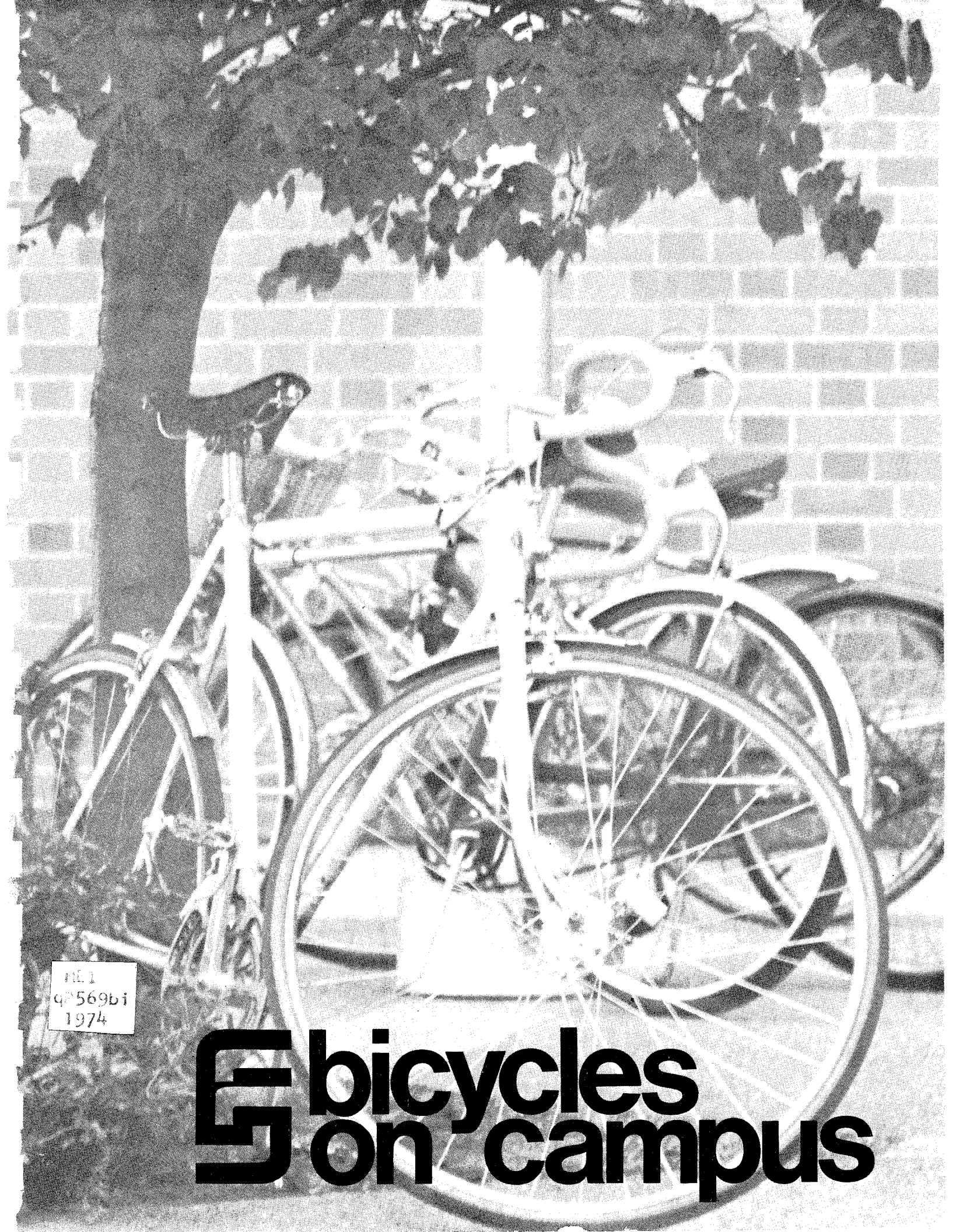

bicycles on campus

bicycles on campus

September 1974

Office of Physical Planning

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I introduction

In October 1973, the Office of Physical Planning, with the assistance of the University Opinion Poll, conducted a bicycle survey for the purpose of monitoring the bike lanes and ascertaining bicyclists' parking and riding habits. The data obtained would serve as a base for planning bicycle facilities.

The survey was based on a random sample of bicycling students, staff, and faculty as well as nonbicyclists on the Twin Cities Campus. It was successful in that the data obtained was representative of the average bicyclist and major campus bicycle needs were identified and confirmed. Observations on bicycle circulation made by Peder Andres Sulerud in the "Bicycle Circulation and Parking Study", which was released by the Office of Physical Planning in 1971, were also substantiated.

II table of contents

III summary

-Although nonbicyclists are generally more satisfied than dissatisfied with the bike lanes, 78% experienced some conflict, particularly in sidewalk areas.

-The majority of Minneapolis and St. Paul Campus bicyclists are students, and they ride to the campuses on ten speed bikes.

-A majority of bicyclists ride on campus five days a week or more, making use of the available bike lanes; and two thirds of the cyclists ride on campus at night at least once a week.

-Most cyclists do not bike between the Minneapolis and St. Paul Campus.

