chamber sub-committees	

If more and better facilities were available more groups would hold their meetings in the Chamber building.

The building now provides rental office space for:

1. Billings Traffic Bureau and Billings Shipping Corp.
2. Girl Scout Council
3. Tuberculosis Association
4. American Red Cross

The Boy Scout Council and United Neighbors' Fund had to move out of the Chamber building because of a lack of space. If additional space were made available the Boy Scout Council and the United Neighbors' Fund would move back into the Chamber building.

The last two functions of the building are not directly related to any business of the Chamber. They are provided as a service to the community. The space is furnished to the various groups at low rental rates and is the only space many of the groups can afford to use.

Chamber Facilities

Space No.	Description
A	OFFICE OF THE MANAGER
	<u>Function</u> - Office work, individual and small group conferences.
	<u>Existing Area</u> - 196 sq. ft.
	<u>Proposed Area</u> - 400 sq. ft.
	<u>Capacity</u> - One manager and eight visitors.
	<u>Equipment</u> - Large executive desk and chair, work table, eight chairs, file cabinet, chalk board, tack board, book shelves, and conference table.

Space No.	Description
A1	Storage Room <u>Function-</u> large daily use items, dead storage <u>Existing Area-</u> 72 sq. ft. <u>Proposed Area-</u> 60 sq. ft.
B	OFFICE OF ASSISTANT MANAGER <u>Function-</u> General office work. <u>Existing Area-</u> None as separate office <u>Proposed Area-</u> 100 sq. ft. semi-private <u>Equipment-</u> Executive desk and chair, one lounge chair, file cabinet.
C	OFFICE OF DEPARTMENT HEAD <u>Function-</u> General office work. <u>Existing Area-</u> None as separate office. <u>Proposed Area-</u> 100 sq. ft. <u>Equipment-</u> Executive desk and chair, one lounge chair, file cabinet.
D	SECRETARIAL OFFICE <u>Function-</u> General office work <u>Existing Area-</u> 320 sq. ft. (includes some hall area) <u>Proposed Area-</u> 700 sq. ft. <u>Capacity-</u> Seven secretaries. <u>Equipment-</u> Office desks and chairs, file cabinets.
D1	Office Machine Room <u>Function-</u> Operation of office machines and storage of related materials. <u>Existing Area-</u> 180 sq. ft. <u>Proposed Area-</u> 200 sq. ft. <u>Equipment-</u> Mimeograph, ditto, addressograph, address plate storage, folding machine, postage meter, work table, shelves.
D2	Office Storage Room <u>Function-</u> Library reference storage (City Directories, etc.), dead file storage, and large items. <u>Existing Area-</u> None <u>Proposed Area-</u> 100 sq. ft.
E	COAT CLOSET <u>Existing Area-</u> None <u>Proposed Area-</u> 20 sq. ft.
F	TOILET FACILITIES

Space No.

Description

F1

Men

Existing Area- 40 sq. ft.

Proposed Area- 40 sq. ft.

Equipment- One water closet, one urinal,
one lavatory.

F2

Women

Existing Area- 20 sq. ft.

Proposed Area- 30 sq. ft.

Equipment- One water closet, one lavatory.

