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A PROCEDURE FOR PLANNING AN INITIAL PROGRAM FOR THE ACCOMMODATION OF HANDICAPPED PERSONS EMPHASIZING THE EXTERIOR SIDEWALK SYSTEM OF KANSAS STATE UNIVERSITY

by

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Thank you, Lord Jesus.

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Chapter I

INTRODUCTION

STATEMENT OF THE PROBLEM

A small segment of our population in the United States must make their decisions about where to live, where to buy clothing, where to work, and where to go for an education based on their physical limitations to negotiate many commonly used architectural features. In testimony concerning the conflicts between the physically disabled and certain architectural practices presented before the U.S. Senate Special Committee on the Aging, Peter Lassen, (17) former Executive Director of the paralyzed Veterans of America, summarized his remarks by stating, "The barriers of design, the so-called architectural barriers, are some of the most frustrating, humiliating, and demoralizing areas of our daily living."

Due to the limited scope of careers available to the physically disabled the increased opportunities offered by higher education is of profound importance. Recognizing this fact, many colleges within the last few years have, to various degrees, been taking steps to accommodate the physically disabled. However, with the enactment of a series of recent pieces of legislation, more emphasis has been placed on this effort. The initial legislation of particular significance was the Architectural Barriers Act of 1968, Public Law 90-480, and its endorsement of minimum design standards for accommodating the handicapped, "Making Facilities Accessible to and Usable by the Physically Handicapped", published by the American National Standards Institute. This legislation was aimed at requiring public buildings constructed with federal funds be

made accessible to the handicapped. Many states, including Kansas, passed similar pieces of legislation, but the condition of the K S. U. campus in 1974 would tend to indicate a lack of any meaningful application or enforcement of it. The 1968 legislation and its subsequent modifications were followed by the Rehabilitation Act of 1973, Public Law 93-112. Section 504 of Title V of this piece of legislation, "Nondiscrimination under Federal Grant", has placed a dramatic impetus for action by making continued federal financial assistance contingent on making institutions accessible to the handicapped. Kansas State University is an institution affected by this action.

In new construction providing facilities which could accommodate the handicapped is simply a matter of complying with the previously mentioned design standards, but to make existing facilities accessible typically requires a program designed to systematically remove architectural barriers. Basically such programs for making facilities accessible have been primarily oriented toward the modification of building interiors with the exterior pedestrian circulation system receiving relatively little attention. However, most buildings in their existing state are to some extent usable by the disabled if only they could gain access. Accordingly, significant benefits could be gained if the first effort of an accommodation program were to provide access into selected buildings and provide pedestrian circulation among them. The main objective of this approach is to simply allow those disabled persons capable of doing so to use and move among these buildings as soon as possible. This initial effort should then be immediately followed up with a comprehensive program of interior modifications. This viewpoint is shared by Richard Atkinson, (27), who developed the accommodation program for the University of Colorado at Boulder.

Two buildings on the campus of Kansas State University which illustrate the potential of this approach are Cardwell and Denison Halls. Cardwell Hall is

a classroom building which has essentially a totally accessible interior for wheelchair movement. However, steps and curbing interrupt all pedestrian routes to the building. The only building entry currently available to a wheelchair pedestrian would be the service door which is presently accessible only from the street via a service driveway. Denison Hall, the other example, is a classroom building with less existing potential but which still offers significant opportunity for handicapped use, if only handicapped students could get to the building. It is a trilevel building without an elevator, however, because of the changes in topography around the building, pedestrian access is available at grade level to both the middle and lower floors.

PURPOSE OF THE STUDY

The purpose of this study is to develop a process for planning an initial accommodation program intended to provide access into and pedestrian circulation among selected buildings for individuals who use the wheelchair. The scope of the planning activity under this initial type of program is to identify buildings and facilities with the potential for present usage, and to identify which building doorways and portions of the exterior pedestrian system should be made accessible. The study is conducted on the central campus area of Kansas State University.

Chapter 2

THE STUDY POPULATION

As stated, the goal of this thesis is to prescribe a planning process for including the physically handicapped into the population of people able to utilize and take advantage of campus facilities at Kansas State University. Three areas of background information basic to the project include: the identification of the study population; why the wheelchair was selected as the basis for evaluating the accessibility of the physical environment; and the importance of social considerations in weighing possible accommodative actions.

One thing that can be said of the handicapped population, without exception, is that it is a heterogeneous group with a wide array of physical abnormalities and combinations thereof with its members exhibiting widely differing degress of physical disabilities and abilities.

With such a diverse group it is necessary that certain common terms and concepts be clarified to convey a more accurate perspective of the group. The terms "disability" and "handicap" are not synonomous, and the phrases "physically disabled" and "physically handicapped" often project an erroneous concept in addition to being commonly used as synonomous terms. A physically disabled person is not necessarily a handicapped person. Wright (7) states the following definitions which help to clarify the distinction: "A disability is a condition of impairment having an objective aspect that can usually be described by a physician", and "A handicap is the cumulative result of the obstacles which disability interposes between the individual and his maximum functional level."

The definition of physical disability will stand, but the definition for handicap should be expanded to include the situational definition offered by Goldsmith (2) which says that a handicap has to be assessed according to the demands of the situation in which the individual finds himself. Using this qualification to the earlier definition, it infers that in specific circumstances even a severe disability need not be a handicap if it does not hamper the individual in his activity or if props which negate the handicap are used.

The concept that the phrases "disabled person" and "handicapped person" commonly convey is also a problem in realistically discussing people with physical disabilities and handicaps. Phraseology presenting a more realistic image according to Wright (7) would be "a person with a physical disability" rather than the commonly used abbreviated phrase "physically disabled person" or "physically handicapped person" which connotes the inaccurate concept of total inferiority. With this understanding in mind, whenever the phrase "physically disabled" or physically handicapped" is used in this paper it is a concession to custom.

Statistics gathered and analyzed by the American Society of Landscape Architects (1) state that there are approximately 67.9 million cases of civilian, noninstitutional disabilities which would cause the individuals who have the disabilities to benefit from special design considerations. The breakdown of these disabilities is shown in Table 1.

Table 1

Distribution of Civilian, Noninstitutional Disabilities

1.2 million	blind or severely visually impaired
7.6 million	suffering from heart conditions
6.2 million	civilian, noninstitutional using orthopedic aids (wheelchairs, leg braces, crutches)
1.8 million	deaf
18.3 million	hard of hearing
14.5 million	respiratory ailments (pleuresy and emphysema)
18.3 million	arthritics
67.9 million disabilities	

In addition to these more classic physical disabilities are those brought about by clumsy burdens, age, size and temporary disabilities due to sickness and injury. Data compiled by Abt Associates (8) indicates that the number of individuals who experience mobility limitations due to acute medical conditions, ones which last less than three months, is normally around 4.6 million and, in addition, there are at any one time approximately 23 million people who are over or under size, pregnant, or advanced in age.

Table 2 is an extract of records kept by the Kansas State University Lafene Health Center. (23) This system for recording injuries, which is the standard method currently used in hospitals, does not indicate the degree of severity in sufficient detail to tell to what extent, if any, the victim may have lost ambulatory ability. However, it is reasonable to infer, judging from the injuries of the lower extremities and sprains, that the number of persons with temporary ambulatory disabilities are significant. These temporarily handicapped people are often overlooked as a group who would receive benefit from special physical design.

Table 2

Distribution of Accidental Injuries

Injury	Outpatient	Inpatient
Fracture of skull, spine and trunk	34	6
Fracture of upper limb	100	4
Fracture of lower limb	79	7
Dislocation without fracture	76	2
Sprains and strains of joints and adjacent muscles	996	14
Intracranial injury (excluding those with skull fracture)	38	7
Internal injury of chest, abdomen, and pelvis	9	
Laceration and open wound of head, neck and trunk	162	9
Laceration and open wound of upper limb	363	1
Laceration and open wound of lower limb	127	3
Laceration and open wound of multiple location	14	3
Superficial injury	342	7
Contusion and crushing with intact skin surfce	482	15
Effects of foreign body, entering through orifice	76	
Burn	96	
Injury to nerves and spinal cord	6	
TOTALS	3,003	78

While discussing the presence of disabled people on the campus in 1974 with a planning officer (18) at Kansas State University, there were only two known persons on campus confined to a wheelchair. The problem of accommodation, in light of this number, failed to impress the planning officer as an immediately pressing problem, but the commonly overlooked population of temporarily disabled students, as noted by the Health Center records, should constitute a valid cause for concern. These people generally find themselves hard pressed to cope with their new situation. Often they are even more hindered by architectural barriers than are the chronically disabled because of their relatively low level of skill with such aids as wheelchairs or crutches, and as such would significantly benefit from the elimination of architectural barriers. (8)

It is evident that the population of individuals which could be identified as the handicapped is neither heterogeneous nor constant. Its membership at any one time, based on the definitions established earlier, depends on the functional ability required of an individual to successfully contend with a specific set of circumstances.

PHYSICAL DESIGN AND THE DISABLED

In relation to physical design the actual physical impairment is not as critical as the physical constraints it imposes on a person's ability to accomplish desired goals. Goldsmith, (2) in his analysis of accommodative design, feels that the total population can be broken down, according to functional ability, into two groups: those able to negotiate typical architectural features and, those not able to negotiate these features. The New York State University Construction Fund (12) also found it necessary, despite individual and specific effects of physical disabilities, to group the population for design analysis into two main groups based on functional ability.

> 1. The ambulant and semiambulant . . . including persons with crutches or walking sticks, the blind, individuals with cardiac conditions, and the deaf.
>
> 2. Paraplegics, amputees and hemiplegics . . . all of whom are handicapped in the upper and/or lower extremeties to an extent which usually dictates their confinement to a wheelchair.

Both sources agree that the wheelchair users are the principal constituents of the group whose functional abilities are in the greatest conflict with typical architectural features because of the limitations of the device itself. The most significant obstacle to the handicapped person in a wheelchair is the step or steplike features, such as curbs. While these obstacles are negotiable by the majority of the ambulant and semiambulant groups, they present a physical barrier to the vast majority of wheelchair users. In essence, the ambulant,

disabled population can be considered as an extreme of the able-bodied population since their physical abnormalities affect mainly the degrees of proficiency, ease and safety with which they can negotiate typical architectural features. The wheelchair users, on the other hand, constitute a distinctly separate group based on their functional ability. As such, the limitations of the wheelchair is used in this study as the basis for identifying and evaluating physical constraints to movement of disabled pedestrians.

THE SOCIAL RESPONSIBILITY OF ACCOMMODATION

As previously pointed out by Wright (7), Goldsmith (2), and the New York State Construction Fund (12) the population of people commonly termed "the handicapped" is a widely diverse group, however two commonly stated goals tend to strongly unite them. These include the desire to be accepted by society as distinct individuals apart from the particular physical disability they possess, and to be a participant in the mainstream of society to the extent of their individual interests and abilities.

The importance of the first goal, being accepted by society, is underscored by research reported by Kraus (4) which revealed the broad based prejudice held against the handicapped.

> Attitudes of rejection toward the orthopedically disabled still persist widely in society. The high value placed on physical appearance means that persons with crippling diseases or missing limbs are often ostrasized . . . either openly or in subtle ways.

The ramifications of social attitudes and psychology are beyond the scope of this paper, but a general concensus of the literature reviewed indicated that integration of the handicapped into the mainstream population, including academic institutions, is a positive step toward the elimination of prejudice.

Integration can provide the necessary avenue toward the attainment of both needs of the disabled, of being accepted both as an individual and as a

participant. This is achieved through mutual exposure of the disabled and able-bodied in day to day activities where individuals can identify similarities among themselves and put physical differences in perspective. The Kansas State Department of Education (10) has stated that although it may be difficult to integrate physically disabled children into a total school program such integration is rewarding for both the handicapped and the able-bodied. "The handicapped child can identify in many ways with the normal child's activities, and . . . children without handicaps, in turn, learn to appreciate the accomplishments of the physically limited child."

Integration in the context of the literature researched means more than just mutual exposure. To be beneficial, the integration process should take place in an environment of mutual dignity. In applying this concept to a campus type environment, Adrian Levy, (12) New York State Assistant Commissioner of Education for Vocational Rehabilitation, stated,

> "The so-called 'service entrances' are not desirable means of in and out movement of the handicapped. This type of entrance implies a movement of inanimate objects and whenever possible this kind of access should be avoided."

In addition to this, in two panel discussions held between the author and disabled students at Kansas State Teachers College located at Emporia, Kansas, a school with a large handicapped population, it was strongly emphasized by the group that service door type accommodations were felt to be demeaning, and were acceptable only as temporary measures. The word "temorary" was emphasized. Furthermore, it was the concensus of the students that the disabled should not have to use separate entries apart from the able-bodied students unless extreme conditions made integration dramatically impractical.

In applying this information to this study, it was determined that a valid basis for ranking alternative courses of action for providing access would be to compare the actions relative to the degree of social integration they would

provide. A basic premise of this study is that the quality of a solution is directly proportional to the degree it would allow the disabled population to follow the same patterns of movement as the able-bodied student population.

Chapter 3

DESCRIPTION OF THE PLANNING PROCESS

INTRODUCTION

The planning process initially identifies potential targets for being made accessible which include such items as buildings, parking lots and sidewalks. Identified targets are then evaluated against the physical features of the study area toward the objective of determining which targets to make accessible, within the scope of the program, considering a reasonable balance between the social goals of accommodation and integration and physical constraints of the Study Area. Figure 3.1 illustrates the planning process.

THE STUDY AREA

The study area will most likely be defined based upon an administrative decision to make a campus or a certain portion of it accessible. However, certain campus functions must, as a minimum, be contained within any study area which would include living quarters and academic facilities.

Concern for wheelchair pedestrian movement between the campus and the surrounding community in an initial accommodation effort is generally not felt to be necessary for two reasons. First of all, from inquiries sent to several universities with handicapped student enrollment it was found that students confined to wheelchairs typically live either in accessible campus housing or they commute from off campus via private automobiles. Secondly, it would be highly unlikely in a presently unaccessible environment that the off-campus community

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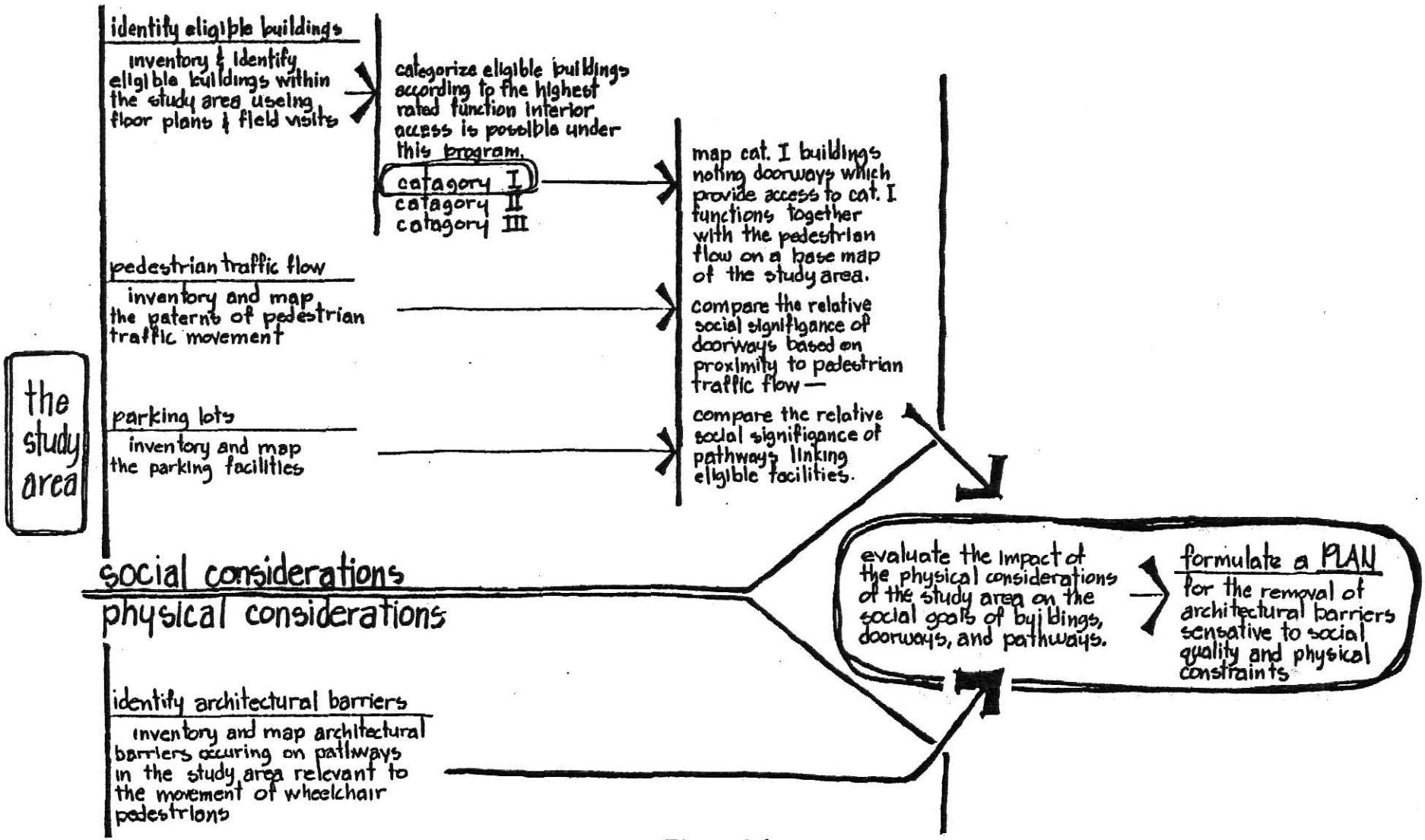

Figure 3.1

Program Schematic

would have wheelchair accessible housing available in the short run. In view of these concerns, it is the recommendation of this study that the intital accommodation program be within an area under university control.

THE SOCIAL INVENTORIES

As indicated by the Program Schematic the purpose of the social inventories is to identify, categorize, and rank eligible targets within the Study Area for being made accessible to wheelchair pedestrians. The format devised for recording and evaluating this information is entitled "Building and Building Access Evaluation Form." All of the information gathered in the social inventories, except for pedestrian traffic movement, is noted on this form.

Identification of Eligible Buildings and Doorways

The objective of this activity is to identify buildings which offer the potential for interior access to wheelchair pedestrians, and to identify the particular doorways which yield this potential access. Under the scope of this program work is limited to providing access through selected doorways. Interior modifications to buildings are not included.

To be eligible a building must be free of interior barriers to the extent that if access were provided through at least one of its doorways a wheelchair pedestrian would be able to move from the entry point to a usable portion of the building interior. Conversely, buildings are not eligible if interior barriers prohibit access into usable portions of the structure. The most typical condition found in the Study Area causing individual doorways, and often entire buildings, to be ineligible is the occurance of steps immediately inside doorways. Another common situation rendering a building only partially usable is the occurance of interior barriers, typically steps, interrupting hallways. The effects of such

interruptions can be lessened if various sectors of the interior are accessible from different doorways.

Reviewing building floorplans proved to be an efficient and simple method for inventorying buildings and identifying the interior access possible from various doorways. A review of floorplans quickly revealed whether or not a building offered potential access, and if so, to what extent, and from which doorway(s). The floor plan also provided a convenient, informative, and simple format for recording this information.

The product of this activity is a list of eligible buildings within the Study Area together with annotated floorplans indicating the accessible portions of building interiors.

Categorizing of Eligible Buildings by Function

In categorizing campus activities, traditional classifications were abandoned in favor of a system based on whether a student would need to be at the specific location where the activity is conducted in order to derive the benefit of the activity. Under this concept three general categories were developed.

Category I includes those activities which typically require the individual be present at the specific location of the activity to derive the intended benefit. An included activity is academic instruction which typically uses such facilities as classrooms, laboratories, lecture halls, seminar rooms, and the library, which although possible to use through a second person, is included in Category I because of the frequency and intensity libraries are often used. In addition to academic functions, Category I also includes living and dining, health care, and recreational and social activities. The recreational and social activities commonly use such facilities as the student union, theater, sports stadium, auditorium, field house, chapel and other similar facilities.

Category II would typically include all the administrative activities which students and the general public need access to from time to time, but for which the intended benefit or service can be derived without actually going to where the activity is housed. Use of the services could be accomplished by mail, telephone, or personal meetings arranged at alternate, accessible locations. This category would include such activities as faculty and staff offices, records and admissions, student loan offices, counselors and other similar administrative functions.

Category III is essentially a catch-all for all functions primarily involved with the physical and logistical support of the campus and which, by and large, students and the general public have little need for contact. Characteristic of these sorts of functions would be physical plant activities.

On the K.S.U. campus, most buildings were found to contain more than one category of function, and because of internal barriers not all functions could be accessible under the scope of this study. It was, therefore, determined that the category of a building would be based upon the highest category of activity housed within that building for which access would be possible under this program.

In the application of classification criteria to the K.S.U. campus, it was found that the preponderance of buildings inventoried fell into Category I. In view of this, it is recommended that Category I facilities be upgraded to provide total usability, including all necessary interior modifications, prior to continuing this initial type of program to the lower category buildings.

Pedestrian Traffic Flow

A pedestrian traffic inventory is undertaken to determine the volumes and patterns of pedestrian traffic within the Study Area. The primary use of this information is to predict, according to the relative volumes of pedestrian traffic,

the social importance of pedestrian routes, and indirectly, to indicate the social importance of eligible building doorways. This is based on the presumption that the physically disabled population would, if not restricted by architectural barriers, likely select the same movement patterns for the same reasons, whatever they may be, as the general campus population. This view is again shared by Atkinson (27), and agrees with the concept that the disabled are in fact a cross section of society. This viewpoint provides a positive means to effect integration in a literal sense by establishing a heirarchy of importance for routes and doorways to be made accessible directly related to volumes of traffic movement.

The procedure utilized for evaluating the impact of this information is to graphically combine on a base map of the Study Area the pedestrian traffic patterns, utilizing a weighted graphic technique indicating relative volumes, together with the eligible targets. A weighted graphic representation makes it relatively simple to compare the social significance of routes linking possible targets. In addition, it indirectly provides a means of evaluating the relative pedestrian usage of eligible doorways. It would be prohibitive in terms of time and effort to take traffic counts for each eligible doorway of a building, so the relative traffic flows are assumed based on the proximity of doorways to the major flows of pedestrian traffic near the building.

The pedestrian traffic inventory, when graphically combined with the eligible buildings and parking lots also produces a graphic summary of the social inventories. This summary graphic is subsequently used as a base map for the physical inventories of the exterior walkway system. The physical inventories are superimposed over this base map to facilitate evaluating the effects of the data on the potential social targets.

Building and Building Access Evaluation Form

The "Building and Building Access Evaluation Form," Figure 3.2, provides a simple format for evaluating and documenting the suitability of buildings and building doorways, and for documenting the final conclusions of the study as they pertain to the inventoried buildings. The form has three primary sections in addition to heading information which identifies the building and indicates functional categories, if any, that are potentially accessible. The form proper includes a floor plan of the building and matrix charts for recording categories and functions of interior spaces accessible from building entry points, and for recording the physical characteristics effecting accessibility of the building doorways and approach walkways to wheelchair traffic. The form also includes a section for the evaluator to record comments and recommendations regarding the specific building being inventoried.

The floor plan, as previously discussed, is included as part of the format because it is a simple and informative means to graphically indicate information. What is learned from the floor plan is summarized on the matrix charts and the narrative portions of the form.

The matrix charts are divided into interior and exterior sub-sections. The interior access matrix relates the degree of interior access possible from the individual entry points, the types of facilities accessible, and the functional categories included in the accessible areas of the building. The first item of information indicated by the chart is the relative degree of interior accessibility from each doorway, total, partial or none. Next, the chart indicates whether or not an elevator is accessible from a particular doorway and whether the elevator is pedestrian or service. The chart also indicates if restrooms are accessible from individual doorways, if they are male or female, and if they are modified for handicapped use.

