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A CITY HALL FOR MISSOULA, MONTANA

Part I

Undergraduate Thesis in Architectural Design

by

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Submitted to the School of Architecture in partial fulfillment of the requirements for the degree of Bachelor of Architecture

at

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INTRODUCTION

A city hall will mean different things to different people. To the mayor it may mean a businesslike house for the city government which represents a progressive city. To the city employee it may mean a comfortable and efficient place in which to work. To the citizen it might mean a progressive government making the city a better place in which to live. A city hall can affect the environment of a city in many ways. A city hall is also a small part of the environment of a city, as distinctive to the character of a city as a car or house is distinctive to an individual.

Like any other structure in a city, a city hall should add to the total environment of a city. It should not live off the environment like the city hall in Missoula does. The Missoula city hall does not characterize growth, order and efficiency. It does not characterize a good place to work or a good city in which to live. It does not characterize progress. In short, the Missoula city hall is what a city hall should not be. In this thesis project, of which this paper is but the first part, I will endeavor to define what a city hall should be in Missoula.

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THE NEED

THE NEED

INTRODUCTION

The present city hall in Missoula, Montana was constructed just after the turn of the century. It was built at a time when the city was recovering from the depression of the 1890's and was entering a period of prosperity as the commercial center of western Montana. The building was intended to be the temporary quarters of the city government.[1] In the decade from 1900 to 1910, during which the city hall was built, the city's population increased from 4,300 to 12,800; and its economy was being bolstered by the University of Montana, which opened its doors in 1895.[2] Sixty years later that same "temporary" building is still serving as the Missoula City Hall. Only now the city has a population nearing 50,000, and its economy is one of the most stable economies in the state. The University of Montana now has an enrollment of 6,400 students. This enrollment is larger than the population of the whole city at the turn of the century.[3] This outdated city hall can not begin to meet the needs of the present-day or the future city, and the following text will point out its predominant inadequacies.

A LACK OF SPACE

The most common complaint about the city hall is the lack of adequate space. On this subject Missoula's mayor, Richard G. Shoup, has stated, "This building is totally inadequate as far as space is concerned --- we are trying to conduct business in four different places all over the city."[1] A person needs only



FIGURE 1: North & West Elevation



FIGURE 2: South & West Elevation

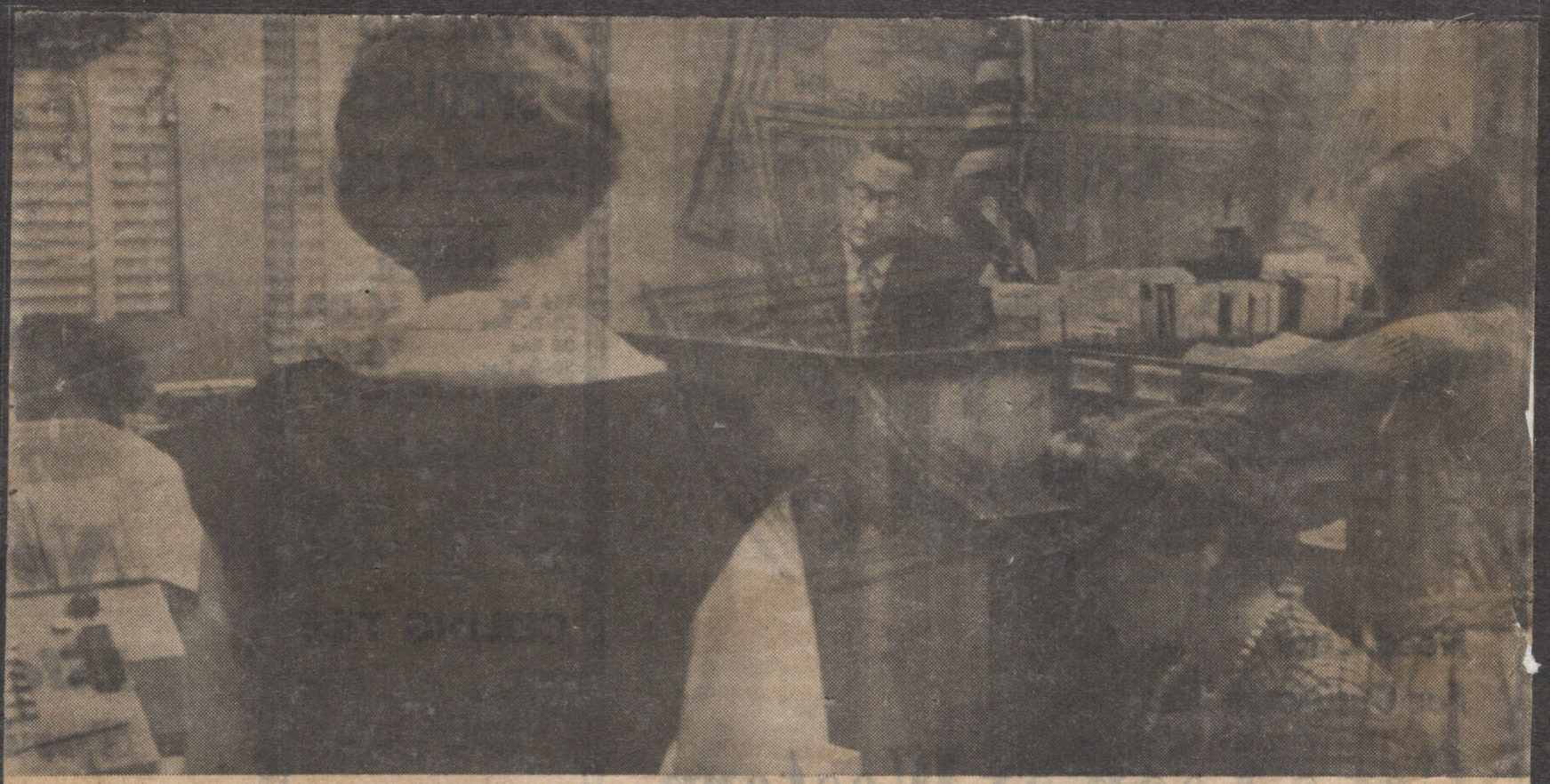
to look as far as the city telephone directory to find the truth of this statement. City offices are listed in the city hall on Woody Street, in the fire station on Pine Street, in the city garage on West Broadway, and in the city attorney office on Higgins Avenue. Joint city-county offices are located in the Missoula County Courthouse. This diversification of city offices makes it hard for the head of one department to confer with the head of another. And even with this diversification there is not enough space within the individual offices. This can be seen by studying the offices located in the city hall.

The mayor's office and staff are located on the second floor of the city hall. Figure 3 is a picture showing the mayor's office. The picture was taken by a reporter for the newspaper, The Missoulian, and the caption with it gives an adequate description of the existing conditions. The police station and police court occupy the first floor of the city hall. Figure 4, also taken from The Missoulian, shows police judge, Wallace N. Clark, and his three clerks at work. The caption that goes with this picture indicates what Judge Clark puts up with to dispense justice. The city jail, which is located in the basement of the city hall, is not used for a jail because it is unsanitary and dungeon like. The police must use county facilities, which is inconvenient. And, not one room in the city hall is large enough to hold council meetings and allow public attendance at the same time. Public meetings are held in the headquarters fire station and are often interrupted by fire calls.[4]



CRAMPED BETWEEN a secretary's desk, a file cabinet, an automatic copying machine and a coat rack lies the mayor's office — several square feet in a corner that barely allows room for a bookcase, three chairs and a desk. Mayor Richard C. Shoup (at left) briefly surveys his small office before leaving for a meeting, held elsewhere because of lack of space in city hall.

FIGURE 3



POLICE COURT, occupying a small room on the first floor of city hall, is one of the most crowded city departments. Police Judge Wallace N. Clark (rear) sits on a raised bench so that he can see the people that are called in to appear before him, while in the foreground two clerks and an office girl conduct routine police court business. From left Pearl Payson (with back to camera) checks on an unpaid parking tickekt in one of the many filing cabinets while Anna Coulter and Kathy Halvari wait their turn. At the extreme left of the picture Neva Keith is hidden by another filing cabinet.

FIGURE 4

STRUCTURAL WEAKNESS

Lack of space alone does not justify abandoning the building altogether but a structural weakness does. Figures 1 and 2, exterior elevations of the city hall, suggest that the building is not in the best structural condition. Mayor Shoup describes the building's condition with these words:

> "The roof leaks, the building is sagging and falling, the mortar is falling apart, the boiler is condemned, the wiring is bad and some outlets are useless, and the plaster is cracking and falling."[4]

Mayor Shoup is not just voicing his own views with these words. In a letter dated January 7, 1966, Fire Marshal Joe Fetter urged former Mayor H. R. Dix and the City Council to vacate the building and demolish it because it was unsafe. Fetter pointed out that the wiring was generally unsafe, the boiler was not properly isolated and presented a fire hazard and that bricks were loose and falling out. Two weeks later on January 28, 1966, an inspection by John R. Miehle of the State Department of Safety backed up Fetter's charges. Some of the comments in Miehle's report stated that the structure was very unsound and very inadequate; that aisles and walkways were too small for the traffic; that there is only one exit from the top and basement floors; that the electrical system was very old, did not have enough circuits and much of it was not in conduit.[4] These reports indicate the need for a new building. In fact, from what I have read the present city hall was not adequate even when it was first built. It was supposed to have been a "temporary" structure. So for sixty years Missoula has neglected to build a permanent city hall. I think the time has come.

LOCAL CONDITIONS

LOCAL CONDITIONS

GEOGRAPHICAL

Missoula is situated in the midst of the Rocky Mountains in western Montana, two hundred forty miles south of the Canadian border and thirty-five miles northeast of the Idaho boundary, figure 5. The mountains which rise in every direction around Missoula, even from the very edge of the city itself, figure 6, have focused and controlled the city's growth since its founding.[2] The mountain slopes are abundant with timber for industry and the valleys between the mountains direct lines of communication and carry the water necessary for life and growth.