G

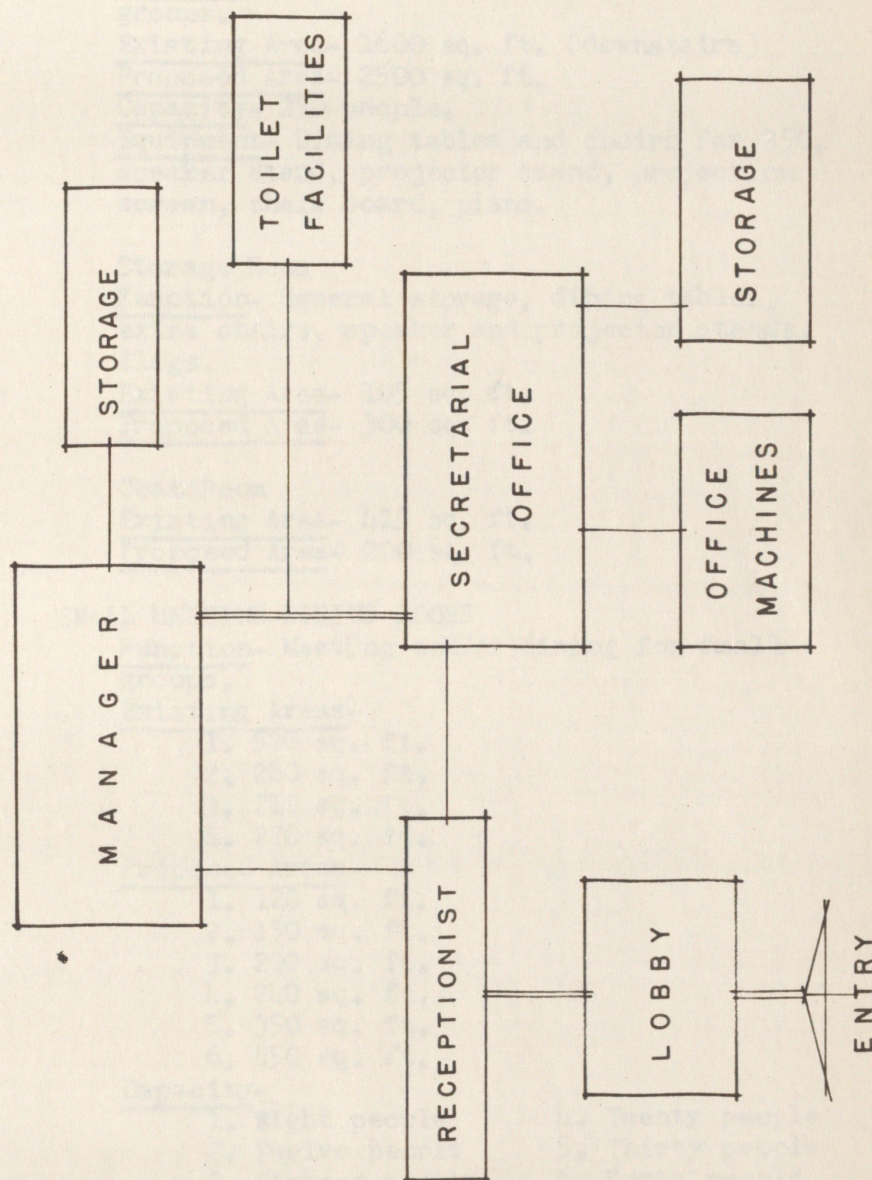
LOBBY

Function- Entrance area for the building,
display space, visitor waiting and reception.

Existing Area- 180 sq. ft.

Proposed Area- 300 sq. ft.

Equipment- Display case, tack board, lounge
furniture, receptionist's desk and chair.



Chamber Facilities Flow Diagram

Meeting Rooms and Catering Facilities

Space No.	Description						
H	LARGE MEETING-DINING ROOM <u>Function-</u> Meeting and/or dining room for large groups. <u>Existing Area-</u> 1600 sq. ft. (downstairs) <u>Proposed Area-</u> 2500 sq. ft. <u>Capacity-</u> 250 people. <u>Equipment-</u> Dining tables and chairs for 250, speaker stand, projector stand, projection screen, chalk board, piano.						
H1	Storage Room <u>Function-</u> General storage, dining tables, extra chairs, speaker and projector stands, flags. <u>Existing Area-</u> 105 sq. ft. <u>Proposed Area-</u> 300 sq. ft.						
H2	Coat Room <u>Existing Area-</u> 415 sq. ft. <u>Proposed Area-</u> 200 sq. ft.						
I	SMALL MEETING-DINING ROOMS <u>Function-</u> Meeting and/or dining for small groups. <u>Existing Areas-</u> 1. 520 sq. ft. 2. 280 sq. ft. 3. 210 sq. ft. 4. 270 sq. ft. <u>Proposed Areas-</u> 1. 120 sq. ft. 2. 150 sq. ft. 3. 200 sq. ft. 4. 240 sq. ft. 5. 350 sq. ft. 6. 450 sq. ft. <u>Capacity-</u> <table><tr><td>1. Eight people</td><td>4. Twenty people</td></tr><tr><td>2. Twelve people</td><td>5. Thirty people</td></tr><tr><td>3. Sixteen people</td><td>6. Forty people</td></tr></table> <u>Equipment-</u> Dining tables and chairs, chalk board, coat and storage closet.	1. Eight people	4. Twenty people	2. Twelve people	5. Thirty people	3. Sixteen people	6. Forty people
1. Eight people	4. Twenty people						
2. Twelve people	5. Thirty people						
3. Sixteen people	6. Forty people						
J	TOILET FACILITIES						