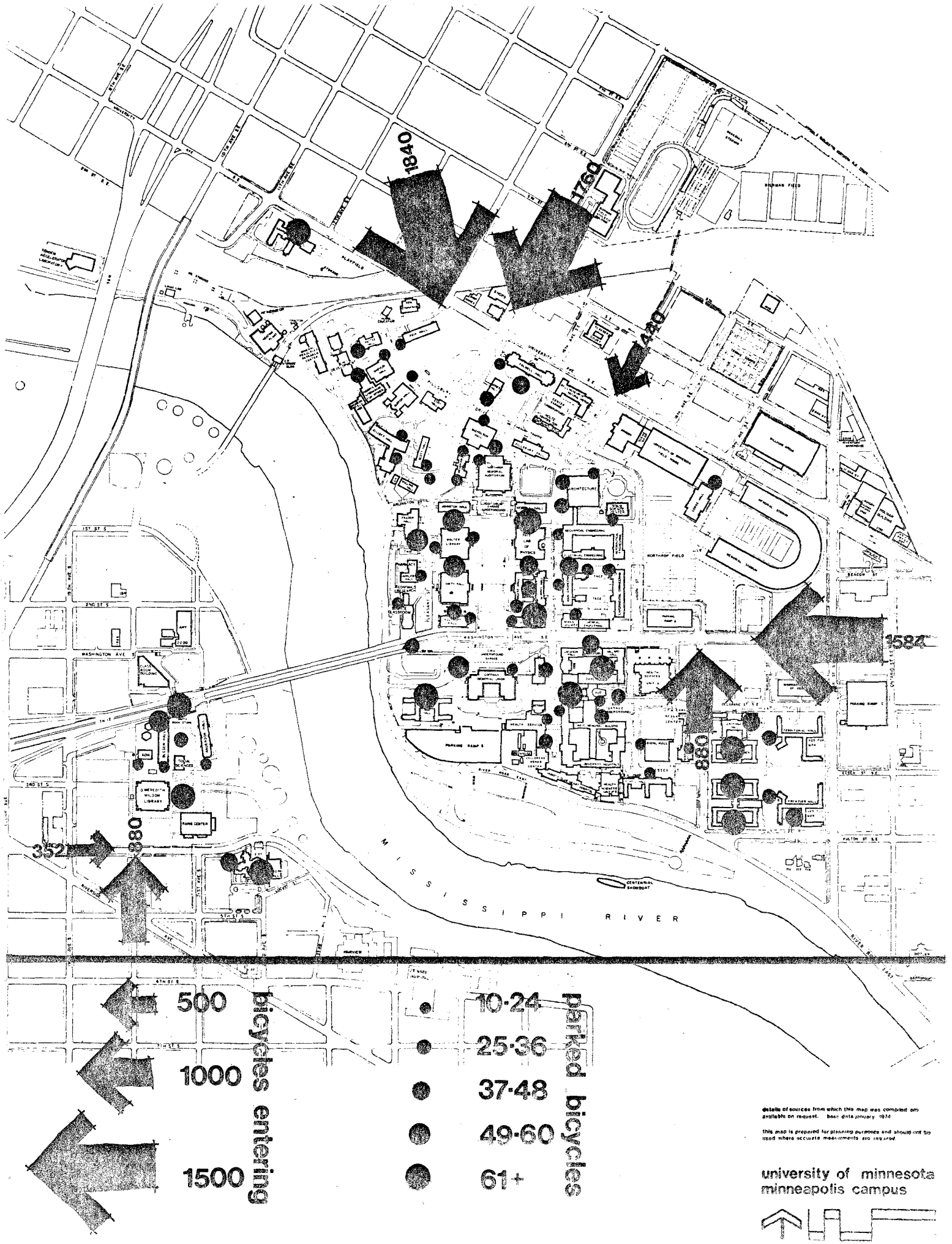
-The majority of bicyclists live within a two-mile radius of the Twin Cities Campus. They enter and leave the Minneapolis Campus via 4th Street S., Harvard Street, 14th, 15th, 17th, Washington, and 20th Avenues. They enter and leave the St. Paul Campus via Buford Street, Commonwealth, and Gortner Avenues. (Refer to Minneapolis and St. Paul Campus Maps, pp. 1 & 2.)

-Most bicyclists are as interested in parking close to their destination as they are in increased security. They are unwilling to pay for this increased security, however.

-In rank order, Minneapolis Campus bikers park in the area of the Mall, Health Sciences, West Bank, IT, and the Knoll. In St. Paul the majority park north of Buford. (Refer to Minneapolis and St. Paul Campus Maps, pp. 1 & 2.)

-The majority of cyclists leave their bikes parked in one spot all day. They have no preference for precast concrete racks over the metal pipe racks; but they would like to see more racks and racks that offer security.

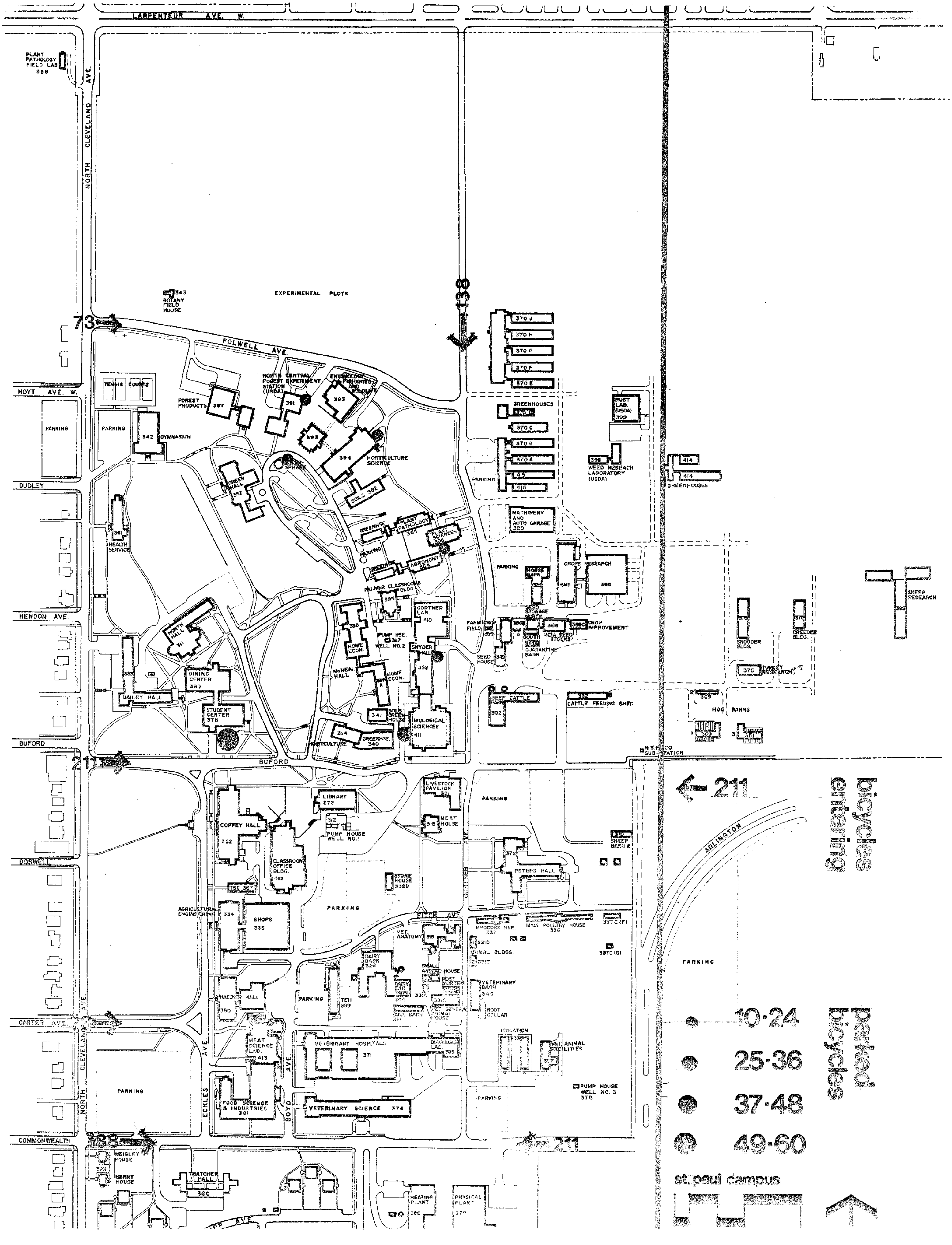
These findings suggest the need for bicycle regulations, a Long Range Development Plan for bicycles, increased parking facilities, and a continuance of the present lane system with some additions and some deletions.



