

STATE OF MINNESOTA



MINNESOTA BIKEWAYS

A Report on The Minnesota State Bicycle Trail Program

Prepared in Compliance with Chapter 199, M.S. 1976

By:

Department of Natural Resources Division of Parks and Recreation Bicycle Program Staff Trails Section June 30, 1977

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PREFACE

With passage of Chapter 199, M.S. 1976, better known as the "Bicycle Bill", the Minnesota Legislature authorized initial phases of bicycle program planning and development. That's good news for Minnesotans! Though long overdue, the legislation is a major step forward in the evolution of a comprehensive, statewide bicycle program.

Introductory statements to this mandate define the primary responsibilities and objectives of those state agencies involved. It is the intent of this preliminary report to describe in finer detail, the role the Department of Natural Resources (DNR) has in this project.

Provisions of the Act follow:

A bill for an act relating to recreation, environmental preservation and energy conservation, conserving human and natural resources by promoting health and recreation and abating environmental pollution by encouraging the use of bicycles, providing for a bicycle registration system. The commissioner of public safety is directed to study the use of bicycles on streets, highways, bicycle ways, and bicycle lanes. The commissioner of education is directed to submit a proposal for bicycle safety education. The commissioner of natural resources is directed to develop a program for an interconnecting system of bicycle trails, providing for the construction of bicycle lanes or ways using federal funds, prescribing penalties and appropriating money.

Section 17 and Section 18, Subdivision 2 of the Act, formally stipulate specific duties and responsibilities of the Department of Natural Resources. The following excerpt shall serve as a foundation for this report.

Sec. 17. (STATE BICYCLE TRAIL PROGRAM) The commissioner of natural resources shall develop a program for an interconnecting statewide system of bicycle trails utilizing both the state trails authorized by Minnesota Statutes, Section 85:015, and existing and proposed local bicycle trails. In addition the commissioner shall provide technical assistance to local units of government in planning bicycle trail systems. The state bicycle trail program shall, as a minimum, describe the location, design, construction, maintenance and land acquisition needs of each component trail and shall give due consideration to the model standards for the establishment of recreational vehicle lanes promulgated by the commissioner of highways pursuant to Minnesota Statutes, Section 160.262. The program shall include a proposal for a system of state aid to localities. The proposal for a system of state aid to localities shall include a provision that the amount of aid apportioned to a locality will depend, in part, upon the numbers of bicycles registered in the locality. The program shall be developed after consultation with the state trail council and regional and local units of government and bicyclists organizations.

Sec. 18, Subd. 2. There is appropriated to the commissioner of natural resources \$100,000 from the general fund to implement the statewide bicycle trail program provided in Section 17. This appropriation shall be available until June 30, 1977.

INTRODUCTION

Preliminary work to the establishment of an interconnecting network of bikeways begins with a thorough analysis of supply, demand, institutions and concepts.

Principle topics of discussion in this report include:

- Data base definition (clientele identification, bicycle safety)
- Resource identification (man-made and natural features)
- Priorities based on analysis of preceding data
- System design concept and operational considerations
- Financial and/or technical assistance to local units of government (standards for bikeway evaluation and development)
- State Bicycle Trail Program funding possibilities

Primary goals and objectives of the program:

- To identify, develop and maintain a safe and aesthetically pleasing riding environment for all bicyclists
- To educate bicyclists and motorists alike as to their rights and responsibilities governing mutual usage of public roadways
- To stimulate bicyclists to develop a higher calibre of riding skills and proficiency
 To develop concise, reliable and practical navigational
- h.
 - aids (maps)
 To work in a spirit of cooperation and continuous communication in the development of the State Bicycle Trail Program so as to efficiently manage and utilize time, manpower, and resources
 - To introduce Minnesotans to their state and to each other

DATA BASE DEFINITION CLIENTELE IDENTIFICATION

Bicycling involves more than two million Minnesotans. The differences among Minnesota cyclists, as expressed in a Department of Natural Resources' Statewide Bicycle Survey, "Minnesota Bikeways"¹, as well as the similarities, provide valuable resource material in program planning procedures. The following data reflects the opinions of those individuals living in incorporated communities in Minnesota.

Bicycle Usage by Age Group

In years past, the bicycle was regarded as a child's toy. Today, the bicycle is firmly entrenched in our culture, serving both young and old. It is not surprising to discover that nearly 50 percent of the cycling population is under age 16. But, it is encouraging (to those of us involved in bikeway planning and bicycle related industries) to learn that a significant number of Minnesotans in all age groups regard themselves as bicyclists.²

Bicycle Ownership

Bicycle ownership on a per capita basis, according to the survey, is nearly a one to one ratio (.81 bicycles for every bicyclist).³

Despite extreme weather variations which foreshorten our riding season, Minnesota accounts for approximately 3.6 percent of the national market.⁴

The ten-speed has made a definite impact on the "Bicycle Renaissance". Survey data revealed that nearly one out of every three bikes is a ten-speed.⁵ As stated, bicycling is an activity for all ages. This premise can be further demonstrated by the relatively high number of adult three-wheelers, a comparatively recent arrival on the bicycle scene.⁶

A statewide bicycle registration program, administered through the Department of Public Safety, will help identify the user group size and location. Since this program did not begin operation until March 1, 1977, it is not possible to determine statistical projections. However, participation in this voluntary bicycle registration program is encouraging. At present, the license is valid for three years, for a fee of \$3.00 plus optional deputy registrars fee (generally \$.50). Hopefully, this program will deter bicycle thefts, thereby, significantly improving bicycle usage.

