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COTTAGE LIVING UNITS AND
AN ADMINISTRATION BUILDING
for
THE MONTANA CHILDREN'S CENTER
at
TWIN BRIDGES

by
Joseph J. Camarda, Jr.

COTTAGE LIVING UNITS AND AN ADMINISTRATION BUILDING

FOR

THE MONTANA CHILDREN'S CENTER AT TWIN BRIDGES

Part I

Undergraduate Thesis in Architectural Design

By

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1.0 BACKGROUND, POLICES AND OPERATION OF THE MONTANA CHILDREN'S CENTER

Located along the Beaverhead River in the Ruby Valley of Madison County is the Montana Children's Center. Established in 1893 by an act of the State Legislatue, this is the only public institution of its type in the state. Over the years its purpose has changed from the care of "orphans, foundlings and destitute children"⁽¹¹⁾ to the care and education of "dependent or neglected children who require separation from their families or foster families or for whom foster care cannot be obtained."⁽¹¹⁾ In order for a child to be committed to the Center, a district court order must be made. For a child to be admitted into the Center the following requirements must be in order:

- " 1. Petition and Order of Custody.
2. An adequate social history.
3. Mental Hygiene Clinic findings in any instance where the social history reflects mental deficiency or behavior problems.
4. A current report of medical exam.
5. School records."⁽¹¹⁾

At present, children between the ages of 8 to 13 live at the Center.⁽¹⁰⁾ Admission ages are from birth to 16-years, but cooperation by the State Department of Public Welfare and the District Judges has eliminated pre-school children from being committed to the Center.

The primary goal of the institution is "for every child to

return to family life in a community."⁽¹¹⁾ Since many of these children are emotionally disturbed and socially maladjusted, the institution must first, at least partially, rehabilitate and socially readapt these children before returning them to a family. Many children come to the Center with an attitude that they are losers, and the institution attempts to give confidence to these children. Each child's potential as a functioning, contributing member of society and the community is attempted to be developed.

On the grounds of the Center are at present four-boys' cottages and three-girls' cottages. There is a central dining hall built in 1959, a gymnasium with a heated swimming pool, an 18-bed infirmary, a grade school and an administration building along with supporting facilities. Religious services are provided for the children in the town of Twin Bridges. Planned recreational activities include camp-outs, hikes, baseball and softball in the summer, and ice skating, movies, parties and dances in the winter.

The questions this paper will investigate are as follows. Is there a need for the institution? What are the needs of the institution? Do the needs of the institution warrant an architectural solution?

2.0 FACTORS AFFECTING THE NECESSITY FOR A CHILDREN'S INSTITUTION IN MONTANA

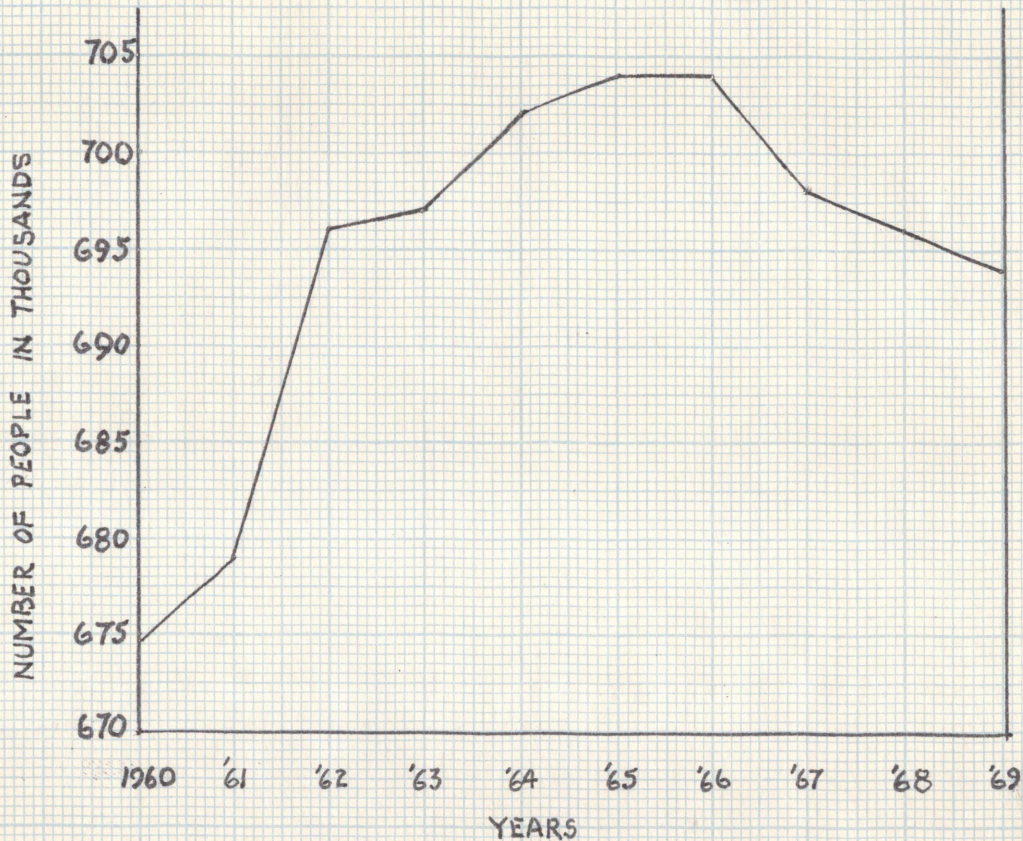
2.1 DEMOGRAPHIC FACTORS

The trends of the population change in the State of Montana will affect the population of the Children's Center. In order to investigate this, five graphs were made from figures taken from two "Current Population Reports" by the Bureau of the Census.⁽¹⁴⁾ The sixth graph was compiled from figures given in a paper by the superintendent of the Montana Children's Center.⁽¹¹⁾ From these graphs it is hoped that a population projection of the Children's Center can be made.

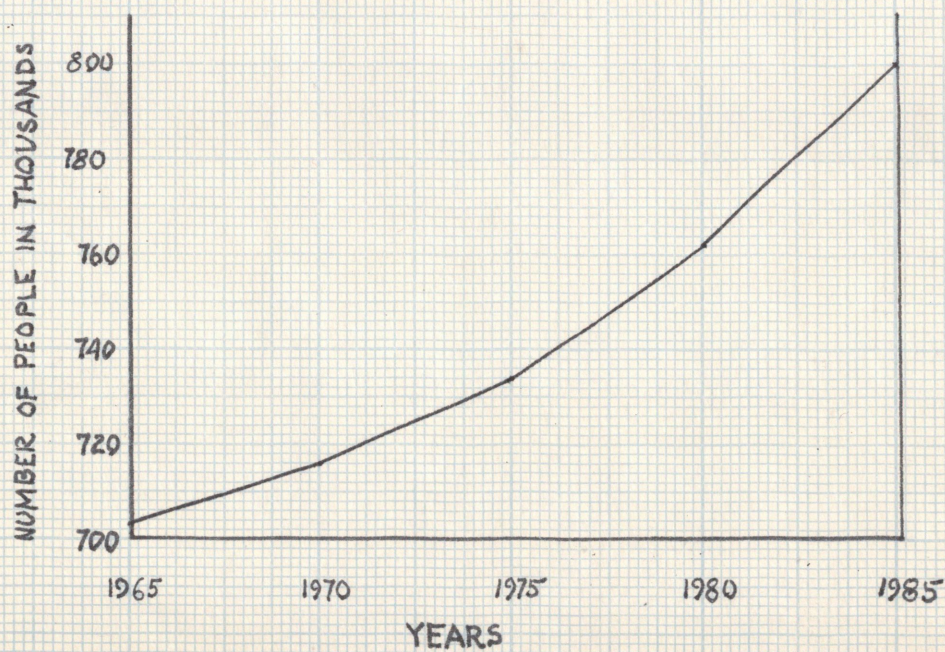
The first graph is the provisional estimate of Montana's total resident population. It indicates that Montana has lost around 10,000-people during the past three years. This is due to migration of people out of the state because of the 1967-68 copper strike and the lack of job opportunities. Graph number two is a representation of figures derived before this recent, downward trend in population was evident. This is the reason for the difference of 20,000-people between the 1969 provisional estimate and the 1970 projected population. The error is significant when it is considered that Montana is only expected to grow by 100,000-people between 1965 and 1985. This must be kept in mind when analyzing the three following graphs, but it is assumed that the state population will increase in the future and the trends indicated in these graphs are correct.

