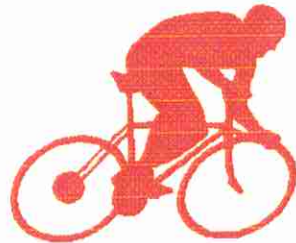


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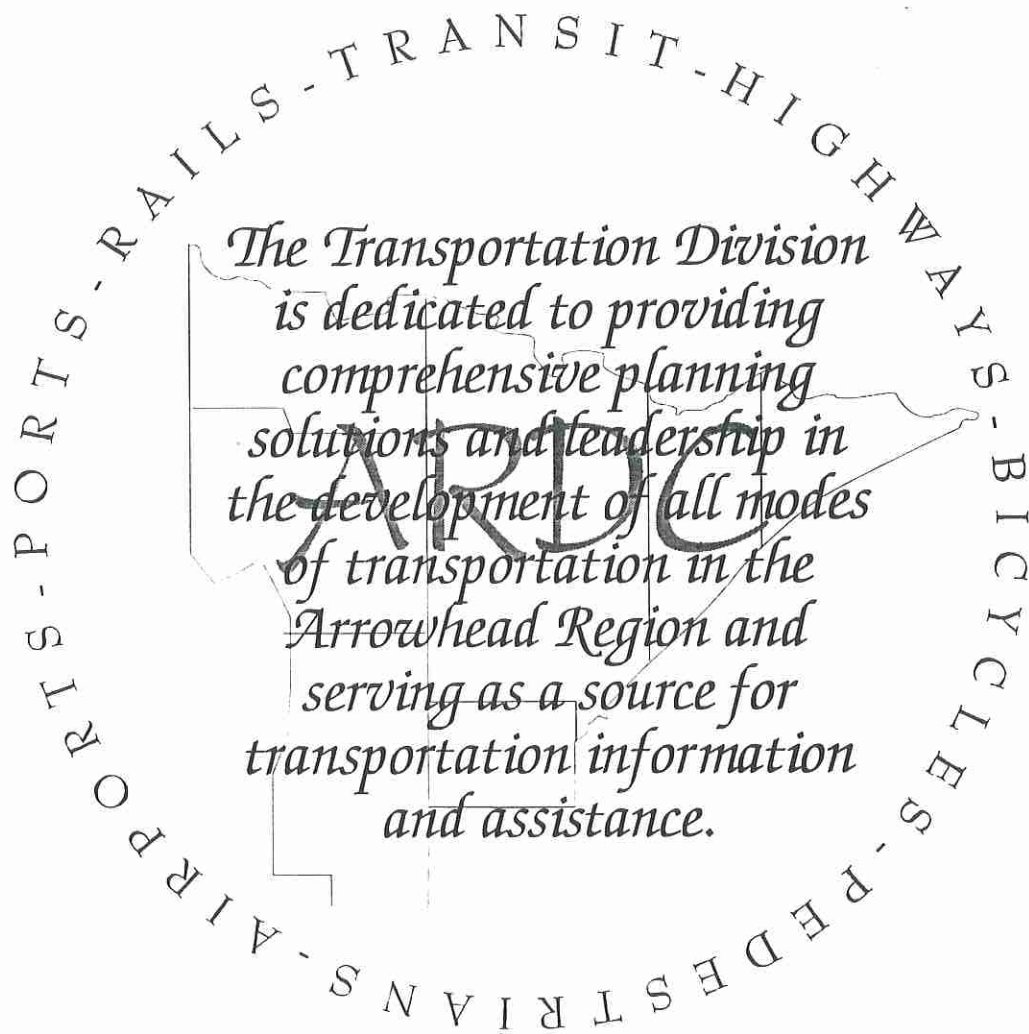


Metropolitan
Bikeways Plan

Duluth-Superior
Metropolitan Interstate Committee



December 1994



*The Transportation Division
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serving as a source for
transportation information
and assistance.*

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Duluth-Superior Metropolitan Bikeways Plan

December 1994

Prepared by the
Duluth-Superior Metropolitan Interstate Committee

Duluth-Superior urban area communities cooperating in planning and
development through a joint venture of the
Arrowhead Regional Development Commission
and the
Northwest Regional Planning Commission

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Copies are available from the Duluth-Superior Metropolitan Interstate Committee,
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TABLE OF CONTENTS

TABLE OF CONTENTS

Introduction

Purpose of the Plan	1
Metropolitan Bikeways Plan Study Advisory Committee	1
Why Encourage Bicycling?	2

Study Process

Study Process	5
Bicycle Accident Locations Map	6
Definitions	7
User Groups	8
Utilitarian and Recreational Bicyclists	8

Facts & Figures

Existing Bicycle System Characteristics	11
Bicycle Travel Trip Generators	12
Barriers	12
Accidents	13
Public Participation	13
Other Local Bicycle Plans	14

Survey Results

Bicycle Traffic Counts	17
Comparing Bicycle Counts with Estimated Usage	17
Questionnaire Survey	18

Guidelines & Funding Sources

Specific Bikeway Facility Guidelines	25
Funding Sources	27
Other Federal Funding Source	29
State Funding Sources	30
Local Funding Sources	30

TABLE OF CONTENTS (continued)

Additional Local Sources	31
Implementation of Plan	31
Estimating Costs	31
What is the MIC?	32

General Recommendations

1994-1996 Implementation	35
1996-1999 Implementation	36
Beyond 1999 Implementation	38
Specific Recommendations	39
Policy Improvements	40
General Maintenance Recommendations	41
Specific Policy Recommendations	42
Bicycle Safety Education and Public Information	45
Bicycle Law Enforcement	46

Route Recommendations

Introduction	49
City of Duluth Route Recommendations	53
Scenic North Shore Drive Corridor	53
London Road Corridor	56
Superior Street Corridor	60
Woodland Avenue Corridor-Superior Street Corridor Connection	63
Woodland Avenue Corridor	65
College Street Corridor	68
Kenwood Avenue Corridor	70
Canal Park/Minnesota Point Corridor	72
Arrowhead Road Corridor	75
Martin Road Corridor	78
Downtown Streets Corridor	80
Snively Road/Jean Duluth Road Corridor	83
West Duluth/Morgan Park/Gary-New Duluth Corridors	87
Central Entrance Corridor	95
Anderson Road Corridor	97

TABLE OF CONTENTS (continued)

Howard Gnesen Road Corridor	100
West End/Piedmont Heights Corridor	101
City of Hermantown Recommendations	105
City of Proctor Recommendations	110
City of Superior Recommendations	114
Tower Avenue Corridor	114
East 2nd Street Corridor	117
North 28th Street Corridor	120
East 5th Street Corridor	124
Stinson Avenue Corridor	125
North 21st Street Corridor	126
Hammond Avenue/Grand Avenue Corridor	127
Catlin Avenue/North 12th Street Corridor	128
Railroad Crossings	129
City of Superior Recommendations Maps	131
Duluth-Superior Metropolitan Bikeways Recommendations Map	135

References

References	137
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INTRODUCTION

INTRODUCTION

PURPOSE OF THE PLAN

The Metropolitan Bikeways Plan was developed as a guide to local, county and state jurisdictions in planning and developing bicycle facilities and programs affecting bicycling in the cities of Duluth, Hermantown, Proctor and Superior. The purpose of the plan is to provide direction for the continued improvement of the bicycling environment throughout the Duluth-Superior urban area. Representatives of state, county, local governments and local bicyclists cooperated in developing the plan.

The policies and recommendations provided in this plan focus not only on physical facilities, but also on education and enforcement as important components of a general program to promote safe bicycling.

The Metropolitan Bikeways Plan is a component of the Metropolitan Interstate Committee Long Range Transportation Plan. This Long Range Transportation Plan also includes a Long Range Highway Plan, a Short Range Transportation System Management Plan, a Transit Development Program, a Metropolitan Truck Route Plan, and special area and corridor plans. The new federal transportation act, Intermodal Surface Transportation Efficiency Act (ISTEA) requires that metropolitan planning organizations (MPOs) update transportation plans by September 1994.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 recognizes increased importance on the use of the bicycle as part of an intermodal transportation system. Bicycle facilities must be located and designed according to a general plan developed by each metropolitan planning organization and be developed principally for transportation purposes to be eligible for federal funding.

METROPOLITAN BIKEWAYS PLAN STUDY ADVISORY COMMITTEE

The Metropolitan Bikeways Plan was developed with the assistance of a study advisory committee consisting of representatives of the jurisdictions within the Metropolitan Interstate Committee's jurisdiction. Members of the Study Advisory Committee included representatives of communities within the MIC's jurisdiction. This included local engineers, planners, police, public works, parks and recreation, Department of Transportation staff, public transportation, schools, and local bicyclists.

The mission of the Metropolitan Bikeways Plan Study Advisory Committee is "to promote bicycling as a viable mode of transportation and to work in

A rectangular box with a textured border containing the word "Mission" in a serif font.

a common effort to investigate and address bicycle transportation needs through the development and promotion of the Metropolitan Bikeways Plan."

Once the plan is adopted, the Study Advisory Committee will work cooperatively with local units of government, the Minnesota Department of Transportation, the Wisconsin Department of Transportation and the Duluth-Superior Metropolitan Interstate Committee, toward implementation of the Plan's recommendations.

Goals

The goals of the Metropolitan Bikeways Plan Study Advisory Committee are:

- 1) Designate bicycle routes.
- 2) Provide secure parking by identifying locations and types of bicycle parking racks.
- 3) Address bicycle-transit accommodations.
- 4) Provide information on where to bicycle through the development of a metropolitan bikeways map.
- 5) Encourage other supportive public policies such as the enforcement of traffic laws for both motor vehicle operators and bicyclists.
- 6) Promote the safe accommodation of bicycles on all urban streets and highway construction and reconstruction projects.
- 7) Promote the implementation and utilization of the Metropolitan Bikeways Plan as a planning document for bicycles in all municipalities within the Metropolitan Interstate Committee's jurisdiction.
- 8) Identify secured funding sources for endorsed bicycle routes and improvements.

- 9) Support the establishment of an interactive position(s) or organization(s) that would work with local municipalities on bicycle related issues. This may consist of a bicycle coordinator position or bicycle advisory committee that advises local officials of bicycle related topics on community projects.
- 10) Support the creation of a bicycle/trails/pedestrian member on the Metropolitan Interstate Committee Transportation Advisory Committee.

Implementation of Plan Recommendations

The Metropolitan Interstate Committee will provide services related to the study initiation, data collection, data analysis, recommendations, final plan preparation, and final plan presentation. Actual implementation of recommendations, of the Metropolitan Bikeways Plan and design of individual bicycle facilities will be dependent upon the location of the proposed bicycle facility type and the jurisdiction(s) involved. Recommendations or improvements that utilize federal funding must be sponsored by the local jurisdiction and included in the Duluth-Superior Transportation Improvement Program, a three year program of all federally funded transportation projects in the Duluth-Superior metropolitan area, which is prepared annually by the Metropolitan Interstate Committee.

WHY ENCOURAGE BICYCLING?

Bicycling is a viable form of transportation that was examined closely in the Duluth-Superior area. Encouraging the use and

providing facilities for bicycles creates environmental, economic, social and health benefits. The benefits of promoting bicycle use for transportation include:

Environmental Benefits

- Bicycles don't create air or noise pollution.
- Bicycles are energy efficient.
- Bicycles require very little pavement or parking space, and help relieve congestion.

Social/Economic Benefits

- Bicycles are the most efficient form of transportation devised.
- Bicycles are affordable and have low maintenance costs.
- Bicycles use no fuel products.
- Using bicycles for transportation helps free resources for other needs.
- The bicycle can play an important role in the overall transportation system if adequately planned for and utilized.
- Ensuring access and mobility for bicycles provides an alternative to the motor vehicle.
- Bicycles contribute to the livability of an area.

Health Benefits

- Bicycling leads to increased physical activity, physical fitness and stress reduction.
- Bicycling is a lifetime activity, for everyone from children to senior citizens.
- Bicycling for transportation incorporates fitness and recreation into everyday routines.
- Bicycling is one of the best forms of aerobic exercise.

Transportation Benefits

- Linkage of bicycle facilities provides connections of origins with destinations.
- Bicycling is an alternative to the automobile.
- Bicycling offers an integrated transportation mode when facilities are coordinated with mass transit.

STUDY PROCESS

STUDY PROCESS

STUDY PROCESS

Study Initiation

The Metropolitan Bikeways Plan consists of a study of bicycle transportation needs in the Duluth-Superior urbanized area. The plan also includes recommendations for bikeway development. Development of goals, objectives and policies was addressed by the Study Advisory Committee. Criteria included identifying different bicyclist groups' needs, integrating bicycles with other modes of transportation, identifying funding sources, and identifying and ranking facility development. The study initiation phase also included the development of a mission statement, a literature search, establishment of the Study Advisory Committee, and a definition of the study area. Public participation, through involvement with the Study Advisory Committee, questionnaire surveys and public information open houses were used throughout the process.

Data Collection

Existing community bicycle plans, past surveys and maps were used as components in deciding locations of surveys conducted. A concentration was placed on arterial and collector roadways as bicycle travel usually mirrors motor vehicle travel.

Trip generation plots were developed to identify desired lines of travel for bicyclists.

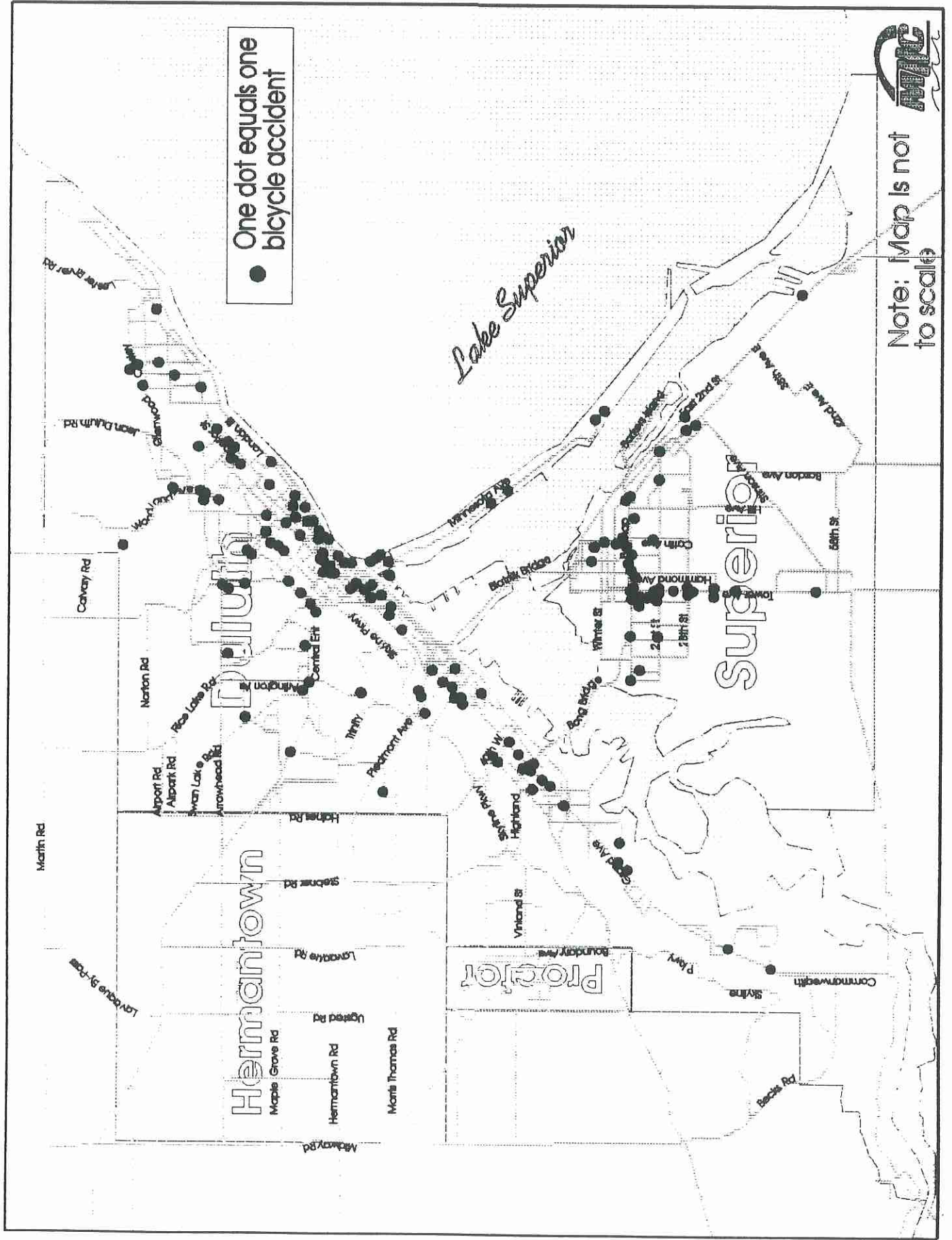
These plots included bicyclist trip origin and trip destination. The plots were grouped by primary connections, secondary connections and transit hubs. Primary connections included schools, universities, commercial areas, downtowns, shopping centers, neighborhood shopping centers and malls. Secondary connections included parks, beaches, trails and recreational facilities. Transit hubs included bus stops and park and ride lots. A list of these connections is located in Appendix A.

Bicycle accident data and locations were collected to show areas of heavy bicycle user demand or problem areas. A map of bicycle accident locations is shown in Figure 2-1 on page 6.

Bicycle traffic counts were conducted at major intersections in Duluth, Hermantown, Proctor and Superior. Origin and destination of the bicyclist were recorded as the cyclist traveled through the intersection. This included whether the cyclist was using the driving lane, parking lane/shoulder or sidewalk.

Bicycle usage estimates were conducted using average daily traffic counts on roadways and estimating formulas provided by the Minnesota Department of Transportation. Comparisons between actual counts and estimated usage were also reviewed. An explanation of the bicycle counts and

Bicycle Accident Locations 1988 - 1992



estimates are located in the Survey Results chapter.

A questionnaire survey asking bicycling concerns was distributed to local major employers and published in local newspapers. Results and discussion are found in the Survey Results chapter.

Bicycle Travel Corridors

The siting of bicycle facilities occurred within identified bicycle corridors. Corridors were identified with consideration toward usage, trip length directness, accessibility, spacing, system continuity, barriers, security, safety, delays to bicyclists, aesthetics, costs and funding, and ease of implementation. Links to travel generators were also considered in deciding bicycle corridors.

Bicycle Parking Racks

Locations of bicycle parking racks should be at transit stops, park and ride lots, and major destinations. Determination of specific locations is to be made by local jurisdictions.

Specific Routes & Facility Types

Consideration and identification of the bicycle route system and minimum bicycle facility type were examined. Selection of the appropriate bicycle facility type and route was made with the assistance of the Study Advisory Committee, Public Information Open House citizen comments, and the Metropolitan Interstate

Committee members.

Criteria were established to consider the degree to which a specific route meets the needs of anticipated users as opposed to other routes. These criteria include estimated costs, extent of construction required, timing of construction required, comparative ease of implementing the recommendation, considering the type of bicyclists and numbers of potential users of the facility.

DEFINITIONS

To completely understand the process and recommendations of this plan, it is necessary to understand bikeway terminology and definitions. The following definitions are from the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 1991.

Bicycle - A vehicle having two tandem wheels, either of which is more than 16" in diameter or having three wheels in contact with the ground any of which is more than 16" in diameter, propelled solely by human power, upon which any person or persons may ride.

Bicycle Facilities - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, mapping all bikeways, and shared roadways not specifically designed for bicycle use.

Bicycle Lane (Bike Lane) - A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicycles.

Bicycle Path (Bike Path) - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right of way or within an independent right of way.

Bicycle Route (Bike Route) - A segment of a system of bikeways designed by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number.

Bikeway - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Highway - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

Right of Way - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Right of Way - The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian.

Roadway - the portion of highway, including shoulders, for vehicle use.

Shared Roadway - any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

Sidewalk - The portion of a highway designed

for preferential or exclusive use by pedestrians.

USER GROUPS

Bicyclists differ widely in their abilities and in their preferences for riding environments. Some bicyclists may place a high importance on directness and can ride safely and confidently in heavy traffic and may choose to ride on arterials. Some bicyclists may place more importance on the quality of the trip and are willing to go out of their way to ride on residential streets or paths. It is necessary to conduct a combined planning and design approach to accommodate all groups of bicyclists. Bicyclists can be identified by two general groups:

Group A - Advanced Bicyclists: Experienced riders who can operate under most traffic conditions, they comprise most of the current users of collector and arterial streets.

Group B/C - Basic Bicyclists and Children: Basic bicyclists are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Children are preteen riders whose roadway use is initially monitored by parents. The groups are combined because children often develop into basic bicyclists.

UTILITARIAN AND RECREATIONAL BICYCLISTS

Bicycling trips are categorized as utilitarian trips (commuting trips) or recreational trips.

The primary objective of a utilitarian trip is reaching a specific destination quickly with few interruptions. We commonly associate utilitarian trips with going to and from work or school, or trips taken for errands. Recreational trips consist of riding for pleasure. The destination is unimportant. Although two definitions exist for bicycling trips, many trips are not exclusive to one type of trip, but a combination of the two. For example, a bicyclist may be riding a bicycle to work, but likes to do so because it is relaxing and provides exercise. Other factors to consider when determining the type of trip are age and experience of the cyclist.

FACTS & FIGURES

EXISTING SYSTEM CHARACTERISTICS

Background Information

The Metropolitan Bikeways Plan study area includes the cities of Duluth, Hermantown, Proctor and Superior. The Minnesota jurisdictions involved within the study area include the City of Duluth, City of Hermantown, City of Proctor, St. Louis County, and the Minnesota Department of Transportation. Wisconsin jurisdictions involved with the study include the City of Superior, Douglas County, and the Wisconsin Department of Transportation.

Existing Conditions

Very few bike paths or bike routes exist in the Duluth-Superior area. Those that do exist include the Willard Munger Trail, Western Waterfront Trail, Lakewalk, Central Entrance Bicycle Path and North Shore Drive. Most of these paths or routes do not offer any total connection to a complete bicycle network. In addition, use of most of these paths or routes are extensively for recreational purposes. However, if connections are established, uses of these trails and routes may be for more utilitarian bicycle trips.

BONG BRIDGE BICYCLE/PEDESTRIAN PATH begins near Michigan Street and 43rd Avenue West in Duluth. The path is next to the I-35

southbound entrance to the Bong Bridge. The section of the path crossing the bay is located next to the eastbound lane. This section holds both directions of bicycle and pedestrian traffic. The path ends north of Baywalk Best Western Inn on Susquehanna Ave in Superior. The path is quite narrow considering it holds both ways of pedestrian and bicycle travel.

WILLARD MUNGER TRAIL begins near Pulaski Street and Indian Point Park in Duluth. The trail consists of an asphalt path on an abandoned railway corridor that holds both directions of non-motorized traffic. The trail extends through Jay Cooke State Park to the city of Carlton. Willard Munger Trail has proven popular to bicyclists, in-line skaters and pedestrians. The increasing popularity of this facility has made portions of the trail congested. During winter months the trail is used for snowmobiling.

