

HEADWATERS

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"THE HEADWATERS"

A RECREATIONAL PARK FOR THE COMMUNITY OF THREE FORKS, MONTANA

Part 1

Undergraduate Thesis in Architectural Design

by

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

at

Montana State University

Bozeman, Montana

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INTRODUCTION

INTRODUCTION

We seem to have lost, in our preoccupation with technology, the usual, sensual delights that water has historically added to architecture. Lying in a still pool, coursing rapidly in a stream, cascading in a fall or bursting skyward in a jet, water is part of the environment of building. Whether is is the art we have lost or the notion, today when water is used as an architectural element it is usually done tentatively, even apologetically. But architecture seems trending toward more interest in site development.

There is no known date or actual beginning of the use of water as an architectural element. The Egyptians employed water in pools, used for bathing, as far back in history as 2821 B.C. From one period to another, these pools evolved into beautiful architectural masterpieces as the different styles tried to adopt the pool to their buildings. It came closer to their architecture. Water was also found in outdoor areas, ground dwelling in the form of water wells, irrigation ditches and basins or pools.

People came to rely on their architecture to make the water more available to their buildings. The architectural contrivances that the people designed to take water from its natural source were much the same as our present plumbing facilities but in more of an architectural representation. Slowly water became a part of architecture. But it was still in a utilitarian form performing some service to the people and not to their architecture.

Sculptured forms became a method of making the water more enhancing. It then became the norm to adorn architecture with a sculptural element to handle the water. Slowly the emphasis was turning upon the water instead of the architecture and each designer of his period tried to conceive new forms, new sculptured representations for water flowing downward, spewing outward or shooting upward to pierce the sky. Water became the dynamic force behind sculpture and its relationship to architecture and each as well as nature. The inhabitants of this architecture were influenced by the psychological properties of water. The sounds offered comfort, relaxation

and people wanted more of the spectacle of water under pressure being thrown at the world.

With the changing of historical periods came the advancement of new architectural products, new concepts in design, a push toward simplicity and a concern for function within the architecture. Because of the ornate characteristic of the renaissance and other older styles of sculpture, the new design era had little to do with the use of water, but for the most part, they have realized the change and have, in some instances, successfully compensated for it. Some architects use sheets of water in the same manner that they use sheets of glass in their design.

The character of water is determined by its container and by the rate and direction of its movement. It always seeks a level, plane surface. It expresses in its motion the force of gravity and when the water is at rest it is the scene of perfectly balanced stability. The color of water is achieved by its reflection of surroundings or of the matter contained within the water itself. To humanly obtain what nature has endowed to us is not an impossibility but it is certainly a measurable task.

Of the most important attributes, water's influence of the human mind is outstanding. The people who picnic every year seek the peace of nature with the restful benefit of water. There are many reasons why this is so. Water emits peaceful sounds to relax the mind and if water is not moving it has a freshness about it that draws the human being to its side. Water, at any depth, has on air of mystery about it that acts as a magnet to the mind. Moving water, whether fast or slow, is an excitement provoking site; one which has compelled humans to follow its course only to see where it leads. All of this is true in nature and can be realized in our architecture if handled properly. People like to linger by water even if their business is elsewhere. By this same token, the architects should bring the water to the people so that all may enjoy the relaxation and comfort that is essential to a well-rounded life.

Water can affect the climate to such a degree that in some areas it is essential to the design. It adds sparkle and movement to surroundings, sound to enchant the ear and lends refreshment to the air. Water is of not apparent use if it cannot be seen or heard. If a pool is an amulet against weariness of the mind then we should locate seats near it as an invitation to rest near architecture as well as water. These are some of the factors that have been forgotten of late. If we are to design for the people then we should include the feelings and reactions of those who will be near our architecture. Water is a part of nature and nature would not be complete without it. Since we are always striving to bring architecture closer to nature then water should be of prime interest to our designers.

Still water reflects the sky and gives added depth to a structure. Because still water has niether a beginning nor an end, but precisely stated boundaries which make it finite, it is then the boundaries which the designers must be concerned with. In order to achieve an infinite boundary some designers have cantilevered their architecture over the water's edge, letting the water seemingly carry through or under the structure.

Architecturally speaking water should be incorporated with the human being and his reactions in all ways possible. Water offers a fine natural opportunity to bring the building and the site closer together as a part of a single organism. Someday the flatness of still water will be its dominent trait, and its flat plane will join an equal footing with other planes of masonry or glass to become the basic formal element of our architectural composition.

The major site force of my particular project is water. Two large ponds lie on the perimeter of my site. I will deal with the major impact water has on architecture. How architecture meets the water and how architecture meets the land are both major influences to create a harmonious whole.

DESIGN DEVELOPMENT

DESIGN DEVELOPMENT

Design development begins with a reasonably clear understanding of the problem. This includes meeting with the client to establish the preliminary design requirements and develop an understanding of the scope of the proposed project. This is followed by conducting further research to establish an understanding of the problem, such as review of zoning restrictions, soil conditions, existing site conditions, space requirements relative to the specific building type, etc.

I have attempted to establish an understanding of the nature of the product by studying clubhouse design and visiting local clubhouses that are similar in scope and content to this project. I also am a golfer and have visited many clubhouses in the past. These efforts have made it possible for me to acheive a reasonable understanding of the problem given the present conditions.

PURPOSE

PURPOSE

The purpose of this project is to develop the entire master plan for the Three Forks golf course. It will show the siting of the country club, activity center and townhouses. Phasing of construction will be proposed as needs arise.

The primary purpose of any recreational facility is to provide those social and athletic needs of the community. By developing such a facility it is important that the program will benefit the entire community as a whole, and will attract people from neighboring cities. With the many tourists that our state gets every year, this facility would make a nice stopping place for a relaxing day of recreation.

Such a facility would affect the future of Three Forks. People look for certain things in a community; friendly people, a good clean environment, a chance to make money and social, recreational benefits to take up their free time.

Three Forks needs such a place, not only for their personal needs, but for their community as a whole. This facility would keep people from commuting to neighboring cities for a relaxing game of golf or a nice warm swim. It would keep more people in Three Forks and hopefully bring more in.

A development of a small community village will also be proposed. This will consist of townhouses. Since time is limited the plots for these townhouses will be shown. Eight units will be sited at the present time with future expansion as needs arise. These will be sold to interested parties both locally and to people out of state. It is expected the buyers will be people from outside the state, retired couples for use during the summer months only.

The entire golf course development would not only bring the community together socially but actively. It would bring excitement to the small town. It would not only be fun and healthy but bring major revenue to Three Forks.

NEEDS

NEEDS

The conditions creating a need for this facility can be realized from interviews I had with Mr. Steve Hamilton, an accountant, and resident of Three Forks. We discussed the proposed project from the standpoint of both individual and community interest.

In order to discuss this need I first would like to explain the existing recreational and public facilities provided.

Presently Three Forks has four parks and playground areas. These parks have picnic areas, two ballfields, playground equipment, one tennis court and restrooms. On the eastern border of the town there are three large ponds. These ponds are used by the residents for swimming and fishing. All these facilities are used but do lack some of the needs of the community. The major users are aged two to twelve, but these parks do bring in occasional families for picnics.

Being a small community with limited finances, it is not possible to expand the facilities or enlarge the organized recreational program on a community wide scale. The proposed facility will offer a greater variety of activities under an organized program.

The fact that Three Forks has not had a golf course is not due to lack of interest, but leak of funding. But recently they have received a $100,00 grant from the county. With this grant and through community backsales, this project has finally come off the ground.

With the design of a golf course, a clubhouse is a necessity. A rather small scale building will supply the specific needs of this community. A figure of 8,000 sq. ft. is proposed. Included along with the clubhouse is a dining facility. This area would be made available for community activities and for special occasions. In order to occupy large groups, an open plan will help make provisions of the large dining area which can be broken up into a more private, comfortable atmosphere.