Figure 3.2

Building and Building Access
Evaluation Form

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BUILDING AND BUILDING ACCESS EVALUATION FORM

BUILDING NAME: DENISON HALL

ACCESSIBLE FUNCTIONS:

CATEGORY I

■ ACADEMIC
- . Lecture
- . Classrooms
- . Laboratory
- . Library
- . Seminar

☐ LIVING-HEALTH
- . Dormatory(s)
- . Student-Faculty Housing
- . Health
- . Food

☐ RECREATION-SOCIAL
- . Social
- . Sports

CATEGORY II

■ ADMIN.-STUDENT-PUBLIC
- . Faculty & Dept. Offices
- . Counseling
- . Stud.-Admin.
- . Acad. Storage

CATEGORY III

☐ ADMIN-PHYSICAL PLANT

INTERIOR ACCESS

ntry	Interior Access ● Total ◑ Partial ○ None	Elevator Ped. SVS	Access to Restroom ● Modified ◑ Unmodified M	F	Access to Academic	Health-Living	Recreation Social	Admin-Student, Public	Admin-Physical Plant
					← CATEGORY 'I' →				
A	◑				●				
B	◑				●				
C	◑				●				
D	◑		◑	◑	●			●	
E	○								

EXTERIOR ACCESS (DENISON HALL)

ntry	Type Ped. SVC	On Grade	Step(s) No.	Curb(s) No.	Ramped Entry Complies with Design Standard	Doorway Has: ≥ 32" clear opening	1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●					●	±5"	●
B	●	●				●	●	●
C	●	●				●	●	●
D	●	●				●	●	●
E	●	●				●	●	●

COMMENTS & RECOMMENDATIONS:

Denison Hall is reconnended for inclusion in the program as a Catagory I Facility.

Access points 'A','B','C',and 'D' each offer limited access to portions of the building interior.

Access point 'D' provides access to the first floor which houses 3 general useage type classrooms, 2 graduate student study rooms, faculty offices, and male and female restrooms. The restrooms are not equiped for useage by disabled people.

Access points 'B'and'C' provide access to the upper, rear portion of Room 11JA, a major lecture auditorium.

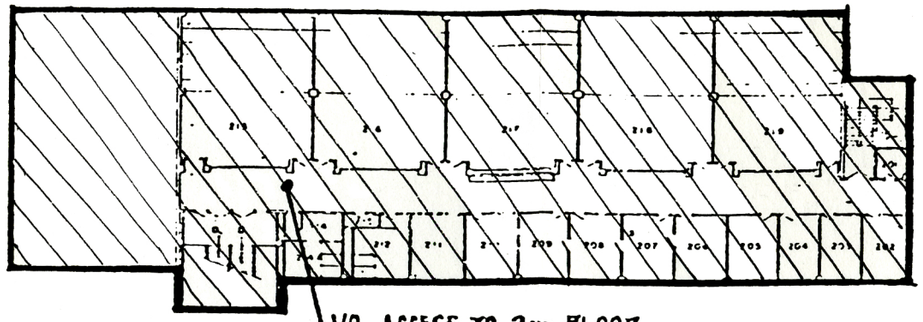
Access point 'A' provides access to the stage and lower audience only of Room11JA.

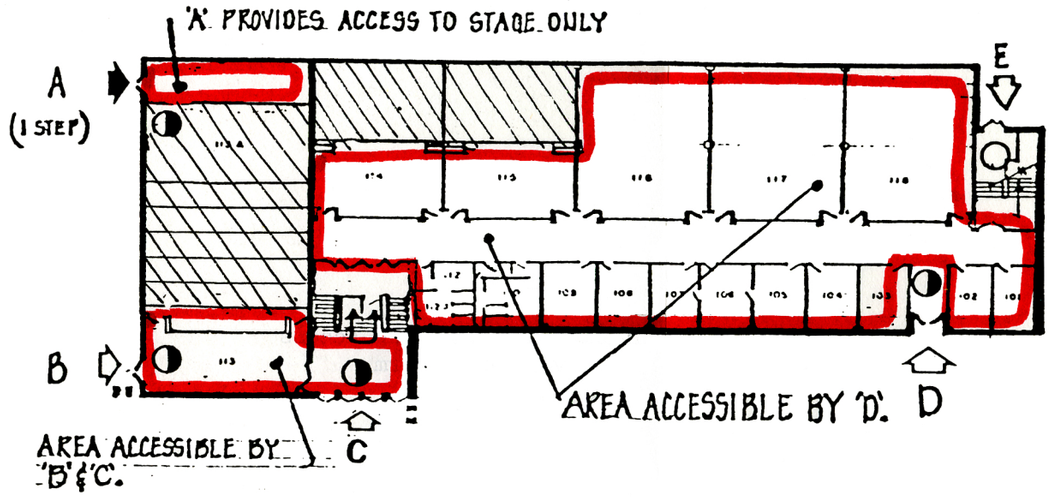
Access point 'E' provides no interior access.

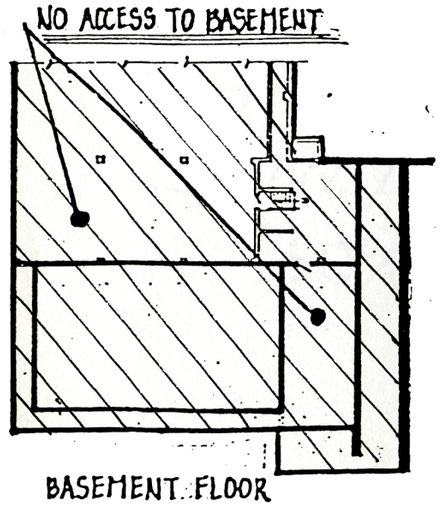
Recommended ranking of Access Points:

'D', 'B'&'C','A'

2ND FLOOR







LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY on APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

The exterior access matrix chart is used to indicate the physical characteristics of the building doorways affecting wheelchair accessibility. The chart also indicates if the doorway is a pedestrian or service entry which is primarily a social consideration. When inventorying the physical characteristics of a doorway the approach walkway to the floor is considered as well. Specific features inventoried include whether or not the doorway is on grade; if the doorway or its approach walkway has steps and if so how many; if curbs interrupt the approach walkway and whether or not the doorway is serviced by a ramp and if so, the length and slope of it; whether or not the doorway has a 32 inch clear opening as recommended for wheelchair movement; the height of the doorsill; and if the door landing has sufficient maneuver space for a wheelchair pedestrian to open the door. It was found by the author in his attempts to negotiate doorways in a wheelchair that doorsills of one inch or more in height or doorways with a one inch break in grade above the landing were extremely difficult to negotiate particularly when one hand was required to open and hold the door.

Comments and recommendations by the evaluator should include as a minimum, whether or not the building is recommended for inclusion, and the recommended ranking of the doorways for being made accessible. Until the completion of exterior physical inventories, the recommendations for inclusion of the building and the priority of its doorways are to be regarded as tentative. The analyst may also note any other additional comments pertinent to the evaluation of the building.

THE PHYSICAL INVENTORIES OF THE PEDESTRIAN CIRCULATION SYSTEM

The purpose of these inventories is to identify and evaluate the effect of the physical features of the pedestrian system on the movement of wheelchair traffic. The primary physical barriers typically encountered along the exterior

pedestrian system include steps, curbs, and the slope of walkways. Other physical considerations which can significantly affect wheelchair movement or safety include vehicular-pedestrian conflict points, surface density and texture of walkways, the frequency of broken and uneven sections of pavements, and the width of walkways.

In evaluating the K.S.U. Study Area the most significant physical feature found in evaluating routes was that of slope. The more obvious barriers, steps and curbs, were of somewhat lesser impact because steps interrupting walkways were fairly rare, and curbing was a common problem to all possible campus routes. Other significant features found included pedestrian-vehicular conflict points and steam tunnels.

It was found that steam tunnels which run under a significant portion of the campus walkways provide an effective, immediate snow and ice removal system leaving a safe, dry surface for wheelchair traffic. The consideration of steam tunnels in route evaluation obviously depends on local climate, whether or not steam tunnels exist, and whether or not they are located under walkways. A physical feature found to be of relatively minor consequence in the K.S.U. Study Area was pavement surface texture; although some existing commuter parking lots with loose stone surface proved difficult to negotiate in a wheelchair.

The constraints of these physical features are reasonably self evident and straight-forward with the exception of slope. In minimum design standards for the accommodation of wheelchair traffic adopted by the Federal Government, Illinois, Kentucky and New York, the maximum gradient prescribed for public walkways is 5 percent and preferably should not exceed 3 percent. However, due to the existing nature of the Study Area it is necessary that walkways exceeding 5 percent be considered and that guidelines be adopted for

evaluating these slopes for wheelchair traffic. In light of this, existing specifications for handicapped ramps were used as a basis for evaluating slopes exceeding 5 percent.

Design standards for wheelchair accommodations state that the maximum slope for ramps should not exceed 8.33 percent, have a nonslip surface, be provided with handrails, and have level rest areas at no greater than thirty foot intervals (9, 12, 13). Although this gradient, 8.33 percent, is typically negotiable it must be carefully considered in evaluating exterior sidewalks which are not provided with all the special design features prescribed for ramps.

From on-site wheelchair experience gained by the author it was found that slopes over 8.33 percent are typically prohibitive except with an attendant or a motorized wheelchair. Again from the author's experience, it was found to be both difficult and dangerous to push a person of equal weight in a wheelchair either up or down a 10 percent slope (the service ramp on the north side of King Hall has a 10 percent slope). Although the difficulty in both instances is a relative factor depending on the strength and skill of the wheelchair pedestrian and the attendant, the author's experience is felt to be sufficiently valid to state that a sidewalk with a 10 percent slope is negotiable only with extreme difficulty and is not suited for manual wheelchair traffic. The following guidelines, listed in Table 3, were adopted for evaluating the effects of slope on the trafficability of the walkways by pedestrians using manually operated wheelchairs.

TABLE 3

Effect of Walkway Slopes on Wheelchair Traffic

0%	- 3%	slope	Optimum range for wheelchair traffic
3%	- 5%	slope	Preferred maximum range for wheelchair traffic
5%	- 8.33%	slope	Severe range for wheelchair traffic
8.33%	- and over		Restrictive to wheelchair traffic except to motorized units

EVALUATION OF INVENTORIES AND DEVELOPMENT OF MASTER PLAN

The purpose of this activity is to evaluate the corporate conclusions of the social and physical inventories, and to develop a master plan of accommodation. The end product, the master plan, should identify and prioritize the buildings, doorways, parking lots, and sidewalks to make accessible.

Chapter 4

PROGRAM INVENTORIES OF THE STUDY AREA

THE STUDY AREA

The Study Area is the central portion of the Kansas State University campus bounded by Claflin Avenue to the north, by Manhattan Avenue to the east, by Anderson Avenue to the south, and by Denison Avenue to the west, with the northwestern corner adjusted to include the dormitory complex centered around the Martha Kramer Food Center. Figure 4.1 is a map of the Study Area.

The campus base maps and the inventories performed under this study reflect the Study Area in 1974. Although new construction has taken place since 1974 which would effect the current application of recommendations included in this study, the planning procedure outlined herein is valid.

THE SOCIAL INVENTORIES

Identification of Eligible Buildings and Doorways

Eligible buildings and doorways found in the Study Area are illustrated on Figure 4.2. Typically all buildings within a study area would be inventoried for possible consideration; however, a partial cross section inventory of campus buildings was determined sufficient to test the program procedure. Specific buildings inventoried included Cardwell Hall, Fairchild Hall, Denison Hall, Eisenhower Hall, Goodnow Hall, the Student Union, and the Mike Ahearn Field House. The inventories of these buildings are located in the appendix. The buildings found to be eligible Category I facilities are listed in Table 4.

Figure 4.1

Study Area

WHEELCHAIR PEDESTRIAN PROGRAM

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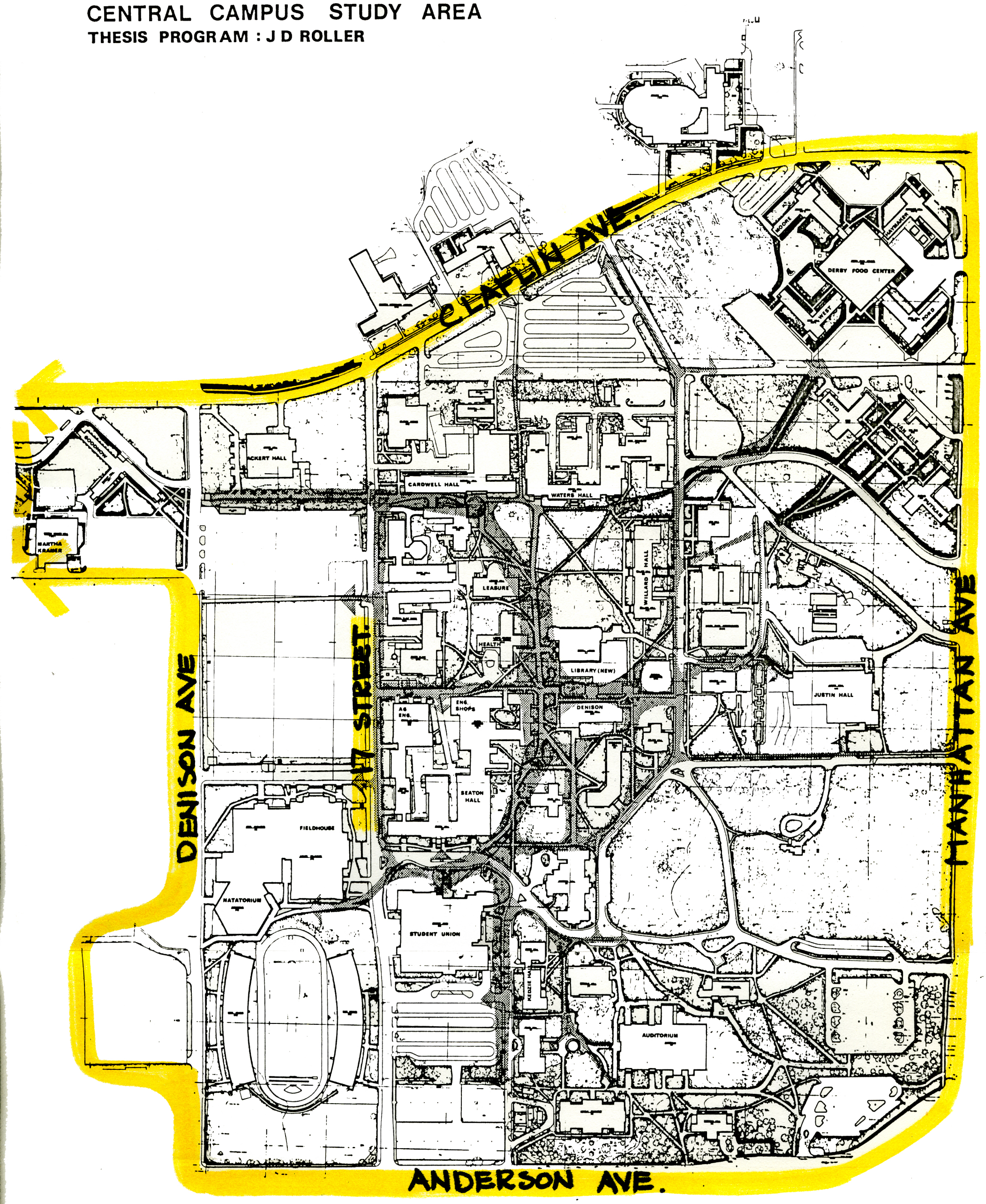
KANSAS STATE UNIVERSITY
CENTRAL CAMPUS STUDY AREA

THESIS PROGRAM : J D ROLLER



STUDY AREA

0 100 200 300 400 500

Table 4

Eligible Category I Buildings

Buildings with Interior Totally or Essentially totally accessible from a Pedestrian Doorway:	Buildings with Interior Partially Accessible from a Pedestrian Doorway:
Primarily Academic Buildings	
Ackert Hall *Cardwell Hall Justin Hall Library (new wing)	Waters Hall Shellenberger Hall Willard Hall Leasure Hall *Denison Hall Seaton Hall
Primarily Living and Health Buildings	
LaFene Student Health Center **Haymaker Hall **West Hall **Ford Hall **More Hall Derby Food Center */***Goodnow Hall Martha Kramer Food Center	
Primarily Social and Recreational Buildings (Academic)	
*Student Union Natatorium	Auditorium *Mike Ahearn Field House (This structure will require interior modifications but it is included because of its high social significance.)

* Buildings noted with one asterkisk (*) were inventoried with the format developed as part of this thesis project and are found in the appendix.

** Dormitories noted with two asterisks (**) are grouped around Derby Food Center.

*** Dormitory noted with three asterisks (***) is part of group around Martha Kramer Food Center.

Buildings listed in Table 4, besides those inventoried in this study, are included based on a separate, unpublished inventory relating to usability of campus buildings by handicapped persons performed by William Irelan (21), a

Figure 4.2

Category I Buildings and Doorways

FIGURE 4.2

CATEGORY I BUILDING AND DOORWAYS

BUILDINGS NOTED ARE THOSE IDENTIFIED AS BEING CATEGORY I BUILDINGS ACCORDING TO THE HIGHEST RATED FUNCTION TO WHICH INTERIOR ACCESS IS POSSIBLE BASED ON A REVIEW OF BUILDING FLOORPLANS. CATEGORY I BUILDINGS ARE THE ONLY ONES CONSIDERED FOR INCLUSION IN THIS ACCOMODATION PROGRAM.

LEGEND



CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT.



CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT.



COMMUTER PARKING FACILITY

ELIGIBLE BUILDING ACCESS POINTS



PEDESTRIAN ENTRY ON GRADE WITH SIDEWALK APPROACH



PEDESTRIAN ENTRY WITH A STEPPED ENTRY OR HAS STEPS INTERRUPTING ITS SIDEWALK APPROACH



SERVICE ENTRY ON GRADE WITH SIDEWALK OR DRIVEWAY APPROACH



SERVICE ENTRY WITH EXTERIOR STEPPED ENTRY OR STEPS INTERRUPTING ITS SIDEWALK OR DRIVEWAY APPROACH

ELIGIBLE CATEGORY I BUILDINGS

PRIMARILY ACADEMIC BUILDINGS

BUILDINGS WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN DOORWAY:	BUILDINGS WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN DOORWAY:
ACKERT HALL	WATERS HALL
* CARDWELL HALL	SHELLENBERGER HALL
JUSTIN HALL	WILLIARD HALL
LIBRARY (NEW WING)	LEASURE HALL
	* DENISON HALL
	SEATON HALL

PRIMARILY LIVING & HEALTH BUILDINGS

BUILDINGS WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN DOORWAY:	BUILDINGS WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN DOORWAY:
HEALTH CENTER	
HAYMAKER HALL	
WEST HALL	
FORD HALL	
MORE HALL	
DERBY FOOD CENTER	
* GOODNOW HALL	
MARTHA KRAMER FOOD CENTER	

PRIMARILY SOCIAL & RECREATIONAL BUILDINGS (ACADEMIC)

* THE STUDENT UNION	AUDITORIUM
NATATORIUM	* MIKE AHEARN FIELDHOUSE (THIS STRUCTURE WILL REQUIRE INTERIOR MODIFICATION BUT IT IS INCLUDED BECAUSE OF ITS HIGH SOCIAL SIGNIFICANCE.)

*BUILDINGS NOTED WITH AN ASTERISK (*) WERE INVENTORIED WITH PROCEDURE DEVELOPED AS PART OF THIS THESIS PROJECT. OTHER BUILDINGS WERE CATEGORIZED BASED ON A SEPARATE, UNPUBLISHED INVENTORY RELATING TO USABILITY OF CAMPUS BUILDINGS BY HANDICAPPED PERSONS PERFORMED BY WILLIAM IRELAN, LANDSCAPE ARCHITECT STUDENT, FALL OF 1974. THE RELATIONSHIP OF BUILDING DOORWAYS TO INTERIOR FUNCTIONS WAS NOT ADDRESSED IN IRELAN'S WORK SO THE ELIGIBLE ACCESS POINTS INDICATED FOR THOSE BUILDING WERE SELECTED BY THE AUTHOR SIMPLY TO PROVIDE ENTRIES ON WHICH TO ORIENT THIS STUDY.

BUILDINGS NOT INVENTORIED ARE ASSUMED TO BE INELIGIBLE.

WHEELCHAIR PEDESTRIAN PROGRAM

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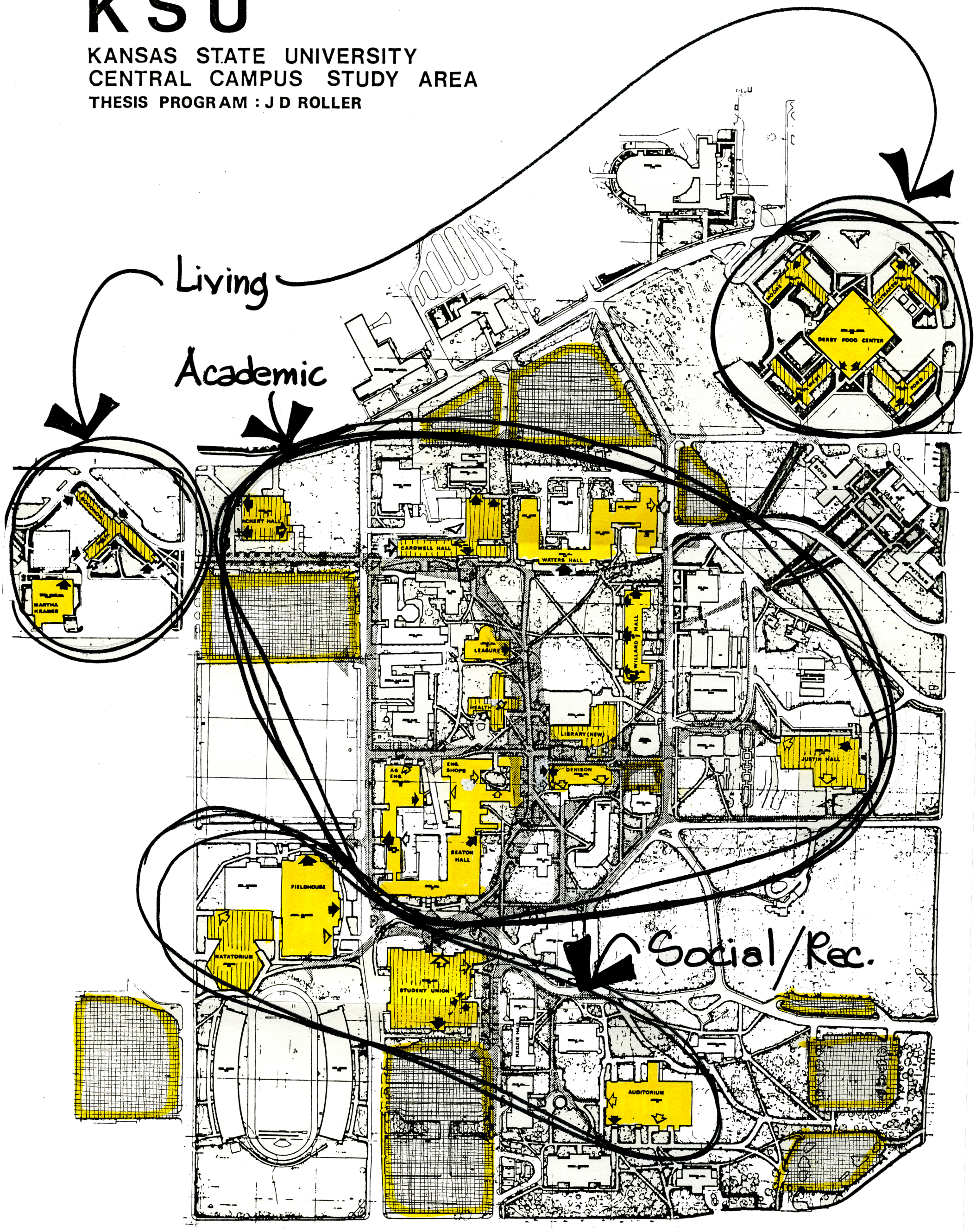
CENTRAL CAMPUS STUDY AREA

THESIS PROGRAM : J D ROLLER



CATEGORY I BUILDINGS & DOORWAYS

0 100 200 300 400 500

Landscape Architecture Student, during the fall of 1974. The relationship of building doorways to interior functions was not addressed in Irelan's work so the access points indicated for those buildings on Figure 4.2 were selected without regard for interior accessibility. The doorways to those buildings were selected based simply on relative proximity to the major flows of pedestrian traffic near the individual buildings.

The Mike Ahearn Field House is of special significance because it is recommended as an exception to the program policy of not including buildings requiring interior work. Presently, the facility has an accessible entry, but it is a vehicular service door not normally used by Field House patrons for games and other attractions. The pedestrian entries used for spectator access are located along the north and east sides of the building providing access into the building at a level two steps above the main floor. In view of the high social value of this facility it is recommended that favorable consideration be given to including interior modifications necessary to provide wheelchair access to the main floor level from a regular pedestrian doorway. This would avoid requiring wheelchair patrons to use the service door.

In addition to eligible buildings, commuter parking lots located within and immediately adjacent to the Study Area are also targeted for possible accommodation. These lots are also noted on Figure 4.2.