The third graph shows the demographic differences between the

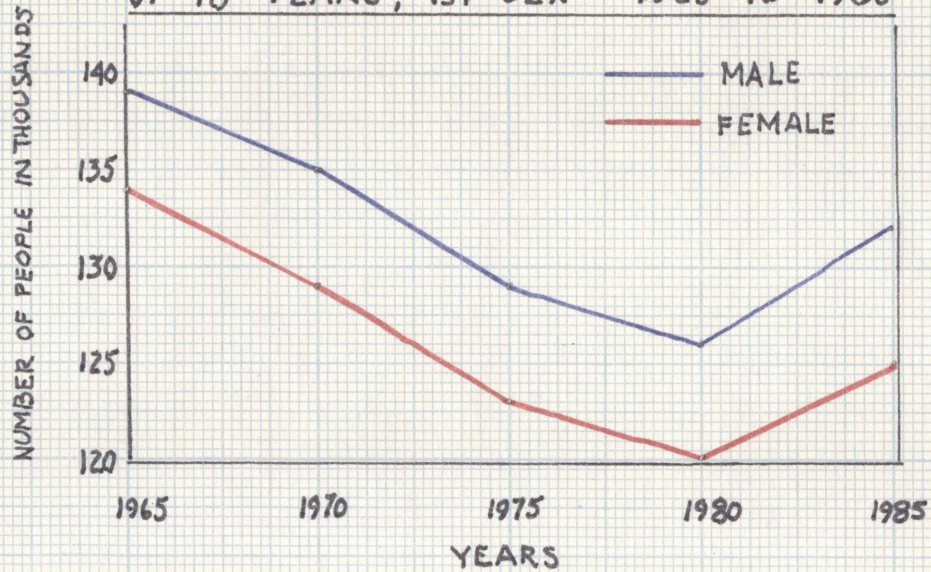
GRAPH #1

TOTAL POPULATION OF MONTANA - PROVISIONAL
ESTIMATE: 1960 TO 1969

GRAPH #2

PROJECTED POPULATION OF MONTANA : 1965 TO 1985

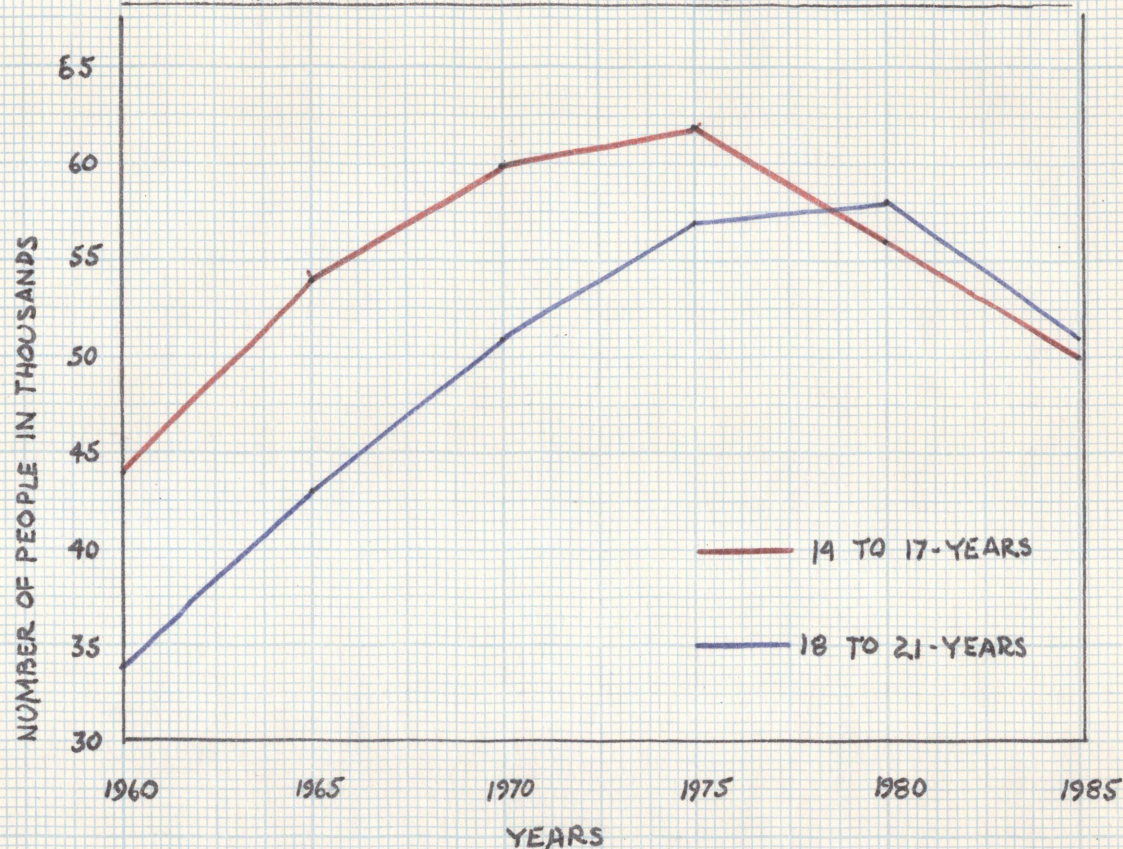
GRAPH # 3

PROJECTED POPULATION OF MONTANA; UNDER THE AGE
OF 18-YEARS, BY SEX : 1965 TO 1985

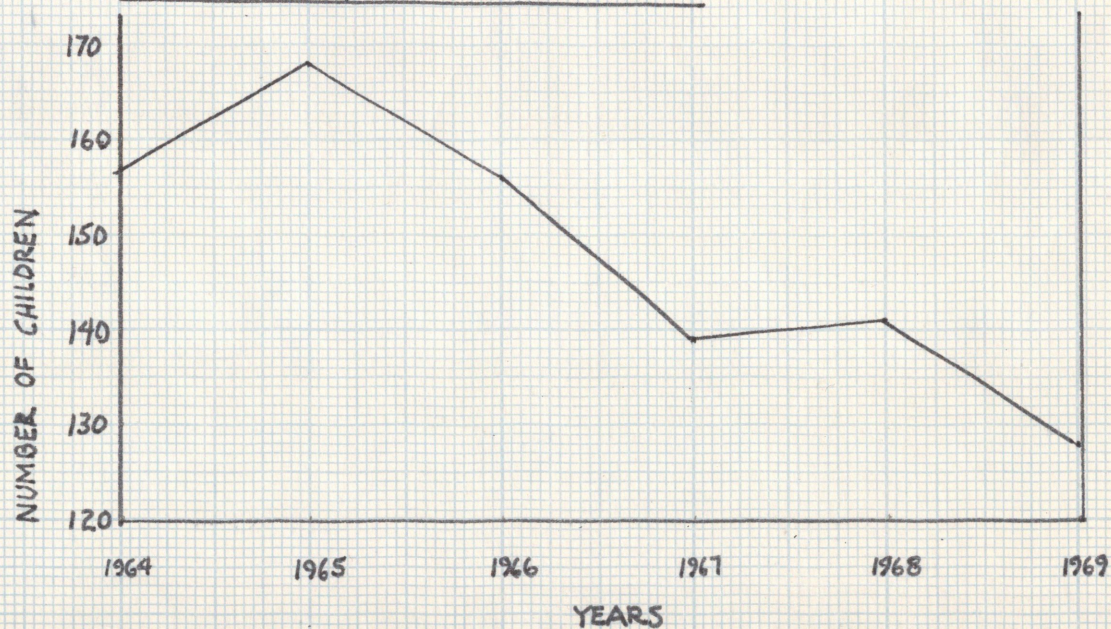
GRAPH # 4

PROJECTION OF MONTANA'S POPULATION, 5 TO 13-YEARS
OF AGE : 1960 TO 1985

GRAPH # 5

PROJECTION OF MONTANA'S POPULATION, 14 TO 17-YEARS OF AGE AND 18 TO 21-YEARS OF AGE : 1960 TO 1985

GRAPH # 6

POPULATION OF MONTANA CHILDREN'S CENTER AT TWIN BRIDGES : 1964 TO 1969

sexes that is projected for children under the age of 18-years. The consistent difference of 5000 more boys than girls can lead to the assumption that more boys than girls will live at the Center, which is the present case.

