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(THESIS RESEARCH DATA ON) A CITY
OF BOZEMAN FIRE-STATION

ARCH. 445-THESIS
June 6, 1960
Instr. Professor Eck
W. B. McCroskey

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- A. Subjects.....Five proposed thesis subjects.
- B. Schedule.....Proposed schedule of work for Arch. 445, Thesis.
1. History.....A short history and the present facilities of the Bozeman, Montana Fire Department.
2. Site.....Site selection for the proposed Bozeman City Fire Department.
3. Site.....The final site selection proposal including a population projection, the future direction of city growth, and site selection using the recommendations of the National Board of Fire Underwriters.
4. Program.....The first draft of a program for the city of Bozeman Fire Department.
5. Program.....The final draft of a program for the city of Bozeman Fire Department, including a flow diagram.
6. Cost Estimate.....A preliminary cost estimate of the fire-station including exterior concrete work.
7. Presentation Outline.....An outline of the oral presentation given in support of the visual presentation material.

TO: John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: March 31, 1960

SUBJECT: Proposed building for
a thesis.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

The following buildings are proposed thesis projects
in order of their importance to the designer.

1. A faculty center for Montana State College
2. A post office building for Montana State College
3. A fire station for the city of Bozeman
4. A radio station for Montana State College
5. A chamber of commerce building for Bozeman, Montana

A FACULTY CENTER

A faculty center could be located on or in close proximity to the campus. This building would serve as a meeting place for the faculty. A building of this type might include one or two apartments for faculty guests, a meeting room, a small snack bar and lounge and necessary mechanical and storage rooms.

A questionnaire would be handed out to 100 faculty members asking them to designate their choice of functions and other related information to form a premise on which to design this building.

A POST OFFICE FOR MONTANA STATE COLLEGE

A post office is a feasible building to consider for the campus of Montana State College because of the increasing need for a function of this type with the increasing population of the college.

At the present time the post office is located in Montana Hall Annex and it will outgrow its present facilities with any increase in population.

FIRE STATION FOR BOZEMAN

The existing condition of the facilities housing the Bozeman Fire Department make it mandatory that Bozeman build new housing for their fire department in the next few years.

A RADIO STATION FOR MONTANA STATE COLLEGE

A need exists for a radio station at Montana State College and this building would exist to serve the needs of the courses in Radio and T.V. announcing and would also serve the college students as another communication medium.

A CHAMBER OF COMMERCE BUILDING FOR BOZEMAN

The city of Bozeman could use a Chamber of Commerce building in a better location than the existing chamber so it will best serve the needs of the community and the tourist.

TO: John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: April 12, 1960

SUBJECT: Proposed schedule of
work for Architecture
445-Thesis.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

March 31, 1960 - Five proposed thesis subjects.

April 12, 1960 - A short history and present facilities of
the Bozeman, Montana Fire Department.

April 15, 1960 - A theoretical program, a fire-station for
Bozeman, Montana, using the standards set
up by the National Board of Fire Underwriters.

April 18, 1960 - Site selection information using maximum
distances from residential, commercial,
and industrial areas suggested by the
National Board of Fire Underwriters for
location of main fire-station and possible
substations.

April 21, 1960 - The program, A Fire-station for Bozeman,
Montana, using information gained through
interviews with interested parties.

April 25, 1960 - Flow diagram of a fire-station for Bozeman, Montana.

May 2, 1960 - Preliminary floor plans of a fire-station.

May 6, 1960 - Preliminary floor plans and elevations of a
fire-station.

May 11, 1960 - First preliminary proposals of a Fire-station
for Bozeman, Montana.

May 18, 1960 - Revised floor plans.

May 23, 1960 - Revised sections and elevations for a fire-station.

June 6, 1960 - Final preliminary presentation of a fire-station
for Bozeman, Montana.

Presentation will include:

1. Plot plan
2. Floor plans
3. Two elevations
4. Section
5. Model

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: April 12, 1960

SUBJECT: A short history
and present
facilities of the
Bozeman, Montana
Fire Department.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

The first fire company in Bozeman was a volunteer company organized in the year 1880. Their only facilities for fighting fires at that time were wooden buckets and home made hooks and ladders. The only water supply was from private wells and the streams running through the city. Subsequently large wells were dug on Main street which were used to great advantage until 1890 when a system of water works was put in.

The Bozeman volunteer fire department of 1884 boasted 50 members. In 1887 the fire department became housed in the new, \$40,000 City Hall-Opera House. The city then owned approximately \$12,000 worth of fire apparatus consisting of a steam engine, hose carts, and a hook and ladder truck.¹

During the period of volunteer firefighters, which lasted until 1917, there was no need to provide facilities for the firemen.

With the advent of paid firefighters in Bozeman some means had to be provided to house the firemen. The first firemen were housed where the present police department offices are.

1. W. E. Ellsworth, A History of the Gallatin Valley (Bozeman, Montana: Avant Couries Publishing Co., 1998), pp.16-17.

With the decreased use of the Opera House on the second floor of the City Hall building it was decided to remodel the building so as to place the firemen's quarters directly over the fire apparatus area.

The areas contained in the present firestation include the apparatus area, the sleeping area, the lounge area, and the hose drying tower.

The apparatus area is on the ground floor of the building and contains the mobile firefighting equipment. At the present time there are three trucks, two belong to the city and one belongs to the college.

The drawbacks of this area are that there is no back entry to the room therefore making it unfeasible to park the chief's car or an ambulance in the back of the room. The ramp leading into the firestation is an obstacle to low slung vehicles such as the ambulance. There are not sufficient floor drains to allow the fire-hose to be properly washed on the apparatus room floor.

The sleeping area is directly over the apparatus room and doesn't have adequate light or ventilation. Also it is too small to permit any additional beds to be put in. There is a brass pole from this area into the apparatus room below which does allow a fast means of travel down to the apparatus room.

The lounge area is directly ahead of the sleeping area and has a multi-use purpose. All the "duty fireman's" meals are eaten here, the chief's office and city fire records are kept in this room, it serves as a classroom, and it serves also as a recreation area. This lounge also contains a brass pole into the apparatus room.

The hose drying tower is in the back of the apparatus room and extends up through the ceiling into the old Opera House. Its function is to allow the drying of recently washed fire hose.

The firestation in Bozeman has not changed appreciably since it was remodeled in the early 1920s' with the exception of the hose drying tower built by the firemen within the building in 1956.

This 70 year-old building housing the firestation is in very poor structural condition aggravated by age and the Madison earthquake of 1960.

In interviews with several City officials and community leaders it is a unanimous feeling that Bozeman, Montana needs a new firestation and it is on this premise that I propose to submit for my Architectural Thesis a solution for a new firestation in Bozeman, Montana.

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: April 18, 1960

SUBJECT: Site selection
for the proposed
Bozeman City Fire
Department.

CC: Mr. Hugo G. Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

The selection of sites for a Bozeman City Fire Department has been narrowed to three possible locations.

These locations are the city parking lot on the corner of South Willson Avenue and West Babcock Street, the vacant lot on West Mendenhall Street between North Willson and North Grand Avenues, and the vacant lot on the corner of West Main Street and North Tenth Avenue. These locations are designated as sites one, two and three respectively and are shown on the accompanying city map of Bozeman.

The main considerations in the selection of these three sites have been their location close to the centroid of the city and their economic availability.

In the final selection of the site the suggested distances set up by the National Board of Fire Underwriters will be used. They state that high value districts (business and industrial) should be no more than three fourths mile from a pumper company and no more than one mile from a ladder company. Residential areas should be no more than three miles from a ladder company and no more than two miles from a pumper company. These standards apply to all classes of cities.

The Bozeman Fire Station has both a ladder and a pumper

company and the proposals for the new fire department will include a ladder company and therefore the maximum suggested distances will be used. One mile radius circles from proposed sites are shown on the accompanying map.