Pedestrian Traffic Flow

The traffic counts used were taken from a traffic inventory performed by the Oblinger-Smith Corporation. (22) Figure 4.3 graphically illustrates this data. The inventory indicates that the major convergence of daily pedestrian traffic in the Study Area is the walkway intersection immediately west of the Library. The major flow of pedestrian traffic moves through this intersection south to the Student Union and north to Cardwell Hall, then proceeds west

Figure 4.3

Pedestrian Traffic Flow

FIGURE 4.3

PEDESTRIAN TRAFFIC FLOW

A PEDESTRIAN TRAFFIC FLOW INVENTORY IS PRESUMED TO PROVIDE DATA FOR PLANNING AN ACCESSIBLE PEDESTRIAN SYSTEM BY REVEALING THE RELATIVE IMPORTANCE OF ROUTES TO BE MADE ACCESSIBLE ACCORDING TO THE RELATIVE VOLUMES OF USE. THE ASSUMPTION BEING THAT THE PHYSICALLY DISABLED POPULATION, IF NOT RESTRICTED, WOULD ALSO SELECT THESE MOVEMENT PATTERNS FOR THE SAME REASONS AS THE PRESENT, ABLE-BODIED PEDESTRIAN POPULATION.

LEGEND



LINE WIDTH INDICATES THE RELATIVE VOLUME OF PEDESTRIAN TRAFFIC. THE NUMBER REFERS TO THE 'COUNTING POINT' KEYED TO THE CHART BELOW.

TRAFFIC COUNTS

COUNTING POINT	TIME PERIOD	TOTAL PEDESTRIAN	TIME PERIOD	TOTAL PEDESTRIAN	MAX. ONE MIN. FLOW
1	11:20-11:30	488	1:20-1:30	490	69
2	11:20-11:30	244	1:20-1:30	202	46
3	10:20-10:30	327	11:20-11:30	62	62
4	11:20-11:30	134	1:20-1:30	83	29
5	9:20-9:30	307	1:20-1:30	271	53
6	9:20-9:30	225	1:20-1:30	227	48
7	9:20-9:30	203	10:20-10:30	243	38
8	10:20-10:30	324	11:20-11:30	321	63
9	1:20-1:30(Fri)	189	1:20-1:30(Mon)	185	31
10	8:20-8:30	171	4:20-4:30	117	24
11	9:20-9:30	450	1:20-1:30	342	65
12	10:20-10:30	281	1:20-1:30	252	58
13	9:20-9:30	594	11:20-11:30	509	94
14	9:20-9:30	138	11:20-11:30	201	33
15	10:20-10:30	302	1:20-1:30	125	45
16	10:20-10:30	159	1:20-1:30	123	34
17	9:20-9:30	54	10:20-10:30	35	10
18	10:20-10:30	744	1:20-1:30	462	137
19	9:20-9:30	528	11:20-11:30	492	112
20	10:20-10:30	373	11:20-11:30	262	68
21	9:20-9:30	49	10:20-10:30	67	13
22	11:20-11:30	273	1:20-1:30	273	50
23	9:20-9:30	254	10:20-10:30	258	43
24	11:20-11:30	105	1:20-1:30	23	31
25	10:20-10:30	76	11:20-11:30	30	13
F	8:20-8:30	40	4:20-4:30	21	10
G	8:20-8:30	201	4:20-4:30	238	40
H	8:20-8:30	162	4:20-4:30	87	25

PEDESTRIAN COUNTS WERE TAKEN ON WEDNESDAY, DECEMBER 12, 1973; FRIDAY, DECEMBER 14, 1973; AND MONDAY, DECEMBER 17, 1973.

PEDESTRIAN TRAFFIC MOVEMENT COUNTS WERE TAKEN FROM A STUDY ENTITLED, 'CIRCULATION PLAN' PREPARED BY K.S.U. BY THE OBLINGER-SMITH CORPORATION, DECEMBER, 1973.

WHEELCHAIR PEDESTRIAN PROGRAM

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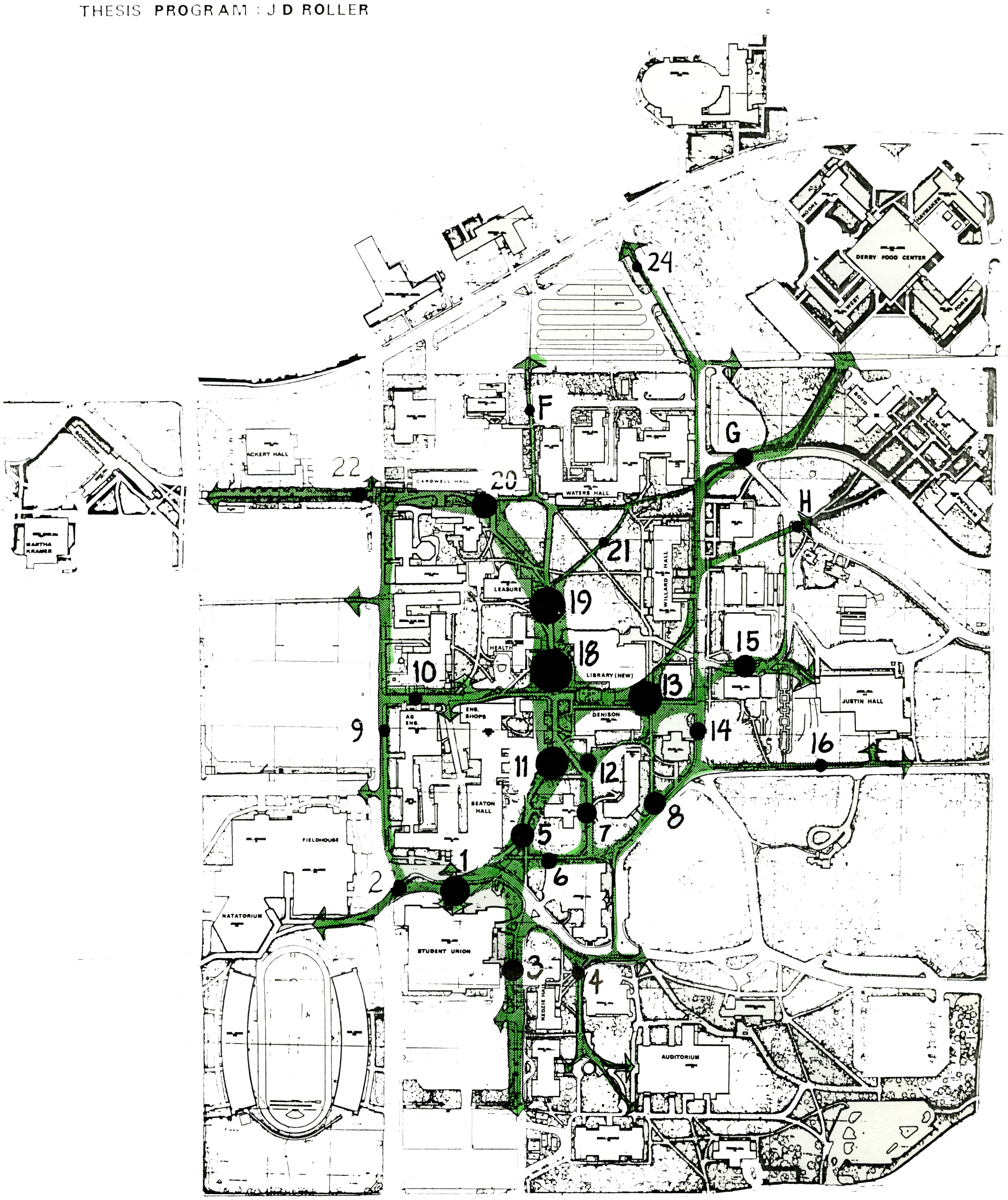
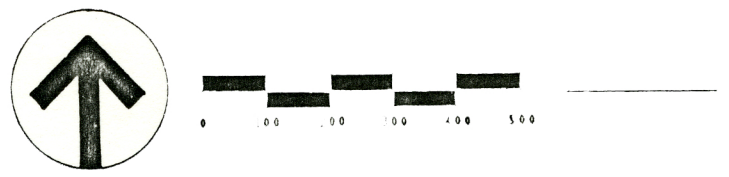


PEDESTRIAN TRAFFIC FLOW



toward Ackert Hall terminating at the dormitories centered around the Martha Kramer Food Center. The major east-west flow moves east from the Library toward Justin Hall, and west from the Library to Seventeenth Street following the Student Health Center service drive between the Physical Plant and Seaton Hall.

A prominent secondary pattern is the north-south movement along Seventeenth Street linking Ackert Hall, Cardwell Hall, and the parking lot south of Ackert Hall to the north with the Field House and Student Union to the south. During after class hours it is anticipated that this route will take on added social significance since it provides a convenient link between the Martha Kramer dormitories and the parking lot south of Ackert with such recreational and social facilities as the Student Union and the Mike Ahearn Field House. By comparison, the eligible dormitories centered around the Derby Food Center are located much further away from these facilities.

The pedestrian circulation moving between the dormitories clustered around the Derby Food Center and the campus core moves primarily along the north-south road east of Willard Hall, turning into the campus core area along the walk between Shellenberger and Willard Halls and in the vicinity of the Library.

Figure 4.4 is a graphic summary of the social inventories indicating eligible targets for accommodation together with volumes of pedestrian traffic along the walkways linking them. This summary graphic is used as a base map over which the physical inventories of the exterior pedestrian system are superimposed. This procedure helps significantly in evaluating the effects of the physical constraints toward making various social targets accessible.

Figure 4.4

Summary of Social Inventories

FIGURE 4.4

SUMMARY OF SOCIAL INVENTORIES

THE SOCIAL SUMMARY GRAPHICALLY COMBINES THE PEDESTRIAN TRAFFIC INVENTORY WITH ELIGIBLE SOCIAL TARGETS - CATEGORY I BUILDINGS AND DOORWAYS, AND COMMUTER PARKING LOTS. THE SUMMARY REVEALS THE SOCIAL PROMINANCE OF ROUTES LINKING ELIGIBLE FACILITIES AND SERVES AS A BASIS FOR RANKING ELIGIBLE DOORWAYS ACCORDING TO ASSUMED USAGE.

LEGEND



CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT



CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT



PARKING FACILITY



PEDESTRIAN TRAFFIC FLOW



PEDESTRIAN ENTRY ON GRADE WITH SIDEWALK APPROACH



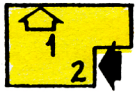
PEDESTRIAN ENTRY WITH A STEPPED ENTRY OR HAS STEPS INTERRUPTING SIDEWALK APPROACH



SERVICE ENTRY ON GRADE WITH SIDEWALK OR DRIVEWAY APPROACH



SERVICE ENTRY WITH EXTERIOR STEPPED ENTRY OR STEPS INTERRUPTING ITS SIDEWALK OR DRIVEWAY APPROACH



TENTATIVE NUMERICAL RANKING OF ELIGIBLE ACCESS POINTS
(WHEN RANK OF DOORWAYS WAS CONSIDERED TO BE EQUAL NO NUMBER ARE INDICATED)

WHEELCHAIR PEDESTRIAN PROGRAM

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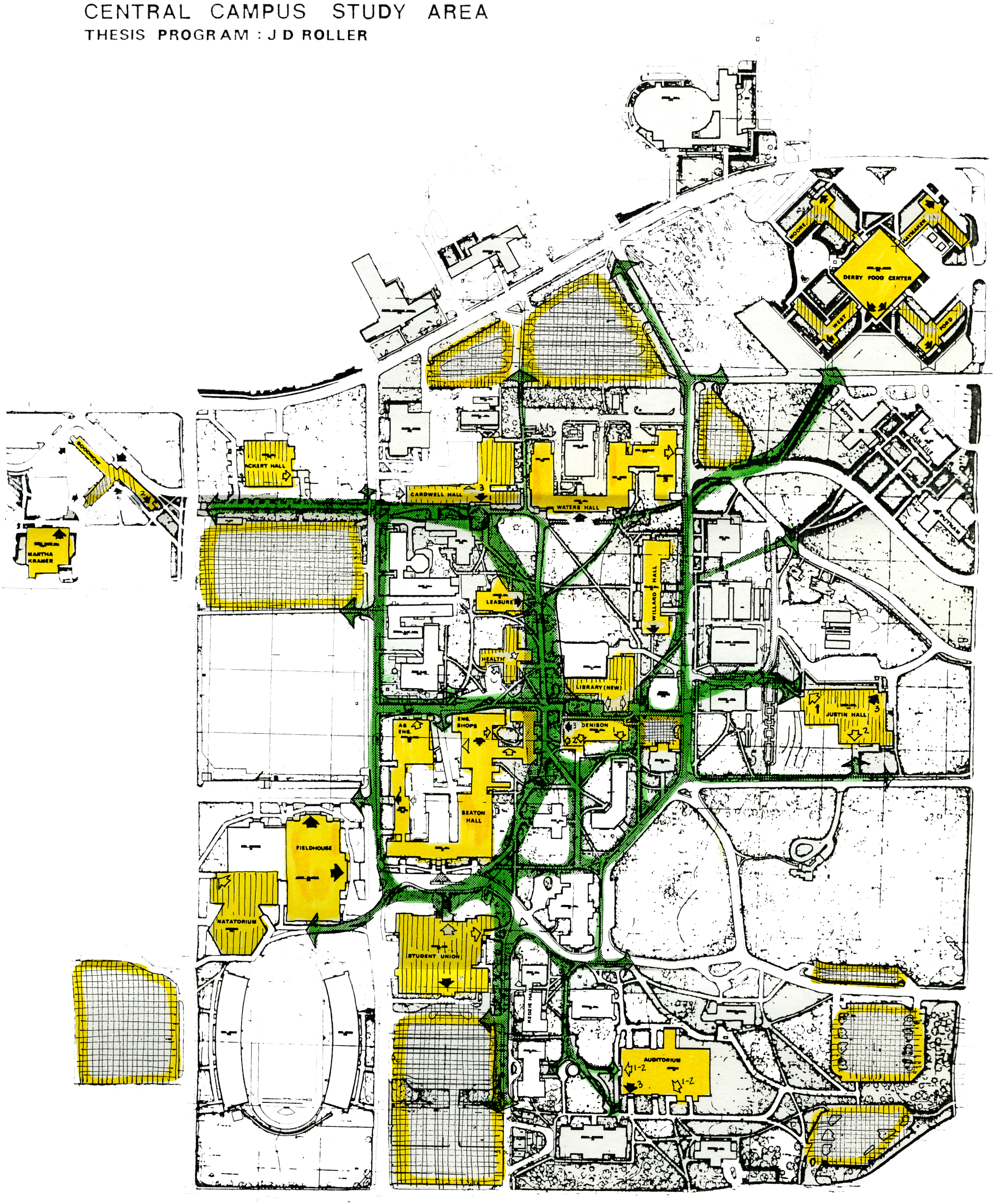

SUMMARY

SOCIAL INVENTORIES

PHYSICAL INVENTORIES OF THE EXTERIOR PEDESTRIAN CIRCULATION SYSTEM

Slope and Step Inventory and Analysis

In the Study Area slope and steps are the most significant exterior physical considerations in evaluating potential social targets for being made accessible. The other exterior physical features are considered primarily as modifying considerations. The inventory and evaluation of slope and steps is graphically recorded and illustrated on Figure 4.5. The findings and tentative recommendations based on this inventory are discussed below.

1. The dormitory complex centered on the Derby Food Center is separated from the campus core area by walkways having comparatively extreme grades frequently exceeding 8.33 percent. In addition, due to the relatively extreme topography of the Derby complex site, walkways connecting dormitories of the complex have more interruptions by steps than those of the dormitories centered on the Martha Kramer Food Center, the other eligible dormitory complex.

2. The east-west walkway located immediately south of Ackert Hall linking the Martha Kramer dormitories, Ackert Hall and Cardwell Hall is interrupted by two sets of steps. One set is located immediately east of Denison Avenue, and the other is located between Seventeenth Street and the front entry of Cardwell Hall. Offsetting factors to these steps are that this particular route has less than 3 percent grade and provides direct, socially prominent circulation among these buildings. This route also links the dormitories and Ackert Hall directly with the major pedestrian entry into the campus core from the northwest, the walkway in front of Cardwell Hall. In addition, the Martha Kramer dormitories, Ackert Hall, and Cardwell Hall are all essentially totally

Figure 4.5

Slope and Step Inventory
and Analysis

FIGURE 4.5

SLOPE AND STEP INVENTORY AND ANALYSIS

THE PURPOSE OF THIS INVENTORY IS TO IDENTIFY AND EVALUATE THE IMPACT OF STEPS, CURBING, AND SLOPE ON THE MOVEMENT OF WHEELCHAIR PEDESTRIAN TRAFFIC IN THE STUDY AREA.

THE INTERRUPTION OF SIDEWALKS AND THE ISOLATION OF PARKING LOTS BY CURBING IS ESSENTIALLY TOTAL. BECAUSE OF THIS, IT WAS DECIDED TO BE UNNECESSARY TO GRAPHICALLY RECORD THE SITUATION, AND TO DO SO WOULD ADD UNNECESSARY CLUTTER.

OBSTACLES OCCURRING ALONG THE APPROACH SIDEWALK TO INDIVIDUAL DOORWAYS ARE NOT SHOWN ON THIS GRAPHIC TO ELIMINATE UNNECESSARY CONFUSION. OBSTACLES INTERRUPTING APPROACH SIDEWALKS ARE NOTED ON THE "BUILDING AND BUILDING ACCESS INVENTORY AND EVALUATION FORM".

LEGEND

CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT

CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT

COMMUTER PARKING LOT

PEDESTRIAN TRAFFIC FLOW

STEPS INTERRUPTING A SIDEWALK/NUMBER OF RISERS

SLOPE OF WALKS

0% - 3% SLOPE	OPTIMUM SIDEWALK GRADE RANGE FOR GENERAL MOVEMENT
3% - 5% SLOPE	PREFERRED MAXIMUM GRADE RANGE FOR GENERAL MOVEMENT
% - 8.33% SLOPE	SEVERE GRADE RANGE FOR GENERAL MOVEMENT
8.33% - ∠	TYPICALLY RESTRICTIVE TO MOVEMENT EXCEPT BY MOTORIZED WHEELCHAIR

ANALYTICAL SYMBOLS

ILLUSTRATES RELATIVELY UNOBSTRUCUTED PEDESTRIAN FLOW CONSIDERING SLOPE AND STEPS

ILLUSTRATES RELATIVELY OBSTRUCTED PEDESTRIAN FLOW CONSIDERING SLOPE AND STEPS

FINDINGS

1 THE DERBY DORMITORY COMPLEX IS SEPARATED FROM THE CAMPUS CORE AREA BY RELATIVELY EXTREME GRADES. IN ADDITION, DUE TO THE RELATIVELY EXTREME TOPOGRAPHY OF THE DERBY COMPLEX, SIDEWALKS AROUND THE DORMS HAVE MORE INTERRUPTIONS BY STEPS THAN THOSE OF THE MARTHA KRAMER DORMITORY COMPLEX.

2 THIS FACULTY-STAFF PARKING LOT IS AT SAME GRADE AS THE ADJOINING SIDEWALK AND COULD PROVIDE CONVENIENT ACCESS TO THE LIBRARY AND CAMPUS CORE.

3 CIRCULATION BETWEEN JUSTIN HALL AND CAMPUS CORE IS HAMPERED BY GRADE. PEDESTRIAN ROUTE TO FRONT DOOR IS HAMPERED BY PLUS OR MINUS 400 FEET OF 5 - 8.33 PERCENT SLOPE. ROUTE TO THE MORE SOCIALLY SIGNIFICANT REAR DOOR IS HAMPERED BY AN APPROXIMATELY FORTY FOOT RUN OF 8.33 PERCENT SLOPE.

4 THE PARKING LOTS IN THE SOUTHEASTERN CORNER OF THE STUDY AREA ARE LINKED WITH THE AUDITORIUM AND THE CENTRAL CAMPUS AREA BY SIDEWALKS HAVING EXCESSIVE GRADES.

5 GOOD ACCESS IS POSSIBLE TO THE CAMPUS CORE FROM THE S.U. PARKING LOT BY MOVING THROUGH THE S.U. BUILDING. THE SIDEWALK EAST OF THE PARKING LOT IS ON A SEPARATE LEVEL, AND THE SIDEWALK WEST, ALONG 17TH STREET IS HAMPERED BY SLOPE, AND IS INTERRUPTED BY THE S.U. SERVICE DOCK TRAFFIC.

6 THE HARD SURFACE PORTION OF THIS PARKING LOT HAS POTENTIAL TO PROVIDE CONVENIENT NATATORIUM PARKING, BUT NOT FOR MAIN CAMPUS AREA DUE TO DISTANCE.

7 THIS PARKING LOT IS LINKED WITH THE CAMPUS CORE AREA BY RELATIVELY FLAT SIDEWALKS (0% - 3% GRADES) WHICH ALSO CARRY SIGNIFICANT PEDESTRIAN VOLUMES. THE PARKING LOT IS ALSO ON GRADE WITH THE SIDEWALK ALONG IT SOUTHERN EDGE.

8 THE EAST-WEST SIDEWALK LOCATED IMMEDIATELY SOUTH OF ACKERT HALL WHICH LINKS THE MARTHA KRAMER DORMITORY COMPLEX, ACKERT HALL, AND CARDWELL HALL IS INTERRUPTED BY TWO SETS OF STEPS. THIS PARTICULAR ROUTE HAS A LESS THAN THREE PERCENT GRADE, PROVIDES DIRECT, SOCIALLY PROMINENT ACCESS AMONG THESE BUILDINGS, AND IT LINKS THE DORMITORIES AND ACKERT HALL WITH THE MAJOR PEDESTRIAN ENTRY INTO THE CAMPUS CORE FROM THE NORTHWEST.

9 ACCESS BETWEEN THE PARKING LOT NORTH OF WATERS AND CARDWELL HALLS AND THE CENTRAL CAMPUS AREA IS SEVERELY RESTRICTED BY STEPS INTERRUPTING THE CONNECTING SIDEWALKS. IN ADDITION, THE LOOSE GRAVEL SURFACE OF THE LOT MAKES WHEELCHAIR MOVEMENT RELATIVELY DIFFICULT.

10 THIS PARKING LOT IS SEPARATED FROM THE CENTRAL CAMPUS AREA BY EXTREME GRADES.

11 THE PATH OF MAJOR PEDESTRIAN MOVEMENT THROUGH THE CORE AREA BETWEEN CARDWELL HALL AND THE STUDENT UNION IS NOT HAMPERED BY SLOPE OR STEPS.

TENATIVE RECOMENDATIONS

1. THE SIDEWALK CONNECTING THE MARTHA KRAMER DORMITORIES, ACKERT, AND CARDWELL HALLS IS RECOMMENDED TO BE MADE ACCESSIBLE, WHICH WOULD REQUIRE OVERCOMING THE TWO SETS OF STEPS INTERRUPTING THIS LENGTH OF SIDEWALK. CONSIDERING THE IMPACT OF SLOPE, THE MARTHA KRAMER DORMITORY COMPLEX IS RECOMMENDED OVER THE DERBY COMPLEX FOR INITIALLY HOUSING PHYSICALLY DISABLED STUDENTS.

2. IT IS RECOMMENDED THAT ANDERSON HALL VISITOR PARKING LOT BE MODIFIED FOR HANDICAPPED AUDITORIUM PATRONS.

3. CONSIDERING THE IMPACT OF SLOPE AND STEPS, IT IS RECOMMENDED THAT THE STUDENT UNION PARKING LOT, THE GENERAL USE LOT SOUTH OF ACKERT HALL, AND THE FACULTY-STAFF LOT SOUTHEAST OF THE LIBRARY BE INITIALLY UTILIZED FOR HANDICAPPED PARKING.

4. THE APPROXIMATELY FORTY FOOT LENGTH OF WALKWAY APPROACHING THE NORTHWEST, REAR DOOR OF JUSTIN HALL SHOULD BE RECONSTRUCTED AS A RAMP.

WHEELCHAIR PEDESTRIAN PROGRAM

K S U

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CENTRAL CAMPUS STUDY AREA

THESIS PROGRAM : J D ROLLER



SLOPE & STEP

INVENTORY & ANALYSIS

0 100 200 300 400 500

accessible to wheelchair movement in their present state, are relatively closely located to each other, and are respectively major living and academic facilities in the Study Area. Accordingly, these buildings, by their accessibility, functions, and close proximity, offer significant advantages to the provision of ramps at these two sets of steps to facilitate wheelchair traffic.

3. Circulation between Justin Hall and the campus core is hampered by slope. The pedestrian route between the core area and the front entry of Justin is at a grade between 5 and 8 percent for approximately 400 feet while the route to the more heavily used northwest, rear entry is hampered by a grade of 8 to 9 percent for approximately forty feet immediately before the entry way. Considering the impact of slope, the alternatives are either to overcome an extreme slope for a relatively short distance or to overcome a relatively difficult grade for a much longer distance. The shorter distance with the extreme grade is considered to present a more effectively solvable solution through modifying the forty foot length of walkway to comply with specifications for a handicapped ramp.

