

Bicycles in Audubon Park

Neighborhood Planning for Community Revitalization (NPCR) supported the work of the author of this report but has not reviewed it for publication. The content is solely the responsibility of the author and is not necessarily endorsed by NPCR.

NPCR is coordinated by the Center for Urban and Regional Affairs at the University of Minnesota and is funded in part by an Urban Community Service Program grant administered by the U.S. Department of Education.

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Document: NPCR 1033

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Introduction

For a long time now in this country we have been inventing roadways designed primarily for cars, with little attention given to bicycle transportation. Even so, in Minneapolis we are experiencing rapid increases in the number of bicycle commuters for reasons of health, personal financial savings, environmental concern, and enjoyment. We would like to accommodate bicyclists, but foster bicycle transportation. More people on bikes will be good for all of us. We'll have better air, a more pleasant streetscape, and greater mobility for people who cannot afford or can't drive cars.

-Tim Springer

Minneapolis Environmental Commission

9/8/93

According to a 1991 Harris poll 90 million people, or about 36% of Americans ride a bicycle at least once a year. Nearly 33 million Americans consider themselves recreational cyclists, 31% of the nation's recreational cyclists are residents of the Midwest.

The Audubon Park Comprehensive Action Plan mentions increasing "bicyclist safety", "increasing the use of alternative and public transportation" and creating and maintaining "safe, accessible, and appropriately marked bicycle lanes throughout the neighborhood".

In a 1993 Harris Poll commissioned by Bicycling magazine 20% of Americans said that they would commute to work by bicycle if safe bike lanes were available. In 1995 bicycle retailers had a big boost in sales of bicycles and cycling accessories. The existing transportation system, a network of roads, streets and highways, is designed to accommodate the private automobile. However, changes are taking place, physical fitness, recreation, and environmental movements have all made bicycles a greater priority. This is reflected in the recent surge of construction of bike routes in Minneapolis.

In Bikeway Planning Criteria and Guidelines three types of bikeways are designated. The first two fall within the street rights-of-way: the signed bicycle route, and the striped bicycle lane. The third type is an off-street bicycle trail. On-street routes can be constructed where there is sufficient room, lighting, roadway surface, automobile traffic, and slope. Off-street trails can be located on abandoned rail line corridors, parkway medians, and power line rights-of-way.

Safety is a major concern when planning and designing bikeways. When considering routes the neighborhood should always be aware of potential hazards. A well selected route can minimize the potential for accidents. Traffic signs and street markings must serve to inform both motorists and cyclists that a route exists.

When a neighborhood is considering modifying its existing transportation system, the bicycle should be considered as an inexpensive, efficient, and environmentally correct vehicle.

Design Characteristics

If a bikeway is to be successfully designed several design characteristics must be specified. Including the design speed, the space required by the cyclist, the slope of the road, the surface of the road, and the speed differential between cyclists and automobiles.

Speed is an important design issue for a number of reasons; generally at higher speeds it is difficult for cyclists to stop or maneuver quickly. The neighborhood should be aware of the speed a cyclist will be traveling when considering the visibility of cyclists, which decreases with increased speed. Turns in the route may be difficult or dangerous to negotiate at high speeds. It is important that cyclists have enough room to stop fully before an intersection, wet weather makes it especially hard to stop a bicycle traveling at higher speeds. The Minneapolis Park Board designates a maximum speed of 10 mph on all of its bike routes. Most commuters travel faster than 10 mph, thus park board routes cannot be used as commuter routes.

Audubon Park is one of the few hilly neighborhoods in Minneapolis, the maximum slope that can be ridden down safely and up effectively was of great concern. The slope of a bikeway is important because it greatly affects the efficiency of a route; for example, steep hills may be difficult to ride up or dangerous to ride down. Some riders may not be able to ride up steep hills, and they also make the route slower and less desirable for those who can. Although a numerical maximum is not necessary, it is important for neighborhoods to be aware of the slope of bikeways. When considering slope, one should weigh the fitness level of the average rider, and the average type of bicycle. The distance needed for a rider to stop safely because of potential hazards, such as, intersections or bad weather such as ice or water build-up. All of these factors effects the ability of the rider to stop after coming down a hill, and to effectively ride up a hill.