From this study it appears as though site number one is the best site. The final location will pend investigation into the future physical growth of Bozeman and future population of the City.

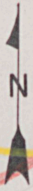
CITY OF BOZEMAN

M O N T A N A

ELEVATION 4800 FT

POPULATION OVER 11,000

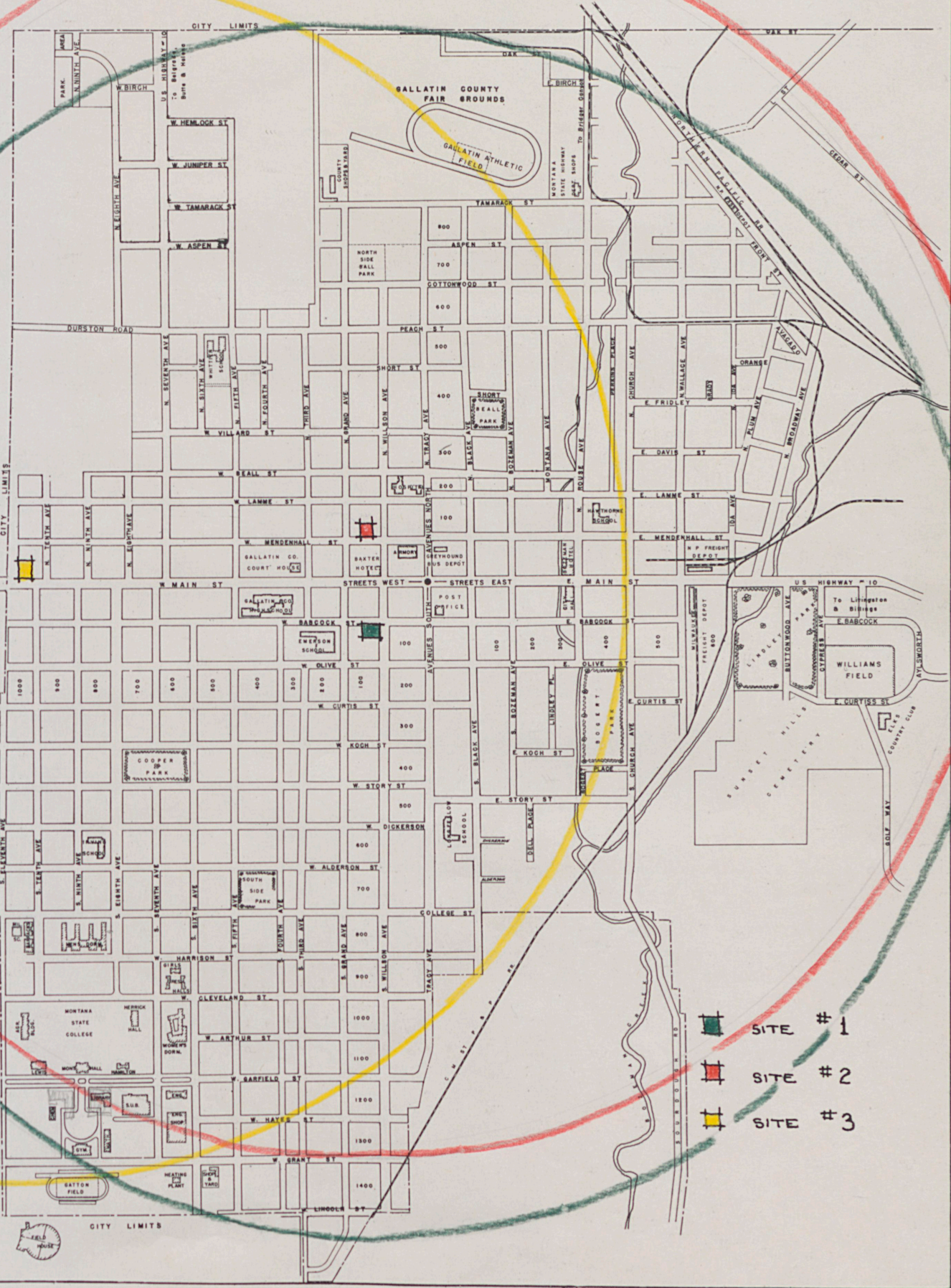
SCALE 0 500' 1000' 1500'



1 MILE RADIUS
SITE # 3

1 MILE RADIUS
SITE # 2

1 MILE RADIUS
SITE # 1



-  SITE # 1
-  SITE # 2
-  SITE # 3

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: May 2, 1960

SUBJECT: A site for a
city of Bozeman
Fire Department.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Bozeman, Montana

This report completes the preliminary research of a site for a City of Bozeman Fire Department. This report consists of a population projection to the year 1985, and the site selection for a fire department following the recommendations of the National Board of Fire Underwriters.

Population Projection

The procedure used for this population projection is known as the "Natural Increase Plus Net Migration" method. It is considered a reasonable valid population projection method and is not an exceedingly complicated or lengthy procedure.

Past records of births, deaths and population are obtained for five year periods. The natural increase (births minus deaths) for each period is then subtracted from the total population gain to give the increase due to migration. Births, death, and migration rates (in average number of persons per 1000 population) are plotted and the trends projected to give probable future rates. These rates are then applied to the latest population figures to give a projected population figure. The gain for each period is figured from the total population projection for the preceding period.

Births, Deaths & Natural Increase¹

Year	Births		Deaths		Natural Increase
	Per Year	5 Years	Per Year	5 Years	
1920	61		67		
1921	139		58		
1922	155	634	88	368	266
1923	149		81		
1924	130		74		
1925	132		68		
1926	114		77		
1927	145	702	85	422	280
1928	156		104		
1929	155		88		
1930	138		86		
1931	141		81		
1932	127	692	98	503	189
1933	133		90		
1934	153		82		
1935	132		86		
1936	154		81		
1937	181	818	98	437	381
1938	168		90		
1939	183		82		
1940	175		70		
1941	159		87		
1942	156	777	76	399	378
1943	144		83		
1944	143		83		
1945	161		86		
1946	218		92		
1947	281	1175	90	464	711
1948	259		78		
1949	256		118		
1950	312		85		
1951	252		83		
1952	255	1330	86	448	882
1953	257		86		
1954	259		108		
1955	258		101		
1956	319		110		
1957	216		111		
1958	230				
1959					

1. Births and death files, Gallatin County Health Office, for Bozeman, Montana, 1920 to 1959.

Births, Deaths, And Migration Increase

Average Annual Per 1000

Period	Average Population	Average Annual	Births Annual/1000	Average Annual	Deaths Annual/1000	Average Annual	Migration Annual/1000
1920-25	6347	127	20.0	74	11.6	12.4	1.96
1925-30	6683	140	20.9	84	12.6	12.8	1.92
1930-35	7155	138	19.3	101	14.1	82.2	11.48
1935-40	8060	168	20.9	87	10.8	165.8	20.60
1940-45	8977	155	17.3	80	8.9	49.0	5.46
1945-50	9875	235	23.8	93	9.4	92.6	9.32
1950-55		266		90			

Computed Migration Increase

Year	Population	Total Increase	Natural Increase	Migration Increase
1920	6183			
1925	6511*	328	266	62
1930	6855	344	280	64
1935	7455*	600	189	411
1940	8665	1210	381	829
1945	9288	623	378	245
1950	10462	1174	711	463
1955			882	