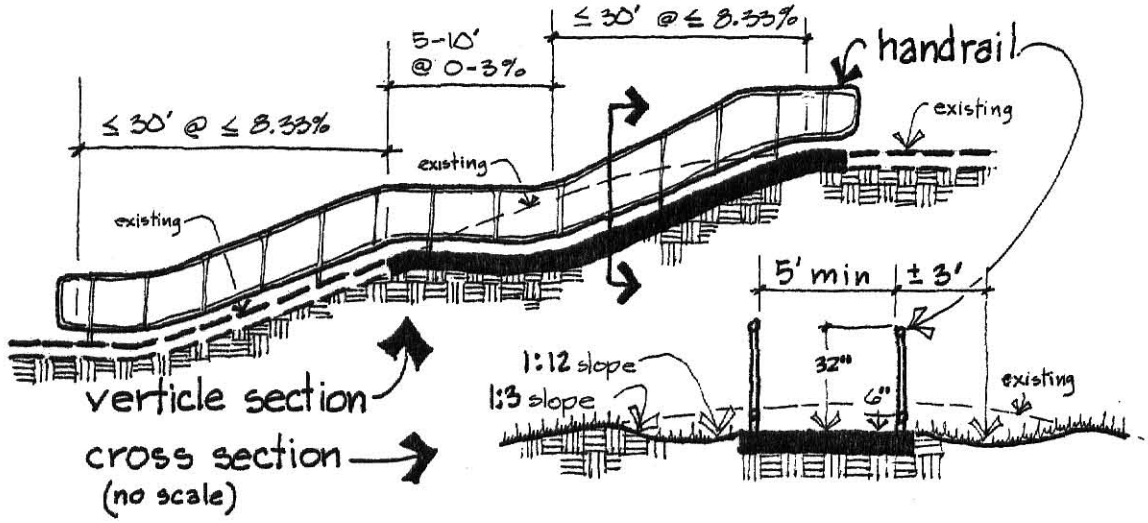

Figure 4.6

Modification of Walkway Approach
to Rear Door of Justin Hall

Of particular importance is that the College of Home Economics is housed in Justin Hall and most of the classes offered by this college are located in the building. A number of the classes are studio and laboratory type activities not conducive to relocation to another building.

4. The walkway linking the pedestrian entries of the Mike Ahearn Field House is at a lower grade and is separated by steps from the street sidewalk north and east of the Field House. Wheelchair pedestrians approaching the Field House from the northeast would either have to travel west past the Field House and use the approach walk to the Men's Gymnasium which is on grade with both the street sidewalk and the approach walk of the Field House entries or go south to the Field House service drive which also connects both walks on grade. However, for wheelchair pedestrians coming from either the east, along College Heights, or the south, along Seventeenth Street, these existing connections between the street sidewalks and the approach walkway of the Field House doorways is convenient. In view of this, no modifications for additional connective links between the street and approach walkways are recommended except for providing curb cuts where the Field House service driveway intersects walks.

5. The parking lots located in the extreme southeastern corner of the Study Area, southeast of the Auditorium, are linked with the central campus area by walkways having severe grades commonly in excess of 8.33 percent. These particular lots, considering others available, are comparatively distant from the core area and are not recommended for consideration at this time for general use parking of wheelchair commuters. In addition, these particular parking lots serve the K.S.U. Auditorium. Again the walkways linking the Auditorium with the parking lots have severe slope problems over considerable distances as shown on Figure 4.5 with grades exceeding 8.33 percent. Due to the bulk and weight of motorized wheelchairs most handicapped Auditorium patrons

will likely use lighter weight, collapsable, manual wheelchairs. Accordingly the extreme grades of the linking walkways are major obstacles which would typically require an assistant. In view of this it is recommended that more convenient parking adjacent to the Auditorium be provided for handicapped patrons. An existing parking lot capable of fulfilling this need with only minor modifications which would involve restriping handicapped stalls, putting up signs identifying the stalls, and providing three curb cuts, is the visitor parking area immediately east of Anderson Hall.

6. Wheelchair movement between the large commuter parking lot north of Waters and Cardwell Halls and the campus core is restricted by steps interrupting the connecting walkways. In addition, the loose gravel surface of the lot makes wheelchair movement relatively difficult, and the parking area is separated from adjoining walkways by wood and concrete curbing. Based on these extreme barriers this lot is not recommended for further consideration.

7. The commuter parking lot south of Ackert Hall is connected with the campus core area by a socially significant walkway. The walkway is on grade with the lot and extends the full length of its southern edge making it immediately usable by handicapped commuters with only minor modifications which would include restriping and signing of handicapped spaces.

8. The faculty-staff parking lot immediately southeast of the Library is at the same grade as the adjoining walk, and is conveniently located with regard to the Library and the campus core area. It could also be immediately usable with only minor modifications.

9. The general use parking lot opposite and east of Shellenberger Hall is separated from the central campus area by walkways having extreme grades ranging between 5 and 10 percent as illustrated on Figure 4.5. This lot is not recommended for further consideration since other general use parking lots with

connecting walkways less hampered by steep grades can provide service to eligible buildings.

10. The hard surface portion of the parking lot west and opposite of the Natatorium on Denison Avenue has the potential to provide convenient Natatorium/Field House parking, but not for the main campus area due to distance. However, the Natatorium, with the exception of the pool, is a presently accessible building for handicapped use. In view of this, it is recommended that this parking area and a linking walkway connecting it with the Natatorium be made accessible.

11. Good access is possible between the campus core and the Student Union parking lot by moving through the Student Union building itself. The walks connecting the lot with the main campus area, which is north of the Student Union, are both hampered by slope and steps. The parking lot and the walkway east of it are at different levels separated by an extremely steep driveway entry and steps. The walkway to the west of the Student Union building, along Seventeenth Street, is hampered by slopes in excess of 5 percent.

Inventory and Evaluation of the Steam Tunnel Network

As illustrated by Figure 4.7 a significant portion of the steam tunnel network is beneath walkways in the Study Area. The findings and tentative recommendations, considering the steam tunnel network, are listed below.

1. The steam tunnel linking the dormitories clustered around the Derby Food Center with the campus core area follows a relatively indirect route which, as illustrated by Figure 4.7, would require pedestrians from the dormitories to move north to Claflin Avenue, follow it west to the Seventeenth Street intersection, and then proceed south on Seventeenth Street along the western edge of the campus core area. To take advantage of the route would require wheelchair

Figure 4.7

Inventory and Evaluation of
Steam Tunnel Network

FIGURE 4.7

INVENTORY AND EVALUATION OF STEAM TUNNEL NETWORK

DISTRIBUTION OF STEAM AT THE UNIVERSITY IS SUPPLIED TO BUILDINGS THROUGH AN EXTENSIVE NETWORK OF TUNNELS. A CONSIDERABLE PORTION OF THIS SYSTEM RUNS BENEATH CAMPUS SIDEWALKS. HEAT LOST FROM THE STEAM TUNNELS DURING INCLEMENT WEATHER PROVIDES AN EFFECTIVE, IMMEDIATE SNOW AND ICE REMOVAL SYSTEM.

THE CONSIDERATION OF STEAM TUNNELS IN ROUTE EVALUATION OBVIOUSLY DEPENDS ON THE LOCAL CLIMATE AND WHETHER OR NOT STEAM TUNNELS ARE USED.

LEGEND



CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PREDESTRIAN ACCESS POINT



CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT



COMMUTER PARKING LOTS



STEAM TUNNEL

FINDINGS

1. STEAM TUNNEL DOES NOT FOLLOW A CONVENIENT ROUTE CONNECTING THE DERBY DORMITORY COMPLEX TO THE CAMPUS CORE AREA.

2. THE STEAM TUNNEL FOLLOWS A RELATIVELY DIRECT AND SOCIALLY SIGNIFICANT ROUTE LINKING THE MARTHA KRAMER DORMITORY COMPLEX WITH ACKERT, CARDWELL, AND SEATON HALLS, THE STUDENT UNION, AND THE FIELD HOUSE.

3. THIS AREA HAS A RELATIVELY HIGH NUMBER OF DRIVEWAYS CROSSING THE SIDEWALK, BUT THE BENEFITS OF A DRY, ICE FREE PATH COMPENSATE FOR THE INCONVENIENCE OF CHECKING TRAFFIC.

THE UNLOADING OF FUEL OIL FOR THE POWER PLANT TAKES PLACE DURING COLD WEATHER. THE PRESENT PROCEDURE CAUSES THE SIDEWALK TO BE BLOCKED BY A 4 INCH OIL HOSE. THIS PROCEDURE MUST BE CHANGED TO ELIMINATE THE BARRIER.

4. STEAM TUNNEL WOULD KEEP A SIGNIFICANT LENGTH OF THE MAJOR SIDEWALK IN THE CORE AREA FREE OF ICE.

5. STEAM TUNNEL RUNS BENEATH ROUTE LINKING THE REAR DOOR OF JUSTIN HALL WITH THE LIBRARY AREA.

TENATIVE RECOMMENDATIONS

1. CONSIDERING THE STEAM TUNNEL SYSTEM THE MARTHA KRAMER DORMITORY COMPLEX IS RECOMMENDED OVER THE DERBY COMPLEX FOR INITIALLY HOUSING DISABLED STUDENTS.

2. A NEW PROCEDURE FOR UNLOADING FUEL OIL AT THE POWER PLANT MUST BE DEVELOPED TO ELIMINATE THE NEED, DURING THE WINTER MONTHS, TO BLOCK THE DRY 17TH STREET SIDEWALK WITH THE OIL HOSE.

3. STEAM TUNNEL ROUTE FOLLOWS ROUTE LINKING LIBRARY WITH NORTHWEST, REAR DOOR OF JUSTIN HALL. THIS REINFORCES THE RECOMMENDATION TO MODIFY THIS WALK FOR WHEELCHAIR TRAFFIC.

WHEELCHAIR PEDESTRIAN PROGRAM

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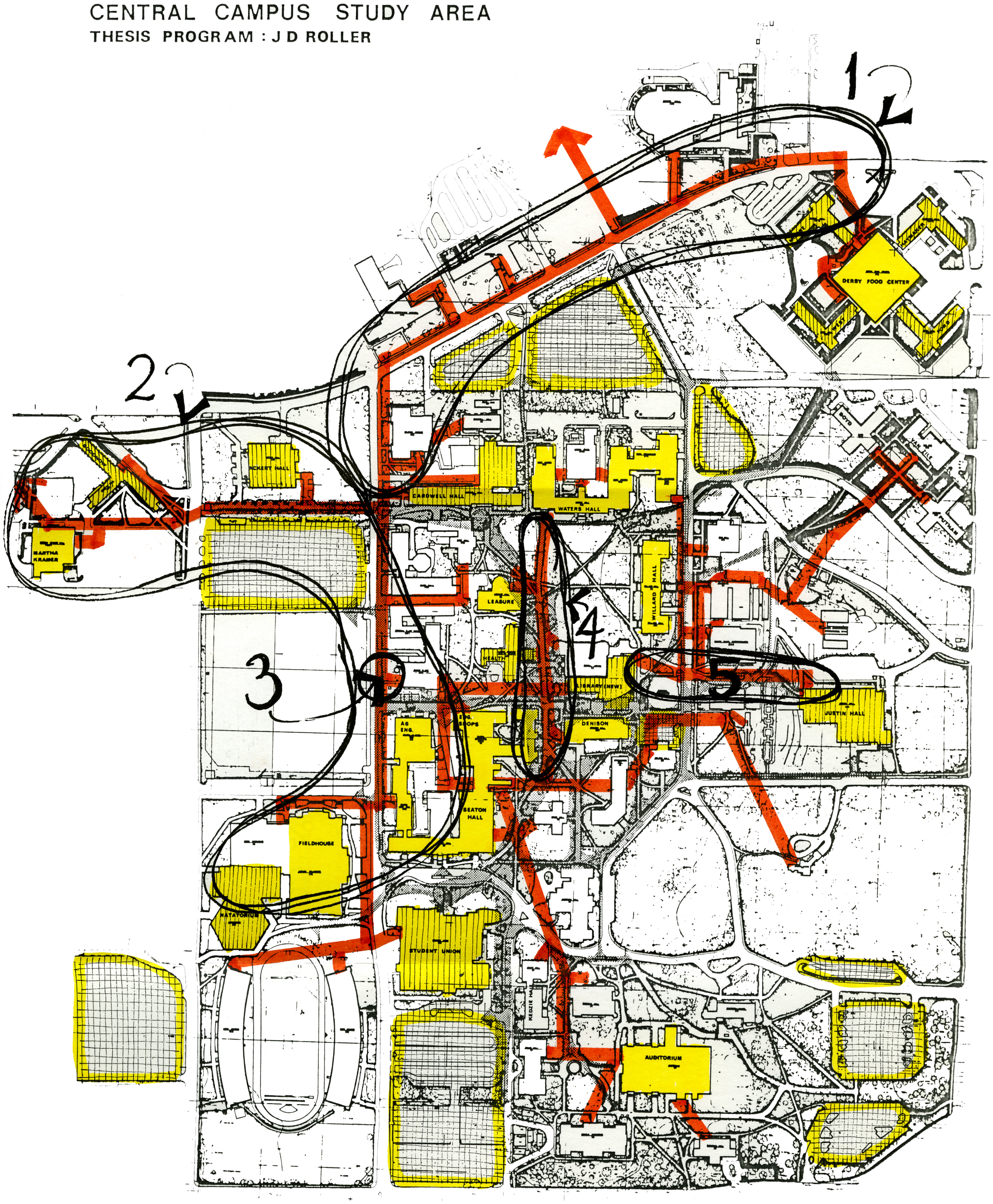


STEAM TUNNEL NETWORK
INVENTORY & ANALYSIS

pedestrians living in Derby dormitories located in the northeastern corner of the Study Area to move east across the northern end of the Study Area and enter and exit the central area from the western edge. It is not likely pedestrians would use such a circuitous route.

2. In comparison, the steam tunnel linking the dormitories clustered around the Martha Kramer Food Center follows the direct, socially significant, east-west route linking the dormitories with Ackert Hall, Cardwell Hall, and the Seventeenth Street sidewalk. The Seventeenth Street sidewalk provides ice free access to Ahearn Field House, Seaton Hall and the Student Union. This further reinforces the recommendation to provide ramps to overcome the steps along this east-west walkway linking the Martha Kramer dormitories with Cardwell Hall.

3. A portion of the major north-south walkway next to the Library is over a steam tunnel. The walk lies over the tunnel for approximately 300 feet centered on the Library. The balance of the north-south walk requires active efforts for snow removal.

4. A steam tunnel follows the pedestrian route linking the Library with the northwestern rear door of Justin Hall thereby providing immediate ice removal for the forty foot length of walkway with the 8.33 percent grade. This endorses the findings and recommendations of the slope and step inventory.

Inventory and Evaluation of Pedestrian-Vehicular Relationships

In the Study Area the primary interaction between pedestrians and vehicles takes the form of streets, driveways, and service areas intersecting walkways. The findings of this inventory are discussed below and illustrated on Figure 4.8.

1. A significant incidence of conflict between pedestrian and vehicular traffic involves pedestrian traffic moving through the parking lot south of

Figure 4.8

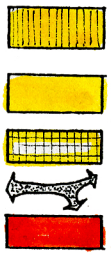
Inventory and Analysis of Pedestrian-Vehicular Relationships

FIGURE 4.8

INVENTORY and ANALYSIS of
PEDESTRIAN - VEHICULAR RELATIONSHIPS

THE PRIMARY CONCERN IN THIS INVENTORY IS TO LOCATE, DESCRIBE AND EVALUATE POINTS OF PEDESTRIAN-VEHICULAR INTERACTION. IN THE STUDY AREA THIS PRIMARILY TOOK THE FORM OF SERVICE AREAS AND DRIVEWAYS INTERRUPTING OR INTERSECTING PEDESTRIAN SIDEWALKS.

LEGEND



CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT

CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE FROM A PEDESTRIAN ACCESS POINT

COMMUTER PARKING LOT

PEDESTRIAN TRAFFIC FLOW

SERVICE AREAS AND DRIVEWAYS

FINDINGS

1. SIDEWALKS AND PARKING LOT DRIVEWAYS IN DIRECT CONFLICT BY INVITING VEHICLES AND PEDESTRIANS TO MIX.

2. WESTERN ENTRY TO CAMPUS CORE WITH LEAST PEDESTRIAN AND SERVICE VEHICLE CONFLICTS.

3. THIS AREA CONTAINS THE PHYSICAL PLANT COMPLEX. THE AREA IS HEAVILY IMPACTED BY SERVICE VEHICLE TRAFFIC. DURING HEATING SEASON THE 17TH STREET SIDEWALK IN FRONT OF THE POWER PLANT IS FREQUENTLY BLOCKED BY FUEL OIL UNLOADING WHICH INVOLVES A 4 INCH OIL HOSE BEING LAID ACROSS THE WALK.

4. A MAJOR PEDESTRIAN ROUTE INTO THE CAMPUS CORE CO-LOCATED WITH THE SERVICE DRIVE OF SEATON HALL AND THE HEALTH CENTER. UNDULATING SURFACE OF SIDEWALK DUE TO FREQUENT DRIVEWAY CUTS IS THE APPARENT CAUSE OF PEDESTRIANS PREFERRING TO WALK ON THE VEHICLE LANES. IN ADDITION, THE PHYSICAL PLANT STORES PIPE IN THE ENGINEERING SHOP OF SEATON HALL WHICH IS PROCURED DIRECTLY ACROSS THE SIDEWALK FORCING PEDESTRIANS TO WALK IN THE SERVICE DRIVE WHEN MATERIALS ARE BEING MOVED.

5. VEHICLES SERVICING THE STUDENT UNION FREQUENTLY DISRUPT AND BLOCK THE SIDEWALK. THE SAFEST AND EASIEST ROUTE AROUND THE STUDENT UNION IS SIMPLY TO GO THROUGH IT.

6. PEDESTRIAN/VEHICULAR CONFLICT IS SIGNIFICANT IN THE INTERIOR COURT OF SEATON HALL AND WHEELCHAIR PEDESTRIAN MOVEMENT IN AND OUT OF THE SPACE SHOULD BE DISCOURAGED. ACCESS INTO THE SPACE BY DISABLED PERSONS SHOULD BE VIA VEHICULAR MEANS.

7. LIBRARY SERVICE DRIVE INTERSECTS FOUR SIDEWALKS, BUT INTENSITY OF SERVICE TRAFFIC IS LIKELY LOW AND WOULD CAUSE NO SIGNIFICANT CONFLICT.

TENATIVE RECOMMENDATIONS

1. IT IS RECOMMENDED THAT CURB CUTS BE INSTALLED TO PROVIDE FOR CONTINUOUS SIDEWALK CIRCULATION ACROSS STREETS AND DRIVEWAYS.

2. IT IS RECOMMENDED THAT THE SERVICE-PEDESTRIAN ENTRY INTO THE CAMPUS CORE OFF SEVENTEENTH STREET BETWEEN SEATON HALL AND THE POWER PLANT BE REDESIGNED TO MORE EFFECTIVELY SEPARATE VEHICULAR AND PEDESTRIAN TRAFFIC.

3. ACCESS TO THE PARKING LOT SOUTH OF ACKERT HALL OFF DENISON AVENUE SHOULD BE REDESIGNED TO ELIMINATE DIRECT CONFLICT WITH THE PEDESTRIAN TRAFFIC ORIGINATING FROM THE NORTHWESTERN CORNER OF THE STUDY AREA.

4. ALTHOUGH NOT AS PART OF THIS PROGRAM, IT IS RECOMMENDED THAT THE SERVICE AREA OF THE STUDENT UNION BE REDESIGNED TOWARD THE REDUCTION OF CONFLICT IT CAUSES WITH PEDESTRIAN AND VEHICULAR TRAFFIC ALONG SEVENTEENTH STREET.

WHEELCHAIR PEDESTRIAN PROGRAM

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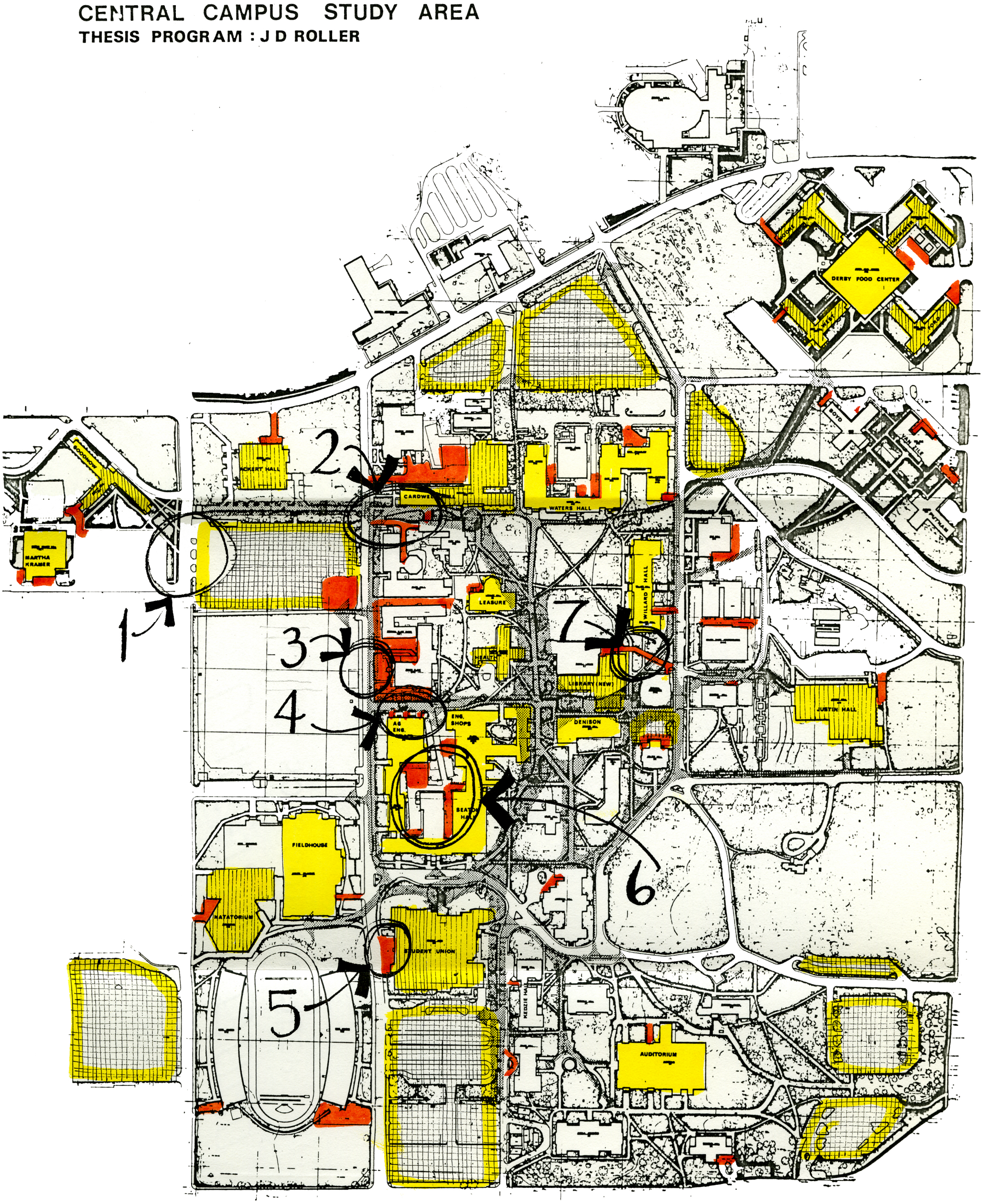

VEHICULAR / PEDESTRIAN RELATIONSHIP

INVENTORY & ANALYSIS

Ackert Hall. According to the traffic data generated by Oblinger-Smith (22), a significant portion of pedestrian traffic moving between the northwest corner and the central area of the campus moves across this parking lot resulting in pedestrian-vehicular conflict within the lot itself. Of particular concern is that two pedestrian walks from the Martha Kramer dormitories intersect Denison Avenue directly opposite driveways of this lot, actually encouraging pedestrian-vehicular conflict through misalignment of pedestrian street crossings and drives. Recommended action would be the elimination of pedestrian crossings opposite driveways, and the provision of a crossing opposite the walkway along the south edge of the parking lot. A pedestrian crossing already exists orienting on the walkway north of the lot which is the major east-west walk linking the dormitories with Cardwell Hall. Additional work needed, although not necssarily as part of this program, is the reduction of the excessive number of driveways serving this lot off Denison Avenue. The parking lot has five driveways off Denison with one for each lane of the lot. This number of driveways closely spaced causes unnecessary conflicts with street traffic and should be reduced to no more than two off Denison Avenue.