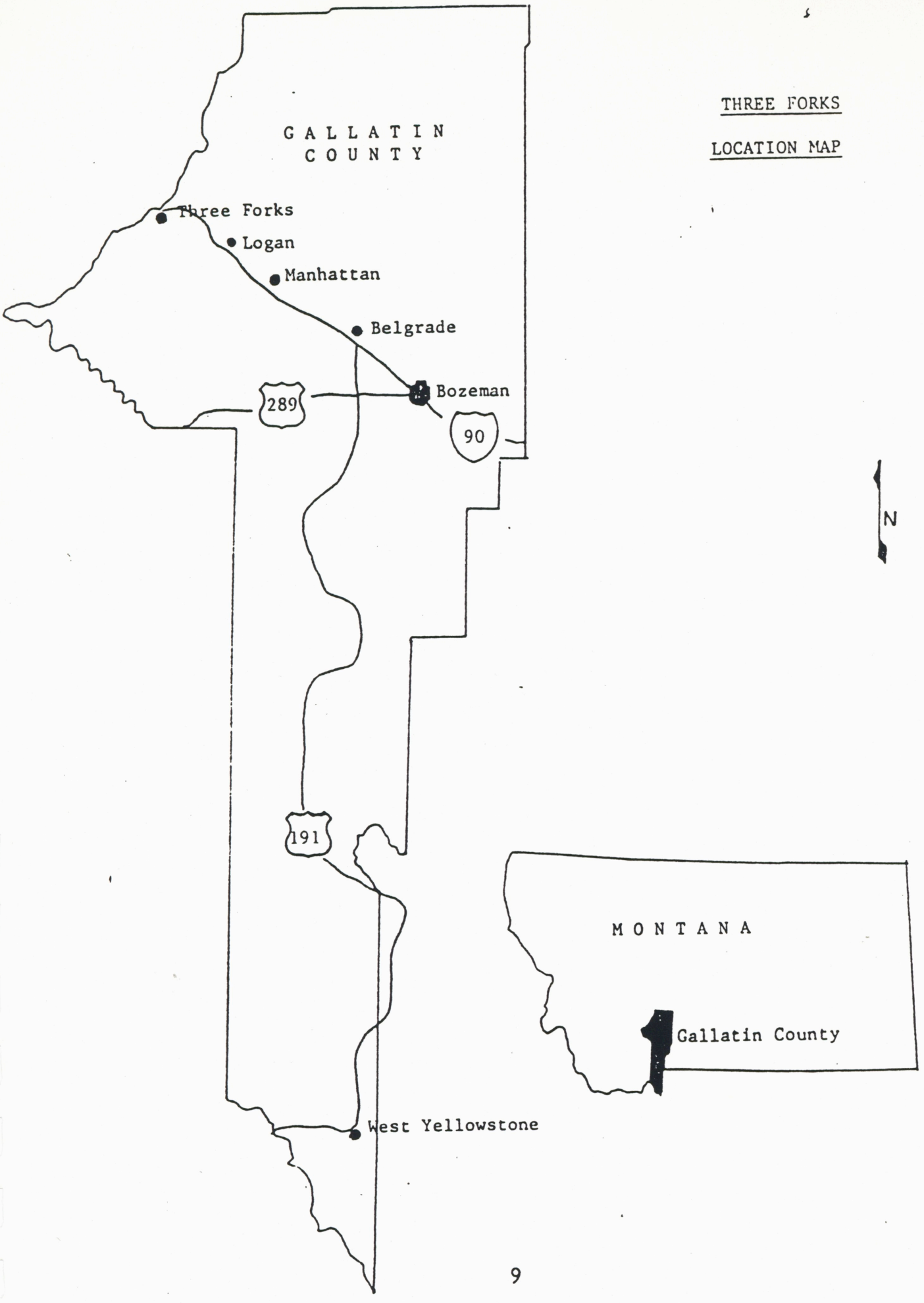
In order to fulfill the needs of the community an activities center is going to be proposed. This center will include a swimming pool, three tennis courts, three racquetball courts and a space for aerobics or just exercising.

These activities can be enjoyed by all ages; sports are life time pleasures, they are not only fun but healthy.

LOCAL CONDITIONS

LOCATION

The city of Three Forks is located in the benchland terrain of the Gallatin Valley in southwestern Montana. The city is situated between the Jefferson and Madison Rivers in the far western section of Gallatin County. Three Forks is thirty (30) miles west of Bozeman, fifty-three (53) miles east of Butte, and sixty-six (66) miles south of Helena, the State Capitol. The Burlington Northern Railroad, east-west I-90, and north-south 287 serve as the major transportation routes.


THREE FORKS
LOCATION MAP
GALLATIN
COUNTY
Three Forks
Logan
Manhattan
Belgrade
Bozeman
289
90
191
N
MONTANA
Gallatin County
West Yellowstone

HISTORY

Before the white man came, the Three Forks area was a popular hunting and battleground area for many tribes of Indians. The party of Lewis & Clark were the first white men to enter the confluence region. They reached and named the Three Forks of the Missouri in July, 1805. It was here that the Indian guide, Sacajawea, recognized the place where her people, the Shoshones, were attacked by the Minatarees and Sacajawea, herself taken prisoner. Today Sacajawea is honored by a park and a historic hotel.

In 1809, Manual Lisa, who organized the Missouri Fur Company, built a fort near what was later named Old Town, intending it to be the first permanent trading post in Montana. But troubles with the Blackfeet caused Henry, who was in charge of the fort, to abandon it.

Several hunters, traders, and trappers are known to have crossed the area in later decades, but the first settlement was not made until 1863 when Gallatin City was founded just east of the junction of the Madison and Jefferson Rivers.

Gallatin City prospered and became a crossroads for travelers on their way to the rich gold fields at Bannack, Gold Creek, and Alder Gulch. Gallatin City was named county seat of Gallatin County, but soon lost it and began to decline.

In 1867 James Shed began to erect a series of bridges to the south, across the Madison and Jefferson Rivers. In addition, Shed built a large hotel. In 1884, the bridges and hotel were sold to a group of English men who had settled in the vicinity and the name Three Forks appears with the purchase by the English company. Lord Duncan T. Hunter, manager of the company, had the town incorporated and officially named it Three Forks. This Three Forks is now called Old Town.

When the Chicago, Milwaukee and St. Paul Railway reached the Three Forks area in 1908 and looked for a location for a division point, J. Q. Adams, in charge of the Milwaukee Land Company, decided that a level expanse 1½ miles

southwest of the Old Town was more suitable. This new location is the present site of Three Forks.

The new town of Three Forks sprouted immediately. On September 17, 1908, a giant lot sale was held and 72 lots were sold. Construction boomed and many buildings were moved the short distance from Old Town.

On February 21, 1910, the city fathers decided to make plans for more orderly growth. They elected a mayor and aldermen and appointed an election agent, a town marshall, a garbage man, and a registrar for births and deaths. An ordinance was passed regulating the speed of autos, and horses, mules, and other domestic animals were forbidden within the corporate limits of the city.

Privys were moved to the alley end of the lots. The city limited the number of saloons to 6, and although there is no mention of a change in the law, two years later there were 14.

Three Forks grew rapidly in the following years and proved to be very durable. It survived a major earthquake in 1924 and several floods.

Because of its crossroads location, served by interstate highway, a trans-continental railroad, and a newer airport, Three Forks enjoys a good tourist trade. Towns people have concentrated on developing the agricultural and industrial potential as well as the promotion of established tourist attractions; the Madison Buffalo Jump, Lewis & Clark Caverns, the Headwaters of the Missouri Park and the proximity to Yellowstone Park. Hiking, hunting, fishing, and floating are enjoyed by the residents.

Three Forks is located in one of the faster growing valleys in Montana. With its ample transportation and recreational facilities, plus the current trend towards small town growth, the future of Three Forks appears bright.

For more information on the Three Forks area, Francis Denning's book, "Growing Pains", is excellent and was used as the major source for this brief history.

TOPOGRAPHY

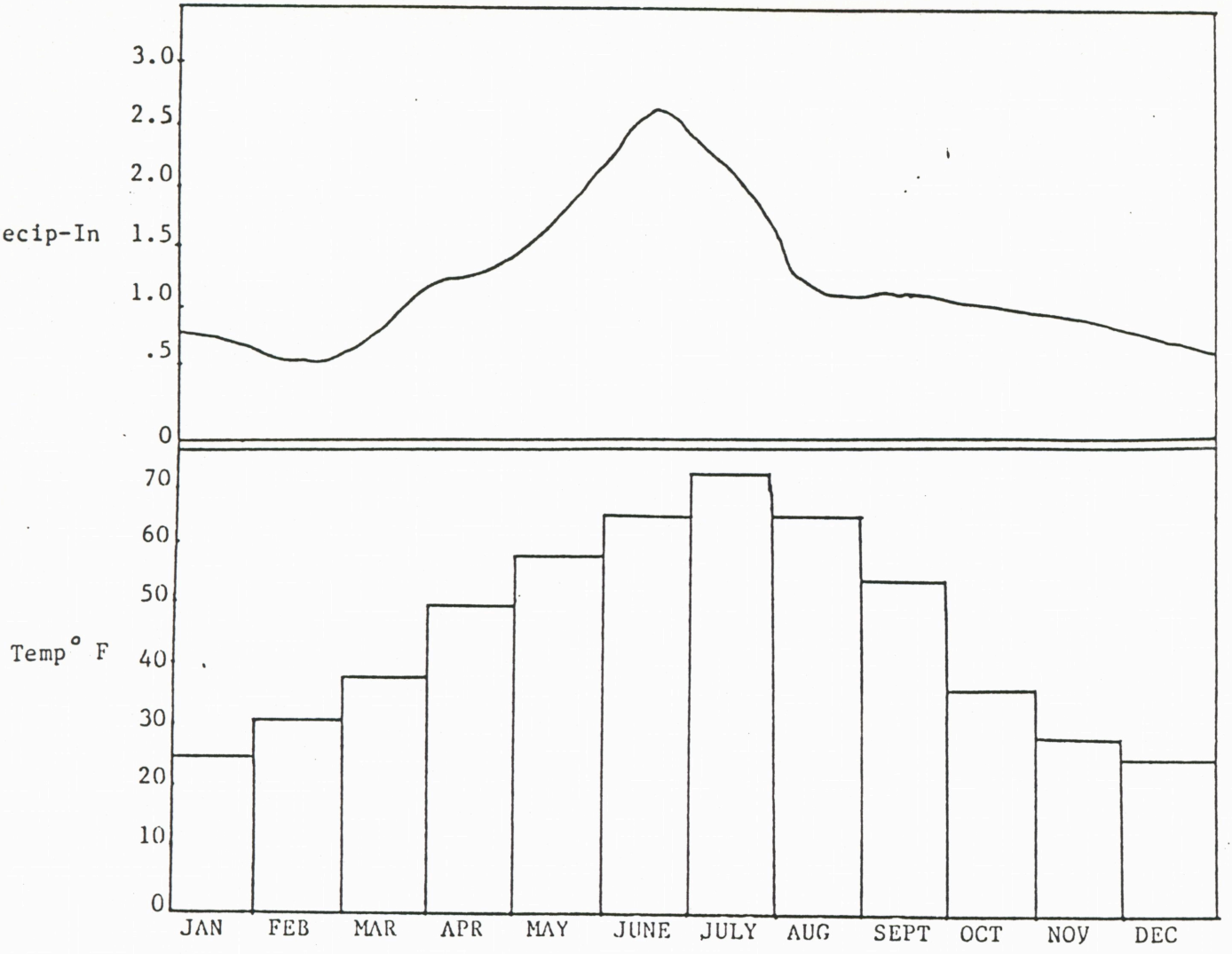
Three Forks landscape is mainly a broad benchland consisting of the flood plains of the Madison and Jefferson Rivers. It is situated in the northwest part of an irregularly spaed intermontane basin of about 1,000 square miles. Unlike most of the intermontane basins in Montana, which trand north-south, the Three Forks basin is elongated east-west.