WESTERN WATERFRONT TRAIL begins near Fremont Street on South 63rd Avenue West. This trail is a non-paved multi-use trail that is next to the Western Waterfront Rail and Spirit Lake. The segment of the trail designated for bicycling ends near Riverside Drive. The entire trail ends near Hudson Blvd. and Boy Scout Landing in Gary-New Duluth.

Inventory of Existing Conditions

LAKEWALK is a pedestrian/bicycle path located adjacently to Lake Superior. Lakewalk begins near Morse Street in Canal Park and extends to 26th Avenue East. A segment from Canal Park to Leif Erickson Park has a boardwalk that holds pedestrians with an adjacent asphalt trail accommodating bicyclists and in-line skaters. Lakewalk is extremely popular for tourists and residents alike. No signs exist along Lakewalk showing that pedestrians are to use the boardwalk section. This has caused problems in the past with slower moving pedestrians walking on the asphalt portion used by cyclists and in-line skaters.

CENTRAL ENTRANCE BICYCLE PATH begins near Central High School and ends near the intersection of Palm Street and Arlington Avenue. The path is parallel to Central Entrance and is approximately one block south of Central Entrance. The path was developed to offer an alternative to bicycling on the congested Central Entrance. Since establishment of the trail, upkeep and maintenance have been very poor.

NORTH SHORE DRIVE begins in northeast Duluth near Brighton Beach and is currently designated as a bicycle route through signage. Returned questionnaire surveys show this route is popular for bicyclists. Bicyclists also expressed concern with the pavement and shoulder conditions. Cyclists regarded the poor conditions of these roadway areas as a problem.

ALEX LAVEAU MEMORIAL TRAIL is a planned bicycle trail that would extend from West Duluth to Wrenshall via the Trunk Highway 23 right-of-way and adjacent corridors. The trail is currently in the planning stages and is scheduled for

development in 1995.

Destinational bicycle travel will most often mirror motor vehicle travel. When the cyclists' origin

and destination are identified, the travel habits of cyclists are much the same as motorists. In the morning, travel is most common between residential areas and places of employment. The inverse is true in the late afternoon.

An appropriate way to identify these desired lines of travel for bicyclists is to plot bicycle travel trip generators. Bicycle travel trip generators include locations of education facilities, employment centers and commercial facilities. These connections, or trip origins and destinations, should be considered in estimating usage and trip length and are useful in deciding bicycle travel corridors.

Educational facilities include elementary, junior high, senior high, post secondary, and private schools. Major employment centers include employment centers with 100 or more employees. Commercial facilities include grocery, convenience, major shopping area, bicycle dealers and bicycle repair services. Also considered are park locations and mass transit and intermodal transfer points.

Appendix A shows a list of bicycle trip generators.

In most urban areas, there are physical barriers for bicycle travel, caused by freeways, rail lines, rivers, and topographical features such as steep grades. Bicycle facilities should be integrated

Bicycle Travel Trip Generators

Barriers

into the design of street and bridge improvements to eliminate barriers. Sometimes a roadway or bridge may be the only possible connection between two points because of barriers. These areas received special attention in the development of this plan.

A list of bicycling barriers is shown in Appendix A. These areas are vital in providing safe and efficient bicycle travel and should be developed and maintained for bicycle use when roadway improvements occur.

Accidents

Bicycle accidents were recorded to find locations and physical obstructions that may contribute to accidents. Bicycle accident information was recorded for the last five years available (1988-1992) and high accident locations were compared to questionnaire survey results.

SUPERIOR BICYCLE ACCIDENTS

The two locations that had the most bicycle related accidents were the intersections of Belknap Street and Banks Avenue and the intersection of Tower Avenue and N 21st Street. These locations both included accidents that involved turning vehicles and bicycles, and accidents that involved children. Results of the questionnaire survey indicated no problems listed for either of these intersections. Children did not have an opportunity to answer the questionnaire survey causing a discrepancy in actual accidents versus perceived problem areas. Another possibility is that those that answered the survey do not bicycle in these areas or do not view the locations as problems.

DULUTH BICYCLE ACCIDENTS

The two locations that had the most bicycle related accidents were on London Road and in downtown Duluth. Examination of accident reports suggested that uneven pavement and poor driver or cyclist observation caused accidents on London Road. Results of the questionnaire survey suggested that London Road had heavy automobile traffic and insufficient shoulder widths for bicycling.

In the downtown Duluth area, most bicycle related accidents occurred at intersections and involved turning vehicles. The questionnaire survey results showed heavy traffic and insufficient riding space as problems in downtown Duluth.

In most accident cases reviewed for the entire city of Duluth, bicyclists that caused the accident were children or teenagers. This may suggest that children and teenagers do not know the rules of the road or are not as experienced and aware of their surrounding as what adults may be.

PUBLIC PARTICIPATION

Public participation was valuable in learning about the major concerns that bicyclists had. In addition, additional problem areas were discovered. Several different procedures were used to gain public ideas in the development of this plan.

The first procedure was involvement of citizen bicycle users on the Metropolitan Bikeway Plan Study Advisory Committee. Four of the eighteen members were citizen bicycle users. Many jurisdictions appointed a member that had an interest or background in bicycling.

The second procedure was the use of a questionnaire survey. This survey was published in the Duluth News Tribune and the Superior Evening Telegram to gain information from the public on bicycle related concerns. The surveys were also distributed to major employers in the area. Results of the survey included observations of active bicyclists, potential bicyclists and non-bicycling persons.

The third procedure was informing the City of Duluth Energy Council about the study. The City of Duluth Energy Council consists of appointed citizens and advises the city council on bicycle related topics (among other topics) for the City. Members were invited to attend Metropolitan Bicycle Plan Study Advisory Committees and offer information. In addition, members of Velo Duluth, a local bicycle club, attended meetings and offered ideas.

The final procedure was having Public Information Open Houses in Duluth and Superior to present the preliminary route recommendations. Proposed routes were shown on maps in which the public viewed and made comments. In addition, citizens expressed concerns and comments that they had concerning bicycling in their community. Citizens also had an opportunity to list priorities for bicycle improvements in their communities.

OTHER LOCAL BICYCLE PLANS

The City of Duluth 1975 Bikeway Plan & Bicycle Survey was prompted by members of the

**City of Duluth
1975 Bikeway Plan
& Bicycle Survey**

Mayor's Duluth

Youth Council and the Department of Research and Planning. Surveys of citizens were conducted to detect the need for bicycle planning. After review of the surveys, a draft plan was developed with results of the surveys. The plan never became a final document and was never officially adopted by the City of Duluth. However, valuable information is contained within the plan.

The surveys conducted revealed that most people do not use bicycles for commuting purposes because of concern of theft and personal safety. Greater safety education and physical improvements were also concerns. Eighty-nine percent of the survey respondents approved an increase in the bicycle license fee if the funds raised were used toward a better bikeway system.

The ten most used routes as identified in the plan included Skyline Parkway, Central Entrance/Miller Trunk Highway, Superior Street, Downtown, Woodland Avenue, London Road, Grand Avenue, Scenic North Shore Drive, Park Point and Arrowhead Road. Since this survey, the identified problem of high traffic volumes on Central Entrance has been partially solved with a bike/pedestrian path along Palm Street.

At the time of the plan, there were two

designated and signed bicycle routes in the City. These included Park Point and Scenic North Shore Drive. Park Point is no longer a designated bike route because of liability issues and lack of conformance to bicycle facility standards. Scenic North Shore Drive is still designated as a bike route and consists of designation through signage on the roadway from Duluth to Two Harbors.

Obstacles identified in the plan included the narrow Superior Street corridor and the heavily used one-ways of Michigan Street, 1st Street and 2nd Street, lack of bicycle storage facilities, and on-street motor vehicle parking. Also identified are lack of routes up/down the hill, lack of routes to Superior, and surfaces on Skyline Parkway and Seven Bridges Road. Finally, poor access to universities, need for a safe alternative to Grand Avenue, and alternatives to cross the freeway are identified. Many of these obstacles still exist today.

The plan recommended that the UMD Extension Service, Duluth Board of Education and the City of Duluth cooperate in planning bicycle skills rodeos, where high school and college students test elementary students on maneuvers and teach necessary riding skills. Included is a neighborhood ride in which groups of students put their skills to test on actual roadways and in traffic situations. This recommendation was never carried out. However, a similar recommendation would be valid today.

In 1978, the Duluth Police Bike Patrol was formed. The primary purpose was to educate both bicyclists and motorists on the rules of the road concerning bicycles. The patrols also enforced traffic laws for both bicyclists and motorists. This body is no longer active. However, reestablishment of this patrol or a

similar group is advisable.

Most of the accidents between 1971 and 1977 occurred in the downtown area. Specific roadways with accidents include Woodland Avenue, London Road, Superior Street, 1st Street, 2nd Street, 3rd Street, 4th Street and Lake Avenue. More recent data suggest that the same problems still exist in the downtown and London Road corridors.

Since this plan was never officially adopted, most recommendations were never carried

out. However, some following recommendations made in 1975 could still benefit bicycle transportation. The plan proposed the following:

**City of Duluth
1975 Bikeways Plan
Recommendations**

- ☛ Bicycle lanes on London Road, 1st Street, 2nd Street and Grand Avenue. Currently, no designated bicycle lanes exist on these roadways. Adjacent roadways may be suitable until bike lanes can be established.
- ☛ An I-35 bikeway from Mesaba Avenue to Lake Superior and Leif Erickson Park was recommended. Lakewalk has been developed connecting Canal Park with Leif Erickson Park. The path extends beyond Leif Erickson Park to 26th Avenue East. However, there is no direct path for bicycle travel from Mesaba Avenue to the Lake Superior/Lakewalk area.

In addition, a pedestrian/bicycle bridge was developed at 9th Avenue West and crossing I-35. A path connecting downtown (6th Avenue West and Michigan Street) with the south access of the pedestrian/bicycle bridge has also been developed.

- ☛ A pedestrian/bicycle overpass of I-35 near 8th Avenue West with development of an off-road pedestrian/bicycle path to Michigan Street.
- ☛ Existing street improvements including lane striping, intersection treatments, removing obstacles, shoulder paving, sewer grate alteration, street resurfacing and proper bikeway signing were recommended. Many of these recommendations were not carried out.

The Mayor's Bicycle Advisory Committee was appointed in 1976 and the Duluth Bike Coalition, composed of area cyclists, was formed in 1978. Both bodies no longer exist. However, the Duluth Energy Council does advise the City on bicycle related issues.

**City of Superior
Park System
Master Plan**

The City of Superior Park System Master Plan was developed in 1992 to analyze the needs and examine the quantity and distribution of parks and facilities compared with the population and national standards. The plan focuses on the park system analysis, issues, goals and objectives, facilities plan, and improvement plan. The City of Superior Park System

Master Plan endorsed several bicycle related recommendations.

The plan recommended striped bicycle paths between the curbs and/or signed routes along the street. Striped lanes are preferred when there is no on-street parking to interfere and sufficient room in the street exists. Bicycle riding is allowed on other streets as well, but the inclusion of striped lanes and/or signs would help to alert drivers to the greater number of bicyclists being encouraged to use these routes.

The plan recommended off-street bicycle paths at: (1) the planned Allouez Bayfront Trail, (2) links across railroad tracks to connect neighborhoods, parks, and schools, and (3) a proposed paved trail where a line of the Chicago-Northwestern Railroad presently runs through the East End, Central Park and Wade Bowl neighborhoods with a connection to Connor's Point.

The plan also recommended off-road summer biking use of the snowmobile route through the Municipal Forest, the Douglas County routes and part of the Gandy Dancer State Trail to the south of Superior.

Finally, a possible non-motorized trail on the proposed public recreation open space along the Nemadji River connecting to the Allouez Bayfront Trail should be considered.

SURVEY RESULTS

SURVEY RESULTS

BICYCLE TRAFFIC COUNTS

Background Information

Bicycle traffic counts occurred in July and August of 1993. The counts were conducted from 3 p.m. to 6 p.m. to capture the afternoon peak bicycle traffic counts. The Study Advisory Committee selected locations with an emphasis on geographical location and major roadway intersections. Surveyors recorded bicycles that traveled through the intersections surveyed. Included in the recording was the location of the bicyclist's origin and destination in relation to the intersection. This included sidewalks, parking lane/shoulder, outside driving lane, and inside driving lane. Surveyors also recorded the type of bicyclist (Type A-advanced bicyclists, and Type B/C-basic bicyclists and children). However, this was only provided as an informational item because of the possible discrepancies in deciding the type of cyclist. Weather and helmet use was also recorded to investigate possible trends. Graphs of bicycle count results are located in Appendix B.

Survey Results

Results revealed that weather did not greatly affect the bicycle counts. A decline in biking occurred only in cases when rain was forecasted. Most bicycle travel occurred on sidewalks and in parking lanes/shoulders. This was prevalent due to the amount of motor

vehicle traffic, lack of bicycle lanes, and lack of bicycle route signage.

ESTIMATING BICYCLE USAGE ON ROADWAYS

The Minnesota Department of Transportation Bicycling Planning Unit developed a method of estimating bicycle usage on roadways. A factor of .009 multiplied to the Average Daily Traffic Count (ADT) of a roadway provides a common bicycle usage estimate.

COMPARING BICYCLE COUNTS WITH ESTIMATED USAGE

The actual bicycle count taken by surveyors and the bicycle usage estimate can be directly compared by showing the average use per hour. Actual bicycle counts were taken during the P.M. peak and may result in a higher average per an hour than the bicycle usage estimate. However, this comparison gives a good general indicator of bicycling patterns. The chart also includes whether the roadway segment is considered a Trip Generation Route, connecting major origins with destinations, and whether the segment is a primary bike route, shown on the 1987 MIC Bicycle map. Superior results include if the segment is recommended as a route or path in the City of Superior Park Master Plan. A comparison of the bicycle counts with the

traffic count estimates is shown in Appendix C.

Higher Bicycle Count than Estimated

In some locations bicycle counts were higher than estimated. This occurred at locations near universities, schools, popular tourist attractions, popular youth attractions, heavily populated neighborhoods, commercial and employment centers.

This implies that these areas deserve attention and should have recommendation priority because:

- 1) these areas are where heavy bicycle travel already occurs,
- 2) future improvements would provide safer bicycle facilities,
- 3) safer bicycle facilities will create increased demand,
- 4) these areas are located near popular locations, and
- 5) current facility conditions may only require low cost improvements.

A comparison of higher and lower bicycle counts than estimated is shown in Appendix C.

Lower Bicycle Count than Estimated

In some locations bicycle counts were lower than estimated. This occurred at locations in the outer or fringe areas, in areas of heavy motor vehicle use, at unfriendly intersections, and in areas where alternate routes may be preferable.

This implies that these areas deserve less attention or a lower priority because:

- 1) these areas exist in fringe areas with low populations,
- 2) these areas result in longer trips to destination points,
- 3) development of facilities in these areas may be quite costly as they may result in long lengths of roadway improvements or off-road paths.

However, it may be important to encourage bicycling in areas of low bicycling or develop alternatives for bicycling in these areas.

QUESTIONNAIRE SURVEY

Many factors exist when a person decides whether to use their bicycle. A person may be motivated to bicycle for exercise, enjoyment, or for

Factors of Influence

environmental concerns. Traffic, personal safety, lack of routes, weather, distance to workplace, or lack of parking facilities may discourage bicycle use. Automobiles may be the preferred choice of travel because of travel time, convenience, and the need of an auto for work.

In 1992, the U.S. Department of Transportation conducted a national bicycling and walking study. This study provided additional detailed factors that must be considered when a person chooses to use bicycling as a mode of transportation. These factors include subjective, objective, and infrastructural factors.

SUBJECTIVE FACTORS are personal factors that include personal perceptions and interpretation of one's needs. These factors

consist of distance, traffic safety, convenience, valuation of time and exercise, physical condition, family circumstances, habits, attitudes, values and peer group acceptance.

OBJECTIVE FACTORS are physical factors that exist for everyone. However, these factors may not be weighed equally by everyone. These factors include climate and topography.

Infrastructural factors are features of influence and include the presence of bicycle facilities, traffic conditions, access, linkage and transportation alternatives.

SOURCE: U.S. Department of Transportation, National Bicycling and Walking Study. "Case Study No. 1, Reasons Why Bicycling and Walking are and are not Being Used More Extensively as Travel Modes." Washington, D.C. 1993.

Many of these factors are complex and sometimes directly relate to one another. Each individual will have different factors that affect them most. Factors that have the most influence in Duluth-Superior have been identified through the questionnaire survey. Respondents showed what factors concerned them most. These factors are considered in the development of the bikeways plan. Identification of these factors may be useful when considering improvements to bicycle travel.

Questionnaire Survey

The Metropolitan Bikeways Plan Questionnaire Survey was conducted in the fall of 1993. The survey was published in the Duluth News-Tribune and the Superior Evening Telegram, distributed to selected major employers and distributed to University of Minnesota-Duluth students. The survey consisted of questions, concerns and issues related to bicycling that respondents could

answer. There were 832 surveys returned.

It is important to note that this survey was answered voluntarily. Those who do not bicycle or do not like bicycling may not have filled out and returned surveys. The following are questions that appeared on the survey with a description of findings. A survey example and results can be found in Appendix D.

1. PLEASE CIRCLE YOUR AGE.

Fifty-five percent of respondents were between the age of thirty and fifty. This may have an effect on other answers, particularly questions regarding the DTA.

The effect on recommendations: Persons between the age of thirty and fifty usually represent the smallest percentage of mass transit users. Persons in this age range may also be set in their ways and may not be willing to change habits concerning travel to work. In addition, it is also important to note that this age group also represents many property owners. Their acceptance to using taxes toward bicycle facilities and policies is important. (Only 5 percent said no to question 3.)

2. HOW MANY BICYCLES ARE IN YOUR HOUSEHOLD?

Most people said two bicycles were in their household. Ten percent said that there were no bikes in their household.

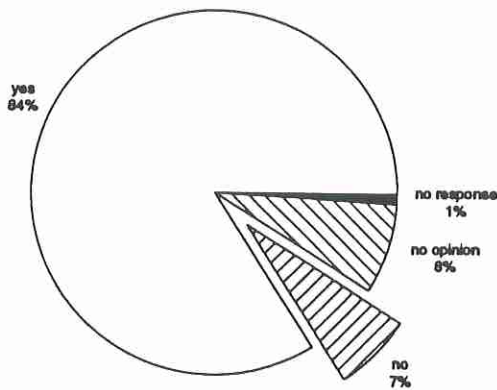
The effect on recommendations: Nine out of ten respondents have an interest in bicycle facility and policy improvements. They can use the future facilities.

3. DO YOU SUPPORT THE IDEA THAT BICYCLING IS A VIABLE MEANS OF TRANSPORTATION AND IMPROVEMENTS TO BICYCLING FACILITIES SHOULD BE ENCOURAGED?

Eighty-five percent of the respondents stated yes, with 10 percent stating no opinion or no response. Only 5 percent stated no.

The effect on recommendations: Eighty-five percent of the respondents agree that improving bicycle facilities is a good idea. This provides support for future bicycling improvements.

Support for Bicycle Facilities



4. PLEASE COMPLETE THE FOLLOWING STATEMENT. I WOULD RIDE A BICYCLE TO WORK OR SCHOOL IF...

Most respondents replied with subjective (personal) answers or infrastructural problems. Very few answers were related to physical limitations. This suggests few physical limitations exist to utilitarian bicycle trips (trips for commuting or errands). Fourteen percent of the factors listed were objective factors that exist for everyone such as climate and topography. However, these factors may not be weighed equally by everyone. Objective factors are the only factors that are

uncontrollable. Thus, most respondents stated that they would bicycle to work or school if subjective (personal) or infrastructural factors were addressed or eliminated.

Peoples attitudes and habits were the largest reasons for not biking. These factors can be changed through time, promotion and development of facilities. Infrastructural factors can be addressed through the development of bicycle facilities.

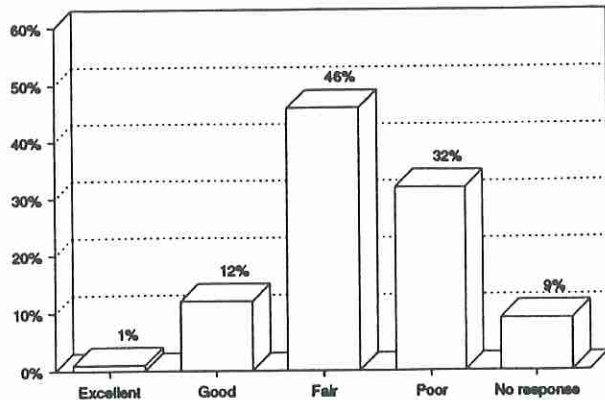
The effect on recommendations: Most reasons for not biking to work or school were related to the lack of facilities or policies. Over 80 percent of the reasons why people do not bike to work or school can be improved upon. This shows facility and policy development may increase utilitarian (commuting) bicycling acceptance and ridership.

5. OVERALL, HOW WOULD YOU RATE DULUTH-SUPERIOR IN TERMS OF BEING "BICYCLE-FRIENDLY"?

Seventy-five percent stated that the Duluth-Superior area was fair to poor in terms of being "bicycle-friendly". Many people said that poor road surfaces, traffic conditions, harsh weather, topography and limitations of bridges were the reason for this. Only 1 percent stated bicycle conditions are excellent and 14 percent stated bicycle conditions are good.

The effect on recommendations: Actual bicycling conditions are very important to the bicyclist and that visual aesthetics may be ancillary. This shows a need for improved bicycling conditions and/or facilities.

Duluth-Superior Bicycle Rating



6. FOR EACH OF THE FOLLOWING PROBLEMS, PLEASE CHECK WHETHER YOU ARE CONCERNED WITH THE PROBLEM.

The most popular answers tended to relate to roadway conditions, amount of traffic and safety. The physical effort and hills were also a popular issue. Of the possible answers, distance to destination ranked eighth out of fourteen. This answer was the second highest reason for people not biking to work in question 4. Perhaps people did not include biking to work or school as an option when answering this question or most of their bike trips are recreational in nature and destination distance is not a concern.

Most problems shown were associated with subjective (personal) or infrastructural factors. Only 18 percent listed objective (physical) factors such as too much physical effort, weather too unpredictable and too much air pollution. Thus, people feel that infrastructural factors are a cycling problem with which they are concerned. However, subjective factors were the dominant reason that they did not cycle to work.

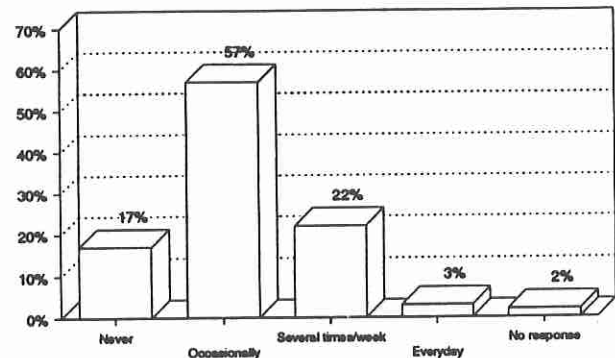
The effect on recommendations: Shows a concern with bicycling conditions and facilities.