Four river drainages; the Clark Fork, Blackfoot, Bitter Root and Swan; make up Missoula County of which Missoula is the county seat. Of these, all but the Swan River find their way through the city itself. From the east, the Clark Fork River flows through Hell Gate Canyon, through Missoula, and makes its way down the Missoula valley past Superior and Paradise, Montana to the Columbia River. Three miles east of Missoula the Blackfoot and Hell Gate valleys converge and the Blackfoot River flows into the Clark Fork. The Bitter Root valley meets the Missoula valley on the southwest edge of the city and the Bitter Root River flows into the Clark Fork. Northwest of Missoula the Flathead-Jocko valley meets the Missoula valley. Thus, five valleys focus on Missoula making it the hub of western Montana. The importance of these five valleys is shown in the history and economic growth of the city.


BRITISH COLUMBIA
ALBERTA
MONTANA
IDAHO
Browning
Shelby
Kalispell
Conrad
Choteau
Sanders
Polson
Kellogg
Lake
Ronan
Augusta
Superior
MONTANA
IDAHO
Missoula
Missoula
Mineral
Lolo
Helena
Kamiah
Grande
Hamilton
Anaconda
Grangeville
Butte
Pocatello
N
Salmon
Dillon
RETAIL TRADE AREA
Clark, Coleman & Rupeiks, Inc.
Seattle - Helena
MONTANA
IDAHO
Ashton

FIGURE 5

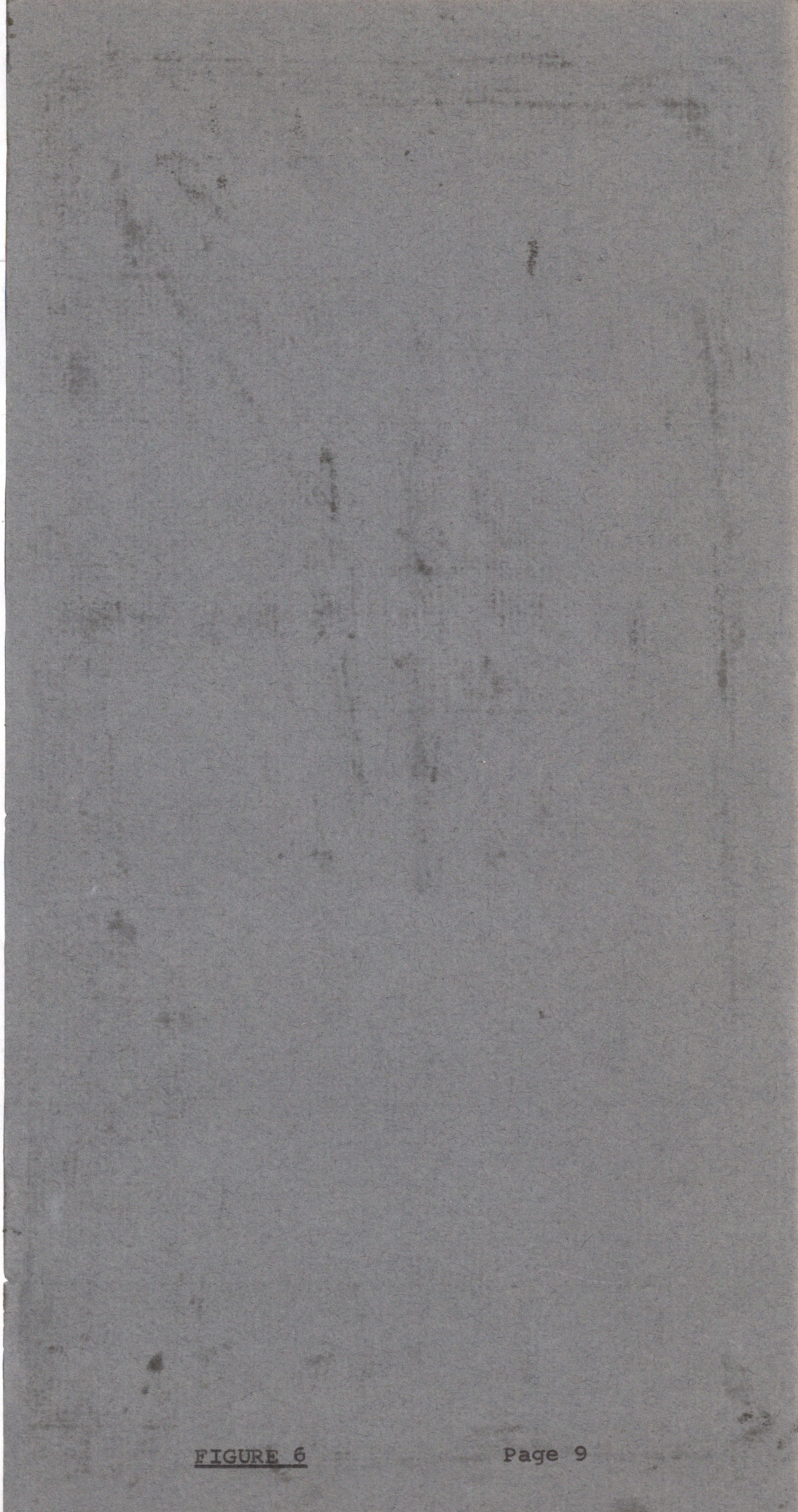


FIGURE 6

LAND CHARACTERISTICS

N

Legend

Land over 25% Slope
Land Subject to Flooding
Jurisdictional Area

Contour Interval 100'

FIGURE 4

Clark, Coleman & Rupeika, Inc.
Helena - Seattle

HISTORY

The first settlement in this vicinity started out as an Indian trading post and was founded in this location for two reasons. First, the Indians traveled along the rivers in the mountain valleys and five well-traveled routes met in this area. Second, Hell Gate Canyon was, and still is, the only route east out of the Missoula valley. In fact, "For transcontinental traffic, it is the only feasible pass through the mountains between the present line of the Great Northern Railway near the Canadian boundary and the Union Pacific Railway in southern Wyoming."[2]

In 1865 a saw mill and a grain mill were built on Rattlesnake Creek so that its water could be used for power. The Hell Gate settlement joined with this settlement and Missoula was founded. The site had been well chosen and the city began to grow because of its location.

ECONOMY

Missoula's location at the hub of five valleys has been the primary factor in the city's economic growth. Being located at the intersection of north-south and east-west traffic in western Montana, Missoula's sphere of influence was able to expand in all directions. Thus, when the Northern Pacific Railroad built its line through Hell Gate Canyon in 1883, Missoula became the commercial center of western Montana.[2] Recent studies show that Missoula is the commercial center of a six-county area, figure 5. The 1965 population of this area was 90,300. This is expected to increase to 123,600 by 1985,

thus insuring the commercial growth of the city.[5]

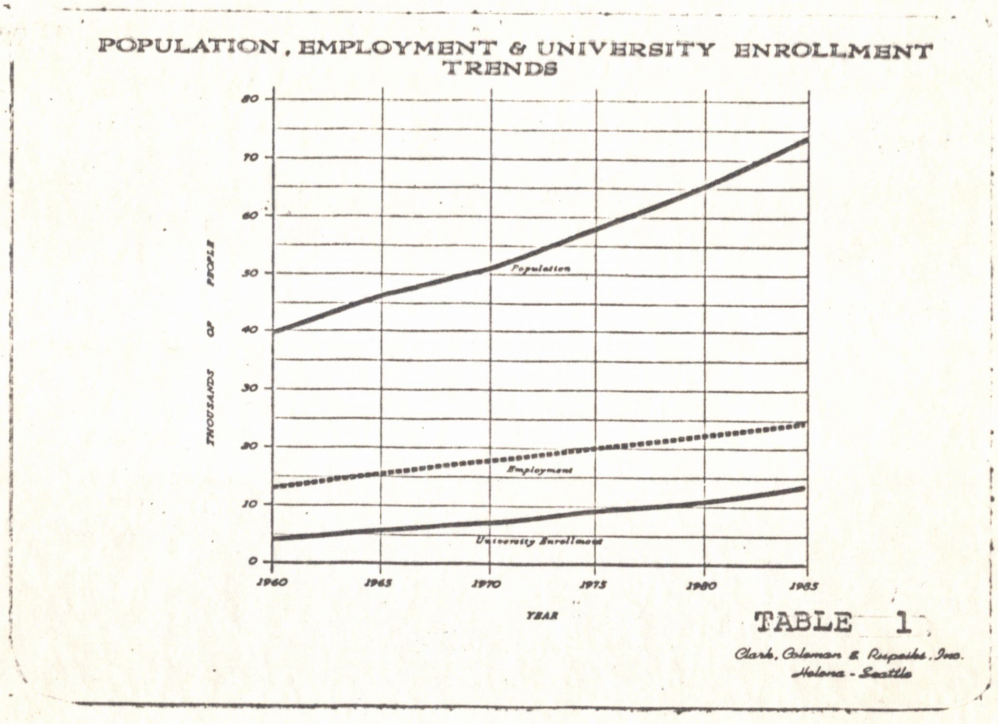
In addition to commerce, the railroad also brought industry to Missoula. There was a large market for lumber in the Butte mines, and the mountains around Missoula were covered with trees. The railroad provided the necessary connecting link between the market and the supply, and the lumber industry was established in Missoula.[2] In recent years the demand for finished lumber has declined, but other industries utilizing wood have taken up the slack. Companies such as the Hoerner Waldorf Corporation and the Van Evan Plywood Corporation will help Missoula's lumber industry grow.[5]

Missoula's economy received its second boost when the University opened its doors in 1895. As the University's enrollment increased, its economic importance to the city also increased. The economic influence of the University helped soften the affects of the depression after World War II and has been a stabilizing factor in Missoula's economy.[2] Today, with an enrollment over 6,400, the University is a major factor in Missoula's economy. This influence will not be any less in 1985 when the enrollment is expected to reach 13,200, table 1.