The elevation is 4060 feet with very little slope.

CLIMATE

The climate is north temperate semiarid, characterized by windy cold winters, warm wet springs, hot dry summers, and cool autumns with long spells of "Indian Summer". From late June through August midday temperatures are high, often 90°F and occasionally 100°F, but nights are cool, and freezing temperatures have been recorded in every month. Winter temperatures are commonly below freezing. Mean annual temperature is near 46.5°F. The highest temperature recorded is 105°F, the lowest -49°F.

Average precipitation is between 10-15 inches, of which a large fraction falls as snow during the winter and early spring. Maximum rainfall is in late May and early June. The remainder of the summer and autumn are likely to be dry, with light rains in September and October. The growing season is approximately 100 days.



	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	AV
°F-Temp	22.5	27.8	35.4	46.8	55.5	62.3	70.2	68.0	58.5	48.7	34.8	27.8	46.5
In-Precip	.65	.51	1.03	1.39	1.86	2.57	1.38	1.11	1.22	.87	.72	.64	13.95

GEOLOGY AND SOILS

The geologic composition of Three Forks is mainly outwash from the Jefferson and Madison Rivers. Underlying this outwash is thick sedimentary rock which ranges in age from late Precambrain to present. Also in this area is the east-west running Willow Creek fault.

Two geologic hazards are present in this area, severe flooding and the susceptibility to seismic activity.

The soils of Three Forks are of the Banks and Havre Series, which are shallow, sandy, and gravelly loams. These soils are all very shallow, but they differ greatly in depth from one area to another. Because of flood plain action the soils that have been deposited are very mixed. The soils in this area are well drained at the surface, but the water table is high. The northeastern part of Three Forks has a higher percentage of sand and gravel while the southern and western parts of town have a high percent of silt and clay.

THREE FORKS

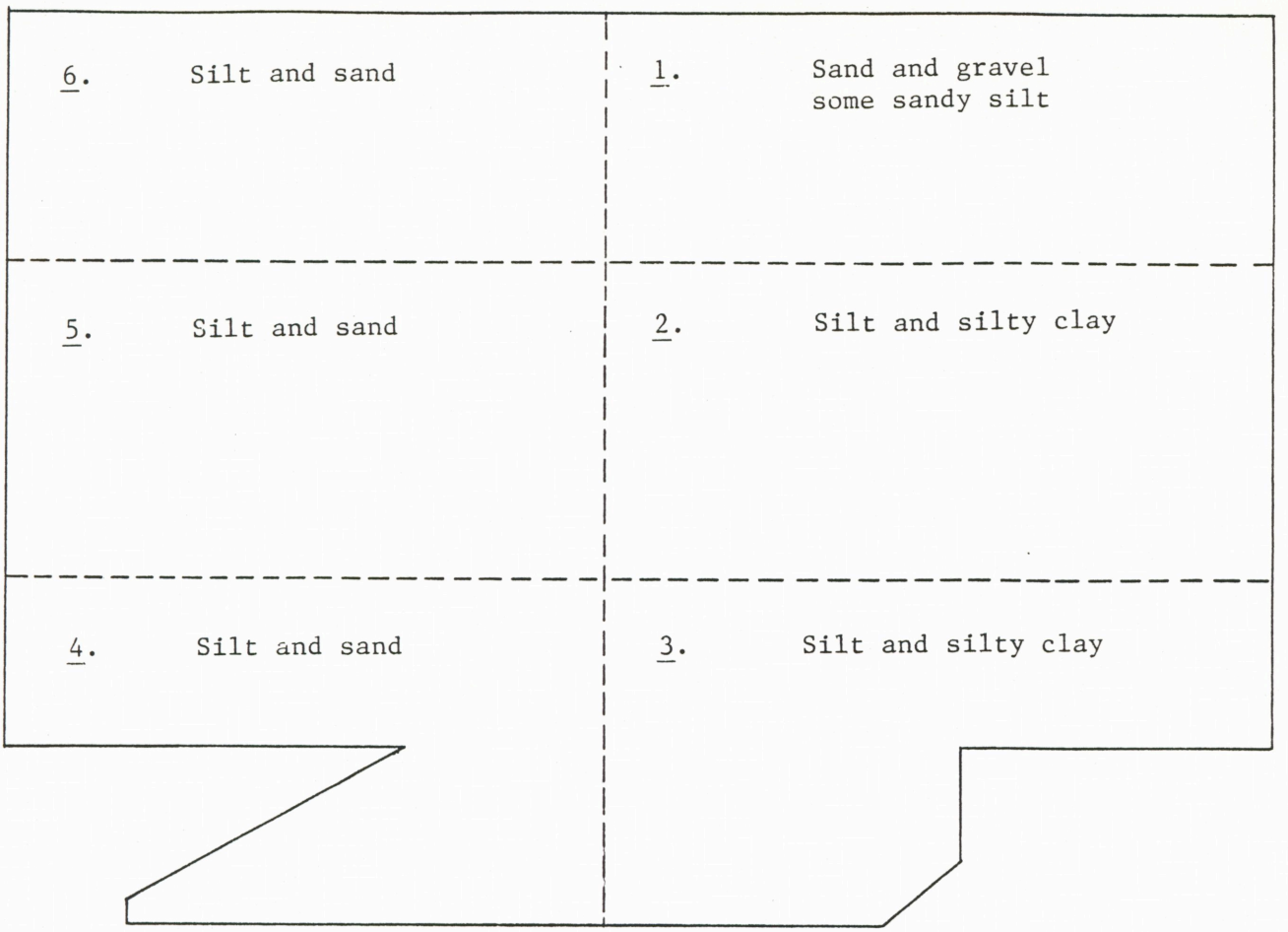


TABLE I

	From	To	
1.	0	4	Clean sand and fine gravel
	4	6	Clean sand and coarse gravel
	6	9	Clean sand and gravel
	9	13	Clean sand and gravel
2.	0	2	Silt and silty clay
	2	6	Sand and gravel
	8	13	Sand and gravel
3.	0	3	Silt
	3	6	Silty clay
	6	8	Silty clay and coarse gravel
	8	13	Sand and gravel
4.	0	4	Silt
	4	10	Silty sand and gravel
	10	13	Clean sand and gravel
5.	0	3	Silt
	3	4	Silty sand
	4	10	Sand and gravel
	10	13	Sand and gravel
6.	0	4	Silt and silty sand
	4	6	Sand and gravel
	6	9	Clean sand and gravel

HYDROLOGY

Three Forks is located between the Madison and the Jefferson Rivers. These rivers are subject to periodic floods which place Three Forks in a hazardous position. Almost the entire town lies on the flood plain of either the Madison or Jefferson. A 100 year floodflow on the Jefferson River is expected to produce a discharge of 27,600 cts. This floodflow would exceed the capacity of the Jefferson River above U.S. Highway 10. Water will flow east to the intersection of the U.S. Highway 10 overpass and the Chicago, Milwaukee, St. Paul and Pacific Railroad west of Three Forks. Here, the water will overtop both the highway and railroad, allowing floodwater to enter Three Forks on both sides of the railroad tracks.

Flooding near Three Forks from the Madison River is due primarily to ice jams. Prior to construction of the Madison dike in 1920, flooding occurred nearly every year, innundating parts of the valley floor. The 100 year ice jam flood is expected to force water over the west levee or breakout of the channel above the levee. Water would move northwesterly and be impounded by the highway system, causing it to back up into Three Forks to a point south of the high school.

The potential for damaging floods in Three Forks from the Jefferson and Madison Rivers has been increased by the building at Interstate Highway 90, which restricts the flood plain.

EXISTING LAND USE

The calculated area of Three Forks is approximately 558 acres. This area was divided into four major categories; unplatted vacant land, platted residential, commercial, and industrial. Unplatted residential comprises 27% of the area, or 150 acres. Residential land encompasses 49% of the area, or 274 acres. Commercial land makes up 9% of the area or 51 acres. Industrial land comprises 15% of the area or 83 acres.

The majority of vacant land is used for pasture and is located in the western part of town with an additional narrow strip in the far eastern section.

Most of the residential area is located in the east-central part of town and the Buttlemans addition. Thsi area is a mixture of single family dwellings, trailers, and some multi-family housing.

The commercial or central business district is found on Main Street between Date and Ash streets. This compact area contains all the essential businesses and the city offices.

The industrial section of town is located mainly along the Milwaukee Railroad tracks which run diagonally through the center of town. The railroad yards, the GTA elevator, and the oil station are located here. The only other industrial section of town is on the north and south ends of Buttlemans Addition where Cherry Lane Egg Company has their facilities.

Located just north and south of the corporate limits are several other industries. On the northern edge of town are Northwest Egg Sales and a large feed lot. On the southern edge are Cyprus Industrial Minerals Co., Kanta Cement Products, and the Three Forks Airport.

In addition, the Montana State Fish and Game maintains a small recreational facility on two large ponds located east of town.

Cagetory	Acres	%
Unplatted Vacant	150	27%
Residential	274	49%
Industrial & Railroad	83	15%
Commercial	51	9%
Total	558	100%

PARKS & RECREATION

Developed public recreation within Three Forks includes four parks and playground areas. This is divided into School Ground which has an area of 14.5 acres and Park area which has a total of 5.1 acres.

The School Ground has three ballfields, a playground, and a picnic area. Baseball Park, which is located in the center of town, has a ballfield, restrooms, and a picnic area. Stevenson Park, located on the southside of town has three picnic units, a playground, a tennis court, and restrooms. Located on the westside of town is Peterson Park, which includes a picnic area, a ballfield, a playground, and restrooms.