One of the hazards that face cyclists is drainage grates. Bicycle tires can easily become trapped in grates when the cyclist rides parallel to the grate bars. When planning a bikeway neighborhoods should be aware of grate hazards and respond accordingly. Grates are often placed based upon hydrodynamic calculations, thus changing them may not always be an option. Neighborhoods should mark any dangerous grates so they are easily visible to the cyclist.

Accidents between cyclists and cars generally tend to be very dangerous for cyclists. Cyclists have a low profile and thus are not easily visible to motorists. In areas where cyclists will not be visible to oncoming motorists signs alerting drivers must be installed.

It is important that signs are visible to both the motorist and the cyclist. Assuming bicycles travel at about 10 mph on average and cars at about 30 mph, the unit of time required to travel a set distance is greater for bicycles. While signs marking a bikeways

every few blocks is suitable to alert motorists, signs must be closer together to alert cyclists. Cyclists may also enter a route from any side street. It is important for signs marking bicycle routes to be placed on every corner. The Department of Public Works Transportation Division currently recommends a green 18x24 sign with a picture of a bicycle and the words "Bike Route" on every corner.

Bicycles locked to trees, posts, and fences may be a serious detriment to movement, safety, and the overall aesthetic of an area. These are not safe ways to secure bikes. Audubon Park indicated that threat of bicycle theft was a concern. Safe bicycle parking facilities are necessary at any destination. In order to encourage use of these facilities signs should be installed, so cyclists can easily locate them.

Bicycle trips may involve the use of other vehicles during the course of a journey. Bicycle racks at Park and Ride facilities and bus stops should be considered.

Demand for Lanes in Audubon Park

On December 2, 1995 a survey was distributed at an Audubon Park meeting. The survey was designed to quantify residents' cycling concerns and to get community input into the planning process. A summary of information gathered through that survey follows:

Respondents averaged 40.5 years and there was an almost even gender distribution. There are 0.97 bikes per person among respondents, compared with the national average of 0.42 bikes per person (World Watch Institute, 29). Most respondents traveled primarily by automobile. Bicycles were indicated as the second most important mode of vehicular transport in the survey. According to 1990 census data 0.7% of Audubon Park residents used vehicles designated as other.

Below is a summary of the information gathered through the survey.

- Audubon Park is not favorable for bicycle use.
- Bicycles are used primarily for recreation and exercise.
- Weather is the main factor preventing people from using their bicycles more frequently.
- Residents were concerned with bicycle theft, lack of racks at destination, and general safety.
- Respondents found it unsafe to ride at night.
- Automobiles are intimidating to neighborhood cyclists.
- Major streets are appealing to residents despite their high auto traffic.
- Respondents would be willing to travel about 4 blocks out of their way to use a commuter route.

Five destinations were listed in response to the question, "To what extent would bike paths increase your use of bicycles in the following areas?"; parks were indicated to be the most important. Major arterial streets were the second most important destination. Downtown Minneapolis also was an important destination.

Under current conditions residential through streets in Audubon Park are typically too narrow for striped bike paths. In order to construct a network of on-street bike paths, one or more of the following changes must be made: conversion of two-way residential streets to one-way, restriction of parking to one side of the street, or removal of parking completely.

Audubon Park Routes

I recommend the construction of 5 on-street routes, 27th Avenue Northeast, 29th Avenue Northeast, Hayes Street, Fillmore Street, and Saint Anthony Parkway. I also feel that an off or on-street bicycle lane should be constructed on Stinson Parkway. These routes focus on providing access to schools, parks, and emerging or existing bicycle routes as well as moving commuters to downtown and the University of Minnesota.

The residential through-streets in Audubon Park are too narrow to accommodate 3 marked lanes (two for cars, one for bikes). Construction of striped lanes would necessitate moving parking or creating one-way streets. Signs reading "Bike Route" could be installed along all routes without any major modifications to the existing transportation system. Signs cost \$100 per sign or \$200 per block (2 signs per block, one facing each direction) compared with \$600 per striped block plus maintenance. Signs may do very little to ensure the safety of cyclists, and have very little appeal to cyclists, however striped routes are expensive. Based upon this information the transportation committee decided that signed routes were the best option. The neighborhood may determine the type of bikeway that best suits its needs.

There are more than two options available to the neighborhood. Routes may use both striped lanes and signs. The neighborhood can have a custom stencil designed for \$650 which it could use to mark bike routes in combination with signs. However the neighborhood must be prepared to maintain the stenciled markings every few years.