POPULATION

In 1965 population of the Missoula metropolitan area surpassed 46,400. The 1965 county population was 50,300. The population forecast for 1985 predicts a county population of 78,200 and a city population of 73,500, table 1. This indicates that only 900 people will enter the county and live outside the metropolitan area. Furthermore, records show that the 9,100

people added to the county population between 1950 and 1960 were all added within the metropolitan area. This indicates an increasing trend toward centralization of the population within the county.[5]



CLIMATE

The climate of western Montana is relatively mild compared to that of eastern Montana. Summers are cooler and the winters are warmer. The mountains will confine clouds and smog in the valleys but they also block most of the strong winds.

The valley temperatures in the Missoula area are usually warmer than those of the higher mountains. The summers are pleasant with few periods of hot, humid weather. Winters are chilly but not severe. There will be snow on the ground three or four months out of the year.

CLIMATE CONT.

Wind

The prevailing wind direction over Missoula is from the northwest. Throughout most of the year storms come in from the Pacific. However, the most severe winter storms come down from Canada and roar out of the east through Hell Gate Canyon. The highest wind on record was 57 miles per hour in May 1954. But strong winds are not common to this area.[6]

Sun

The sun shines 53% of the time during the average year. This ranges from 25% during December to 78% during July. The average year has 207 cloudy days and 138 partly cloudy to clear days. On a clear summer day sun conditions will be severe when the sun is low in the sky. Table 2 gives data on the position of the sun at various times during the year.

Time: 2 PM.

DATE	ALTITUDE	AZIMUTH
December 22	15	28 W of S
February 19 October 23	26	34 W of S
March 21 September 23	35	38 W of S
April 20 August 24	46	45 W of S
June 22	57	56 W of S

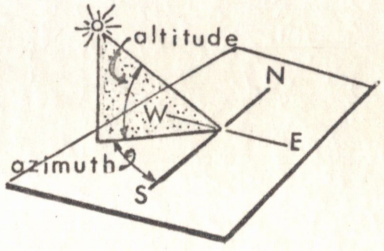


TABLE 2 Sun Chart

CLIMATE CONT.

Rain

Missoula receives less than 16 inches of rain yearly which puts it in a semiarid classification. The heaviest rains occur during the spring. Table 3 gives the average monthly rainfall for Missoula.[6]

Temperature

In the average year Missoula has 137 growing days. Average summer temperatures range in the sixties. Average winter temperatures range in the twenties. In the average year there are 13 days of below zero temperatures and 18 days when the temperature rises above 90. January is usually the coldest month with the last spring freeze occurring in mid-May. Table 3 gives the average monthly temperature for Missoula.[6]

Month	Average Temperature	Average Rainfall
January	21.6	1.01
February	27.2	0.86
March	35.3	0.87
April	44.9	1.03
May	52.8	1.81
June	50.8	2.01
July	67.7	0.94
August	65.9	0.86
September	56.2	1.23
October	45.4	1.06
November	33.1	1.08
December	25.2	1.12

TABLE 3: Temperature and Rainfall

SITE CONDITIONS

SITE CONDITIONS

PROPOSAL

The selection of a site for the proposed city hall is as critical as the design of the building itself. Harold MacLean Lewis writes in Planning the Modern City, "As a store or theatre must be located conveniently to the people to be served, so should a public building." About city halls he says, "The courts, city hall, and similar government agencies which must be visited by large numbers of people should be in the downtown areas where they are convenient to the most people, but on the edge of, and not in the center of, the main retail and commercial center. The first consideration in locating any public structure must be the relative usefulness of that location for the purposed served. The second consideration should be the relationship of the function of that particular structure to other functions."

The Clark Fork River winds its way through Missoula dividing the central business district (CBD) from the main residential district to the south, figure 7. And as Kevin Lynch says in his book Site Planning, "Water is the center of interest in a landscape, whether near or distant." After Studying the comments of both Lewis and Lynch, I am proposing a site on the north bank of the Clark Fork River at the southwest edge of the CBD, figure 8.

ORIENTATION

The proposed site would locate the city hall on the river

MISSOULA COMPREHENSIVE PLAN

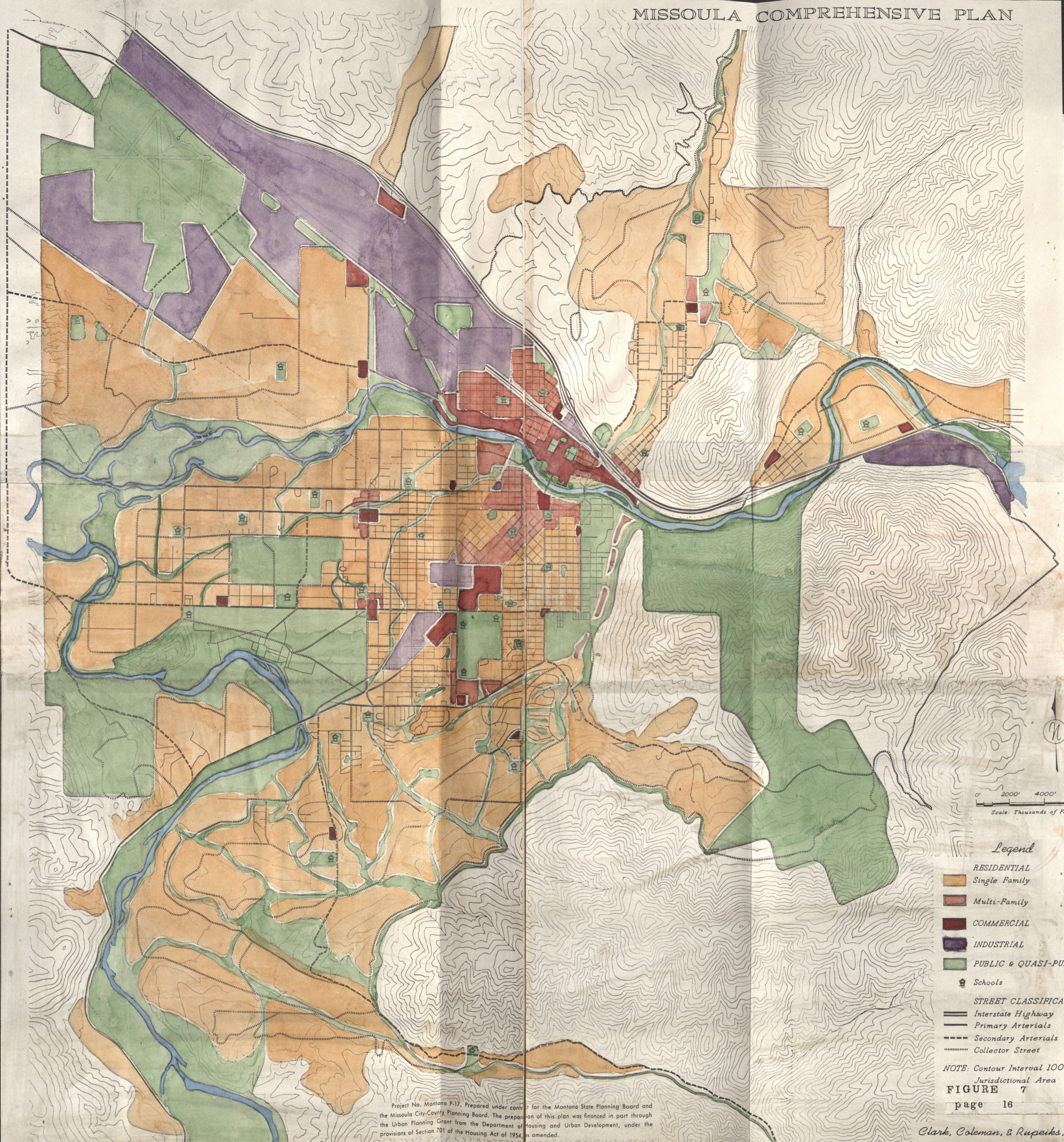


FIGURE 7

Project No. Montana P-17. Prepared under contract for the Montana State Planning Board and the Missoula City-County Planning Board. The preparation of this plan was financed in part through the Urban Planning Grant from the Department of Housing and Urban Development, under the provisions of Section 701 of the Housing Act of 1954, as amended.

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CBD LAND USE PLAN



Legend

- PRIMARY RETAIL
- SECONDARY & CONVENIENCE RETAIL
- OFFICE & SERVICES
- OTHER
- HOTEL & MOTEL
- MULTI-FAMILY RESIDENTIAL
- PUBLIC & QUASI-PUBLIC
- PARKS & MALLS

FIGURE 8

page 17

Clark, Coleman & Rupeiks, Inc.
Helena-Seattle

bank between two major arterials that connect the CBD with the residential district to the south. The city hall could become a major focal point in the city, readily viewable from all directions.The north side of the site, figure 9, can be viewed from four directions. The north side can be seen from Orange Street, figure 10; from Main Street, figure 11; and from two directions on Front street, figures 12 and 13. The south side can be viewed from three directions. It can be seen from Orange Street bridge, figure 14; from the direction of Higgins bridge, figure 15; and it can be seen from across the Clark Fork River.

ADJACENT ENVIRONMENT

The site will be the beginning of a civic center complex and will be located in a park like environment. However, the site is located on the south edge of the CBD, and the adjacent environment is of a commercial nature, figure 16. To the north, across Front and Main Streets, are a radio-television station and an automobile dealer. To the west, across Orange Street, are located a service station and a movie theater. However, the streets that separate these commercial enterprises from the site are wide enough to provide visual separation of the spaces. Right now a number of commercial enterprises are located on Front street just east of the site. However, the Missoula Comprehensive Plan proposes that the site just east of this proposed city-hall site be used for a new library. The plan also proposes that the area along the river bank between the Orange Street and Higgins Avenue bridges be developed into a park. See the CBD Land Use Plan, figure 8.



FIGURE 9: Existing North Elevation Site



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13

FIGURE 14

Site as Viewed From Orange St. Bridge.



FIGURE 15

Site as Viewed From Vicinity of Higgins Bridge.



FIGURE 16

Commercial Environment North and West of Site.