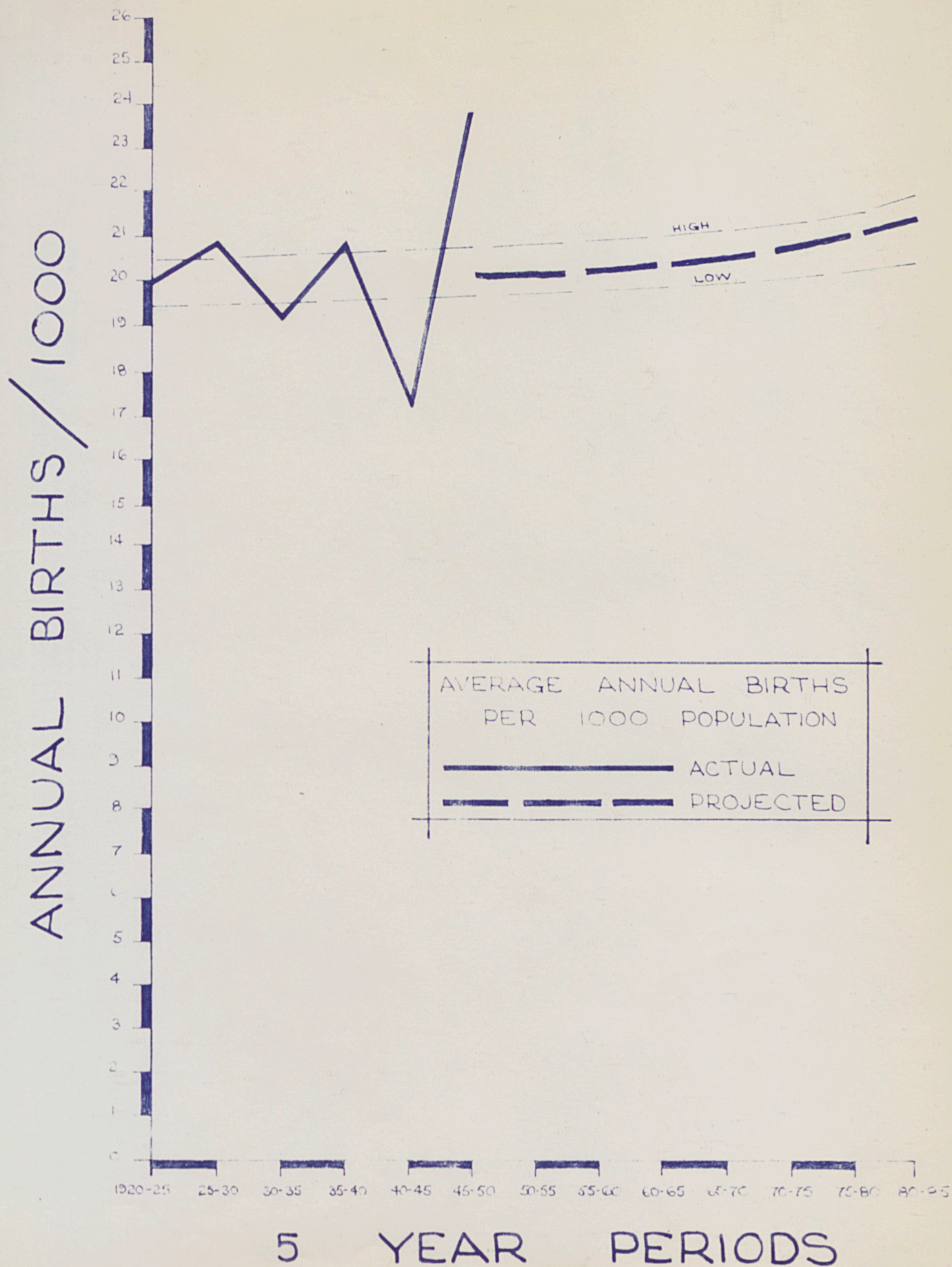
* These figures are interpolated with the natural increase proportion.

Projected Population

Bozeman, Montana

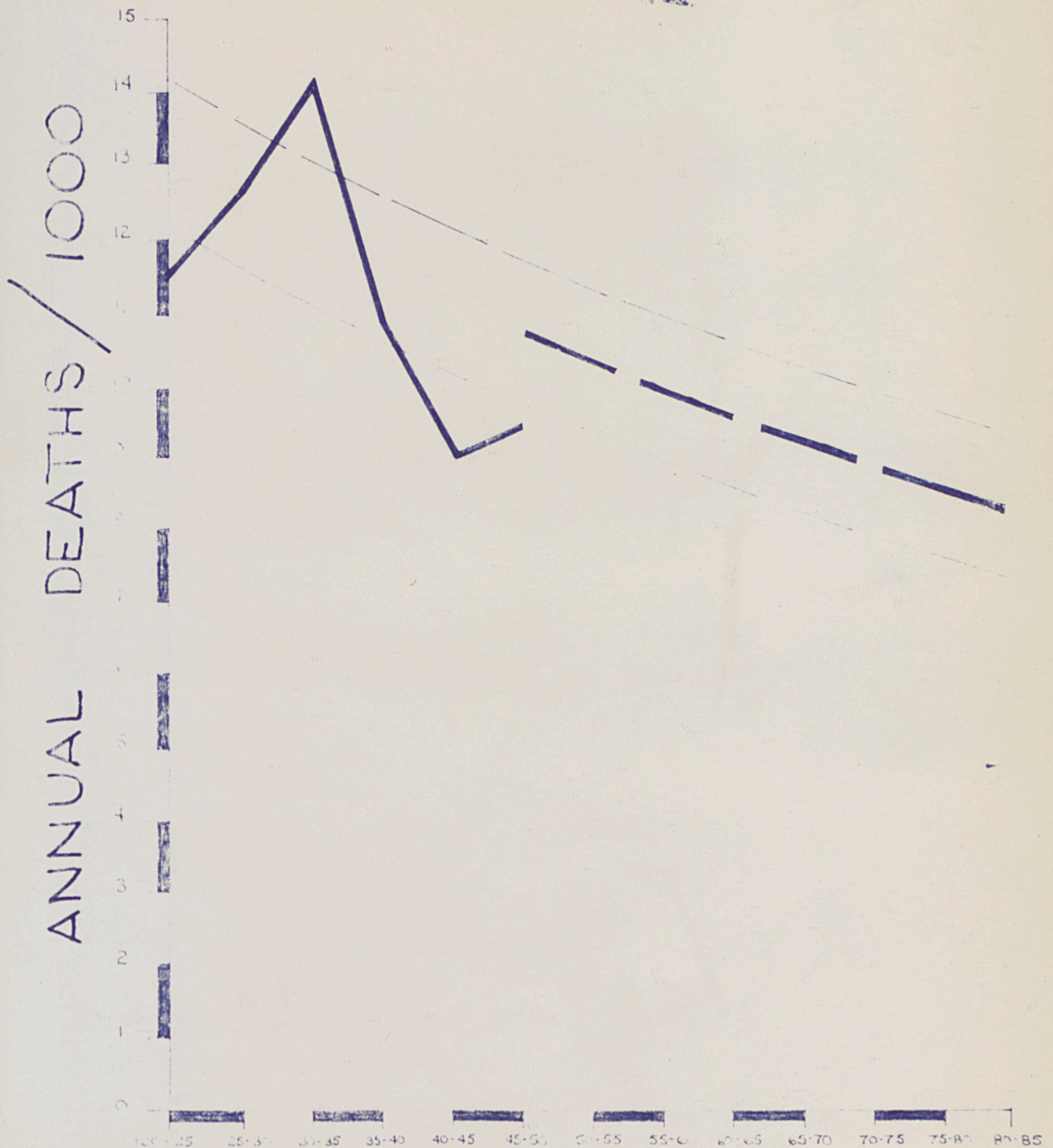
Period	Births	Deaths	Natural Increase	Migration Increase	Population (End of period)
1945-50	1175*	464*	711*	463	10,462*
1950-55	1330*	448*	882*	581	11,925
1955-60	1230	507	723	692	13,340
1960-65	1388	527	681	821	15,022
1965-70	1577	563	1014	978	17,014
1970-75	1804	604	1200	1166	19,380
1975-80	2075	668	1407	1395	22,182
1980-85	2396	721	1675	1709	25,566