2. Between Seaton Hall and Cardwell Hall are the two major pedestrian entries into the core area of the campus from the west. (22) One is along the front of Cardwell Hall and the second is located adjacent to the Health Center service drive which intersects Seventeenth Street between the Physical Plant and Seaton Hall. Both entries have pedestrian-vehicular conflict but to differing degrees. The Cardwell Hall entry is primarily a pedestrian sidewalk but is designed to allow limited use by service traffic to Wurtz Hall. Conflicts between pedestrians and service vehicles are insignificant. Conversely, the Health Center entry is designed primarily as a vehicular access point but is heavily used as a pedestrian route, thus a major conflict results. It is common practice, based on the Oblinger-Smith study (22), for a significant amount of the

pedestrian traffic to use the vehicular lane rather than the adjacent walk. One possible cause for pedestrian use of the vehicle lane might be to avoid the walkway due to the driveway cuts across it accessing the Agricultural Engineering Shop in Seaton Hall.

Ambulatory pedestrians inherently have the option to chose either the walk as it presently exists or the lane. However, the wheelchair pedestrians would be limited to the lane. In addition, the Physical Plant keeps pipe in the Engineering Shop area of Seaton Hall which is procured directly across this walkway which occasionally interrupts its use. Locating the walk to the north side of the lane opposite the driveways and pipe storage facility is not felt to be feasible because of the Physical Plant water cooling towers only a few feet off the north curb. The water vapor would likely discourage pedestrian use of the walk. In view of this, it is recommended that the pipe storage facility be relocated or the movement of the pipe be curtailed during periods of heavy pedestrian traffic. In addition, it is recommended that the walkway, presently located directly against the curb in front of the Agriculture Engineer Shop, be moved back away from the curb at least four feet. The new walk should be six feet wide, be sloped down to the level of the driveways, and then be sloped back up to match existing grade. Figure 4.9 illustrates this possible solution.

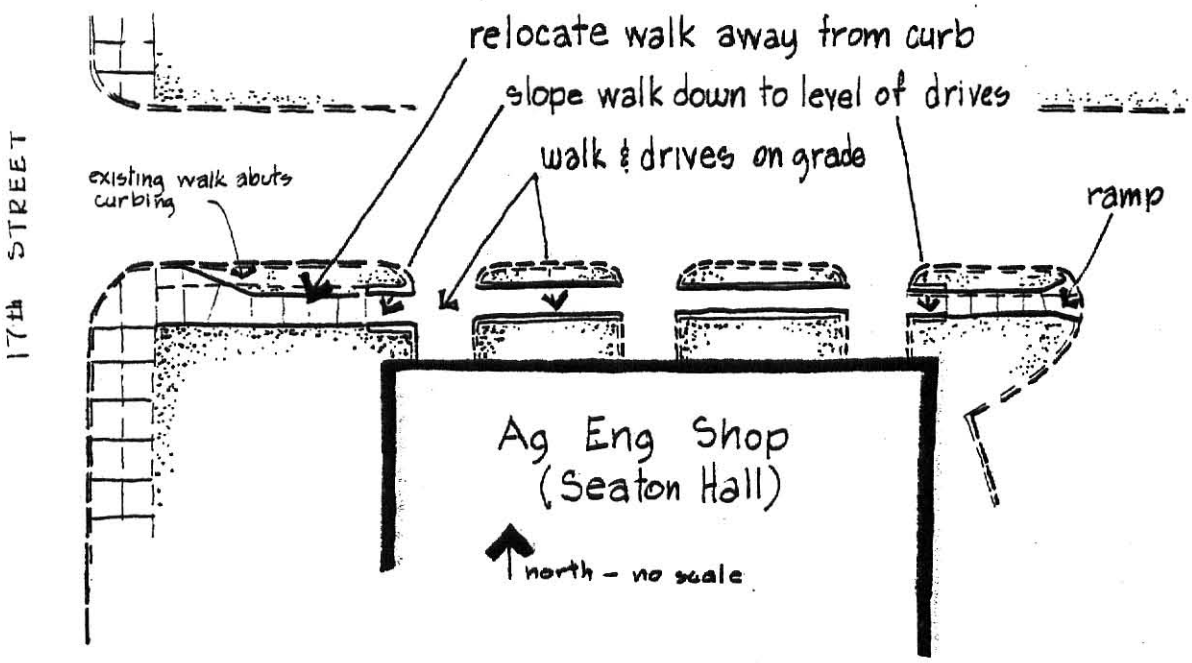

Figure 4.9

Walkway Modification North of
Agriculture Engineering Shop

3. The Physical Plant facility generates a comparatively high intensity of service vehicle traffic across the Seventeenth Street sidewalk. However, since it is unlikely that the Physical Plant will be relocated it is a situation which will simply have to be tolerated for the forseeable future. However, a problem which must be dealt with is the frequent blocking during the heating season of the Seventeenth Street sidewalk by fuel oil unloading. The procedure involves laying an oil hose across the walk connecting a tank truck with the filler pipe of the underground oil tanks. Due to the significance of the walkway during cold weather, because of the steam tunnel underneath it, the oil hose barrier should be eliminated. A possible solution would be to cut a trench across the walk with a hinged lid for the hose.

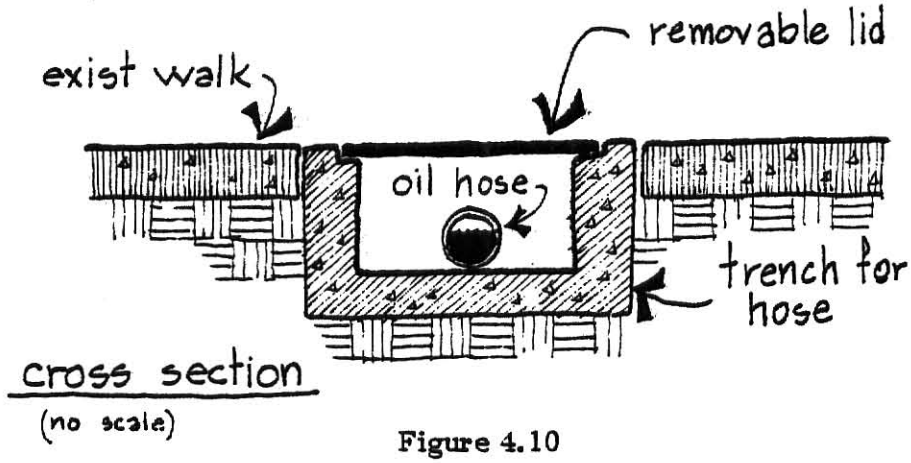

Figure 4.10

Modification of Sidewalk
for Oil Hose

4. The Student Union service area is accessed directly off Seventeenth Street. Service traffic frequently blocks both Seventeenth Street and the walkway requiring pedestrian traffic to move nearer to or even into the street to gain passage. Most wheelchair traffic originating from the south parking lot of the Student Union will have the convenient option of moving through the Student Union Building itself rather than having to move around it. In view of this, modifications to the service area are not felt to be a mandatory requirement of this initial access program.

5. The Library service drive intersects four walks, but intensity of service traffic is relatively low and would likely not cause any significant conflict.

Chapter 5

CONCLUSIONS AND MASTER PLAN FOR INITIAL ACCESS PROGRAM

The purpose of this activity is to summarize the corporate conclusions of the social and physical inventories performed and to present the Master Plan prescribing which buildings, parking lots and walkway obstructions to make accessible. Of particular significance is that the physical inventories strongly suggest eliminating certain portions of the Study Area and concentrating efforts under this program within a subarea which shall be termed the "Initial Program Area." The geographical layout of the Initial Program Area is illustrated on Figure 5.1 and includes most of the central and western portions of the Study Area. Those areas and facilities excluded from the program are the parking lots in the north central and eastern portions of the Study Area, and the dormitory complex centered on the Derby Food Center. The Master Plan, Figure 5.2, graphically depicts the location of physical modifications called for under this program.

As an initial access program, essentially all improvements prescribed should be undertaken as a single package programmed to be executed prior to opening the institution for wheelchair access. To facilitate organizing work, improvements have been broken down into two priorities. The highest priority, Priority A, applies to providing access into Category I buildings with interiors essentially totally accessible to wheelchair movement, to the removal of obstacles interrupting selected, high usage walkways, and to selected general use parking facilities. The second priority, Priority B, applies to providing access

Figure 5.1

Initial Program Area

FIGURE 5.1

INITIAL PROGRAM AREA

BASED ON THE PHYSICAL INVENTORIES IT IS RECOMMENDED THAT PORTIONS OF THE STUDY AREA BE ELIMINATED FROM CONSIDERATION

LEGEND



ELIGIBLE BUILDINGS



COMMUTER PARKING FACILITIES



MAJOR PEDESTRIAN FLOWS WITHIN "INITIAL PROGRAM AREA.

WHEELCHAIR PEDESTRIAN PROGRAM

KSU

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CENTRAL CAMPUS STUDY AREA

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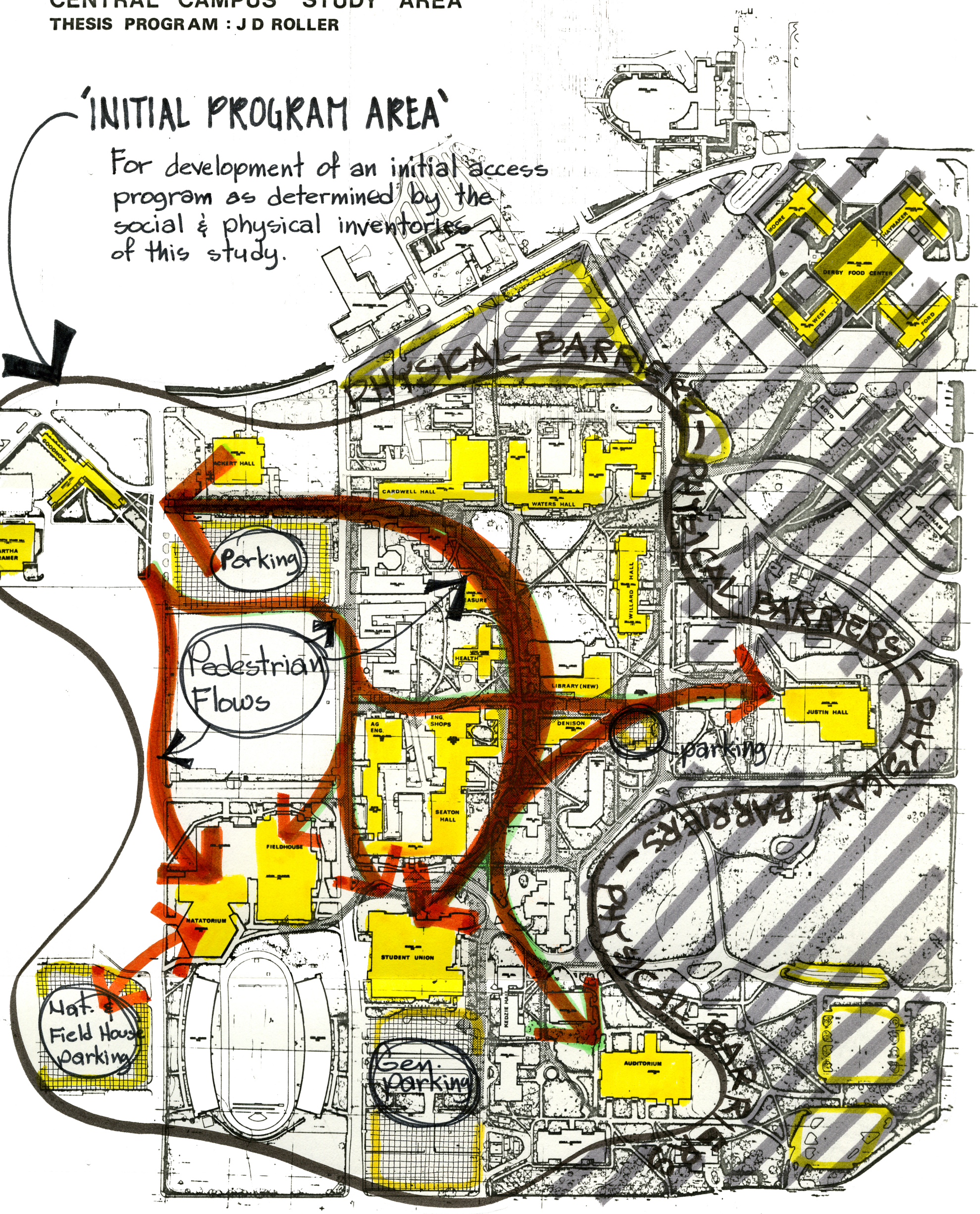

INITIAL PROGRAM AREA

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into Category I buildings with interiors only partially accessible, to routes which carry significant after hours pedestrian traffic, and parking facilities which serve a more limited use than general use lots. An example of a Priority B walkway is the pedestrian route between the Martha Kramer dormitory complex and the Field House along Denison Avenue. Not a major carrier during regular daytime class hours, this route would likely carry a significant amount of traffic between the dormitories and Field House when athletic contests or entertainment shows are being held at the Field House.

BUILDINGS

With the exception of the dormitory complex centered on the Derby Food Center all Category I buildings are recommended for inclusion in this initial access program. These dormitories are excluded at this time based on their relatively remote geographic location, and on the composite effects of slope, steps and the steam tunnel network on the walkway system linking them with other eligible facilities. It is recommended that initial housing needs be directed at the dormitory complex centered on the Martha Kramer Food Center. Table 5 lists the buildings to be made accessible. The Building and Building Access Evaluation Forms, located in the appendix, indicate the priority of building doorways to make accessible and describe the existing obstacles affecting wheelchair access of the doorways.

Figure 5.2

Master Plan - Initial Access Program

FIGURE 5.2

MASTER PLAN - INITIAL ACCESS PROGRAM

LEGEND



PRIORITY A - CATEGORY I BUILDING WITH INTERIOR TOTALLY OR ESSENTIALLY TOTALLY ACCESSIBLE



PRIORITY B - CATEGORY I BUILDING WITH INTERIOR PARTIALLY ACCESSIBLE



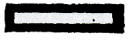
FIRST PRIORITY WORK



SECOND PRIORITY WORK



PARKING LOTS



PEDESTRIAN CROSSWALK (A PAIR OF CURB CUTS)



CURB CUT



RAMP TO OVERCOME BARRIER INTERRUPTING SIDEWALKS.

BUILDING DOORWAYS RECOMMENDED TO BE MADE ACCESSIBLE



PEDESTRIAN ENTRY ON GRADE WITH SIDEWALK APPROACH



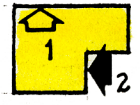
PEDESTRIAN ENTRY WITH STEPS OR HAS STEPS OR CURBING INTERRUPTING ITS SIDEWALK APPROACH



SERVICE ENTRY ON GRADE WITH SIDEWALK OR DRIVEWAY APPROACH



SERVICE ENTRY WITH STEPS OR HAS STEPS OR CURBING INTERRUPTING ITS SIDEWALK OR DRIVEWAY APPROACH



NUMBERICAL RANK OF ACCESS POINTS FOR MAKING ACCESSIBLE (WHEN RANK OF DOORWAYS WAS DETERMINED TO BE EQUAL NO NUMBERS ARE INDICATED)

WHEELCHAIR PEDESTRIAN PROGRAM

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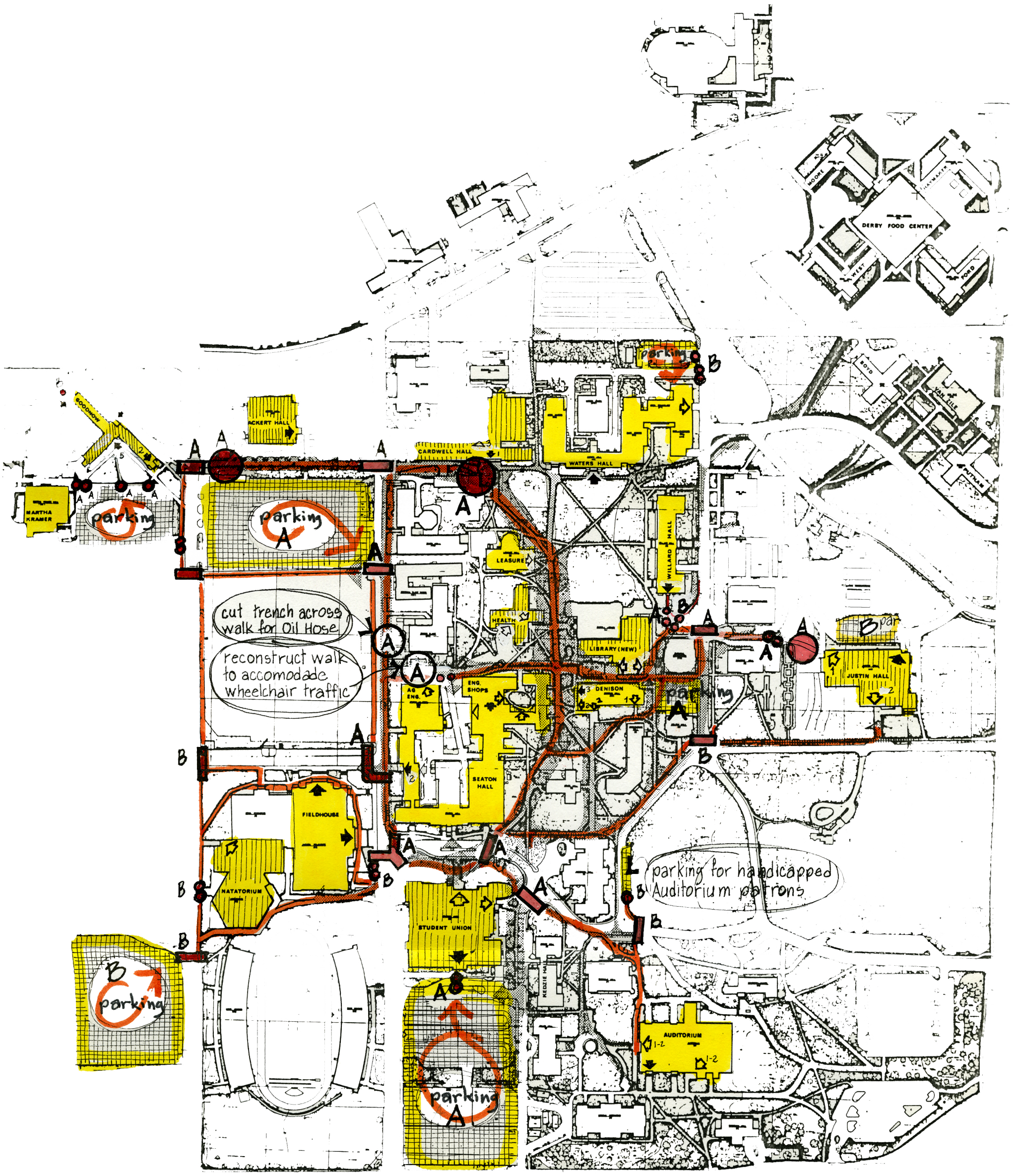

MASTER PLAN
INITIAL ACCESS PROGRAM

Table 5

Buildings to be Made Accessible

Buildings with Interior Totally or Essentially Totally Accessible From a Pedestrian Doorway:	Buildings with Interior Partially Accessible From a Pedestrian Doorway:
Primarily Academic Buildings	
Ackert Hall	Waters Hall
*Cardwell Hall	Shellenberger Hall
Justin Hall	Willard Hall
Library (New Wing)	Leasure Hall
	*Denison Hall
	Seaton Hall
Primarily Living and Health Buildings	
LaFene Student Health Center	
*Goodnow Hall	
Martha Kramer Food Center	
Primarily Social and Recreational Buildings (Academic)	
*The Student Union	Auditorium
Natatorium	*Mike Ahearn Field House (This structure will require interior modifications)

* The buildings inventoried by the author. Building and Building Access Inventory Forms for these buildings are in the appendix.

PARKING LOTS TO MAKE ACCESSIBLE

As a guideline, 4 percent of the total number of stalls of a parking lot should initially be made accessible to handicapped commuters. (13) However, there shall never be less than one accessible space per lot regardless of the parking lot capacity. Figure 5.3 illustrates the layout of typical parking stalls for handicapped commuters.

Parking facilities within the portions of the Study Area excluded from this initial program are the general use parking lot north of Waters and Cardwell

Halls, the general use lots southeast of the Auditorium, and the lot east of and opposite Shellenberger Hall. These parking lots are recommended for exclusion at this time due to the distance and physical barriers interrupting the walkways linking these lots with eligible buildings. The lot north of Cardwell and Waters Halls would also hamper wheelchair movement due to its loose gravel surface.

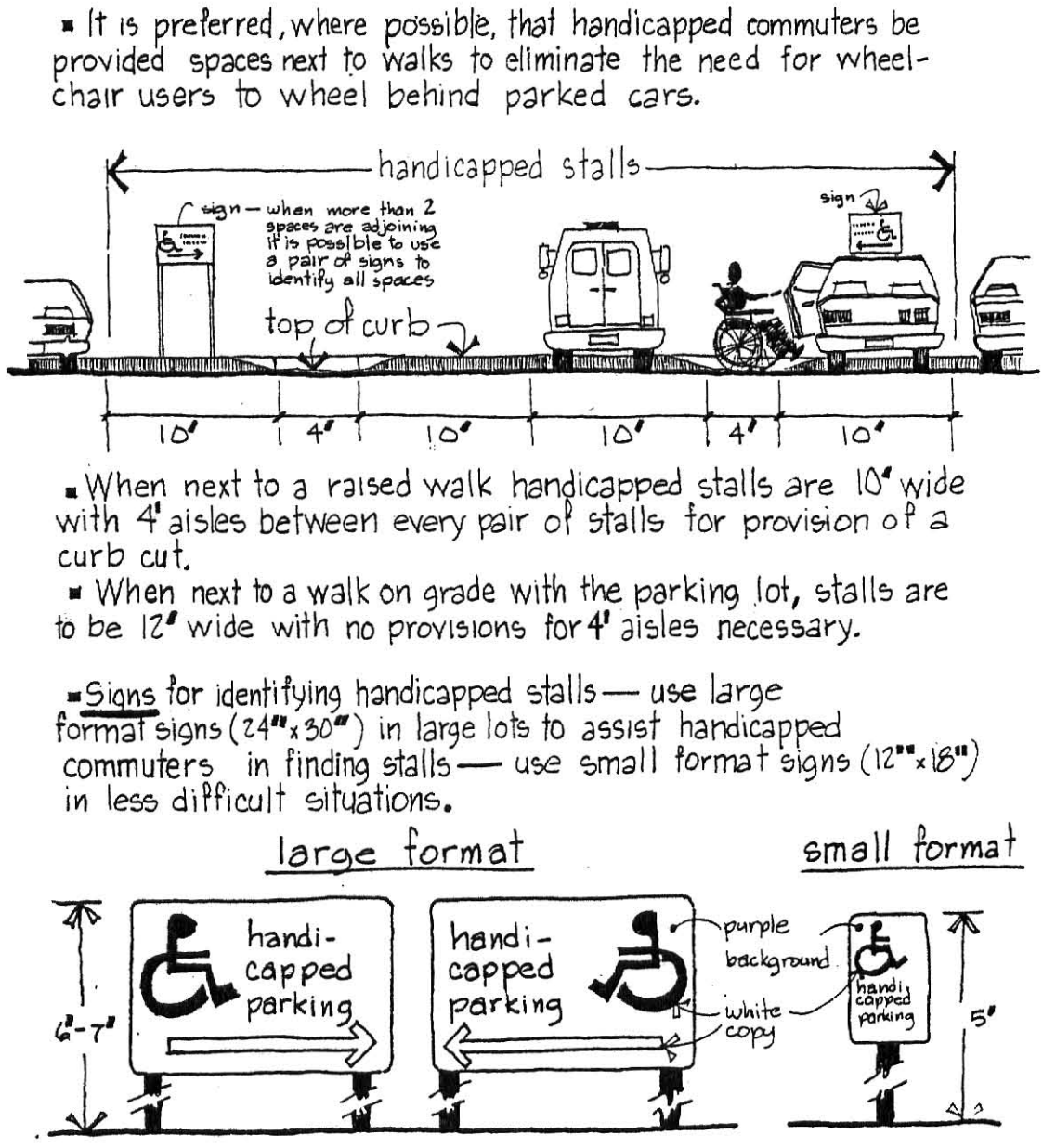

Figure 5.3

Parking Stall Layout and Signage

Priority A Parking Facilities

Three primary parking lots within the Initial Access Area are recommended for initially accommodating handicapped commuters. These are:

1. the general use lot immediately south of Ackert Hall at the northern end of the program area,

2. the Student Union lot at the southern end, and

3. the faculty-staff lot immediately southeast of the Library located in the center of the program area.