TOPOGRAPHY

The north side of the proposed site is approximately twenty feet higher than the river level at the south edge of the site. The site makes two steps down to come to river level, once about thirty feet from the north edge and again at the river bank. Thus the site has two relatively flat areas at two different levels.

Except for one small group of trees near the south edge of the lot, there is no vegetation to mention.

SOIL ANALYSIS

In general, soil conditions pose no problems to construction in the Missoula area. With few exceptions, gravel will be found below the thin layer of top soil, and footings can be placed directly on the gravel base. No test holes have been sunk on the site, but the State Highway Department sank one during the planning of the new Higgins Bridge just east of this site. The results are shown in table 4 and give a good

El. 3184.20	Top of Dike
	.....Rocky soil
3175.30	.....Gravel and soil
3164.00	.....Gravel and boulders
3156.00	.....Sandy gravel with little clay
3146.40	.....Fine sand
3141.50	.....Water flow
3123.00	.....Sandy gravel
3120.40	.....Gravel sand - bottom of hole

TABLE 4: Soil Test Data

description of the soil conditions in this area. According to the National Building Code, This type of soil has a bearing value of 6 tons per square foot.

IMMEDIATE AND DISTANT VIEWS

The immediate views to the north, east and west are limited by the built-up commercial areas, figure 17; but the view to the south looks over the river toward Missoula's major residential area, figure 18. The comprehensive plan proposes that both the north and south banks of the Clark Fork River behind the site be developed into parks. Furthermore, the plan proposes that the north bank between the Higgins and Orange Street bridges be developed into a civic or community center.

Since Missoula lies in the midst of the Rocky Mountains, all distant views around Missoula take in a background of mountains. The Bitter Root Range lies to the west, the Sapphire Range to the east, and the Mission Range to the north, figures 17 and 18.

UTILITIES

All utilities; water, gas, sewer, electricity and telephone; are connected to and adequate for the structure now on the site. These utilities would probably not be adequate for the size of the proposed project. However, there are adequate feeder systems with in the area, and only new lines from the feeder systems to the building would have to be replaced.



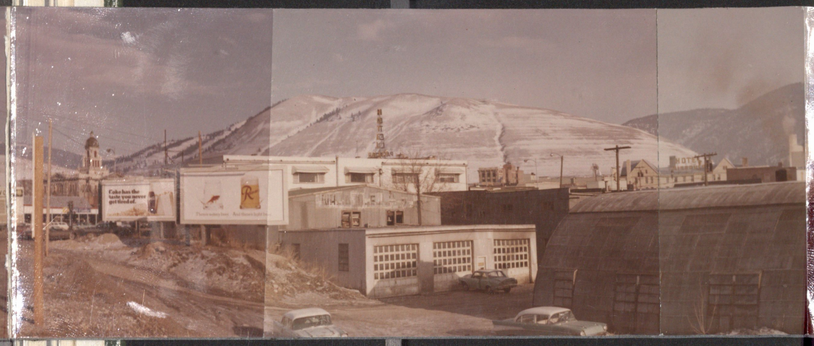




FIGURE 17: Immediate and Distant Views North and East of Site.







FIGURE 18: Immediate and Distant Views South and West of Site.

TRAFFIC PATTERNS

The CBD Traffic Circulation and Parking Plan, figure 19, shows that the area around the proposed site is served by three arterials; Orange, Main and Front Streets. The plan also proposes that a collector street, Woody Street, be extended past Main and Front Streets, along the east side of the site, and through the park development to connect with Lavasseur Street. This pattern would facilitate access to and departure from the city hall site. It would also facilitate access to all parts of the city. Orange Street, as a primary arterial, would carry traffic to the north and south sections of the city and to an interchange on Interstate 90. One-way secondary arterials, Main and Front Streets, will carry traffic between the east and west sections of the city.

The comprehensive plan predicts that by 1985 Orange Street bridge will carry 21,000 vehicles per day. The present overtaxed-two-lane bridge will not be able to carry this increased load and provisions should be made for a new four-lane structure. Front and Main Streets should be able to carry their expected load of six to seven thousand vehicles per day by eliminating the parking strips on both sides of the streets, thus providing more traffic lanes.

CODES

The only codes which are in effect in Missoula are national and state building , plumbing and electrical codes. The city has no codes of its own and attempts to regulate only land use through zoning regulations.

CBD TRAFFIC CIRCULATION AND PARKING PLAN

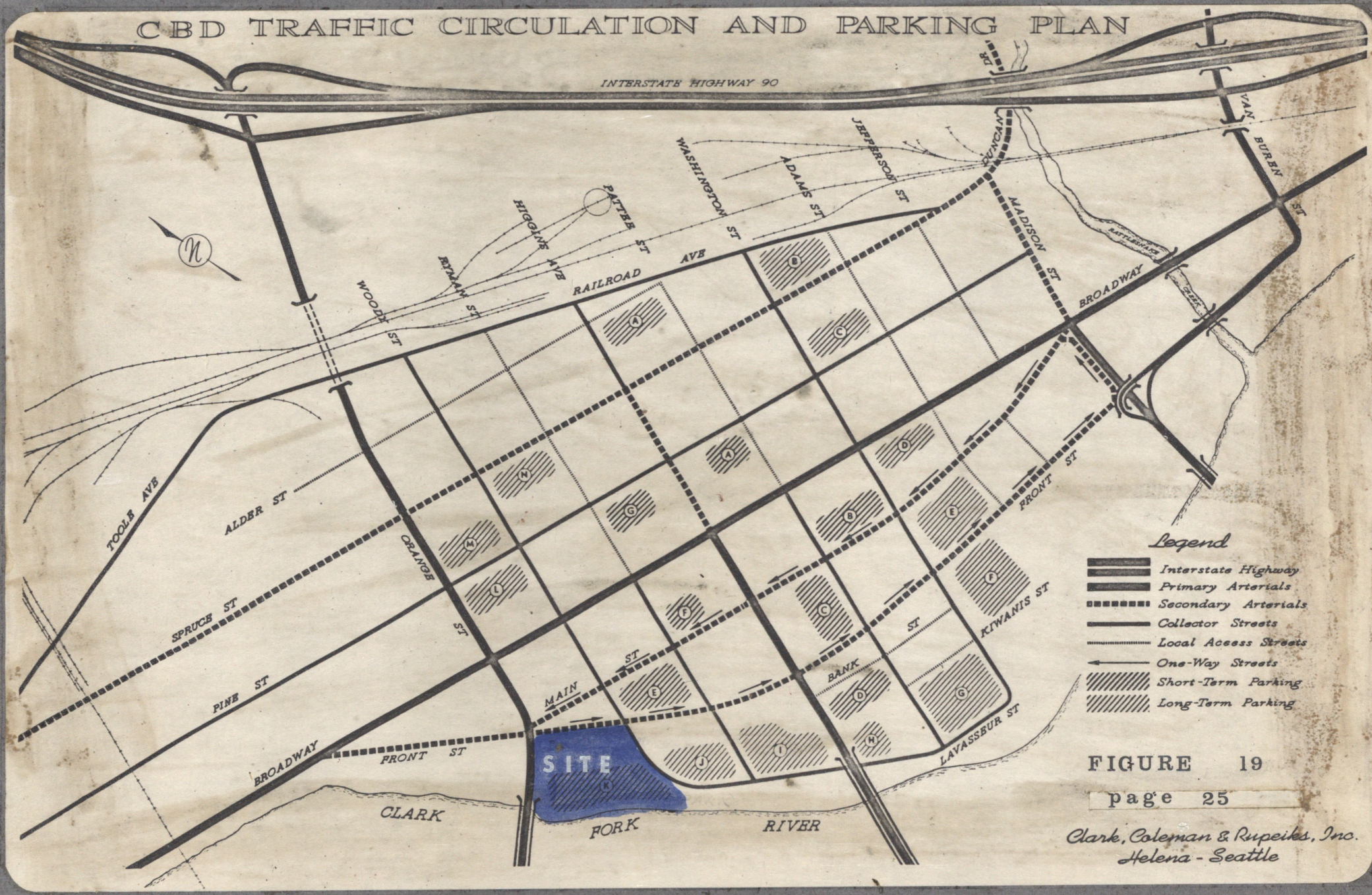


FIGURE 19

page 25

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BUILDING FUNCTION

BUILDING FUNCTION

INTRODUCTION

A city hall is a public building and must serve both the city and the people within the city. While the demands of the city and the people are not incongruous, the demands of each will affect the function of the building more in one area than in another. The city demands adequate space to meet its needs in years to come and the spaces must be arranged to facilitate efficient and effective administration. The people demand economy and an orderly arrangement of space to facilitate public traffic.

This project will provide space for three functions of the city government; legislative, administrative and law enforcement. The principal spaces related with each of these functions are listed below.

Legislative

City Council Chamber

Administrative

Mayor's Office
City Attorney's Office
City Clerk's Office
City Treasurer's Office
City Engineer's Office
City Planning Office
Building Inspectors' Office
Sewer Department
Street Department
Parks and Recreation Department

Law Enforcement

Police Court
Receiving and Assisting The Public
Administrative Operations
Police Divisional Operations

Law Enforcement Cont.

Prisoners and Jail Facilities
Police Personnel Requirements
Police Property Requirements

The arrangement of the required spaces will have to satisfy two criteria. First, the spaces must be arranged according to their function within the city government and their relation to other spaces. And second, the spaces must be arranged to their degree of public contact. The space relation diagram, figure 20, shows the various relationships of the spaces.