Graph number four shows a significant trend downward in the 5-to 13-year old age group. This is due to the projected migration of young families to states with greater opportunities. After 1980, this trend reverses, and it can be assumed that if new facilities are indicated at the Children's Center, they must be flexible to different age groups. The fifth graph does not show a downward trend in the 14-to 21-age groups until 1975 to 1980 because the effect on this age group of migrating young families would not show up until this time.

The graph of the Children's Center's population characteristics denotes a fluctuating downward trend during the past four years. This is due to a number of factors, one of which is the relieving of the over-crowded conditions that existed in 1965. At present the Center is housing the desired number of children that the facilities are capable of housing. With the above demographic predictions and the trend indicated by the Center's population, it can be assumed that during the next 15-years the Center's population will continue to decrease slightly. By 1985, this downward trend should end with a short period of stabilization followed by a slow upward trend. These predictions are based solely on demographic factors which is only one element affecting the need for a children's institution.

2.2 SOCIOLOGIC FACTORS

Ever since neolithic times it is known that children whose care could not be provided by their natural parents were raised by the social group in which they lived. Today and in the foreseeable future child-care services must still be provided by society because there is no indication of a means that would eliminate neglected children from our society. Therefore, it can be assumed that child-care services are a necessity of our society. In Montana child-care services are provided through foster homes, group homes, welfare aid in the natural home, and the children's institution. With all of these types of child-care services, is the children's institution needed from the sociological standpoint?

Dr. M.F. Mayer states "that there is no substitute for an own family and that even a second-rate own family is better than a first-rate substitute." Farther on he states "that living in a family is a most important need for any child."⁽⁶⁾ In Montana, welfare aid through monetary grants and caseworker assistance help the natural parents, or parent, care and provide for their children where otherwise these children could not stay in their own home. When this type of aid is not possible, either because of a broken home where neither parent takes the responsibility of raising the child, or in cases where the natural environment of the home is unfit for child rearing, most children are placed in foster homes or group homes. Here the children are given a family-like atmosphere in which to grow-up. A group home is where not more than ten children are placed with a couple trained in child-care. When the above methods

of state provided child-care are not possible, the neglected child is placed in the children's institution.

The reasons for a child being placed at the children's institution are many, some being sociological in nature. At times, other means of child-care are not possible due to a lack of enough monetary assistance, a shortage of caseworkers, no available foster homes or no room at group homes. In this case the child would be placed in the institution for a short period until other, more suitable, arrangements could be made. By increasing the child-care services of these other agencies, it can be assumed that in the future the children's institution would not be needed for the above purpose. There are children, who because of a recent break-up of their families, cannot readily establish a meaningful relationship with foster parents. For these children the institution provides a less personal environment in which the children can readjust in order to accept the close relationship of an adult. Children under the age of 10 or so need the personal attention and affection of an adult, and it is important that once a child is able to accept this from a foster parent that he or she is removed from the institution and placed under such care. Many children over the age of 10-years, who are removed from their natural parents, fare much better under the group living conditions that the institution provides. These children are unable to accept a foster or group home because of past experiences that have left them resentful and distrustful of adults or they "cannot meet the demands and expectations of family living."⁽²⁾ From the ages of

13 or 14 to adulthood they become more independent of personal care as they sever the ties with childhood. Their need for strong relationships with their peers is very important and the group life of the institution provides a place where these strong relationships can be nurtured.

There are also cases where children should not be placed in an institution for their care. Institutional living is detrimental to most pre-school children. "The need of the infant or child under 6 for close, warm, and continuous physical care and for emotional contact with the same caring person cannot be met as well in a group as in a family, regardless of the quality of care given."⁽²⁾ In many cases children of one family are best kept together in a family atmosphere, especially where one or more children are below school age. Present theories of child-care also indicate that handicapped and mentally retarded children should, when in their best interests, live in a family atmosphere.⁽²⁾ Only when the child's condition is too severe for a family to handle or when the child is from a deprived, neglected environment and the proper foster care is not available should the child be placed in an institution. This institution must be geared to the handicapped child, and the Montana Children's Center is not such an institution.

Concerning the sociologic factors, the trends at the Children's Center within the foreseeable future indicate that the limits for admission and the amount of adjustment necessary for the child to be considered ready for placement in a family atmosphere will closely

follow the above guidelines..⁽¹¹⁾ The present trend is to place children under the age of 10-years in child-care agencies other than the institution.⁽¹⁷⁾ The youngest child now living at the institution is 8-years old⁽¹⁰⁾ and in the future it will be assumed that the youngest child living at the institution will be around 10-years old. There are no handicapped or mentally retarded children living at the Children's Center and this will hold true for the future. Children over the age of 10-years who are socially unable to accept foster care live at the Center until they can be sufficiently adjusted to accept a family-like atmosphere. Strong attempts are made by the administration of the Center to keep the child's stay at the institution less than three years. This is because after about three-years the child becomes institutionalized, losing his individuality and self-image and becoming inward oriented. From the sociological standpoint the above factors indicate that the institution is needed and serves a useful purpose. The sociologic effect on the Center's population in the future is negligible except for a loss in population of the few children under the age of 10-years old.

2.3 PSYCHOLOGIC FACTORS

During the period between August 1967 and June 1968 a total of 47-children were refused admission into the Montana Children's Center.⁽¹¹⁾ A few of these children were refused because they were considered unfit for placement in this institution. Some children were refused because they could be better handled by another child-care

agency, but most were refused simply because there was not enough room for them at the Center. The Montana Children's Center "is composed of students who are classified as dependent, neglected, emotionally disturbed, socially maladjusted and truant problems." (11) From these two premises it can be surmised that the State of Montana contains many more psychologically disturbed and socially maladjusted children than the 208 children living in foster homes, group homes and at the institution. (10) Is the institution the proper place to care for these types of children or can they be better cared for in a family atmosphere?

Many children, who are removed from their natural homes by court order because their homes are considered unfit for them, have personality disorders. These disorders are caused by deprivation and unmet needs usually associated with their previously neglected environments. (2) Typical symptoms of personality disturbances are as follows:

- "-enuresis, soiling, excessive masturbation, nightmares, speech disturbances, inadequate development of controls and skills
- learning disturbances, reading disabilities, low educational achievement
- behavior disorders: lying, stealing, violent temper outbursts, sex play, fire-setting, destructiveness running away, aggressive behavior, defiance of authority
- feelings of anxiety, guilt, hostility; lack of trust; lack of identity
- problems in relation to authority
- difficulties in forming relationships" (2)

It should be evident that a child having one or more of these symptoms could not be properly cared for or rehabilitated in a foster home unless the foster parents were specially trained in child psychology. Montana at present has very few if any such trained foster parents and it is unlikely that this condition will substantially change in the future.

At the Children's Center many of the employees and administrative personnel have at least some training in child psychology. Some of these people are well trained through higher education and experience. Also, a psychiatrist periodically makes visits to the Center and the services of the Mental Hygiene Clinic in Helena are utilized when necessary.⁽¹¹⁾ With this type of care and services, the psychologically disturbed and socially maladjusted child can best receive the attention and guidance he or she needs. Once the child's rehabilitation has progressed toward a substantial readjustment to life, the child is then usually placed in a foster home for a trial period. Some children, almost always in the higher age group, are too deeply disturbed for any real hope of a complete readjustment. The behavior of these teenagers could never be tolerated in a family.⁽²⁾ The institution tries to provide for at least a partial adjustment in the individual, and when he or she is old enough the institution sends this person to a school for training in a vocation or trade.