Primary Bicycle Usage

Versatility is the hallmark of the unique vehicle, the bicycle.⁷ The bicycling experience involves more than a solitary explanation: motivation, skill, time, equipment, health, weather, and a host of other variables play key roles in defining the bicycle's primary usage. But, nevertheless, a consensus can be obtained based on data presented.⁸

The spirit of adventure and the excitement of experiencing nature on her terms, seemed to sway our "pedalling pioneers", who regard recreation as being most important. Nearly three-fourths (71 percent) of the state's cycling population are in this category.⁹

Less than one fifth (17 percent) of our respondents regarded transportation as the primary usage of the bicycle.¹⁰ However, this usage is likely to increase more rapidly in proportion to recreation and health-exercise, due primarily to the energy conservation efforts now being proposed by the government.

Despite the fact that only 12 percent regard health and exercise as the primary reason for bicycling, it is an inherent benefit of the experience. This is perhaps best stated by the late Dr. Paul Dudley White, heart surgeon and long time proponent of bicycling, "If bicycling can be fully restored to the daily life of all Americans, it can become a vital step toward rebuilding health and vigor in all of us."¹¹

Bicycling Destinations

Presently, Minnesotans average 3.87 bicycle trips per week per household to recreational areas, which equals 36 percent of the destinational motivators.¹² Nearly one-third of the cyclists average 3.34 trips per week per household to visit friends, relatives, etc.¹³ Educational facilities, shopping areas and employment centers average about one trip per week. Religious facilities placed sixth, with an average of .17 bicycle trips per week per household.¹⁴

Factors which Inhibit Bicycling

An analysis of bicycle related accident-fatality data from 1970 through 1976, a total of 7,094 accidents and 140 fatalities were reported in Minnesota.¹⁵ Slightly more than 40 percent of those interviewed in the survey perceive safety or the lack thereof, as the primary reason for not using their bicycles more often.¹⁶

Riding Habits

Average mileage figures are another critical factor in understanding the "composite" personality of Minnesota cyclists. The wide variation in riding abilities and desires, along with a host of other variables, reflect the character of this diverse audience.¹⁷

Approximately 73 percent of the bicycling population usually make short trips (ten miles per day or less), while at the other extreme, one percent average more than 70 miles a day.¹⁸

The majority of bicyclists (84 percent) devote a half day or less, on the average, to a bike trip. 19

A closer inspection of survey data indicated those requiring overnight facilities amount to six percent of the cycling population 20

Three fourths (74 percent) of those requiring overnight facilities prefer campgrounds,²¹ while commercial lodging is preferred by (13 percent), private facilities (10 percent), and hostels (three percent.)²²

BICYCLE SAFETY

Safety is the prime factor in all phases of program development. Two major research projects have been conducted by the Bicycle Program staff in order to gain insight into this complex and critical issue.

An analysis of accident-fatality data, 1970-1976, provided by the Highway Safety and Research Section, Minnesota Department of Public Safety, established the background for phase one of our investigation. Our primary objective in this study was to locate and define bicycle safety problem areas.

The foundation for the second phase of safety research was built on data obtained from the Statewide Bicycle Survey. Minnesotans expressed their thoughts and concerns on this matter through personal interviews. Their thoughts on the issue, reinforced by the impersonal statistics of the computer, serve as another valuable component in clientele identification.



FIGURE 1: ACCIDENTS BY AGE

The Statewide Bicycle Survey revealed that nearly two-thirds of the bicycling population is under 24 years of age.²³ Therefore, it is not surprising to discover that more than 80 percent of all recorded bicycle accidents and fatalities are within this age group.²⁴ A summary of the total number of accidents by age group is presented by Figure 1.

BICYCLISTS INJURED 1970-1976



BICYCLISTS KILLED 1970-1976



FIGURE 2: BICYCLISTS INJURED AND KILLED, 1970-1976

Figure 2 relates the grim statistics reported to authorities, 1970-1976. There is a curious correlation between bike sales and recorded injuries – 1973, 1974, and 1975 were the so-called "boom years" in bike sales, and correspondingly were the peak years in bicycle related mishaps. Perhaps experience and awareness levels between motorists and bicyclists, and among bicyclists themselves were not well enough developed. Isolating bicycle safety problem areas statewide, while working in close contact with transportation-recreation planners will help alleviate this problem. By redirecting bicyclists to safe and aesthetically pleasing routes, the potential for conflict will be minimized — this is the goal of the State Bicycle Trail Program.