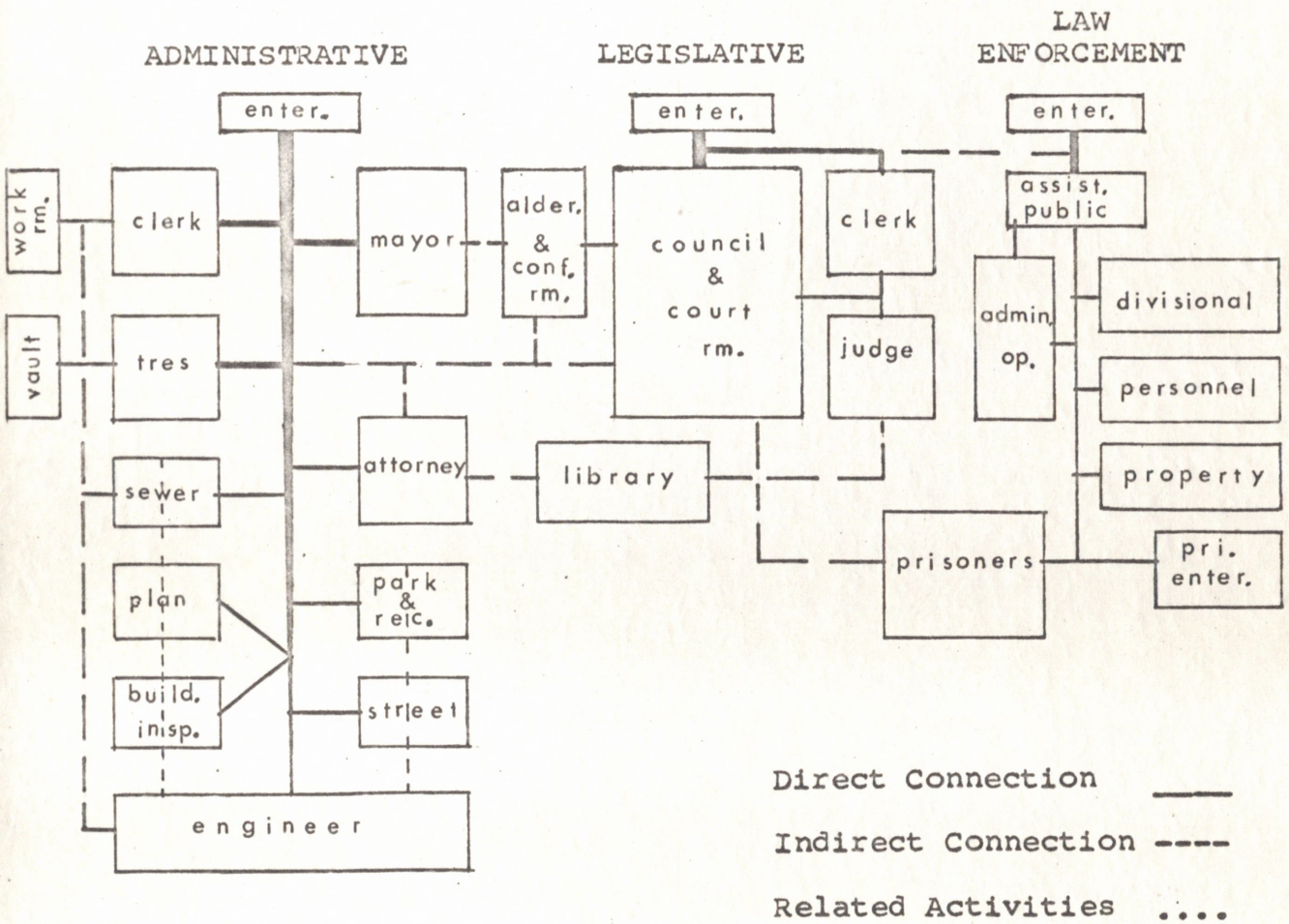


TABLE 20: Space Relation Diagram

REQUIRED FACILITIES

CITY COUNCIL CHAMBERS

Data

The City Council is the legislative body of Missoula. The Council holds public meetings weekly to act on any business before the Council. Various committees will hold both public and private meetings throughout the week to consider their business. These meetings are usually held in the evenings so they will not conflict with private business of the members.

Those attending public meetings will attend either as participants or as spectators. The participants will include 12 aldermen, representing the six wards of the city; the mayor, as presiding officer; the city clerk, as council reporter with his secretary to take minutes; and the heads of the 10 city offices or departments. At times special guests may be invited to participate in the meetings. The number of spectators attending public meetings will vary. At meetings on controversial topics up to 200 spectators may be present. This number will grow as the city's population increases.

Room Spaces

1. Council Chamber. Both council and committee meetings will be held in the council chamber. The space must be large enough to hold both participants and spectators without the two intermingling. The participants should be provided with some form of desk and chair. Their arrangement should facilitate dignified and orderly meetings. The

spectators should be provided with permanent-type chairs or benches and arranged so that all can view the meetings. The Architectural Graphic Standards recommends that 7 to 10 sq. ft. per seat be allowed for spectator seating during preliminary design stages.

The council chamber should be located directly off a public area in such a place that the public does not have to walk through the whole building. It should have a direct exit to the outside.

If the plan permits, the council chamber might also be used as a police court during the day. The space is large enough and is of the same character.

2. Aldermen's Chamber. A space adjacent to the council chamber should be provided for the convenience of the aldermen. This space would allow them to confer privately before and after meetings. This room could also be used for small-private meetings of any type. It might also be used as the mayor's conference room or a jury room. Equipment should include a conference table with 14 to 16 chairs, coat storage and washing facilities. This room should have a private entrance in addition to the one leading to the council chamber.

MAYOR'S OFFICE

Data

Missoula has a strong-mayor, city-council form of government. This means the mayor is the full-time chief-executive of the city government and has ultimate responsibility over all

city departments. As the city leader, the mayor has to meet frequently with both department heads and with the public. He will also have contact with national and state officials.

Right now the mayor has two assistants to help with the work. He has a personal secretary to type and help with the paper work, and he has a receptionist who assists visitors and answers the telephone. The receptionist is not the personal assistant of the mayor, but works for more than one department. If the receptionist were centrally located, she could serve all administrative sections.

Since Missoula has a strong mayor, full responsibility for the city government falls on his shoulders. Right now the mayor can handle the work load. But as the city grows this will become increasingly impossible. Therefore, space for an assistant to the mayor will be included in this project.

Room Spaces

1. Mayor's Office. The mayor needs ample office space near public areas. His office should have a desk and chair for himself and three or four lounge chairs for visitors. This office can be semi-private if he has access to a private conference room.

2. Assistant's Office. While the assistant does not need an office as large as the mayor's, he does need one similar to the mayor's. The public should have access to the office through the secretarial area, and the assistant should have access to the conference room. The assistant will also need a desk and chair for himself and two or three chairs for visitors.

3. Secretarial Area. The mayor's secretary needs a desk, chair and file outside the mayor's office but screened from major public areas so she can conduct her work with some privacy. She should have control over a small waiting area.

4. Receptionist. The receptionist should be centrally located so she can greet visitors and direct them to their destination. She will need a desk, chair and communication equipment.

5. Conference Room. The mayor needs a space where he can meet privately with all department heads, State and Federal representatives, and distinguished guests. This room should have a conference table with at least 10 chairs. If the plan allows, it could also be used as the aldermen's chamber.

CITY ATTORNEY'S OFFICE

Data

The city attorney conducts all the legal business of the city. He represents the city in all court cases and gives legal advice to city officials. He frequently has contact with city officials, but he has little contact with the public. The city attorney will have an assistant to help him research and conduct legal business, and he will have a secretary to assist him with the paper work and handle communications.

Room Spaces

1. City Attorney's Office. The city attorney needs a semi-private office with access to a conference room and library. His office should have a desk, chair, file, and shelves for

1. City Attorney's Office Cont.

himself and two or three chairs for visitors.

2. Assistant's Office. The attorney's assistant also needs a semi-private office with access to a conference room and library. His office should have a desk, three chairs, a file, and shelves.

3. Secretary. The secretary needs space with a desk, chair and files. She should be located so she can control entrance to the attorney's office, the assistant's office and the conference room. She should have visual control over a small waiting area.

4. Conference Room. The conference room will serve as a private meeting room for the attorney and his staff. This room should have a conference table and chairs for six persons. Use of the conference room might be shared with the police judge.

5. Library. The city attorney and his assistant need access to a law library. This library should have space for 600 volumes. There should be a desk and chair for three people, as the police judge will use this library too. The library could be combined with the conference room.

CITY CLERK'S OFFICE

Data

The city clerk has custody of all public records, documents, ordinances, resolutions, and orders of the city. Since the clerk and assistants issue city licenses and warrants, keep financial records and provide public information; this office

will be frequently visited by the public.

At present the city clerk has three assistants who wait on the public, file records and keep the city books in order. As the city grows and the work load in the clerk's office increases, additional clerks will have to be hired. This should be considered in the design of the space.

Room Spaces

1. City Clerk's Office. The city clerk needs a semi-private office containing a desk, three chairs, a file and shelves. He should be located so that he can supervise the work in the general office and help out if needed.

2. General Office Area. The majority of the city clerk's work will be conducted in the general office area. A counter should separate the work area from the public area. The area should contain three desks and chairs for the assistants, assorted files and a work counter. There should be access to a storage area, work room, and employees' room.

3. Record Storage. There should be two types of record storage. The clerk should have access to a general storage room for minor papers and documents and to a vault for important documents.

4. Work Room. The city clerk uses a number of machines in his work. Some of them create disturbing noises. There are other offices which use machines which make noise. All these machines should be located in one sound proof room which is convenient to all who use the machines.

CITY TREASURER'S OFFICE

Data

The city treasurer has custody of all city funds. The office collects all taxes and fees and pays all bills and demands against the city. Thus, the city treasurer's office will be visited frequently by the public. This department also keeps a record of all its transactions. The city treasurer will have one or two assistants to help him. And since the treasurer has to handle money, he needs access to and will control the vault.

Room Spaces

1. City Treasurer's Office. The city treasurer needs a semi-private office containing a desk, three chairs, a file, and shelves. He should be located so that he can supervise the work in the general office and help out if needed.
2. General Office Area. The majority of the city treasurer's work will be conducted by assistants in the general office area. Public transactions are conducted over a counter but the book work can be handled at individual desks. Therefore, each assistant will need a desk and chair. Space will also be needed for records that are kept outside the vault during the day.
3. Vault. The treasurer, city engineer, city clerk, and other offices have important documents which must be stored in a vault. There is a need for two types of storage, maximum security and record security. Records may be taken out of record security during working hours and moved to another location. The treasurer will be in charge of the vault.