details of sources from which this map was compiled are available on request. base data january 1974

this map is prepared for planning purposes and should not be used where accurate measurements are required

university of minnesota
minneapolis campus


LARPENTEUR AVE. W.
PLANT PATHOLOGY FIELD LAB 358
NORTH CLEVELAND AVE.
343 BOTANY FIELD HOUSE
EXPERIMENTAL PLOTS
73
FOLWELL AVE.
370 J
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370 F
370 E
HOYT AVE. W.
TENNIS COURTS
PARKING
FOREST PRODUCTS 387
NORTH CENTRAL FOREST EXPERIMENT STATION (USDA) 391
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342 GYMNASIUM
GREENHOUSES
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398 WEED RESEARCH LABORATORY (USDA)
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HORTICULTURE SCIENCE 394
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MCIA SEED STOCKS
SOUTH
QUARANTINE BARN
BROODER BLDG.
BREEDER BLDG.
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HOME ECON. 338
PUMP HSE. 327 WELL NO. 2
SNYDER HALL 352
SEED HOUSE
McNEAL HALL
HOME ECON.
DINING CENTER 390
375 TURKEY RESEARCH
BAILEY HALL
STUDENT CENTER 376
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GREENHSE. 340
BUFORD
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N.S.P.CO. SUB-STATION
LIVESTOCK PAVILION 321
LIBRARY 373
COFFEY HALL 322
312 PUMP HOUSE WELL NO. 1
MEAT HOUSE 315
CLASSROOM OFFICE BLDG. 412
310 SHEEP BARN 2
ARLINGTON
PETERS HALL 372
DOSWELL
STORE HOUSE
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SHOPS 335
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VET. ANATOMY 316
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DAIRY BARN 326
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bicycles entering
parked bicycles
10-24
25-36
37-48
49-60
st. paul campus

IV survey analysis

A. Nonbicyclists' Reactions

1. Observations

Although nonbicyclists were generally more satisfied than dissatisfied with the bike lanes, 78% experienced conflict particularly in pedestrian areas. It appears that pedestrians are cognizant of the fact that nonbicyclists are as much at fault as bicyclists in their failure to observe the bike lanes. Some pedestrians feel that bicyclists in general have a tendency to disregard traffic regulations.

2. Support Data

a. 42% of the 44,700 nonbicyclists were satisfied with the bike lanes, 38% were dissatisfied, and 20% were undecided.

b. 26,000 or 58% of the nonbicyclists experienced some conflict in pedestrian areas (i.e. sidewalks, bike lane/pedestrian path intersections, where pedestrian paths are shared with bikes). 8,100 (18%) encountered difficulties at street intersections and 900 (27%) experienced problems in bike parking areas.

c. Approximately 9% of the noncyclists made additional comments on the bicycle situation. 30% of those commenting noted that pedestrian as well as cyclists do not respect the lanes, and 17% noted that bicyclists fail to observe the rules of the road.

B. Bicycle Routes (On and Off Campus)

1. Observations

a. All roadways bringing bicyclists to either campus are city-owned streets with the exception of East River Road which falls under the jurisdiction of the Minneapolis Park Board and Washington Avenue which is maintained by the State. The fact that these streets are used extensively by a majority of bicyclists justifies the need for bicycle facilities.

The extent of proposed or already developed bicycle facilities in the University area consist of the remaining lanes in the Minneapolis bikeway system lying on portions of University, 15th, Como and 20th Avenues and 4th Street S.E. and Rollins. The Park Board's Program for 1975, includes a bike path for the East River Parkway from I-94 to the Washington Avenue Bridge.

B. Bicycle Routes (Continued)

1. Observations (Continued)

The Bicycle Feasibility Study released by the City of St. Paul in February, 1974, outlines a proposed bike route for Como Avenue which could possibly continue a Minneapolis route on Como. The Study also designates a bike path (funded in 1972-73) for Mississippi River Boulevard from West 7th Street in St. Paul to the city limits on the west.

These facilities are not continuous and the safety they afford is minimal in terms of two-way bike traffic and protection from motor vehicles.

b. The difficulties encountered by bicyclists at Minneapolis Campus entrances were discussed three years ago by Peder Andres Sulerud, former staff member of the Office of Physical Planning, in the "Bicycle Circulation and Parking Study". He identified the intersection of University Avenue and 14th Avenue Southeast as a point of severe conflict and offered four possible solutions. Although the solutions may no longer be viable, the conflict persists.

He also identified 20th Avenue South on the West Bank as an immediate action area,

> "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."

The survey verified this observation; consequently, the City of Minneapolis was urged to extend the bicycle facilties on 20th Avenue as far north as 4th Street under their experimental route system.

15th Avenue Southeast, also identified as a major campus entrance in the survey, deserves particular attention due to the mixture of traffic modes: passenger and service vehicles, buses, pedestrians, and bicycles.

While Harvard and Washington also serve as entrance points, they are city and state-owned respectively; therefore, it would be necessary to approach the city and state to effect any changes.

Those roadways, or portions thereof, used most often

B. Bicycle Routes (Continued)

1. Observations (Continued)

by bicyclists to enter the St. Paul Campus are designated as part of the optimum layout for bringing traffic to campus with minimal disruption in the Planning Framework of the St. Paul Campus Long Range Development Plan. They are defined as "Campus Roads", their function being to accommodate service vehicles, buses, bicycles, limited visitor autos and pedestrians.