7. HOW OFTEN DO YOU RIDE YOUR BICYCLE?

Seventy-eight percent said that they rode their bikes occasionally or several times a week. Only 3 percent said that they biked every day. Seventeen percent said that they never rode their bicycle.

The effect on recommendations: Over three-quarters of the bicyclists ride their bike weekly. Improvements in facilities and policies are expected to increase bicycle ridership.

Bicycle Usage How Often Bike is Used



8. WHAT SEASONS DO YOU RIDE YOUR BICYCLE?

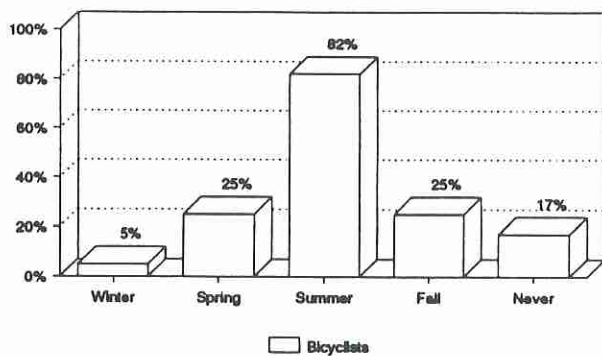
The following percentages represent seasonal ridership. Six percent of all respondents rode during the winter. Sixty-two percent rode during spring and fall. Eighty-two percent rode during the summer. Sixteen percent never rode.

Noting that 16 percent said that they never rode bicycles, only 10 percent said that they

did not own a bicycle in question 2. Thus, 6 percent do not ride the bikes in their households. In addition, only 5 percent said that the bicycle should not be considered a viable form of transportation and bike facilities should not be encouraged. Thus, over three quarters of those that do not ride a bicycle believe bikes are a viable transportation form and bicycle facility development should be encouraged.

The effect on recommendations: Most respondents ride during warmer weather suggesting winter maintenance of bicycle facilities is a low priority. However, improved facilities may persuade more cold weather bicycle riding. Also, most respondents who do not ride bicycles encourage bicycle facility development.

Seasons of Bicycling
Percent That Bicycle



9. WHAT IS THE PRIMARY PURPOSE OF YOUR BICYCLE RIDES?

Most respondents said that they bicycled for recreation, exercise or training. Few people use their bicycle for utilitarian trips such as commuting to work or for running errands.

The effect on recommendations: Include bicycle improvements that will encourage

utilitarian bicycle trips. Make short trips convenient for the rider.

10. WHAT IS THE AVERAGE DISTANCE OF YOUR BICYCLE RIDE?

Fifty-seven percent said that they rode over 2 miles. Because respondents only had the option of showing one answer, keep in mind that many bicyclists may also use their bikes for shorter trips. However, the longer distances coincides with the large number who use their bike for recreation as opposed to short utilitarian trips such as running errands.

The effect on recommendations: Include bicycle improvements that will encourage utilitarian bicycle trips. Make short trips convenient for the rider. The large number of recreational bicyclists suggests that recreational facilities are adequate. Improvements to other bicycle facilities need to be made.

11. PLEASE DESCRIBE LOCATIONS OF PROBLEMS YOU ENCOUNTER WHILE RIDING YOUR BICYCLE.

These answers are listed in Appendix D.

12. WHERE DO YOU WORK?

Most responses were limited to the areas of distribution such as downtown Duluth.

The effect on recommendations: This provides information on current utilitarian bicycle use and potential.

13. WHAT CAN YOUR EMPLOYER DO TO IMPROVE BICYCLING TO AND FROM WORK?

The most popular answer involved providing safe bicycle parking facilities including indoor storage, protection from weather and theft, and allowing bicycles to be stored in buildings

of employment.

The effect on recommendations: Shows a desire for safe and convenient bicycle parking. This may also be a possible reason for low utilitarian bike trips.

14. IF THE DTA WERE TO OFFER RACKS THAT HOLD BICYCLES ON THE EXTERIOR OF THE BUSES, HOW OFTEN WOULD YOU USE THEM?

Seventy-one percent said that they would never use this option. However, 55 percent of the respondents were between the age of thirty and fifty, typically the lowest age group that uses DTA services.

The effect on recommendations: Emphasis uses of the racks by those under thirty years of age.

WHICH DTA ROUTES SHOULD BE CONSIDERED?

The most popular answers were from the Miller Hill Mall to downtown, Superior to Duluth, Woodland to downtown, Lester Park to downtown, UMD to downtown and Proctor to downtown. In these cases, a great distance to downtown Duluth exists. Access to downtown is also a problem because of limited bicycle facilities, no direct routes and topographical constraints.

The effect on recommendations: Since May 1994, the DTA has had exterior bus/bike racks on most buses in service.

15. WOULD YOU BE MORE LIKELY TO RIDE THE BUS IF BIKE LOCKERS (AVAILABLE FOR RENT) WERE LOCATED AT MAJOR BUS STOPS?

Only 8 percent of the respondents said that they would use this option, 54 percent said

that they would not, with the remainder saying maybe, no opinion or no response.

The effect on recommendations: A large percentage had no opinion or no response to the question. Further introduction to the bus/bike racks and potential bike lockers may familiarize bicyclists with these options.

16. DO YOU BELIEVE THERE IS A NEED FOR MORE BICYCLE PARKING RACKS IN THE DULUTH-SUPERIOR AREA?

Only 9 percent said that they felt there was not a need for more bicycle racks in the area. Most respondents responded with a general location rather than specific site. General locations mentioned include downtown areas, malls, shopping centers, commercial areas, public buildings, places of business, and public parks. Of the specific sites listed, most were related to recreation. The most popular answer was Canal Park.

In the summer of 1992, the MIC conducted a parking study of the Canal Park area. A survey of bicycle racks was conducted in association with the parking study. The bicycle rack inventory indicated there were nine bike racks that could hold approximately seventy-eight bicycles in Canal Park. Only one bicycle was present in a bike rack during the 12-hour survey.

Many respondents indicated Canal Park needs more racks. Few of the existing racks were used. This shows that bicyclists do not know where the racks are located or the racks are at poor locations and are not used.

The effect on recommendations: The future bicycle map will include bicycle parking racks. In addition, the locations of some racks should be reconsidered.

GUIDELINES & FUNDING SOURCES

GUIDELINES & FUNDING SOURCES

SPECIFIC BIKEWAY FACILITY GUIDELINES

Sometimes bicycle facilities can be expensive to construct and maintain, especially when retrofitted. They can also be difficult to make continuous due to property acquisition and physical barriers. In addition, Bikeway facilities should not create additional conflict points with motor vehicles and pedestrians. They should be designed to adequate safety standards. Inadequately designed accommodations for bicyclists will be under utilized and can be potentially hazardous.

The following are general guidelines for each specific type of bicycle facility. For complete details on guidelines refer to the 1991 American Association of State Highway and Transportation Officials' (AASHTO) "Guide for Development of New Bicycle Facilities" and subsequent revisions. The AASHTO guide has been adopted by the Federal Highway Administration as standards for the design and construction of bicycle routes.

Shoulders

A widened shoulder will generally be more accommodating in rural circumstances. Where it is intended that bicyclists ride on shoulders, smooth pavement surfaces should be provided and maintained. Pavement edge lines supplement surface texture in delineating the

shoulder from motor vehicle lanes. Rumble strips should not be used as they can be a deterrent to bicycle riding.

Shoulder width should be minimum of 4 feet, shoulders less than 4 feet in width should not be signed as a bikeway. Additional width is desirable when motor vehicle speeds exceed 35 mph or if the percentage of trucks, buses, and recreational vehicles is high. When limited funding, adding or improving shoulders on uphill sections first will give slow-moving bicyclists needed maneuvering space and decrease conflicts with faster moving motorists.

One of the best options for improving cycling conditions on major roads is to add width to the curb lanes. A right lane wider than 12 feet can better accommodate both bicycles and motor vehicles in the same lane. Motorists do not need to change lanes to pass a bicyclist. A lane width of 14 feet is desired. A lane width greater than 14 feet may encourage the undesirable operation of two motor vehicles in one lane (especially in urban areas). A wide curb lane greater than 14 feet in width should be striped as a bicycle lane.

Wide Curb Lanes

Bicycle routes (bike routes) can provide continuity to other bicycle facilities or designate preferred routes.

The roadway width, traffic

Bicycle Routes

volume, traffic speed, type of traffic, parking conditions, grade, and sight distance should be considered if a roadway is going to encourage bicycle use. Bicycle route signs for on-street shared roadway bikeways should only be used to designate shared facilities which: (a) provide continuity to other bicycle facilities (paths and lanes); or (b) designate preferred routes through high demand corridors.

Bicycle route signing should not end at a barrier. Information directing the bicyclist around the barrier should be provided. Bicycle route signs should only be provided on facilities that comply with AASHTO standards.

Sidewalks should not be designated as bike routes as they are potentially more dangerous with the presence of driveways. Signing of bicycle routes alerts motorists to the potential presence of bicyclists on the street.

Bicycle Lanes Bicycle lanes (bike lanes) can be considered when it is desirable to delineate available road space for preferential use by bicyclists and motorists, and to provide for more predictable movements by each. Bicycle lanes should always be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic. Bicycle lanes on one-way streets should be on the right side of the street, except in areas where a bicycle lane on the left will decrease the number of conflicts.

The minimum bicycle lane width is 4 feet, 5 feet when adjacent to parking. They should always be placed between the parking lane and motor vehicle lane. Where bicycle paths and lanes are provided to separate bicycle traffic from motor vehicle traffic, special

efforts should be made to assure that high levels of service (safe design and maintenance) are provided with these facilities.

Bicycle lanes (with signs and pavement markings) can improve conditions in corridors where there is significant or potential bicycle demand by delineating the intended or preferred path of travel and by encouraging the separation of bicycles and motor vehicles. Bicycle lanes also help to increase the total capacities of highways carrying mixed bicycle and motor vehicle traffic.

Bicycle paths (bike paths) can provide enjoyable recreational opportunities and desirable commuter routes. They can create opportunities not provided by the road system.

Bicycle Paths

Bicycle paths can also provide a commuting bicyclist with a shortcut through a residential neighborhood (connection between cul-de-sacs), utilize easements, abandoned rail right-of-ways and public lands. Turnouts or rest areas should be provided on long uninterrupted paths.

Bicycle (bike) parking facilities should be provided at the trip origin and trip destinations. They should also offer protection from theft and damage.

Bicycle Parking Facilities

Two categories of bicycle parking facilities exist, commuter/long-term parking and convenience/short-term parking. Commuter/long-term parking should be at employment centers, transit stations and multi-family dwellings. These type of facilities should be designed in a way that a

bicyclist can secure the frame, both wheels and accessories. Protection from the weather should also be offered. It may be advantageous to have bike lockers or attended storage areas in locations of high demand.

Convenience/short-term parking should be at shopping centers, libraries, recreation areas and post offices. These type of facilities should be located near building entrances or other self policing highly visible areas.

Bicycle parking facilities are essential to encourage commuter bicycling. Bicycle parking facilities should accommodate a wide range of bicycle styles and sizes and should be easy to operate. Signs depicting how to operate the facility should be posted. Parking shelters should also be considered to offer protection from theft and vandalism, and provide protection from weather damage. This should be considered at all major traffic generators, especially where motor vehicle parking is provided, and at mass transit stations to encourage intermodal travel. Care should be given to ensure that bicycles will not be damaged by motor vehicles and should not interfere with normal pedestrian flow.

The facility should be designed so that persons parking their bicycles will not disturb other parked bicycles. Security needs for each parking area should also be evaluated.

In conclusion, bicycle parking facilities should be located as near building entrances as possible and in high visibility areas for security, safety and maximum usage. Bicycle parking devices should be designed to avoid causing damage to the frame or components of the bicycles and to accommodate all types of lock sets, including U-shaped locks.

FUNDING SOURCES

THE INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991.

The logo for the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), consisting of the acronym "ISTEA" in a bold, sans-serif font inside a rectangular box with a drop shadow.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 requires Metropolitan Planning Organizations, in cooperation with the State, to develop transportation plans and programs which will function as an intermodal system. This includes bicycle and pedestrian facilities. Bicycle and pedestrian facilities are to be located and designed as part of metropolitan and state long range transportation plans. Bicycle transportation facilities include new or improved lanes, paths, shoulders, traffic control devices, shelters, and parking facilities for bicycles.

Many funding sources exist for the development of bicycle and pedestrian facilities. Bicycling and pedestrian facilities and programs are eligible for funding in all sections of ISTEA.

The following are sections within ISTEA with descriptions of how bicycle funding may be utilized within these sections. Most of these programs are 80 percent federally funded requiring a 20 percent local match unless otherwise noted.

NATIONAL HIGHWAY SYSTEM (NHS) FUNDS

The logo for the National Highway System (NHS) Funds, consisting of the acronym "NHS" in a bold, sans-serif font inside a rectangular box with a drop shadow.

(Section 1006). Funds may be used (in accordance to Section 217) to construct bicycle transportation facilities on land adjacent to any highway on the National Highway System (other than the Interstate System). Bicycle facilities must be principally for transportation

uses rather than recreation. Bicycle facilities must be located and designed pursuant to an overall plan developed by each metropolitan planning organization (MPO) and State.

STP

SURFACE TRANSPORTATION PROGRAM (STP) FUNDS (Section 1007). Funds may be

used for the construction of bicycle transportation facilities and pedestrian walkways. Funds may also be used for nonconstruction projects related to safe bicycle use such as brochures, public service announcements, and/or route maps. Bicycle projects must be principally for transportation rather than recreation and must be located and designed pursuant to an overall plan developed by each MPO and State.

TEAs

TRANSPORTATION ENHANCEMENT ACTIVITIES.

Ten percent of each State's annual STP funds are available only for Transportation Enhancement Activities (TEAs). Of ten TEAs, two are specifically bicycle and pedestrian related. These include provision of facilities for bicyclists and pedestrians and preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian or bicycle trails). The other TEAs relate to scenic and historic transportation items.

Section 217

SECTION 217. National Highway System (NHS) funds can be used for bicycle facilities on land

adjacent to NHS roadways (other than interstates) and are to be located and designed as part of a metropolitan and state long range transportation plans. Facilities utilizing these funds must be part of the metropolitan

planning organization (MPO) annual Transportation Improvement Program (TIP).

Bicycle transportation facilities include new or improved lanes, paths, shoulders, traffic control devices, shelters, and bicycle parking facilities.

FEDERAL LANDS HIGHWAY FUNDS

Federal Lands Highway Funds

(Section 1032). Funds may be used to construct pedestrian walkways and bicycle transportation facilities in conjunction with roads, highways and parkways at the discretion of the department charged with the administration of such funds (such as the National Park Service or the Bureau of Indian Affairs). Bicycle facilities must be principally for transportation rather than recreation and must be located and designed pursuant to an overall plan developed by each MPO and State. Federal Lands Highway Funds are 100 percent federally funded.

NATIONAL SCENIC BYWAYS PROGRAM FUNDS (Section 1047). Funds may be

National Scenic Byways Program

used to construct facilities along the highway for the use of pedestrians and bicyclists.

THE SIMMS NATIONAL RECREATIONAL TRAILS ACT (Section 1302). Authorizes \$30 million per a year

Simms National Recreational Trails Act

for motorized and nonmotorized recreation trail facilities. At

least 30 percent of the funds must be spent on nonmotorized trails.

CMAQ **CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT (CMAQ) PROGRAM FUNDS** (Section 1008). Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways or may be used for nonconstruction projects related to safe bicycle use such as brochures, public service announcements, and/or route maps. Bicycle projects must be principally for transportation uses rather than recreation and must be located and designed pursuant to an overall plan developed by each MPO and State.

Highway Safety Program **HIGHWAY SAFETY PROGRAM** (Section 2001, formerly Section 402). Under this program, pedestrian and bicycle safety remain priority areas. The priority status of safety programs for pedestrians and bicycles advances the approval process for these safety efforts.

Highway Safety, Research, and Development **HIGHWAY SAFETY, RESEARCH, AND DEVELOPMENT** (Section 2003). Funds can be utilized for training and education of highway safety personnel. Programs eligible for funding include local education, law enforcement and traffic engineering.

FTA **FEDERAL TRANSIT ACT.** Establishes a MPO planning process similar to highways

including the requirement to consider bicycles in planning documents. This act allows transit funds to be used for bicycle and pedestrian access to transit facilities, to provide shelter and parking facilities, or to install racks or other equipment for transporting bicycles on transit vehicles. The program is 90 percent federally funded.

NATIONAL RECREATIONAL TRAILS FUND (Section 1302). Funds may be used for a variety of recreational trails programs to benefit bicyclists, pedestrians, and other nonmotorized and motorized users. Projects must be consistent with a Statewide Comprehensive Outdoor Recreation Plan required by the Land and Water Conservation Fund Act. The jurisdiction responsible for the bikeway improvement must provide maintenance each year.

National Recreational Trails Fund

OTHER FEDERAL FUNDING SOURCES

LAND AND WATER CONSERVATION FUND. Funds can be utilized for Federal land acquisition of recreation areas and the development of recreational facilities by State agencies. To utilize these funds, bicycle facilities must be primarily for recreation purposes and not transportation purposes, and the agency leading the project must guarantee that any project acquired or developed must be maintained in perpetuity for public recreation use.

Land and Water Conservation Fund

Rivers, Trails, and Conservation Assistance Program

RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM. Local agencies or groups may apply through

the National Parks Service to obtain technical assistance to help plan, develop, and manage recreation facilities such as abandoned railroad conversions to trails and greenway activities.

STATE FUNDING SOURCES

State funding sources do not come from a single source that is immediately identifiable.

For additional details, contact: Jim Dustrude, Minnesota State Bicycle Coordinator, 395 John Ireland Blvd., Room 807, St. Paul, MN 55155 or Tom Huber, Wisconsin State Bicycle/Pedestrian Coordinator, 4802 Sheboygan Ave, Room 901, Madison, WI 53707.

LOCAL FUNDING SOURCES

▣ **SALES TAX RECEIPTS** - Local governmental agencies can supplement Federal and State transportation funds with their own sales and gasoline taxes. These funds can often be used for bicycle and pedestrian facilities.

▣ **OPEN SPACE BONDS** - Bonds may be approved to fund the protection and use of open space in the metropolitan area. A percentage can be used for trail development and improvement.

▣ **MITIGATION MEASURES AND DEVELOPER DEDICATIONS** - A great many bicycle and pedestrian provisions around the country have been developed as a result of larger development projects incorporating such facilities, or because the bigger projects have required substantial mitigation measures.

▣ **DEVELOPER DEDICATION** - Developer dedications are a method of requiring certain actions of developers as part of the terms of allowing a larger project to go forward. Developer dedications can be used to get more or better facilities for bicyclists and pedestrians.

▣ **RESTORATION** - Local agencies can require developers to restore right-of-way surfaces to the benefit of nonmotorized users.

▣ **MOTOR VEHICLE TAXES** - Motor vehicle registration fees can be used to fund various air pollution reduction facilities and programs.

▣ **STREET UTILITY TAX** - A street utility tax can be assessed to area employers and households as a means of charging users for the use of the highways and streets. A set-aside could be established for neighborhood traffic control measures such as speed bumps, traffic circles, sidewalks and trails.

▣ **TRANSPORTATION FUNDS** - These funds may comprise sales tax receipts, motor vehicle registration fees, gasoline taxes and transportation bond issues.

ADDITIONAL LOCAL SOURCES

- ☛ **DONATIONS.** Donations through a special fund from the public and corporations can be developed in order to generate funds for bicycle and pedestrian programs.
- ☛ **FUNDRAISING RIDES AND EVENTS.** These events can be used to generate funds for local bicycle programs and are a source of funds from charitable organizations.
- ☛ **BICYCLE REGISTRATION.** Establishment of mandatory bicycle registration can also generate funds.

IMPLEMENTATION OF PLAN

The following are the actions or steps to be taken in implementing this plan.

1. July 1994 - Present draft plan to the Metropolitan Bikeways Plan Study Advisory Committee for review.
2. July 1994 - Present draft plan to the Metropolitan Interstate Committee Transportation Advisory Committee for review.
3. July 1994 - Present draft plan to the Metropolitan Interstate Committee for review.
4. August 1994 - Present final plan to the Metropolitan Interstate Committee Transportation Advisory Committee for approval consideration.
5. August 1994 - Present final plan to the Metropolitan Interstate Committee for

approval consideration.

6. Fall 1994 - Present final plan to local jurisdictions for endorsement and/or adoption into jurisdiction's transportation planning documents.

ESTIMATING COSTS

The following are 1992 Minnesota Department of Transportation bicycle facilities cost estimating figures. Included are the improvement type, cost per mile and cost per foot. These figures are included for the purpose of determining estimates of future improvements. Actual costs may vary due to engineering, material, and pre-construction costs.

LANE STRIPING/SIGNING

Cost/mile: \$5,000

Cost/foot: \$1

ALTERNATE ROUTE SIGNING/ TRAFFIC CALMING

Cost/mile: \$10,000

Cost/foot: \$2

SHOULDER PAVING

Cost/mile: \$25,000

Cost/foot: \$5

RURAL PATH/ SHOULDER ACQUISITION/ CONSTRUCTION

Cost/mile: \$70,000

Cost/foot: \$13

**URBAN PATH/
SHOULDER ACQUISITION/
CONSTRUCTION**
Cost/mile: \$150,000
Cost/foot: \$28

BRIDGE CONSTRUCTION
Cost/mile: \$500,000
Cost/foot: \$95

URBAN BRIDGE/TUNNEL
Cost/mile: \$1,000,000
Cost/foot: \$189

**CLOSED CONFINED BIKEWAY
(SKYWALK)**
Cost/mile: \$9,000,000
Cost/foot: \$1,705

WHAT IS THE MIC ?

The Duluth-Superior Metropolitan Interstate Committee (MIC) is an organization representing local units of government under an agreement between the Arrowhead Regional Development Commission (ARDC) and the Northwest Regional Planning Commission (NWRPC). These organizations are multi-county planning and development organizations in their respective states of Minnesota and Wisconsin.

The MIC is the designated Metropolitan Planning Organization for transportation planning in the Duluth-Superior urbanized area. Work activities for the MIC include:

- ☛ Long and short range multi-modal transportation planning.
- ☛ Transit planning

- ☛ Coordination with statewide planning
- ☛ Prioritization and approval of transportation projects for federal funding
- ☛ Interstate harbor planning projects involving both transportation and natural resource coordination
- ☛ A forum for issues of concern to metropolitan area governments

The MIC was created in 1975. The MIC is an outgrowth of two planning agencies that had served the urbanized area. The Duluth-Superior Metropolitan Area Planning and Transportation Study (MAPS) was created by local and state officials in response to the 1962 Federal Aid Highway Act - which required land use and transportation studies in all metropolitan areas. The Head of the Lakes Council of Governments was formed in 1968 by local officials to meet federal requirements for metropolitan planning.

MIC History

All three planning agencies have had varied interests in planning. The MIC currently concentrates primarily on transportation and harbor planning.