CITY ENGINEER'S OFFICE

Data

The city engineer is in charge of all surveying and engineering work for the city. He prepares and keeps copies of all records and plats relating to the surveys, sewerage and streets connected with the city. He keeps a correct map of the city showing all additions thereto, and he prepares or co-ordinates plans and specifications for new street and sewerage construction.

At present the city engineer has one draftsman and a secretary, who he shares with the building inspectors, to assist him. Space should be provided for no less than two additional draftsmen and the engineer should have his own secretary.

Room Spaces

1. City Engineer's Office. The city engineer will need a semi-private office where he can supervise work in the drafting room while he goes about his own duties. He will need a desk, drafting table, chair, two visitors' chairs, files for plans and records, and shelves for reference material.
2. Drafting Room. The drafting room will be the general work area for the engineer's office. It should be able to accommodate at least three draftsmen with space for plans, records and reference material. This room should have access to the vault through the treasurer's office so that records can be wheeled into the vault for overnight safe-keeping.

3. Secretary. The secretary should be located where she can control traffic into the drafting room and engineer's office. She should have a desk and chair, and have visual control over a small waiting room.

BUILDING INSPECTOR'S OFFICE

Data

Missoula has three building inspectors whose duty it is to enforce building codes, electrical codes, and plumbing codes. They inspect new construction and make sure the codes are followed. One secretary can handle their paper work and help in the city planning office at the same time. The secretary's main duties would be to control visitors, help with the paper work, and handle communications.

Room Spaces

1. Inspectors' Office. All three inspectors can be situated in the same office. Each should have a desk, chair, visitor's chair, a file, and shelves.
2. Secretary. The secretary should control the entrance to the office. She should have a desk and chair with visual control over a small waiting area.

CITY PLANNING OFFICE

Data

Planning efforts for the city and county of Missoula are coordinated through the City-County Planning Board. This board studies the needs of both the city and the county, and it recommends courses of action that will facilitate the growth of both.

The city should have a full-time representative on the board, and he should maintain an office in the city hall. In this way he can co-ordinate planning efforts of the board with actions of the city government.

Room Spaces

1. Planning Office. The city representative needs office space for a desk, chair, two visitors' chairs, a file, and shelves. He may need to work closely with the city engineer and should be located near him.
2. Secretary. The planning representative could share a secretary with the building inspectors' office.

SEWER DEPARTMENT

Data

The superintendent of sewers is head of the Sewer Department and responsible for the maintenance and improvement of the sewer system and the collection of sewer assessments. This includes responsibility for the construction and maintenance of sewer lines as well as responsibility for the city's sewage treatment plant. The superintendent will have a secretary to assist him with paper work and an assistant who will be in charge of billing those who use the system.

Room Spaces

1. Superintendent's Office. Since facilities for the maintenance of the sewer system are located at the treatment plant, all the superintendent needs is an office out of which he will work. He should have a semi-private office with

1. Superintendent's Office Cont.

a desk and chair and file for himself and two chairs for visitors.

2. Billing Office. The superintendent's assistant will be in charge of the billing office. This office will contain all records of those who use the sewer system, and monthly bills will be sent from here. This room should have access to both a public lobby and the work room in the city clerk's office.

3. Secretary's Space. The secretary will need space for a desk and chair and files, and she should be located so she controls access to the superintendent's office.

STREET DEPARTMENT

Data

The street commissioner is head of the Street Department and is responsible for the maintenance and construction of streets and alleys within the city. The commissioner will be co-ordinating street work with both the city engineer and the city planning representative. He will need a secretary to do paper work, control visitors and handle communications.

Room Spaces

1. Commissioner's Office. Since Street Department facilities are located in the city garage, the commissioner will need an office out of which he can control the department. His office should have a desk and chair, files and shelves for himself, and two or three chairs for visitors. He will have some contact with the public.

2. Secretary. The secretary will need space for a desk, chair and file. She should be located so she controls the entrance to the commissioner's office and has visual control over a small waiting area.

PARKS AND RECREATION DEPARTMENT

Data

The head of the department of parks and recreation is responsible for the management of all parks belonging to the city and of all trees and plants on city property. He also manages all recreational programs conducted by the city. The department head needs one secretary to assist with paper work, control visitors, and answer telephone calls.

Room Spaces

1. Office of Department Head. Since the department's shops are located elsewhere in the city, the department head needs an office out of which he can control his department. Here, he will meet with visitors and co-ordinate department work with other departments. The department head will need a desk and chair, files and shelves for himself and two or three chairs for visitors.

2. Secretary. The secretary will need space for desk, chair and files where she can control the entrance to the main office. She should also control a small waiting area.

LAW ENFORCEMENT

General

City law-enforcement agencies are only responsible for the area within the city limits. County agencies have new and adequate facilities to handle the area outside the city limits, and will take some of the work load off the city agencies. But still, by 1985 city agencies will be responsible for at least 50,000 people. And if the city agencies are to serve this many people, they must have the facilities to do the job. Requirements for a police department that can serve a city of 50,000 are set forth in the booklet, Police Stations, Planning and Specifications.[8] This booklet will be used as a reference to establish both the function and the space needs of law-enforcement agencies.

The law enforcement section of the city government is different than other sections in that its primary function is not to serve the public. The duty of law-enforcement agencies is to protect the public, but their primary function is the handling and processing of prisoners. There are only three areas which are frequently visited by the public; the police court, the traffic control bureau, and the records bureau. All other areas are associated with the police force. Since the police force does not actually serve the public, it does not always function well in a city hall. A large force serving over 40,000 people should be separated from the city hall.[8] In this project, a distinction is made between the police court and the police force, because in Missoula they are under separate authority.

POLICE COURT

Data

Only violations of city ordinances are brought before the police court. It is the duty of the police judge to hear and determine all cases instituted in the police court. In addition, the police judge keeps a docket as required by Montana law and collects fines for violations of city ordinances. The judge has a secretary and a clerk of court to assist him. The clerk has two assistants to collect fines and keep records.

Room Spaces

1. Court Room. All cases under the jurisdiction of the police judge will be tried in the police court room. The court room should hold both participants and spectators, and the two should be separated.

Participants include the judge, the clerk of court, the jury (if required), the prosecution, the defense, and the witness. In order for the court to function, the participants should have the following equipment: a judges bench for the judge, a desk and chair for the clerk, 14 seats for the jury, a table and chair for both the prosecution and the defense, and a witness stand for those who testify. The spectators should be provided with seats.

The main entrance for spectators should be from a large public area. Secondary entrances should be provided for both the judge and prisoners. The jury will need access to a jury room. And since the requirements of this space are similar to those of the council chamber, both the

court and the council could use the same space.

2. Jury Room. Trials by jury are the exception rather than the rule in police court proceedings. Therefore, jurors need only a space large enough for a large table and twelve chairs. They will not be kept over night in this building.

3. Judges Chamber. The judges chamber serves as an office for the police judge. This office should have a desk and chair, two or three visitor's chairs, files, and shelves. The judge should have access to a law library and a conference room. He may share these facilities with the city attorney.

4. Clerk Of Court's Office. The clerk of court works under the direction of the police judge. So this office should be located next to the judges chambers. It should control the public entrance to the judges chambers.

The clerk keeps records of all court preceedings and and collects fines for violations of city ordinances. The clerk's assistants and the judges secretary will use this room. The room should have four desks and chairs, and space for at least six file cabinets.

POLICE FORCE

General

The booklet, Police Stations, has a summary of the requirements for police stations serving cities of 50,000 to 75,000 population. These requirements will be used as a guide to design a building for the Missoula police force.

POLICE STATION FOR CITY OF 50,000 TO 75,000 POPULATION,

SUMMARY OF REQUIREMENTS:

I. General Police Administration Operations.

A. Executive's Requirements: (Room sizes in feet)

1. Chief's office: 14x16.
2. Private entrance: One.
3. Conference room: Courtroom C.W.* Classroom.
4. Chief's office toilet: 5x6.
5. Chief's office clothes closet: 3x5.
6. Assistant Chief's office: One, 9x10.
7. Chief's secretary's office: 9x10 C.W. waiting room, 10x16.

B. Records and Clerical:

1. Central records maintenance: 20x40.
2. Map room (accidents): 10x12.
3. Superintendent of Records office: 9x10.
4. Old records storage: 10x20.
5. Purchasing, accounting, bookkeeping: C.W. Matron's office.
6. Men staff toilets and lockers: 25x35.
7. Women staff toilets and lockers: 12x15.
8. Mail receiving, sorting, distributing center: C.W. record room.
9. Mimeographing (and other reproducing processes): C.W. record room.

C. Communications:

1. Telephone switchboard: C.W. radio, 10x12.
2. Telephone messages receiving center: C.W. switchboard and radio.
3. Radio receiving and dispatching center: C.W. telephone and switchboard.
4. Teletype and call box message receiving center: Call box receiving center, C.W. radio and switchboard.

D. Training:

1. Classroom: C.W. courtroom.
2. Library: 12x15.
3. Firearms range: 20x100.
4. Training equipment and supplies storage: C.W. general.

*"C.W." means "combined with" some other space.

E. Identification:

1. Photographing and fingerprinting rooms: 10x12, C.W. Photo laboratory rooms.
2. Photographic dark room: 5x5, C. W. mug and print.
3. Toilets: 3x6.
4. Storage: C. W. dark room.
5. "Line up" or "Show up": 30x18.

F. Laboratory:

1. Chemical analysis: Use F. B. I. laboratory facilities, Washington D. C..
2. Ballistics and comparative mecrography: Use F. B. I. laboratory.
3. Drunkometer: One.

G. Office for Use of Other Enforcement Agencies' Representatives,(Military Police, Federal Agents, Parole Officers): C. W. Other Offices.