Three large ponds are located along the eastern edge of the Three Forks city limits. These ponds are used by the residents for swimming and fishing. In the summer restrooms and picnic tables are provided.

Three Forks is also close to several State Parks: including Headwaters State Park, Lewis & Clark Caverns, and Madison Buffalo Jump.

City of Three Forks Rescreation and Park Acreages

Three Forks School Complex	14.50 acres
Stevenson Park	2.07 acres
Baseball Park	2.07 acres
Peterson Park	.96 acres

SCHOOLS

Three Forks has one elementary school and one high school located in a single facility called Three Forks Public Schools. As of January, 1981, the high school had 137 students enrolled and the elementary school had 254 students enrolled. Projected enrollments for 1990 show a gradual decline. The high school will be approximately 130 students and the elementary school 255. At the present time the Three Forks High School is large enough to have an enrollment of at least 225 students, and the elementary school could very easily accommodate 450 students and meet all accreditation requirements.

Located on Neal and Second Avenue E., the school contains 30 classrooms, 2 libraries, 2 gymnasiums, 1 cafeteria, 2 large playgrounds and a football field.

Existing staff consists of a superintendent, one elementary school principal, one high school principal and a total of 29 teachers. The teacher pupil ratio is 1/14. Approximately 120 students are bussed to the Three Forks Public Schools.

Elementary School		High School	
Grade	# of Students (1981)	Grade	# of students (1981)
K	25	9	33
1	30	10	33
2	34	11	34
3	21	12	37
4	31		
5	26		
6	26		
7	30		
8	31		

POPULATION

Population data is used in the development and evaluation of municipal services and facilities; it is also used to study the composition of an area in order to evaluate the impact on local services. Future demands such as the need for housing, utilities, and community facilities can be foreseen and planned for through population studies.

As of this date, the official 1980 Census material is not available. Due to this fact, the only data used is from 1980 preliminary census figures. Because of the lack of current data this section contains only figures for general population, housing, and per capital income. The only other source of information for population figures is the 1970 Census which would be a wholly inadequate source 10 years out of date. The recommendation is made that this section be updated as soon as official 1980 U.S. Census figures are available.

Historically, the population of Montana, Gallatin County, and Three Forks has fluctuated up and down over the years. While Three Forks has not grown quite as fast as some predictions indicate, it has shown positive growth. With the current trend towards small town growth, the indication from many sources calls for a continuance of this growth trend.

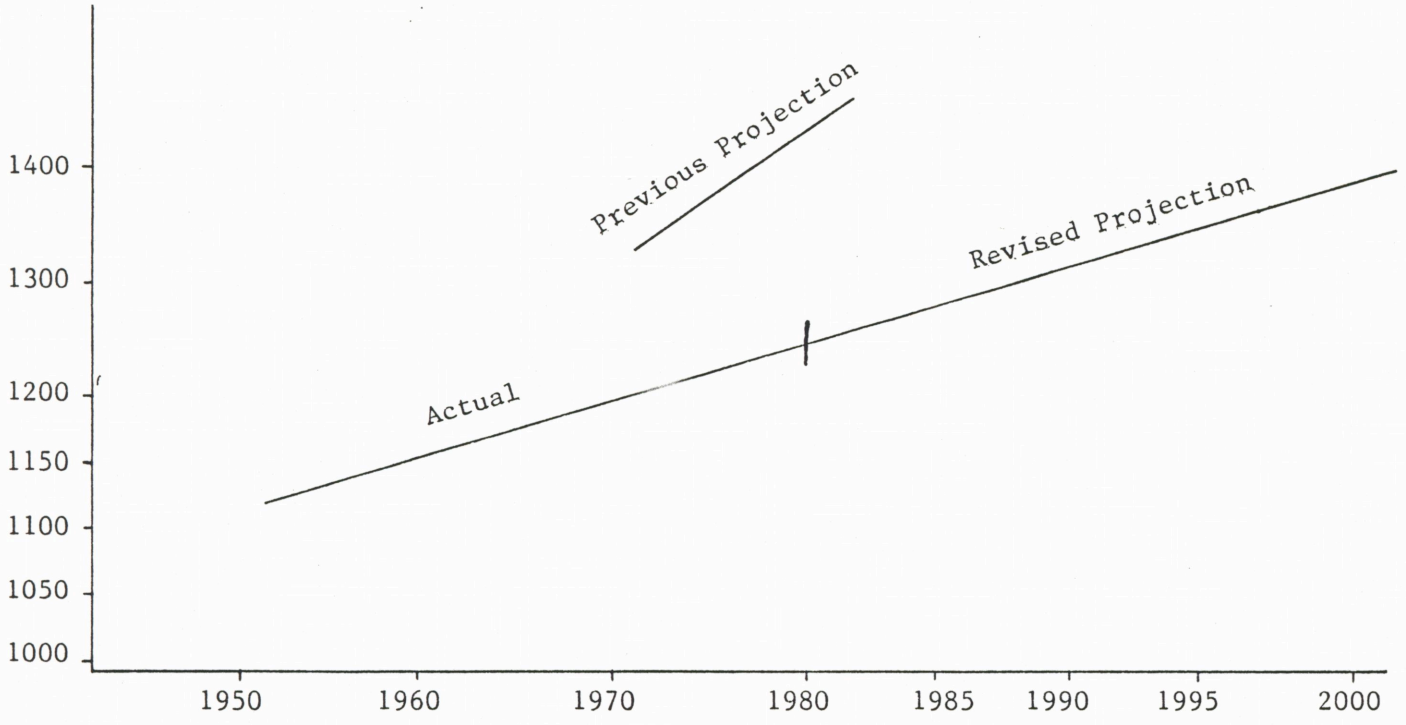
The 1980 Census showed an almost 5% increase for the town proper, when compared to the 1970 Census information. Although this growth rate is somewhat slower than the rest of Gallatin County, it is positive growth. The population of the Three Forks division has increased almost 8%. Total housing units have increased almost 24% in the ten years since 1970.

Projections for Three Forks population reflect a normal growth rate. Long range forecasts cannot account for external forces such as changing economic conditions. Because of this, it is assumed that forces which produced change in the past will continue to have a similar influence on change in the future.

POPULATION

Most population predictions turn out to be wrong; and the longer the period comprehended and the smaller the geographical area, the larger the errors become. Although Three Forks has not fulfilled it's projections, it has shown growth.

THREE FORKS POPULATION AND PROJECTIONS



POPULATION

	1980 Total	1980 Popu. per/H.H.	1970 Total	1970 Popl. per/H.H.	1970-80 % Change
Three Forks Town	1235	2.51	1188	2.82	4.0
Three Forks Division	1983	2.63	1839	2.90	7.8

HOUSING UNITS

	1980 Total	Vacant	Vacancy Rate	1970 Total	1970-80 % Change
Three Forks Town	553	60	10.8	446	24.0
Three Forks Division	857	102	11.9	685	25.1

The 1980 census has shown positive growth in both Three Forks and the Three Forks Division.

Source - U. S. Bureau of Census (Preliminary 1980 figures - subject to change).

ECONOMIC

An important factor in the well-being of any community is that of its economic base. By understanding how and why the community functions as it does, one can relate both past and present trends to the anticipated economic vitality for the area. In reviewing the population discussion given in the previous pages, a close link can be seen to economic growth patterns in terms of jobs, available work force, and the demand for goods and services. Following is a brief overview of the past and current economic conditions in Three Forks as well as some projections. It should be noted that this is a cursory overview, and a more "in-depth" economic study is recommended based upon the results of the forthcoming census information.

Three Forks, similar to many other communities in the Gallatin Valley, has its economic roots in the agricultural industry. Not only has agriculture played a key role to the economic vitality of the area but the overall development of the Valley is indicative of this important industry. This can better be realized when looking at Gallatin County as a whole. Figure 1 shows that, aside from Montana State University, agriculture accounts for the largest percentage of the economic base for the County. A further realization of agriculture and its importance to not only this county but the entire state of Montana is exemplified in Figure 2. Again, in terms of the local economic story, further investigation finds that the local agricultural market in the Valley is overwhelmingly oriented toward livestock production with receipts from sales of livestock and livestock products often equal to three or four times the receipts of crops. A 1978 study (Montana Agricultural Statistics by Montana Department of Agriculture 1978) shows Gallatin County as ranking 5th in the State for cash receipts pertaining to livestock and related products. Agricultural importance to Three Forks both past and present can be noted by the GTA elevator, Westco Livestock Sales, Cherry Lane Egg Company, as well as the great deal of pasture and cultivated land that adjoins the Three Forks community.

Through the years, diversification of the agricultural industry to the manufacturing, service and retail areas can be seen. Again, looking at Gallatin County,

this can be exemplified by using comparative employment figures during the last three census dates. This is shown in Table 1 (It will be interesting to add the new census information to this table). Although agriculture contains a high percentage of the major industry groups, the manufacturing, retail trade and service industries are becoming more and more prevalent within the last census years.

Three Forks has shown similar trends to Gallatin County in terms of economic shift. A survey of the downtown business district finds 33 business establishments encompassing a variety of retail, service type activities ranging from a custom saddlery shop to a local meat market (note map). Professional services include a banking facility, real estate and insurance offices, dentist office and chiropractic business. Three Forks also has its own paper called "The Three Forks Herald" which services not only the Three Forks community but surrounding areas as well.