MIC Membership

The membership of the MIC consists of seventeen members. There are sixteen votes, eight representing jurisdictions in Minnesota and eight in Wisconsin. The majority of the membership consists of local elected officials.

The Metropolitan Interstate Committee Transportation Advisory Committee (MIC

MIC TAC

TAC) is comprised of technical staff from the local and state units of government in the MIC area. The purpose of this committee is to provide technical guidance to the MIC on transportation issues. This includes guidance to ARDC staff in the development of transportation plans and programs, and the prioritization of the transportation projects submitted to the MIC for federal funding. The MIC TAC also serves as a forum for metropolitan transportation issues.

GENERAL RECOMMENDATIONS

GENERAL RECOMMENDATIONS

1994-1996 IMPLEMENTATION

1994-1996 Implementation and improvements include low cost, simple improvements that could be carried out easily. Recommendations are listed in priority order as developed by the Metropolitan Bikeways Plan Study Advisory Committee.

1. Bicycle Route Network

An "official" bicycle route network or route system was developed for the Metropolitan Bikeways Plan with input from the Metropolitan Bikeways Plan Study Advisory Committee and endorsement by local communities. The route system includes a network of recommended routes that provide connectivity to most locations in the metropolitan area.

2. Bicycle Route Map

Development of a map of recommended bikeways and parking facilities is a low cost means of promoting community-wide bicycle use. Maps make it easier for bicyclists and potential bicyclists to find the way to destinations using the best bikeway. The map should also include an identification of roadway suitability for bicycling, high speed and high volume areas, one-way roads, rules of the road, bicycle safety tips and information on connections with mass transit.

3. Bicycle Coordinator and Bicycle Committee

The creation of a community bicycle coordinator and/or community bicycle committee is vital in the assurance that future bicycle needs are met and that recommendations of this plan are implemented.

Examples of what a bicycle coordinator would be responsible for include:

- ☛ presents and implements the bikeways plan.
- ☛ develops safety programs for citizens and coordinates law enforcement with local jurisdictions.
- ☛ Coordinates communications regarding the bikeway plan, bike routes and paths, and promotes the use of the bikeway system.
- ☛ Serves as liaison to committees and assists committees with implementation of the bikeway plan recommendations.

In most communities, a bicycle coordinator position is combined with other duties that related to alternate modes of transportation.

4. Bicycle Route Signs

Signing of designated bicycle routes is important to promote the use of the route by bicyclists and to alert motorists of the potential use of the road by bicyclists. In addition, special "share the road" signs should

be considered for all roadways. These signs are intended to alert motorists that bicycles belong on the road and are understood to have full access on all roadways (except where restricted by law). However, these signs do not designate the roadway as a bike route.

5. Bicycle Route & Bicycle Facility Pavement Markings

Pavement markings, such as lane edge striping and bike lane striping, will encourage increased use, have effect of "advertising" bicycle use and help legitimize the presence of bicycles in the eyes of motorists and potential bicyclists.

6. Basic Improvements

Basic improvements, such as filling pot holes and sweeping roadway debris, at identified problem locations should be made. By doing this, existing roadways currently being used will be improved to a level that will continue to encourage bicycling, not only on the roadway in question, but area-wide.

In addition, basic bicycling improvements should be planned for and made when roadways are reconstructed or resurfaced.

1996-1999 IMPLEMENTATION

1996-1999 Implementation and improvements include site specific improvements on existing facilities at relatively low costs. These bicycling improvements can be made with expected or future roadway improvements. Recommendations are listed in priority order

as developed by the Metropolitan Bikeways Plan Study Advisory Committee.

1. Pavements

The pavement surface is very important to bicyclists. The poor quality of pavement is one of the greatest hazards to bicycling. Gaps between pavement slabs and overlays parallel to the direction of travel can cause loss of control for bicyclists. Holes and bumps can cause bicyclists to swerve into traffic.

Pavement surfaces should be free of irregularities and the edge of the pavement should be uniform in width. Older pavements may need to have joints filled, utility covers adjusted or the pavement resurfaced.

As existing bicycle facilities are resurfaced, repaired or reconstructed, the facilities should be brought into compliance with American Association of State Highway and Transportation Officials (AASHTO) guidelines and recommendations of this plan. Pavement improvements should be planned for and made when roadways are reconstructed or resurfaced.

2. Drainage Grates and Utility Covers

All drainage grates and utility covers should be kept out of the bicyclists' expected path. It is important that grates and utility covers be adjusted flush with the surface, including after a roadway is resurfaced.

Parallel bar drainage grates should be replaced with bicycle-safe and hydraulically efficient grates. If not possible, steel straps or bars should be welded perpendicular to the parallel

grates. This should be considered only a temporary correction. Parallel grates should be replaced because serious consequences can occur if a bicycle misses the pavement marking in the dark or is forced over the grate by other traffic. Bicycle safe grates and hydraulically-efficient grates include curb-face inlet grates, honeycomb grates, and cast iron grates with short angled slots.

Utility covers, especially smooth surfaced utility covers, can be slippery when wet. The pavement around them is often deteriorating or built-up, resulting in a discontinuous travelway that can affect a bicycle wheel.

Improvement of drainage grates and utility covers should occur first on the recommended bikeways and bike routes of this plan.

3. Traffic Control Devices

At intersections where bicycle traffic exists or is anticipated, bicycles and pedestrians should be considered in the timing of the traffic signal cycle and traffic detection devices. In some situations, the use of pedestrian actuated buttons may be a preferred alternative to the use of detectors provided they do not require the bicyclists to dismount or make unsafe leaning movements.

While push button activators may have use in unique situations, they are generally not possible to locate to be usable by bicyclists.

Where traffic signals are tripped by induction loop detectors, bicycle sensitive loop detectors should be used. These indicators should be located in the designated bike lane, the outside portion of the driving lane or the curb lane.

Improvement of traffic control devices should occur first on the recommended bikeways and bike routes of this plan. Future bicycle traffic counts should be conducted to assess the feasibility of improving traffic control devices at future locations.

4. Railroad Crossings

Bicycle crossings should be at right angles to the rails and at the same elevation as the rails. If the crossing angle is less than 45 degrees, consideration should be given to widening the outside lane to allow bicyclists adequate room to cross the tracks at right angles.

Railroad crossings should be as smooth as possible. Commercially available compressible flangeway fillers can enhance bicycle safety. Smooth rubberized railroad crossings should be installed. This process tends to be expensive. Thus, it could be done on the outside or bike lane only. Abandoned tracks should be removed. Warning signs and pavement markings should be installed.

Improvement of railroad crossings should occur first on the recommended bikeways and bike routes of this plan.

5. Bicycle Parking Facilities

Bicycle parking facilities should be developed at locations identified in this plan. Institutions and businesses should be encouraged to provide convenient and safe bicycle parking for their employees and customers.

Two categories of bicycle parking facilities exist: commuter/long-term parking and convenience/short-term parking. Commuter/long-term parking should be at

employment centers, transit stations and multi-family dwellings. These facilities should be designed so a bicyclist can secure the frame, both wheels and accessories. Protection from the weather should also be offered. It may be advantageous to have bike lockers or attended storage areas in locations of high demand.

Convenience/short-term parking should be at shopping centers, libraries, recreation areas and post offices. These facilities should be located near building entrances or other self-policing, highly visible areas.

Bicycle parking facilities are essential to encourage commuter bicycling. Bicycle parking facilities should adapt to a wide range of bicycle styles and sizes and should be easy to operate. Signs depicting how to operate the facility should be posted. Parking shelters should also be considered to offer protection from theft and vandalism, and to provide protection from weather damage. This should be considered at all major traffic generators, especially where motor vehicle parking is provided, and at mass transit stations to encourage intermodal travel. Take care to ensure that bicycles will not be damaged by motor vehicles.

Local communities are encouraged to amend zoning ordinances to require bicycle parking facilities in association with general parking at all new development locations.

BEYOND 1999 IMPLEMENTATION

Beyond 1999 Implementation and improvements are improvements that will most likely occur as roadways and bicycle paths are improved and/or reconstructed. This

recommendations will most likely occur after the year 1999. Often these long-term improvements are quite costly and may need to be included as part of an overall larger roadway construction project. Recommendations are listed in priority order as developed by the Metropolitan Bikeways Plan Study Advisory Committee. Future bicycle facilities should be planned for and developed when roadways are reconstructed or resurfaced.

1. Connect Gaps

Major gaps between existing bicycle facilities and between major origin and destination points should be connected through the continuing development of bicycle facilities. Examples include the gap between the Munger Trail and downtown Duluth, and the inadequate bicycling environment on London Road between 26th Avenue East and 40th Avenue East. Short-term solutions may include designating an alternative or temporary route until such a time that a facility can be developed to connect gaps.

2. Retrofitting

Retrofitting is a term used to describe "fitting" bicycle improvements on roadways at times of roadway reconstruction and resurfacing. This includes restriping roadways to include bicycle facilities, widening roadways including the shoulder or curb lane, developing bicycle lanes, and providing bicycle facilities with roadway re/construction projects.

SPECIFIC RECOMMENDATIONS

Specific recommendations are recommendations concerning bicycle facilities in other plans. These plans include the 1992 Metropolitan Interstate Committee "Tower Avenue Corridor Traffic Analysis", the 1992 Metropolitan Interstate Committee "Miller Trunk Highway Corridor Traffic Analysis Study", and the 1992 "City of Superior Park System Master Plan". The following are recommendations concerning bicycle facilities within these plans.

1. Tower Avenue - Superior

The Tower Avenue Corridor Traffic Analysis Study Advisory Committee recommended that the reconstruction of Tower Avenue include a nine and a half foot wide combination sidewalk/bicycle trail. This is currently planned on the west side of Tower Avenue from where the sidewalk currently ends at 34th Street to 52nd Street. Bicyclists may also choose to ride on the frontage road or Hammond Avenue for part of the distance.

SOURCE: Duluth-Superior Metropolitan Interstate Committee. "Tower Avenue Corridor Traffic Analysis", p.18, December 1992.

Additional Comment:

A need exists for bicycle and pedestrian amenities on this segment of the Tower Avenue corridor. However, compliance with the American Association of State Highway and Transportation Officials (AASHTO) guidelines concerning an off-road pedestrian/bike trail is recommended. (AASHTO guidelines are recommended as the official source for bicycle facility development within the Duluth-Superior Metropolitan Bikeways Plan.) AASHTO guidelines

recommend a 10 foot wide path for two-directional traffic; a 12 foot wide path is desirable when used with pedestrians. A minimum of 2 foot width graded area should be maintained next to both sides of the pavement in all instances.

2. Superior On-Street Bicycles Routes

The "City of Superior Park System Master Plan" encourages striped bicycle lanes in the city. The plan states striped bicycle paths between the curbs and/or signed routes along the street are preferred when there is no on-street parking to interfere and sufficient room in the street exists. The plan further states that bicycle riding is allowed on other streets as well but the inclusion of striped lanes and/or signs would help to alert drivers to the greater number of riders being encouraged along these routes.

SOURCE: " City of Superior Park System Master Plan", p.60, BRW, 1992.

Additional Comment:

A need exists for designated bike routes in the city of Superior. In addition, the City of Superior is encouraged to amend the "City of Superior Park System Master Plan" to incorporate recommendations of the Metropolitan Bikeways Plan.

3. Superior Off-Street Bicycle Paths

The City of Superior Park System Master Plan encourages the following off-street bicycle paths:

- 1) the planned Allouez Bayfront Trail
- 2) a pair of links across the railroad tracks to connect neighborhoods, parks, and schools
- 3) a proposed paved trail where a line of the

Chicago-Northwestern Railroad presently runs through the East End, Central Park and Wade Bowl neighborhoods with a connection to Connor's Point.

SOURCE: " City of Superior Park System Master Plan", p. 61, BRW, 1992.

Additional Comment:

The City of Superior is encouraged to amend the City of Superior Park System Master Plan to incorporate recommendations of the Metropolitan Bikeways Plan.

4. Superior Off-Road Biking

The "City of Superior Park System Master Plan" recommends snowmobile routes in the Municipal Forest, the Douglas County routes and part of the state trail to be used for off-road biking in the summer.

SOURCE: " City of Superior Park System Master Plan", p. 61, BRW, 1992.

Additional Comment:

The use of snowmobile trails for off-road recreational bicycling is beneficial. In addition, to promote the increased used of the trails during the summer, the trails should be mowed and maintained.

5. Allouez Bayfront Trail/Nemadji River - Superior

The "City of Superior Park System Master Plan" recommends consideration of a possible non motorized trail on the proposed public recreation open space along the Nemadji River connecting to the Allouez Bayfront Trail.

SOURCE: " City of Superior Park System Master Plan", p. 61, BRW, 1992.

Additional Comment:

Establishment of off-road recreational trails has importance and may provide links to the bicycle transportation network in the future.

6. Anderson Road/Miller Trunk Highway - Duluth

The Metropolitan Interstate Committee (MIC) "Miller Trunk Highway Corridor Traffic Analysis Study" recommends the development of an asphalt bicycle trail. This trail should be located from the intersection of Anderson Road and Myrtle Street to the Watson development site, providing an alternative to traveling on the shoulder of the trunk highway. After this point, bicyclists can use intersections and service roads in the Mall area.

SOURCE: MIC "Miller Trunk Highway Corridor Traffic Analysis Study", p.58, February 1992.

Additional Comment:

A definite need for a bicycle facility is required in this area. However, because of the continuing development and changing traffic patterns and volumes on the highway, frontage roads, and parking lots, this recommendation should be reexamined to meet bicyclists' needs concerning access to the bicycle facility and safety.

POLICY IMPROVEMENTS

Policy improvements include recommended improvements that are to be implemented locally. These recommendations are related to the development and safety of a comprehensive bicycle facility plan. All

jurisdictions involved in the development of bicycle facilities, including the state, county, municipalities, universities and colleges should consider the following bicycle policies regarding transportation issues:

- ☞ Consider the bicycle as an important mode in the overall transportation system.
- ☞ Recognize that education, enforcement and facilities are all important components of a successful overall bicycle safety program.
- ☞ Address the needs for safe bicycling throughout the jurisdiction.
- ☞ Adopt and use a consistent set of design standards for developing bicycle facilities, specifically the 1991 American Association of State Highway and Transportation Officials' (AASHTO) "Guide for Development of New Bicycle Facilities" and subsequent revisions. The AASHTO guide has been adopted by the Federal Highway Administration as standards for the design and construction of bicycle routes.
- ☞ Follow a set of sound guidelines to be used consistently throughout the Duluth-Superior area in the maintenance of bicycle facilities.
- ☞ Include bicycles in the ongoing transportation planning process.
- ☞ Local jurisdictions shall review project design plans for consistency with the AASHTO guidelines to ensure compliance for bicycle facility projects.
- ☞ Local communities are encouraged to review current land use practices. Condensed and mixed land uses create conditions that make alternate modes of transportation more desirable.

The following are specific policy recommendations that pertain to general

improvements, maintenance, bicycle safety education and public information and bicycle law enforcement. The recommendations are listed in priority order as developed by the Metropolitan Bikeways Plan Study Advisory Committee.

GENERAL MAINTENANCE IMPROVEMENTS

Developing bikeways are only part of an overall bikeways plan. The maintenance and upkeep of a bicycle facility are essential to promote continued use and prevent problems. The agency responsible for control, maintenance and policing of bicycle facilities should be established before construction. The costs involved with the operation and maintenance should be considered and budgeted. Bicycle facility maintenance programs should be established and budgeted.

Bicycle facilities should be maintained to a reasonable level of safety and rideability giving consideration to several factors:

- 1) pavement structure
- 2) surface and clearance conditions in all seasons
- 3) traffic control devices
- 4) parking facilities

Existing roadways that are commonly used by bicyclists should also be maintained with particular consideration given to the condition of curb lanes and shoulders. Improvements and maintenance can reduce conflicts between pedestrians, bicyclists and motorists and can correct conditions unsafe for bicycle riding.

Facility maintenance programs and budgets should also include the maintenance of existing facilities such as the Central Entrance Bike Path.

1. Sweeping and Cleaning

Regular sweeping of debris in bikeways is necessary. Sweeping and cleaning of designated on-street bike routes, curb lanes, shoulders and paths should be included in the regular street cleaning schedule of local street maintenance agencies, with the highest priority given to those streets with designated bicycle lanes. Particular attention should also be made to the right-hand portion of outside travel lanes and shoulders as part of the regular cleaning operations. Early spring sweeping to remove debris collected throughout the winter is also recommended.

2. Facility Repair

Potholes and edges should be repaired. Potholes on designated bikeways and in the outside lane of moderate to heavily traveled roadways should be repaired.

3. Tree Trimming

Tree and shrub trimming should be conducted to ensure good sight lines and prevent overgrowth at the facility. Tree and shrub trimming should provide a minimum of eight-foot vertical clearance and two-foot horizontal clearance on both sides of a bikeway always. Tree and shrub trimming should only take place when environmentally feasible. In addition, no herbicides should be used in or near environmentally sensitive areas or near Lake Superior.

4. Snow Removal

Snow removal of bicycle facilities should be done throughout the winter to maintain a pavement that is free of snow and ice. On bicycle paths, snow removal should be done by plowing to the greatest extent possible. De-icing agents and abrasives can damage bicycles. It is recommended that bicycle paths be plowed with a small layer of packed snow remaining. In many cases, it is easier for bicyclists to ride on packed snow instead of icy surfaces. It is recognized that winter snow conditions may prevent having a two foot horizontal clearance on both sides of bikeways at all times.

SPECIFIC POLICY IMPROVEMENTS

General policy improvements are recommendations that will have direct and indirect positive effects toward bicycling improvements.

1. New Roadway Construction

All new highways in urban areas (except those where bicyclists will be legally prohibited) that are designated as bike routes should be designed and constructed under the assumption that they will be used by bicyclists. This should be done when feasible and when funds allow. Providing for bicyclists on roadways in association with general safety improvements is also a preferred and accepted practice.

All new roadway construction should consider providing sufficient width of smoothly paved surface to adapt to the shared use of the

roadway by bicyclists and motor vehicle operators where needed. When roadway resurfacing (and/or reconstruction) is undertaken, particular attention should be given to improving the surface condition and width of the outside (curb) lane to allow shared uses.

Include appropriate provisions for bicyclists when planning all roadway improvements, considering safety, intersection design, roadway surfaces, and roadway width to develop bicycle compatible roadways.

2. Supplementary Roadway Effects

Beam guard rails, sign posts and utility poles should not be placed immediately next to paved surfaces. Where feasible, beam guard rails, sign posts and utility poles should be set back at least two feet from the pavement.

3. Shoulders

All jurisdictions should pave shoulders on county trunk highways with a recommended minimum paved shoulder width of four feet when justifiable due to bicycle traffic or other engineering needs. It is recognized that in some areas it may not be possible to achieve this without major construction costs. Pavement of shoulder widths shall also meet local, state and AASHTO guidelines. On state trunk highways not identified as bicycle routes, the Minnesota Department of Transportation is encouraged to use a paved shoulder width of at least four feet when justifiable due to bicycle traffic or other engineering needs and/or safety reasons.

4. Traffic Control Devices, Sight Lines and Lighting

Consider the needs of bicyclists in the design of all traffic control devices. Sight lines should be kept clear at intersections. Sight line problems can be caused by large buses and trucks, fences, parked cars, foliage and overgrowth. The need for lighting when developing bikeway plans and in the design of all public lighting projects shall also be considered. Bicycle facilities used as commuter routes, as well as underpasses, tunnels and intersections on both commuter and recreational routes should be well lighted.

5. Future Bikeways

Consider the development of separate (off-road) bicycle facilities when weighing the following factors:

- 1) existing roadway facilities cannot be made to provide for safe and efficient bicycle travel within a specific corridor
- 2) conflict points between bicyclists and motorists, such as driveways and intersections, can be reduced
- 3) to provide access for bicyclists around barriers to bicycle travel
- 4) direct routes can be provided that have few conflict points with motorists such as rail corridors, lakefronts and water courses
- 5) when motor vehicle speeds and volumes are incompatible with on-road bicycle use

Consider the provision of bikeways when developing parks, open space, shorelands,

railroad rights-of-way and private subdivision projects, especially those that serve both transportation and recreational uses.

6. Bicycle Parking Facilities

Bicycle parking facility development is encouraged to provide many safe, secure, appropriately designed, and conveniently located bicycle parking accommodations where needed in public areas. Jurisdictions should encourage institutions and businesses to provide bicycle parking facilities for use by their employees and customers and encourage the developers/owners of multi-family residential properties to provide bicycle parking facilities adequate for the needs of residents and visitors.

Local jurisdictions should develop bicycle parking requirements for incorporation into local zoning ordinances, subdivision regulations, and building permit requirements. Adequate rest stop facilities should be provided along recreational bicycle trails. Employers should be encouraged to provide conveniently located, safe, and, whenever possible, weather-protected bicycle parking for employees. Employers shall be encouraged to provide showers and locker room facilities for employees whenever possible.

Bicycle parking facilities are included in the recommendations assigned for implementation in the years 1996 to 1999. Included are specifications concerning type and placement of facility.

7. Liability Issues

Improperly designed or maintained bicycle facilities will increase the likelihood of accidents and will increase a jurisdiction's liability in case of an accident. It is also important to correct the deficiencies of existing facilities that do not meet current standards. Properly designed and maintained facilities following AASHTO guidelines will increase the safety and enjoyment of bicycling and reduce the financial liability of local governments.

8. Bridges

The needs of bicyclists should be considered in the initial planning of state, county, and local roadway and bridge projects. Especially on designated bike routes, adequate funds should be included in project budgets to accommodate the identified needs during the construction period and following the completion of the project. Consideration of bicycle and pedestrian use on bridges should also be weighed. Concerns such as bridge location, traffic volumes and bridge length should also be considered.

9. Transit and Other Transportation Modes

The Duluth Transit Authority has provided exterior bicycle racks on buses. The racks are located on the front of buses and accommodate up to two bicycles at one time. Most buses in operation have the racks on them. In addition, all DTA routes have buses with racks throughout the day.

Adequate bicycle parking facilities at transit

hubs and bus stops are encouraged. Providing bicycle parking facilities at these locations increases intermodal use and potential ridership.

In addition, the North Shore Scenic Railroad should consider allowing bicycles on their trains. With stops between Duluth and Two Harbors, bicyclists could take their bicycles north of Duluth for recreational purposes without contending with high motor vehicle volume areas.

10. Pave Driveway & Street Entrances

Minimize the possibility of sand, gravel and other debris from spreading onto the pavement surface from unpaved streets and driveways. All unimproved intersections, streets and driveways should be paved back a recommended desirable minimum distance of 10 feet or to the right of way line (whichever is less) during new construction, reconstruction and resurfacing. This should especially be encouraged on unimproved roadways that intersect with designated bicycle routes. The current typical minimum pave back is three feet for most roadways.

11. Buildings

All major employers and large buildings should provide safe and convenient bicycle parking facilities, especially with protection from the weather. All new large buildings should also be urged to provide shower and locker facilities.

BICYCLE SAFETY EDUCATION AND PUBLIC INFORMATION

Bicycle safety education and information for the public are also important factors.