FIGURE 3: ACCIDENTS BY ROAD TYPE

The riding environment is of primary importance in planning and development procedures. As depicted by Figure 3, nearly 50 percent of all bicycle related accidents and fatalities occur on township or local streets in urban locations. Survey statistics indicate that the majority of bicyclists prefer to ride on roadways near their home. Bikeway design will address specific criteria to identify and correct bike safety problem areas. In addition, proposed bikeway planning and roadway development projects will be coordinated to minimize problems in the future. A thorough investigation of data provided by the Highway Safety and Research Section, Minnesota Department of Public Safety, has identified the top ten circumstances contributing to bicycle related mishaps, as per Table 1.

An analysis of questionnaire responses of the Statewide Bicycle Survey revealed a concern for bike safety. Yet, nearly half of those interviewed were either without or were unaware of a bicycle safety education program in their school district. Only half of those who expressed an opinion on the calibre of their bicycle safety education program, responded positively! Changing this awareness problem while striving towards a comprehensive high quality bicycle safety education program, will receive priority attention in the State Bicycle Trail Program.²⁵

TABLE 1: MINNESOTA BICYCLE ACCIDENTS AND FATALITIES, 1970-1976 (AS PER THE TOP TEN CONTRIBUTING CIRCUMSTANCES)

Classification of Violation	# Accidents	# Fatalities	Total
Bicyclist at Fault			
Bicycle violation	3546	55	3601
Motorist-Pedestrian at Fault			
Beyond Drivers' Control	1032	23	1055
Undetermined Cause	768	21	789
Careless or Inattentive Driving	597	14	611
Visual Obscurement	179	3	182
Other Traffic Violation	170	5	175
Illegal or Unsafe Speed	133	7	140
Stop Sign Violation	55	> 0	55
Pedestrian Violation	33	0	33
Failed to Yield Right-of-Way	5	0	5
	6518	128	6646

Bicycle safety education, as per Minnesotans surveyed, can be improved through several educational, community and public service programs. Table 2 illustrates recommendations for bicycle safety program improvements.²⁶

TABLE 2: HOW BICYCLE SAFETY PROGRAM CAN BE IMPROVED (STATEWIDE PERCENT OF THE TOTAL SURVEY RESPONSES)

- 23% Incorporate bicycle safety education in school curriculum
- 20% Bike maintenance and safety clinics
- 16% Bicycle rider certification through proficiency skills tests
- 16% Stiffen enforcement of laws and regulations
- 10% Public service announcements (i.e., radio, TV, newspaper, community newsletters)
- 9% Incorporate in driver education program
- 6% Develop adult education courses

RESOURCE IDENTIFICATION MAN-MADE FEATURES

Riding Environment

An analysis of the riding environment, both present and future bikeway development, is necessary to determine appropriate planning procedures. Two inventory studies are represented by the following tables. Table 3 depicts an inventory of existing and proposed bikeways. Table 4 represents an "untapped" resource available for bikeway usage – Minnesota's roadway network.

TABLE 3:	STATEWIDE BIKEWAY INVENTORY
	(PRESENT AND PROPOSED DEVELOPMENT)

Economic	Co Mun	unty iicipal	DN Grant-	IR In-Aid	DN State 1	R Trails		Sta Pa	ate ark	То	tal
Region	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	E	xist.	Prop.	Exist.	Prop.
1	3.00	2.30	0	0	0	0	9	0	0	3.00	2.30
2	0	20.00	19.50	0	21	13		3	0	43.50	33.00
3	17.00	152.60	6.50	0	0	0	1	0	0	23.50	152.60
4	16.50	100.15	1.50	0	0	0		0	0	18.00	100.15
5	0	3.00	0	0	6	0		0	0	6.00	3.00
6	6.00	43.90	0	0	0	74		0	0	6.00	117.90
7	3.75	218.25	0	0	0	0		8	0	11.75	218.25
8	8.57	41.00	1.07	0	0	49		, 0	0	9.64	90.00
9	9.65	38.75	.75	0	0	28		0	0	10.40	66.75
10	34.17	73.40	18.68	0	13	14		0	0	65.85	87.40
11	71.00	219.07	114.30	56.10	29	23		0	0	214.30	298.17
	169.64	912.42	162.3	56.10	69	201		11	0	411.94	1169.52

Economic Region	Total Roadway Mileage ^a	Present Suitable Roadways as per Bikeway Criteria ^b (23% of total)	Future Roadway Required for Bikeway System ^c (10% of total)	Total On Road Bikeway Development Potential
1	10,909	2,509	1,091	3,600
2	5,953	1,369	595	1,964
3	13,635	3,136	1,364	4,500
4	15,369	3,535	1,537	5,072
5	7,665	1,763	767	2,530
6	12,470	2,868	1,247	4,115
7	11,577	2,663	1,158	3,821
8	11,772	2,708	1,177	3,885
9	10,368	2,385	1,037	3,422
10	13,691	3,149	1,369	4,518
11	11,131	2,560	1,113	3,673
	124,540	28,645	12,455	41,100

TABLE 4: STATEWIDE "ON ROAD" BIKEWAY RESOURCE POTENTIAL

EXPLANATORY FOOTNOTES (Table 4)

^aTotal roadway mileage was tabulated as per data obtained from: Minnesota Highway Department, Transportation Planning and Programming Division, Office of Program Planning in Cooperation with the U.S. Department of Transportation – Federal Highway Administration. County totals by system as of December 31, 1973.