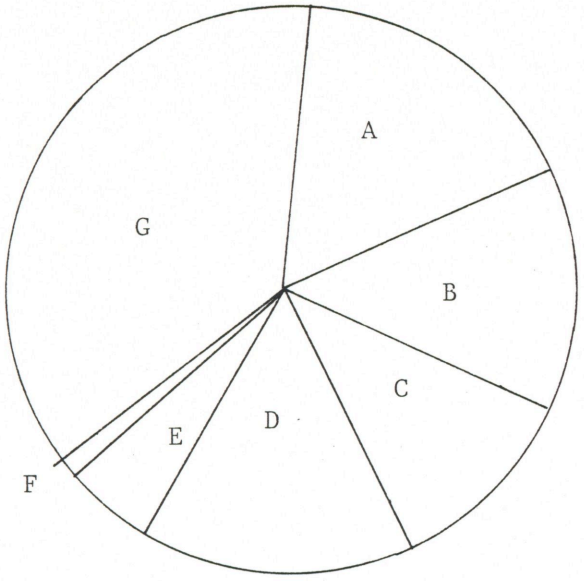
In addition to the business district survey, a listing of the major employees by industry is felt important in understanding the local econony of Three Forks. This is found on Table 2. It can be noted that manufacturing industries such as Cyprus, Ideal Cement, and Kanta Products are important not only to Three Forks but the entire Valley and region as well. In reviewing Table 2 it can be calculated that of the major industries listed, the three businesses just mentioned account for approximately 75% of the work force counted.

One specific employer who was felt to provide a great deal of input to the local economy and labor force of Three Forks is that of the Milwaukee Railroad. The decision to discontinue service to Three Forks as well as many other cities in southwest Montana in 1979 had a devastating effect. In the Gallatin Valley numerous newspaper articles predicted that without the Milwaukee Railroad, Three Forks would surely shrivel up and die as a community. This has not been the case, and this study finds that, although Milwaukee played an important role to the development and economic vitality of the community, current economic and employment

conditions are still stable. The upcoming census information as well as recent studies from the School of Business at Montana State University are anticipated to substantiate this finding.

What is the economic future for Three Forks? Population studies show that although the community will not grow and expand to a degree previously anticipated, population increases are evident. This is important in terms of the local economy. Three Forks is stable and will continue to be self-sustaining in the years ahead. Agriculture is anticipated to be an important element to this stability as well as the successful manufacturing businesses that are located in the Three Forks area. Vacant lots within the downtown area will be built upon and utilized for a variety of retail trades. Recent plans to relocate the banking facility to another part of the downtown business area are not viewed upon as detrimental and indicate a willingness to reinvest toward the betterment of the community. Active participation by the Three Forks Chamber of Commerce as well as various advisory groups, like the Three Forks Planning Board, is encouraged for all elements of the Three Forks economy.

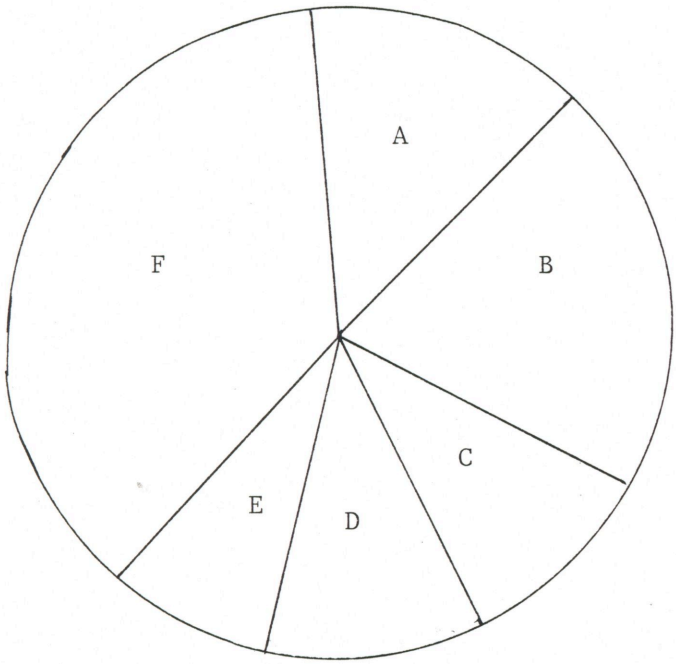
Figure 1 - Economic Base of Gallatin County, 1978



A - Agriculture - 17%
B - Manufacturing - 13%
C - Federal Government - 11%
D - Tourism and Trade - 16%
E - Railroads - 5%
F - Mining - 1%
G - Montana State University - 37%

Source: Gallatin County Statistics

Figure 2 - Montana Agricultural Statistics
Relative Importance of Selected Major Montana Industries
Percent of Total



A - Mining - 14%
B - Manufacturing - 20%
C - Travel - 10%
D - Oil and Gas - 11%
E - Lumbering - 8%
F - Agriculture - 37%

Source: U. S. Department of Commerce

TABLE 1

GALLATIN COUNTY EMPLOYMENT BY MAJOR INDUSTRY

Industry	No.	%	No.	%	No.	%
Agriculture, Forestry, Fisheries	1856	23.2	1493	16.4	1175	9.6
Mining	8	1	21	2	6	.04
Construction	513	6.4	498	5.3	696	5.7
Manufacturing	575	7.2	830	8.9	952	7.7
Transportation, Comm & Utilities	684	8.6	607	6.5	642	5.2
Trade	1575	19.7	1876	20.0	2551	20.7
Finance, Ins Real Estate	190	2.4	250	2.7	439	3.6
Service	2120	26.5	3160	33.7	5246	42.7
Public Admin.	346	4.3	444	4.7	587	4.8
Not Reported	126	1.6	186	2.0	----	----
TOTALS	7993	100%	9365	100%	12,294	100%

Source: U. S. Census

TABLE 2

MAJOR EMPLOYERS IN THE
THREE FORKS AREA

Business	Location	# of Employees
Ideal Cement Plant	Trident	103
Cyprus Industrial Minerals Co.	Three Forks	50
Cherry Lane Egg Co.	Three Forks	22
Sacajawea Inn	Three Forks	21
Kanta Cement Products	Three Forks	18
G.T.A. Elevators	Three Forks	
Elevator		6
oil station		7

Source: T.A.P., Inc., 11/21/80

ZONING

ZONING

The site chosen for this project falls under the catagory, Public Lands Institutional, which was set by the zoning ordinances of Three Forks. This district is to further provide for and to reserve land for major open lands, institutional uses, recreational and public service activities for the existing as well as future benefit of the citizens fo Three Forks.

The requirements for the particular district are listed below.

LOT AREA AND WIDTH — No specific lot area and width setforth.

LOT COVERAGE — The entire lot, exclusive of required yards and parking, may be occupied by the principal and accessory buildings.

YARDS REQUIREMENTS — No requirement except when a lot is adjacent to another district, the yards then shall be the same as the adjacent district.

PARKING — (Section 19 of zoning ordinances)
The intent of this section is to reduce traffic congestion and the need for parking on public streets and hazards caused thereby, and to provide off-street parking adequate for each type of development in terms of both quantity and location.

Multi-family dwellings units

- On the same lot with the dwellings they are required to serve.
- Required parking spaces shall not be located in any required front or side yard.
- Size of parking 9' in width and 18' in length.
- Vertical clearance of 7'.

Where more than three off-street parking spaces are required, the parking area shall be arranged allording to one of the four designs listed below.

PLANS

A plan required to clearly indicate curb cuts, lighting, landscaping, contruction details, fencing and other features which may be required by the Building Inspector.

CONTRUCTION

All permanant off-street parking spaces and access areas thereto shall be paved.

All off-street parking areas shall be designed and constructed to allow proper drainage.

SCREENING

Any parking area built to serve any commercial or industrial use with ten or more parking spaces shall be effectively screened by a decorative wall or landscaping from adjacent property zoned residential.

Any use having more than 3500 square feet of required permanant parking shall have two percent of the gross parking area landscaped with suitable trees and/or shrubs having a low profile. Such landscaping shall be in place before occupancy of the building or use being served.

LIGHTING

Lighting used to illuminate a parking area shall be arranged in such a manner that it will not be a hazard to passing motorist or constitute a nuisance of any kind. Where said parking area is within 150 feet of any property classified as residential by this ordinance and where the parking area is directly visible by the residents within 150 feet illuminating devices shall be shaded in a manner that would direct the light away from the residential property.

COMBINED OCCUPANCIES

Where two or more used are combined in one development, the total parking spaces shall be the sum total of spaces required for each individual use.

SPACES REQUIRED

All commercial used = the number derived by multiplying the factor in the parking factor table established by the Three Forks zoning ordinances, by the total square footage in thousands in the building and shall be figured to the nearest single place decimal.

Factor for Entertainment Enterprises

Healthclub = 6.5
County Club = 6.5

Public Eating and/or Drinking Establishments

Dining Room = 8.0
Bar and Cocktail lounge = 8.0

SITE ANALYSIS

SITE ANALYSIS

The city of Three Forks is located in the benchland terrain of the Gallatin Valley in southwestern Montana. The city is situated between the Jefferson and Madison Rivers in the far western section of Gallatin County. With the close location to these rivers, Three Forks is subject to periodic floods which puts them in a hazardous position. The site chosen is also located on this flood plain and careful, skillful design must be incoorporated.

The site is located on the eastern boundary line of Three Forks city limits. The entire site covers about 154 acres. Most of this land is occupied by the golf course and the two large pond. But leaves ample usuable building area.

There is easy access from all directions to the site. To the west is the start of the residential district and to the east is Interstate 90. The exit off the Interstate to the site is only one-fourth of a mile. This is a good quality because it makes the site the first thing observed when entering the town. These access routes; especially the major traffic flow off the Interstate need some kind of edge from the street to the golf course. It needs a softer transition through the use of image devices. An example would be, arrival, the individual becoming part of the site. Some sense of that transition would be important. Another example would be anticipation, this device arouses courosity and makes the observer want to see whats ahead. This can be done by blocking the view for a short time and letting the site slowly bleed back into view.