1. Bicycle Information and Maps

Maps should be provided to show facility and/or roadway suitability and information. City, county and state jurisdictions should work cooperatively to update and make available bicycling resource guides and roadway suitability maps for the Duluth-Superior urban area.

Bicycle maps are included in the previous short-term recommendations.

2. Bicycle Coordinator and Bicycle Committee

A bicycle coordinator and a bicycle committee should be established to seek and consider ideas from bicyclists, bicycling groups, and general citizens in planning for the needs of bicyclists and to ensure that all bicycling issues are addressed.

The creation of a community bicycle coordinator and/or community bicycle committee is included in the previous short-term recommendations. The creation on this position(s) is vital in the assurance that future bicycle needs are met and that recommendations of this plan are carried out.

3. Education

Public information and education programs that publicize bicycle safety, including the rights and responsibilities of both bicyclists and motorists, should be expanded.

4. Bicycle Safety Programs

Bicycle safety programs being conducted by various groups within the urban area such as police departments, public schools, state agencies, universities and colleges, health care providers, civic and service organizations, sports and recreational organizations, bicycle interest groups and bicycle dealers should be coordinated. The school systems, colleges and universities should be encouraged to include effective and safe bicycling training courses in their regular course curricula. Bicycle safety information should be included in drivers' education and defensive driving courses. Local bicycling organizations should continue to educate their membership on safe bicycling techniques and bicyclists' rights and responsibilities.

5. Promotional Programs

Promotional efforts can increase visibility for bicycling. Establishing "Bike-to-Work" days, "bicycle fairs", or working with employers to establish incentive programs are a few examples.

6. Detailed Utilitarian Bicycling Information

Offer detailed information on utilitarian bicycle travel. "How-to" seminars and

literature can help nonparticipants solve basic problems associated with bicycle travel. For example, white collar bicycle commuters must learn how to look good at the office after riding to work.

7. Provide Beginner Bicycle Activities

Provide ways for nonparticipants to receive a casual introduction to bicycling. Include entry-level bicycling activities in local recreation programs. Many people are afraid to try something new. A fun event for newcomers can give them the incentive and opportunity to try bicycling with relatively little risk.

Other bicycle education and information concepts recommended include

- 1) activist and club literature
- 2) nonmotorized commuter programs
- 3) media campaigns
- 4) neighborhood workshops
- 5) participation events
- 6) role models - an effective way to encourage new participants is to highlight the experiences of current ones
- 7) commuter "races"

BICYCLE LAW ENFORCEMENT

Enforcement is usually necessary to prevent unauthorized motor vehicle use. Consistent enforcement of traffic laws that enhance bicycle safety by citing violations by both bicyclists and motor vehicle operators should be encouraged. A continuing effort to inform the public of the benefits of bicycle registration for residents in communities that have a registration program is encouraged.

Consideration of developing safety monitor programs, training of law enforcement officers, and consideration of bicycle registration programs should be made. All local law enforcement officers should be trained in the enforcement of laws concerning bicyclists' rights and responsibilities through recruit training and in service refresher courses. Local jurisdictions with bicycle registration programs should examine the potential for upgrading the programs. This would increase compliance and increase the benefits of the programs for bicyclists and local jurisdictions.

The following are recommendations concerning bicycle law enforcement.

1. Establish a Bicycle Monitor Program

The program could be staffed by specially deputized university students to enforce bicycle traffic laws. A similar program could be established on popular facilities, such as the Munger Trail, to ensure the safety of others. This type of program or patrol could be staffed by citizens and volunteers.

2. Establish a Bicycle Police Patrol

Bicycle patrols are fast and quiet, allow new levels of success in drug enforcement, keep officers fit, and are popular with the public.

3. Establish a Citizens Watch Program

Citizens should be encouraged to report bicycle violations and trail misuse to the appropriate authorities. The authorities in turn may not apprehend the current violator, but will know the location of violations and can

patrol the area in the future.

4. Continual Bicycle Accident Monitoring

Efforts should be made to continue to monitor bicycle accidents and locations. An annual review of bicycle accidents and locations is recommended. With more bicyclists anticipated to use designated routes, accidents should be monitored to review areas of increased and decreased accidents. Appropriate steps should be taken to alleviate problem areas.

ROUTE RECOMMENDATIONS

ROUTE RECOMMENDATIONS

INTRODUCTION

The following are recommendations for bikeways and specific locations of recommendations. Recommendations were developed by the Metropolitan Bikeways Plan Study Advisory Committee after review of bicycle traffic count surveys, citizen questionnaire surveys, data collection, examination of trip origins and generations, and public information open house comments.

The plan is designed to address the issues and development of bicycle facilities for the average bicyclist. Usually, off-road bicycle paths are preferred. However, due to the environmental, developmental, and cost constraints, most recommendations promote on-road bicycle facilities.

The following recommendations for bikeway facility development are listed in priority order. Recommendations are arranged by roadway corridor and roadway segments. A description of the proposed bicycle facility, the time of implementation and jurisdictions involved are listed.

Specific locations were recommended for bikeway facility development. Specific bikeway facility type is determined by the annual average daily traffic volumes and average motor vehicle operating speed on a roadway. Since it is not possible to determine when all recommendations will be carried out,

the tables should be referred to before actual development of bicycle facilities. The recommended facility type is shown in tables 1 through 6 from the Federal Highway Administration, "Selecting Highway Design Treatments to Accommodate Bicycles". These tables are located in the Appendix of this document. Subsequent updates (when developed) should be supplemented for these tables.

In addition, the American Association of State Highway and Transportation Officials (AASHTO) 1991 "Guide for the Development of Bicycle Facilities", should also be reviewed before bikeways are developed to ensure bicycle facility standards are met. The AASHTO guide has been adopted by the Metropolitan Bikeways Plan Study Advisory Committee as the guide to standards for bikeway facility development. The "Guide for the Development of Bicycle Facilities" can be obtained by contacting the American Association of State Highway and Transportation Officials, 444 North Capitol Street, N.W., Suite 225, Washington, D.C. 20001. Phone (202) 624-5800. Subsequent updates (when developed) should be supplemented for the AASHTO guide.

Timing of implementation are categorized as 1994-1996 Implementation, 1996-1999 Implementation, and Implementation Beyond 1999. 1994-1996 Implementation are recommendations that can be implemented within the next two years. 1996-1999 Implementation are recommendations that can

be implemented within the next five years. Included are recommendations that have been planned for development or are in progress for improvements. Implementation Beyond 1999 are recommendations that will occur later than five years. All recommendations are the responsibility of the jurisdictions listed with the roadway segments. All jurisdictions with the MIC boundaries are encouraged to adopt this document and incorporate it in transportation planning processes.

Evaluation and Selection Criteria

The following are evaluation and selection criteria the Study Advisory Committee used in determining recommendations.

ACCESS - Consideration for frequent and convenient bicycle access, especially in residential areas, and adequate access for emergency vehicles, maintenance vehicles and service vehicles.

ACCIDENTS - Review of plans to eliminate the introduction of new accident problems.

ATTRACTIVENESS - The scenic value is important along a facility. Especially those intended to serve a primary recreational purpose.

BARRIERS - Caused by topographical and man made features that inhibit bicycle travel. Examples are rivers, streams, freeways, and railroad yards. Providing a facility to overcome a barrier can create new opportunities for bicycling.

BRIDGES - Consideration of problems with curb-to-curb widths that are narrower than the approach roadways, open grated metal decks, low railings, and certain types of expansion joints.

COST/FUNDING - Consideration of cost analysis of alternatives. A lack of funds should not result in a poorly designed or constructed facility. In addition, there must be a long-term commitment to a proper level of maintenance. If few funds are available, emphasis should be given to low-cost improvements (bicycle parking, removal of barriers, removal of obstructions to bicycle travel, roadway improvements, mapping)

DELAYS - Bicyclists have a strong inherent to maintain momentum. If bicycles are required to make frequent stops, they may tend to avoid the route or disregard the traffic controls.

DIRECTNESS - For commuter trips, facilities should connect traffic generators and should be located along a direct line convenient for users.

INTERSECTION CONDITIONS - Facilities should be selected to minimize the number of crossings, because most accidents happen at intersections.

LOCAL LAWS - Bicycle facilities must not encourage or require bicyclists to operate in a manner inconsistent with traffic laws.

MAINTENANCE - An improperly maintained bikeway will often be avoided by bicyclists in favor of a parallel roadway.

ON-STREET MOTOR VEHICLE PARKING

The turnover and density of on-street parking can affect bicyclist safety, such as opening car doors and cars leaving spaces.

PAVEMENT SURFACE QUALITY -

Bikeways must be free of bumps, holes and other surface irregularities if they are to attract and satisfy the needs of bicyclists. Utility covers and drainage grates should be at grade and outside the expected area of travel. Approaches to railroad crossings should be improved.

SECURITY - The potential for criminal acts against bicyclists, especially along remote paths, and the possibility of theft or vandalism at parking locations should be considered.

TRAFFIC VOLUMES AND SPEEDS -

Commuting bicyclists frequently use arterial streets because they minimize delay and offer continuity for trips. It is desirable to improve heavily traveled high-speed streets than adjacent streets if adequate width is available. Otherwise a nearby parallel street may be improved for bicyclists if stops are minimal and other route conditions are adequate. When such a parallel facility is improved, care must be taken that motor vehicle traffic is not diverted.

TRUCK AND BUS TRAFFIC - Because of their aerodynamic effect and width, high-speed trucks, buses, motorhomes and trailers can cause special problems for bicyclists. Where bus stops are located along a route, conflicts with bus loading and discharge and pavement deterioration may also be problems.

USE CONFLICTS - Facilities on the roadway can result in conflicts between bicyclists and

motorists. Bicycle paths can involve conflicts between bicyclists, in-line skaters and pedestrians on the facility and between bicyclists and motorists at highway and driveway intersections.

No single improvement will be sufficient to attract all potential bicycle commuters to cycle. An integrated approach is needed. For example, what good is better bike parking if better routes aren't established. The following are general concepts that were used in the development of this plan.

Supplemental Criteria

EXISTING ROADWAYS - The existing roadway system can provide for the needs of the vast majority of bicycle travel. Often, existing roadways can be improved relatively inexpensively. These roadways must serve as the base system to provide for the travel needs of bicyclists.

CONSIDER MANY ALTERNATIVES - Many alternatives need to be considered to provide for safe and efficient bicycle travel. Bicycle facilities should be planned and designed to accommodate a broad range of bicyclists.

OTHER PLANNING - Bikeway development must be done in conjunction with planning for other transportation modes. An emphasis should be made for compact land use and development to reduce the reliance on the automobile as a mode of transportation.

ADDITIONAL CRITERIA - Bike facility access should match motorist access and made as convenient as possible. Bicycle facilities

should be developed, expanded and enhanced in places where high levels of bicycling are likely. Maximum consideration should be placed on areas with high concentrations of younger people (under 35), short travel distances between key trip generators (5 miles or less for the work commute & 2 miles or less for errands), and space for on-road facilities should receive top priority. Focus should be placed on creating a linked network of bicycle facilities so that access to all areas of the city are enhanced. Facilities could be concentrated in areas or along corridors where the younger citizens live and move about.

More bike lanes and wide curb lanes along arterials are the preferred investment strategy for raising the level of bicycle commuting in the short term. They should be a standard feature for all new roads and be a required component of roadway rehabilitation.

Sidewalks are generally not acceptable for bicycling. However, in a few limited situations, such as long and narrow bridges and other instances where sidewalks have the same characteristics as one-way bicycle paths, and bicyclists are incidental or infrequent users, designation of the sidewalk as an alternative facility can be beneficial.

City of Duluth

Route Recommendations

The following descriptions of recommendations are listed in priority order as established by the Metropolitan Bikeways Plan Study Advisory Committee. The associated maps involve recommendations of the roadway and corridor discussed. Please refer to the large map on page 135 for the complete system.

Recommendations are listed in priority order. However, implementation of recommendations should be done when opportunities arise. In addition, efforts should be made to ensure that discontinued or isolated bicycle route segments are not create.

SCENIC NORTH SHORE DRIVE CORRIDOR

1. **Scenic North Shore Drive (Congdon Boulevard/London Road to Two Harbors)**
 - a. **Improve shoulders.** Reconstruct the shoulders in a way that would maximize the shoulder surface life. A long lived, high quality, and smooth shoulder surface is a priority for bicycle travel on the Scenic North Shore Drive. Of specific concern is the longitudinal joint between the shoulder and driving lane.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth, St. Louis County, and Lake County
 - b. **Evaluate speed limits.** Consider a reduction and/or uniformity in the posted speed limits to encourage safe and comfortable motor vehicle and bicycle use.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth, St. Louis County, and Lake County
 - c. **Better enforcement.** Consider more effective enforcement of the posted speed limits.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth, St. Louis County, and Lake County

- d. **Bike route signage.** Local jurisdictions should install bike route signage and driving lane edge striping (rather than rumble strips) to show that the roadway is a designated bicycle route.

Time frame: 1996-1999 Implementation

Jurisdiction: City of Duluth, St. Louis County, and Lake County

- e. **Traffic calming.** Consider appropriate traffic calming techniques, in association with appropriate signage, to encourage fast-moving traffic and heavy commercial vehicles to use the expressway.

Time frame: Implementation Beyond 1999

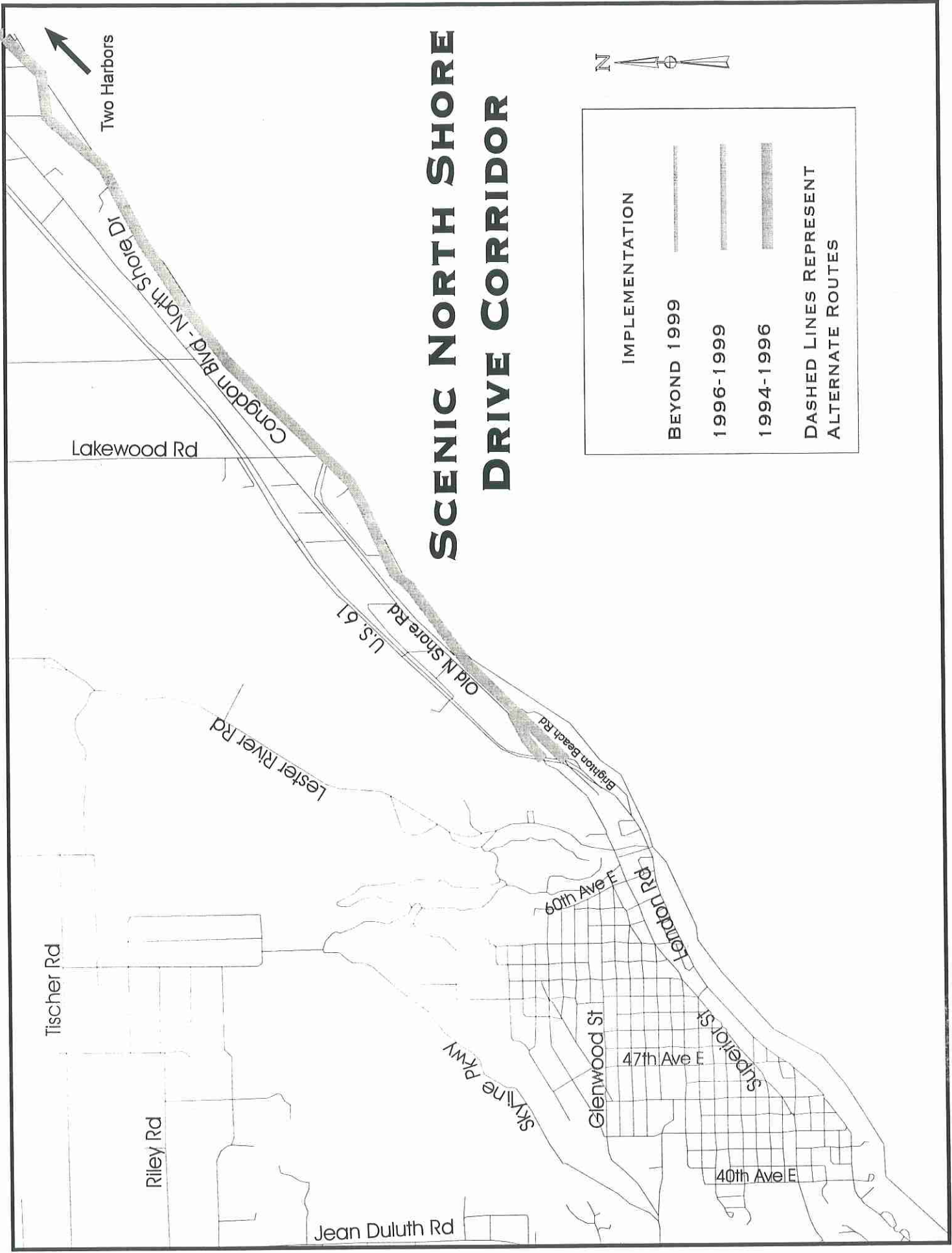
Jurisdiction: City of Duluth, St. Louis County, and Lake County

2. **Old North Shore Road (TH 61/Rohweder Memorial Highway to Brighton Beach Road)**

- a. **Bike route signage.** Install bike route signage to show that the roadway is a designated bicycle route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth



SCENIC NORTH SHORE DRIVE CORRIDOR



IMPLEMENTATION
BEYOND 1999
1996-1999
1994-1996
DASHED LINES REPRESENT ALTERNATE ROUTES

MAP IS NOT TO SCALE

LONDON ROAD CORRIDOR

NOTE: Consultation with the St. Louis and Lake County Rail Authority should be conducted before implementing recommendations regarding the railroad right-of-way.

1. London Road (26th Avenue East to 40th Avenue East)

- a. **Bicycle underpass.** Evaluate development of an off-road paved bicycle/pedestrian path through the railroad viaduct extension under London Road from the Lakewalk path to Alexander Street. In addition, site distance evaluation and grade crossing safety review should be conducted. The extension would connect Lakewalk with residential areas north of London Road.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth and St. Louis County

- b. **Bicycle/pedestrian traffic signal phasing evaluation.** The traffic signals at 26th Avenue East and London Road should include possible modification of bicycle/pedestrian phasing until an off-road path can be developed under the London Road railroad viaduct. The traffic signal phasing should be held in combination with proper sidewalk curb cuts/ramps and bicycle route signing. A traffic evaluation should be conducted at this intersection to improve upon the controls for pedestrians and bicyclists.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and Mn/DOT

- c. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path parallel to the railroad right of way or the London Road right of way between 26th Avenue East and 40th Avenue East.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth, St. Louis County, and/or Mn/DOT

2. London Road (40th Avenue East to TH 61/Rohweder Memorial Highway)

- a. **Bike route signage.** Install bike route signage to show that the roadway is a designated bicycle route. This segment of London Road has wide curb lanes that can hold bicyclists. However, East Superior Street should be considered the initial/immediate option as it provides access to more residential and commercial areas and has lower average motor vehicle speeds.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT and City of Duluth (Signing responsibility of City of Duluth)

- b. **Evaluate turn lanes and signage.** Add center turn lane or signage to prevent passing on the right between 40th Avenue East and TH 61/Rohweder Memorial Highway. This would alert motorists not to pass in the right lane where many potential bicyclists will be travelling.

Time frame: 1996-1999 Implementation

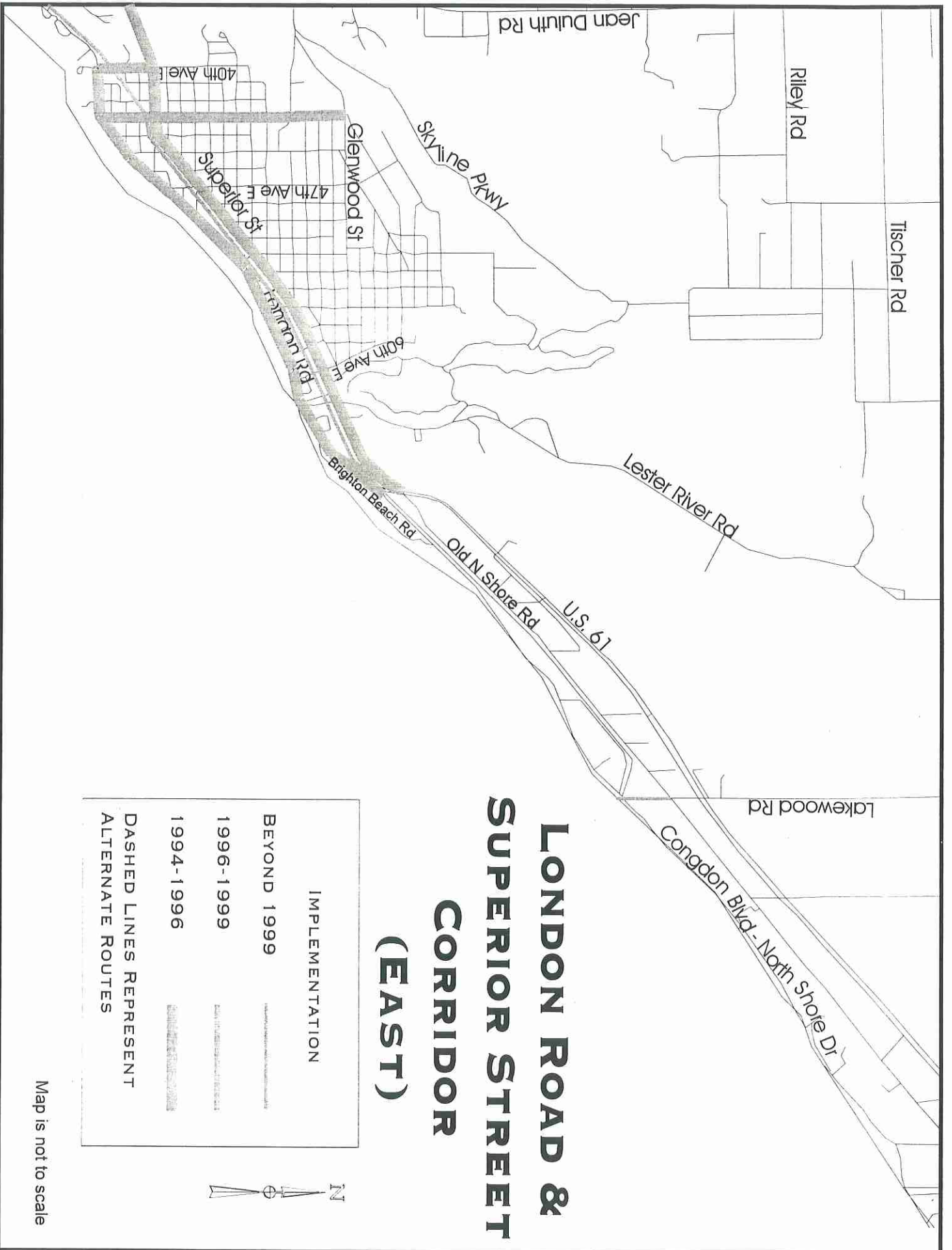
Jurisdiction: Mn/DOT and City of Duluth

3. 32nd Avenue East (London Road to Congdon Park Drive) and Congdon Park Drive (32nd Avenue East to Superior Street)