^bAn analysis of present roadways suitable for safe bicycle usage was conducted. Essentially, the technique(s) utilized for evaluation purposes is patterned after the Minnesota Department of Highways Trunk Highway Sufficiency rating system. A customized interpretation of this data was developed to reflect suitability as per bicycle safety. The ultimate outcome of this evaluation technique may be a "complementary" or "piggyback" computer program on which bikeway suitability standards will be incorporated. It should be noted that an in-office interpretation alone is not sufficient – an on-site evaluation is essential to gain a complete perspective on the suitability of any given roadway (bikeway) segment.

^CFuture roadway mileage required for a contiguous interconnecting State Bicycle Trail Program is based on standards described per previous footnote entry.

Facilities Inventory

A statewide inventory was conducted to locate and evaluate facilities and services necessary to bicyclists. A complete and timely roster has been correlated with bikeway planning maps. These facilities include: bike shops, accommodations, medical emergency facilities, service stations, wayside rest areas, and sources of food and water. As mentioned previously in the discussion of the Statewide Bicycle Survey, information of this nature is essential in bikeway design and location.

Historical, Social and Cultural Attractions Inventory

Research is being conducted regarding information of this nature. Interpretation and evaluation of this material will provide necessary background information for the cyclist, and most likely provide the incentive for bicycle usage in discovering Minnesota.

NATURAL FEATURES

Land Use and Environmental Studies

Existing and proposed land use and environmental studies pertinent to the State Bicycle Trail Program will be conducted in coordination with program planning procedures in the near future. Matters of concern in this particular study include: land development, public transportation systems, accessibility, population density, topography, soils, hydrology, vegetation, "natural wildlife areas", recreation areas, zoning and watershed districts.

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SUMMARY

State Bicycle Trail Program Development Priorities

The location, design, construction, maintenance and land acquisition needs of each component bikeway will depend upon:

- Concentration of bicyclists
- Bicycle safety problem areas
- Proximity to major travel networks as per the Proposed State Bicycle Trail Plan
- Coordination with roadway development and rehabilitation projects as established by the Department of Transportation and local units of government
- Local, state and federal trail development coordination.

A point system was determined to evaluate clientele concentration and bicycle safety problem areas; thereby, enabling priorities for the Statewide Bicycle Trail Program to be determined:

- # Bicyclists: A point was awarded for every 5,000 bicyclists (i.e., 5,000 bicyclists scored 1 point, 100, bicyclists/2 points . . .), as per data presented in the Statewide Bicycle Survey, 1977.
- # Accidents and # Fatalities: A one-to-one ratio was established to assess the scope of the situation. Statistics used for this report reflect bicycle related mishaps, 1970-1976.

CLIENTELE IDENTIFICATION

TABLE 5: NUMBER OF BICYCLISTS AND BICYCLE ACCIDENTS-FATALITIES (PER ECONOMIC DEVELOPMENT REGION)

-	Economic Region	# Bikers	Points	# Accidents	Points	# Fatalities	Points	Total Points
	11	1,262,381	252	4,848	4,848	58	58	5,158
	10	213,051	43	695	695	14	14	752
	7	67,922	14	366	366	10	10	390
	3	153,888	31	309	309	16	16	356
	9	66,264	13	264	264	11	11	288
	4	55,390	11	154	154	4	4	169
	8	48,551	10	126	126	6	6	142
	6	55,545	11	119	119	6	6	136
	5	27,817	6	107	107	3	3	116
	1	39,428	8	65	65	6	6	79
	2	12,303	2	41	41	6	6	49
		2,002,540	401	7,094	7,094	140	140	7,635

TABLE	6: STATE	EWIDE BIK	EWAY INV	ENTORY	(PRES	ENT AN	D PROF	OSED I	DEVELOP	VENT)
Economic Region	Co Mun	unty icipal	DNI Grants-I	R n-Aid	DN State	IR Trails	Sta Par	te ks	Sub T	otal
	Exist.	Prop.	Exist.	Prop.	Exis	t. Prop.	Exist.	Prop.	Exist.	Prop.
11	71.00	219.07	114.30	56.10	29	23	0	0	214.30	298.17
10	34.17	73.40	18.68	0	13	14	0	0	65.85	87.40
7	3.75	218.25	0	0	0	0	8	0	11.75	218.25
3	17.00	152.60	6.50	0	0	0	0	0	23.50	152.60
9	9.65	38.75	0.75	0	0	28	0	0	10.40	66.75
4	16.50	100.15	1.50	0	0	0	0	0	18.00	100.15
8	8.57	41.00	1.07	0	0	49	0	0	9.64	90.00
6	6.00	43.90	0	0	0	74	0	0	6.00	117.90
5	0	3.00	0	0	6	0	0	0	6.00	3.00
1	3.00	2.30	0	0	0	0	0	0	3.00	2.30
2	2 0 20.00		19.50	0	21	13	3	0	43.50	33.00
	169.64	912.42	162.30	56.10	69	201	11	0	411.94	1,169.52