The vast open space of the site is fairly flat with accasional burms built up around the greens of the golf course. The site is primarily treeless. There are a few aspens and maples bordering the ponds and scarcely placed throughout the area. The community of Three Forks is helping out in donating trees for this recreational area.

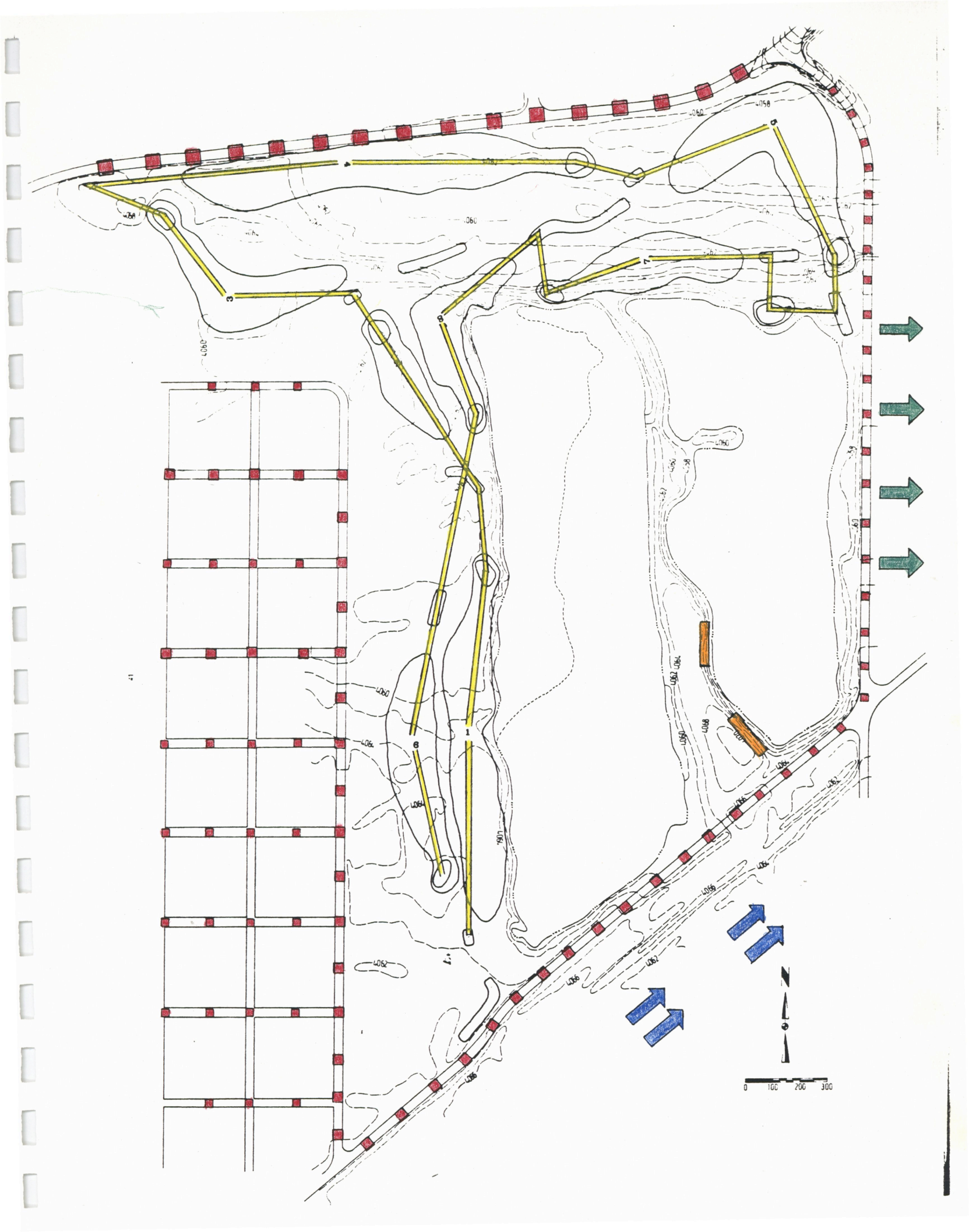
Presently, the site has been seeded with grass but at this time has not had an adequate time or desired warmth to fill in. There is some natural follage

present around the ponds which the developer wants to remove. I have some different feelings toward this matter.

Since this is such an open and sprawling site, the distant views are visible from all directions. On a clear day the snow topped peaked mountains contrasting with the greenery makes for a relaxing atmosphere.

Another important feature that exists on the site is two large ponds. These were built for the purpose of controlling the flood levels which are periodically present in Three Forks. The ponds are the home of many different families of birds, fish, and insects. These ponds are maintained by Montana Fish and Game Department and are stocked yearly for recreational fishing. The community uses these ponds for swimming, boating and fishing. In the summer families take advantage of these large ponds and beautiful mountain views for picnics or just relaxing.

Overall, the site needs a lot of improvement, mostly by the use of more vegitation. Some cleaning out of the existing weeds would be necessary. As soon as the seeded grass grows in, this site would be a welcome sight to any recreational enthusiast and would be a major contribution to the city of Three Forks.


0
100
200
300

HISTORY OF CLUBHOUSES

HISTORY OF THE CLUBHOUSE

One of the most surprising developements in the past few years has been the increasing demained nation wide for country clubs. It would seem as if there were a concerted effort in our larger population centers to preserve through the country club that with the open air.

In the past thirteen years, many changes have been implemented in the golf clubhouse. The luxurious private country club, which made its first appearance shortly before the depression, has been replaced by a more funtional easier to maintain clubhouse. Still luxurious in its appointments, the new facility is practically indistinguishable from its forebears of the 1930's.

The private country club has a long and illustrious history in this country. In the beginning it served as a sanctuary of the wealthy male for fellowship with his peers and for the newly developed sport of golf.

Since World War II this pattern has been significantly altered. The change was primarily one in which women made their presence more and more in the typical club. With the women, and therefore children, the term "family club" came into use. While the golf course continued to be the main expansion in other related athletic activities such as tennis and swimming, together with considerably more emphasis on the social life of the members. The typical club became more and more a "home away from home" with some type of activity interest for each member of the family.

In size, we are seeing a smaller, more compact, more functional utilitarian facility that requires less employees than its predecessor. It is being built in large--space areas with flexibility and which can be used for several purposes. Energy savings are being considered in the areas of heating, air conditioning, water and lighting. The outdoors are being brought indoors through the use of skylights, atriums, hanging plantings and more window space and outdoor decking.

GOALS

GOALS

MAJOR GOALS

- An important goal in any design problem is to meet the needs of the user. You must provide a variety of activities in such a facility for use of the older generation as well as the present and the future. An example would be a family vacationing which has different likes. Dad likes to golf and fish, mom likes to swim, the children like boating, etc. With all these activities everyone can find something they enjoy.

- Since Three Forks is a small town with a low rate of tourism in the town itself, a major goal is to design such a facility which will bring in tourists, as well as people from neighboring cities within the state of Montana. The structures must be visible from the adjacent interstate to help attract these people.

- In order to keep people coming back to this facility you must provide a relaxing atmosphere. With the large ponds available this task should be easy. Water has an extraordinary psychological effect on people. It attracts people by giving off a sensuous atmosphere which stimulates human interaction and family gathering. Using the given natural features you bring the atmosphere needed.

- In order to keep spirits high, you must provide a sequence of events, always changing. Keep people in suspense. Make them want to travel beyond the obvious, to the point of surprise. Try to keep their heads turning, viewing different things as they progress through the space. Space is the generating force which keeps people aroused, makes them curious of what's ahead. In short, excitement.

- Use materials which make sense for the environment. Lasting materials. Use them in such a way that will aid this idea of events. One example is to use a certain material for wall, which carries people's eyes and bodies through the generated space. When this material is used consistently, people will know that wall means movement. It will help keep the excitement level high.

GENERAL GOALS

- Avoid development in environmentally sensitive and/or incompatible areas.

- Location of high volume streets and roads bisecting residential areas should be discouraged.

- Confluence of interactions

- Create beauty and excitement within the budget limits.

- Site easily visible and found from town and interstate.

- Design should simplify the operations through organization of related spaces.

- Allow for phased construction in such a way as to grow gracefully.

- Minimize the pedestrian vehicular conflict.

- Preserve existing threes; capitilize on existence.

- Be a good neighbor to adjacent properties.

- Attractive with relaxing atmosphere

- Lend grace, interest and excitement to approach, arrival, and movement through site. "IMAGE DEVICES"

- To provide dual use by community and tourists.

- Establish an activity connection at the water.

- Continual upgrading of recreational facilities should be an ongoing process.

- Adequately deal with the flood plain problem.

- Enhance growth that is compatible and complementary.

- Open space system should be utilized as a positive design element to enhance total image.

- Recreational programs should be continued ans gradually expanded.

- Provide for some physical identity for each subject group without establishing definite boundaries.

- Get community involved in facility activities.
  Facility + Community = Interaction

- Create green planted areas for the psychological effect.

- Provide an open and functional plan.

- Preserve natural form of the area.

CONCEPTS

CONCEPTS

MAJOR CONCEPTS

- Three Forks needs an attracting element to their city, somthing that captures attention. For this reason the major concept of the entire project is a BRIDGE. A bridge does many things. The most important is that it contrasts the immediate site. By raising above the surface of the land you are bringing prominance to the structure. In general terms, a bridge is used to span areas from Point A to Point B. The bridge is used to make travel time shorter, easier. Bridges are also used to heighten the experience of movement. Most people enjoy the travel over a bridge. They feel superior to the land, because they are riding above the surface.

  These reasons all make sense for such a project with this given site. Contrast to catch attention, make travel time of this large site easier, and give people a feeling of openness hovering the immediate site.