* Actual figures



AVERAGE ANNUAL DEATHS
PER 1000 POPULATION

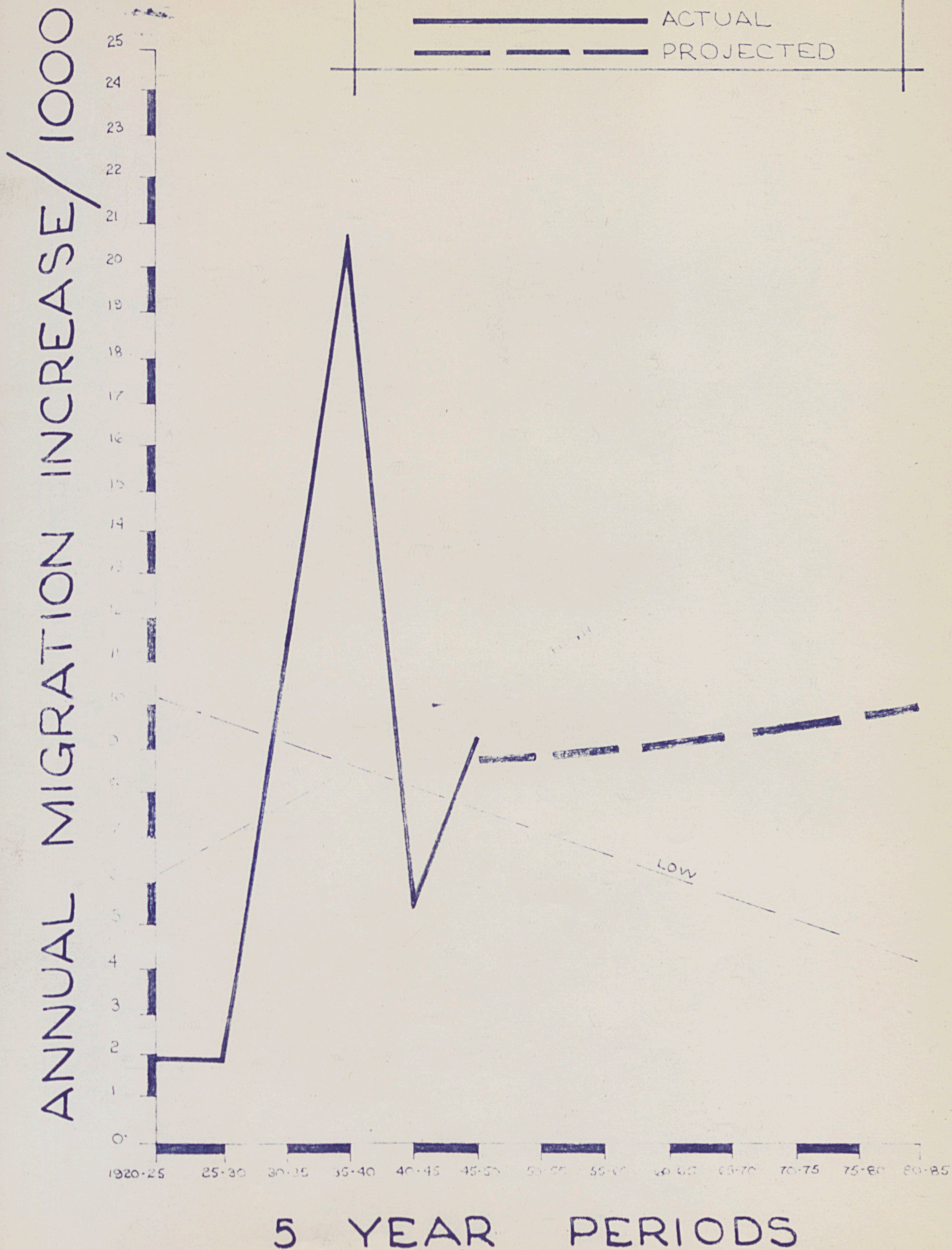
— ACTUAL
- - - PROJECTED

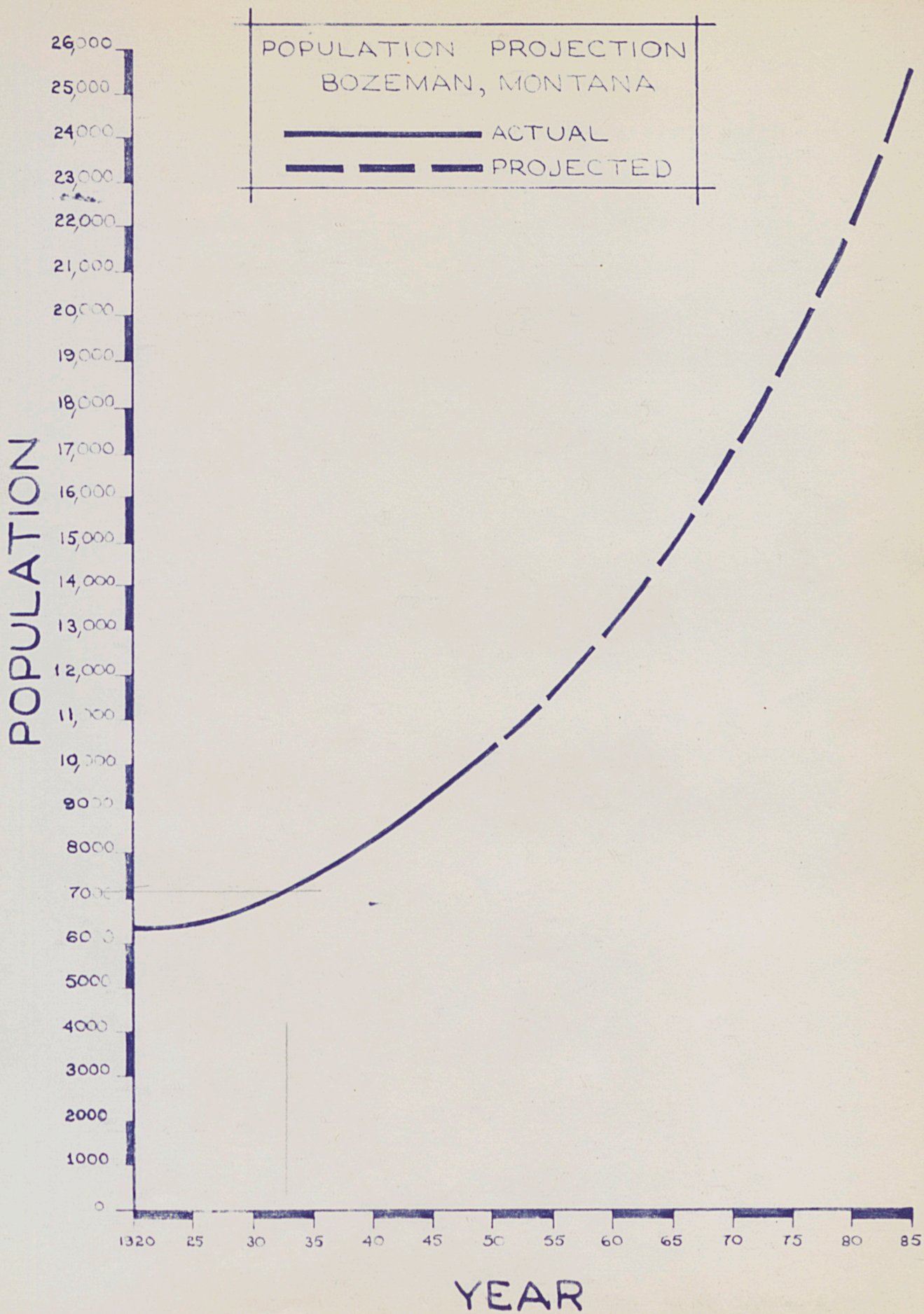


5 YEAR PERIODS

AVERAGE ANNUAL MIGRATION
INCREASE PER 1000 POPULATION

— ACTUAL
- - - PROJECTED





The Direction Of City Growth

Bozeman, Montana has built around the north and east boundaries of the College and indications are for a continued growth in the area north-east of the College.