From the psychological view-point the Montana Children's Center is definitely needed in this state. The assumption can be made from the above information that if better and more facilities are provided,

the Center's population would increase due only to psychologic factors. This would be especially true for children over the age of 10-years when the more serious symptoms of a psychological disorder appear.

2.4 GEOGRAPHIC FACTORS

The previous three sections of this chapter indicated that there is a need for the Montana Children's Center both now and in the future. Some general assumptions were made on how the demographic, sociologic and psychologic factors would each affect the Center's population in the future. This section will deal with how these factors affect the advantages and disadvantages of moving the location of the institution.

Twin Bridges is a town of approximately 1000-people, mostly ranchers, local businessmen and the employees of the Children's Center. Its business district contains a small grocery, a drug store, a post office, a bank, two cafes, a movie theater open once a week, an auto repair shop and three bars. The town is located approximately 30-miles from Dillon and 50-miles from Butte. At present there is only one medical doctor, who does not treat the children at the Center, and no dentist living in Twin Bridges, but a medical clinic is under construction with the hope of attracting more people of this profession into the town. Sheridan, ten miles away, contains the nearest medical facilities. Is the small town of Twin Bridges adequate for the institution or would either an urban location or a wilderness location be a better environment for the care and treatment of these children?

An urban area like Billings or Great Falls would offer the institution easy access to varied facilities that are needed or could be used by the Children's Center. Medical services and facilities would be near-by, where as in Twin Bridges the doctor, dentist, eye specialist and psychiatrist must travel some distance and make only periodic visits to treat the children. Educational facilities would offer a wider and more varied curriculum including specialized training for the slow learner and backward child. Children in an urban locality would have the opportunity to use the greater recreational facilities offered there. The major drawback of this environment is the greatly increased chances for these children to get into trouble. Another disadvantage of an urban location is that it would place an emotional strain on an already disturbed child from a sparsely populated area.

In a wilderness location the children would not have as much opportunity to get into trouble, and the increased emotional strain on children not accustomed to large population would not exist. Unfortunately, near-by medical, educational and recreational services facilities would be non-existent. Also, the general impression of children when they are placed in a remote area is that they are being rejected by society and nobody cares about them. However, a wilderness does provide the close contact with nature that is important for the growing child.

Twin Bridges is the middle ground between these two extremes. Medical services are near-by and available, educational facilities are in the town, and recreational activities are offered by the community. It is a large enough town to provide community life,

but small enough to limit the amount of mischief the children can get into. The administration of the Center can exert the necessary influence on the community to control the troublesome factors in the town. Being on the outskirts of the town, the institution can provide for the children a close contact with nature. But, realistically the most important reason to keep the institution at Twin Bridges is that the state has over a million dollars in property and buildings invested in the Center. It is felt by the author that the State of Montana would not be willing to change the location of this facility unless the reasons for moving the Center were imperative to its functioning.

3.0 PROBLEMS AND NEEDS OF THE CHILDREN'S CENTER AT PRESENT AND IN THE FUTURE

3.1 POPULATION CHANGE

From the previous chapter it was indicated that the population of the Center is changing now and will continue to do so in the future. What are these population changes going to be and how must the institution adjust to accommodate these changes? The answers to these questions will reveal the factors necessary for the design of a master plan.

Indications are that within the next five-years there will be no children under the age of 10-years living at the Center. By 1975, there should be no more than 15 boys living there between the ages of 10-to 12-years, and this number should remain constant for the subsequent 10-years. There should be about 12 girls at the Center that are in this age group during the same time period. The number of boys between the ages of 12-to 15-years old will reach a maximum of around 48 by 1980 assuming space is available for them. After this time it can be expected that the number of boys in this age group will grow to a maximum of 60. The girls of this same age group will grow to a number of about 36 by 1980, and by 1985 this number could reach a maximum of 48-girls. From the age of 16-years until they leave the Center at about 17-to 18-years old, the number of children of both sexes should reach a maximum of 16 for each sex. This should happen by 1975 and remain fairly constant until after 1985.

The above figures will give the Center a population of 79-boys and 64-girls by 1975, and a total of 143 children at the center.

By 1985 these numbers will grow to 88 boys and 76 girls for a total population of 164 children. Beyond 1985, the number of children needing institutional care and rehabilitation will continue to grow. This growth will soon surpass the above capacity of the Center, but it is felt by the author and authorities in the field of institutional care^(2,17) that the institution should not grow larger. The greater the population of an institution, the more each child feels that he or she is lost in a crowd of strangers. It also becomes more difficult for the staff and administration to coordinate their efforts in the care and rehabilitation of each child. The large institution must have regimentation in order to control the children and this institutionalizes the children at a fairly fast rate. It is then proposed by the author that by 1990 a new institution of child-care be founded in another location within Montana in order to provide for the growing population of deprived, neglected children.

3.2 CHILD-CARE SERVICES

Primarily, the needs of the institution revolve around the providing of care and treatment of children. This can be divided into four general areas: education, mental and physical health, recreation, and housing. Between the grammar school on the grounds of the Center and the junior-senior high school of the community the educational facilities provided for the children are adequate at the present time. It will be assumed that the practice of sending the ninth- to twelfth-grade children to the community school will continue in the future. The number of children in the first- to fifth-grades

will decrease to a very small group at the grammar school, and the sixth- to eighth-grades will increase in number. Therefore, the educational facilities at the Center should be adequate for the future. Mental and physical health services at the Center presently provide the proper care for the children, and with increased facilities for the care of emotionally disturbed children that should be provided in new housing units, the future services in this area will be adequate.

As the institution grows and improves, the need for the proper recreational facilities and program will become more important. At present the children have space in their cottages for indoor recreation and sufficient structured outdoor equipment for play and games. The gymnasium with its indoor pool provides a good place for group games and swimming, especially during foul weather. In the future, the growth of the Center must be controlled in order to keep this same level of outdoor recreation space. There is a need for a common indoor space for coeducational activities and relaxation among all the living groups at the Center.⁽¹⁶⁾ There is not pressing need for such a facility because this activity is partially fulfilled in the individual cottage, but as the average age of the children in the institution raises, the need for a common recreation center will become greater.

The cottages provide shelter for the children where they live in groups of the same sex and age level. Child-care methods still advocate the use of the cottage system of housing for children's institutions. Separation of the sexes is accomplished by the placement

of cottages for each sex at opposite ends of the grounds. Grouping of the children in each cottage by their age level provides for greater ease in planning group activities, and for greater opportunities in the forming of peer groups which usually occur among children of similar ages. ⁽²⁾ Indications for the future show no change in this method of grouping by age and sex.

3.3 CONDITIONS THAT WARRANT CHANGE

At present, the Children's Center has some specific problems concerning the physical structures, their function and their arrangement on the grounds that need to be changed. Of the seven cottage living units, four of them are materially deteriorating and functionally out-of-date. These four cottages are Riverside, housing a maximum of 20-boys in the fourth- to sixth-grades; Eagles Nest, housing a maximum of 20-boys in the seventh- and eighth-grades; Cinderella, housing a maximum of 20-girls in the first- to sixth-grades; and Sunset View, housing a maximum of 20-girls in the seventh- and eighth-grades. All of these cottages were built in the 1920's, and the climate and earthquakes have taken their toll on these structures. The exterior walls and foundations are cracked and separations exist between the bricks and their mortar. On the interior, the plaster walls are cracked and parts of the plaster ceiling on the second floors are stained and cracked due to minor amounts of leaking water from the roof during the past 40-years. Such minor things as a loose stair tread here and there and out-of-date plumbing fixtures are also evident. The two boys' cottages do not have any bathtubs and the two girls' cottages



RIVERSIDE COTTAGE
LOOKING TO THE NORTH



RIVERSIDE COTTAGE
LOOKING TO THE WEST



EAGLES NEST COTTAGE
LOOKING TO THE EAST



MAR 70

CINDERELLA COTTAGE
LOOKING TO THE NORTH



MAR 70

CINDERELLA COTTAGE
LOOKING TO THE SOUTH



MAR 70

SUNSET VIEW COTTAGE
LOOKING TO THE EAST

are lacking showers. These cottages are not about to collapse in the near future, but some major repair work is needed if it is decided to continue to use these structures.