- When people think of a bridge they typically see it as a linear element with supports either at the ends or with evenly spaced supports under it. But the bridge proposed for this project is far from simple supports. It will be a linear pathway combined with architectural elements connected to the structure of the bridge. The elements will change as you progress down the line. This will help keep the excitement level at a peak. There will be secondary paths off the larger central element. These paths will bring you between the structures, out of the structures and under the structures. These secondary elements will bring your eye and body termpoarily away from the architecture and back to the natural elements of the site. Once back on the bridge your attention goes back to the geometries created by architecture form and space.

  By using a linear organization you can arrange the different activities in a sensible order, because you have two opposite sides to work with, arranging similar activities with each other.

  Another concept of linear arrangement above the surface of the land is the ability to view the activities from a different level, by placing the activities at a lower level below the bridge. The placement of viewing areas becomes important by making the linear event part of the path. Combine them in one by letting the passer-by view the activities below. As you walk down the path, watch the people play raquetball, swim, and exercise.

- As stated earlier, people are going to need a reason to go to Three Forks. The town itself doesn't attract people. In order to help grab the attention of motorists on the interstate, a focal point is going to be needed. A tower growing out of the water will be proposed. The function of the tower will be a viewing platform. It will provide the users a substantial height to view the joining of the three rivers.

GENERAL CONCEPTS

- Deal pragmatically with concerns of energy efficiency.
- Large areas of glass facing south.
- Rich and warm materials; effective colors and textures.
- Provide a point of reference.
- Provide screened parking away from building.
- Priority - order of importance.
- Space Relationships - correct interrelationship promotes efficiencies and effectiveness of people and activity.
- Multi-Functional - Use for other community activities.
- Flexibility
- Develop an overall informational and directional signage system.
- Reconcile character of natural landscape with the rhythm scale and symbol of the man made object.
- Bring outdoor elements in.
- Generate link between clubhouse and activity center.
-

FACTS

FACTS

- Lot Area and Width - No specific lot area and width set forth.

- Parking designed to allow proper drainage.

- Parking - 9' in width, 18' in length

- Parking spaces effectively screened by decorative wall of landscaping.

- Parking - Any use having more than 3500 square feet of required parking shall have 2% of gross area, landscaped.

- Three Forks economic roots in agriculture industry.

- All permanent off-street parking spaces and access areas shall be paved.

- If exterior lighting is within 150' of residential, illuminating devices shall be shaded.

- Ponds used by residents for swimming and fishing.

- Yard Requirements - No requirement except when a lot is adjacent to another district. The yards then shall be same as adjacent district.

- Parking shall be arranged in one of these 4 ways.
  1. 90° 2. 45° 3. 30° 4. 60°

- Average °F temperature = 46.5°. January-February are coldest months.

- Annual precipitation - 13.95 in. (Ave.)

- Fllow applicable building and fire safety codes.

- Periodic flooding.

- Parking - Required parking spaces shall not be located in required front or side yard.

- 150 regular golfers - Predict 250 by July '87.

- Population - 1980 = 1245
  Projected - 1990 = 1300
  1995 = 1300
  2000 = 1370

- 135 students in high school
  254 students in elementary school

- High water table.

- Good access to site.

PROGRAM

PROGRAM

LOBBY

function- to provide weather protection, and separate traffic into main areas. — 300 sq. ft.

- transition between entry and main areas.

PRO SHOP

function- to provide area to display and sell golf equiptment. — 600 sq. ft.

- provide area for golf club cleaning
- adequate view to first tee-box

BAR & COCKTAIL LOUNGE

function- provide relaxing atmosphere and the serving of alcoholic beverages — 750 sq. ft.

- maximum seating capacity- 50 people
- 15 sq. ft. per person

DINING ROOM

function- provide nice atmosphere for quiet dining — 1500 sq. ft.

- maximum seating capacity- 100 people
- 15 sq. ft. per person

-Dining Equiptment- tables with four seating capacity
- permanent booths for private dining
- movable partitions
- plantings
- windows facing views and man made views
- place on upper level for optimum views

KITCHEN

function- area to provide meals and clean dishes — 1000 sq. ft.
- provide area for cold and canned food storage

- Kitchen Equiptment- broilers, fryers, ranges, roaster, kettles, steamers, drain board, sinks

MENS LOCKER ROOM

function- provide area for showering and dressing — 1370 sq. ft.
- sauna for relaxing
- adjacent to all sports activities

showers-	350 sq. ft.
drying rooms-	170 sq. ft.
sauna	50 sq. ft.
lockers	400 sq. ft.
ciculation	110 sq. ft.

WOMENS LOCKER ROOM

function- same as mens locker room, see above — 1370 sq. ft.

SWIMMING POOL

function- recreational swimming — 4000 sq. ft.
- provide adequate length for lap swimming

TENNIS COURTS

function- provide leisure tennis for community — 21, 800 sq. ft.

- need three tennis courts
- each court- 7200 sq. ft.
- surround with fence

RACQUETBALL COURTS

function- provide area for the playing of racquetball — 3174 sq. ft.

- each court area- 1058 sq. ft.
- need three courts

AEROBICS

function- area for aerobic excercise, with instruction — 1000 sq. ft.

- need 36 sq. ft. per person
- maximum number of people per hour 25

GOLF CLUB STORAGE

function- provide storage for golf clubs — 544 sq. ft.

- 2' x 2' x 4' lockers
- need 100 lockers

GOLF CART STORAGE

function- storage for carts — 1120 sq. ft.
- 3 wheel carts

3.9' x 8.5' each cart
- need 10 carts

MANAGERS OFFICE

function- area for office work — 125 sq. ft.

MECHANICAL ROOM

function- provide for heat, hot water, and air movement — 300 sq. ft.

SERVICE AREA

function- area for service and delivery — 200 sq. ft.
- storage for waste

RESTROOMS

function- daily hygiene

- provided in each facility.
  1. Clubhouse — 800 sq. ft.
  2. Dining — 600 sq. ft.
  3. Bar — 600 sq. ft.

TOTAL SQUARE FOOTAGE OF FACILITY — 41,053 sq. ft.

AESTHETICS

AESTHETICS

The aesthetic experience is an important quailty in all design decisions and the architect must attempt to understand how this aesthetic need might be met. D.E. Berlyn has outlined the requirements necessary for an aesthetic product.

> "An aesthetic product has to accomplish two things; it has to gain (and maintain) the attention of the audience and it has to keep arousal within limits."

There are so many stimulus variables competing for attention that you are not being entertained in any significant sense. Your attention is being dominated by your particular interest at the time.

As you come upon the site, a relatively large open space with large ponds and park in the middle, your attention is immediatly drawn to the scene ahead. If this is the first encounter with the area, you would be most likely be physically drawn into this area. It is refreshing because it offers a significant contrast to the experience that occured on the Interstate or in the grid patterns of the town. The casual no-rush attitude of those golfing or picnicing in the park provide a different experience of the street scene. In this cause the natural element provided the attention feature, simplicity.

An aesthetic product, therefore, in order to gain the attention of the audience must possess a dominant feature of complex or simple nature. The dominance must be significant and clearly distinguishable in order that the opposing features will not compete for attention.

Simply gaining and maintaining the attention of the audience is yet not sufficient to produce a satisfying visual experience. According to Berlyn the aesthetic product also requires that attention be controlled; arousal kept within limits. To do this the dominant feature of the experience must be integrated with the corresponding subordinate feature.

In developing this aesthetic experience I would like to take you through a step by step process as you enter the site. From first observed to reaching your destination; the bridge.

Arriving at the development by car, one turns off the Interstate, rises quickly to a hill top. Spead out below, in a natural bowl formed by the surrounding hills, one sees the golf course, then the lake. As you proceed along the entry road, your anticipation level is increased as you view a tower in the distance. The tower seems as if it grows out of the water. Your attention is now in control and a curious feeling makes you continue. As you drive into the parking lot you view the beginning of the journey over the bridge. The entry gate is positioned at an obscure angle making you wonder what kind of place this is. You continue enthusiastically taking in all the geometric forms which surround you. On occasion the buildings move to the side giving you a wonderful view of the natural landscape features. The forms of the buildings with their pitched roofs blend with the peaks of the mountians beyond and the wooden piers secure it to the natural elements. The building envelopes seem to be invisible. Your sight carries through the building, the envelope seems to be invisible. Your sight carries through the building out the opposite side to the water, bringing the outside element in. The entire building, inside and out, is integrated, the dominant feature of the structure along with the subordinate features of the landscape are congruent to each other.

The overall impression which this facility gives is a feeling of a small community. Many activities, many different things to look at, and best of all a lot of fun. Wandering down the bridge is like shopping at an outdoor shopping mall. As you progress, your movement is concentrated and your awareness keeps you moving. Signage, like little shop windlow test, gives the pedestrian a knowledge of what each form consists of and what activities are involved.

This bridge is not only used by the users of different activities, but also the people who just like to get out and walk, picnic, or just relax.

The major materials used are concrete, wood, and granite. They will be used to help you move through the space. The wood piers will give the feeling of a fishing village, but with the uniting of painted concrete and granite will give just the extra touch to give "The Headwaters" a feeling of class.