RESOURCE IDENTIFICATION

TABLE 7: STATEWIDE "ON ROAD" BIKEWAY RESOURCE POTENTIAL

TABLE 8: BIKEWAY RESOURCE SUMMARY

Economic	Present Suitable Roadways as per	Future Roadway Required for		Tota Bikeway	l State Potential
Region	Bikeway Criteria	Bikeway System	Total	Exist.	Prop.
					(lables 6 & 7)
11	2,550	1,113	3,673	214.30	3,971.17
10	3,149	1,369	4,518	65.85	4,605.40
7	2,663	1,158	3,821	11.75	4,039.25
3	3,136	1,364	4,500	23.50	4,652.60
9	2,385	1,037	3,422	10.40	3,488.75
4	3,535	1,537	5,072	18.00	5,172.15
8	2,708	1,177	3,885	9.64	3,975.00
6	2,868	1,247	4,115	6.00	4,232.90
5	1,763	767	2,530	6.00	2,533.00
. 1	2,509	1,091	3,600	3.00	3,602.30
2	1,369	595	1,964	43.50	1,997.00
	28,645	12,455	41,100	411.94	42,269.52



SYSTEM DESIGN CONCEPT AND OPERATIONAL CONSIDERATIONS

PROPOSED STATE BICYCLE TRAIL PLAN

As depicted in Figure 4, the proposed State Bicycle Trail Plan indicates major arterials or travel patterns for bicycle touring across the state. The peripheral boundaries of small loop tours serve as the building blocks for the plan. Upon further study, please note the usage of "corridor" or multi-recreational state trails as developed through the Trails Section, Parks and Recreation Division, Department of Natural Resources. Not all corridor trails are surfaced or designed to accommodate bicycle travel. However, when specifications do include this usage, such trails shall play a significant role in the State Bicycle Trail Program.



Figure 5 illustrates the manner in which the state will be subdivided to facilitate or standardize mapping for public use. Each of the 39 sections is an independent unit. The cross-hatched pattern indicates overlap area with adjoining sections. This technique minimizes the number of maps necessary for a bike trip, and does not subdivide major metropolitan areas. Map plans were drawn to provide continuity, reliability and portability for all cyclists.

Each map will provide the following essential information:

- Primary facilities necessary to cyclists (i.e., bike shops, overnight accommodations, medical emergency facilities, sources of food and water, points of interest).
- Land form interpretation of topographic contour lines depicted in a manner similar to an aerial photograph. This technique aids cyclists as a major bicycle trip planning tool because daily mileage can be more accurately determined by assessing terrain and location.
- Current road information depicting not only "bikeable" roads but all roadways will be indicated as well as all bikeway development and planning efforts (on-road and off-road). This information is important in individual route selection.
- Street grid patterns of metropolitan areas will assist cyclists through town.

Other aspects not depicted by Figure 5 are: background information of each region ("thumbnail" sketch of cultural, historical, geographical, and social character); practical advice regarding bicycling (preparation, equipment, etc.); rules and regulations governing usage of bikeways. Supplemental information further detailing accommodations and services rendered will be available in a brochure-like publication.

Bikeway System Design: (criteria-guidelines)

Consideration for the system concept must take into account a host of highway design specifications which will be interpreted on their merit as well as on the suitability as it relates to bicycling. No strict criteria has been established for evaluation into this system, however, a standard of operation and assessment will be utilized. At the present time, design standards are being formulated in conjunction with various recreation/transportation planners so as to develop a "common denominator" in overall program development procedures.

In addition to technical standards and guidelines used for potential bikeway development — an equally perceptive and critical evaluation must be made on the aesthetic incentive aspect of each individual region of system development. It is apparent, therefore, that each situation demands individual consideration and research both in-office and on-site before recommendations can be made.

In summary, the following components in system design priorities and development are to be evaluated individually for consideration:

- Concentration of bicyclists.
- Number of bicycle accidents and fatalities during a specified time period.
- Roadway rehabilitation and development.
- Availability of suitable roadways at present.
- Other bikeway planning and development efforts as per local, state, and federal planners.
- Technical standards of evaluation of bikeway systems.
- Aesthetic incentives of each individual region.
- Proximity of support facilities to bikeway (i.e., accommodations, bike shops ...).
- Availability of program funding.



FIGURE 6: STATE BASE MAP: 39 SECTIONAL REPRESENTATION AS RELATED TO ECONOMIC DEVELOPMENT REGIONS

Based on data presented previously, priorities for State Bicycle Trail development are presented. This proposal should not be interpreted to imply that local bikeway development is operating under the same time schedule – quite the contrary! Such development should be encouraged to expedite this process. However, we believe it is advantageous to local bikeway planners to be aware of this proposed mapping/development schedule.

