PREFACE

This report is the result of a three month study conducted by the Office of Physical Planning. Of vital concern now is that action be taken to improve the current situation based upon the problem and alternative solutions which have been identified. Major points to be achieved are -

1) RECOGNITION OF THE PROBLEM
Estimates of the number of bicycles on campus this fall run as high as 5,000. We now have about 1,700 parking spaces and almost no circulation routes. It will take a major commitment on the part of the University just to catch up with the bicycle needs of today.

2) A TOTAL CIRCULATION AND PARKING PLAN
The bicycle is only one of many means of circulation on campus today. Any planning involving the bicycle directly affects and is affected by motorized vehicular movement and the pedestrian. This impact of action for improvement of one transportation system element requires recognition and assessment in terms of implications on all other elements. Consequently, a comprehensive transportation and movement plan needs to be developed integrating all separate elements of movement including the automobile, service vehicles, transit systems, bicycles and the pedestrians plus all separate studies and development and operation policies which exist in regard to these separate elements.

3) CONTINUED ATTENTION AND ACTION
This report is not a final product, but rather a preliminary step that must be followed by a decision to recognize the bicycle as an important factor in campus planning, and to take the necessary steps for design and implementation of bicycle parking and circulation facilities.

A. REVIEW AND COMMENT
The problems and recommendations which are identified and contained within this report must be critically reviewed by those internal and external University agencies, organizations, groups, and individuals which have a concern or interest in campus development and safety. It is hoped that after these various interests have reviewed and analyzed this report they will make their reactions known to the Office of Physical Planning.

B. IMPLEMENTATION
A new advisory committee on bicycle transportation or an existing group such as the Advisory Committee on Twin Cities Campus Lighting and Improvements should be assigned the responsibility for reviewing the public and community reaction, determining priority actions and formulating, costing and scheduling a program for implementation. This group should receive staff assistance from the Office of Transportation Services, the Office of Engineering and Construction and the Office of Physical Planning.

David R. Licht
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INTRODUCTION

No longer simply a recreational toy, the bicycle is rapidly becoming a viable alternative to the automobile as a means of transportation. With the intention of encouraging the use of the bicycle, the University of Minnesota Office of Physical Planning and Design undertook this bicycle study to solve or alleviate the existing problems and to plan for the future increases in bicycle usage in the University community.

The bicycle has not been included in any of the planning of the University up to this point with the possible exception of the bicycle lanes on the Washington Avenue bridge. In the past, the bicycle has not been a major problem on campus. With the increasing concern for ecology and the mounting automobile parking and circulation problems, the bicycle has begun to emerge as a third form of circulation to go along with the pedestrian and motor vehicle. The number of bicycles on campus has risen from approximately 1,500 in 1969 to an expected 3,000 this fall. The University police have stated that the number could approach 5,000. It is apparent from this dramatic increase that the bicycle must be considered in all future campus planning and design.

The scope of this study includes an inventory of the existing circulation systems, immediate proposals that should be implemented within the next year, and long range proposals. The proposals include circulation routes, parking areas, parking racks, and administrative policies.

It is essential to note that this study is not a final product, but rather the first phase of a bicycle program that must be followed by design and implementation.
The bicycle is defined as a vehicle with two wheels tandem, a steering handle, a saddle seat, and pedals by which it is propelled. In America the bicycle has long been looked upon as a toy to be used by the children. The Europeans consider the bicycle as a means of transportation for the adult commuter. Recently the bicycle has become a popular recreational vehicle for adult America, but its potentials as a year-round commuter vehicle are only now beginning to be considered.

Capabilities of the Bicycle:

The average cyclist on a standard bicycle travels about ten miles per hour. Experienced cyclists with more expensive equipment often average fifteen miles per hour. In an experiment in Chicago, three commuters engaged in a race to work. Starting from the same location near the stockyards, the cyclist arrived at the destination in the loop twenty minutes ahead of the motorist and the bus rider. The cyclist can avoid traffic jams, searching for parking spaces, high parking rates, and the long walk to the destination after parking. There is a commonly held misconception that the bicycle is limited to use only during the summer months. In the Twin City area the bicycle is widely used nine months of the year and some of the heartier individuals ride all year. The limitation of the winter is not the temperature but the condition of the riding surface. If the surface were kept clean, the bicycle would be used by greater numbers throughout the year.

Limitation of the Bicycle:

The bicycle as a commuting vehicle is limited to a range of about five or six miles because most people would be reluctant to spend more than half an hour in transit. The bicycle is also limited by the condition of the riding surface. Because of the nature of the vehicle, the bicycle requires a smoother surface than the automobile. One of the major obstructions to bicycle circulation in some areas is the long hill. A bicycle can climb a slope of as much as twenty percent for a very short distance, while five percent is the maximum slope for long distances.

Dangers to the Cyclist:

Because of its size and speed of travel, the bicycle is in a dangerous position when it is forced to compete for space with the automobile. Motorists often turn into the path of the bicycle because they are not accustomed to watching for the bicycle. The bicycle cannot be expected to operate under conditions designed specifically for the automobile. The bicycle has special needs that must be planned and legislated for. It is also dangerous for a bicycle to share circulation routes with pedestrians. The bicycle moves so swiftly and silently that many injuries occur when an unsuspecting pedestrian steps in front of a fast moving bicycle without being aware of its presence.