The relatively few bicycles on the St. Paul Campus compared to the number of the Minneapolis Campus in addition to the bicycling obstacles posed by the rolling topography in and around the St. Paul Campus suggest that lanes are unwarranted within the campus.

c. The majority of bicyclists are making use of the available bike lanes.

d. The beginning of an intercampus bike route will exist with the partial implementation of some of the Minneapolis bike lanes.

2. Support Data

a. The majority of bicyclists riding to the Minneapolis Campus live in Southeast Minneapolis (Zip Codes 55404, 55414, and 55455) and use the following thoroughfares most frequently to reach the campus: 15th, University, Washington, Franklin, Cedar, Riverside and Como Avenues and East River Road. St. Paul Campus bicyclists (the majority within Zip Code 55113, Roseville) generally travel Como, Cleveland, Larpenteur, and Snelling Avenues to reach the campus.

b. The following roadways are used most often by 8800 Minneapolis Campus bicyclists to enter and leave the campus: Harvard Street and 14th, 15th and Washington Avenues on the East Bank and 20th Avenue and 4th Street S. on the West Bank. Of the approximately 920 bicyclists on the St. Paul Campus, most enter and leave via Buford Street and Commonwealth Avenue (from west of Cleveland Avenue); Commonwealth (from the fairgrounds) and Gortner Avenues serve as secondary entrances.

c. 90% of the bicyclists on the Minneapolis Campus use the available bike lanes (no differentiation being made between sidewalk and street lanes). 50% of the bicyclists sampled commented on their use of the bike lanes. Of this 50%, 18% made miscellaneous comments. The following reasons were given for using the lanes:

B. Bicycle Routes (Continued)

2. Support Data (Continued)

Roughly 26% said the lanes were there for bikes.
20% said they felt a sense of safety.
19% said it was the least congested means of traveling on campus via bicycle.

17% said that because the lanes are disregarded by pedestrians and vehicles they do not use them.

d. An average of 920 bicyclists ride between campuses using the 15th, Como, Cleveland Avenue route most frequently. (It was impossible to determine on what basis the route is traveled, i.e. daily, weekly, etc., due to the broad scope of the survey.)

C. Bicycle Travel Patterns

1. Observations

Viable bicycle facilities are needed on thoroughfares within a two-mile radius of the University due to the large number of bicycles riding on a continual basis. These facilities should take into account the existence of night riders.

2. Support Data

a. 71% or 6500 bicyclists ride two miles or less to reach the campuses, while 2800 ride from a distance of greater than two miles.

b. On a weekly basis, 2300 bicyclists ride on campus at night at least once, while 3,900 ride on campus at night more than once a week.

D (1). Bicycle Parking - Parking Areas

1. Observations

a. Presently there are approximately 1,800 rack spaces in Minneapolis and 220 on the St. Paul Campus for a total of 2,020 spaces which means that parking is provided for only 22% of the Twin Cities Campus bicycle population. Although it is unnecessary to meet peak parking demands, the currently limited number of parking facilities does not satisfy the average demand. The implementation of phased bike parking as outlined in the Fall 1973 Inventory of Bicycle Parking and Racks and subsequent inventories is, therefore, justified.

D (1). Bicycle Parking - Parking Areas (Continued)

1. Observations (Continued)

b. All parking, as indicated by Mr. Sulerud, should be

> ". . . immediately adjacent to the circulation so that no pedestrian routes would have to be crossed to get to the parking area . . . 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 cyclists 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 . . ."

While the survey verified that most bicyclists keep their bikes in one place all day and that some take their bikes with them as they move, the establishment of large, central, and attended lots to serve the former does not appear probable as salaried attendants and a fool-proof system of returning bikes to their rightful owners would be major requirements.

2. Support Data

a. Of the 8,800 bicyclists on the Minneapolis Campus, approximately 4,200 park their bikes in the vicinity of the mall or in and around the Health Sciences complex. Other major parking areas include West Bank, IT, and the Knoll area, in that order. This breakdown follows closely the areas of need identified in the Fall 1973 Inventory of Bicycle Parking and Racks.

Of the 920 bicyclists on the St. Paul Campus, 600 park north of Buford. It can be concluded from the Inventory of Bicycle Parking and Racks that the Student Center north of Buford accounts for a majority of these rack needs. The survey as well as the Inventory identified Veterinary Science as the area south of Buford which requires additional racks.

D (1). Bicycle Parking - Parking Areas (Continued)

2. Support Data (Continued)

b. 600 bicyclists noted insufficient parking facilities as one of the largest campus bike problems.

6,600 bicyclists park in racks or at railings adjacent to building entrances. 5,800 bicyclists relocate their bikes (getting off and parking) at least once and usually two or three times daily, while 3,300 indicated no such movement. 50% of the bikers park in one location during the day while 2,000 bicyclists keep their bikes with them as they travel on campus.

Some bicyclists, in contemplating the establishment of bike lots, expressed the following concerns:

-How fast could one park and pay?
-Most people ride bikes to save money not pay.
-Lots would lead to counterfeit tickets and organized theft.
-The lots would most likely be too far away to make them viable.
-Only the owners of expensive bikes would pay for lots with attendants.

D (2). Bicycle Parking - Racks and Security

1. Observations

a. The majority of bicyclists are interested in racks of greater security, and any new rack offering increased security should take into account the 5,500 ten speed bikes on the campuses. Locating racks which offer maximum security, are suitable to this climate, and are not safety hazardsfor pedestrians is difficult, particularly in view of the racks available on the market.

b. It appears that consideration of coin-operated parking facilities can be tabled at this time as most bicyclists are unwilling to pay for its use. (The survey, however, did not explicitly state that pay parking would be optional.) This attitude is supported by Stanford University's experience with coin-operated racks where there was low rack usage and a tendency on the part of bicyclists to use their own locks rather than pay a rack fee.

c. No strong preference was expressed for either the precast concrete or the metal racks; however, the bicyclists' comments regarding both types of racks can be used as input in designing new racks.

D (2). Bicycle Parking - Racks and Security (Continued)

2. Support Data

a. Slightly more than half of the bicyclists felt that nearness to a building entrance was as important as rack security in parking their bikes. Rack security was more important to only 3,000 bikers.