These three lots all have hard surface pavement, and in addition, the northern and central lots are both on grade with adjacent walks making modifications for wheelchair access relatively minor. The Student Union lot, the southern lot, is on grade with the Seventeenth Street sidewalk, however, as previously discussed the majority of wheelchair traffic originating from the Student Union lot will likely move to the central campus area through the Student Union building itself. This movement will require a curb cut at the south Union entrance.

Residential parking lots recommended for inclusion are those clustered around the Martha Kramer dormitories with initial preference given the lot south of Goodnow Hall. This lot is convenient both to the Martha Kramer Food Center and Goodnow which is the closest dormitory in the Martha Kramer complex to the main campus area. Four curb cuts are recommended for connecting this lot with adjoining walks linking it with Goodnow Hall and the Food Center.

Priority B Parking Facilities

Other parking lots recommended for initial inclusion in the program are:

1. the Anderson Hall visitor parking lot for use by handicapped Auditorium patrons which will require three curb cuts to connect it with the Auditorium,

2. the parking lot opposite the Natatorium on Denison Avenue to provide convenient parking for the Natatorium and Mike Ahearn Field House which will require the provision of an accessible street crossing,

3. the faculty-staff lot immediatley north of Shellenberger Hall which will require two curb cuts to connect it with Shellenberger, and

4. the faculty-staff lot serving Justin Hall which will require one curb cut.

The faculty-staff lots of Shellenberger and Justin Halls are recommended because both buildings are separated by excessive grades and distances from the other lots recommended to be made accessible. All other parking facilities within the Initial Program Area, besides these noted, should be made accessible on a demand basis.

WALKWAY MODIFICATIONS

As depicted on the Master Plan there are proposed to be a total of fifty-six curb cuts in the Initial Program Area, including thirty-three ranked as Priority A and twenty-three as Priority B. Major modifications proposed include the installation of two ramps to overcome steps, one ramp to overcome a length of steep walkway, and a length of walkway to be reconstructed. Each of these major items are Priority A and are described below.

1. The east-west walk, located immediately south of Ackert Hall, which links the Martha Kramer dormitory complex, Ackert Hall and Cardwell Hall is interrupted by two sets of steps. This particular route provides direct, socially prominent access among these buildings, and links the dormitories centered on the Martha Kramer Center directly with major pedestrian flow into the campus core. It is recommended that ramps be provided at both sets of steps. Figures 5.4 and 5.5 illustrate possible design solutions.

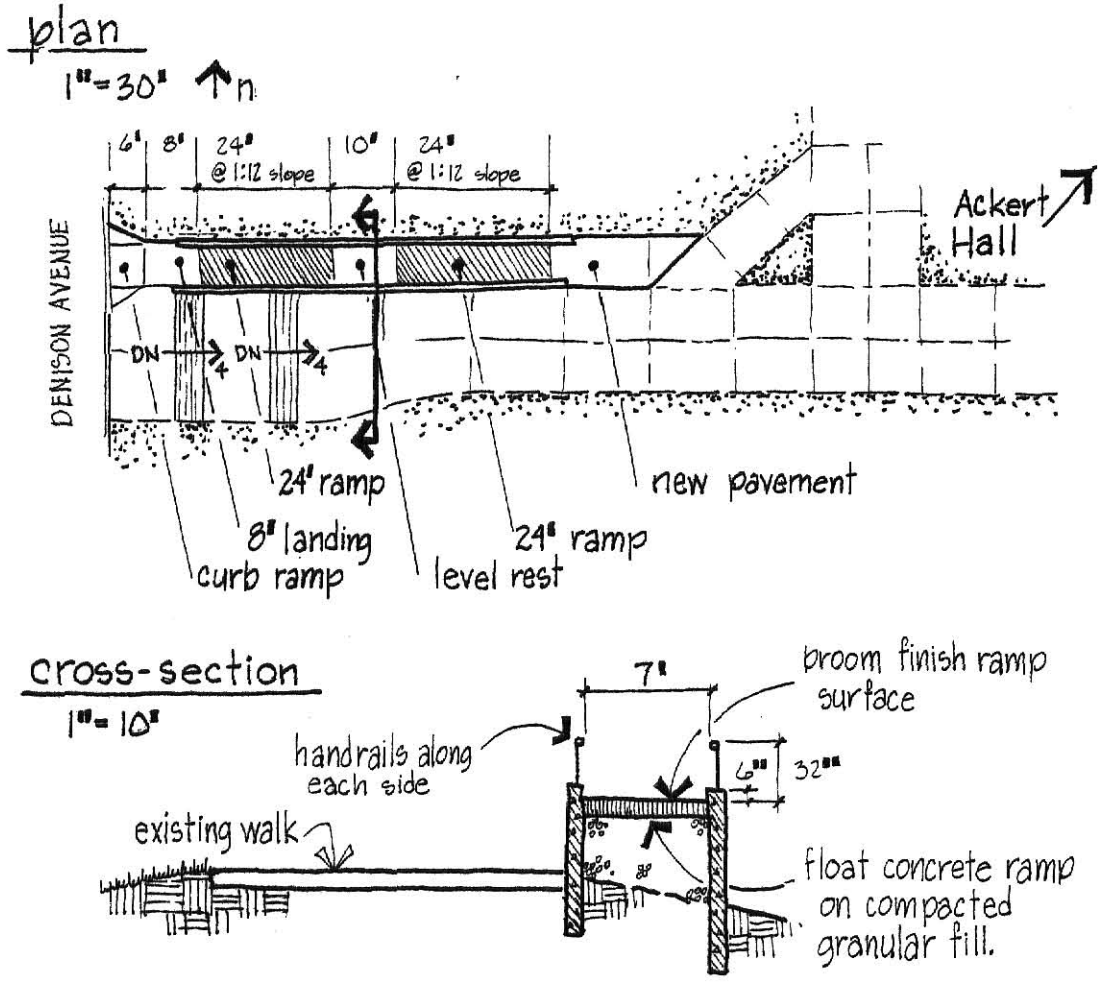

Figure 5.4

Ramp Design for East-West
Walk East of Denison Avenue

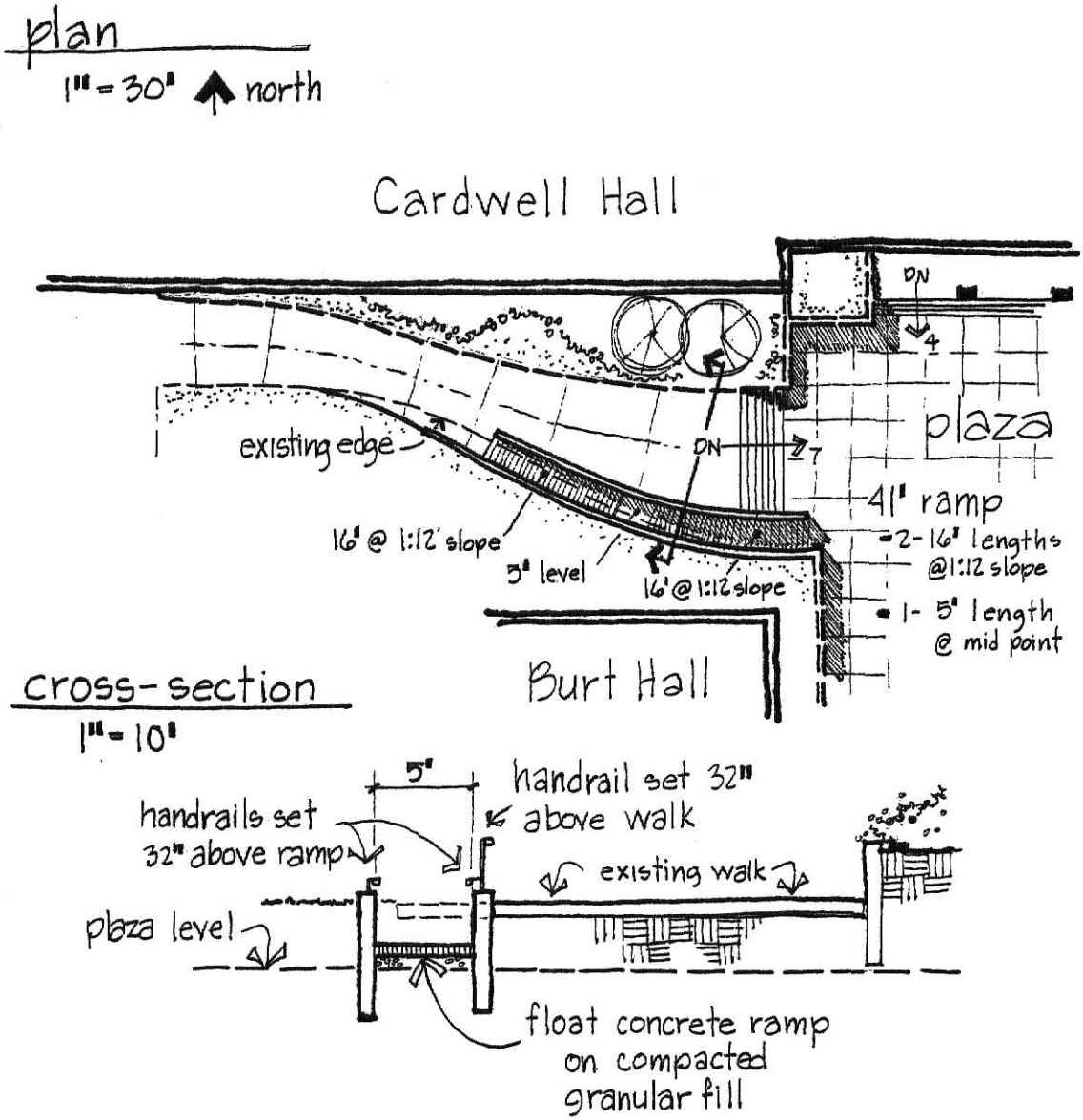

Figure 5.5

Ramp Design for East-West Walk in Front of Cardwell Hall

2. The walk approaching the northwest, rear door of Justin Hall exceeds 8.33 percent in grade for a distance of approximatley forty feet. It is recommended that the forty foot length of steep walkway be reconstructed as a ramp as described in Figure 5.6.

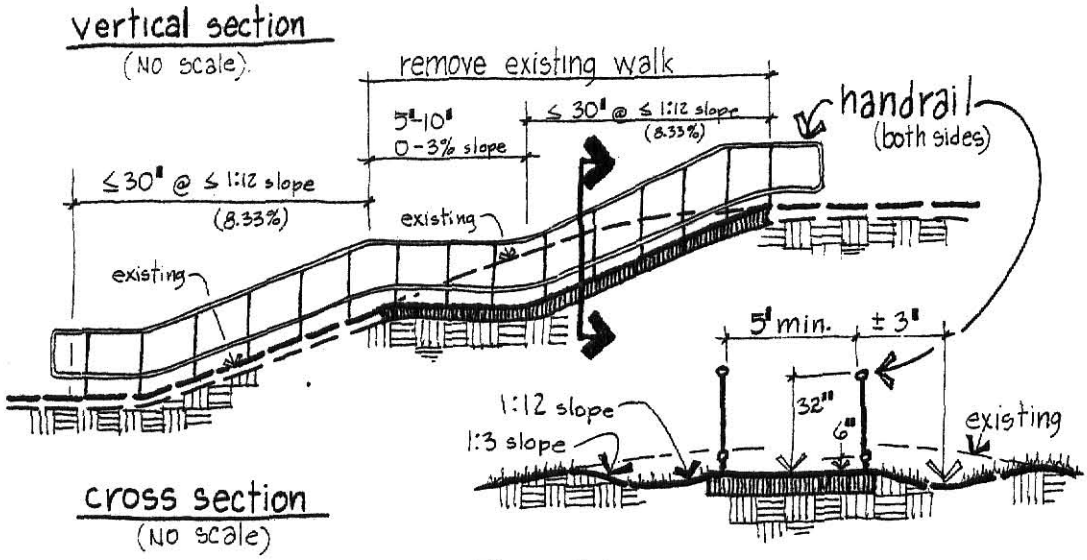

Figure 5.6

Modification of Walkway Approach
to Rear Door of Justin Hall

3. During the heating season the Seventeenth Street sidewalk in front of the Physical Plant is frequently blocked by fuel oil deliveries which involve laying a fuel hose across the walk. This walk is a major pedestrian route of added importance during inclement weather as a steam tunnel keeps the walk dry and ice free. It is recommended that the procedure for off loading oil be modified to provide a covered trench across the walk, as illustrated in Figure 5.7, to place the oil hose in during fuel deliveries.

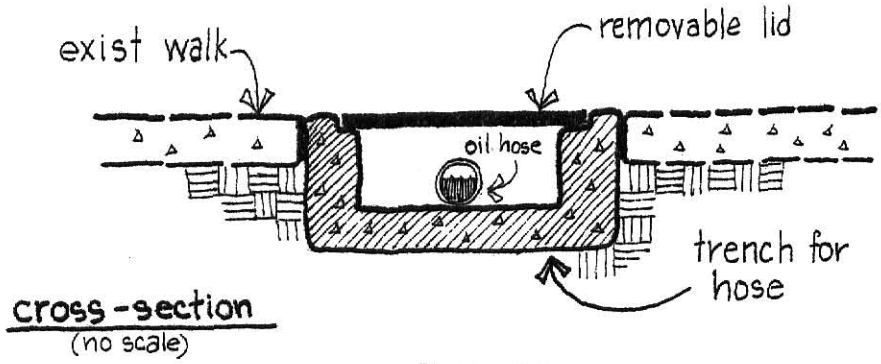

Figure 5.7

Modification of Sidewalk
for Oil Hose

4. Safety of pedestrian movement is felt to be particularly critical along the pedestrian-vehicular service entry into the campus core between the Physical Plant and Seaton Hall off Seventeenth Street. It is recommended that the length of walk north of the Agriculture Engineering wing of Seaton Hall be reconstructed to accommodate wheelchair movement. In addition, it is recommended that the Physical Plant discontinue its procurement of pipe across this walk. Figure 5.8 illustrates the recommended solution.

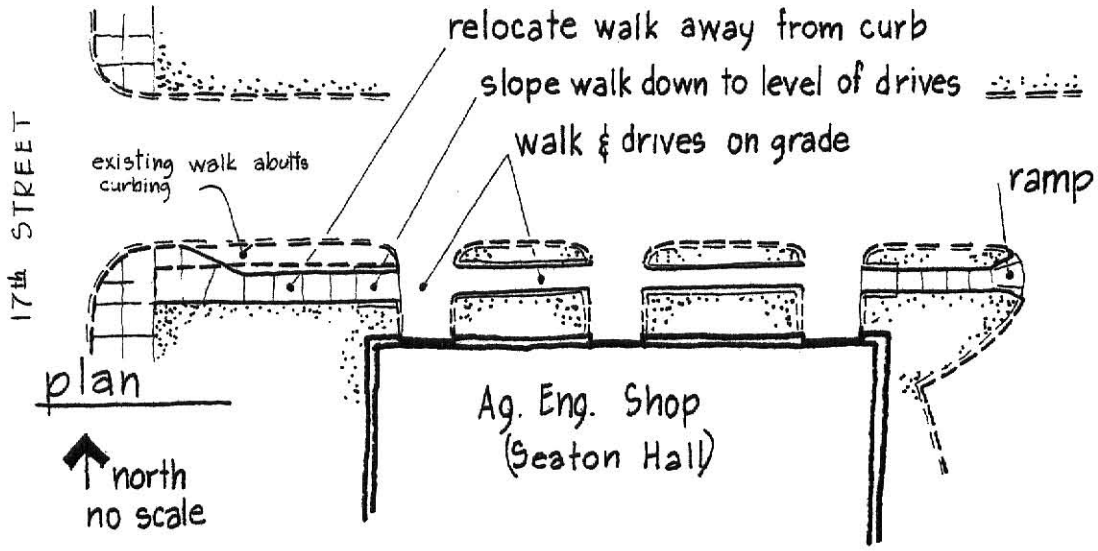

Figure 5.8

Walkway Modification North of
Agriculture Engineering Shop

5. Another significant incidence of conflict between pedestrians and vehicular movement involves the parking lot south of Ackert Hall and the pedestrian movement through it between the dormitories centered on the Martha Kramer Food Center and the campus core. The pedestrian and vehicular circulation within and around this parking facility need to be more effectively separated. It is recommended that accessible pedestrian crossings be provided across Denison orienting on the east-west walkways along the north and south

edges of this lot. It is also recommended, that future improvements to this area of the campus include reducing the number of driveways off Denison serving the lot south of Ackert Hall to no more than two.

FINAL COMMENTS

Obviously not comprehensive in scope, this plan does outline a plan of action maximizing the existing potential of the K.S.U. Central Campus Area to accommodate the wheelchair student physically, and in a less demeaning manner given the present situation. An important administrative activity which could be integrated into this initial program to further develop the potential of accessibility is the relocation of critical functions, where practical, to locations more easily made accessible. As this initial plan is undertaken, a more comprehensive plan encompassing the total realm of handicapped accessibility should be formulated.

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CARDWELL HALL

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

. BUILDING NAME: CARDWELL HALL

. ACCESSIBLE FUNCTIONS:

CATEGORY I			CATEGORY II	CATEGORY III
■ ACADEMIC	☐ LIVING-HEALTH	☐ RECREATION-SOCIAL	■ ADMIN.-STUDENT-PUBLIC	☐ ADMIN-PHYSICAL PLANT
. Lecture . Classrooms . Laboratory . Library . Seminar	. Dormatory(s) . Student-Faculty Housing . Health . Food	. Social . Sports	. Faculty & Dept. Offices . Counseling . Stud.-Admin. . Acad. Storage	

. INTERIOR ACCESS

Entry	Interior Access (○ Total, ◑ Partial, ○ None)	Elevator Ped. SVS		Access to Restroom (◑ Modified, ◑ Unmodified) M	F	Access to Academic (CATEGORY I)	Health-Living (CATEGORY I)	Recreation Social (CATEGORY I)	Admin-Student, Public	Admin-Physical Plant
A	◑	●	●	●	◑	●			●	
B	○									
C	○									
D	◑	●	●	●	◑	●			●	
E	◑	●	●	●	◑	●			●	
F	◑	●	●	●	◑	●			●	
G	○									
H	○									
I	◑					● (AN EXIT POINT WITH POTENTIAL FOR USEAGE AS AN ENTRY)				
J	◑	●	●	●	◑	●			●	

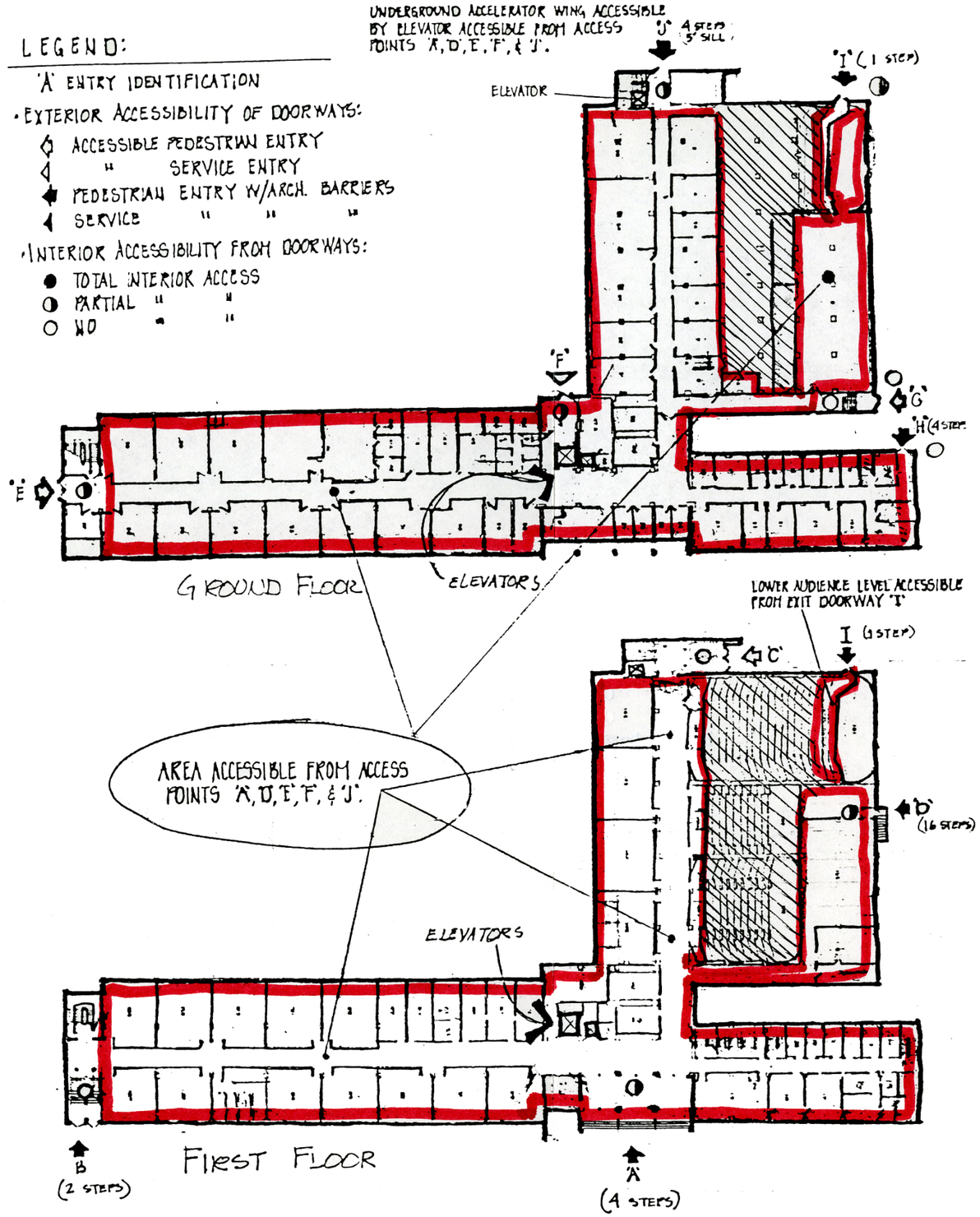
. EXTERIOR ACCESS (CARDWELL HALL)

Entry	Type Ped.	Type SVC	On Grade	Step(s) No.		Curb(s) No.		Ramped Entry Complies with Design Standard	Doorway ≥ 32" clear opening	1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●			●	4				●	●	●
B	●			●	2				●	●	
C	●		●						●	●	●
D	●			●	16				●	●	
E	●		●			●	4		●	●	●
F		●	●			●	4		●	●	●
G	●		●						●	●	●
H	●			●	4				●	●	●
I	●	●		●	1				●	±6"	
J	●			●	4				●	±6"	●

. COMMENTS & RECOMMENDATIONS:

- Cardwell Hall is recommended for inclusion in the program as a Category I Facility.
- The interior of Cardwell Hall, with few exceptions, is presently navigable and usable by individuals in wheelchairs, however all pedestrian approaches to the building are barred by steps and curbs. The only accessible approach to the building is the service drive off 17th Street via an automobile with the disabled individual entering the building through access point 'F', a service entrance.
- Access points 'A', 'E', and 'J' are all public entry points and each offers almost total interior access. Exceptions include portions of lecture auditoriums 101, 102, and 103 which are terraced rooms with access limited to the stage level and the uppermost audience level.
- Access Points 'B', 'D', and 'I' do not have sufficient exterior maneuver space to open the door.
- Access point 'D' offers the same interior access as noted above, but because of the relatively low social value of the entry and the severity of the exterior obstacles it is not listed in the recommended list of access points to be made accessible.
- Access point 'F', a service entry, also offers the same interior access noted in the comment above. Since the service area accessed by 'F' is also used for material storage it is likely that from time to time students and staff members may require access to the area to inspect or procure materials. For this reason service entry 'F' is recommended for inclusion in the program.
- Access point 'I' is an exit point for Lecture Auditorium 101, but it is the only access available for the stage and lower audience level of the terraced auditorium.
- Access points which provide no interior access are: 'B', 'C', 'G', and 'H'.
- Recommended ranking of Access Points considering both exterior and interior social and physical factors.

'A', 'E', 'F'.