Considerable building is in process along Sour Dough Road and the area south and east of the City's cemetery is definitely indicated for growth.

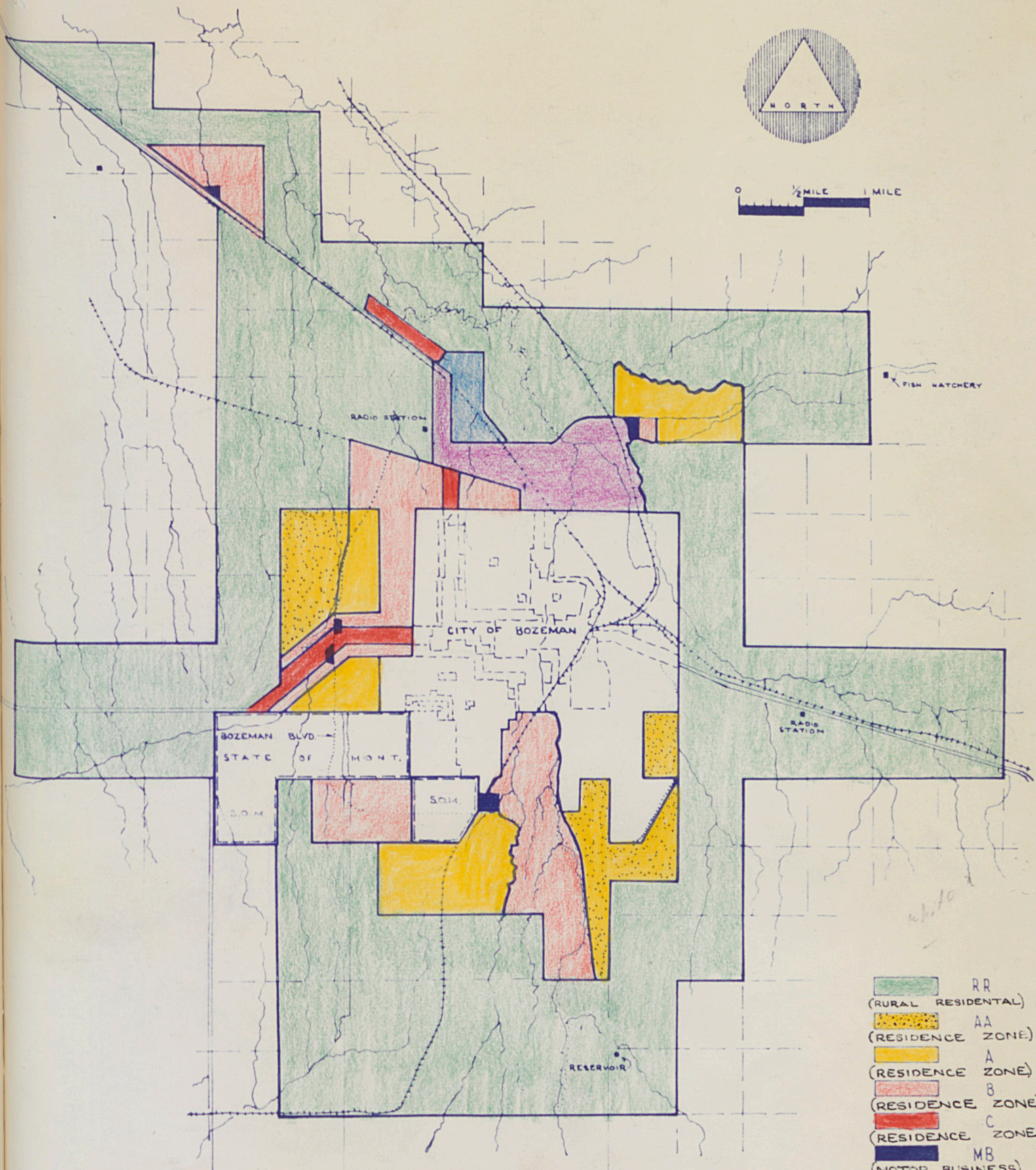
Areas along the Durston Road will be developed after the highway problem is settled.

Northeast and north of the City developments are light but growing.²

2. S. R. DeBoer, City Plan For Bozeman, Montana, A report prepared by S. R. DeBoer and Company (Bozeman, Montana, 1958), p. 20.

MAXIMUM POPULATION OF ZONES

<u>Zone</u>	<u>Total Area of Zone</u>	<u>Area for Roads</u>	<u>Minimum Allowable Lot Size</u>	<u>Computed Number of Lots in Zone</u>	<u>Computed Maximum Population in Zone</u>
RR	18 Square Miles	25% Total Area	10 Acres	863	3,452
AA	1 Square Mile	25% Total Area	8000 Square Feet	2614	10,456
A	1 Square Mile	25% Total Area	7000 Square Feet	2987	11,948
B	1 Square Mile	25% Total Area	6000 Square Feet	3485	13,940
C	1/4 Square Mile	25% Total Area	5000 Square Feet	1024	4,096
MB	Non-Residential				
W	"	"			
M	"	"			
F	"	"			