At the time these four cottages were constructed, institutional child-care was accomplished with one large room for sleeping and the storage of personal belongings, one room for studying, one room for recreation, a semi-private counselor's office, and a sitting room with a sunporch for visiting. On the second floor, apartments for the counselors of the cottage were also provided. Today's child-care methods have changed greatly, making these four cottages functionally out-of-date for effective modern use. These methods call for a maximum amount of easily supervised privacy for each child, yet allowing spaces where cottage group interaction can occur, and a building that brings close contact between the counselor and the children.⁽²⁾ The existing cottages provide a rudimentary isolation space on the second floor in one of the no longer used apartments. An isolation space is necessary where emotionally disturbed live in an institution. Its purpose is to provide a place where a child who becomes emotionally unstable can be closely supervised and separated completely from the other children in the cottage.⁽¹⁶⁾

Meadowlark Cottage, housing a maximum of 15-boys between first- and fourth-grades, is also an older cottage, though significantly newer than the four previously mentioned cottages. It was remodeled in 1967, and it is basically a sound structure. The building functions in the same manner as the older cottages with one large sleeping room and no private study and play areas. Plumbing facilities are new and

adequate in number. In the future, it would be desirable for the function of the building to change. The last two cottages, Ponderosa, housing a maximum of 16 high-school age boys, and Flagstone Hall, housing a maximum of 16 high-school age girls, were built in 1964, and their design facilitates the use of newer child-care methods. Although both buildings lack some thought in their design execution, they are fundamentally sound in their function and are of good construction. Their future use as cottage living units will continue for some time.

The present administration building is a three-story, wood-framed structure with an almost completely aboveground basement constructed of rock foundation walls. Built in 1894, the structure is basically sound, but it is grossly inadequate for efficient administrative operation.⁽¹⁷⁾ Using only the first floor of the building, the administration is hampered by crowded conditions, make due office spaces and multi-purpose use of office rooms. An example of this is the office of the Director of Cottage Life and the Group Life Counselor III, which is a converted apartment kitchen, and it is used as a coffee room and a hallway to a storage room.⁽¹⁶⁾ Furthermore, there is no private space for these persons as well as the social workers to counsel children.

Contained within the basement of the building is a barber shop, a sewing room, an electrician's repair shop and a room with the necessary equipment for the dentist when he makes his periodic visits. On the second floor there are apartments for administrative personnel, but because of a change in the employees' working hours to eight-hour



ADMINISTRATION BUILDING
LOOKING TO THE NORTH-WEST



ADMINISTRATION BUILDING
LOOKING TO THE SOUTH-EAST

shifts, the administrative personnel now live in the cottages leaving these apartments vacant. A one-story, brick addition on the rear of administration building is the Center's storage rooms for clothing, food and cottage supplies. These functions do not hinder the administrative operation, but due to the need for more space and greater efficiency by the administration, there would be no reason why it could not be separated from the other functions presently in the building.

Another unfortunate condition that exists at the Center is the arrangement of the above discussed buildings on the grounds. The two boys' cottages, Riverside and Eagles Nest, and the service building, which is vacant, are placed in a straight line, and the two girls' cottages, Sunset View and Cinderella, and the hospital form a second straight line of buildings. These two, rigid axes meet with a slight angle to each other at the administration building. With the similar size and facades of the cottages and hospital to each other, the buildings give a barracks-like appearance to the institution. The child sees the institution as a rigid and regimentated place which is totally foreign to a home-like atmosphere.⁽¹⁷⁾ A change in the orientation of the buildings to each other and their similar appearance is needed to bring about a more humane and friendly look to the institution.

4.0 THE MASTER PLAN

4.1 PROGRAM FOR PHYSICAL STRUCTURES

There is a need for the replacement of the four oldest cottage living units with new cottages. These new facilities must be designed in accordance with modern child-care methods and they must accommodate the expected growth of the institution. Each new cottage will have a capacity that is dependent upon the desired number of children a cottage counselor can properly give the attention necessary to each child. Also, the proper size of a living group can aid each child in resolving emotional and social conflicts. A ratio of six-children to one cottage counselor allows for each child to receive the necessary attention, and living groups of 10- to 15-children are considered best for the resolving of a child's conflicts through group action. (2)

Because a cottage counselor has other duties besides directly caring for the children, it is the policy of the Children's Center to always have at least two counselors on duty in a cottage in order that one will always be with the children. (17) By having 12-children per cottage with two cottage counselors, the above ratio and requirements can be met. These cottages could grow to a capacity of 16-children in the older age groups.

There is a distinct need for a new administration building at the Children's Center. With a new building devoted completely to the administrative function of the institution, the existing building would be used entirely for its other present functions. In addition, new functions, such as a cooking room for girls and display areas

for the childrens' projects and trophies, could be included in the building. The structure is a landmark to the institution and an example of Montana architecture in 1894. It should, therefore, be preserved and placed on record as an historic building.

Meadowlark Cottage, which now uses the out-of-date method of housing the children, should in the future be phased-out as a cottage living unit. This cannot be done until sufficient space is available to ~~house~~ the children living there in new accommodations. Because the building is structurally sound, it can continue to be used, but serving a new function. This new function would be a common recreation center for all the children at the institution.

The following is a listing of the future population of the Children's Center at five-year intervals with the method of housing this population.

AT PRESENT

Desired capacity of boys	71
Desired capacity of girls	56
Total desired capacity of children	127

BY 1975

Boys' Cottages

-Riverside and Eagles Nest to be torn down	-40
-Meadowlark, housing 10- and 11-year olds . .	15
-Ponderosa, housing 16- and 17-year olds . .	16
-Four new cottages, housing 12- to 15-year olds with 12-boys to a cottage	48

-Total capacity of boys 79

Girls Cottages

-Cinderella and Sunset View to be torn
down -40

-Flagstone Hall, housing 16- and 17-year
olds 16

-Four new cottages, housing 10- to 15-year
olds with 12-girls to a cottage 48

-Total capacity of girls 64

Total capacity of children 143

BY 1985

Boys Cottages

-Meadowlark, phased-out (becomes a recre-
ation center) -15

-Two new cottages, one housing 10- to 12-
year olds and one housing 12- to 15- year
olds with 12-boys to a cottage 24

-All other cottages to remain the same . . . 64

-Total capacity of boys 88

Girls Cottages

-One new cottage housing 12- and 13-year
olds with 12-girls to a cottage 12

-All other cottages to remain the same . . . 64

-Total capacity of girls 76

Total capacity of children 164

AFTER 1985

The population will over-grow the Center's capacity and a new facility in a different location is proposed.

4.2 PROGRAM FOR SITE DEVELOPMENT

In the next 15-years, the major factors governing the placement of facilities at the Children's Center are the arrangement of new buildings to create an un-regimented atmosphere, the use of existing underground utilities, and the proper separation and orientation of the different functions. By placing the new cottages in a clustered pattern as the old cottages are demolished, the regimentation of the physical layout of the Center will be altered. The clustering of the cottages will create a residential type of atmosphere that is more relaxing and inviting to the children. Due to an extremely high water table, underground utilities, such as the steam pipes from the central heating plant, are placed in large tunnels kept dry with sump pumps. For economic reasons these utility tunnels should be utilized by the new cottages that are proposed. The utility tunnels can be extended, but great distances should be avoided in order to keep walking distances from the proposed cottages to the food center and school as short as possible. Also, a more compact children's institution makes control of the grounds easier. At present, the boys' and girls' cottages are placed at opposite ends of the campus. This separation of the sexes by distance should be continued in the

future cottages.⁽¹⁶⁾ It has been suggested that the proposed administration building be placed next to the main entrance into the Center.⁽¹⁶⁾ This site would eliminate confusion to the visitor of locating the administration building.

In order to accomplish the building program proposed without interrupting the operation of the Center, a series of building phases must be initiated. Below is a listing of these phases for demolition and construction to be used during the next 15-years.