	IV	lap	o Se	ecti	ons	5																																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
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C	6					20	28	13	8				9	27	30															181										
B	5																	10	17				23	16												-				
No.	1	-																						-	15	21	26	24									37	36	25	
ш	2									1														16	15			24	31								37	36	25	39

TABLE 9: PROPOSED STATE BICYCLE TRAIL PROGRAM MAP PRODUCTION SCHEDULE

Research Completed

Research Necessary

Numbers within blocks equal priority in which maps will be produced.

Land Acquisition

Land acquisition priorities will primarily hinge on the lack of available safe public roadways, as established by bikeway design criteria*, or lack of sufficient off-road bikeway mileage.

There is considerable merit to the off-road bikeway concept; principle arguments being bicycle safety and a more aesthetically pleasing riding environment. These arguments are certainly valid – and will override most counter-discussion. However, separate bikeway facilities are very expensive, and oftentime lack consistent engineering standards and maintenance.

As previously mentioned, each component section of the potential bikeway must be evaluated individually – recommendations can thereby be made.

Maintenance

Without a regimented maintenance schedule, even the most beautifully designed and well located bikeway will soon fail to serve its purpose. There is no stronger negative attitude among cyclists than a poorly maintained bikeway. It does little good to invest, develop and promote a facility if the maintenance program does not play a significant role in its operation.

Bikeway maintenance should coincide with the jurisdictional operation of the facility. In other words, on-road bikeway upkeep would automatically be a function of roadway maintenance. Off-road or shared road bikeways would be the responsibility of the implementing agency or its delegated representatives, a cooperative arrangement in bikeway management/maintenance can thereby be established.

STATE OF MINNESOTA

FINANCIAL – TECHNICAL ASSISTANCE

TO LOCAL UNITS OF GOVERNMENT IN THE DEVELOPMENT OF BIKEWAYS (standards for bikeway evaluation and development)

The key factor in the realization of a comprehensive Statewide Bicycle Program is a well organized communications network among all parties concerned. It is imperative that such a system of cooperation and a coordination of mutual planning efforts become a cornerstone in the Program. Instituting such a management-operational procedure will eliminate duplication of effort, time, manpower, materials, funds and provide reasonable assurance of "quality control". In addition, participation of this nature can serve to enhance and encourage good will and mutual understanding of the overall scope and purpose of the Bike Program.

Local bikeway development may be initiated by any number of "interested" parties. The local unit of government charged with this responsibility should be the initial "clearing house" in bikeway program proposals prior to contact with the state. Recognizing that there are widely varying levels of knowledge and interest among communities towards bikeways, it is recommended that a "consensus" or community evaluation be drawn prior to state involvement. It is on this premise that the role bikeways will play in the overall community development picture can be determined.

The following outline is a suggested means of participation and operation between the state and local units of government. The intent of this discussion is to illustrate basic operational procedures in the overall planning process. Therefore, it should be understood that this is a flexible plan of action to be "tailored" to suit individual community and local government needs and requirements.

TABLE 10 PROPOSED FINANCIAL-TECHNICAL ASSISTANCE PROCEDURES TO LOCAL UNITS OF GOVERNMENT IN THE DEVELOPMENT OF BIKEWAYS



Program Development Coordination:



SAMPLE DNR GRANT APPLICATION

THIS AGREEMENT, made this _____ day of _____, 19___, between

, 19 _____, between the STATE OF MINNESOTA, acting by and through the Commissioner of Natural Resources, hereinafter referred to as the local unit of government.

WHEREAS, the local unit of government desires to establish, construct, and maintain a public bicycle trail; and,

WHEREAS, by Laws of 1975, Chapter 204, Sections 57 and 95 and by the Laws of 1976, Chapter 319, Section 1, there was appropriated to the Commissioner of Natural Resources, funds for non-motorized recreation trails.

NOW THEREFORE, IT IS AGREED between the parties hereto:

The State agrees to reimburse the local unit of government 65 percent of the cost of trail acquisition and development subject to the following terms and conditions: local unit guarantee of matching funds.

- 1. (APPROVAL) The local unit of government shall not expend any funds on the proposed trail until the trail proposal is approved as hereinafter provided, by the Trail Coordinator, Department of Natural Resources (DNR).
 - A. The local unit of government shall submit to the Trail Coordinator, Department of Natural Resources, a trail work plan which shall include:
 - A name, address and phone number listing of who will plan, acquire, develop and maintain the trail.
 - An estimate of when acquisition and development will be completed.
 - A map of a scale of no less than 3"/mile depicting: the exact location of the proposed trail over all private and public lands and the exact location of all toilet, litter, parking, shelter and rental facilities.
 - A legal description and parcel number of landowners which correspond to parcel numbers depicted on the map (if the bikeway proposal is for an off-road trail).
 - A signed lease or easement for each parcel of land not under the jurisdiction of the local unit of government.
 - A design specification chart indicating the length, width, grade, surface and base material, drainage, marking system and bridge development standards for the bikeway.
 - Document public involvement in program proposal.
 - B. The local unit of government shall not amend, revise, or change the approved trail work plan without the written consent of the Trail Coordinator.