The limitations and dangers of the bicycle are solved by planning for bicycle circulation and designing circulation routes with them in mind.
INVENTORY

The inventory of the existing circulation systems on the Minneapolis Campus includes the circulation routes and parking areas of motor vehicles and bicycles as well as pedestrian circulation. The areas of conflict between these means of circulation are also identified. The available data for such an inventory on this campus is very limited. Much of the information was gathered from personal observation. This is not intended to be a complete circulation and parking inventory, but rather those items that have an effect on the bicycle are included.

MOTOR VEHICLE CIRCULATION

The University of Minnesota, Minneapolis Campus, is in the heart of a large metropolitan area, and as a result is faced with a major vehicular circulation problem. The campus is intersected by two major thoroughfares, Washington Avenue and University Avenue. There is also a large volume of vehicles passing through the heart of the campus on Pleasant Street. Past studies have indicated that seventy-five percent of the traffic in the University area is not oriented towards the University but is simply passing through the area. The traffic patterns and volumes will undoubtedly change with the completion of the freeway system which will encircle the University community.

It is the general policy of the University to work towards the reduction and elimination of all nonessential traffic on the campus. "Campus streets would serve primarily delivery traffic, emergency vehicles, and certain faculty, staff, and visitors. The roads could be used as walkways during class-change periods." (Interim Report for the Ad Hoc Committee on Circulation and Parking, Feb. 1967, DeLeuw Cather and Co., Pg. 40.)

Implications

a) The large volumes of nonessential traffic moving through the campus and community naturally result in a great deal of conflict with pedestrians and bicycles especially during rush hours and class changes.
AUTOMOBILE PARKING
drawing 3

As a result of the strong commuter orientation, the University's Minneapolis Campus is faced with a massive parking problem. The number of spaces provided or possible, is totally inadequate to meet the present and future demands. The campus, through past development is dotted with small contract and transient lots, which occupy any available space. The result of this past development practice is a situation of internal congestion and conflict. This problem is even further compounded by unauthorized and illegal parking and stopping.

The present campus parking development and operation policy is to eliminate and replace parking within the campus with peripheral and remote parking facilities. Although this policy is being pursued, its implementation is sporadic due to the lack of comprehensive plan and to an approach to parking which treats it as a separate problem rather than one element of a total transportation system.

Implications

a) The Minneapolis Campus is in need of a comprehensive plan to eliminate the unnecessary congestion caused by the multitude of small parking lots and unauthorized parking. This plan should outline a program schedule and include a cost estimate.

b) Parking in planning, development and operations should be coordinated with and viewed as one element of a total transportation system.

SERVICE ENTRANCES
drawing 4

It is evident that a lack of comprehensive planning has caused an overly complicated system of building service entrances and driveways to develop. Some buildings have multiple service entrances, while others have service entrances and driveways in the areas of heaviest pedestrian circulation. Service vehicles often add to the congestion throughout the campus by parking in the streets, especially along Church Street and Pleasant Street.

Implications

a) A plan for the service system is necessary to eliminate unnecessary congestion caused by service vehicles.

b) Service vehicles should be required to use the service drives and service entrances rather than parking in the street where they obstruct circulation.
The campus transit system brings large number of buses through the campus along Church, Pillsbury, and Pleasant Streets. Large volumes of people are concentrated at the bus stops, about 17 thousand per week at the Architecture bus stop and 18 thousand per week at the Pillsbury Hall bus stop. The intercampus bus to the St. Paul campus transports about 50 thousand people per week who either load or unload at the Jones Hall bus stop. The periods of greatest bus traffic correspond to the periods of greatest pedestrian and bicycle traffic, during class changes.

Implications

a) The bicycle should be handled in such a way that it does not add to the congestion at the bus stops.

When the land taken up by the motor vehicle, buildings, and other factors that make it inaccessible to the pedestrian are subtracted from the total area of the campus, very little open space remains. It is this remaining space that is allocated to the pedestrian and green space.

Implications

a) This campus has such a high density in terms of land use, that little space remains for the addition of separate bicycle paths.

b) Space must be shared by the bicycle, pedestrian, and motor vehicle, or one or more of the three must be eliminated in certain areas in the interest of safety and ease of circulation.

c) It is evident from drawing 6 that most pedestrian spaces are little more than the remnants of the campus not occupied by the automobile. An effort must be made to develop pedestrian ways to connect these open spaces and make them usable for the pedestrians.

d) It is evident from drawing 6 that the amount of space required to park the expected number of bicycles will remove a large amount of pedestrian space or it must use land presently assigned to some other purpose such as parking lots.
MAJOR PEDESTRIAN ROUTES
drawing 7

With the exception of the Knoll and the Mall, the major pedestrian routes coincide with the motor vehicle routes. Serious circulation conflicts occur along these routes especially during class change and rush hours.

Implications

a) The reduction of these conflicts would have to include the reduction of the vehicular volume, because space does not allow for physical separation to pedestrians and motor vehicles.

BARRIERS TO BICYCLES MOVEMENT
drawing 8

1. The only means of crossing Washington Avenue is the Cedar Avenue bridge.

2. The Washington Avenue bridge is accessible only from the South side by a narrow ramp shared with pedestrians.

3. The East bridgehead is accessible only by a series of pedestrian bridges.

4. Coffman Union is accessible only by the pedestrian bridges of the East bridgehead, the West pedestrian bridge over Washington Avenue, or the intersection of Washington Avenue and Church Street.

5. The campus is entered from the East primarily through the intersection of Washington Avenue and Union Street.

6. The campus can be entered from the North only at the intersections of University Avenue with 14th, 15th, and 17th Avenues South East.