PHASE I - completion date: June 1972

- Two new boys' cottages built to the north-east of Riverside cottage
- Two new girls' cottages built to the west and north of Sunset View cottage
- New administration building constructed

PHASE II - completion date: January 1975

- Riverside and Sunset View cottages demolished
- Two new boys' cottages built to the north-west and on the site of Riverside cottage
- Two new girls' cottages built to the north and on the site of Sunset View cottage

PHASE III - completion date: January 1980

- Eagles Nest and Cinderella cottages demolished
- One new boys' cottage built on the site of Eagles Nest cottage

PHASE IV - completion date: January 1985

-One new boys' cottage built to the north-west of Eagles
Nest cottage

-One new girls' cottage built on the site of Cinderella
cottage

5.0 ACTIVITIES OF THE OCCUPANTS AS RELATED TO FUNCTIONS OF THE BUILDINGS

5.1 COTTAGE ACTIVITIES

Within each new cottage there will take place numerous different activities many of which require separate spaces. Listed below are in general the spaces needed for a cottage of 12-children, and the expected maximum number of people occupying these spaces. (16, 17, 18)

- visitors' reception area 14 people
- three sleeping spaces with areas for quiet
reading and studying 4 children
per space
- isolation space with toilet facilities
for a temporary emotional instability in
a child where he must be separated from the
group 1 child
- cottage counselor's space with an area for
cottage files and records, and toilet
facilities 1 person
- recreation space with snack area 14 people
- quiet recreation space for T.V. and games . . . 14 people
- individual personal storage space 1 per child
- cottage storage area none
- toilet, washing and bathing area 14 people
- laundry space 2 people
- covered outdoor space for relaxation 14 people

These functions of spaces will be the same for all the proposed cottages. There will be some differences in equipment between boys' and girls' cottages and minor space differences due to variations in design execution of the cottages. One activity that is not listed, but that the children, if given the opportunity, will do, is to leave the cottages without permission. The older cottages provide good control over the exists, and the new cottages should do the same. Finally, the spaces proposed should allow for some versatility of use so that the new cottages will have some flexibility to changes in child-care methods.

5.2 ADMINISTRATIVE ACTIVITIES

A new administration building will contain activities related to working at a desk or table. Below is a list of these work spaces denoted by the workers' title. Also included are the auxiliary spaces needed for the administrative activities. (16, 17, 18)

- superintendent's work space plus room for conferences
with 4-people
- director of cottage life's work space
- group life counselor'III's work space
- business service officer's work space
- accounting assistant II's work space
- property control officer's work space
- three social workers' work spaces with space for
counseling three children

- one social workers' secretary's work space with storage for files
- one receptionist-secretary's work space with a visitor's waiting area for three people
- one conference space for 20-people
- one spare space for counseling children that can change into a work space for a new employee
- storage space for business machines, office supplies and old files and records
- a walk-in vault
- toilet and wash spaces for each sex
- a custodian's storage area

Besides these spaces in a new administration building there might be included some spaces that are not necessary to the activities of the people. These spaces exist in the present administration building and are well used by the employees. One space is an area in which the coffee pot is located. A second such space is the porch and front steps which is used, especially during the summer, as a comfortable place for the employees to take a break.

The spaces of a new administration building must be in part, visually and acoustically separated according to their functions. The personnel should not be interrupted by unnecessary disturbances while at work. Some inter-office visibility should exist as an incentive for efficient work. The arrangement of the functions should allow for a high level of inter-office communication, and this arrangement should be clear with no confusion for the visitor.

RELATIONSHIPS OF COTTAGE FUNCTIONS

VISITORS' RECEPTION											
SLEEPING SPACE											
ISOLATION SPACE											
COUNSELOR'S SPACE											
RECREATION SPACE											
T.V. SPACE											
PERSONAL STORAGE											
COTTAGE STORAGE											
TOILET ROOM											
LAUNDRY SPACE											
OUTDOOR SPACE											
	VISITORS' RECEPTION	SLEEPING SPACE	ISOLATION SPACE	COUNSELOR'S SPACE	RECREATION SPACE	T.V. SPACE	PERSONAL STORAGE	COTTAGE STORAGE	TOILET ROOM	LAUNDRY SPACE	OUTDOOR SPACE

KEY

STRONG RELATIONSHIP
BETWEEN SPACES



SOME RELATIONSHIP
BETWEEN SPACES



NO RELATIONSHIP
BETWEEN SPACES



RELATIONSHIPS BETWEEN ADMINISTRATIVE FUNCTIONS

[illegible]

KEY

STRONG RELATIONSHIP BETWEEN SPACES

SOME RELATIONSHIP BETWEEN SPACES

NO RELATIONSHIP BETWEEN SPACES





LOOKING WEST FROM PROPOSED
ADMINISTRATION BUILDING SITE



LOOKING SOUTH FROM PROPOSED
ADMINISTRATION BUILDING SITE



MAR 70

PROPOSED ADMINISTRATION BLDG
SITE LOOKING TO THE NORTH



MAR 70

PROPOSED ADMINISTRATION BLDG
SITE LOOKING TO THE EAST



MAR 70

PROPOSED ADMINISTRATION BLDG.
SITE LOOKING TO THE SOUTH

6.0 PHYSICAL ASPECTS OF THE BUILDINGS AND THEIR SURROUNDINGS

6.1 EQUIPMENT OF THE BUILDINGS

The following is the equipment necessary and desired for a cottage of 12-children.

- visitors reception area: easy chairs, sofas, tables and lamps
- sleeping area with 4-children: 4-single beds, (17)
4-study desks with chairs, a mirror, 1-bookcase, 4 personal storage areas including clothes closets and a concealed microphone for eavesdropping by authorized personnel
- isolation space: 1-single bed, 1 chair and study desk one toilet and lavatory, a concealed microphone and a one-way glass mirror for observation by authorized personnel
- cottage counselor's space: a desk and chair, an easy chair, a file cabinet, a telephone and a toilet and lavatory
- recreation space: tables and chairs, a T.V., cushions and easy chairs, a record player and record storage, game storage and a refrigerator, milk dispenser and a small cabinet for food storage in a snack area
- toilet room: boys' cottages; 6-lavatories, 2-toilets, 3-urinals, 1-bathtub and 4-showers with a drying area, girls' cottages; 6-lavatories, 4-toilets, 2-bathtubs

and 3-showers with a drying area

-laundry space: 1-washer, 1-dryer, a table, a sink
and 2-ironing boards

It is desired that each cottage also have piped-in music with individual controls for each space in a cottage.⁽¹⁷⁾ Fire protection is an important aspect in the choice of building materials for the cottages as well as the new administration building. All the proposed buildings must have fire-extinguishers and each building must have at least two exits.

For the new administration building the following equipment is necessary or desired.

-superintendent's work space: a desk and chair, a telephone, a file cabinet, a bookcase, a small closet and 4-chairs with a table

-work spaces for 9-administrative personnel: a desk and three chairs, 1-bookcase, a telephone and a typewriter

-secretary's work space: a desk and chair, a typewriter table and file cabinets

-receptionist-secretary's work space and visitors waiting area: a desk and chair, a typewriter table, a telephone and three-chairs and a magazine table

-conference space: a large table with 20-chairs and a small writing table

-toilet rooms: 1-toilet and 1-lavatory for each sex

It would be desirable that the new administration building have piped-in music with individual controls for each work space.

6.2 GEOGRAPHIC, GEOLOGIC AND CLIMATIC CONSIDERATIONS

Twin Bridges lies at 45.33° N. latitude and 112.19° W. longitude with an elevation above sea-level of 4627-feet.⁽¹²⁾ At this location the approximate solar azimuth and altitude angles are respectively 180° and 24° for noon on January 21, and 180° and 69° for noon on June 21. This location lies in earthquake zone 3, and the proposed structures must be designed for this type of forces. Due to the Beaverhead River which flows along the east property-line of the Center and the Big Hole River which is about a mile to the west of the Center, the water table at the site is on the average 1'-6" below grade. The frost-line is about 2'-0" below grade. Vegetation in this area of the Ruby Valley is typical for a mountain valley in Montana, although, grass lawns are kept-up where possible at the Center.