27th Avenue Northeast seems to be a logical location for a bike route. It provides access to the river-front and it intersects with the 5th Street extension included in the University's Intermodal Bike Plan, and the Stinson Parkway route proposed in this paper.

29th Avenue Northeast is ideal because it connects Audubon Park, the Lowry School, and Northeast Junior High School. It also connects with the planned Saint Anthony route.

Hayes Street connects Windom and Waite Parks. It also provides access to the Waite Park School and Northeast Junior High.

The Fillmore Street route has a high potential to be widely used by cyclists in Audubon. It provides access to a number of parks as well as downtown Minneapolis, the U of M, and the existing Twin Cities bicycle network. Fillmore is within 4 blocks of both Johnson and Central, it could potentially serve as an alternate for both routes. However, it could

also be too far from both Johnson and Central and thus not used at all. According to Trina Driscoll of the University of Minnesota Intermodal Bicycle Transportation Plan a dogleg connecting Fillmore Street to East Hennepin Avenue is planned and funded.

I would recommend an extension of the existing Saint Anthony Parkway trail. This extension would have to be an on-street route marked by signs and would cost \$1500. It would lead to Stinson Parkway, on which two routes could be constructed, one for commuters and one for recreational cyclists. The Department of Public Works Transportation Division recommends the construction two lanes because the Park Board limits the speed of riders to 10 mph, which is too slow for commuters. However the neighborhood should feel free to build one or the other. Stinson Parkway was last re-surfaced between 1972 and 1975, which means it will soon have to be resurfaced. When it is resurfaced the lanes should be made 18 feet wide, providing 5 feet for a bicycle lane, and 13 feet as a travel lane. A recreational route should be constructed down the center of the median, the Park Board should be contacted regarding funding for the off-street lane.

Estimated Cost of Proposed Bicycle Routes in Audubon Park

Route	Signed Cost	Striped Cost - one lane
29th Ave.	20 signs = \$2000	10 blocks = \$6000
27th Ave.	30 signs = \$3000	15 blocks = \$9000
Fillmore Street	12 signs = \$1200	6 blocks = \$3600
Hayes Street	10 signs = \$1000	5 blocks = \$3000
Saint Anthony	15 signs = \$1500	NA
Stinson Pkwy.	NA	Unable to determine
TOTALS	\$8700	\$23,100

Bicycle security has been identified as a major concern. Bicycle racks can be installed inexpensively and easily. The cost is roughly \$70-\$90 a rack depending on the size of the rack, number of racks purchased, and the company (see Appendix C). Installation costs vary depending upon where and how the rack is installed. The city of Minneapolis may pay up to 50% of the cost of the racks, provided the Bicycle Advisory Committee approves the racks (according to Rhonda Rhae of the Department of Public Works, see Appendix C). If racks are placed near commercial areas, the Department of Public Works recommends the neighborhood petition the affected businesses for financial support. Racks in parks should be paid for by the Park Board and racks on school property by the School Board.

I feel that these 5 or 6 routes would allow people to travel effectively by bicycle through the Audubon Park neighborhood and from Audubon Park to the rest of the city. Through this paper I have identified what I feel are the best locations for bicycle routes in

Audubon Park. It is up to the neighborhood to determine which type(s) of routes to construct.

APPENDIX A

Bicycle Survey

Bicycle Questionnaire

This survey was designed as a way to get community input in the bike lane planning process. Your neighborhood is considering installing a system of bike lanes. Your answers to the following questions will enable the planners to design a system that best suits the needs of the people. Thank you for your time.

1. How many bicycles are owned by your household? _____
2. How many people live in your house or apartment? _____
3. How many speeds does your bicycle have? (Circle One) 1 3 6 10 12 18 21
4. Age? _____
5. Gender? _____
6. Which of the following types of transportation do you use in a typical week? Put a 1 next to the most frequent, 2 next to the second most frequent, etc.
 - a) Bike _____
 - b) Auto _____
 - c) Public _____
 - d) Other _____

7-41 Circle the appropriate number 1= Very Low 7= Very High

Low High

7. How favorable is your neighborhood for bicycle use? 1 2 3 4 5 6 7

How important to you is each reason for riding your bicycle?