The following suggestions for improving bike racks came from those bicyclists who are interested in parking facilities comprised of racks:

-Increase rack security.
-Provide insured racks with locks and assign these racks to individuals.
-Provide cemented-down pipe racks designed for parking bikes crosswise.

b. Although a majority of bicyclists emphasized the need for rack security (approximately 25% identified theft as a major bike problem), 65% were unwilling to pay a fee for the use of special racks or attended lots. Of the 3,200 indicating a willingness to pay, only 1,400 or 15% of the campus cyclists would pay a maximum of 25¢ 1,600 or 17% would pay up to 10¢ for the use of an uninsured rack.

c. Due to the fact that more than half of the bicyclists have never used the precast concrete racks, it was impossible to determine whether or not these racks were preferred over the metal pipe racks in terms of security. 23% of the bicyclists commented on racks and discussed the advantages and disadvantages of both types of racks. The comments of this 23% are categorized below:

METAL RACKS

Advantages		Disadvantages	
20%	Easy to secure bike.	3%	Joints not welded.
17%	Less hazardous to bike.	3%	Not secured at ground.
10%	Can secure both wheels and frame.		

D (2). Bicycle Parking - Racks and Security (Continued)

2. Support Data (Continued)

CONCRETE RACKS

Advantages		Disadvantages	
10%	Easy to secure bike.	3%	Heavy chain can't be used in adjacent stall.
3%	Safer.	3%	Rim of bike can be bent.
		3%	Easier to clip metal bar than some bike chains attached to metal racks.
		3%	Difficult to chain bike.
		3%	Metal bar too close to ground which allows more leverage for cutting chains.
		3%	Could damage rear wheel derailleur system.

13% of those bicyclists commenting on the racks had no preference for either rack:

- 7% Bikes in any rack are easily stolen.
- 3% Chains, not racks are cut.
- 3% A combination of both racks appears logical.

E. Bicyclists' Comments

1. Observations

In comparison, the major concerns of the bicyclists regarding bicycle circulation are similar to those of the nonbicyclists particularly in the area of safety.

2. Support Data

In identifying what they considered to be the largest bicycle problem on campus, bicyclists made comments similar to those of the nonbicyclists, citing the lack of mutual respect among bikes, vehicles, and pedestrians; theft; and the present design system which they felt to be faulty in terms of the need for more, better marked, wider, separated, and continuous lanes, improved design for the amount of traffic to be handled, and better road conditions. Parking and security, the absence of adequately publicized rules, and the failure of bicyclists to observe traffic regulations were also identified as problems. A relatively few number of bicyclists felt bikes should be limited to the campus periphery.

IV appendices

Appendix A

Survey Objectives and Utilization of Results

A. Pedestrians

1. By defining areas of bicycle/pedestrian conflict, we can study possible solutions.

2. By obtaining pedestrian insight into the safety hazards posed by bicyclists, we can take appropriate measures to reduce or alleviate them.

B. Bicyclists

1. By determining to what extent the bicyclist rides his bike on campus, we can obtain a more accurate picture of how extensively the bicycle should be provided for.

2. By determining the most frequently used bicycle entrance and exit points on the Minneapolis and St. Paul Campuses, we can identify where more elaborate bicycle access areas need to be developed. We can also determine at what entrance and exit points new lanes can and should be developed.

3. By determining why the bicycle lanes are or are not used, we can identify necessary improvements.

4. By determining the number of students traveling between the Minneapolis and St. Paul Campuses via bicycle and the route they most often use, we can evaluate the need for a bicycle lane between the Minneapolis and St. Paul Campuses at this time.

5. By determining the extent to which bike lanes are used at night, we can evaluate the necessity of providing adequate lighting.

6. By determining how many bicyclists move their bikes continuously during the day as opposed to leaving it in one spot, we can obtain a clear picture of how the lanes are used; that is, to what extent they are used as thoroughfares and to what extent they are used as short distance connectors.

7. By determining the desirability of particular parking provisions, we can attempt to provide accordingly.

8. By determining attitudes toward pay parking, we can provide accordingly.

9. By determining which areas of campus boast the greatest number of parked bicycles and by noting the difference between students and faculty/staff in terms of parking habits, we can provide appropriate parking facilities.

10. By determining the percentage of bicyclists coming from off campus, the distance they travel, what thoroughfares they use, and where their trip originated, we can identify the city-owned streets in need of bicycle facilities. We can approach the City accordingly.

Appendix B

INTERPRETATION OF DATA

For computation purposes, the Twin Cities Campus population including students, faculty and staff as of January 15, 1974, was 53,915. In the analysis, staff and faculty responses were not considered separately from those of students because of the small number of faculty/staff bicycling on campus. The figures used in calculating responses to the questionnaire were dependent upon the audience for particular questions -- some questions, or portions thereof, applying to the St. Paul Campus and some to the Minneapolis Campus bicyclists. Bicycle populations of 8,799 and 917 were used for Minneapolis and St. Paul respectively; an overlap of 550 bicyclists riding on both campuses was included in these figures. A 95% confidence interval was used for the three questions asked of non-bicyclists. The intervals for each response category are documented in Appendix D. For discussion purposes, the average figure calculated for each response category (and as indicated by the percentages given for each response category in Appendix C) was used in this report.

office for student affairs RESEARCH BULLETIN

UNIVERSITY OPINION POLL 8A: BICYCLES ON CAMPUS

Ronald Matross, Joel Brown, and Deborah Seaburg

Student Life Studies
University of Minnesota

The University Opinion Poll conducted a two-stage survey of campus bicycle usage and opinions toward campus bicycle facilities. In the first stage, 952 persons, 78% of a random sample of students and staff reported their commuting habits and opinions about campus bicycle lanes. In the second stage, 139 persons, 84% of a sample of student and staff bicycle commuters, reported their riding habits and opinions about campus bicycle facilities. Key findings include: Most respondents usually commute to and from the University by car; most cyclists regarded bicycle theft as the major bicycle problem on campus, but were unwilling to pay for increased bicycle security.

UNIVERSITY OPINION POLL 8A: Bicycles on Campus

Ronald Matross, Joel Brown, and Deborah Seaburg

Student Life Studies
University of Minnesota

At the request of the Office of Physical Planning the University Opinion Poll conducted a survey of student and staff opinion relating to bicycle usage on the Twin Cities campus of the University of Minnesota. The survey was conducted in two stages. The first stage identified a sample of cyclists and asked non-cyclists about problems with bicycles on campus. The second stage asked the cyclists about their commuting habits and feelings toward campus bicycle facilities. Survey items were generated in meetings between staff members from the Office of Physical Planning and the University Opinion Poll.