Space No.	Description
J1	Men <u>Existing Area-</u> 70 sq. ft. <u>Proposed Area-</u> 100 sq. ft. <u>Equipment-</u> One water closet, two urinals, two lavatories.
J2	Women <u>Existing Area-</u> 85 sq. ft. <u>Proposed Area-</u> 100 sq. ft. <u>Equipment-</u> Three water closets, three lavatories.
K	SERVICE KITCHEN <u>Function-</u> Preparation and service of meals and dishwashing. <u>Existing Area-</u> 530 sq. ft. <u>Proposed Area-</u> 750 sq. ft. <u>Equipment-</u> All equipment and appliances necessary for the commercial preparation of meals. <u>Capacity-</u> 10 people
K1	Kitchen Storage <u>Function-</u> Storage of bulk foods, equipment, linen and supplies. <u>Existing Area-</u> 132 sq. ft. <u>Proposed Area-</u> 150 sq. ft.
K2	Walk-in Cooler <u>Function-</u> Cold storage <u>Existing Area-</u> 38 sq. ft. <u>Proposed Area-</u> 50 sq. ft. <u>Equipment-</u> Food racks and shelves.
K3	Employee Washroom <u>Existing Area-</u> None <u>Proposed Area-</u> 50 sq. ft. <u>Equipment-</u> One water closet, one lavatory coat and uniform closet.
L	JANITOR CLOSET <u>Existing Area-</u> None <u>Proposed Area-</u> 30 sq. ft.