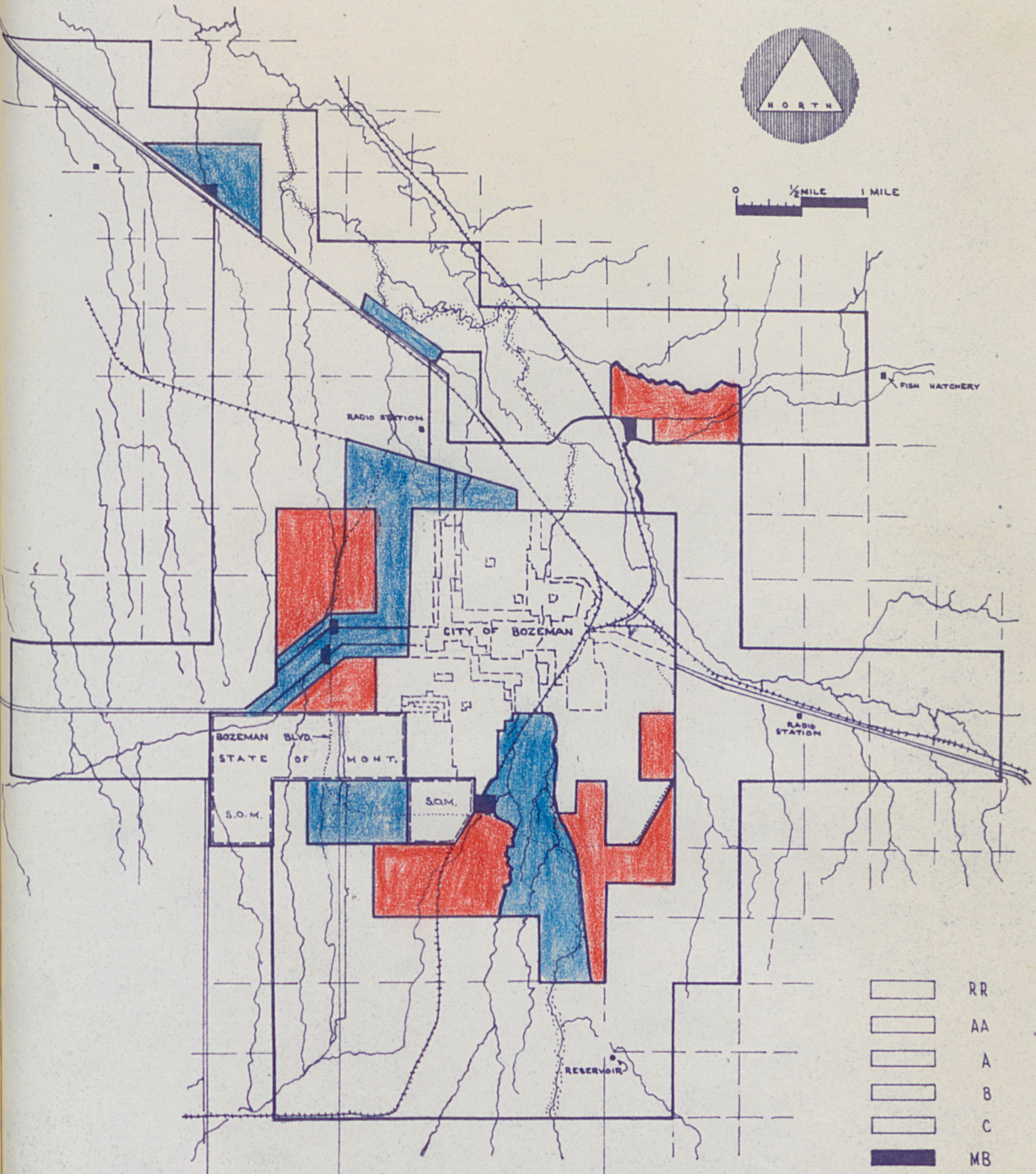


- RR
(RURAL RESIDENTIAL)
- AA
(RESIDENCE ZONE)
- A
(RESIDENCE ZONE)
- B
(RESIDENCE ZONE)
- C
(RESIDENCE ZONE)
- MB
(MOTOR BUSINESS)
- W
(LIGHT INDUSTRY)
- M
(MANUFACTURING)
- F
(FLOOD ZONE)

PROPOSED METROPOLITAN ZONING MAP
GALLATIN COUNTY, MONTANA

The directions of city growth as stated in the report of the S. R. DeBoer Company are shown on the following map of the Bozeman area. I have based my decisions on the assumption that Bozeman, Montana will accept the Zoning Map and Zoning Requirements which have recently been proposed.

It can be seen from the population figures arrived at in the Population Projection that the proposed areas to be zoned will be sufficient to contain the population of Bozeman until 1985 and probably until 2015.



AREAS OF RAPID EXPANSION
 AREAS OF EXPANSION

- RR
- AA
- A
- B
- C
- MB
- W
- M
- F

PROPOSED METROPOLITAN ZONING MAP
 GALLATIN COUNTY, MONTANA.

Site Selection

Business or high value districts should be no more than 3/4 mile from a pumper company and no more than one mile from a ladder company.

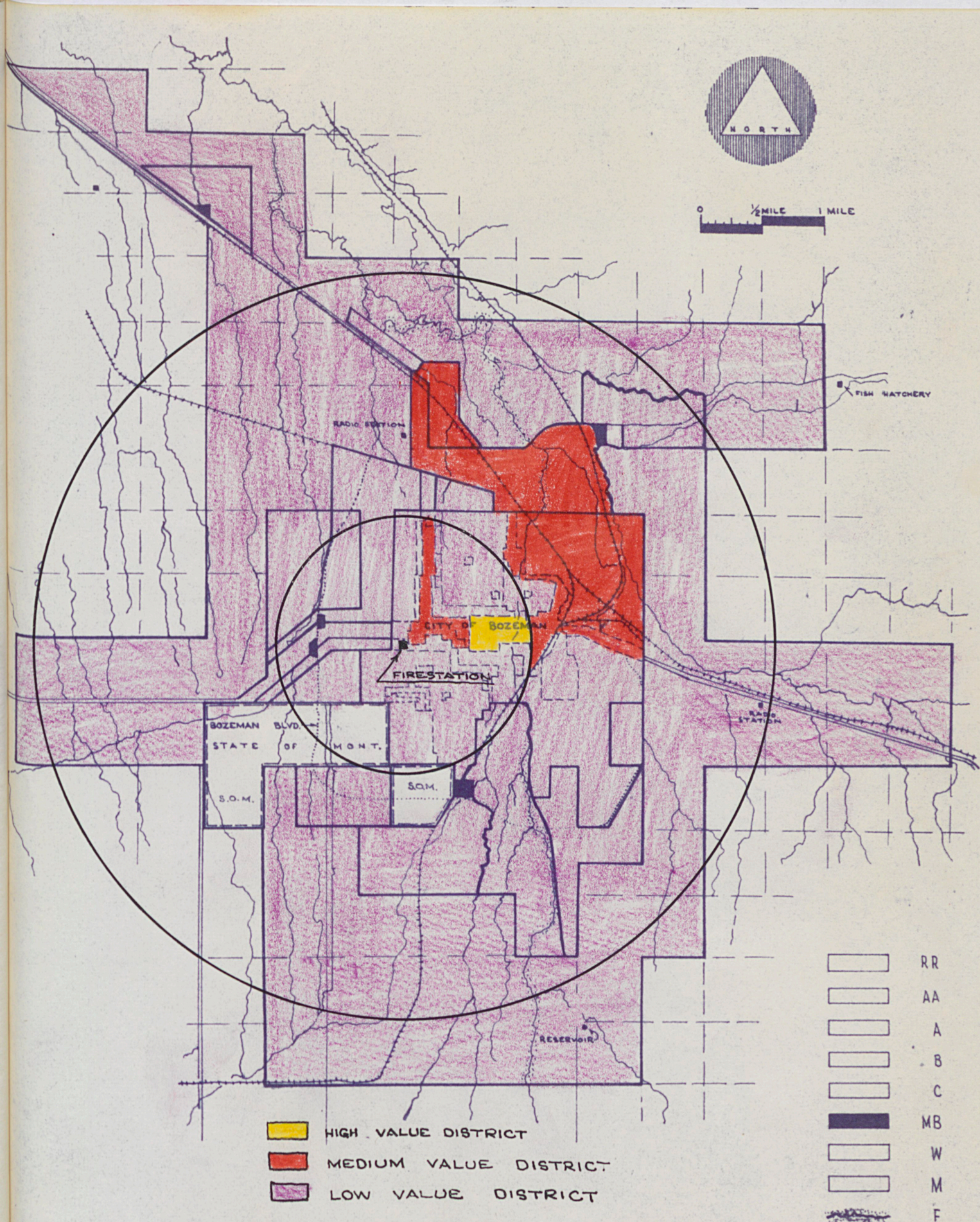
Residential areas should be no more than three miles from either engine or ladder service.³

It is not possible to build more than one fire station in Bozeman at this time because of economic reasons. One available site has therefore been selected, which I believe will best serve the needs of the growing city.

This site is a vacant lot bounded on the South by West Main Street and on the East and West by North Tenth Avenue and North Eleventh Avenue respectively. It is owned by the Roman Catholic Bishop of Montana and the land is for sale.

A map showing the relationship of this site as a fire station to the location of high value districts and residential areas is shown on the following page. The two circles shown are drawn with a one and three mile radius. The last, larger scale map of Bozeman indicates the selected site of a fire department for Bozeman, Montana.