11. Prisoners and Jail Facilities.

A. Receiving, Processing, and Confinement:

1. Drive-in, escape proof garage: Capacity, 4 cars.
2. Booking and searching rooms: 16x20.
3. Physician's office and medical examination and treatment rooms: 16x10.
4. Isolation cells: Twelve, 6x10 each.
5. Violent cells: 6x6.
6. Cell blocks: Two, 30x60 each capable of housing 32 prisoners.
7. "Tanks": Two, one drunk tank, one auxiliary tank, each 12x18.
8. "Day" room: C. W. cell blocks, 20x16.
9. Toilet and shower room: C. W. cell blocks having one each.
10. Attorney's interrogation room: 8x6.
11. Prisoners' visiting room: Adjacent to public lobby, 8x10.
12. Delousing room: Should be connected with cell blocks.
13. Matron's quarters: C. W. women's ward and juvenile ward, 16x10.
14. Jail Supervisor's office: 10x16.
15. Laundry: 12x20 should be adjacent to cell blocks.
16. Drying room: C. W. laundry, 12x20.
17. Storage, cleaning utensils: C. W. jail kitchen.
18. Storage, bedding: One on each of two floors, 15x20.
19. Storage, prisoners' property: 8x12, adjacent to booking room.
20. Enclosed vestibule to prisoners' waiting room: One.
21. Prisoners' waiting room adjacent to courtroom: 20x20.

22. Kitchen (food preparation facilities, cooking but no service): 18x25.
23. Refrigerator: 6x8.
24. Food storage: 6x10.
25. Dining quarters (for trusties): C. W. kitchen.
26. Trusties' dormitory: 20x20.

B. Separate Rooms and/or Facilities for Women Prisoners:

1. Isolation cells: Twelve, 6x8.
2. Cell block: two, 20x60.
3. "Day" room: C. W. cell blocks, 20x16.
4. Toilet and shower room: C. W. cell blocks.

C. Separate Rooms and/or Facilities for Juvenile Offenders:

1. Isolation cells: Two each, male and female, 7x8.
2. Group cells: One each, male and female.
3. "Day" room: One each, male and female.
4. Toilet and shower rooms: male and female.

III. Receiving and Assisting the Public.

1. Separate entrance foyer or hall: 8x30.
2. Public waiting room: 10x20.
3. Public toilets (men's and women's): 10x16 each.
4. Public telephone: One.
5. Complaint counter: 18 feet long.
6. Traffic accident reporting counter: C. W. complaint counter or writing desk.

IV. Police Personnel Requirements.

1. Male employees' lounge: C. W. locker room.
2. Women employees' lounge: C. W. other female employees', 12x20.
3. Male locker room: 30x50.
4. Women's locker room: 12x16.
5. Male shower and toilet room: C. W. locker room.
6. Women's shower and toilet room: C. W. women's locker room.
7. Gymnasium: 30x50.
8. Lunchroom: C. W. locker room.
9. Coffee bar: C. W. locker room.

V. Police Property Requirements.

1. Equipment Issue Office: C. W. General storage room.
2. Storage of uniforms: C. W. General storage room.
3. Storage of guns and ammunition: C. W. firing range.
4. Storage of Police vehicles: 50x150.
5. Storage of recovered stolen bicycles: 12x16.

6. Storage of recovered stolen property: Storage vault, 8x10, C. W. general storage.
7. Storage of Police Department supplies: C. W. complaint counter, matron's storage, and record room facilities.

VI. Police Building Maintenance Requirements.

1. Janitor's room and lockers: One on each floor.
2. Janitorial equipment storage: 10x15.
3. Boiler and fuel: One.
4. Heating and ventilating system: One.
5. Electrical controls: One.
6. Water controls: One.
7. Repair and construction: One.

VII. Courts:

1. Police courtroom: 18x36.
2. Judges chambers: 10x12.
3. Court clerk's office and city attorney's office: 10x14.

VIII. Police Divisional Operations.

A. Uniform Patrol Division including traffic:

1. Roll call or assembly room: C. W. locker room.

B. Detective Division:

1. Office of office-in-charge: 12x16.
2. Interrogation rooms: Six, 8x9 each.

C. Women's (Morals) Bureau.

1. Interview room: C. W. detective interrogation rooms.

D. Juvenile Division:

1. Office of officer-in-charge: 10x12.
2. Secretary's office: 1016.
3. Interview room: C. W. detective interrogation rooms.

E. Public Safety Education:

1. Bicycle licensing room: C. W. Complaint Counter.

MISCELLANEOUS SPACE

Restrooms

There should be adequate restroom facilities for city officials, employees and the public. The council chamber might have its own facilities for occasions when the rest of the building is closed.

Lounge

Those who work in the building should have a small lounge where they can take coffee breaks, eat lunches, or just relax. The lounge should have a small kitchen, tables and comfortable chairs, and plenty of storage space.

Janitor's Closets

Janitor's closets should be sectioned throughout the building so that cleaning equipment does not have to be carried to the far corners of the building from one spot.

Mechanical Room

One mechanical room should serve the entire project. There should be space for a boiler, air conditioning equipment, and a custodian's workroom.

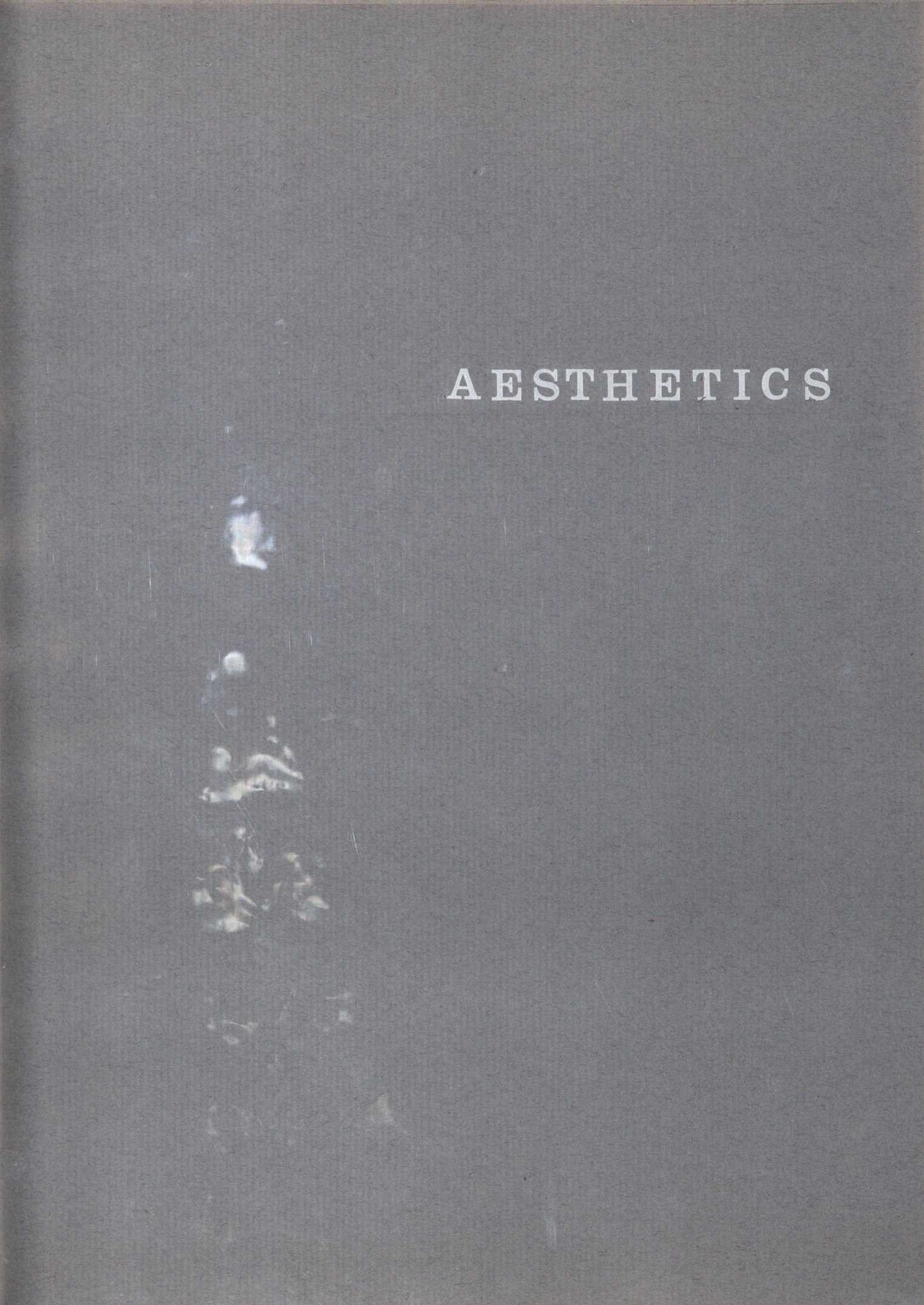
Garage

Underground parking could be provided for city officials, employees, and police.

Storage Space

Ample storage space should be provided for everyday supplies and for records.

AESTHETICS



AESTHETICS

INTRODUCTION

So far, this architectural thesis has presented facts which can be applied to the design of a city hall for Missoula, Montana. But architecture is not always a factual profession, it is also concerned with ideals of beauty and aesthetics which are not always factual. According to Webster's New World Dictionary, aesthetics is "the study or philosophy of beauty; theory of the fine arts and of people's responses to them." Thus the reader may find that this section does not establish facts, but that it uses facts to establish ideas.

APPROACH TO DESIGN

General

There are few buildings within a city that belong to both the city and its people more than a city hall does. A city hall should be designed with two ideas in mind. First, that it is the governmental center of the city and must meet the demands of a growing city and an increasing population. Second, that it should become a focal point of the city, expressing the character and hopes of the city and its people for all to see.

Governmental Character

Strength, dignity and unity are three qualities I associate with government. And these three qualities should be expressed by the city hall, as it is the governmental center of the city.

City Character

The section on local conditions pointed out that Missoula is situated in a setting of great natural beauty. Various mountain ranges of the Rocky Mountains rise in all directions around Missoula, and two rivers flow through the valley. The city hall site is located on the banks of one of these rivers. The design for the city hall must express this natural setting. The project should become a part of the landscape rather than dominate it.