DENISON HALL

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

BUILDING NAME: DENISON HALL

ACCESSIBLE FUNCTIONS:

CATEGORY I

■ ACADEMIC
- Lecture
- Classrooms
- Laboratory
- Library
- Seminar

☐ LIVING-HEALTH
- Dormatory(s)
- Student-Faculty Housing
- Health
- Food

☐ RECREATION-SOCIAL
- Social
- Sports

CATEGORY II

■ ADMIN.-STUDENT-PUBLIC
- Faculty & Dept. Offices
- Counseling
- Stud.-Admin.
- Acad. Storage

CATEGORY III

☐ ADMIN-PHYSICAL PLANT

INTERIOR ACCESS

ntry	Interior Access ● Total ◑ Partial ○ None	Elevator Ped. SVS	Access to Restroom ● Modified ◑ Unmodified M	F	Access to Academic	Health-Living	Recreation Social	Admin-Student, Public	Admin-Physical Plant
					CATEGORY 'I'				
A	◑				●				
B	◑				●				
C	◑				●				
D	◑		◑	◑	●			●	
E	○								

EXTERIOR ACCESS (DENISON HALL)

ntry	Type Ped. SVC	On Grade	Step(s) No.	Curb(s) No.	Ramped Entry Complies with Design Standard	Doorway Has: ≥ 32" clear opening	1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●					●	±5"	●
B	●	●				●	●	●
C	●	●				●	●	●
D	●	●				●	●	●
E	●	●				●	●	●

COMMENTS & RECOMMENDATIONS:

Denison Hall is recommended for inclusion in the program as a Catagory I Facility.

Access points 'A','B','C',and 'D' each offer limited access to portions of the building interior.

Access point 'D' provides access to the first floor which houses 3 general useage type classrooms, 2 graduate student study rooms, faculty offices, and male and female restrooms. The restrooms are not equiped for useage by disabled people.

Access points 'B'and'C' provide access to the upper, rear portion of Room 113A, a major lecture auditorium.

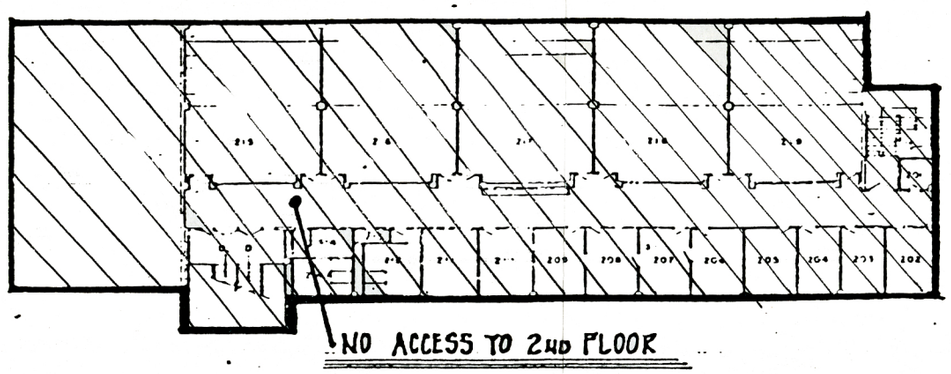
Access point 'A' provides access to the stage and lower audience only of Room113A.

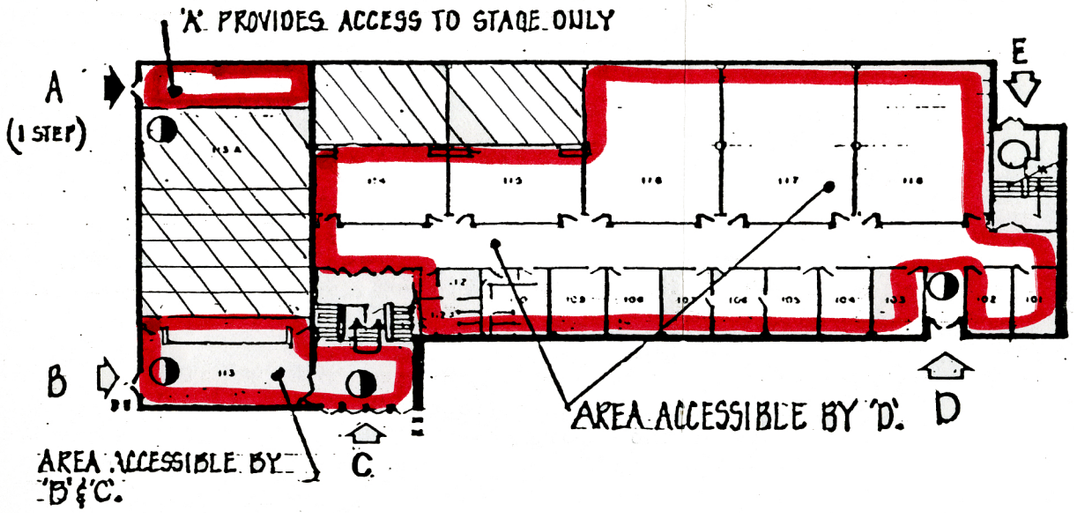
Access point 'E' provides no interior access.

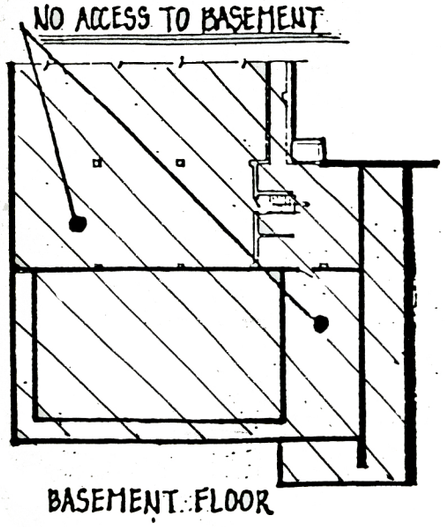
Recommended ranking of Access Points:

'D', 'B'&'C','A'

2ND FLOOR







LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY or APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

EISENHOWER HALL

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

- BUILDING NAME: ~~EISENHOWER HALL~~
- ACCESSIBLE FUNCTIONS: NONE !

CATEGORY I			CATEGORY II	CATEGORY III
☐ ACADEMIC	☐ LIVING-HEALTH	☐ RECREATION-SOCIAL	☐ ADMIN.-STUDENT-PUBLIC	☐ ADMIN-PHYSICAL PLANT
. Lecture . Classrooms . Laboratory . Library . Seminar	. Dormatory(s) . Student-Faculty Housing . Health . Food	. Social . Sports	. Faculty & Dept. Offices . Counseling . Stud.-Admin. . Acad. Storage	

INTERIOR ACCESS

Entry	Interior Access ● Total ◑ Partial ○ None	Elevator Ped. SVS	Access to Restroom ● Modified ◑ Unmodified M	F	Access to Academic	Health-Living	Recreation Social	Admin-Student, Public	Admin-Physical Plant
					← - CATEGORY 'I' - →				
A	○								
B	○								
C	○								
D	○								

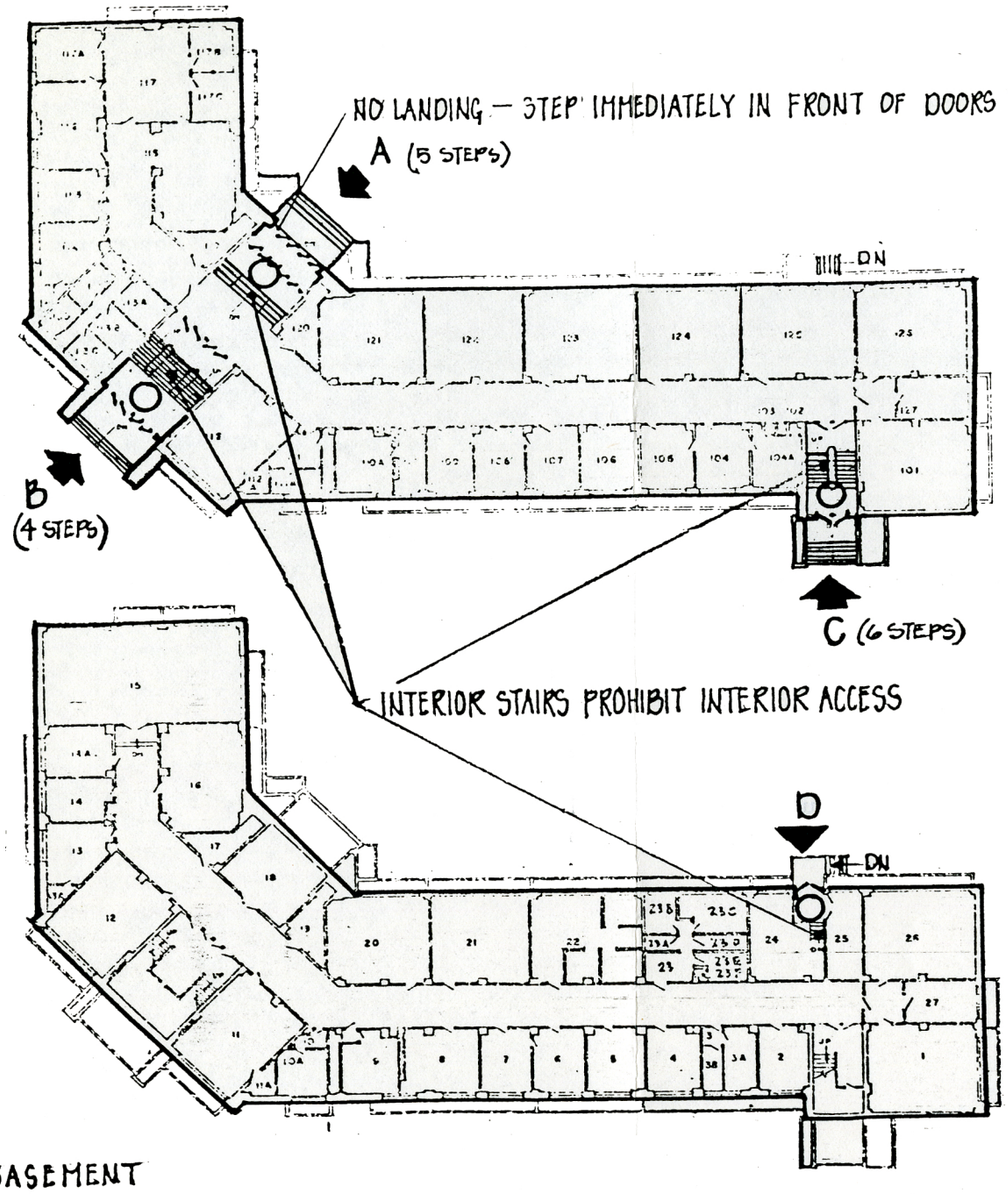
EXTERIOR ACCESS

Entry	Type Ped. SVC		On Grade	Step(s) No.		Curb(s) No.		Ramped Entry Complies with Design Standard	Doorway Has: ≥ 32" clear opening	1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●			●	5				●	±6"	●
B	●			●	4				●	●	●
C	●			●	6				●	●	●
D	●			●	6				●	●	●
E											
F											
G											

COMMENTS & RECOMMENDATIONS:

- Eisenhower Hall is not eligible for inclusion in the program because none of the building access points provide interior access.
- The building primarily houses classrooms and faculty offices. The classrooms are general useage type rooms so classes typically scheduled in Eisenhower Hall could be administratively relocated to an accessible building.

1ST FLOOR



BASEMENT

LEGEND

A ENTRY IDENTIFICATION

- EXTERIOR ACCESSIBILITY OF DOORWAYS:
  - ACCESSIBLE PEDESTRIAN ENTRY
  - " SERVICE ENTRY
  - PEDESTRIAN ENTRY WITH ARCH BARRIERS
  - SERVICE " " " "
- INTERIOR ACCESSIBILITY FROM DOORWAYS:
  - ● TOTAL INTERIOR ACCESS
  - ◑ PARTIAL " "
  - ○ NO " "

FAIRCHILD HALL

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

- BUILDING NAME: FAIRCHILD HALL
- ACCESSIBLE FUNCTIONS:

CATEGORY I			CATEGORY II	CATEGORY III
☐ ACADEMIC	☐ LIVING-HEALTH	☐ RECREATION-SOCIAL	■ ADMIN-STUDENT-PUBLIC	☐ ADMIN-PHYSICAL PLANT
. Lecture . Classrooms . Laboratory . Library . Seminar	. Dormatory(s) . Student-Faculty Housing . Health . Food	. Social . Sports	. Faculty & Dept. Offices . Counseling . Stud.-Admin. . Acad. Storage	

- INTERIOR ACCESS

Entry	Interior Access ● Total ◑ Partial ○ None	Elevator Ped.	Elevator SVS	Access to Restroom ● Modified ◑ Unmodified M	Access to Restroom F	Access to Academic (CATEGORY I)	Health-Living (CATEGORY I)	Recreation Social (CATEGORY I)	Admin-Student, Public	Admin-Physical Plant
A	◑			◑	◑				●	
B	◑			◑	◑				●	
C	◑								●	
D										
E										
F										
G										
H										
I										
J										
K										
L										
M										
N										
O										

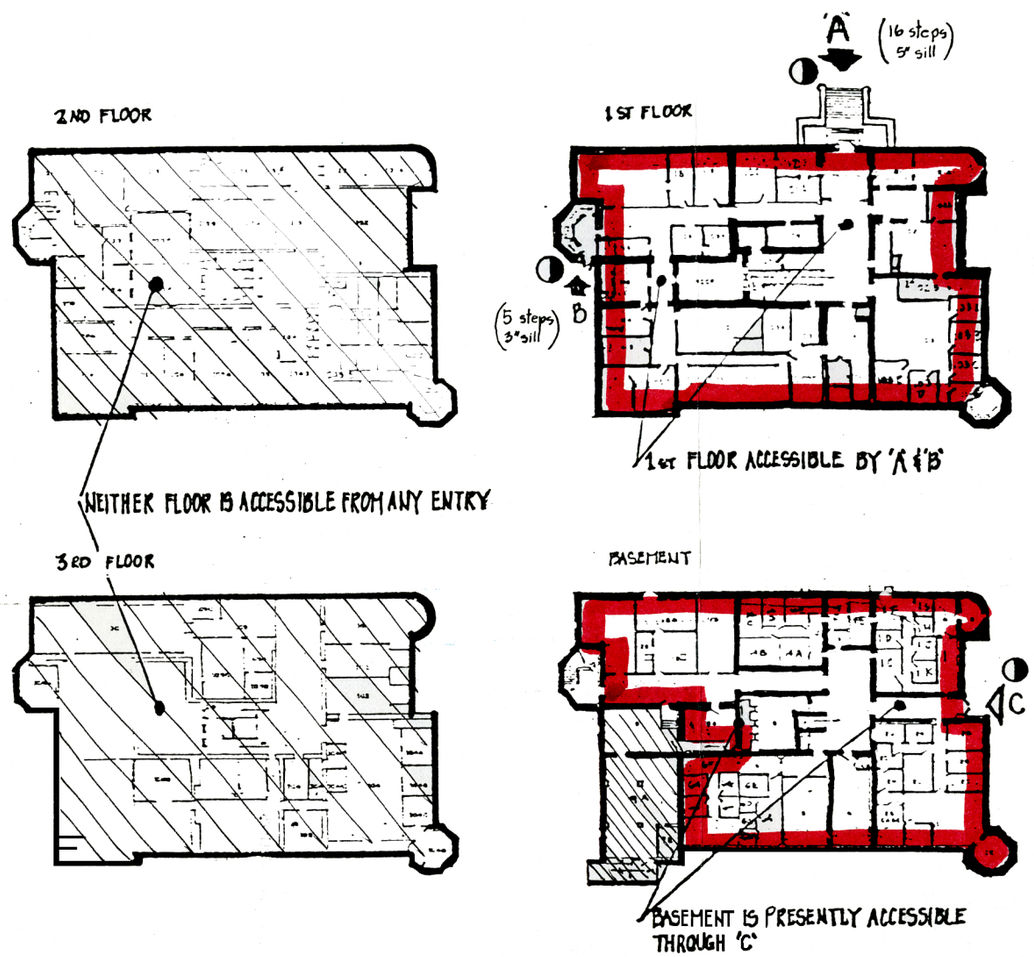
- EXTERIOR ACCESS

Entry	Type Ped.	Type SVC	On Grade	Step(s) No.	Curb(s) No.	Ramped Entry Complies with Design Standard	Doorway Has: ≥ 32" clear opening	Doorway Has: 1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●			● 16			●	±6"	
B	●			● 5			●	±6"	●
C		●	●				●	●	●
D									
E									
F									
G									
H									
I									
J									
K									
L									
M									
O									

- COMMENTS & RECOMMENDATIONS:

  - Fairchild Hall is a Category II Facility and is not recommended for inclusion.
  - Access points 'A' and 'B' provide access to the first floor which houses the Graduate School Dean's Office, the Aids and Awards Office, and the Veterans Affairs Office.
  - Access point 'C' provides access to the basement level which is primarily used for storage.
  - Recommended ranking of Access Points considering both exterior and interior social and physical considerations.

    'A', 'B', 'C'



LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY OR APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

GOODNOW HALL

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

- BUILDING NAME: GOODNOW HALL
- ACCESSIBLE FUNCTIONS:

CATEGORY I

☐ ACADEMIC
- Lecture
- Classrooms
- Laboratory
- Library
- Seminar

■ LIVING-HEALTH
- Dormatory(s)
- Student-Faculty Housing
- Health
- Food

◪ RECREATION-SOCIAL
- Social
- Sports

CATEGORY II

☐ ADMIN.-STUDENT-PUBLIC
- Faculty & Dept. Offices
- Counseling
- Stud.-Admin.
- Acad. Storage

CATEGORY III

☐ ADMIN-PHYSICAL PLANT

- INTERIOR ACCESS

Entry	Interior Access (● Total ◑ Partial ○ None)	Elevator Ped.	Elevator SVS	Access to Restroom (● Modified ◑ Unmodified) M	Access to Restroom F	Access to Academic ← CATEGORY	Health-Living	Recreation Social I →	Admin-Student, Public	Admin-Physical Plant
A	◑	●		◑	◑	●	●	●		
B	◑	●		◑	◑	●	●	●		
C	◑	●		◑	◑	●	●	●		
D	◑	●		◑	◑	●	●	●		
E	◑	●		◑	◑	●	●	●		
F	◑	●		◑	◑	●	●	●		

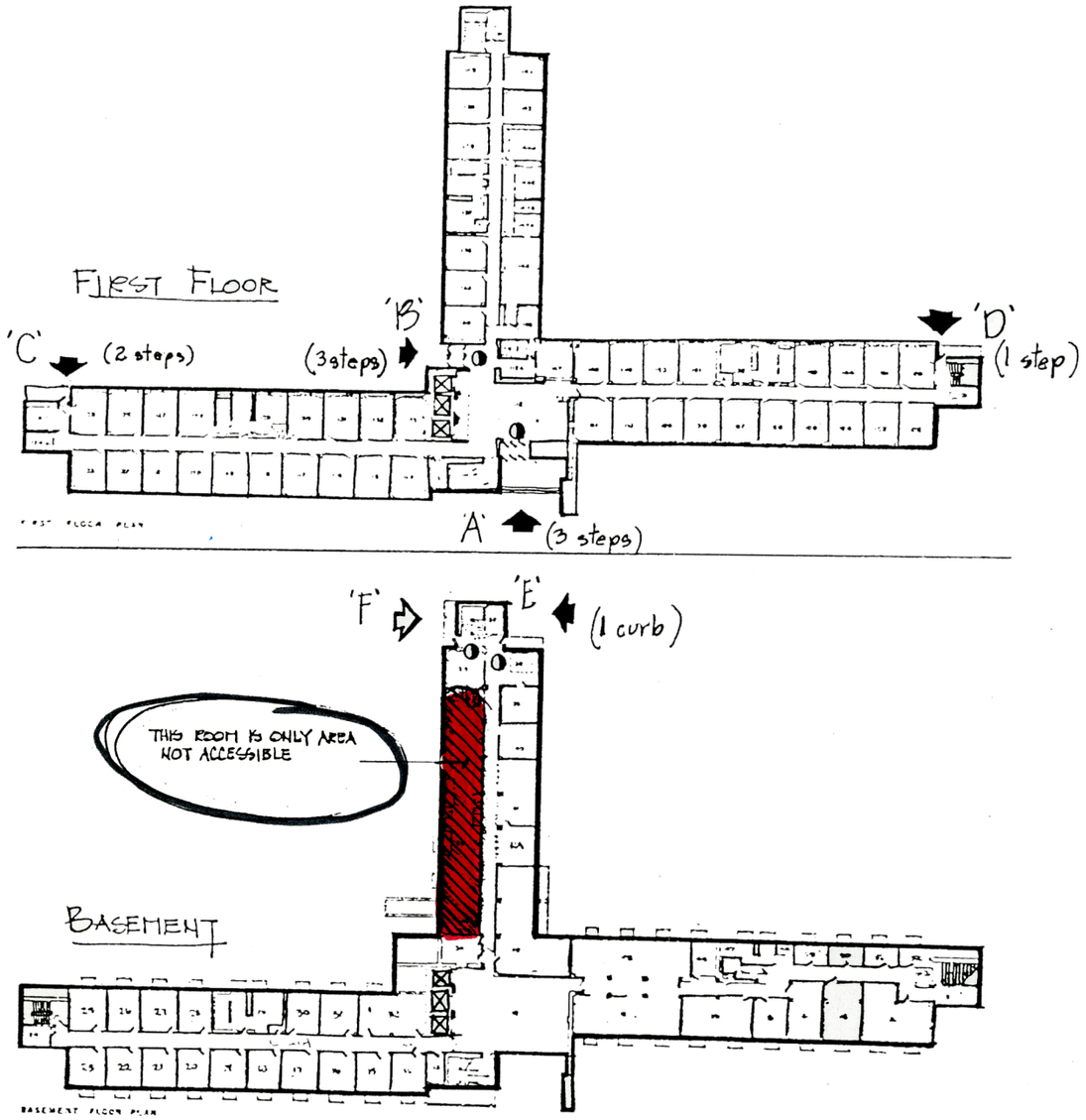
- EXTERIOR ACCESS

Entry	Type Ped.	Type SVC	On Grade	Step(s) No.	Curb(s) No.	Ramped Entry Complies with Design Standard	Doorway ≥ 32" clear opening	Has: 1" ≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●			● 3			●	●	●
B	●			● 3			●	●	●
C	●			● 2			●	●	●
D	●			● 1			●	●	●
E	●	●			● 1		●	●	●
F	●		●				●	●	●

- COMMENTS & RECOMMENDATIONS:

- Goodnow Hall is recommended for inclusion in the program as a Category I Facility.
- Access points 'A', 'B', 'C', 'D', 'E', and 'F' are each public entries, and each offers almost total interior access with the exception of a large basement room accessible only by steps. Each access point has access to public elevators.
- The living quarters and restrooms, although accessible, are not presently equipped for the handicapped.
- Access point 'E' is a pedestrian/service entry with provisions for vehicles to be parked near the door to facilitate moving things in and out of the dormitory.
- Access point 'F' is on grade with the sidewalk, but the sidewalk requires a curb cut to provide access to the parking lot, and to provide access to the Martha Kramer Food Service Center from the dormitory.
- Recommended ranking of Access Points considering both exterior and interior social and physical conditions.

  'A'-'E', 'C', 'B', 'D', 'F'.



LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY or APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

MIKE AHEARN FIELD HOUSE

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

. BUILDING NAME: MIKE AHEARN FIELD HOUSE

. ACCESSIBLE FUNCTIONS:

CATEGORY I			CATEGORY II	CATEGORY III
☐ ACADEMIC	☐ LIVING-HEALTH	■ RECREATION-SOCIAL	☐ ADMIN.-STUDENT-PUBLIC	☐ ADMIN-PHYSICAL PLANT
. Lecture . Classrooms . Laboratory . Library . Seminar	. Dormatory(s) . Student-Faculty Housing . Health . Food	. Social . Sports	. Faculty & Dept. Offices . Counseling . Stud.-Admin. . Acad. Storage	

. INTERIOR ACCESS

Entry	Interior Access ● Total ◑ Partial ○ None	Elevator Ped. SVS	Access to Restroom ● Modified ◑ Unmodified M	F	Access to Academic	Health-Living	Recreation Social	Admin-Student, Public	Admin-Physical Plant
					CATEGORY I				
A	○								
B	○								
C	○								
D	○								
E	○								
F	○								
G	◑								
H	◑								

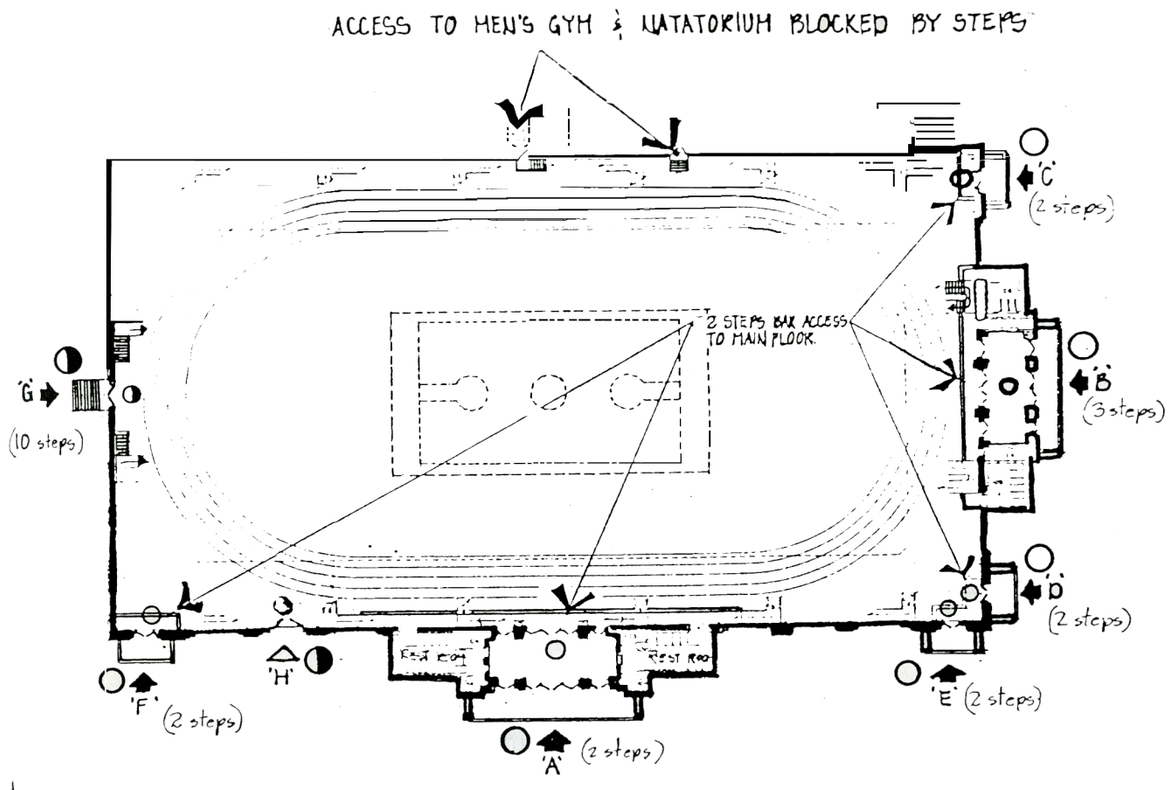
. EXTERIOR ACCESS

Entry	Type Ped.	SVC	On Grade	Step(s) No.		Curb(s) No.		Ramped Entry Complies with Design Standard	Doorway ≥ 32" clear opening	Has: 1"≥ Height of Sill & Saddle	Sufficient Manuever space to open door
A	●			●	3				●	●	●
B	●			●	2				●	●	●
C	●			●	2				●	±5"	●
D	●			●	2				●	±5"	●
E	●			●	2				●	±5"	●
F	●			●	2				●	±5"	●
G	●			●	10				●	●	●
H		●	●			●	2		●	●	●

. COMMENTS & RECOMMENDATIONS:

- Mike Ahearn Field House is not eligible for consideration due to a lack of usable interior access from any of its pedestrian access points, however due to the high social value of the Field House it is recommended for inclusion in the program as a Category I Facility.
- Access points 'A' and 'B' are the primary pedestrian entry points. Both have 2 interior steps barring access to the main floor of the Field House.
- Access points 'C', 'D', 'E', 'F', and 'G' are also public access points, but for games and shows these doors are not typically used for public admittance but instead serve as exits.
- Access point 'C' is a service entry for vehicles and is not typically used for public access into the Field House.
- Interior circulation is barred by stairs between the Field House and other functions of the building complex which includes the Natatorium and Mens' Gymnasium.
- Recommended Ranking of Access Points considering both exterior and interior social and physical factors.

'A' and 'B' both equal.



LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY OR APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

STUDENT UNION
(page 1 of 2)

Building and Building Access
Evaluation Form

BUILDING AND BUILDING ACCESS EVALUATION FORM

- BUILDING NAME: **STUDENT UNION**
- ACCESSIBLE FUNCTIONS:

CATEGORY I			CATEGORY II	CATEGORY III
☑ ACADEMIC	☑ LIVING-HEALTH	■ RECREATION-SOCIAL	☐ ADMIN.-STUDENT-PUBLIC	☐ ADMIN-PHYSICAL PLANT
. Lecture . Classrooms . Laboratory . Library . Seminar	. Dormatory(s) . Student-Faculty Housing . Health . Food	. Social . Sports	. Faculty & Dept. Offices . Counseling . Stud.-Admin. . Acad. Storage	

- INTERIOR ACCESS

Entry	Interior Access ● Total ◑ Partial ○ None	Elevator Fed. SYS		Access to Restroom ● Modified ◑ Unmodified M	F	Access to Academic	Health Living	Recreation Social	Admin-Student, Public	Admin-Physical Plant
						CATEGORY 'I'				
A	◑	●	●	◑	◑	●	●	●	●	
B	◑					EMERGENCY EXIT ONLY				
C	◑									
D	◑	●	●	◑	◑	●	●	●	●	
E	○									
F	○									
G	◑	●	●	◑	◑	●	●	●	●	
H	○									
I	◑	●	●	◑	◑	●	●	●	●	
J	○									
K	◑	●	●	◑	◑	●	●	●	●	
L	◑	●	●	◑	◑	●	●	●	●	
M	◑					S.U. THEATER AUDIENCE EXIT				
N	◑					S.U. THEATER STAGE DOOR				
O	◑					S.U. THEATER AUDIENCE EXIT				

- EXTERIOR ACCESS

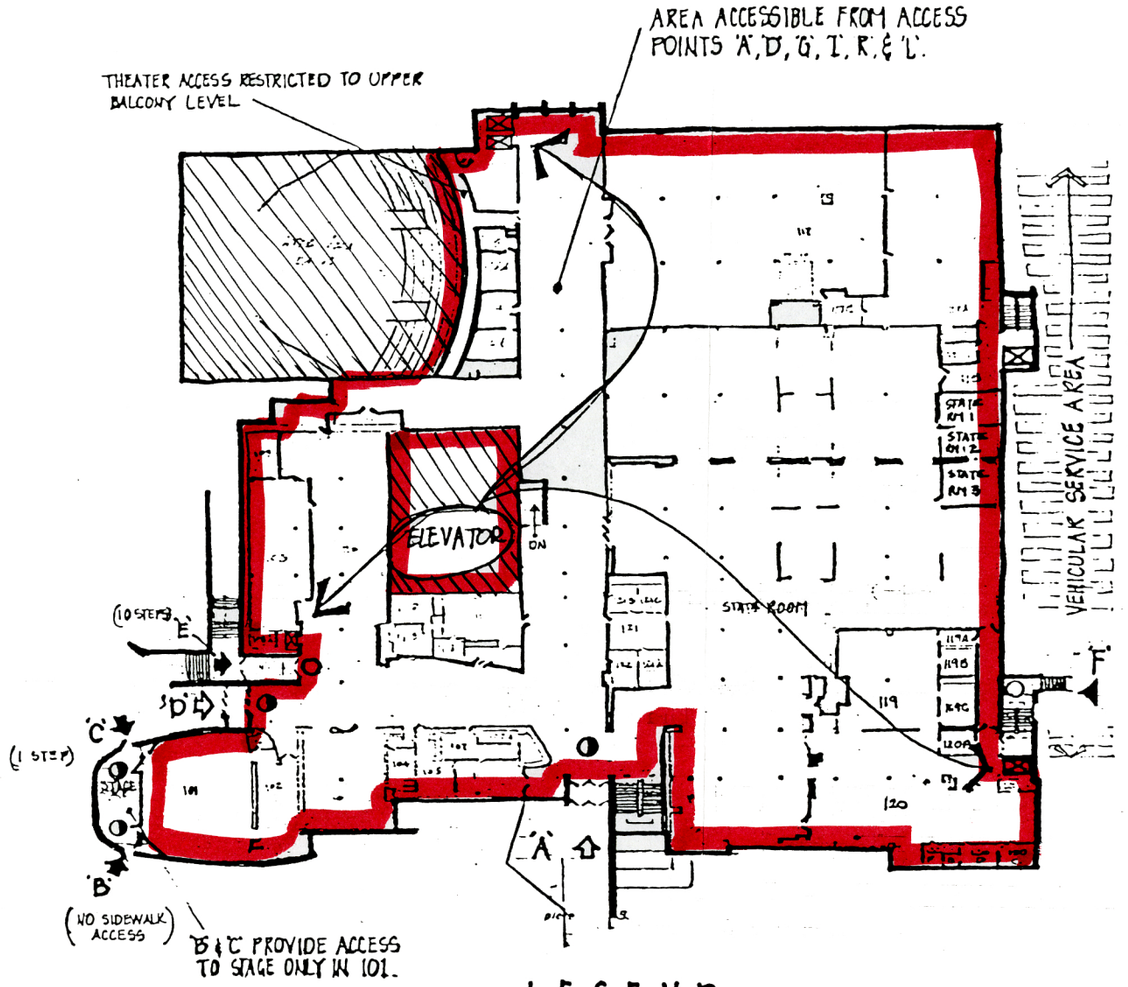
Entry	Type Fed. SYC		On Grade	Step(s) No.		Curb(s) No.		Ramped Entry Complies with Design Standard	Doorway: Least ≥ 32" clear opening	1" ≥ Height of Sill & Saddle	Sufficient Maneuver space to open door
A	●		●						●	●	●
B		●		●	1				(NO ACCESS FROM AN EXTERIOR SIDEWALK)		
C		●		●	1				●	±5#	●
D	●		●						●	●	●
E		●		●	10				●	●	●
F		●		●	9						
G	●		●			●	1		●	●	●
H		●		●	1				●	●	●
I		●		●	5				●	●	●
J		●		●	5				●	±5#	●
K	●		●	●	16-20	●	1		●	●	●
L	●		●	●	18-20	●	1		●	●	●
M	●		●	●	15-20	●	1		●	●	●
N		●		●	4-5-20	●	1		●	●	
O	●		●						●	●	●

COMMENTS & RECOMMENDATIONS:

- The Student Union is recommended for inclusion in the program as a Category I Facility.
- At present the S.U. is almost entirely accessible to interior wheelchair movement, however the S.U. is isolated from campus pedestrian traffic and the S.U. parking lot by curbing surrounding the building.
- Principle access point for campus pedestrian traffic is 'A', and the next most popular would likely be either 'D' or 'G'. 'D' is oriented toward the Campus Core area, and 'G' is the main entry to the south which services the large S.U. parking lot.
- Access points 'A', 'D', 'G', 'K', and 'L' are all public entries, and each offers almost total interior access. Areas not accessible include the recreation rooms in the basement, except for the bowling alley which is accessible by a service elevator, the S.U. Theater, except for the upper balcony level which is accessible from the lobby, and portions of other multilevel rooms.
- Access point 'I' offers the same interior accessibility as noted above, but it is a service entry located in the vehicular loading area off 17th Street, and is not safe for use.
- Access Points which offer more limited interior access:
  - 'B' Access to stage only in Room 101.
  - 'C' Exit from the stage only in Room 101, and has no exterior sidewalk connection.
  - 'M' S.U. Theater exit which could provide access to the front audience section.
  - 'O' S.U. Theater exit which opens onto S.U. parking lot.
  - 'N' S.U. Theater stage door. The door is accessed by a landing 4 steps above grade. The landing is not large enough to provide adequate maneuvering room necessary to open the door.
- Access Points which offer no interior access:
  'E', 'F', 'H', and 'J'.
- Access points 'K', 'L', and 'M' were eliminated from consideration because they are isolated by significant numbers of steps, 15 to 20 for each door, which was felt to pose an unreasonable obstacle considering the close proximity of entry point 'D'.
- Recommended ranking of access points considering both exterior and interior social and physical considerations.

'A' – 'D' – 'G', (all equal)

FIRST FLOOR



LEGEND

'A' DOORWAY IDENTIFICATION

EXTERIOR ACCESSIBILITY

- ACCESSIBLE PEDESTRIAN ENTRY
- " SERVICE ENTRY
- PED. ENTRY OR APPROACH WALK W/ BARRIERS
- SVC. " " " " " "

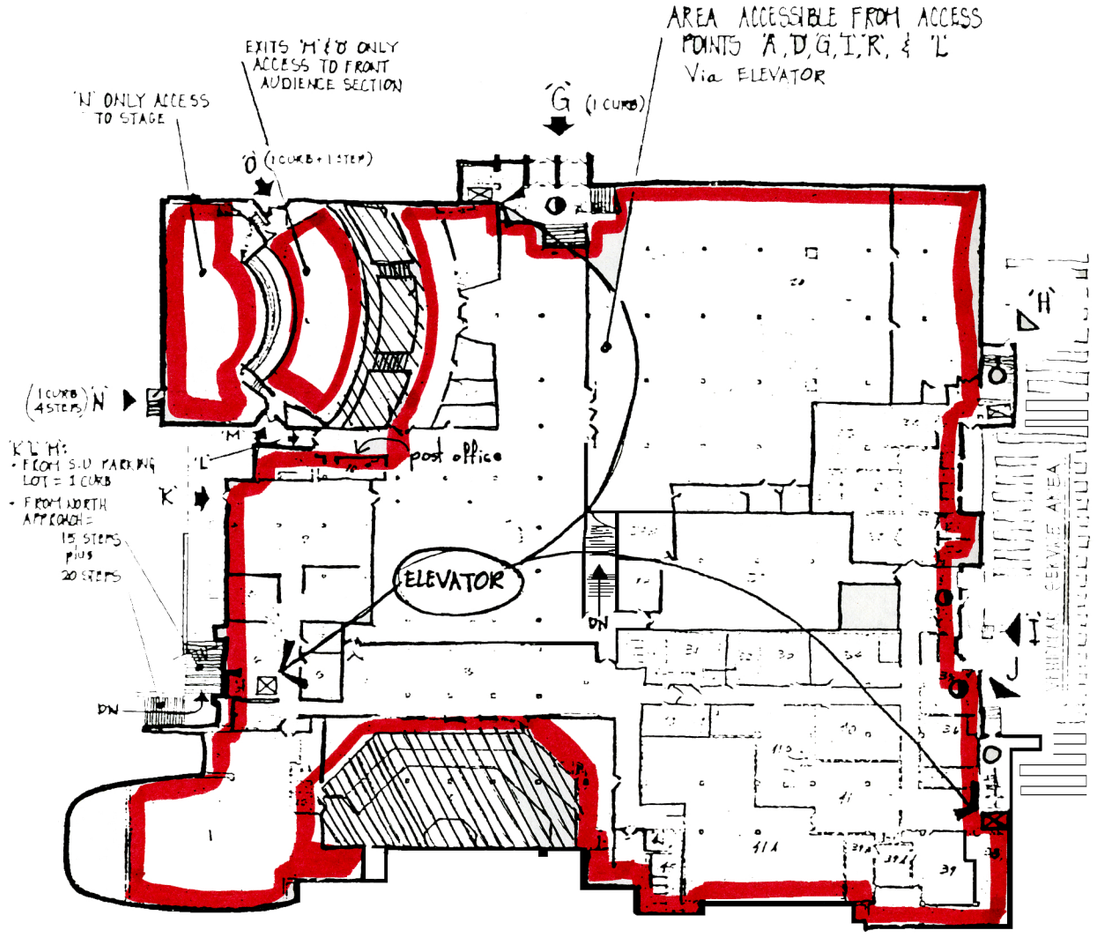
INTERIOR ACCESS FROM DOORWAYS

- ● TOTAL INTERIOR ACCESS
- ◑ PARTIAL " "
- ○ NO " "

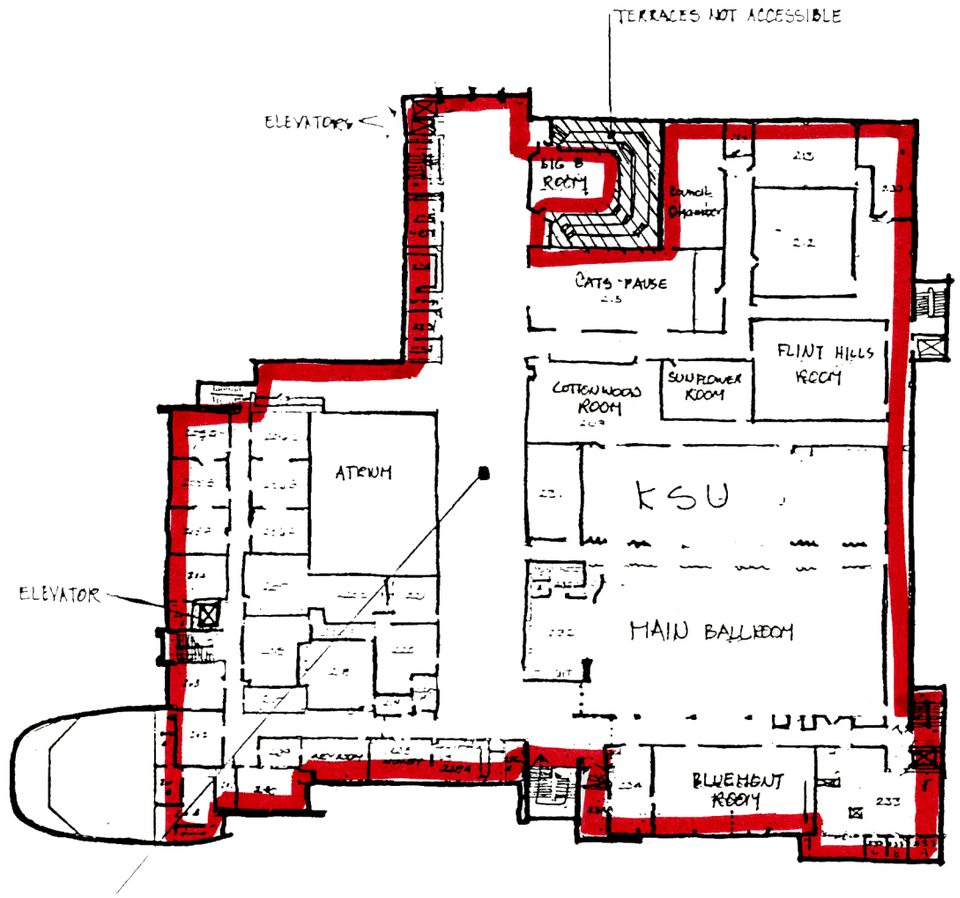
STUDENT UNION
(page 2 of 2)

Building and Building Access
Evaluation Form

GROUND FLOOR



2ND FLOOR

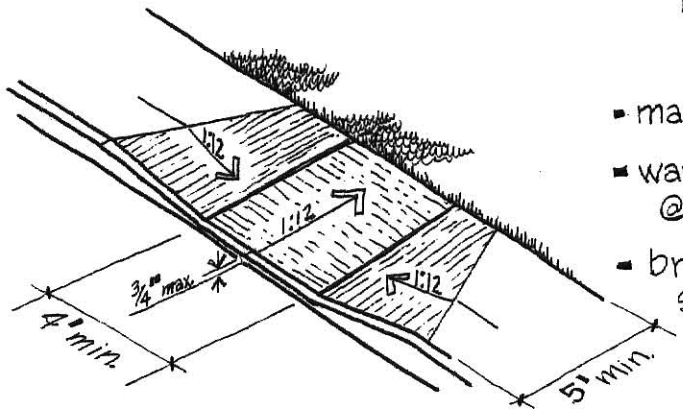


EXCEPT AS NOTED, THE ENTIRE 2ND FLOOR IS ACCESSIBLE VIA ELEVATOR FROM ACCESS POINTS 'A', 'D', 'G', 'I', 'K', & 'L'.

STUDENT UNION

ACCESS INVENTORY

Typical Curb Cut Details (9, 13)

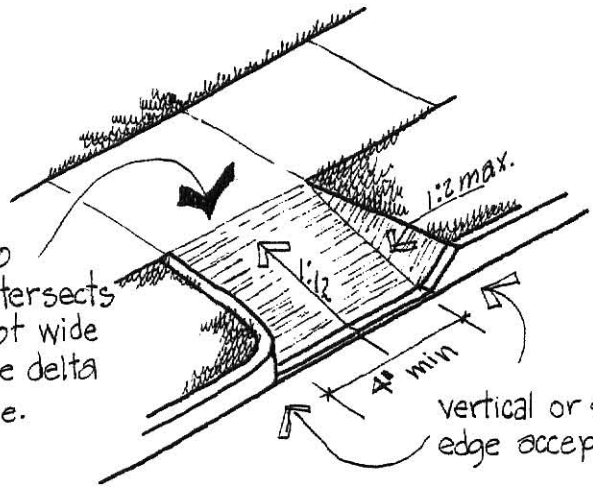


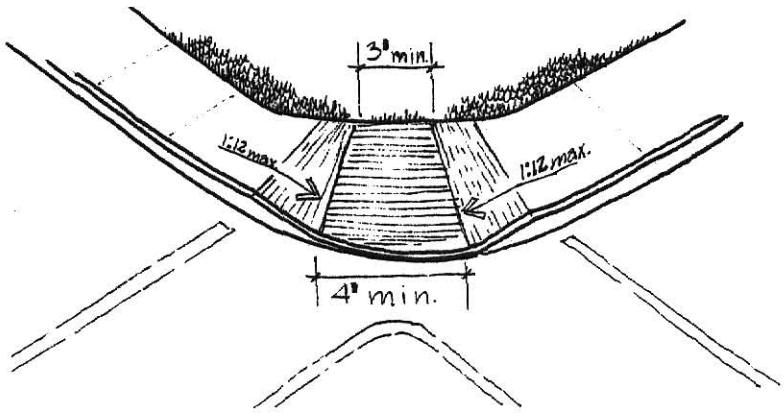
type 'a' - sidewalk next to curb.

- max. grade of ramp - 1:12 (TYP.)
- warp walk down to ramp @ max. slope of 1:12. (TYP.)
- broom finish all sloping surfaces. (TYP.)

type 'b' - sidewalk separated from curb by a treelawn.

- It may be necessary to lower walk where it intersects ramp if treelawn is not wide enough to accomodate delta elevation @ 1:12 slope.





type 'c' - corner curb cut

- when existing conditions prevent a type 'c', such as a utility pole, etc., separate curb cuts for each crosswalk may be necessary.

A PROCEDURE FOR PLANNING AN INITIAL PROGRAM FOR THE ACCOMMODATION OF HANDICAPPED PERSONS EMPHASIZING THE EXTERIOR SIDEWALK SYSTEM OF KANSAS STATE UNIVERSITY

A Thesis

Presented to

the Graduate Faculty of the Department of Landscape Architecture

Kansas State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Landscape Architecture

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by

Joe David Roller

April 1980

ABSTRACT

The purpose of this study is to develop and test a planning procedure for the initial phase of making the central campus area of Kansas State University accessible to persons who use a wheelchair. It is a premise of this study that most buildings in their existing state are to some extent usable by the disabled if only they could gain access. Accordingly, the first efforts of an accommodation program should be to exploit existing potential by providing access into and among selected campus buildings and facilities. To this end, the scope of the planning activity presented is to identify and prioritize selected buildings, building doorways, parking facilities, and walkways for being made accessible. Interior modifications to buildings are not included within the scope of this initial program.

The program is divided into two basic parts. In the first part, eligible buildings and doorways are identified and categorized based on the physical characteristics of the facility and on the activities housed. To be eligible, a building must be free of interior barriers to the extent that a wheelchair pedestrian could move from a doorway to an activity housed within the building. Eligible buildings are then categorized according to the relative importance for being made accessible based on functions housed. The category system is based on the need of students to be at the specific location where an activity is conducted. Under this concept, three categories were developed: Category I includes activities which require the student's presence; Category II includes activities which can be carried on by mail, telephone, or by appointments arranged at alternate, accessible locations; Category III includes functions for

which little or no contact is likely or required. Category I buildings are the only ones considered for being made accessible under this initial program.

Eligible doorways and walks are also evaluated and ranked under the first part of the program in terms of the relative volumes of traffic which use them. A goal of this plan is to provide access into and circulation among Category I buildings by means of the most used doorways and walks in an effort to maximize integration between the disabled and able-bodied campus population.

In the second part of the program, the eligible buildings, doorways, walkways, and commuter parking lots are evaluated in terms of the physical constraints of the study area on the exterior walkway system linking them. In evaluating the K.S.U. campus, it was determined that the severity of walkway slopes was of such significance that the dormitories centered around the Derby Food Center were excluded from this initial program.

The end result of this planning process is a master plan representing a reasonable balance between the potential objectives identified in part one of the planning sequence and the physical constraints to the exterior pedestrian system identified in part two. The master plan identifies and prioritizes the buildings and building doorways to make accessible, and where and what kind of barriers are to be removed along the pedestrian walkways.