Implications

a) Because of the natural and man-made barriers, the bicycle circulation in and around the campus is restricted to the streets and sidewalks. This situation results in serious circulation conflicts.
The Minneapolis Campus is faced with a severe bicycle parking problem this fall. The parking capacity on campus (not including dormitory areas) is 1,731 spaces while 3,000 bicycles are expected. This means that the number of parking spaces is sufficient for only 58 percent of the expected bicycle population.

The present policy governing the placement of bicycle racks is that they should not be placed near building entrances and should be placed in low visibility areas. In addition, bicycle racks are often found in areas that are accessible only by traveling through heavy pedestrian traffic.

Studies this summer have shown that fifty percent of the bicycles on campus park in unauthorized areas, i.e. out of the racks. A large majority of these bicycles are chained to railings, fences, posts or anything else that it is possible to fasten a chain to. Numerous complaints have been received about this situation. Most of the concern deals with the aesthetics of the problem while a few are directed toward the potential safety hazards in some locations.

While the bicycle population has doubled over the past two years, the bicycle theft rate has risen by 80 percent in the past year alone. Last year about 500 bicycles valued at $31,000 were stolen in the University area. The theft rate has caused a number of people to express interest in a supervised parking facility or a bicycle rack that would provide a means of locking the bicycle more securely than those now provided.

Part of the theft problem is a result of the poor quality of the locking devices for bicycles that are on the market. Many of the locks can be picked very easily and the chains and cables can be cut with a small bolt cutter. Bicycles chained to the parking racks can be stolen by simply removing the front wheel.

Implications

a) It is essential that an accurate count of the number of bicycles on campus be kept up to date to assist in planning for parking racks.

b) Many bicycle racks are unused because they are placed in areas that are hidden or inconvenient. The design of the existing racks must be examined and possibly a new rack developed to provide greater security.

c) The possibility of supervised parking areas in connection with existing supervised automobile lots should be examined.
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Motorcycles are presently authorized to park in lots behind Coffman, along River Road East, and west of the Business Administration tower on the West Bank. The parking along the River Road is unsurfaced and is destroying a potentially beautiful natural area. The motorcycle can also be found parked in bicycle parking areas throughout the campus. Although the policy is to keep motorcycles from the center of campus, implementation and enforcement has not occurred.

Implications

a) Motorcycle parking areas should be developed in the areas not used by the automobile in existing parking lots and ramps at the edge of the campus; and the motorcycle parking along River Road East should be eliminated.

b) The motorcycle is a motor vehicle and should be subject to the same regulations as the automobile, and such policies and regulations should be strictly enforced.

AREAS OF CIRCULATION CONFLICT

The circulation conflicts in the past involved only the pedestrian and motor vehicle. Until two years ago the bicycle was not involved in any reported accidents involving personal injuries. During the past year, 43 cyclists have been injured in reported accidents. As the volume of bicycle traffic continues to increase, the number of serious accidents can be expected to increase unless the areas of serious conflict can be eliminated or minimized.

PEDESTRIAN / BICYCLE

1. West Bridgehead: All of the bicycles traveling between the east and west banks are funneled through a single narrow ramp that is also used by pedestrians. The ramp has high brick walls that make this area a blind corner at both the top and bottom of the ramp. Bicycles must also cross the pedestrian traffic to get to the bicycle lanes on the north side of the bridge.

2. Washington Avenue Bridge: Bicycle lanes are provided on the north side of the enclosure. These two lanes are of minimum width, four feet, so cyclists must drive in the pedestrian areas if they are to pass another bicycle. Many bicycles also travel on the south side of the enclosure which has no bicycle lanes and has been designated as pedestrian only. About seventy-five percent of the pedestrians use the south side of the bridge while a like percentage of bicycles use the north side. It is this mixture of pedestrians and bicycles on the bridge that cause the conflicts and accidents.
3. East Bridgehead: Cyclists and pedestrians share the pedestrian bridges as the only means of access. There is a great amount of conflict along the sidewalk between Appleby Hall and the Science Classroom Building. The construction of the proposed pedestrian bridge between the Science Classroom and the New Chemistry Buildings will change many of the existing circulation patterns.

4. Knoll Sidewalk: The diagonal sidewalk through the Knoll areas between the intersections of University with Fourteenth and Pillsbury with Pleasant is the major pedestrian route between the campus and Southeast Minneapolis. This sidewalk is also the major bicycle route because it is the only safe route. The cyclists weave through the pedestrians or ride on the grass. This conflict is dangerous to the pedestrians and inconvenient for the cyclist who must stop and walk his bicycle through the heavy pedestrian traffic especially at the entrance to the University at Fourteenth Street.

BICYCLE / MOTOR VEHICLE / PEDESTRIAN

1. 14th and University Avenue: This intersection is one of the primary entrances to the campus. There is a large volume of automobiles, bicycles, and pedestrians moving through a very narrow opening. The stone gate is only 18 feet wide for two lanes of traffic and has two 6 foot openings for pedestrians. The suggested width for two lanes of moving traffic is 24 feet. Bicycles, pedestrians, and motor vehicles all are severely hampered in their attempt to move through the intersection and the danger of serious accidents is extremely high.

2. 15th Avenue and University Avenue: This intersection is used by motorists and cyclists from the Como area as the entrance to the campus. This intersection also has heavy bus and truck traffic. Motor vehicles making turns at this intersection have been involved in some serious accidents with bicycles and pedestrians.

3. Pleasant and Pillsbury: Most of the traffic entering the campus at the two intersections just discussed is combined at this intersection. There is a large volume of traffic moving through this area during the rush hours.