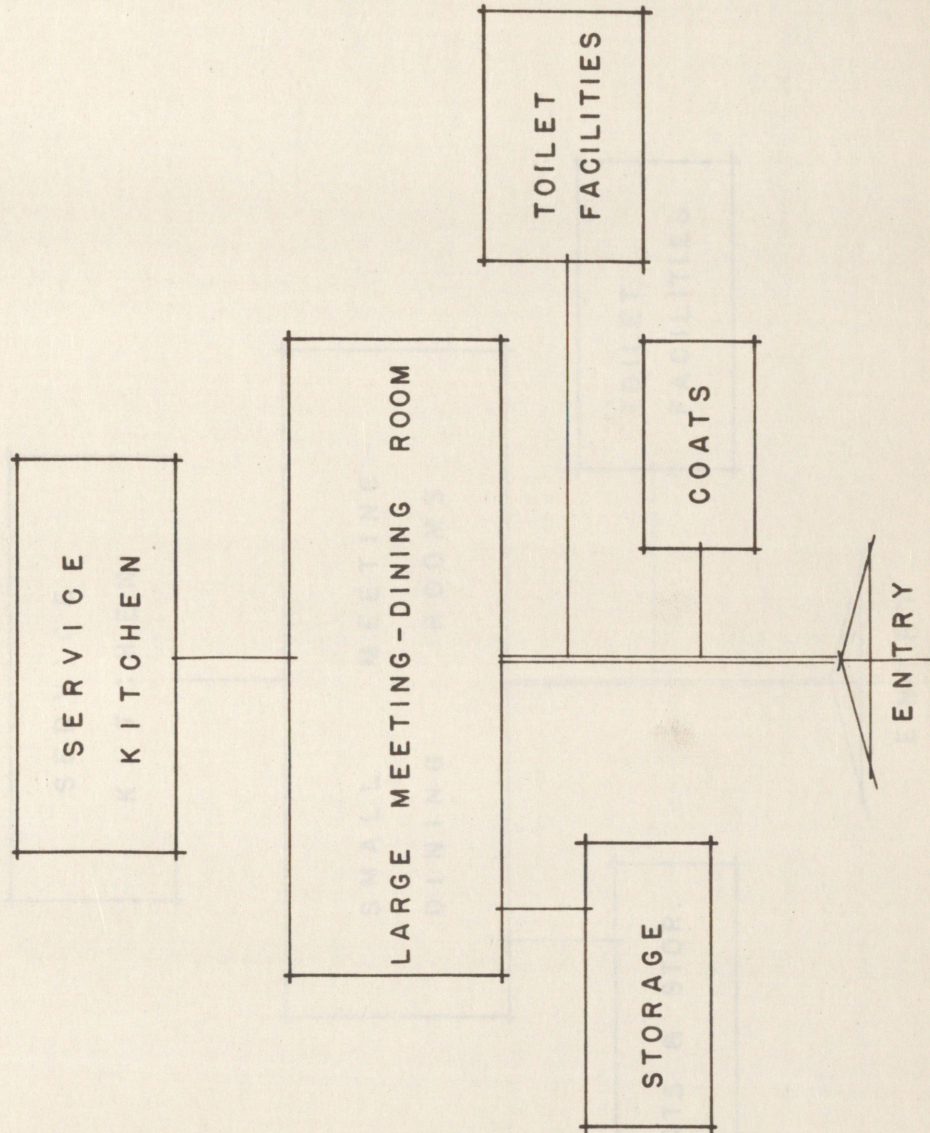
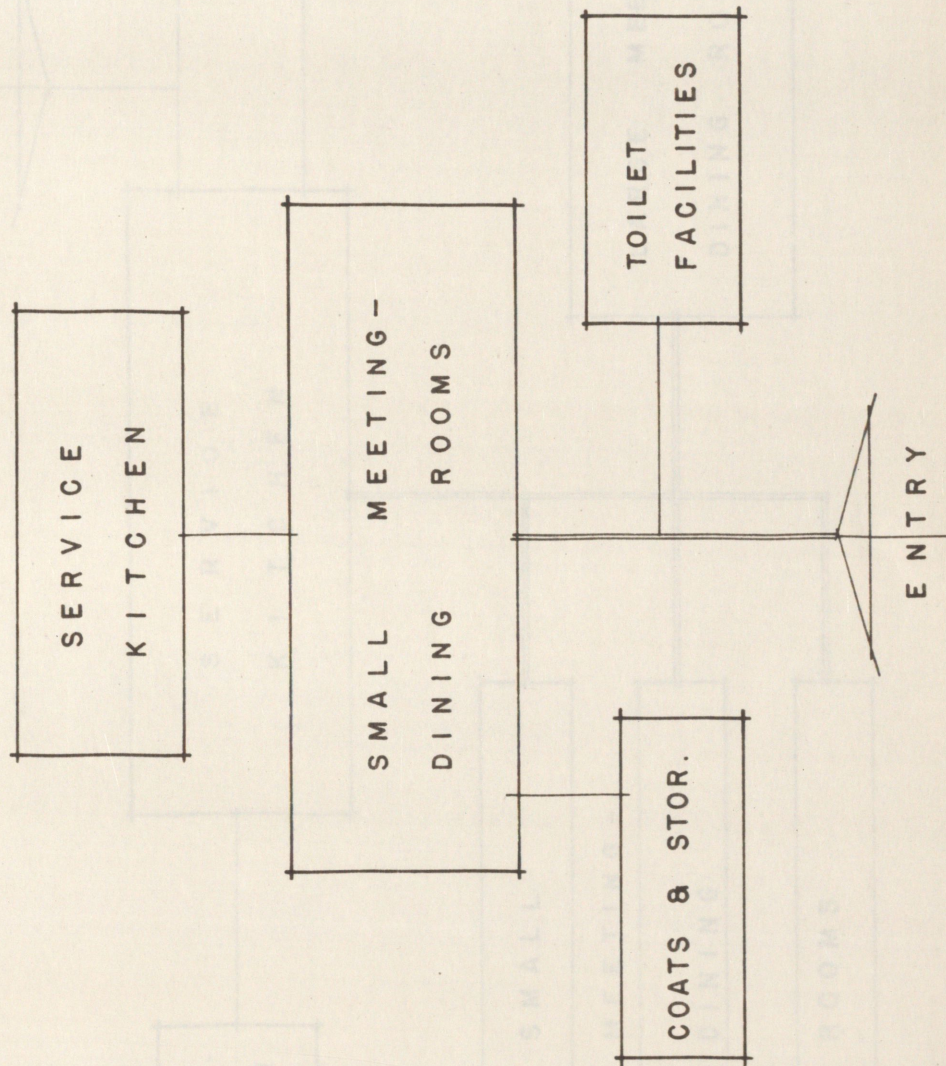