- a. **Improve roadway surface.** The roadway surface should be improved before it is recommended as a bikeway. This roadway offers the most direct connection between East Superior Street and London Road. The roadway also has the most casual grade compared to parallel roadways.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth



LONDON ROAD & SUPERIOR STREET CORRIDOR (EAST)

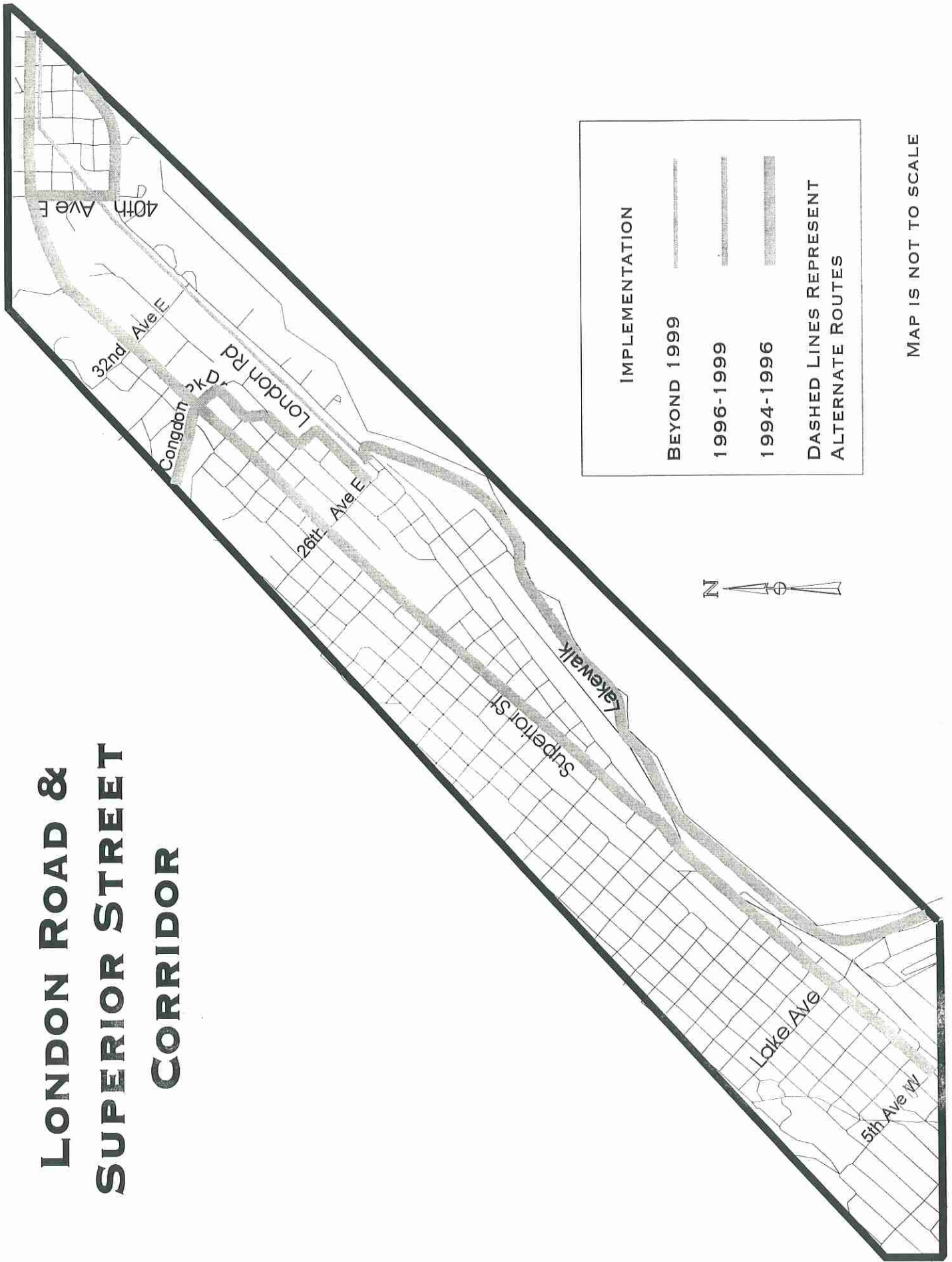
IMPLEMENTATION	
BEYOND 1999	
1996-1999	
1994-1996	

DASHED LINES REPRESENT
ALTERNATE ROUTES



Map is not to scale

LONDON ROAD & SUPERIOR STREET CORRIDOR



SUPERIOR STREET CORRIDOR

1. Superior Street (40th Avenue East to TH 61/Rohweder Memorial Highway)

- a. **Bike route signage.** Install bike route signage. This roadway segment has wide curb lanes that hold bicyclists. Bike route signs will alert motorists in the congested Lakeside commercial area that East Superior Street is a designated bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT and City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the southeast side of the roadway or railroad right of way between 40th Avenue East and TH 61/Rohweder Memorial Highway.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth, St. Louis County, and/or Mn/DOT

- c. **Wide sidewalk/path.** A wide sidewalk or path on the south side on East Superior Street and in the rail road corridor may be desirable (between 44th Ave E and 54th Ave E) if traffic conditions and bicycle use in this area conflict.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth, St. Louis County, and/or Mn/DOT

2. Superior Street (Congdon Park Drive to 40th Avenue East)

- a. **Bike route signage.** Install bike route signage. This roadway segment has wide curb lanes that hold bicyclists. Bike route signs will alert motorists in the Congdon School and Ordean School areas that East Superior Street is a designated bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT and City of Duluth

3. Superior Street (Congdon Park Drive to 26th Avenue East)

- a. **Bike route signage.** Install bike route signage. This roadway segment has wide curb lanes that hold bicyclists. Bike route signs will alert motorists that East Superior Street is a designated bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT and City of Duluth

- b. **Bike route signage.** Install bike route signage on the following route: Jefferson Street (26th Avenue East to 29th Avenue East), 29th Avenue East (Jefferson Street to Greysolon Street), Greysolon Street (29th Avenue East to Hawthorne Road), Hawthorne Road (Greysolon Street to Branch Street), Branch Street (Hawthorne Road to Congdon Park Drive) and Congdon Park Drive (Branch Street to Superior Street). This route provides the most casual grade for bicyclists between Superior Street to London Road. All roadways listed are local in character and functional classification. Some of the roadways require repair and resurfacing.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

4. 26th Avenue East (East Superior Street to London Road)

- a. **Resurfacing and bike route signage.** Resurface and install bike route signage on 26th Avenue East between East Superior Street and London Road to provide a connection between these roadways. However, this roadway segment is one of the steepest in grade within Duluth. The route described in detail in the Superior Street Corridor 3.b. is preferred.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

5. Superior Street (26th Avenue East to 5th Avenue West)

- a. **Bike route signage.** Install bike route signage. Bike route signs will alert motorists that Superior Street is a designated bike route. Superior Street accommodates both directions of traffic and is more bicycle-user friendly than the parallel streets and options.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and Mn/DOT

- b. **Lakewalk bike route signage.** Designate the Lakewalk as a bike route. Lakewalk provides the best opportunity for a cyclist to travel from the East End to Downtown Duluth safely and conveniently. Signs indicating that pedestrians use the boardwalk and bicycles, rollerbladers, and runners use the pavement should be installed along the Lakewalk at strategic locations. In addition, signs should include rules requiring bicyclists to yield to pedestrians and to use audible signals when passing. Signs instructing bicyclists to walk bicycles on the boardwalks from Lake Place to downtown should also be installed at entrances to Lake Place. In addition, Lakewalk should meet AASHTO guidelines before it is designated as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and/or Mn/DOT

6. 40th Avenue East (London Road to Superior Street)

- a. **Bike route signage.** Install bike route signage on 40th Avenue East between East Superior Street and London Road to provide a connection between these roadways.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

WOODLAND AVENUE CORRIDOR-SUPERIOR STREET CORRIDOR CONNECTION

1. St. Marie Street (Woodland Avenue to Vermillion Road) & Congdon Park Drive (Vermillion Road to Superior Street) or Hawthorne Road (Vermillion Road to Superior Street)

- a. **Bike route signage.** Install bike route signage on St. Marie Street and Congdon Park Drive to provide a connection between the Woodland Avenue Corridor and the Superior Street Corridor. Congdon Park Drive should remain for use for non-motorized vehicles as it presently is. The roadway should be properly maintained and/or resurfaced. An alternate route would be using Hawthorne Road.

Time frame: 1994-1996 Implementation (dependent upon Congdon Park Drive improvement and maintenance, otherwise Implementation Beyond 1999)

Jurisdiction: City of Duluth

- b. **Bike route signage.** Install bike route signage on Hawthorne Road (Wallace Avenue/Vermillion Road to Superior Street) to provide a connection between the Woodland Avenue Corridor and the Superior Street Corridor. Hawthorne Road is provided as an alternate recommendation to using Congdon Park Drive and/or 24th Avenue East. Congdon Park Drive and 24th Avenue East are the preferred roadways to connect the Woodland Avenue Corridor with the Superior Street Corridor. Hawthorne Road should be used as a last resort because heavy traffic conditions exist at the intersection of Hawthorne Rd and E 4th St when East High School is in session or has activities.

Time frame: 1994-1996 Implementation (only needed as an alternative to Congdon Park Drive and 24th Avenue East)

Jurisdiction: City of Duluth

2. Kent Road (Woodland Avenue to 6th Street) & 24th Avenue East (6th Street to Superior Street)

- a. **Bike route signage.** Install bike route signage on Kent Road and 24th Avenue East to provide a connection between the Woodland Avenue Corridor and the Superior Street Corridor. These roadways have a wide curb lane that accommodates bicyclists

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

3. St. Marie Street (Woodland Avenue to Wallace Avenue or Vermillion Road), Wallace Avenue or Vermillion Road (St Marie Street to 8th Street), 8th Street (Wallace Avenue to Woodland Avenue)

- a. **Bike route signage.** Install bike route signage on St. Marie Street, Wallace Avenue (or Vermillion Road) and 8th Street. Wallace Avenue provides a bicycle-user friendly grade and Vermillion Road has lower traffic volumes. Either roadway (or both roadways) is recommended as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth, St. Louis County

4. East 8th Street (Woodland Avenue to 15th Avenue East)

- a. **Bike route signage.** Install bike route signage on East 8th Street between Woodland Avenue and 15th Avenue East to provide an east-west route on the upper hillside in east Duluth. This segment of 8th Street should be designated as a bike route after 15th Avenue East is improved.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Provide curb cut.** Provide a curb-cut at the 8th Street termini near Woodland Avenue. Bicyclists would need to walk their bicycles to the Kent Road/Woodland Avenue intersection to cross at the traffic signal. This is viewed as only a slight inconvenience for cyclists given the option of riding on Woodland Avenue. Investigation of location and existing conditions should be conducted.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth and/or St. Louis County

5. 15th Avenue East (East 8th Street to Superior Street)

- a. **Bike route signage.** Install bike route signage on 15th Avenue East between East 8th Street and Superior Street to provide a north-south route for this area. 15th Avenue East should be designated as a bike route after it is resurfaced or reconstructed.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

WOODLAND AVENUE CORRIDOR

Consultation with the Hartley Nature Center Board should be conducted before implementing recommendations regarding the path development in Hartley Field. Consultation with UMD officials should be conducted before designating the UMD bicycle/pedestrian path as a bike route.

1. Woodland Avenue (Martin Road to Calvary Road)

- a. **Bike route signage.** Install bike route signage on Woodland Avenue between Martin Road and Calvary Road. The roadway shoulder is wide enough to accommodate bicyclists.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth
- b. **Bike lane.** Designate the shoulders as bike lanes. Further examination of bicycle use on the roadway should be examined before this step is implemented.
Time frame: 1996-1999 Implementation
Jurisdiction: City of Duluth

2. Woodland Avenue (Calvary Road to Northfield Street)

- a. **Bike route signage.** Install bike route signage on Woodland Avenue between Calvary Road and Northfield Street. The curb lane is wide enough to accommodate bicyclists.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County
- b. **Bike lane.** Designate the curb lanes as bike lanes. Further examination of bicycle use on the roadway should be examined before this step is implemented.
Time frame: 1996-1999 Implementation
Jurisdiction: St. Louis County

3. Northfield Street/Hartley Road (Woodland Avenue to Arrowhead Road)

- a. **Northfield Street bike route signage.** Designate Northfield Street as a bike route from Woodland Avenue to Kolstad Avenue. Northfield Street has better sight lines with its intersection with Woodland Avenue than the other option of Anoka Street. This option should only be implemented if an off-road paved bicycle/pedestrian path is developed from the Northfield Street/Kolstad Avenue intersection through Hartley Field (see step b).
Time frame: Implementation Beyond 1999 (dependent upon path development)
Jurisdiction: City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the intersection of Northfield Street and Kolstad Avenue southeasterly to Hartley Road. Bicycle/pedestrian bridges near Tischer's Creek may also be required. The path should then continue on Hartley Road to Woodhaven Lane. Then designate Hartley Road from Woodhaven Lane to Arrowhead Road as a bike route. Special precautions may be required in areas with sensitive environmental conditions.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

4. Woodland Avenue (Northfield Street to Arrowhead Road)

- a. **Woodland Avenue bike route signage.** Designate Woodland Avenue as a bike route from Northfield Street to Hartley Road. In addition, a wider curb lane or possible adjacent bicycle/pedestrian path may be required due to the additional lanes, amount of traffic and speeds of motor vehicle traffic in this segment. Options 3.a. and 3.b. (list above) are preferred to this option.

Time frame: Implementation Beyond 1999 (dependent upon implementation of options 3.a. and 3.b.)

Jurisdiction: St. Louis County

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the entire length of Hartley Road to Woodhaven Lane. Then designate Hartley Road from Woodhaven Lane to Arrowhead Road as a bike route. This should be an alternative to developing a path from the Northfield Street/Kolstad Avenue intersection to Hartley Road.

Time frame: Implementation Beyond 1999 (dependent upon implementation of options 3.a. and 3.b.)

Jurisdiction: City of Duluth

5. Woodland Avenue (Northfield Street to Arrowhead Road)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the sewer easement adjacent to Woodland Avenue from Northfield Street to Carlisle Avenue. The path would then follow cross country ski trails from Carlisle Avenue to Dunedin Avenue. Dunedin Avenue should have improved sight distances and be widened before designated as a bike route. Then designate Dunedin Avenue to Arrowhead Road as a bike route. This should be an alternative to developing a path from the Northfield Street/Kolstad Avenue intersection to Hartley Road. Options 3.a., 3.b., 4.a. and 4.b. (list above) are preferred to this option.

Time frame: Implementation Beyond 1999 (dependent upon implementation of options 3.a., 3.b., 4.a. and 4.b.)

Jurisdiction: City of Duluth

6. Woodland Avenue (Northfield Street to Arrowhead Road)

- a. **Woodland Avenue bike route signage.** Designate Woodland Avenue as a bike route from Northfield Street to Oxford Street, St. Andrew's Street, and/or Lewis Street. A wider curb lane or possible adjacent bicycle/pedestrian path may be required on Woodland Avenue due to the additional lanes, amount of traffic and speeds of motor vehicle traffic in this segment. In addition, further study is needed to determine which route and roadway conditions are best between Oxford Street, St. Andrew's Street and/or Lewis Street. All three streets need roadway surface improvements to be practical for bicycle use. Dunedin Avenue should then be designated as a bike route to connect these streets with Arrowhead Road. This would be an alternative to developing paths through Hartley Field. Options 3.a., 3.b., 4.a., 4.b., and 5.a. (list above) are preferred to this option.

Time frame: Implementation Beyond 1999 (dependent upon implementation of options 3.a., 3.b., 4.a., 4.b. and 5.a.)

Jurisdiction: St. Louis County and City of Duluth

7. Carver Avenue (Arrowhead Road to St. Marie Street)

- a. **Carver Avenue bike route signage.** Designate Carver Avenue as a bike route from Arrowhead Road to St. Marie Street. The roadway has a wide curb lane that accommodates bicycles and offers a direct connection between Arrowhead Road and the UMD area.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Additional bike route signage.** Place additional bicycle route signs at the intersection of Carver Avenue and Arrowhead Road on Arrowhead Road to warn motorists that Carver Avenue is a bicycle route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

8. UMD bicycle/pedestrian path and St. Marie Street/Junction Avenue (Carver Avenue to College Street)

- a. **UMD bicycle/pedestrian path signage.** Designate the UMD bicycle/pedestrian path as a bike route from Carver Ave. to College St. The existing path crosses the campus (north-to-south) from the Carver Ave./St. Marie St. intersection to College St. (approximately one block east of the College St./Snelling Ave. intersection). UMD and city officials would need to resolve maintenance and liability issues for this option to occur. In addition, directional bike route signage should be installed at the paths intersection with College St.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and UMD

- b. **St. Marie Street/Junction Avenue bike route signage.** Designate St. Marie Street (Woodland Ave to Junction Ave) and Junction Avenue (St. Marie Street to College Street) as bike routes. This should be considered an alternative to the UMD path (option 8.a).
Time frame: 1994-1996 Implementation (dependent upon implementation of 8.a)
Jurisdiction: City of Duluth

9. 19th Avenue East (College Street to 8th Street)

- a. **19th Avenue East bike route signage.** Designate 19th Avenue East (College Street to 8th Street) as a bike route. This route offers bikeway system continuity. See the Woodland Avenue Corridor-Superior Street Corridor Connection map for additional map detail.
Time frame: 1994-1996 Implementation (dependent upon implementation of 8.a. or 8.b.)
Jurisdiction: City of Duluth

10. Skyline Parkway (Kenwood Avenue to 19th Avenue East)

- a. **Bike route signage.** Designate as a bike route and install signs.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

COLLEGE STREET CORRIDOR

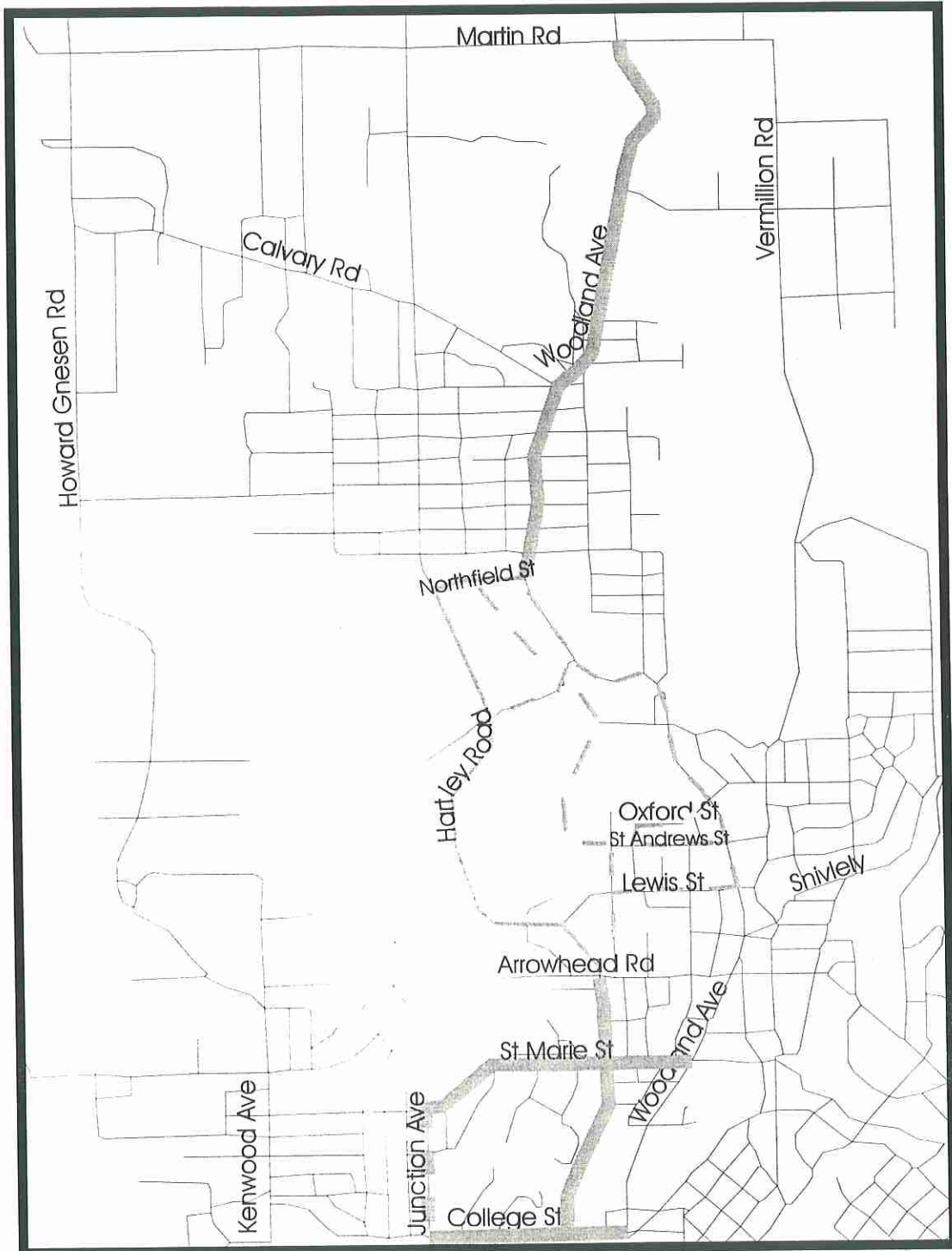
1. College Street (Junction Avenue to Woodland Avenue)

- a. **Bike route signage.** As an access to UMD, designate College Street (Junction Ave to Woodland Ave) as a bike route. This route would provide a connection between the UMD area and areas east of Woodland Avenue.
Time frame: 1994-1996 Implementation (dependent upon implementation of Woodland Avenue Corridor 8.a. or 8.b.)
Jurisdiction: City of Duluth
- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the sidewalk north of College Street between Junction Avenue and Woodland Avenue. This option is recommended if traffic volumes, speeds, and the amount of parking is a problem to bicyclists on College Street.
Time frame: Implementation Beyond 1999 (dependent upon implementation of 1.a)
Jurisdiction: City of Duluth and UMD

WOODLAND AVENUE & COLLEGE STREET CORRIDOR



IMPLEMENTATION	
BEYOND 1999	
1996-1999	
1994-1996	
DASHED LINES REPRESENT ALTERNATE ROUTES	



KENWOOD AVENUE CORRIDOR

1. Kenwood Avenue (Skyline Parkway to Arrowhead Road)

- a. **Bike route signage.** Designate Kenwood Avenue (Skyline Parkway to Arrowhead Road) as a bike route. This should be done after evaluation of reducing Kenwood Avenue to two total lanes of motor vehicle travel has been conducted. Motor vehicle turning lanes should remain at the intersections with College Street and with Skyline Parkway with designated bicycle lanes or off-road bicycle paths.