- C. The Trail Coordinator shall give his written approval of the proposed work plan to the local unit of government official pending on-site inspection and conference with bikeway development agency, thereby, executing this agreement.
- II. (TECHNICAL ASSISTANCE) The State will give technical assistance to the local unit of government in establishing the trail.
- III. (REIMBURSEMENT) The State agrees to reimburse the local unit of government 65 percent of all costs attributed to trail acquisition and maintenance.
 - Reimbursement for costs incurred must be in accordance with the approved trail work plan and approved revision thereto.
 - The local units of government may acquire land in fee, easement, or lease, but in no event shall the term of said interest be less than six (6) months between April 1st and September 30th of any year.
 - Any instrument of conveyance or permit with consideration exceeding \$500.00 shall be accompanied by an attorney's certificate of title.
- IV. (PAYMENT) The local unit of government shall submit invoices for actual costs incurred in acquiring and constructing the approved bicycle trail.
 - First Payment: Upon receipt of invoices evidencing acceptable trail costs of \$500.00 or more, and an approved trail work plan, the State agrees to pay the local unit of government 65 percent of the amount submitted and approved.
 - Subsequent Payments Each thirty (30) successive days after the first payment, the local unit of government shall submit invoices evidencing acceptable trail costs. If the costs are approved, the State agrees to pay the local unit of government 65 percent of the amount submitted and approved. Said payments shall continue to be made until authorized reimbursement for the costs of said trail as provided herein is satisfied.
- V. (STATE LIABILITY) Notwithstanding the grants-inaid as provided herein, the State of Minnesota shall not be liable for such costs as are incurred by the local unit of government because state grants-in-aid funds for the said bicycle trail are depleted.
- VI. (OBLIGATION OF THE LOCAL UNIT OF GOVERN-MENT) After the trail has been approved, the local unit shall forthwith proceed to acquire necessary interests in lands and establish the trail and open the same to the public. Should the local unit of government fail to comply with the authorized trail work plan or to expedite completion of project and thereafter fail to provide for adequate maintenance which shall include keeping the trail reasonably safe for public use, providing sanitation and sanitary facilities when needed and other maintenance as the State may require, the State may withhold payments to the local unit of government and terminate this agreement.

POTENTIAL FUNDING SOURCES – REVENUE GEN-ERATING, PROGRAM SUSTAINING

The information presented in Table 11, suggests some of the potential funding sources available to finance the State Bicycle Trail Program. Recognizing the fact that users fees cannot generate enough long-term program sustaining revenue, it is necessary to have government backing for a program of this scope.

As mentioned previously in this report, there is ample justification for governmental expenditures to support the State Bicycle Trail Program:

- More than two million Minnesotans consider themselves bicyclists — however, there are less than 500 miles of designated bikeways in the state.
- Seven year accident-fatality situation in Minnesota: 7094 accidents, 140 fatalities (1970-1976).
- As noted in the introductory statements, bicycling relates significantly to recreation, environmental preservation, energy conservation (alternate transportation mode), promotes health through exercise.
- Impact increased bicycle usage could have on Minnesota's industries (i.e., accommodations, restaurants, local retailers...).

While other rationales can be used to justify government investment in the program it would be inappropriate to project too far into the future. It suffices to say, however, that the needs presented in this report <u>do</u> justify government action.

TABLE 11: POTENTIAL FUNDING SOURCES – REVENUE GENERATING, PROGRAM SUSTAINING

Funding Source	Program	Recommended	Funding Source	Program	Recommended
Bicyclist	Sale of MN State Bicycle License	Yes	Motorist	Motor vehicle license funds and	Yes
Bicyclist	Sales tax on Bicycles and Bike equipment	Yes	MN Legislature	General Revenue Appropriation	Yes
Bicyclist	Bikeway Publication sales	Yes	Other	Safety program	Yes
Bicyclist	Sale of Posters and Patches	Yes	Departmental Budgets	Bikeway Facilities	
Bicyclist	Bicycle operators licensing	No	MN Legislature	Legislative Commission on Minnesota	Yes
Bicyclist	Trail user fee	No		Resources LCMR– (d)	
	1 1 1		MN Legislature	Bonding	Yes

^dChapter 86.10 M.S. 1976, cites the purpose of the Legislative Commission on Minnesota Resources. 1. The commission shall obtain and appraise all information available through private organizations and groups, utilizing to the fullest extent possible studies, data and reports previously prepared or currently in progress, by public agencies, private organizations, groups, and others concerning trends in population, leisure, transportation, and all other pertinent factors and shall determine the amount, kind, quality and location of such outdoor recreation resources and opportunities as will be required by the year 2000. 86.03. This Legislature anticipates the tax hereinafter provided will be adequate to insure funds for carrying out the program herein contemplated for the period of years necessary for its accomplishment.