Sample

The total sample included the names of 1220 students and staff members from the Twin Cities Campus. Seventy-six percent of the sample were students and 24% were staff (faculty and civil service). The student sample was developed from a computer-generated 3% sampling of students listed in the active file of the Office of Admissions and Records. Extension students and those not registered by the second week of fall quarter were not included. The initial student list was larger than was needed, and was reduced to 930 names by eliminating every seventh name. The 290 staff names were a random sample generated from the files of University Relations. The approximate three to one ratio of students to staff is representative of the total distribution of students and staff on the Twin Cities Campus.

STAGE 1: Identification of Cyclists and Opinions of Non-Cyclists

Conduct of the Survey

The first stage of the survey was conducted by telephone, with a supplemental mailing. On October 24, 1973, the three items selected for the first stage of the survey were telephone pre-tested by a professional interviewer. The telephone portion of the survey was conducted from November 3 to November 7, 1973, by Koser Surveys Inc. A minimum of four attempts was made to contact all those with local phone numbers (N=988). Ten percent of those who did respond were contacted a second time as a validation check on the interviewing. The survey questions were mailed to those without local phone numbers (N=214) and those whom Koser Surveys could not contact by telephone (N=197). No attempt was made to contact 18

individuals in the sample with unknown or foreign addresses.

Response Rates

By November 21, 1973, responses had been received from 78% of the total sample, (79% of the students and 76% of the staff). Response rates were 80% for the telephone portion of the survey and 38% for the mailed portion.

Results

The distributions of responses to each question are presented below. Differences between response categories of fewer than five percentage points should not be considered significant. Percentages may sum to 99% or 101% because of rounding errors.

1. Which of the following means of transportation do you usually use, weather permitting, to travel to and from the University each day?
(Note: Respondents could choose more than one category if appropriate.)

	% of Student Sample N=733)	% of Staff Sample (N=219)	% of Total Sample (N=952)
A. Car, no passengers	33	58	39
B. A car pool of 2 or more people	19	19	19
C. Bus	20	13	19
D. Motorcycle	1	5	1
E. Bicycle	21	4	17
F. Walk	21	21	18
G. Other	3	2	3

2. In terms of pedestrian safety, how satisfied are you with the present bicycle lanes? (This question was asked only if the respondent did not ride a bicycle.)

	% of Student Sample (N=608)	% of Staff Sample (N=212)	% of Total Sample(N=820)
A. Very satisfied	3	1	2
B. Satisfied	42	34	40
C. Undecided	19	23	20
D. Dissatisfied	28	33	29
E. Very Dissatisfied	9	9	9

3. Which one of the following situations have you had trouble with concerning bicycles? (Asked only if respondent did not ride a bicycle; respondent could choose more than one answer.)

	% of Student Sample N=608)	% of Staff Sample (N=212)	% of Total Sample(N=820)
A. Intersection of bicycle lane with pedestrian path	23	10	20
B. Where a pedestrian path is shared with a bicycle lane.	27	15	24
C. Street intersections	16	25	18
D. Bicycle parking areas	1	4	2
E. Sidewalks	14	13	14
F. Never had trouble with bicycles	25	48	31
G. Other	7	9	7

STAGE II: Opinions and Riding Habits of Campus Cyclists

Conduct of the Survey

The second stage of the survey was conducted entirely through a mailed questionnaire. This cyclists' questionnaire, along with the three general questions from the first stage of the survey, was initially mailed to all those in the sample who could not be contacted by telephone. Respondents were instructed not to complete the cyclists' questionnaire if they did not travel to either the St. Paul or Minneapolis campusus by bicycle. (Two cyclists' questionnaires were mistakenly returned and were not included in the analysis.) The initial mailing was conducted between November 3 and November 21, 1973.

In the second mailing the cyclists' questionnaire only was send to all cyclists contacted by telephone in the first stage of the survey. The second mailing was on January 11, with reminders to non-respondents on January 18 and 25, 1974. Because both mailings were conducted during the winter, it was presumed that the time interval between mailings would not affect respondents' opinions.

Sample and Response Rates

The total number of individuals who reported riding bicycles to campus was 165, 156 students and 9 staff. The questionnaire was completed and returned by 139 individuals, 133 students and 6 staff. Response rates were 85% for students and 67% for staff, giving a total response rate of 84%.

Results

The distribution of responses to each question are presented below. Responses of students and staff are not reported separately because of the small number of staff responses. Due to the nature of the questions, the number of responses received for each question varies. Differences between response categories of fewer than 10 percentage points should not be considered significant. Percentages may sum to 99% or 101% because of rounding errors.

1. What type of bicycle do you normally ride? (139 responses)

	%
A. One speed.	11
B. Three speed.	19
C. Five speed.	10
D. Ten speed.	60

2. How many days a week do you ride a bicycle to campus, weather permitting? (134 responses)

A. One.....1%
B. Two.....3
C. Three..10
D. Four...11
E. Five...61%
F. Six.....8
G. Seven...6

3. How far is a one-way trip from your point of origin to your entrance point on campus? (134 responses)

A. Less than one mile.....27%
B. 1-2 miles.....44
C. 3-4 miles.....16
D. 5-6 miles.....10%
E. More than 6 miles.....4

4. For which campus are you bound? (137 responses)

A. Minneapolis.....90%
B. St. Paul.....4
C. Both Mpls. and St. Paul.....6

5. If you were bound for the Minneapolis Campus and your trip originated outside the Campus, at what point did you enter the Campus? (130 responses)

A. 14th Ave.....21%
B. 15th Ave.....20
C. 17th Ave.....5
D. Washington Ave....18
E. Harvard St.....10
F. Arlington.....0
G. 20th Ave.....10%
H. 4th St.....3
I. 3rd St.....0
J. Other.....13

6. If you were bound for the St. Paul Campus and your trip originated outside the Campus, at what point did you enter the Campus? (14 responses)

A. Commonwealth Ave, from West of Cleveland.....23%
B. Commonwealth Ave, from Fairgrounds area.....15
C. Buford.....23
D. Folwell Ave.....8
E. Carter Ave.....8%
F. Gortner Ave...15
G. Other.....8

7. Do you normally leave the campus at the same point where you entered? (132 responses)
   A. Yes.....89%
   B. No.....11%

8. Do you use your bicycle to travel between the Minneapolis and St. Paul campuses? (136 responses)
   A. No.....90%
   B. Yes.....10%

9. How many times per week do you ride your bicycle at night on campus? (139 responses)

   A. Never.....33%
   B. Once a week.....25
   C. Two to four times a week.....29
   D. Five times a week.....4
   E. Daily.....9