4. All Campus Streets: There is heavy congestion during class changes along all of the campus streets. Service vehicles park anywhere along the streets, the bicycles weave through the traffic and the pedestrian crosses wherever he chooses.

5. Washington Avenue Intersections: All of the intersections along Washington Avenue between Oak and Church Streets are heavily congested. The intersections with Church and Union Streets are the most dangerous with respect to the number of reported accidents.
BICYCLE / MOTOR VEHICLE

There is very dangerous conflict all along all of the major streets in the University area. The most notable are University Avenue, Washington Avenue, Fourth Street South East, Fifteenth Avenue South East, and Twentieth Avenue on the West Bank.
### table three

**ON CAMPUS BICYCLE INJURIES 1970-1971**

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**TOTAL NUMBER OF INJURIES**

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* A disabling injury either required hospitalization or in the examining physician's opinion prevented the student from attending class for one or more days.
PROPOSALS FOR IMMEDIATE ACTION

The University has a number of problem areas that should receive action within the next year. These proposals are in the categories of circulation, new parking areas, parking changes, motorcycle parking, and administrative policies. In some cases these proposals are temporary and would serve to alleviate the problems until long term proposals can be put into effect. These immediate proposals are generally low in cost and should be implemented as soon as possible. Some of the proposals may not be specifically related to the bicycle but are concerned with the elimination of other circulation conflicts. Some of the proposals related to bicycle lanes require action by the City Government, but the University should make the recommendations and lend support to the implementation. The proposals are listed in order of their priority within each category.

CIRCULATION

drawing 14

1. West Bridgehead drawing 15: The brick sidewalls on the ramp must be removed and railings of the type used on the bridge should be installed to eliminate the dangerous blind corner.

2. Washington Avenue Bridge drawing 16: The existing lanes on the north side of the bridge should be repainted and widened to seven feet each.

3. Appleby Hall drawing 17: A curb-cut or ramp should be provided to allow bicycles to get from the street onto the sidewalk.

4. Intersection of University Avenue and 14th Street Southeast drawing 18: This intersection has been identified as a point of severe conflict. There seem to be four possible solutions to the problem. One suggestion made in the past is to bridge the rail yards and connect East River Road and Second Street Southeast. This is a very expensive solution to the problem and may be a long term possibility. A second possible solution is to widen River Road East. This would require the removal of numerous trees as well as the gate but would do little to reduce traffic volumes and solve the conflict. A third potential means of improving this problem area would be to cul-de-sac East River Road west of Child Development and close Pillsbury Drive between East River Road and Pleasant Street on a permanent or possibly a time basis as outlined in option four and item number 5 below; and as indicated as alternative 1 on drawing 18. This action would serve to eliminate much of the existing traffic movement and resulting conflicts. A fourth option seems to be the most practical, immediate solution. River Road East should be closed between University Avenue and Pillsbury Drive from 7:30 am to 5:30 pm on week days. This section of River Road should then be designated as a bicycle route. Care must be exercised to insure that whatever option is selected, it is coordinated with item 5 and implications on vehicular movement are recognized and resolved.

5. Pillsbury Drive drawing 18 (alternative 2): Pillsbury drive between Pleasant Street and River Road East should be closed permanently to all motorized vehicles with the exception of emergency vehicles. All of the buildings along Pillsbury can be serviced either from River Road East or Pleasant Street. This road should be designated as a bicycle route which
would connect the campus with Southeast Minneapolis. The diagonal sidewalk through the Knoll could then be closed to bicycle traffic.

6. **Intersection of 20th Avenue South and 4th Street South:** Drawing 19
   A curb-cut is needed to allow the bicycle to have smooth access to the campus. A pedestrian and bicycle lane should be provided through the parking lot.

7. **All Campus Streets:** A three foot wide bicycle lane should be painted along each side of all of the campus streets. This lane marking would serve as a reminder that the bicycle should travel along the right-hand curb. These lanes should then be checked for pot holes and repaired to provide a smooth riding surface.

8. **University Avenue and 4th Street Southeast:** The plan for Southeast Minneapolis by the City of Minneapolis Planning Commission, Spring 1964, states: "The section of University Avenue between Oak Street and Third Avenue North East has 40 to 44 feet of roadway while the required width for 3 moving lanes is 36 feet. Consideration should be given to narrowing the roadway in order to cut down maintenance costs as well as the possibility of widening boulevard planting strips. Similar consideration should be given to 4th Street Southeast". (page 83) The City of Minneapolis should be approached by the University of Minnesota with the recommendation that this extra road space be designated as a bicycle lane.

9. **15th Avenue Southeast:** At the time when the landscaping of Bierman Field takes place in connection with the new construction, an 8 foot wide bicycle path should be constructed from 8th Street Southeast to 4th Street Southeast. The City of Minneapolis should be approached with the recommendation that a bicycle lane be developed along the east side of 15th Avenue Southeast for the one block between University Avenue and 4th Street Southeast. This would require the elimination of about ten parking spaces.

10. **20th Avenue South:** This is the major route to the University campus from the south side of Interstate 94. A bicycle lane should be developed by the City of Minneapolis along 20th Avenue South between 4th Street South and the intersection of Cedar Avenue and Franklin Avenue.