The Personal Character

The people of the city should be able to look at their city hall and say, "That is partly my building, I helped build it with my taxes." And how do the people of Missoula see themselves? I consider myself a Missoulian, and I would say Missoulians are the out-of-doors type. They are sensitive to their natural surroundings and feel as much at home in the mountains as they do in the city. Missoulians consider themselves friendly and progressive, but they do not like to waste their time or their money.

The Means To The End

The means by which the designer can express character in a building can be grouped into four catagories: the site, the structure, the materials, and the space arrangement. I will discuss each of these catagories and show their relationship to the development of the character of the building.

The designer should have three goals in mind while devel-

oping the site. He must establish the site as a public place, a focal point in the city, and, at the same time, achieve harmony with the surroundings, both natural and man made.

People usually associate open spaces, parks, and plazas with public areas. How successful the designer is in achieving this feeling will depend on how he relates building and plant form with the slope of the site and with the river.

The city hall can become a focal point of the city by virtue of the building design, the location of the site with respect to street pattern and the surrounding environment, or both.

It is difficult to separate structure and materials in a discussion as to how they affect the character of a building. If the structure is emphasized as part of the design, it can give the building a feeling of strength and power. But the structural materials can modify these feelings in a variety of ways. Steel and concrete are materials of strength, but they are cold and impersonal. Wood on the other hand is warm and personal, but it is not as strong as steel or concrete. Stone and brick are natural materials which are strong only when under compression, but since they come in small units, they can help keep a building in scale with man. Glass is not considered a structural material, but unlike other materials it allows light into a building and helps outdoor space flow into indoor space. This chapter was not intended to be a list of materials, but only to be a reminder that each material has its own character. It is up to the designer to choose the materials that are

right for his design objective and solution.

Of the four means of expression that I have mentioned, space arrangement is the most difficult to discuss. There are numberless ways in which spaces can be arranged. The designer will attempt to find the optimal solution to his problem through full consideration of the space arrangement, materials, structure, and site in terms of both function and aesthetics.

ECONOMICS

ECONOMICS

INTRODUCTION

In more than one preceding section I have mentioned the public nature of a city hall saying that the building belongs to both the city and its people. The people are aware of this because they must pay for any project that is undertaken.

The city budget will not normally include funds for a project as large as a city hall. Therefore, city officials will usually ask the people to pass a bond issue to raise the necessary funds. In the past, the people of Missoula have passed bond issues for the construction of new schools, sewage systems and bridges. But there have been other bond issues which have failed to pass either for economic reasons or lack of public interest. The people know how run-down the city hall is, and they know how great the need for a new one is. They also know that if they pass a bond issue, their taxes will go up. In the recent bond issues to construct new sewer lines and a new sewage treatment plant, the people of Missoula demonstrated a willingness to put up with higher taxes in order to make Missoula a better place to live. But the people of Missoula are economy wise, and the planner will have to make economics a very real part of his design.

APPROACH

This project is a design study of a city hall for Missoula. And while my main purpose is to find the optimal design for a city hall, my secondary purpose is to establish a workable

budget for this project. I will be trying to establish a budget that will be sufficient to build a city hall that will fullfill Missoula's present and future needs and that the people can be proud of. Good architecture does not mean extravaganza, and the budget should be realistic for the size of the project.

The final estimated project cost will not be known till the final design is completed, but I can establish a certain cost range in which to work. To do this I will compare the estimated cost of projects conceived as design studies with the actual cost of other projects that have been built. This comparison is shown in table 5. The proposed projects were conceived during a design study of municipal government buildings conducted by the School of Architecture, University of Kentucky for the Department of Defense, Office of Civil Defense.

This comparison lead me to believe that this project should cost between 1 million and 1.5 million dollars. The square foot cost could range from 20 to 25 dollars. Using these cost figures, the size of the project could range from 40,000 to 75,000 square feet.

The next step to consider in the economics of the building is the relation of the cost of the building to the materials that are used. The final cost can not be estimated till the design is completed and all materials are known. At this stage of the project I can only compare the cost of buildings using different types of construction and different materials. To this end, the Marshall Valuation Service provides data giving the average cost of governmental buildings of four types of

TABLE 5

CITY	LOCATION	SIZE	AREA/VOLUMN	UNIT COST OF BUILDING	TOTAL COST OF BUILDING
ESTIMATED COST OF PROPOSED PROJECTS					
CHEMICAL CITY	NEW ENGLAND	200,000	79,972 sq. ft.	$25.13 psf	$2,000,000.
TORTILLA	SOUTHERN CALI.	200,000	93,000 sq. ft.	$26.86 psf	$2,498,000.
RIVERTON	VIRGINIA	100,000	68,000 sq. ft.	$35.00 psf	$2,380,000.
PULMWAY	FLORDIA	100,000	61,000 sq. ft. 979,875 cu. ft.	$21.31 psf $ 1.30 pcf	$1,302,000.
POLVITO	NEW MEXICO	50,000	69,300 sq. ft. 1,106,900 cu. ft.	$25.32 psf 1.59 pcf	$1,754.500.
COLDSVILLE	ROCKY MOUNTAINS	50,000	62,600 sq. ft. 869,680 cu. ft.	$15.93 psf 1.15 pcf	$ 997,000.
WIND CITY	ILLINOIS	25,000	83,610 sq. ft.	$19.00 psf	$1,588,500.
FORESTON	WESTERN OREGON	25,000	94,810 sq. ft.	$20.75 psf	$1,963,000.
ACTUAL COST OF BUILT PROJECTS					
PHOENIX	ARIZONA	439,170	199,500 sq. ft.	$21.80 psf	$4,336,100.
ANN ARBOR	MICHIGAN	67,340	88,300 sq. ft.	$19.56 psf	$1,727,000.
TENAFLY	NEW JERSEY	15,000	49,270 sq. ft.	$22.82 psf	$1,240,000.
MESQUITE	TEXAS	27,562	10,300 sq. ft.	$22.80 psf	$ 235,000.

construction and using an assortment of materials. The four types or classes of construction are presented below in the data for table 6, and the average costs of the four classes of buildings using different materials are presented in table 6. This table can be used to set guidelines for the choice of materials and construction to be used in the project.

This building is not expected to return money on the investment made. The investment can be justified only in terms of service, how well the city hall can serve the city and its people. The people must realize this, and they must realize that they will get just what they are willing to pay for. The cost of any project can be cut either by limiting the size of the project or skimping on the materials used. Either way the people end up paying more in the long run. They have inadequate service or pay for additional space or pay for costly repairs and remodeling. The architect is not a miracle maker, he can not make something out of nothing. My only concern in this project is to the knowledge and training I have acquired to design a city hall for Missoula, Montana.

DATA FOR TABLE 6

Class	Structure
A	Buildings have fireproofed structural steel frame with reinforced concrete or masonry floors and roofs.
B	Buildings Have reinforced concrete frames and concrete or masonry floors and roofs.
C	Buildings have masonry or reinforced concrete exterior walls and wood or steel roof and floor structures of slab on grade.
D	Buildings have wood or steel frame and roof structures.

TABLE 6

ESTIMATED COST OF CONSTRUCTION FOR GOVERNMENTAL BUILDINGS

CLASS	TYPE	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING, PLUMBING and MECHANICAL	HEAT	COST cu.ft.	COST sq.ft
A	good	highly ornamental marble granite mosaics best glass	plaster marble trim ornate detail terrazzo vinyl tile	best lighting & outlets tiled restrooms many fixtur	hot & cold water	2.79	33.43
	average	good metal & glass concrete some good stone good enter.	plaster some paneled off. & chambers vinyl-asbestos	good lighting & plumbing adequate tiled restrooms	warm & cool air	2.11	25.29
B	good	highly ornamental marble granite mosaics best glass	plaster marble trim ornate detail terrazzo vinyl tile	best lighting & outlets tiled restrooms many fixtur	hot & cold water	2.67	32.09
	average	good metal & glass concrete some good stone good enter.	plaster some paneled off. & chambers vinyl-asbestos	good lighting & plumbing adequate tiled restrooms	warm & cool air	2.04	24.46
A-B	basement offices	plastered interior	office finish & detail	office lighting & plumbing	warm & cool air	1.14	13.73
	basement garage	painted interior	parking storage & service	adequate lighting and plumbing	space heaters	0.67	7.98
C	good	best ornamental masonry good metal & glass	plaster good detail & panel. terrazzo vinyl tile	best lighting & outlets tiled restrooms many fixtu	warm & cool air	2.21	26.54
	average	brick block concrete metal & glass good entrance	plaster some paneled offices terrazzo vinyl-asbestos	good lighting & outlets adequate plumbing	packaged A.C.	1.62	19.44
	low cost	brick block tilt-up very plain	plaster or dry-wall acoustic tile vinyl-asbestos tile	adequate lighting outlets & plumbing	forced air	1.23	14.71
D	average	brick veneer ornamental stucco metal & glass	plaster acoustic tile some paneling asphalt tile	adequate lighting outlets & plumbing	packaged A.C.	1.45	17.37
C-D	basement offices	plastered interior	office partitions acoustic tile & asphalt tile	office lighting & outlets adequate plumbing	central A.C. (simple ducts	0.84	10.13

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INTERVIEWS

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A CITY HALL

for

Missoula, Montana

ARCH. 490
THESIS
Jerrell D. Ballas

When I first began to write my thesis paper, I knew that the site would be an important factor in the design of the project. My site was located on the bank of the Clark Fork River, which runs through the middle of Missoula. The river could be a major environmental element in the city, but so far it has not been used as such. I wanted to develop the site and begin to use the river as a major environmental element in the city. To do this I built the city hall to overlook the river and compliment it.

The second important factor in the design was the function of the building. I established three basic functional areas, the public meeting area, the administrative area, and the police area. Each area was designed to characterize its function.

The public meeting area was designed to be the center of attention and the area of greatest public use.

The administrative area was designed to give a businesslike appearance and to accommodate frequent public use.

The police department was designed to indicate a fortress like area with limited public use.

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