3. Interview with the Director of the Pacific Fire Rating Bureau, April 27, 1960



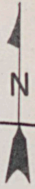
PROPOSED METROPOLITAN ZONING MAP
 GALLATIN COUNTY, MONTANA

CITY OF BOZEMAN

M O N T A N A

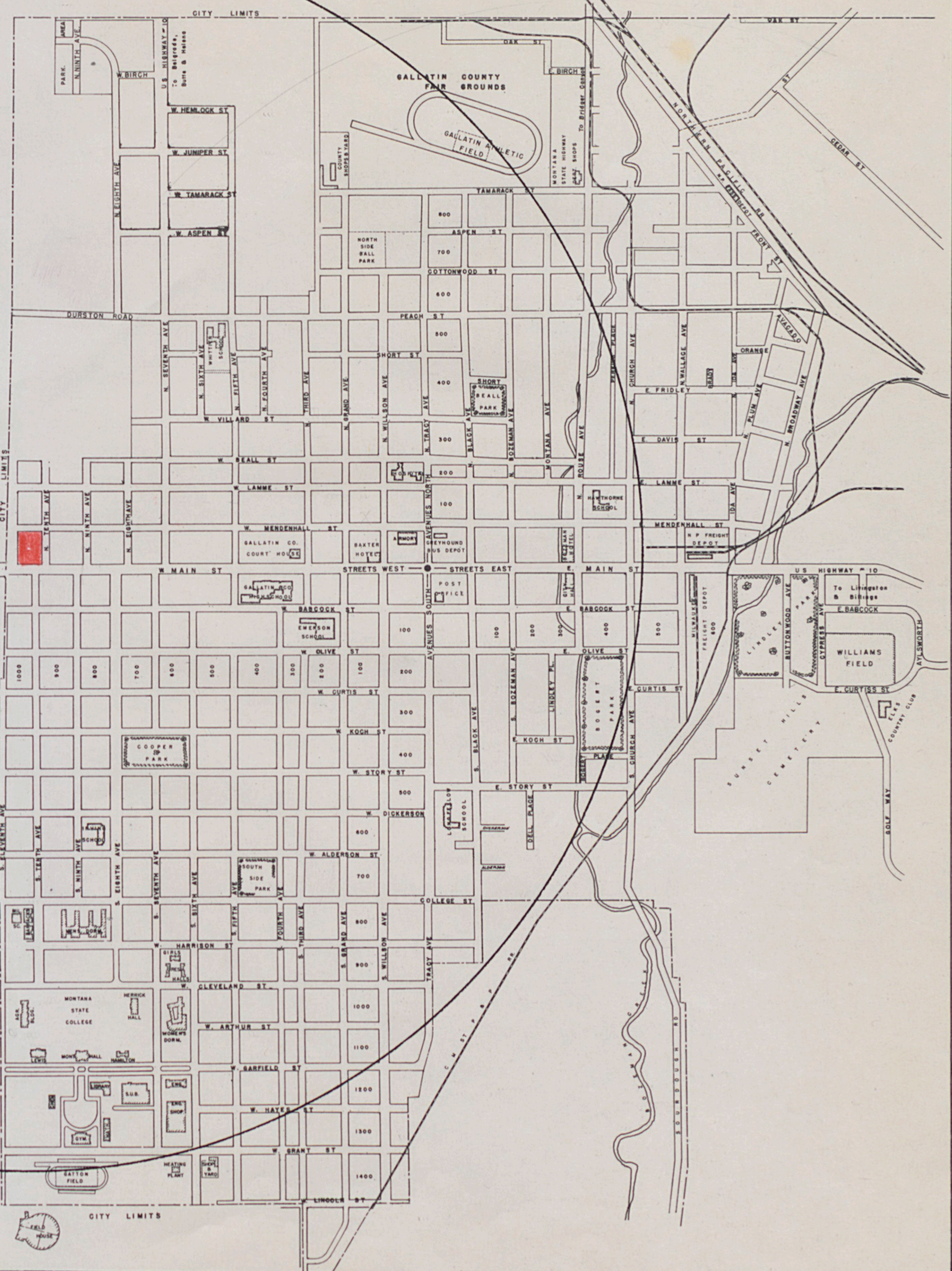
ELEVATION 4800 FT

POPULATION OVER 11,000



1 MILE
RADIUS

SCALE 0 500' 1000' 1500'



TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: May 17, 1960

SUBJECT: A program for the
proposed Bozeman
City Fire Department.

CC: Mr. Hugo G. Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

In the design of a fire department the factors to be
considered are:

- a. The equipment to be accommodated.
- b. The number of firemen to be accommodated.
- c. The educational and training facilities for the firemen.
- d. The administration and reception areas for the fire
department.

The proposed Bozeman Fire Department may be divided into
four separate interrelating areas.

- a. Engine house
- b. Administration
- c. Dormitory accommodations
- d. Staff facilities

The foregoing areas may be broken down as follows:

- a. Engine house.
 1. This area should contain enough area to accommodate
a ladder truck, two pumper trucks, a brush fire
truck, a chief's car, and an ambulance.
 2. Equipment cleaning and drying area for hose,
firefighting clothing, and related equipment.
This area should have a grate for washing fifty-
foot lengths of hose and firefighting clothing

and should have accommodations to dry this hose and clothing.

b. Administration.

1. An office for the Fire Chief and the Fire Inspector containing two desks, filing cabinets and standard office equipment.
2. The reception area which should contain seating for six should be close to the administration office.
3. Supply closet and janitor's storage should contain adequate space for administration supplies, a deep sink and janitorial supplies.

c. Dormitory accommodations.

1. Sleeping quarters should be provided to accommodate fourteen firemen. Lockers for personal equipment should also be provided.
2. A bathroom and shower room is to be provided to accommodate fourteen men.
3. A janitor's storage room should be provided and should contain a deep sink and necessary storage area for cleaning equipment.

d. Staff facilities.

1. An off duty area should be provided to enable the duty firemen to do shop work, play handball or engage in hobbies or recreation of their choice.
2. A kitchen and dining room should be provided to prepare food for and to feed fourteen men.

3. A restroom should be provided to accommodate the daytime needs of the staff.
4. Education and training facilities should be provided in the form of a classroom for twenty people and a four-story training tower for practice with the ladder truck.
5. A janitor's storage room should be provided and should contain a deep sink and necessary storage area for cleaning equipment.

Miscellaneous items to consider for the fire station are the heating plant, the sliding poles if the station is on two levels, and the proximity of all areas to the engine house in both time and space.

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: May 24, 1960

SUBJECT: A program for a city
of Bozeman Fire
Department.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

This report completes the preliminary research on my thesis problem, the proposed Bozeman Fire Department.

SITE

I have decided that the site for the new Bozeman Fire Department shall be immediately east of the Gallatin County High School on the block bounded by West Main Street on the south, North Tenth Avenue on the east and North Eleventh Avenue on the west. This is in agreement with my previous report on site selection.

CAPACITY

1. Bozeman has twelve firemen and two college students who serve as night firemen at the present time. The regular firemen work in shifts and the maximum number on duty at one time is four. The Bozeman fire department must provide sleeping accommodations for seven men now with the city population being approximately 13,000. In 1985 the projected city population is approximately 26,000 and accommodations must be provided for a minimum of fourteen men.

2. Classroom space must be provided for seventeen persons at the present time and in the year 1985 space for thirty-four persons must be provided.

3. Apparatus that must be provided for now included one ladder truck, one pumper truck, one brush-fire truck and the chief's

car. In 1985 the afore mentioned apparatus must be provided for plus an emergency vehicle and another large piece of equipment, either a ladder or a pumper truck. The minimum floor to ceiling height should be twelve feet in the apparatus room.

AREAS

1. The proposed Bozeman Fire Department may be divided into five interrelating areas.

- a. Reception and administration
- b. Apparatus area
- c. Dining and classroom facilities
- d. Sleeping accommodations
- e. Off duty relaxation areas

2. A flow diagram showing the relationship of these areas to each other is attached as the last page of this report.

The five interrelating areas may be broken down as follows:

a. Reception and administration

(1) Reception area

This area should be readily accessible from the front entry. Seating should be provided for six people and ample space must be made available to allow as many as thirty persons to congregate in this area. The administration area and the classroom must be readily accessible from this area. A janitor's closet and men's and women's restrooms should be close to this area.