Time frame: 1994-1996 Implementation (dependent upon lane reduction and/or curb lane widening)

Jurisdiction: City of Duluth

2. Skyline Parkway (Kenwood Avenue to Chester Bowl Drive) and Chester Bowl Drive (Skyline Parkway to termini)

- a. **Bike route signage.** Designate Skyline Parkway (Kenwood Avenue to 19th Avenue East) as a bike route. This route offers bikeway system continuity. It can also be used as an alternative to Kenwood Avenue. However, option 1.a. is the preferred option.

Time frame: 1994-1996 Implementation (dependent upon implementation of 1.a)

Jurisdiction: City of Duluth

- b. **Bike route signage and off-road bicycle/pedestrian path.** Designate Chester Bowl Drive (Skyline Parkway to termini) as a bike route with the development of an off-road paved bicycle/pedestrian path from the Chester Bowl termini to College Street using existing informal trails.

Time frame: Implementation Beyond 1999 (dependent upon implementation of 1.a. and 2.a)

Jurisdiction: City of Duluth

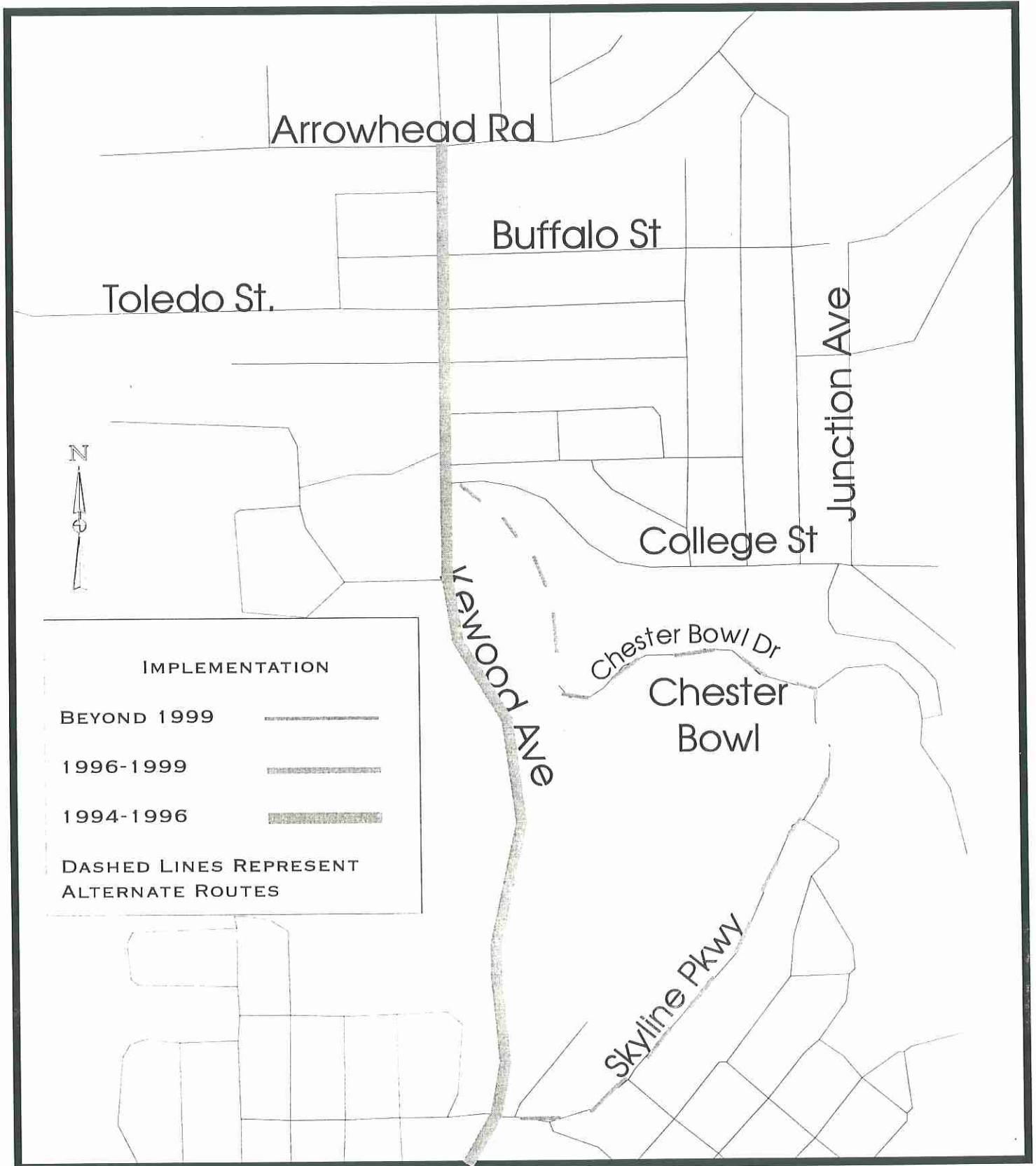
3. 13th Street (Mesaba Avenue to Skyline Parkway) and Skyline Parkway (13th Street to Kenwood Avenue)

- a. **Bike route signage.** Designate 13th Street (Mesaba Avenue to Skyline Parkway) and Skyline Parkway (13th Street to Kenwood Avenue) as a bike route. This route connects the Kenwood area with Central Entrance. Note that this recommendation is not shown on the Kenwood Avenue Corridor map. Please refer to the overall recommendation map.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

KENWOOD AVENUE CORRIDOR



CANAL PARK/MINNESOTA POINT CORRIDOR

Consultation with the Park Point Community Organization should be conducted before implementing recommendations regarding bikeway development on Minnesota Point.

1. Railroad Street (Garfield Avenue to Lake Avenue)

- a. **Bayfront area bicycle and pedestrian provisions.** Include provisions for bicycles and pedestrians in the Bayfront area future development. Accommodations for a bicycle/pedestrian path, bike route signage and lane markings (from the bicycle pedestrian overpass west of 5th Ave W to Canal Park Drive) is a top priority when future construction in the Railroad Street area occurs.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

2. Canal Park Drive/Railroad Street

- a. **Bike route signage.** Appropriate bicycle route directional signage should be installed at the Canal Park Drive/Railroad Street intersection to direct bicyclists to Lakewalk.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

3. Lake Avenue South/Minnesota Avenue (Aerial Lift Bridge to Park Point Park)

- a. **Restripe the roadway.** Restripe the roadway so the results will be larger curb lanes. This may require movement of the center line and removal of edge striping. Currently bicyclists use the curb lane with edge striping on the east side of the roadway as an informal bikeway. The informal lane does not meet AASHTO guidelines and should not be encouraged for use. Wide curb lanes will provide space for bicyclists to travel on both sides of the road.

Time frame: 1996-1999 Implementation (coordinate with the Park Point Community Organization)

Jurisdiction: City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the east side of the roadway. The path should be developed from the location of the current sidewalk to the current edge striping. The path should be built in such a manner that a physical barrier would exist where the edge striping now exists. This would result in an approximate 8 foot wide path separated from motor vehicle traffic by the curb. In addition, utility poles near the existing sidewalk and in the roadway right-of-way may need to be relocated or removed. A boulevard or barrier is also recommended to separate motor vehicle traffic from pedestrians and bicyclists.

Time frame: Implementation Beyond 1999 (coordinate with community organization and dependent upon implementation of option 3.a)

Jurisdiction: City of Duluth

4. **Lake Avenue South (Commerce Street to Aerial Lift Bridge)**

- a. **Bike route signage.** Designate Lake Avenue South (Railroad Street to Aerial Lift Bridge) as a bike route. Signage indicating bicycles must be walked across the Aerial Lift Bridge should be more prominent. Accommodations to allow bicyclists to ride their bikes across the lift bridge should be considered when improvements are made to the bridge.

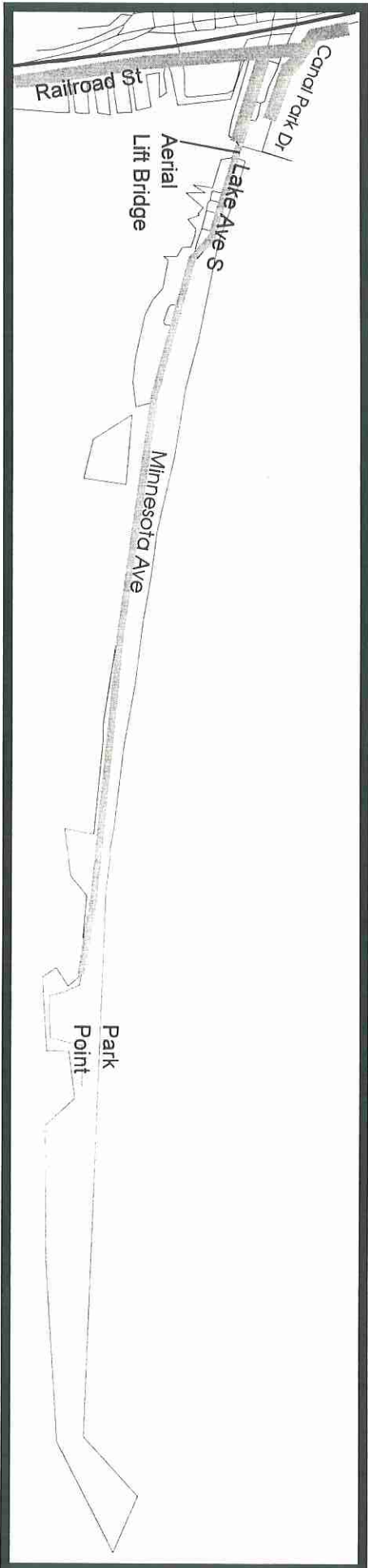
Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

CANAL PARK & MINNESOTA POINT



IMPLEMENTATION	
BEYOND 1999	
1996-1999	
1994-1996	
DASHED LINES REPRESENT ALTERNATE ROUTES	



MAP IS NOT TO SCALE

ARROWHEAD ROAD CORRIDOR

1. Rice Lake Road (Martin Road to 13th Street)

- a. **Bike route signage.** Designate Rice Lake Road (Martin Road to 13th Street) as a bike route. Rice Lake Road has wide shoulders that accommodate bicyclists. The signs will also alert motor vehicles that bicycles are present. The future bicycle/pedestrian path should be designated as the bike route adjacent to Arrowhead Road as a connector between north Rice Lake Road and South Rice Lake Road. Rice Lake Road (south of Pecan Street) has wide curb lanes with center turn lanes reducing passing on the right.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the Blackman Avenue/Arrowhead Road intersection southward to Rice Lake Road. This would provide a connection between the Arrowhead Road Corridor and the Central Entrance path.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

2. Blackman Avenue, Willow Avenue and Pecan Avenue (Rice Lake Road to Central Entrance path).

- a. **Bike route signage.** Designate Blackman Avenue (Rice Lake Road to Willow Avenue) and Willow Avenue (Blackman Avenue to Arlington Avenue) as bike routes. An alternative includes not designating these roadways as bike routes but include them on the future bikeways maps as preferred bicycling routes. See the Central Entrance Corridor map for map details.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Bike route signage.** Designate Pecan Avenue (Rice Lake Road to Central Entrance path) as a bike route. An alternative includes not designating this roadway as a bike route but include the roadway on the future bikeways maps as a preferred bicycling route. Traffic signals exist at the Pecan Avenue/Central Entrance intersection resulting in easy crossing of Central Entrance.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

3. Junction Avenue to Triggs Avenue

- a. **Bike route signage.** Designate the paved path between the Junction Avenue parking lot and Buffalo Street as a bike route. Special signage (route signs, stop signs, etc...) may be needed to route bicycles through the parking lot. Efforts should be made to reducing bicyclists maneuvering through the lot that do not require parking spaces to be eliminated. Pylons or barriers should be installed on the path entrance to prevent motor vehicle use.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and UMD

- b. **Bike route signage.** Designate Buffalo Street (Junction Avenue to Missouri Avenue), Missouri Avenue (Buffalo Street to Toledo Street) and Toledo Street (Missouri Avenue to Triggs Avenue) as a bike route. This route is parallel to Arrowhead Road. The entire length of Toledo Street has a relatively low change in grade compared to parallel options.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

4. Triggs Avenue to Haines Road

- a. **Bike route signage.** Designate Triggs Avenue (Toledo Street to Arrowhead Road) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the Toledo Street/Triggs Avenue intersection to Madison Avenue (near Kelly Circle) and then to Arlington Avenue. The path would then intersect the Arlington Avenue/Arrowhead Road intersection via the Arrowhead Road right of way. Exact path alignment is contingent upon wetlands location and property ownership. Bicycle/pedestrian traffic signal phasing will need to be installed at the Arrowhead Rd/Rice Lake Rd and Arrowhead Rd/Arlington Ave intersections. This path should be considered an alternative to 3.b.

Time frame: Implementation Beyond 1999 (dependent upon implementation of 3.b.)

Jurisdiction: City of Duluth

- c. **Bike route signage.** Designate Madison Avenue (Arrowhead Road to Blackman Avenue), Blackman Avenue (Madison Avenue to Barnes Road) and Barnes Road (Blackman Avenue to Rice Lake Road) as a bike route. An alternative includes not designating this roadway as a bike route but include the roadway on the future bikeways maps as a preferred bicycling route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- d. **Bike route signage.** Designate Arrowhead Road (Arlington Road to Haines Road) as a bike route and install signs.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- e. **Bike route signage.** Designate Blackman Avenue (MacFarlane Road to Arrowhead Road) and MacFarlane Road (Blackman Avenue to Howard Gnesen Road) as a bike route. This route provides a connection between Arrowhead Road and Howard Gnesen Road without using the Kenwood Avenue/Arrowhead Road intersection. An alternative includes not designating this roadway as a bike route but include the roadway on the future bikeways maps as a preferred bicycling route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

5. Arlington Avenue (Arrowhead Road to Trinity Road)

- a. **Bike route signage.** Designate Arlington Avenue (Arrowhead Road to Palm Street) as a bike route. The roadway currently has wide shoulders that accommodate bicyclists. The signs will also alert motor vehicles that bicycles are present. This segment is also shown on the Central Entrance Corridor map.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- b. **Improve shoulders.** Improve the shoulders by repaving and widening on Arlington Avenue (Palm Street to Trinity Road). The roadway should be designated as a bike route after the shoulders are improved. This segment is also shown on the Central Entrance Corridor map.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

6. Arrowhead Road (Arlington Avenue to Haines Road)

- a. **Bike route signage.** Designate and sign Arrowhead Road (Arlington Avenue to Haines Road) as a bike route. St. Louis County is planning to improve the roadway with curb and gutters. Designation as a bike route should occur after the improvements are made since the current roadway is not adequate for comfortable bicycle travel.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

7. Joshua Avenue (Arrowhead Road to Miller Trunk Highway)

- a. **Bike route signage.** Designate and sign Joshua Avenue (Arrowhead Road to Miller Trunk Highway) as a bike route. A continuous segment of Joshua Avenue currently does not exist. However, future plans call for Joshua Avenue to provide access between Arrowhead Road and Miller Trunk Highway. When this occurs, the roadway should also be designated and signed as a bike route.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

MARTIN ROAD CORRIDOR

1. Martin Road (Jean Duluth Road to Midway Road)

- a. **Bike route signage.** Designate Martin Road (Jean Duluth Road to Midway Road) as a bike route. Martin Road has wide shoulders that accommodate bicyclists. The signs will also alert motor vehicle traffic that bicycles are present.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

2. Arnold Road (Martin Road to Calvary Road)

- a. **Bike route signage.** Designate Arnold Road (Martin Road to Calvary Road) as a bike route. This route provides a connection between Martin Road and the upper Woodland neighborhood. An alternative includes not designating this roadway as a bike route but include the roadway on the future bikeways maps as a preferred bicycling route.

Time frame: 1994-1996 Implementation

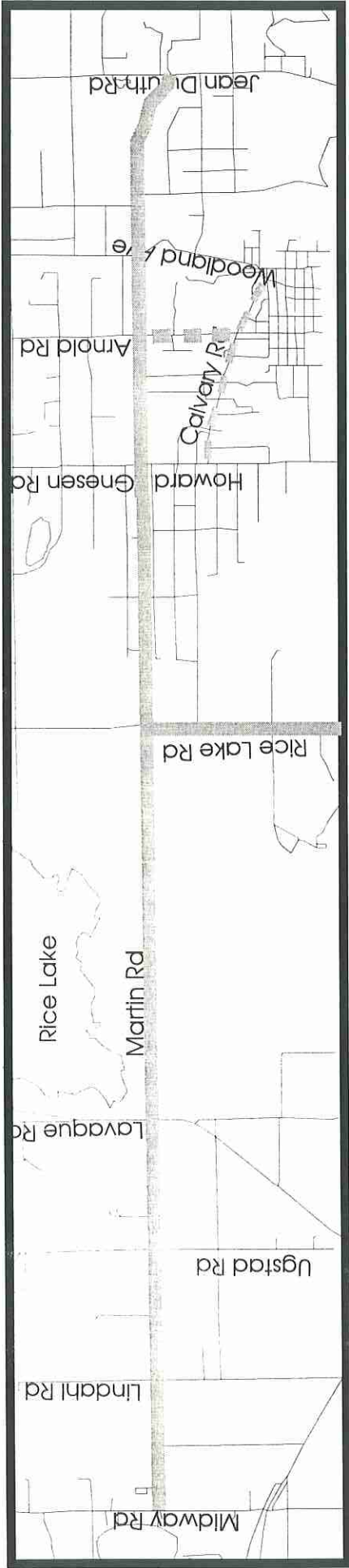
Jurisdiction: St. Louis County

3. Calvary Road (Howard Gnesen Road to Woodland Avenue)

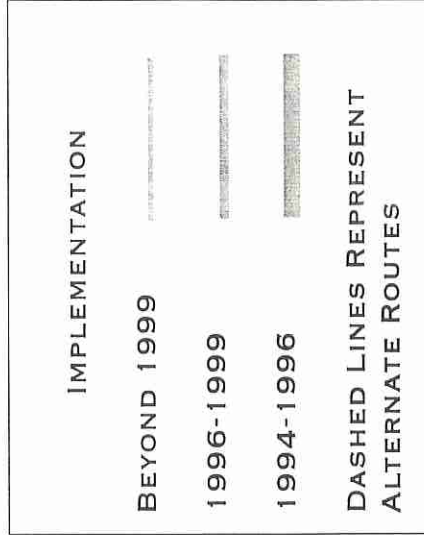
- a. **Bike route signage.** Designate Calvary Road (Howard Gnesen Road to Woodland Avenue) as a bike route after the roadway is improved. This route provides a connection between Howard Gnesen Road and Woodland Avenue. An alternative includes not designating this roadway as a bike route but include the roadway on the future bikeways maps as a preferred bicycling route.

Time frame: 1996-1999 Implementation

Jurisdiction: St. Louis County

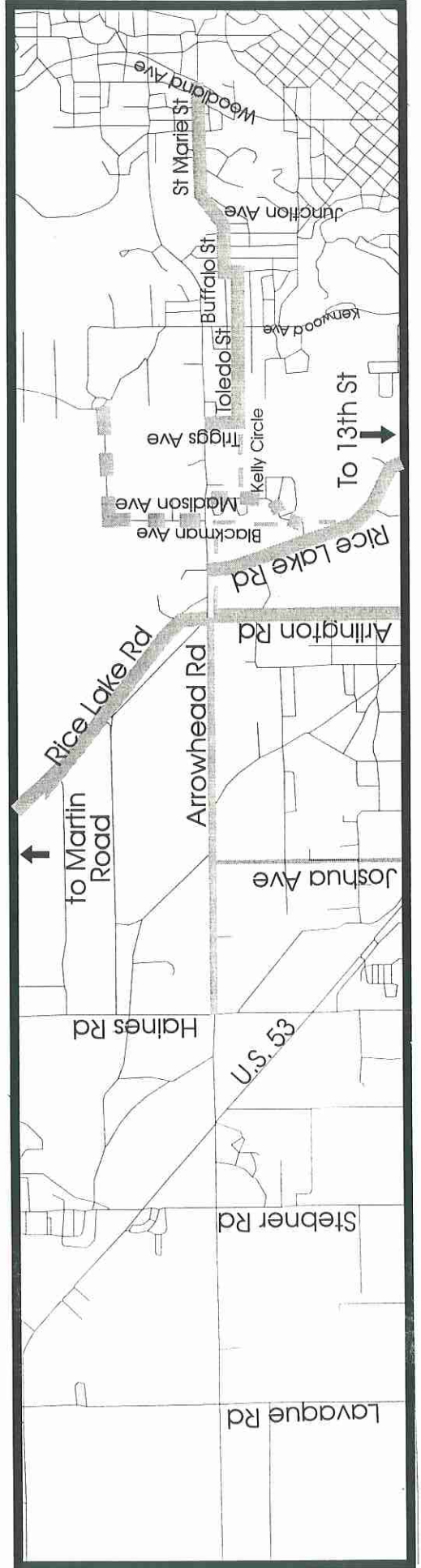


**MARTIN ROAD
CORRIDOR**



NOT TO SCALE

**ARROWHEAD ROAD
CORRIDOR**



DOWNTOWN STREETS CORRIDOR

1. Michigan Street (5th Avenue West to the I-35 bicycle/pedestrian overpass)

- a. **Curb cuts.** Provide necessary curb cuts to support safe access to the I-35 bicycle/pedestrian overpass and the existing bike path to the overpass. Bicyclists currently must use the sidewalk to travel west on Michigan Street because the street is designated as a one-way eastward.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Widen sidewalk.** Widen the sidewalk on the south side of Michigan Street to accommodate both bicycle and pedestrian traffic. The width of Michigan Street should be decreased between the I-35 exit and 5th Avenue West to accommodate the widened sidewalk. Step 3.c. should be immediately implemented after completion of this step.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- c. **Boulevard/barrier.** Install a boulevard or barrier to physically separate the one-way motor vehicle traffic on Michigan Street from the two-way bicycle and pedestrian traffic on the widened sidewalk/path.

Time frame: 1996-1999 Implementation

Jurisdiction: City of Duluth

2. 3rd Street (4th Avenue West to 24th Avenue East)

- a. **Bicycle lane.** Provide a bicycle lane with signage and lane markings at a time when the street is reconstructed or resurfaced and designate as a bike route. Space currently exists on the street for a bike lane. However, deteriorating pavement conditions, uneven curb gutter surfaces and poor drainage grates do not make the street conducive to bicycling under existing conditions. Further examination of bicyclists' needs will need to be conducted if traffic patterns change on this street (if the roadway accommodates both directions of traffic in the future).

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT and City of Duluth

3. 2nd Street (4th Avenue West to 24th Avenue East)

- a. **Bicycle lane.** Provide a bicycle lane with signage and lane markings at a time when the street is reconstructed or resurfaced and designate as a bike route. Space currently exists on the street for a bike lane. However, deteriorating pavement conditions, uneven curb gutter surfaces and poor drainage grates do not make the street conducive to bicycling under existing conditions. Further examination of bicyclists' needs will need to be conducted if traffic patterns change on this street (if the roadway accommodates both directions of traffic in the future).