TABLE 12: POTENTIAL FINANCIAL ASSISTANCE PROGRAMS – GRANTS AVAILABLE										
	Funding Source	Program	Recommended	Initiating Agency	Managing Agencies	Grant %		Due Date of Applications	Criteria	Contacts
						Agency Share	Local Share			
	BOR – Bureau of Outdoor Recreation	LAWCON	Yes	Local Unit DNR, DOT, Metro Council	SPA, Local Unit, DNR DOT, Metro Council	50/75	50/25	July 15	Need – Accessibility Justifiable Plan	State Planning Agency Capitol Square Building Parks & Recreation, Grants Section, Office of Local & Urban Affairs, St. Paul, MN 55155
	Federal Highway Administration	FAU, FAS	Yes	Local Unit	SPA, Local Unit, DNR, DOT, Metro Council	70	30		Along highway right-of-way, remove bicycle traffic from high- ways, creating a safer riding environment	Dept. of Transportation Transportation Building Asst to the Commissioner Room 408 St. Paul, MN 55155
	DNR (t	Grant-In-Aid o June 30, 1977	Yes 7)	Local Unit	DNR	65	35		Justifiable plan which documents need and details implementation procedure	Dept. of Natural Resources Centennial Office Building Grant-in-Aid Coordinator Room 196 St. Paul, MN 55155
	Federal Grant to Communities	Revenue Sharing	Yes	Local Unit	DNR, Local Unit			ls affiliated with city budget	Must be approved by city council and go through a public hearing procedure	Contact municipal government
•	Federal	HUD	Yes, but not as a major source	Local Unit	DNR, SPA, Metro Council				Must benefit lower or moderate income group. Must meet a feasibility formula designed for pro- posed projects.	Contact local office in your municipality

POTENTIAL FINANCIAL ASSISTANCE PROGRAMS, GRANTS AVAILABLE

In addition to Table 12, further details pertaining to individual funding programs may be obtained by contacting the respective program representatives. A brief description follows:

LAWCON (Bureau of Outdoor Recreation)

The Land and Water Conservation Fund is administered through the Office of Local and Urban Affairs (OULA) for local units of government. LAWCON's share for bikeway acquisition and development is 50 percent. These funds are to be used for bikeways open to the general public. LAWCON funds are not available for the maintenance and operation of bikeways.²⁷

FAU, FAS (Federal Highway Administration)

The Federal Highway Administration has financial aid available for bikeways in conjunction with federal-aidhighways. Bikeway facilities can be constructed in conjunction with a project designed to serve motorized traffic, or as an independent project for exclusive bikeway usage. Bikeways may be constructed on the highway right-of-way if it can be shown that those bicycle users would normally be on the highway itself. Though the Department of Transportation initiates the planning, design and construction of such projects, it is the responsibility of the local officials to make proposals to the state.²⁸

Grant-in-Aid (Department of Natural Resources) The Minnesota Department of Natural Resources administered a bikeway grant-in-aid program during 1974, 1975,

1976, and 1977. Funds to operate the program were appropriated by the legislature from the unfunded excise tax on gasoline used by snowmobiles.

The Minnesota Bicycle Trail Assistance Program is a costsharing program between the state and local units of government for the development of bicycle trails. The state reimburses local units of government for 65 percent of bikeway development costs. The local units of government are responsible for the remaining 35 percent.²⁹

Revenue Sharing (Federal Grant to Communities) Local bikeway development is eligible to be funded with revenue sharing funds. Contact local officials in your municipality for further details concerning the feasibility of using these funds for financing a project.

HUD (Federal Housing and Community Development)

A new potential source of funding for bikeways became available in January, 1975, through the Housing and Community Development Act of 1974. These federal funds will be allocated directly to local units of government which have a metro or highly urban character. These funds are provided for three general purposes:

- To eliminate or prevent slums and blight, where such conditions or needs exist;
- To provide housing for low and moderate income persons; and
- To improve and upgrade community facilities and services when necessary. Obviously, bikeways will compete with many other community needs for these funds.³⁰

FOOTNOTES

¹Wehrman, Chapman Associates, Inc., Statewide Bicycle Survey - Minnesota Bikeways - A Study for the Proposed State Bicycle Trail Program (Wehrman, Chapman Associates, Inc., 1977) ²Ibid., p. 16 31bid., p. 18 ⁴Ibid., p. 18 ⁵Ibid., p. 18 61bid., p. 18 ⁷Ibid., p. 20 ⁸Ibid., p. 20 ⁹Ibid., p. 20 10 Ibid., p. 20 11 Ibid., p. 20 121bid., p. 22 13 Ibid., p. 22 14 Ibid., p. 22 ¹⁵Minnesota Department of Public Safety, Traffic Safety Section, National Safety Council Tables - Bicycle Accidents (1970-1976) ^{T6}Wehrman, Chapman, p. 26 17 Ibid., p. 31 18 Ibid., p. 31 191bid., p. 31 201bid., p. 31 21 Ibid., p. 31 22 Ibid., p. 31 23 Ibid., p. 16 24 Minnesota Department of Public Safety 25 Wehrman, Chapman, p. 38 261bid., p. 40 27 Division of Parks and Recreation in cooperation with the Bureau of Engineering and Bureau of Information Education, Minnesota Department of Natural Resources, Bicycle Trails Manual, 1975, p. 25 28 Ibid., p. 25 291bid., p. 21 30 Barton-Aschman Associates, Inc., Bicycling in Tennessee, A State Program for Bicycle Facilities and Programs, 1975, p. 49.