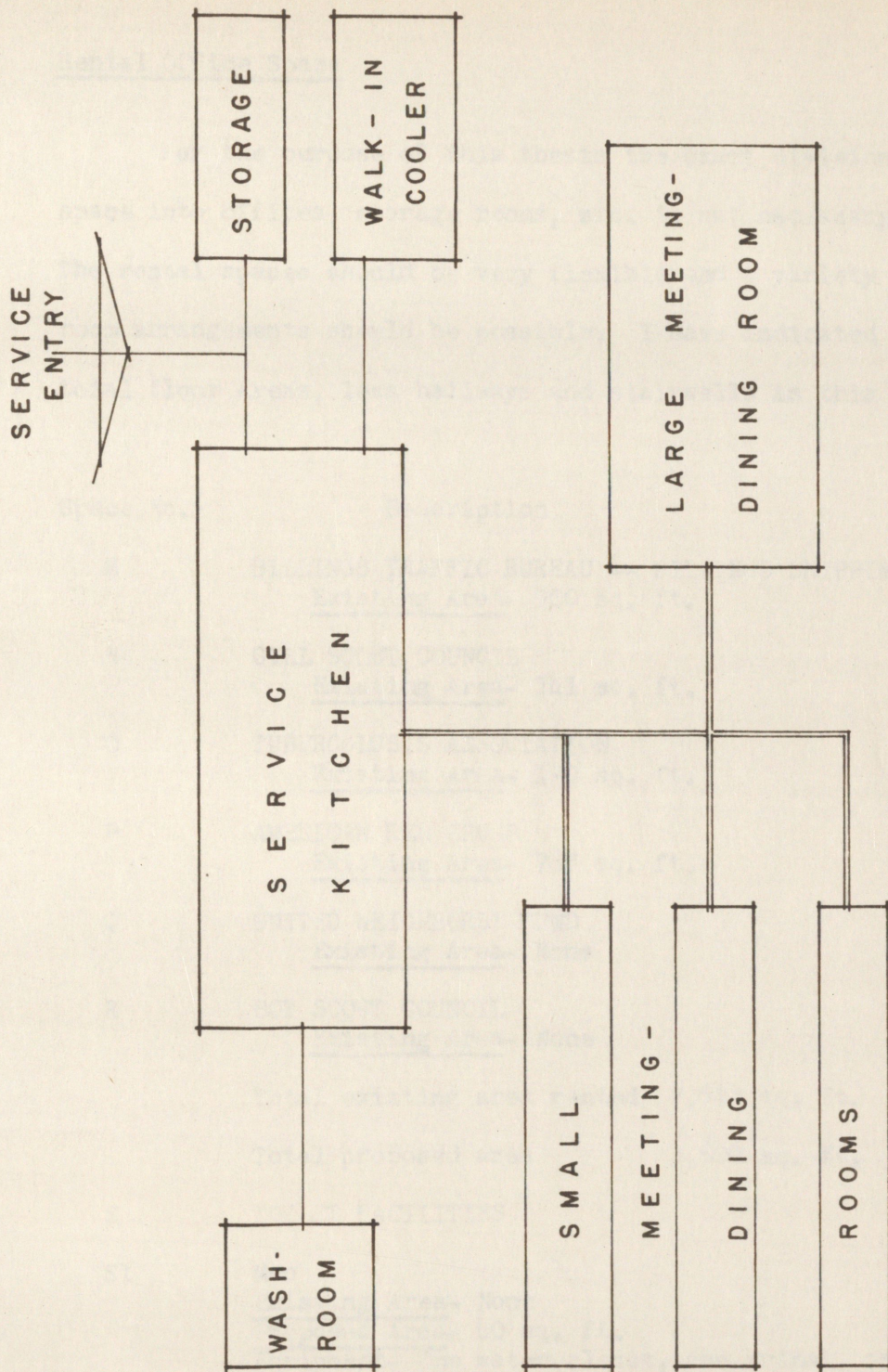