11. **10th Avenue Bridge:** The 10th Avenue Bridge is in the process of reconstruction. As the West Bank Campus expands, this bridge will grow in importance as a link between the West Bank and the Southeast Minneapolis area which is a major student residential area. The University should encourage the City and State to include bicycle lanes on the reconstructed bridge. The University should act immediately because the work is now in progress.
INTERSECTION
20 th AVE. S.
AND
4th STREET S.
alternative 2

- WILSON LIBRARY PLAZA
- pedestrian walkway
- pedestrian entrance
- bicycle path
to the north side of the library
curb-cut

drawing 19-b
NEW PARKING AREAS  drawing 20

Supervised Lots: It is recommended that one supervised bike lot be developed on the East Bank and another on the West Bank. It is hoped that lots under some form of supervision would reduce the possibility of theft. A method of checking bicycles in and out must be developed. This could take a form similar to a coat check system or the University could own the locks and the attendant would lock and unlock the bicycles. Another possibility would be to have a contract sticker on the bicycle that would be honored at both the East and West Bank lots. In order to finance these lots and the resulting supervision, it will be necessary to charge a small fee to compensate for the loss of auto parking revenue.

1. Morrill Hall Parking Lot  drawing 21: By using an already surfaced area in a supervised automobile lot, the cost of developing a supervised bicycle parking area could be greatly diminished. The bicycle parking area must be near the attendant booth in order to have supervision. It may be necessary to remove some automobile parking spaces in order to develop a bicycle area. About 14 bicycles can be parked in the space taken by one automobile.
   a. Alternative one makes use of the spaces that are unusable by the automobile. These unused spaces are so fragmented that adequate supervision would be impossible.
   b. Alternative two provides the most direct supervision from the attendant's booth. The alternative has the disadvantage of being in the center of the parking lot which would result in a great deal of conflict between the bicycles and automobiles.
   c. Alternative three removes the same number of automobiles as alternative two but has a greater bicycle capacity because it makes use of unused spaces and circulation space. This alternative is close to the entrance which would reduce automobile conflict, but it would also make control difficult without a fence.

2. West Bank Parking Area  drawing 22: A number of alternative locations for a supervised parking area are identified on drawing 22. Some of the advantages and disadvantages of each site are also listed.

Additional Parking Areas:

3. Architecture  drawing 23: The Architecture building is not served by any convenient parking areas at the present time. At one time, as many as 70 bicycles have been chained to the railings around the entrances this summer.
4. Heart Hospital drawing 24: A paved area already exists near the Heart Hospital that could serve both the Children's Rehabilitation Center and the Heart Hospital. This summer a shortage of twenty spaces was noted in this area. Three double racks should be placed on this surface to provide the necessary parking.

5. Coffman Union drawing 25: No bicycle racks exist at the east end of Coffman Union. As a result, a large number of bicycles accumulate around the entrances to the building and on the sidewalks. Any racks placed in this location would require a new surface area which should be integrated into the existing landscape. A minimum of 24 spaces should be provided.
- direct supervision
- removes 12 cars
- 200 bike capacity
- direct supervision
- removes 12 cars
- 275 bike capacity
WEST BANK PARKING AREA

alternative 1
- temporary
- capacity 250
- excellent location
WEST BANK PARKING AREA

alternative 2

- existing parking area
- good location
- small surface
WEST BANK PARKING AREA

alternative 3
- good location
- already surfaced

old parking lot
WEST BANK PARKING AREA
alternative 4
- good location
- poor control

Diagram of West Bank Parking Area with alternative 4. The diagram includes streets, buildings, and parking areas marked with different patterns for good and poor location and control.
CHURCH STREET

PROPOSED ARCH. PARKING AREA

BUS STOP

ARCHITECTURE

Drawing 23

would conflict with bus stop option 3

would conflict with pedestrians option 2

direct access to church street-bike route option 1
PARKING CHANGES

drawing 26

289 bicycle parking spaces are unusable because of the arrangement of the racks within each parking area. In many cases only one side of a double rack is usable. In other areas the racks are too close together to allow for easy circulation between the racks. Bicycles parked in the racks near the entrances to some parking areas often prevent other bicycles from entering the area.

Bicycle racks should be arranged following the spacing shown in drawing number 27.

The bicycle parking racks should be arranged as shown in the enclosed drawings numbered 28-1 through 28-12.

MOTORCYCLE PARKING

Motorcycles are motor vehicles and must be subject to the same regulations as all of the other motor vehicles on campus.

The approximate number of motorcycles on campus last spring was 212. The total capacity of authorized parking areas was 365 spaces. The River Road East parking area has a capacity of approximately 250 spaces. This parking area is unsurfaced and is destroying a potentially beautiful natural area. Other parking areas must be found to replace the River Road parking. Within existing automobile parking lots and ramps there are a large number of spaces that are unusable to the automobile but suitable to the motorcycle. The following is an approximation of the number of spaces that could be made available in the parking ramp behind Coffman Union.

<table>
<thead>
<tr>
<th>Level</th>
<th>Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>level 1</td>
<td>45</td>
</tr>
<tr>
<td>level 2</td>
<td>60</td>
</tr>
<tr>
<td>level 3</td>
<td>80</td>
</tr>
<tr>
<td>level 4</td>
<td>115</td>
</tr>
<tr>
<td>level 5</td>
<td>45</td>
</tr>
<tr>
<td>TOTAL</td>
<td>345</td>
</tr>
</tbody>
</table>

*levels 1&2 are contract levels while levels 3,4,&5 are commuter levels.