10. While on campus, do you use the available bike lanes? (138 responses)
   A. Yes.....90%
   B. No.....10

11. In what area of the campus do you usually park your bike?

   Minneapolis: (159 responses)
   A. Health Sciences area.....22%
   B. IT area.....15
   C. Mall area.....26
   D. Knoll area (Jones, Elliott, Pattee) 13%
   E. West Bank.....19
   F. Other.....5

   St. Paul: (13 responses)
   A. North of Buford.....62%
   B. South of Buford.....23
   C. Veterinary Science.....15

12. Where do you park your bike most frequently? (160 responses)

   A. rack closest to a building entrance.....39%
   B. railing closest to a building entrance....33
   C. in a building.....9
   D. any available rack.....10
   E. other.....9

13. How many times each day (where you get off and park your bike) do you move your bike from one point to another while on campus? (134 responses)

   A. Zero.....36%
   B. One.....16
   C. Two.....25
   D. Three.....15%
   E. Four.....5
   F. Five or more.2

14. If you move from one building to another during the day, what do you do with your bicycle? (120 responses)

   A. park it in a different spot each time you move.....33%
   B. leave it in one spot.....50%
   C. other.....17

15. Which of the following features do you consider more important when parking your bike? (133 responses)

A. rack security.....33%
B. nearness to building entrance.....14
C. equal in importance.....53

16. Ideally, what type of parking facilities (rack, bike lot, etc.) would you prefer to see utilized at the University and why? (150 responses)

A. racks (general comments).....27%
B. racks in more areas.....21
C. better racks.....9
D. bike lots.....13
E. lots with attendant.....13%
F. no response.....7
G. other.....10

17. Would you be willing to pay for better bicycle security (special racks, attended lots, etc.)? (136 responses)

A. Yes.....35%
B. No.....65

If yes, what is the maximum you would be willing to pay for no time limit? (88 responses)

A. 25¢ (bike insured).....44%
B. 5¢ (bike not insured).....27
C. 10¢ (bike not insured).....23
D. 15¢ (bike not insured).....7

18. Have you ever used the concrete racks for parking your bicycle? (137 responses)

A. Yes.....47%
B. No.....53

19. Do you feel that the concrete racks provide satisfactory security for your bicycle? (129 responses)

A. Yes.....29%
B. No.....25
C. Undecided.....46

20. Which of the following would you prefer to see in a parking facility? (130 responses)

A. Concrete rack.....11%
B. Metal rack.....31
C. No preference.....58

21. What do you feel is the single largest bicycle problem on campus? (172 responses)

theft/security.....31%
pedestrians not observing bike lanes.....26
bike lanes (design of system)....7
automobile traffic.....11
parking facilities.....6
other cyclists.....11
miscellaneous.....8

What thoroughfares did you travel to reach the point where you entered the campus?

STUDENT RESPONSES

Thoroughfare	Frequency
University	28
E. River Road	17
Como	15
Cedar	12
15th Ave.	12
Washington	12
Riverside	11
Franklin SE	9
5th Street	7
14th Ave.	5
Eustis Ave.	5
7th St. SE	4
24th St.	4
20th Ave.	4
Cleveland	4
Park Ave.	4
8th Ave.	3
11th Ave.	3
12th Ave.	3
I-94 frwy.	3
Larpenteur	3
Summit	3
4th St.	2
20th St.	2
28th St.	2
38th St.	2
21st Ave.	2
Nicollet	2
W. River Rd.	2
Stinson	2
Raymond	2
Buford	2
Snelling	2
Bloomington Ave.	2
Cretin	2

One each:
Grand, St. Anthony, Union, Essex, Delaware, 8th St., 9th St., 10th St., 14th St., 37th St., 43rd St., 46th St., 50th St., 53rd St., 19th Ave., 22nd Ave., Carter, Lyndale, Fairview, Roselawn, Lake, Broadway, Dayton, Cromwell, Chicago, Tatum, Gortner, Commonwealth, Oak.

STAFF

21st Ave.	1
22nd Ave.	1
River Road	1
15th	3
Como	3
Stinson	1
18th	1
24th Ave.	1
28th Ave.	1
Cedar	1
Franklin	1
Larpenteur	1
Eustis	1
5th St.	1

Do you normally leave the campus at the same point where you entered?

A. Yes

B. No If no, at what location will you leave?

Location	STUDENT RESPONSE Frequency
4th St.	2
15th Ave.	2
Washington	2
Como	2
University	1
17th Ave.	1
Oak St.	1
20th Ave.	1
14th Ave.	1
Carter	1
	STAFF
Hospitals	1

Do you use your bicycle to travel between the Minneapolis and St. Paul campuses?

A. No

B. Yes If yes, what is your typical route?

	STUDENT RESPONSE
Como	11
15th Ave.	4
Cleveland	3
Larpenteur	1
Carter	1
Buford	1
Eustis	1
	STAFF
15th, Como, Carter	1

Appendix D

NONBICYCLIST RESPONSES

1. Which of the following means of transportation do you usually use, weather permitting, to travel to and from the University each day? (Respondents could choose more than one category if appropriate.)

	-2.5%	Average	+2.5%
A. Car, no passengers	19,679	21,027	22,375
B. A car pool of 2 or more people	8,896	10,244	11,592
C. Bus	8,896	10,244	11,592
D. Motorcycle	------*	539	------
E. Bicycle	7,818	9,166	10,513
F. Walk	8,357	9,705	11,053
G. Other	------	1,617	------

The following 2 questions are based on the nonbicycle population of 44,749.

2. In terms of pedestrian safety, how satisfied are you with the present bicycle lanes?

A. Very satisfied	------	895	------
B. Satisfied	16,780	17,900	19,018
C. Undecided	7,831	8,950	10,069
D. Dissatisfied	11,858	12,977	14,096
E. Very dissatisfied	2,907	4,027	5,146

3. Which one of the following situations have you had trouble with concerning bicycles? (Respondents could choose more than one answer.)

A. Intersection of bicycle lane with pedestrian path	7,831	8,950	10,069
B. Where a pedestrian path is shared with a bicycle lane	9,621	10,740	11,858
C. Street intersections	6,936	8,055	9,174
C. Bicycle parking areas	------	895	------
E. Sidewalks	5,146	6,265	7,384
F. Never had trouble with bicycles	12,753	13,872	14,991
G. Other	2,014	3,132	4,251

* When the response was less than 3%, only the average was calculated.