The soil of this area is basically alluvial from river deposits. A subsoil structure of calcareous, gravelly loam extends to a depth of 5-feet.⁽¹⁵⁾ Bearing capacities for this type of soil structure would be between 4000- to 6000-pounds per square foot. With the high water table, a porous type of soil and a nearly level site underground basements would be economically unfavorable.

Twin Bridges experiences climatic conditions that are typical of southwestern Montana. The annual mean temperature is 43.5° , and

the design temperatures are a maximum of 100° and a minimum of -40°. It snows an average of 33.2-inches a year with an annual range of 50- to 18-inches.⁽¹²⁾ The prevailing winds and storm winds hail out of the north-west and west. From mid-summer to early autumn the climate is mild and dry with warm days and cool nights. With an average mean number of days with precipitation being 26,⁽¹²⁾ there are numerous days in which outdoor activities can be enjoyed by the children.

6.3 ENVIRONMENTAL CONTROLS

Discussed in this section are heating, ventilation and light, both natural and artificial. The heating system for the proposed buildings will be steam from the central heating plant which has just been remodeled, and it can handle the heating requirements of the new buildings. Ventilation of these new buildings will be accomplished through the heating units in each space which are individually controlled, by exhaust fans in the toilet rooms, and with ventilating window units. Natural light should be provided in all spaces normally occupied by children except for the possibility of the toilet rooms. Each child should, though, be able to control this light within his or hers personal space. This also should be for the administrative personnel within their personal space. In general, artificial lighting levels for the spaces proposed should meet the following minimum footcandle requirements:

- administrative work spaces 150 F.C.
- conference areas 100 F.C.

- corridors 20 F.C.
- children's study and reading areas 70 F.C.
- children's recreation areas 30 F.C.
- children's toilet rooms 50 F.C.

Beyond these areas, the artifical lighting levels can be whatever is appropriate.

6.4 AESTHETIC CONSIDERATIONS

The overall characteristic of the cottages should be residential in feeling. It should convey permanance and security to the child. The interior spaces should be of a size a child can relate to and feel comfortable in. Warm and soothing colors should be used in the children's studying and sleeping areas, while bright, but not loud colors in the recreation spaces would be appropriate. Extreme care must be taken in the choice of colors for children because, especially with emotionally disturbed children, colors have a strong relationship to psychological factors.

The new administration building should express a feeling of stability and permanence. It should not be, though, an imposing structure, but rather a welcoming building for deprived, neglected children. Interior spaces should be clean and efficient looking, yet comfortable and attractive. Children, upon entering this building for the first time, should be greeted by a bright and relaxing reception space.

6.5 ECONOMIC CONSIDERATIONS

Economic factors will not play an extremely important part in

the design of these facilities. Monies for the construction and demolition of the buildings in this public institution will come from legislative appropriations. Preliminary estimates of the cost of this project cannot be made until a design of the facilities has been proposed. It can be assumed at this point, though, that the State of Montana is not going to be willing to pay for anything extra. The designs of the buildings must be of good quality materials and construction, but nothing frivolous. A rough guess of costs would place the buildings in the range of \$18.00 to \$22.00 per square foot.

ADDENDUM I

SHELTER SPACE

Twin Bridges, including the Children's Center, does not have any fallout shelter spaces. This is because of the light construction of the buildings and the total lack of basements due to the high water table. In order for a space to qualify by the Office of Civil Defense as a fallout shelter and subsequently be stocked with the necessary food and equipment, the space must have a protection factor of 40(PF 40). A PF of 40 means a radiation dose rate $1/40$ of the dose rate in a totally exposed location.⁽¹⁹⁾

At this point, because of the light construction proposed for the new cottage living units, it does not seem likely that any qualified shelter spaces will be inherent in the design. Inexpensive techniques in building construction and in locating the cottages do not seem sufficient to provide the required PF of 40. Without the expensive construction of massive walls and roof, which is undesirable, fallout shelter spaces will not be possible for any significant number of people if any at all.

The heavier construction of the proposed administration building might lend itself to providing some shelter spaces. The planned location of the building in a site that is protected on two sides by higher land and on a third side by the Food Center building will provide some shelter from fallout. By using techniques such as high window sills, the inner spaces of the building can provide shelter with little added expense.

ADDENDUM II

CONSTRUCTION MATERIALS

The materials used in the construction of the cottage living units and the proposed administration building should be indigenous to Montana and its regional architecture. These materials are wood, brick and stone. Their use should express the inherent strengths of each material, exploitation of the materials is undesirable. By this it is meant that bricks should be used in load-bearing walls with only small window opening if necessary, and in locations in the buildings where their aesthetic value can be appreciated. Paneling over a brick wall is an insult to the material as well as the mason who laid each brick. Wood and stone where used in the buildings should be treated and expressed in the same manner. The scarcity of wood especially, makes it imperative that the material be used in its most efficient and effective way.

CONCLUSION

The design solution of the cottage living units and the new administration building has progressed in a manner that required no significant deviations from the original program. In the cottages it was decided to eliminate the hidden microphone system in each sleeping space. The children at the Center are naturally suspicious of eavesdropping by counselors, and such a system would be discovered by the children sooner or later. In the counselor's space and isolation space a total of 288-square feet was necessary to provide the required functions. To this 100-square feet was added in order that the spaces could be converted in the future to an efficiency apartment for a live-in counselor. This might not ever happen, but the provision for this possibility could help in having it come to pass. The new administration building was found to be too small for the inclusion of fallout shelter spaces. The distances from the exterior wall to interior spaces are not great enough and the roof structure is not massive enough for sufficient protection from fallout radiation.

The cottage living units were designed from the relationships of one child to: another child; four children in a sleeping space; 12 children in a cottage; all the cottages of its sex; all the cottages in the Center; and, the entire institution. These relationships led to sleeping spaces for four children where each child can develop a strong relationship with one other child and then less stronger relationships with the other roommates. The varied arrangement of sleeping spaces allows for each child to clearly identify with his personal space and helps give a variety to the exterior appearance of