(2) Administration

This office should contain the desk for the Fire Chief and the desk for the Fire Inspector. It should contain sufficient filing cabinets, book cases, and standard

office furniture.

b. Apparatus area

(1) Apparatus floor

This area must be in close proximity to all other areas of the building. It should be a drive through the area with openings for equipment on opposite ends of the area. It should contain ample storage room for hose, fire-fighting equipment and clothing, and tools for making minor repairs to the apparatus. Consideration must be given to the housing of two ladder trucks, one pumper truck, one brush-fire truck, an emergency vehicle, and the chief's car. On the apparatus floor an area must be provided for the service and minor repair of all the vehicles. A fifty-foot grate is to be provided to facilitate the washing of hose. A hose drying area and a water main connection are also to be provided in this area.

c. Dining and classroom area

(1) Kitchen

The kitchen area must be connected to the dining area to facilitate food service. This area should have sufficient area and equipment to aid food preparation for a minimum of fourteen persons. Storage area for food and cleaning equipment should be provided.

(2) Dining and classroom area should be provided to accommodate a minimum of fourteen persons dining and a minimum of thirty-four persons attending class. This

area should contain a bulletin board, blackboard, movie screen, and sufficient storage area for chairs, tables, dining utensils, and educational supplies.

d. Sleeping accommodations

- (1) Sleeping area should be provided for a minimum of fourteen men. This area can be a dormitory facility. A quick egress must be considered from this area into the apparatus room. Every sleeping space must be provided with a locker for personal effects and clothing.
- (2) Bathroom facilities must be provided for the persons who are to use the sleeping area. Sufficient toilets, shower-stalls, and wash bowls must be provided along with ample storage to serve this area.
- (3) A janitor's room should be provided in this area for the storage of cleaning gear for this general area. A deep-sink must be provided in the janitor's room.

e. Off duty relaxation areas

- (1) There should be an off-duty relaxation area where the men can relax, watch television, or play cards. Seating should be provided for fourteen persons.
- (2) A handball court should be provided for the off duty firemen. A small storage area and a janitor's closet should be in conjunction with this area.
- (3) A wood and crafts shop should be provided for the off duty firemen. This area should contain storage space and ample room to accommodate a workbench, and

a table saw

- (4) A small bathroom and a janitor's closet should be in conjection with the off-duty relaxation areas. All these areas should be closely related to the apparatus room.

MISCELLANEOUS PROVISIONS

1. A provision should be made to heat all the areas in the fire-station and also to heat the driveway slabs on the approaches to the station to keep them clear of ice and snow.
2. A provision can be made to provide outdoor areas to be adjacent to the dining and relaxation areas.
3. A provision can be made to provide a practice tower on the lot to enable the firemen to practice spotting the ladder trucks and to simulate rescue operations from hot, smoke filled rooms. This practice tower should be a four story structure with consideration given to the use of various window elements found in the Bozeman area. The rooms in this structure should be provided with some means of producing smoke and heat to simulate actual fire conditions.

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: June 1, 1960

SUBJECT: A preliminary cost
estimate for a city
of Bozeman Fire
Department.

CC: Mr. Hugo G. Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College
Bozeman, Montana

PRELIMINARY COST ESTIMATE

A preliminary cost estimate has been undertaken using the square foot area method. The cost of the apparatus area has been considered as ten dollars per square foot, the cost of the heated concrete driveways has been computed as eighty cents per square foot, and the cost of the practice tower and the living and administration areas has been computed as fifteen dollars per square foot per equivalent floor.

a.	The apparatus area (3,600 square feet at \$10/ft ²)	\$36,000.00
b.	Living and administration areas (4,000 square feet at \$15/ft ²)	\$60,000.00
c.	Practice tower (720 square feet at \$15/ft ²)	\$ 9,200.00
d.	Concrete slabs (5,150 square feet at \$0.83/ft ²)	\$ 4,280.00
e.	Contingencies (10% of total cost)	\$10,948.00
Total preliminary estimate		<u>\$120,428.00</u>

TO: Mr. John P. Parker
Associate Professor of English
Montana State College
Bozeman, Montana

FROM: W. B. McCroskey

DATE: June 1, 1960

SUBJECT: An outline of the
oral presentation I
will give in support
of the visual
presentation of a city
of Bozeman Fire
Department.

CC: Mr. Hugo Eck
Mr. David Wessel
Associate Professors of Architecture
Montana State College

(INTRODUCTION)

- I. Greeting - self introduction
- II. Purpose of this presentation
 - A. Primary reason
 1. My thesis problem
 - a. An application of courses, including
 - (1). Architectural design
 - (2). City Planning
 - (3). Working drawing
 - (4). Building sanitation
 - (5). Estimating
 - (6). English composition
 - (7). Speech
 - b. This is the design portion of thesis.
 - c. Next quarter is the working drawings portion of thesis.
 - B. Secondary reason
 1. Bozeman is in need of a fire-station.
 2. This research paper may aid in the formulation of an actual program for a new fire-station.

(BODY)

III. A fire-station for Bozeman

A. History (Tab one)

1. 1880 - first company (volunteer)
 - a. Crude facilities
 - b. Water supply - wells, streams
2. 1887 - fifty members (volunteer)
 - a. Housed in the new \$40,000 city hall
 - b. \$12,000 worth of apparatus
3. Advent of full time firemen
 - a. Sleeping facilities where police department is now.
 - b. Off-duty area over apparatus room

B. Present facilities (Tab one)

1. Located in the city hall
 - a. Now is an almost condemned condition
2. Off-duty area still in same location
 - a. Serves as
 - (1). Chief's office
 - (2). Inspectors office
 - (3). Study room for resident college students
 - (4). Classroom for firemen
 - (5). Dining area
 - (6). Reception area
 - (7). Off-duty relaxation area
3. Sleeping quarters
 - a. Directly behind the off-duty area.

- (1). Seven beds are the maximum number that can be put in.
 - (2). Directly over the apparatus room - quick exit but a problem with fumes.
 - (3). Insufficient locker space
- 4. Restroom facilities are crowded.
- 5. Apparatus room
 - a. Ramp is too steep to get the city ambulance in
 - b. Apparatus floor built over the pistol range - building in weakened condition from earthquake.
 - c. Not enough room for storage or cleaning equipment.
- C. Site selection (Tabs two and three)
 - 1. Site consideration
 - a. Economic availability and proximity to centroid of the present and future city.
 - b. Population projection
 - (1). To find an approximate population for future
 - (2). To find land area needed for this population
 - c. Direction of city growth
 - (1). By inspection
 - (2). From S. R. DeBoer's city plan of Bozeman
 - d. Population of zones
 - (1). Maximum land use
 - (2). Maximum population zoned areas will contain
 - 2. Selection of site
 - a. By use of future city centroid
 - b. Location on major streets
 - c. Site selected is on West Main Street, the block immediately east of Gallatin County High School.

3. Site owned by Roman Catholic Bishop of Helena
 - a. The city could trade park land deeded to them by subdivision law for this city block.
 - b. The Roman Catholic Bishop owns land in this subdivision area and would probably trade.
 - c. The city could develop the rest of this city block (about 60%) into a picnic-park area and use the rest for a fire-station.

D. Proposed program (Tabs four and five)

1. Capacity

- a. Fourteen men
- b. Classroom space for 34 persons
- c. Six pieces of apparatus

2. Areas

- a. Reception and administration
- b. Apparatus area
- c. Dining and classroom facilities
- d. Sleeping accommodations
- e. Off duty relaxation areas
- f. Miscellaneous areas and provisions

E. Plans, sections and model

1. Explanation of the plan

- a. Reception and administration
- b. Apparatus area
- c. Dining are classroom facilities
- d. Sleeping accommodations
- e. Off duty relaxation areas
- f. Miscellaneous areas and provisions

2. Sections (explanation)

3. Model (explanation)

F. Cost Estimate (Tab six)

1. A preliminary cost estimate

a. Apparatus area -	\$36,000.00
b. Living and administration -	\$60,000.00
c. Practice tower -	\$ 9,200.00
d. Concrete slabs -	\$ 4,280.00
e. Contingencies -	\$10,948.00
f. Total cost -	<u>\$120,428.00</u>

2. A segregated cost analysis will be undertaken along with the execution of working drawings for this report.

(ENDING)

IV. Thank you for your time

A. I am open for questions from the floor.

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