The ramp at the corner of Washington Avenue and Union Streets has no space available. Other open parking lots should be examined for the possibility of motorcycle parking areas.
PARKING AREA GUIDELINES (minimum)

7' oc

13' oc

drawing 27
move
racks
from
behind
scott hall
to location
shown
one single rack
long single rack from powell hall

double rack from norris gym

MAYO PARKING CHANGE

drawing 28-8
move long single rack to mayo
(see drawing 28-8)
exchange two single racks with the three double racks west of blegen (see drawing 28-12)
exchange three double racks with two singles from the west bridgehead (see drawing 28-10)
ADMINISTRATIVE POLICIES

1. Continuation of Data Gathering: It is essential to the planning for the campus that a continuous updating of the bicycle study take place. This should be in the areas of the number of bicycles on campus, where they park, and where they come from. A bicycle count should be made once a month for the next year so that an accurate picture of bicycle usage throughout the year can be obtained.

2. The West Bank Planning: It is essential that bicycle circulation and parking be an important consideration in all West Bank planning and design. It appears as if the present design framework and concept for the West Bank development has not considered the bicycle and its needs. This plan should be revised to provide for a bicycle circulation system as well as those planned for the pedestrians and service vehicles.

   The existing plan provides for only one possible bicycle route between the north and south sides of Washington Avenue. This one possible route is the West Bridgehead which is also the site of the proposed Student Union. All of the bicycle and pedestrian traffic between the north and south sides of Washington Avenue and the East and West Bank campuses are directly effected by the circulation plan for the New Student Union. From an examination of the situation, the bicycle circulation provided for in the latest plans seems totally inadequate and appears as if it will cause serious congestion and conflict. When the large classes in the auditorium classroom building are dismissed, all of the pedestrians and bicycles wanting to go to the East Bank must travel through a walkway that is only 16 feet wide. An entrance to the Student Union is also located in this narrow passageway. This situation should be re-examined by the architects and the University of Minnesota.

3. Unauthorized Parking: All unauthorized parking should be eliminated from the campus. The unauthorized parking adds to the conflicts between pedestrians, bicycles, and motor vehicles.

4. Service Vehicles: All service vehicles should be required to use the service drives and entrances to the buildings. This would eliminate a lot of dangerous and unnecessary parking on campus streets which adds to the general congestion.

   The movement of service vehicles should be reduced to only essential traffic during class changes to reduce congestion.
LONG RANGE PROPOSALS

The University of Minnesota, Minneapolis Campus, should be developed as a pedestrian campus. Walking will be the primary means of travel within the campus for many years to come. Within this context, as the number of bicycles continues to increase on campus during the next few years, a number of major changes must take place in the areas of bicycle circulation and parking in order to develop a pedestrian campus. The bicycle will no longer be able to travel and park wherever the cyclist wishes. It must be noted that any restrictions placed on the circulation and parking of bicycles is not intended to discourage its use. All restrictions are intended to encourage the use of bicycles by making travel and parking more convenient, faster, and safer by eliminating or reducing conflicts with pedestrians and motor vehicles.

It is imperative that bicycle parking and circulation be integrated with the campus landscape by the use of plantings, street furniture, and lighting.

As a consequence of this being an initial, preliminary report, no attempt will be made at this time to offer final solutions or to program or cost long range improvements. These tasks should be accomplished as part of the continuing, advanced work on bicycle circulation and parking which integrates all aspects of transportation. The proposals which follow are possibilities which should be considered as alternatives as advanced, long range planning and development proceeds.

CIRCULATION CONCEPT drawing 29

Large numbers of bicycles concentrated in a small area require some form of control. Bicycles will become a major problem if they are not restricted to specific bicycle paths. The proposed circulation concept is a ring road encircling the center of the campus with the parking areas immediately adjacent to the bicycle paths. It is also essential to work with the City of Minneapolis to develop bicycle paths leading from the community to the University.

In many cases these bicycle circulation routes can be the routes along which a pedestrian system can be developed to link the campus pedestrian spaces. This can be accomplished by integrating the pedestrian walkways, seating areas, bike paths, and bicycle parking areas by the use of signs, street furniture, plantings, lighting, and bicycle racks.

All bicycle circulation routes should be marked with the standard bicycle signs. (Information on these signs and specifications for construction of bike paths can be found in the "Bicycle Study" file)

1. Pleasant Street: With the completion of the freeway system and the reopening of the 10th Avenue Bridge, Pleasant Street should be closed to traffic and restricted to bicycles and limited essential service vehicle traffic. This would be a part of an internal ring road that would include Pillsbury Drive and Church Street.

2. Coffman Union: A bicycle path between the Washington Avenue Bridge and
Union Street should be developed to separate the bicycle from pedestrian and motor vehicles. A possible route would be as follows:

From the end of the temporary wooden bridge at the west end of the Coffman plaza, a bike path should be constructed between the two stairwells of the garage, parallel to Washington Avenue. The path should continue from the east stairwell along the existing sidewalk to the front of the Zoology Building and then a new bike lane constructed between the existing sidewalk and Jackson Hall, Lyon Lab, and Millard Hall to the corner of Washington and Union.

3. Washington Avenue drawing 30: A bicycle path should be developed along Washington Avenue because it is one of the most dangerous areas on the campus. The most practical route seems to be along the north side of Washington Avenue in connection with the future parking ramp.

4. Chemical Engineering: This area is already a major pedestrian entrance to the campus although the pedestrians must weave through the parking lots. With the development of future parking areas, these small contract lots should be eliminated and the area should be developed as a pedestrian and bicycle entrance to the campus. Sufficient space exists for a major bicycle parking area as well.