FIGURE 24

Large Meeting-Dining Room Flow Diagram



Small Meeting-Dining Rooms Flow Diagram



Service Kitchen Flow Diagram

Rental Office Space

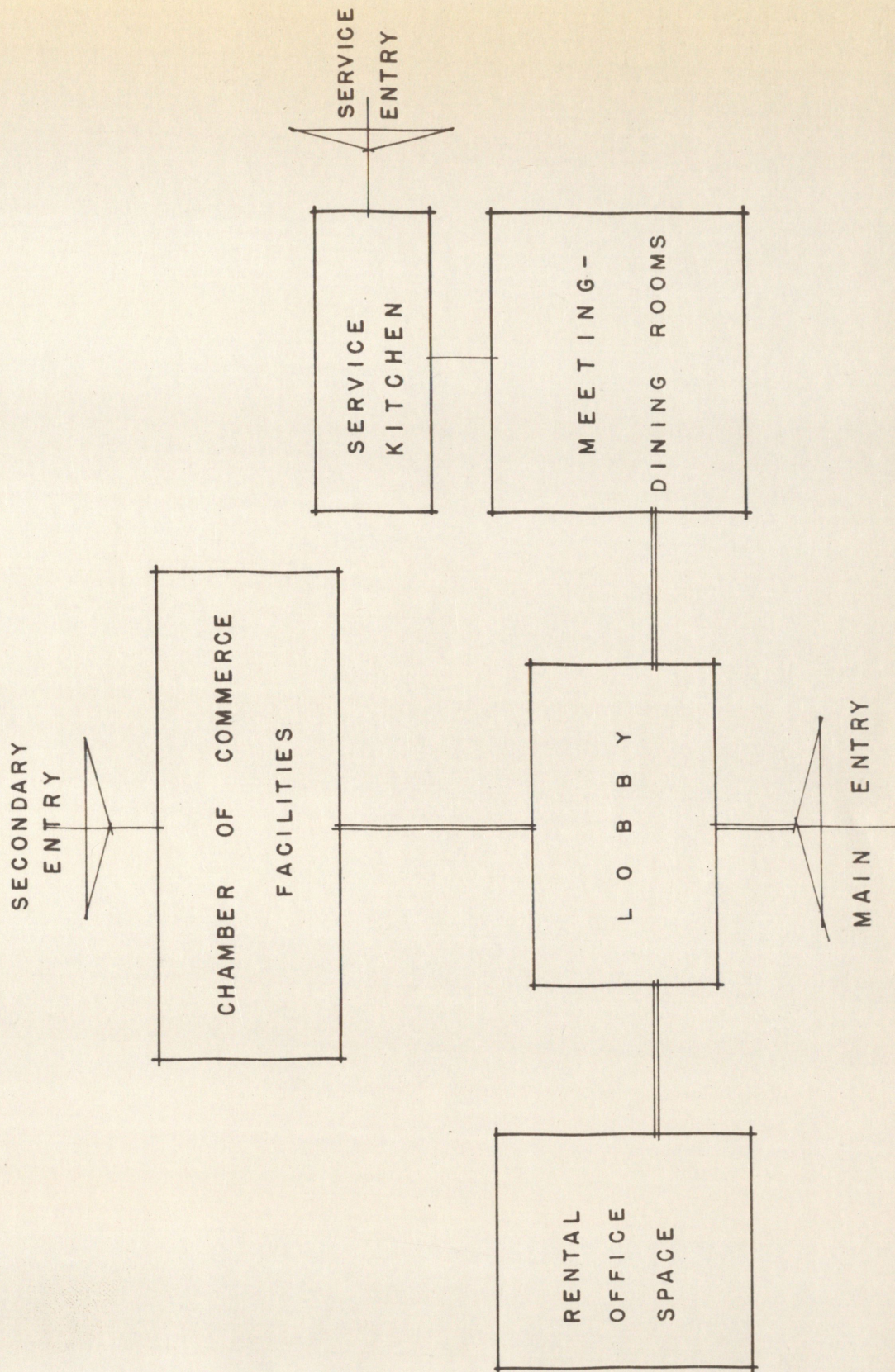
For the purpose of this thesis the exact division of space into offices, storage rooms, etc. is not necessary. The rental spaces should be very flexible and a variety of room arrangements should be possible. I have indicated only total floor areas, less hallways and stairwells in this section.