CONCLUSION

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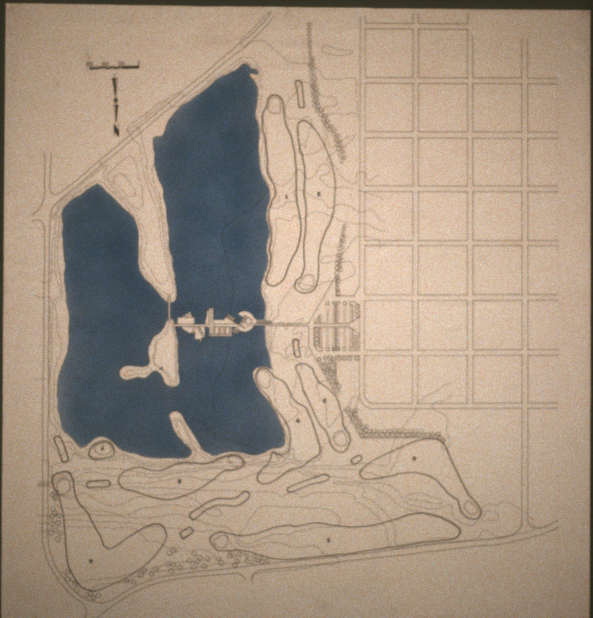

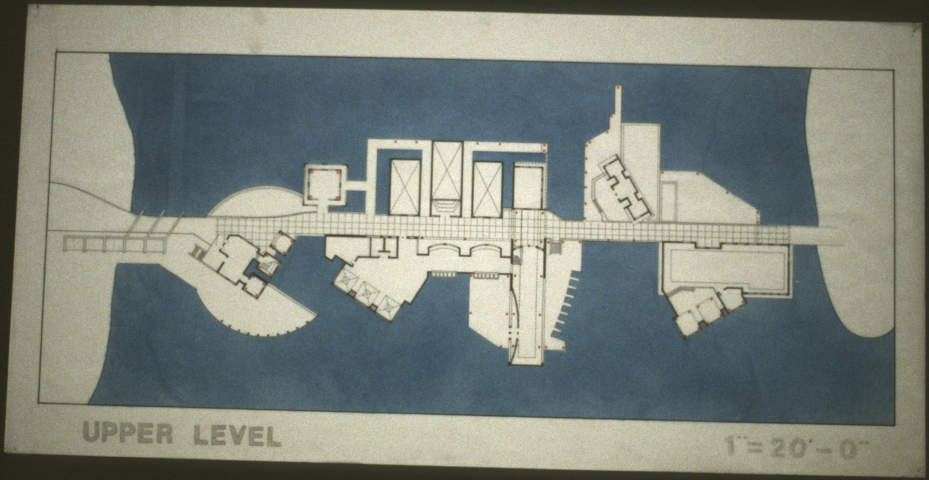
UPPER LEVEL
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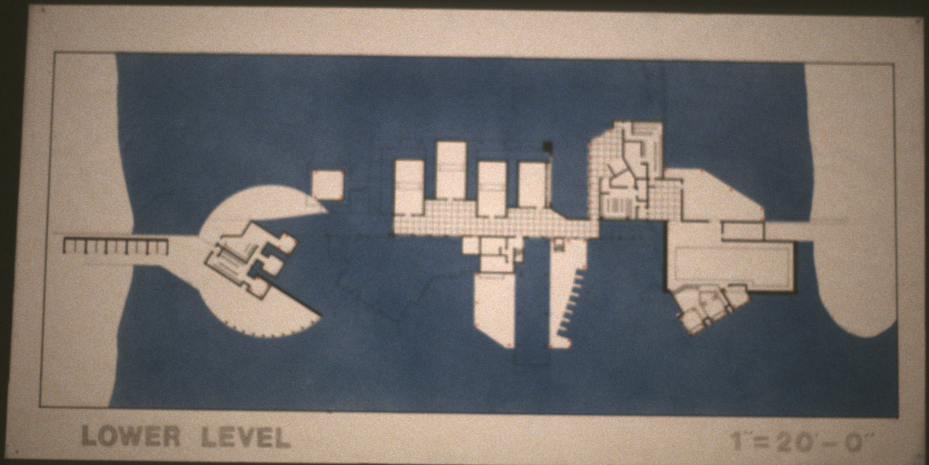
LOWER LEVEL
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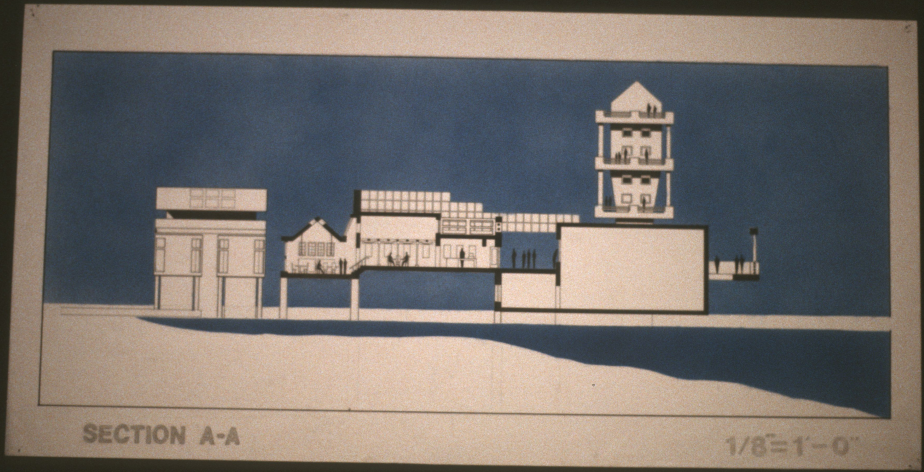
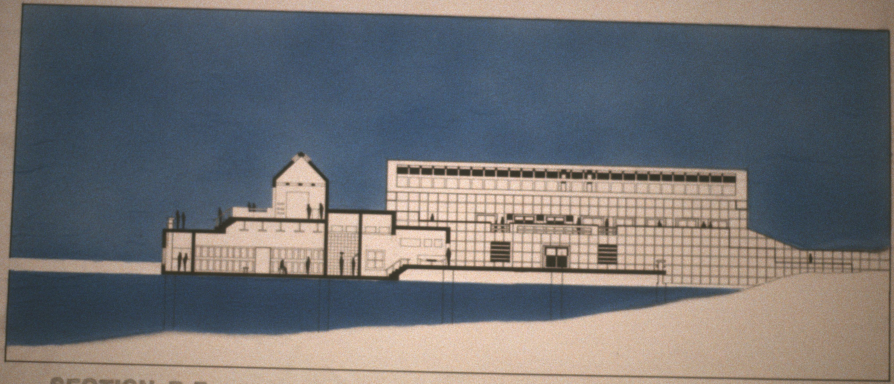


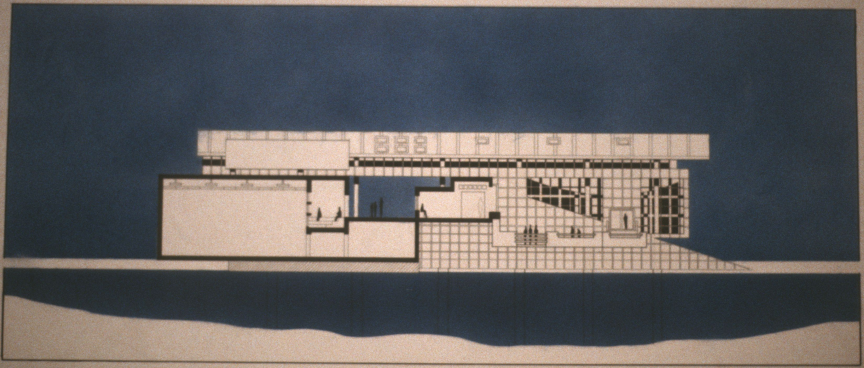
SECTION A-A

1/8"=1'-0"



SECTION B-B

1/8"=1'-0"



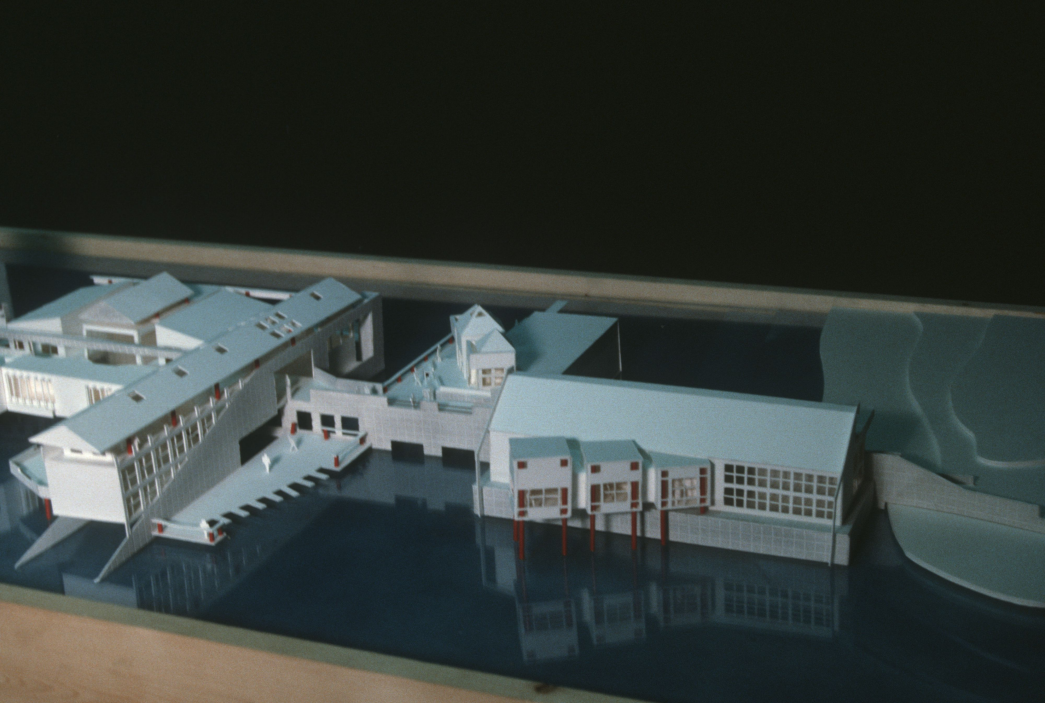
SECTION C-C

1/8"=1'-0"













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