5. West Bank: A basic premise is that the pedestrian plazas be reserved for the pedestrian and that separate bicycle routes be designated. The route shown in drawing 29 is sufficiently clear to indicate the recommended route.

6. St. Paul Campus drawing 31: A bicycle path connecting the Minneapolis and St. Paul campuses should be developed as an alternative to the bus as a means of intercampus travel.

a. One possible route is the Elm-Kasota connector. The advantage of this route is that it is along a lightly traveled road for much of the route. It would also serve the Elm-Kasota remote parking lot for those who would be interested in driving their cars to the lot and using their bicycle to get around the campus. The route does run into heavy traffic along Raymond Avenue. The major disadvantage is that it does not serve the community along the route because it passes through an industrial area.

b. The route along Como Avenue is the shorter of the two alternatives. The major disadvantage of this route is that it is along heavily traveled Como Avenue. The advantage, along with being shorter, is that it serves a great part of the University community. It would serve numerous students living in the area of Como and 15th, the proposed Como Housing project, the Como research and Service Center, the apartments at Larpenteur and Eustis, the University Golf Course, and the University Grove faculty housing area. This route would make use of the old intercampus streetcar line right-of-way which also would make it quite a scenic route.
7. Paths to the University: Paths should be developed by the City of Minneapolis from the community to the University. The University should encourage the City to develop routes along the River Roads, to south Minneapolis, and to Prospect Park as the beginning of a City-wide bicycle circulation system.
WASHINGTON AVE.

BIKE LANE

BIKE LANE

SIDEWALK

SEATING & PLANTINGS

PARKING RAMP
The parking areas should be developed as an integral part of the circulation system rather than something completely separate. The parking should be as close to the circulation routes as possible to eliminate excessive conflict with pedestrians by penetrating into the pedestrian areas. (see drawing 33)

The parking areas should be of two types. The existing small parking areas should be continued and improved, but they should not be expanded in general. The parking expansion should take place in a few large, central lots which could possibly be supervised and may require a small fee. These two types of parking facilities would give the cyclist a choice between convenience and security. Those who wished to use their bicycles to travel between classes would probably use the existing areas while those who stay in one place all day would use the large lots.

All new bicycle parking areas should be carefully planned and designed to become an integral part of the campus landscape. All of the existing parking areas should be re-evaluated as to location and size and should be redesigned to integrate them with the campus through the use of plantings, street furniture, and lighting.

Evaluation of Existing Parking Locations

These comments, based upon observations made during the past three months, are concerned with the locations of the existing parking areas. An evaluation of the capacities of the areas must be made after an up-to-date bicycle count can be made this fall quarter. (see drawing 9 for the location of the racks)

1. Music Education - GOOD, directly off bicycle circulation route, serves both Music Education and Piek Gymn.

2. Piek Hall - GOOD, directly off circulation route.

3. Pattee Hall - POOR, some racks are hidden, must travel through a parking lot and on pedestrian sidewalks to get to the racks.

4. Norris Gymn - POOR, the racks are far from the bicycle circulation route, bicycles must ride on sidewalks to get to racks

5. Eddy Hall - FAIR, a short ride on the pedestrian sidewalk is necessary

6. Scott Hall - POOR, far from entrances, in construction zone, may be a good location when the Psychology Building is completed.
7. Wesbrook (north) - FAIR, directly off circulation route, far from entrances

8. Wesbrook (south) - FAIR, close to entrance, must travel a short distance on pedestrian sidewalk, potentially very good

9. Walter Library - GOOD, very short ride on wide sidewalk is necessary

10. Frazer Hall - FAIR, near an entrance, little conflict

11. Chemistry - GOOD, near entrance, short ride on sidewalk

12. Science Classroom - GOOD, near entrances, just off circulation route

13. East Bridgehead - GOOD, little conflict

14. Coffman (west) - VERY GOOD, immediately off circulation route

15. Klaeber Court - VERY POOR, farthest possible location from entrances, completely hidden from the cyclist.

16. Folwell - POOR, requires long ride on sidewalks in heavy traffic

17. Jones Hall - POOR, located in heavy pedestrian area between two major bus stops

18. TSF - FAIR, short ride in heavy pedestrian area, bus stop

19. Bell Museum - FAIR, inaccessible from Church Street

20. Nicholson - VERY GOOD, in the center of a heavy pedestrian area, between bookstore and bus stop, between two major pedestrian sidewalks