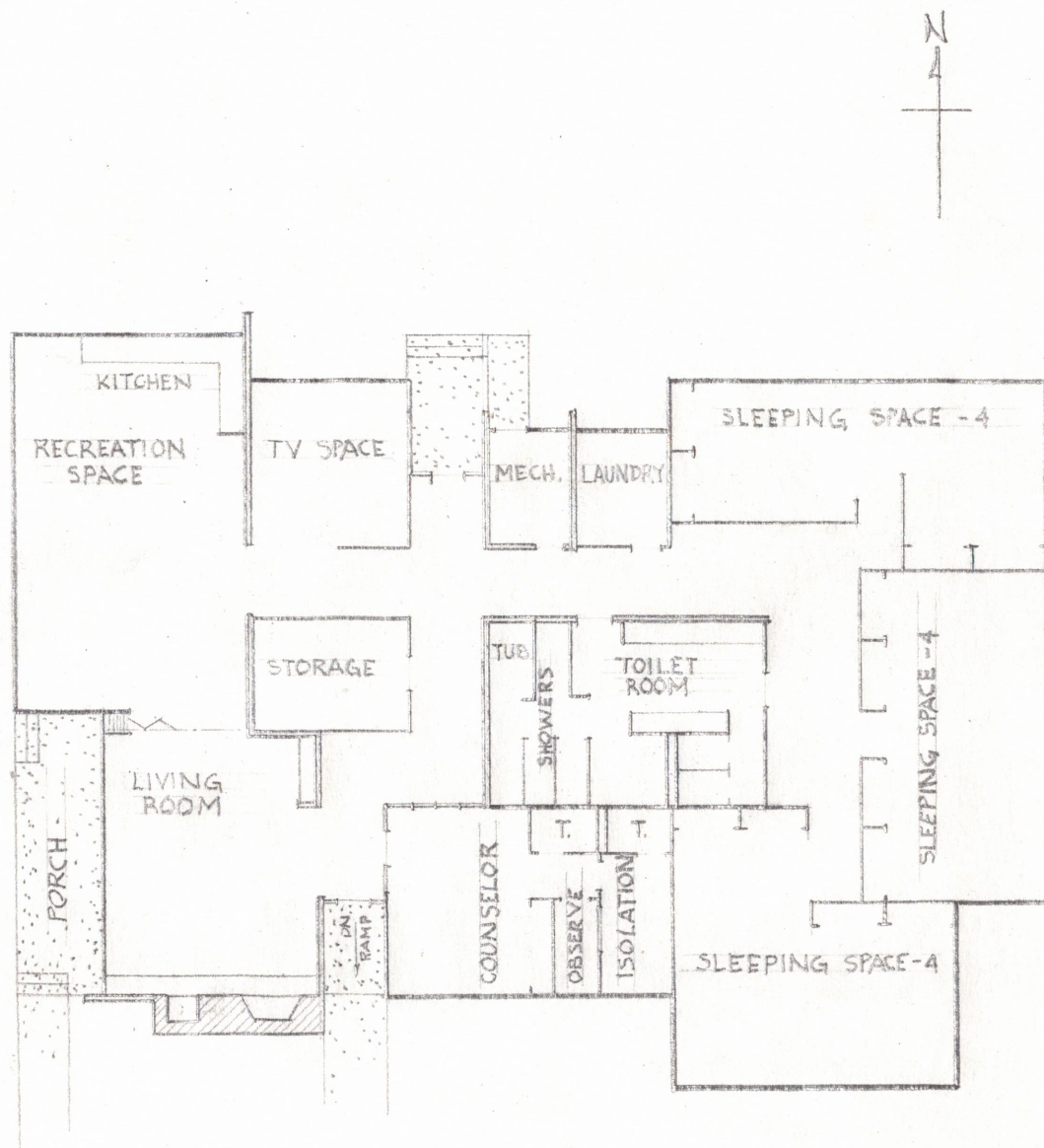
each cottage. By not using doors between each sleeping space and the corridor, stronger relationships can develop between sleeping spaces through ease in verbal communication. Yet, visual privacy is provided for each sleeping space and the corridor and for the girls' cottages this visual privacy is extended to provide visual separation between each pair of girls in a sleeping space. In the girls' cottages this corridor at one point expands into an activity space for games, sewing, etc. The boys' cottage has a larger recreation space than in the girls' cottage but little or no activity in the corridor. Because girls do more entertaining of the opposite sex, larger living rooms and kitchen areas were provided in the girls' cottages than in the boys'. Interrelationships between cottages were provided by play and game areas between cottage porches.

In the new administration building the design manifested itself from a complex interrelationship of spaces to the grouping of spaces into two distinct administrative areas. One area is the administration of child care and child services, and the second grouping of spaces is the business administration of operating the institution. The superintendent's office is situated in a manner that ties the two areas together, yet a stronger relationship to the business administration area is created. The outdoor conference area can be easily reached by personnel in both administrative areas. During the four to five months when outdoor activity is enjoyable, the area can be used for conferences between children and child-care workers or between administrative personnel. Also, the area can be used for coffee and lunch breaks where closer ties between administrative personnel is made

possible. The construction, though permanent in nature, contains non-load-bearing partitions between office spaces in order that revisions and remodeling may be more easily accomplished if necessary.

The square footage of the cottage living units averaged out to be 5,200-square feet per cottage. In the boys' cottages, typical square footage break-downs are as follows: 480-sq. ft. for a sleeping space of 4 children; 616-sq. ft. for the recreation space; 192-sq. ft. for the TV space, and; 360-sq. ft. for the living room. The break-down for the girls' cottages are as follows: 560-sq. ft. for a sleeping space of 4 girls; 576-sq. ft. for the recreation space; 192-sq. ft. for the TV space, and; 480-sq. ft. for the living room. The girls' cottages average about 300-square feet larger than the boys' cottages. The cost range for these cottages will be between \$92,000.00 and \$98,000.00 with a typical girls' cottage costing \$96,180.00. The new administration building will be 3240-square feet with a typical office space being 192-square feet. This building will cost about \$62,716.00 if it was built today.

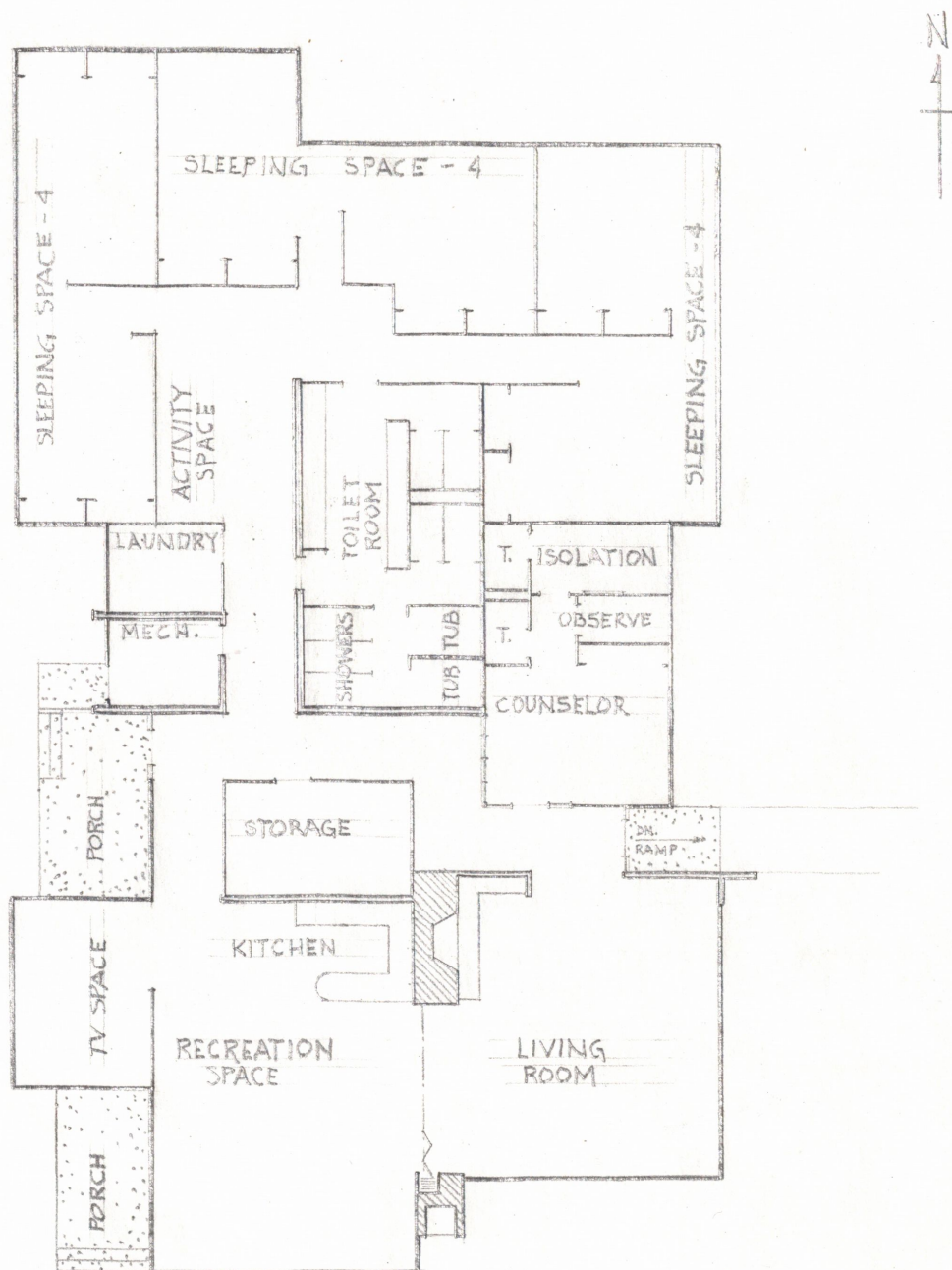
TYPICAL BOY'S COTTAGE LIVING UNIT



FLOOR PLAN

SCALE: $\frac{1}{16}$ " = 1'-0"

TYPICAL GIRL'S COTTAGE LIVING UNIT



FLOOR PLAN

SCALE : $\frac{1}{16}" = 1'-0"$

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