BICYCLIST RESPONSES

The first four questions are based on the average bicycle population of 9166.

		Confidence Interval -5%	Average	+5%
1.	What type of bicycle do you normally ride?			
	A. One speed	550	1,008	1,467
	B. Three speed	1,283	1,742	2,200
	C. Five speed	458	917	1,375
	D. Ten speed	5,041	5,500	5,958
2.	How many days a week do you ride a bicycle to campus, weather permitting?			
	A. One	-------	92	------
	B. Two	------	275	------
	C. Three	458	917	1,375
	D. Four	550	1,088	1,467
	E. Five	5,133	5,591	6,050
	F. Six	275	733	1,192
	G. Seven	92	550	1,008
3.	How far is a one-way trip from your point of origin to your entrance point on campus?			
	A. Less than one mile	1,925	2,475	2,933
	B. 1-2 miles	3,575	4,033	4,491
	C. 3-4 miles	1,008	1,467	1,925
	D. 5-6 miles	458	917	1,375
	E. More than 6 miles	------	367	------
4.	For which campus are you bound?			
	A. Minneapolis	7,791	8,249	8,708
	B. St. Paul	-------	367	------
	C. Both Mpls. and St. Paul	92	550	1,008

Question Five is based on a population of 8,799 bicyclists, those bicyclists on the Minneapolis Campus.

5.	If you were bound for the Minneapolis Campus and your trip originated outside the Campus, at what point did you enter the Campus?			
	A. 14th Ave.	1,408	1,848	2,288
	B. 15th Ave	1,320	1,760	2,200
	C. 17th Ave	-----	440	------

	-5%	Average	+5%
D. Washington Ave.	1,144	1,584	2,024
E. Harvard St.	440	880	1,320
F. Arlington	------	------	------
G. 20th Ave.	440	880	1,320
H. 4th St.	------	352	------
I. 3rd St.	------	------	------
J. Other	704	1,144	1,584

Question Six is based on a bicycle population of 917, the bicyclists on the St. Paul Campus.

6. If you were bound for the St. Paul Campus and your trip originated outside the Campus, at what point did you enter the Campus?

A. Commonwealth Ave, from West of Cleveland	165	211	257
B. Commonwealth Ave, from Fairgrounds Area	92	138	183
C. Buford	165	211	257
D. Folwell Ave	28	73	119
E. Carter Ave.	28	73	119
F. Gortner Ave	92	138	183
G. Other	28	73	119

Responses to questions Seven through Ten are based on a bicycle population of 9166, those bicyclists on both campuses.

7. Do you normally leave the campus at the same point where you entered?

A. Yes	7,699	8,158	8,616
B. No	550	1,008	1,467

8. Do you use your bicycle to travel between the Minneapolis and St. Paul campuses?

A. No	7,791	8,249	8,708
B. Yes	458	917	1,375

9. How many times per week do you ride your bicycle at night on campus?

A. Never	2,566	3,025	3,483
B. Once a week	1,833	2,292	2,750
C. Two to four times a week	2,200	2,658	3,116
D. Five times a week	------	367	------
E. Daily	367	825	1,283

10. While on campus, do you use the available bike lanes?

A. Yes	7,479	7,919	8,359
B. No	440	880	1,320

	-5%	Average	+5%

Responses in Question Eleven are based on a bike population of 8799 for Minneapolis and 917 for St. Paul.

11. In what area of the campus do you usually park your bike?

Minneapolis:			
A. Health Sciences area	1,496	1,936	2,376
B. IT area	880	1,320	1,760
C. Mall area	1,848	2,288	2,728
D. Knoll Area (Jones, Elliott, Pattee)	704	1,144	1,584
E. West Bank	1,232	1,672	2,112
F. Other	------	440	------
St. Paul:			
A. North of Buford	523	569	614
B. South of Buford	165	211	257
C. Veterinary Science	92	138	183

Responses for questions Twelve through Twenty-one are based on a bicycle population of 9166.

12. Where do you park your bike most frequently?

A. rack closest to a building entrance	3,116	3,575	4,033
B. railing closest to a building entrance	2,566	3,025	3,483
C. in a building	367	825	1,283
C. any available rack	458	917	1,375
E. other	367	825	1,283

13. How many times each day (where you get off and park your bike) do you move your bike from one point to another while on campus?

A. Zero	2,841	3,300	3,758
B. One	1,008	1,467	1,925
C. Two	1,833	2,292	2,750
D. Three	917	1,375	1,833
E. Four	------	458	------
F. Five or more	------	183	------

14. If you move from one building to another during the day, what do you do with your bicycle?

A. park it in a different spot each time you move	2,566	3,025	3,483
B. leave it in one spot	4,125	4,583	5,041
C. other	1,100	1,558	2,017

	-5%	Average	+5%
15. Which of the following features do you consider more important when parking your bike?			
A. rack security	2,566	3,025	3,483
B. nearness to building entrance	825	1,283	1,742
C. equal in importance	4,400	4,858	5,316
16. Ideally, what type of parking facilities (rack, bike lot, etc.) would you prefer to see utilized at the University and why?			
A. racks (general comments)	2,017	2,475	2,933
B. racks in more areas	1,467	1,925	2,383
C. better racks	367	825	1,283
D. bike lots	733	1,192	1,650
E. lots with attendant	733	1,192	1,650
F. no response	183	642	1,100
G. other	458	917	1,375
17. Would you be willing to pay for better bicycle security (special racks, attended lots, etc.)?			
A. Yes	2,750	3,208	3,666
B. No	5,500	5,958	6,416
If yes what is the maximum you would be will to pay for no time limit?			
A. 25¢ (bike insured)	1,251	1,412	1,572
B. 5¢ (bike not insured)	706	866	1,027
C. 10¢ (bike not insured)	577	738	898
D. 15¢ (bike not insured)	64	225	385
18. Have you ever used the concrete racks for parking your bicycle?			
A. Yes	3,850	4,308	4,766
B. No	4,400	4,858	5,591
19. Do you feel that the concrete racks provide satisfactory security for your bicycle?			
A. Yes	2,200	2,658	3,116
B. No	1,925	2,292	2,750
C. Undecided	3,758	4,216	4,675
20. Which of the following would you prefer to see in a parking facility?			
A. Concrete rack	550	1,088	1,467
B. Metal rack	2,383	2,841	3,300
C. No preference	4,858	5,316	5,775