21. Physics - GOOD, near entrance, short ride on sidewalk

22. Architecture - VERY POOR, hidden from cyclists, located where there is little use, no access from Church Street

23. Space Science - GOOD, near entrances, just off circulation route

24. Vincent-Murphy - FAIR, near entrance, short ride on sidewalks

25. Electrical Engineering - POOR, in heavy pedestrian area

26. Experimental Engineering - FAIR, amount of use is questionable

27. Main Engineering - VERY POOR, in the center of a pedestrian space

28. Ford Hall - FAIR, short ride on busy sidewalk

29. Cooke Hall - FAIR, in a low use area
101. West Bridgehead - GOOD, direct access
102. Blegen (west) - POOR, hidden, far from entrances
103. Anderson - GOOD, near entrances, on circulation route
104. Wilson (south) - FAIR, some pedestrian conflict
105. Wilson (west) - POOR, far from entrances
201. Lyon Lab - GOOD, near entrances, on circulation route
202. Zoology - GOOD, near entrance, on circulation route
203. Millard - POOR, construction
204. Botany - GOOD, near entrance, on circulation route
205. Mayo Garage Entrance - FAIR, some conflict with pedestrians
206. Health Service - GOOD, a little crowded
207. Heart Hospital - GOOD, direct access from circulation route
208. Powell Hall - FAIR, short travel on sidewalk
209. Diehl Hall - GOOD, very little conflict with pedestrians
301. Sanford Hall - GOOD, near entrance, just off circulation route
302. Middlebrook Hall - FAIR, parking along sidewalk
303. Comstock Hall - GOOD, near entrance and circulation route
304. Centennial Hall - POOR, located in courtyard that should be developed as a pedestrian space
305. Territorial (west) - FAIR, some conflict with pedestrians and automobiles, potentially a very good location
306. Territorial (south) - POOR, far from entrances, hidden
307. & 308. Pioneer Hall - POOR, both are located in courtyards that should be developed for pedestrian use, access difficult because of stairways
309. Frontier Hall (west) - FAIR, some conflict with pedestrians and motor vehicles, potentially very good
310. Frontier Hall (south) - FAIR, a little hidden, far from entrance
Potential Areas for Large Parking Lot

1. Pillsbury Drive drawing 34: When Pillsbury Drive has been closed to motor vehicles, one-half of the width of the roadway should be developed for parking. This would provide parking immediately adjacent to the circulation so that no pedestrian routes would have to be crossed to get the parking areas.

2. Johnston Hall: All motor vehicles should be removed from this area because it is a major pedestrian entrance to the mall. As many as 15 cars have been parked in this driveway at one time this summer causing great difficulty for the pedestrian. Bicycle parking should be integrated with the pedestrian furniture and walkways.

3. Pillsbury Bus Stop: The bus stops on each side of Pillsbury Drive generates a large volume of pedestrian traffic. This area should be designed to ease circulation and parking problems for bicycles, buses and pedestrians.

4. Morrill Hall Parking Lot: This central space on the campus should be developed as a major bicycle and pedestrian area. This area could hold approximately two-thousand bicycles. The advantages of this site are its central location and immediate access to the bicycle circulation.

5. Armory Parking Lot: This is another possible area for a large bicycle lot. The major disadvantage of this site is that a large number of pedestrians travel through the site to the Armory but this circulation could be designed into the parking area.

6. Wulling Hall: The existing automobile parking area should be eliminated when other parking can be found. This site serves Fraser and Wulling Halls and is immediately adjacent to the circulation route.

7. Chemical Engineering drawing 35: The contract parking lots should be eliminated and a bicycle parking area be established. This site should be developed as a major pedestrian and bicycle entrance to the campus. There is also sufficient space for a major parking area which would serve the Institute of Technology and the Health Science area.

8. "Super Block" drawing 36: The four block area containing the four dormitories has been combined into a single large block by street closings. Little has been done in the way of landscaping to develop this area. Bicycle parking areas for the dorms should be developed in connection with a bicycle path through the area.

9. Coffman Parking Ramp: The roof of the parking ramp is a large, open, flat, unused area that has a capacity of seven or eight thousand bicycles. A lot of that capacity is undesirable even if we had that number on campus. A portion of this area could be developed as a parking area. The disadvantages of this area are that it is not readily accessible to bicycles and pedestrians. The accessibility from one direction could also be an advantage for control. The site would serve Comstock dormitory, Coffman Union, and the Health Science complex.
10. Old Parking Lot: The West Bank parking lot that was closed during the construction of the performing arts building should be developed as a pedestrian plaza and bicycle area.

11. Wilson Library drawing 37: The pedestrian plaza north of Wilson Library is now an empty paved area with a number of skylights in the center. It is not an enjoyable or usable pedestrian space, but could be developed as a bicycle parking area in connection with a pedestrian area.
BICYCLE PARKING AREA DESIGN DIRECTION

most desireable
direct access without pedestrian conflict

parking area

bike lane
drawing 33

unacceptable
dangerous pedestrian conflict

parking area

pedestrian walkway
BICYCLE RACKS

drawing 38

Following are sketches of some possible alternatives to the existing bicycle racks used on campus. These particular racks would have to be custom built because the racks available commercially are of the type we are now using.

ADMINISTRATIVE POLICIES

1. The Minneapolis Campus should be developed as a pedestrian oriented campus. In the design and development of the campus, the pedestrian should have priority. The cyclist should not be free to travel where ever he chooses, but should be restricted to specified circulation routes.

2. All bicycles should display a current registration with one of the communities in the metropolitan area. It is hoped that this will aid in the recovery of stolen bicycles.

3. All architects commissioned by the University must consider bicycle circulation and parking in their planning. This is of greatest importance in the development on the West Bank where the circulation and parking patterns are not already dictated by the existing structures.
- locks front wheel and frame
- flexibility of arrangement
- locks front wheel and frame
- flexibility of arrangement
- prevents front wheel from turning
- locks both wheels and frame
- requires a long chain to do so
- chains built in
- greatest security
- questionable aesthetics
A Plan for Southeast Minneapolis; City of Minneapolis Planning Commission, 1964.

Bike Trails and Facilities: A Guide to their Design, Construction, and Operation; Walter L. Cook

Interim Report for the Ad Hoc Committee on Circulation and Parking; University of Minnesota, DeLeuw, Cather and Company, February 1969

Report of the Ad Hoc Committee on Circulation and Parking; Long-Range Goal and Immediate Program; September 1967

Campus Circulation, University of Minnesota; Thomas G. Mortenson, Thomas R. Martinson; April 1965

Bicycle Provisions Report; University of Utah Campus Planning Department; Bruce H. Jensen, University Architect; February 1971