8. Recreation 1 2 3 4 5 6 7

9. Transportation 1 2 3 4 5 6 7

10. Exercise 1 2 3 4 5 6 7

11. Save time 1 2 3 4 5 6 7

12. Save money 1 2 3 4 5 6 7

13. Environmental reasons 1 2 3 4 5 6 7

What prevents you from using your bicycle?

14. Too much physical effort and sweating 1 2 3 4 5 6 7

15. Safety 1 2 3 4 5 6 7

16. Lack of bicycle racks at destination 1 2 3 4 5 6 7

17. Threat of theft 1 2 3 4 5 6 7

18. Weather 1 2 3 4 5 6 7

19. Takes too long 1 2 3 4 5 6 7

20. Too much starting and stopping 1 2 3 4 5 6 7

21. Cannot carry packages 1 2 3 4 5 6 7

From your experience riding a bicycle how dangerous do find each of the following?

22. Making a left hand turn 1 2 3 4 5 6 7

23. Car door opening 1 2 3 4 5 6 7

24. Intersection traffic 1 2 3 4 5 6 7

25. Car turning abruptly 1 2 3 4 5 6 7

26. Car stopping abruptly 1 2 3 4 5 6 7

27. Riding at night 1 2 3 4 5 6 7

28. Drainage grates or inclines 1 2 3 4 5 6 7

29. Weather 1 2 3 4 5 6 7

To what extent is each of the following a reason for you ride your bike along a major street, with high auto traffic?

30. Fewer stop signs 1 2 3 4 5 6 7

31. Less cross traffic 1 2 3 4 5 6 7

32. Shorter distance 1 2 3 4 5 6 7

33. Fewer hills 1 2 3 4 5 6 7

34. Better road surface 1 2 3 4 5 6 7

35. More attractive scenery 1 2 3 4 5 6 7

36. Access to stores or other commercial areas 1 2 3 4 5 6 7

To what extent would bike paths increase your use of bicycles in the following areas?

37. Downtown 1 2 3 4 5 6 7

38. Along major arterial streets 1 2 3 4 5 6 7

39. Along residential streets 1 2 3 4 5 6 7

40. To and/or through parks 1 2 3 4 5 6 7

41. The University of Minnesota 1 2 3 4 5 6 7

42. Please use the table below to answer the following questions.

How and when do you use your bike? How and when would you use your bike if bike paths were installed?

43. If a bicycle path was built parallel to a the route you now use for **non-recreational** purposes how far out of your way would you be willing to go? _____ miles or blocks _

44. Which streets would you like to see bike paths on?

45. Which streets would you not like to see bike paths on?

46. Below is a map of your neighborhood. Please draw in the lanes you would like to see built?

If you have any questions or comments about this questionnaire or If you have any concerns or ideas about bike lanes in Audubon Neighborhood PLEASE do not hesitate to call **Seth Spielman** at **647-4401**.

Survey By Seth Spielman for Audubon Neighborhood Association. 11/14/95.

APPENDIX B

Security Tips

Bicycle Theft Prevention Tips

as Published in August 1994 Edition of Bicycling

Tip 1

Theft at home. Keep your bike in a secure place. A secure place does not include your basement, garage, or storage room. Bicycling recommends against keeping your bike anywhere a thief can work undetected. The article suggests keeping your bike in your living quarters.

Tip 2

Lock your bike.

Tip 3

Lock your bike intelligently. Find well-lit, visible areas. Don't leave your bike out overnight.

Tip 4

Diminish the appeal of your bike. If you plan on leaving your bike outside out for more than several hours unattended, buy a beater bike—a cheap bike which no one would want to steal. Also the article suggests making your bike idown-right uglyî to ward off potential thieves.

Tip 5

Lock you bike to something solid not a tree or a fence.

Grabber Inc.	(800) 542-6644	Bicycle Rack Manufacturer, and retailer
Jim Daire	(612) 673-3241	City of Minneapolis Department of Public Works, Transportation Planner
Ralph Schlutz	(612) 359-0689	Dero Racks, Minneapolis Bicycle Rack Retailer
Rhonda Rhae	(612) 673-2411	City of Minneapolis Department of Public Works, Bicycle Planner
Trina Wicklatz Driscoll	(612) 624-0019	University of Minnesota Intermodal Bicycle Plan, Manager
US Department Of Transportation	(202) 366-0660	

APPENDIX D

Maps

Published 11 Jul 1996 by [Mark Brose](#) on the World Wide Web