Space No.	Description
M	BILLINGS TRAFFIC BUREAU -- BILLINGS SHIPPING CORP. <u>Existing Area-</u> 900 sq. ft.
N	GIRL SCOUT COUNCIL <u>Existing Area-</u> 741 sq. ft.
O	TUBERCULOSIS ASSOCIATION <u>Existing Area-</u> 190 sq. ft.
P	AMERICAN RED CROSS <u>Existing Area-</u> 787 sq. ft.
Q	UNITED NEIGHBORS' FUND <u>Existing Area-</u> None
R	BOY SCOUT COUNCIL <u>Existing Area-</u> None
	Total existing area rented 2,618 sq. ft.
	Total proposed area 3,500 sq. ft.
S	TOILET FACILITIES
Sl	Men <u>Existing Area-</u> None <u>Proposed Area-</u> 40 sq. ft. <u>Equipment-</u> One water closet, one urinal, one lavatory.

Space No.	Description
S2	Women <u>Existing Area</u>- 170 sq. ft. <u>Proposed Area</u>- 80 sq. ft. <u>Equipment</u>- One water closet, one lavatory, one lounge couch.
T	JANITOR CLOSET <u>Existing Area</u>- 90 sq. ft. <u>Proposed Area</u>- 100 sq. ft.

Area Totals

Proposed Space Area	11,480 sq. ft.
Plus 20% for hallways, and stairs	<u>2,296</u>
Total Proposed Area	<u><u>13,776 sq. ft.</u></u>



Flow Diagram - General

G. *ECONOMIC CONSIDERATIONS*

ECONOMIC CONSIDERATIONS

Financing the Project

"Financing a new home for the chamber of commerce is usually the simplest part of the building or remodeling program. This statement has proven to be true in spite of the fact that frequently the problem of financing stops the effort before it starts."¹²

It is not the intent of this thesis to determine a method of financing for this project, but only to present several possible methods for consideration by the board of directors. "The best method of financing will emerge after careful study of the membership and the manner in which they support the operational budget."¹³

A local fund drive is one possible method of raising the money. A fund drive may be one of several different types. It may ask for outright donations. A similar scheme would be to ask for donations pro-rated over a period of four years. A "price tag" could be put on the various parts of the building and "sold" to members. Another variation would be to have a \$100 per plate dinner.

Any successful fund drive requires good advertisement, usually in the form of a brochure. The brochure would indicate

¹²Chamber of Commerce of the United States, Building Progress with Better Quarters (Oct. 1962), p. 6.

¹³Ibid., p. 7.

the need of the project, the details of the total project, an outline of amount needed, a scale of requested subscriptions, and a pledge card with payment schedule.¹⁴ The presentation should be carefully worked out and should be elaborate enough to be appealing. The success of any fund drive depends upon the reaction of the community. Many communities have adverse reactions to fund drives of any kind. This reaction must be carefully considered when deciding on the type of drive to use.

Another method of financing is through financial institutions. A local bank, a savings and loan association, or an insurance company are a few such institutions. The payments are made from the chamber's operating budget. This may require an increase in membership dues.

The income received from the rental office space will be only a minimal addition here. The rates now being charged in new office buildings are from \$4.25 to \$4.50 per square foot of floor space. The tenants in the chamber's building would not be able to afford these high rates.

Another method would be to double the membership dues for one, two, or three years. This may be preferable to asking for individual member donations.

In considering methods of financing it must be remembered

¹⁴Ibid., p. 7.

that "A building is, after all, a tool with which the chamber increases its ability to serve, and is not an end in itself."¹⁵

Construction Costs

The first thing to be considered is the demolition of the existing building. I interviewed two Billings architects on this subject. Their estimates ranged from \$5,000 to \$10,000. This includes preparing the site for construction of a new structure. The demolition contractor has the right to salvage all materials he desires. This helps reduce the cost of the demolition.

At this stage of the project it is impossible to give an accurate estimate of the total project cost. The type of structural system, kinds of materials, and arrangement of spaces are not yet known. I can indicate the cost range by applying standard, average square foot costs of similar buildings to the proposed areas. The proposed areas, however, will change as space functions are combined and altered. These cost per square foot figures were obtained from the Marshall Valuation Service.

"Office Building"

Class C Construction (light steel framing)

Good Quality Materials and Finish

per sq. ft. \$10.86

13,776 sq. ft. x 10.86 \$149,600 Total construction cost

¹⁵Ibid., p. 7.

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