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT and City of Duluth

4. 4th Street (Hawthorne Road to Mesaba Avenue)

- a. **Bike route signage.** Designate 4th Street (Hawthorne Road to Mesaba Avenue) as a bike route. 4th Street accommodates both directions of traffic and is more bicycle-user friendly than the parallel streets. This roadway segment is also shown on the Woodland Avenue Corridor-Superior Street Corridor Connection map.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County and City of Duluth

5. 4th Avenue West (4th Street to Superior Street)

- a. **Bike route signage.** Designate 4th Avenue West (4th Street to Superior Street) as a bike route. This roadway provides connections between 4th Street, 3rd Street, 2nd Street and Superior Street.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

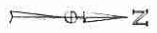
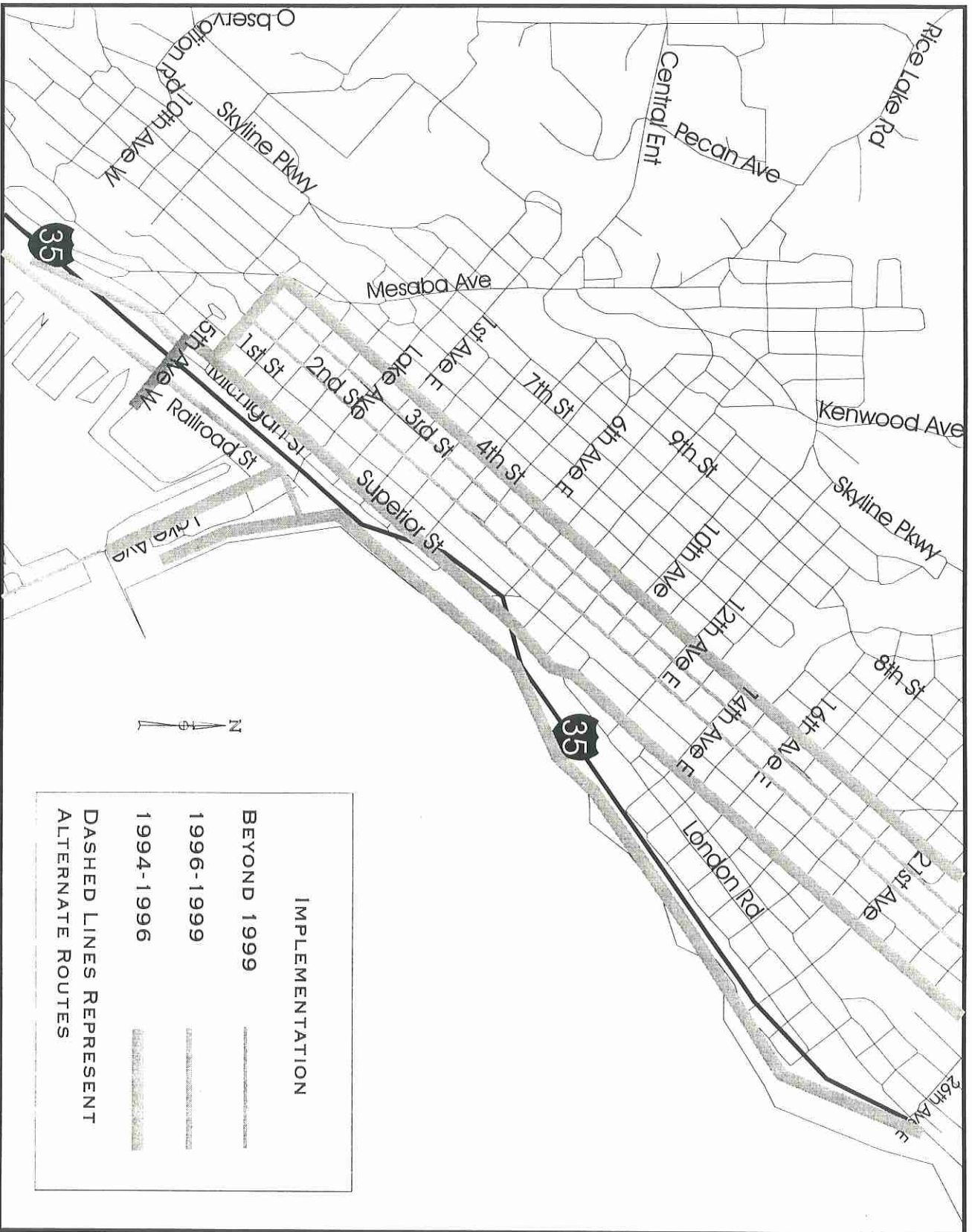
6. 5th Avenue West (Superior Street to Railroad Street)

- a. **Bike route signage.** Designate 5th Avenue West (Superior Street to Railroad Street) as a bike route. This route provides access to Michigan Street and the Railroad Street Bike Path that is located north of the DECC. Additional information to use caution or walk bicycles on the sidewalks should be considered on the future bikeways map and roadway signage as this roadway also provides access to freeway entrance and exit ramps.

Time frame: Implementation Beyond 1999 (due to examination of future development and anticipated increase in motor vehicle traffic)

Jurisdiction: City of Duluth

DOWNTOWN & LAKEWALK



IMPLEMENTATION

BEYOND 1999

1996-1999

1994-1996

DASHED LINES REPRESENT ALTERNATE ROUTES

MAP IS NOT TO SCALE

SNIVELY ROAD/JEAN DULUTH ROAD CORRIDOR

1. Glenwood Street (Jean Duluth Road to 60th Avenue East)

- a. **Bike route signage.** Designate Glenwood Street (Jean Duluth Road to 60th Avenue East) as a bike route. This route provides a connection between London Road and Jean Duluth Road.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Shoulders.** Improve the shoulders on Glenwood Street (Jean Duluth Road and 43rd Avenue East). Bicyclists will need to use the shoulder in this segment of the roadway since it is more rural and does not have curb lanes.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

2. 60th Avenue East (Glenwood Street to London Road)

- a. **Bike route signage.** Designate 60th Avenue East (Glenwood Street to London Road) as a bike route. This route provides a connection between London Road and Glenwood Street.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

3. Snively Road (Woodland Avenue to Glenwood Street)

- a. **Bike route signage.** Designate Snively Road (Woodland Avenue to Glenwood Street) as a bike route. This route provides a connection between Woodland Avenue and Glenwood Street

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- b. **Shoulders.** An alternative is designating and striping the shoulders as bike lanes contingent upon further study of bicycle use on the roadway.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- c. **Improve Lake View Drive.** Lake View Drive (St. Marie Street to Snively Road) should be designated as a bike route after it is resurfaced. This would provide a connection between St. Marie Street and Snively Road on a route other than Woodland Avenue.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

- d. **Curb-cuts.** Provide curb cuts at the Wallace Avenue cul-de-sac. Signage on Wallace Avenue (north termini to St. Marie Street) should be installed indicating that this is a "temporary" bike route until Lake View Drive is improved. Curb cuts are necessary on the Wallace Avenue cul-de-sac north of Arrowhead Road to provide bicycle access to the sidewalk on the east side of Woodland Avenue. The route would then follow the sidewalk to Snively Road. Signage or information on the map should inform cyclists to use caution and walk their bikes on the sidewalks.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and St. Louis County

4. Jean Duluth Road (Glenwood Street to Martin Road)

- a. **Bike route signage.** Designate Jean Duluth Road (Glenwood Street to Martin Road) as a bike route. This route provides a connection between Martin Road and Glenwood Street.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- b. **Shoulders.** The shoulders should be repaved and widened to accommodate bicyclists.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

5. 43rd Avenue East (Glenwood Street to London Road)

- a. **Bike route signage.** Designate 43rd Avenue East (Glenwood Street to London Road) as a bike route. This route provides a connection from Glenwood Street to London Road.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

6. Old Marshall Road (Amity Street to Maxwell Road)

- a. **Recreational route.** An optional recommendation is to indicate that Old Marshall Road (adjacent to Amity Creek) is a preferred recreational route on the bikeways map.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

7. Snowmobile trail (Lester River Road to Oak Street)


- a. **Recreational route.** An optional recommendation is to indicate that the snowmobile trail (Lester River Road to Oak Street) is a preferred recreational route on the bikeways map.


Time frame: 1994-1996 Implementation


Jurisdiction: City of Duluth

SNIVELY ROAD JEAN DULUTH ROAD

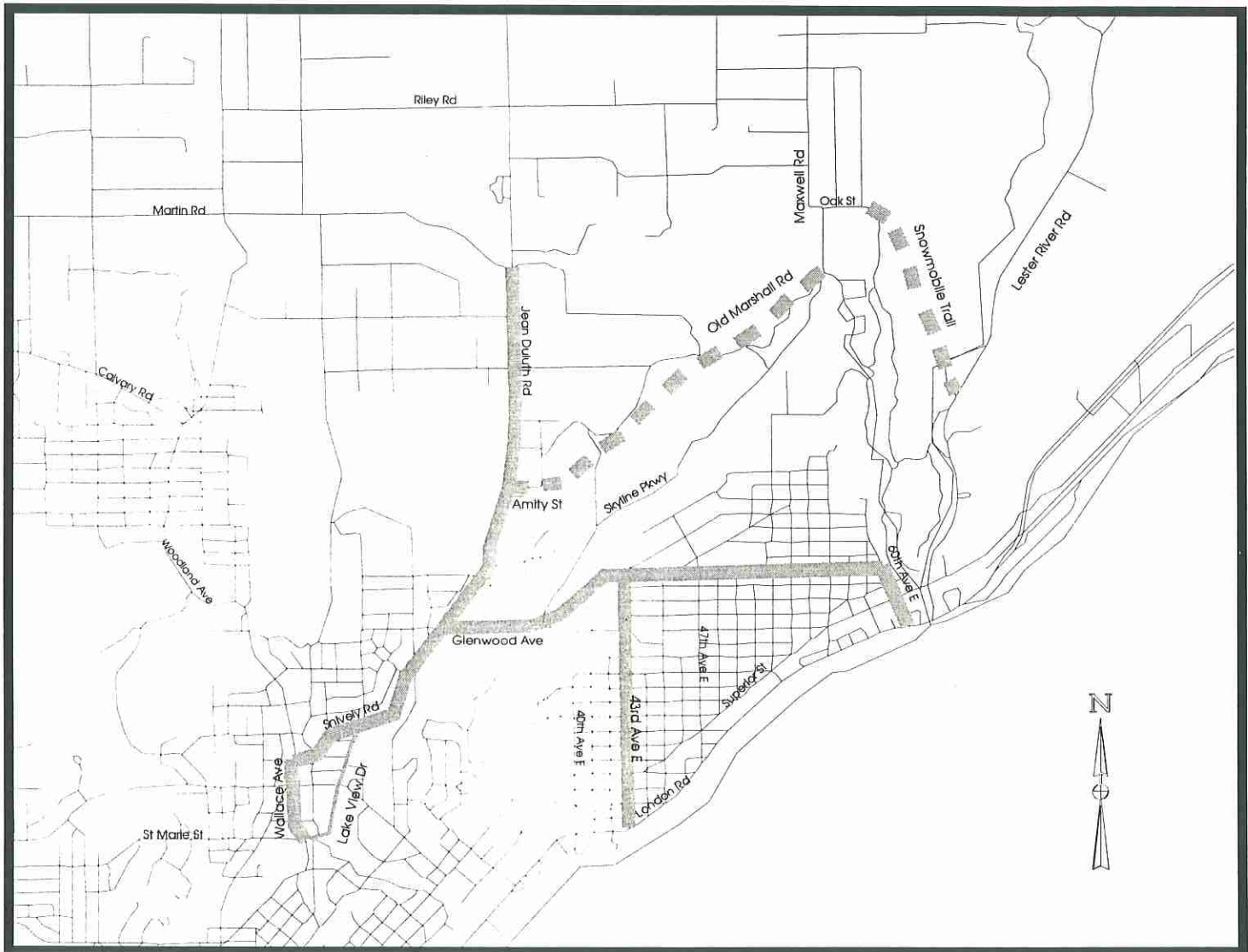
IMPLEMENTATION

BEYOND 1999 

1996-1999 

1994-1996 

**DASHED LINES REPRESENT
ALTERNATE ROUTES**



MAP IS NOT TO SCALE

WEST DULUTH, MORGAN PARK, & GARY-NEW DULUTH CORRIDORS

1. Munger Trail Extension (Pulaski Street to Railroad Street)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian extension of the Munger trail (Pulaski Street to Railroad Street). The path should be located on or near abandoned railroad right-of-way. This extension would provide bicyclists and pedestrians an opportunity to access Munger Trail from downtown Duluth and Lakewalk without needing to ride on heavily travelled arterials. The path should be developed for bicycle and pedestrian use only.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Duluth
- b. **Bike route signage.** Designate the existing portion of Munger Trail as a bike route. This route provides a connection from Carlton to Duluth.
Time frame: 1994-1996 Implementation
Jurisdiction: DNR and/or City of Duluth
- c. **Railroad Street resurfacing.** Improve the surface of Railroad Street. Bike lanes (or off road path) are recommended as Railroad Street will connect the Munger Trail with Lakewalk. Railroad Street should be designated as a bike route after reconstruction.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

2. Bong Bridge

- a. **Bike route signage.** Install appropriate directional signage on nearby designated bike routes to direct cyclists to the Bong Bridge bicycle path. Designate the Bong Bridge bicycle path as a bike path.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth, St. Louis County, and/or Mn/DOT

3. Michigan Street/Carlton Street/Superior Street/1st Street (Glen Place to Grand Avenue)

- a. **Bike route signage.** Designate the roadways listed below as bike routes as they provide connections to Downtown Duluth and West Duluth. The following roadway segments are shown on the West End and Piedmont Heights Corridor map.

Time frame: 1994-1996 Implementation

Jurisdiction: (listed after roadway segment)

Michigan Street (Glen Place to Carlton Street), *Mn/DOT & City of Duluth*

Carlton Street (Michigan Street to Grand Avenue), *Mn/DOT & City of Duluth*

Superior Street (13th Avenue West to 17th Avenue West), *Mn/DOT & City of Duluth*

19th Avenue West (Michigan Street to 1st Street), *City of Duluth*

1st Street/Truck Center Road (17th Avenue West to 30 1/2 Avenue West), *Mn/DOT and City of Duluth*

30 1/2 Avenue West (Truck Center Road to 3rd Street), *City of Duluth*

3rd Street (30 1/2 Avenue West to 34th Avenue West), *City of Duluth*

- b. **Bike lanes.** Develop bike lanes when resurfacing or restriping occurs on the aforementioned roadway segments. Further study of bicycle use should be conducted on these roadways to determine the feasibility of designating lanes.

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT and City of Duluth

4. 8th Street (40th Avenue West to 61st Avenue West) & 61st Avenue West (8th Street to Cody Street)

- a. **Bike route signage.** Designate 8th Street (40th Ave W to 61st Ave W) & 61st Ave W (8th Street to Cody Street) as a bike route. This route provides a connection from 40th Avenue West to Cody Street on a roadway other than Grand Avenue.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

5. 59th Avenue West (Highland Street to Raleigh Street)

- a. **Bike route signage.** Designate 59th Avenue West (Highland Street to Raleigh Street) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

6. Future DWP path (Keane Park to Commonwealth Avenue)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian on the abandoned railroad right of way (Keane Park to Commonwealth Avenue) This path would provide bicyclists and pedestrians north of Grand Avenue to access Keane Park, the zoo and the Munger Trail. The path should be developed for bicycle and pedestrian use only.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Duluth

7. Highland Street/Vinland Street (8th Street to city limits)

- a. **Bike route signage.** Designate Highland Street/Vinland Street (8th Street to city limits) as a bike route. This route provide access between West Duluth and Proctor. This is recommended after the roadway has been improved.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Duluth and St. Louis County

8. Grand Avenue/Commonwealth Avenue (Carlton Avenue to city limits)

- a. **Bike route signage.** Designate as a bike route. This route provide access between West End, West Duluth, Morgan Park and Gary/New Duluth. The roadway segment south of Fillmore Street will be considered part of Alex Laveau Trail.
Time frame: 1994-1996 Implementation
Jurisdiction: Mn/DOT & City of Duluth

9. Becks Road (Commonwealth Avenue to Midway Road)

- a. **Bike route signage.** Designate as a bike route. This route provide access between Morgan Park, Gary/New Duluth, the Munger Trail and Midway Road.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County

10. Alex Laveau proposed route (Fillmore Street to 106th Avenue West/108th Avenue West)

- a. **Bike route signage.** Designate as a bike route. This route will provide access between Morgan Park, Gary/New Duluth and the Munger Trail.
Time frame: 1996-1999 Implementation
Jurisdiction: Mn/DOT and/or City of Duluth

11. Jeswold Street/Michigan Street/Colalillo Drive/Ramsey Street (Carlton Street to Central Avenue)

- a. **Bike route signage.** Designate the roadways listed below as bike routes as they provide connections to West Duluth, West End and the Bong Bridge bicycle path.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

Jeswold Street (Carlton Street to Michigan Street),
Michigan Street (Jeswold Street to 46th Avenue West),
46th Avenue West (Michigan Street to Grand Avenue),
Colalillo Drive (46th Avenue West to Ramsey Street)
Ramsey Street (Colalillo Drive to Central Avenue)

12. Central Avenue (8th Street to Raleigh Street)

- a. **Bike route signage.** Designate as a bike route. This route will provide access between 8th Street and Raleigh Street.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

13. 40th Avenue West (Michigan Street to Skyline Parkway)

- a. **Widen shoulders.** Widen the shoulders on 40th Avenue West (Skyline Pkwy to 8th Street) to accommodate bicycle traffic on the steep grade.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

- b. **Bike route signage.** Designate as a bike route. This route will provide access between Skyline Parkway and Michigan Street. This is recommended after the roadway has been improved.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County an City of Duluth

14. 4th Street (37th Avenue West to 54th Avenue West)

- a. **Bike route signage.** Designate as a bike route. This route will provide access between Wheeler Field, Denfeld High School and West Duluth. This route should be considered and alternative to Grand Avenue.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian from the 4th Street/37th Avenue West intersection to the Wheeler Field. An informal bicycle path exists near Wheeler Field and 37th Avenue West connecting 4th Street with Grand Avenue.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Duluth
- c. **Bike route signage.** Designate 54th Ave W (4th Street to Elinor Street) and Elinor Street (Grand Avenue to Central Ave) as a bike route. This route will provide connectivity to other bike routes. This route should be considered an alternative to Grand Avenue.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

15. 62nd/63rd/64th Avenues West (Highland Street to Raleigh Street)

- a. **Bike route signage.** Designate the roadways listed below as bike routes as they provide access between Highland Street and Raleigh Street.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

62nd Avenue West (Highland Street to Tacony Street)
 Tacony Street (62nd Avenue West to 64th Avenue West)
 64th Avenue West (Tacony Street to Cody Street)
 63rd Avenue West (Cody Street to Raleigh Street)

16. Raleigh Street (Grand Avenue to Central Avenue)

- a. **Bike route signage.** Designate as a bike route as it provides access between Grand Avenue and Central Avenue an offers an alternate route through the Grand Avenue/I-35 area.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth
- b. **Keane Creek off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian from Central Avenue to the old Arrowhead Bridge area (Keane Creek Bike Path). The path will serve as an access to the future extension of the Munger Trail.
Time frame: 1996-1999 Implementation
Jurisdiction: City of Duluth

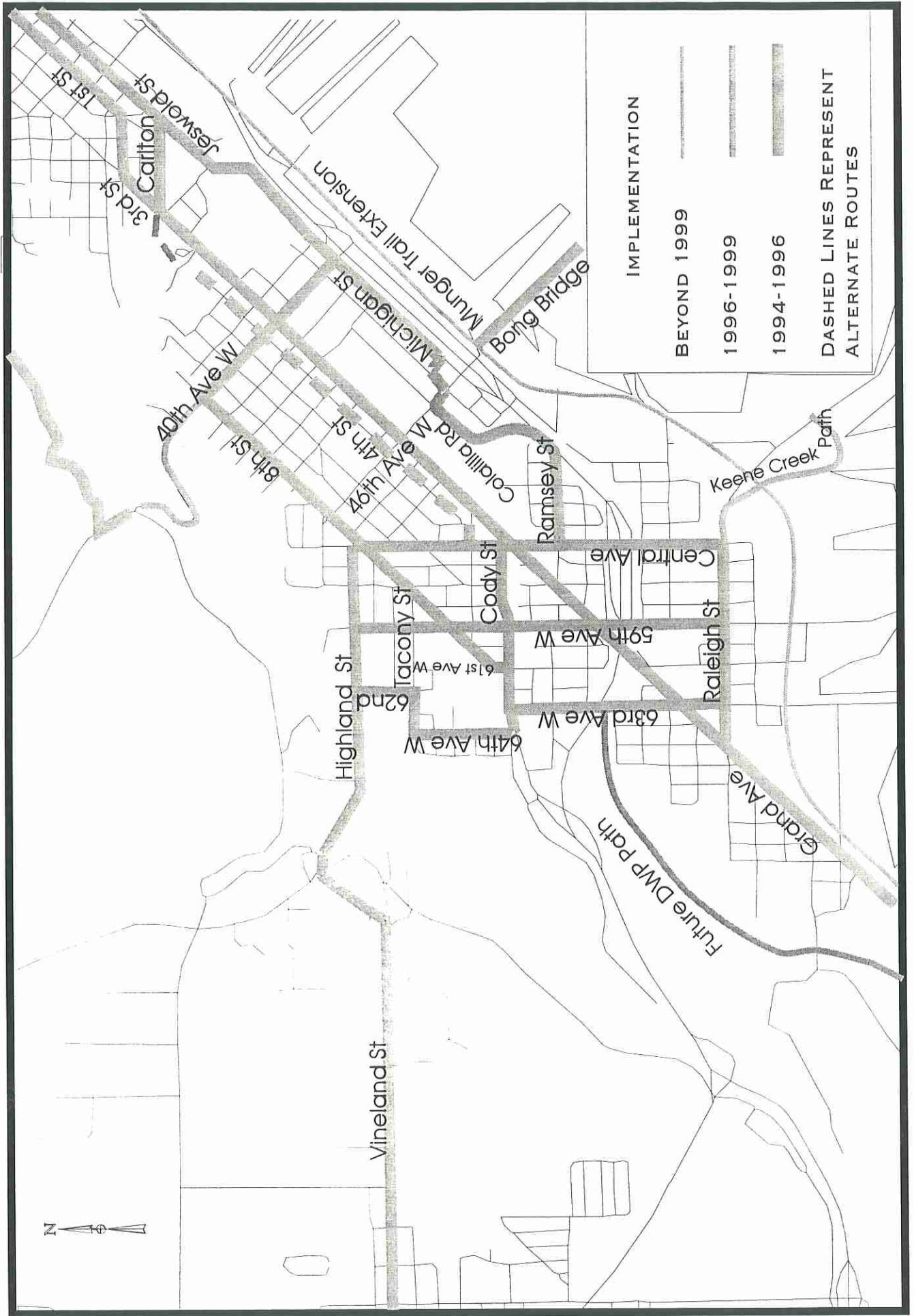
17. Cody Street (64th Avenue West to Grand Avenue)

- a. **Bike route signage.** Designate as a bike route as it provides access between Grand Avenue and 64th Avenue West.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

WEST DULUTH



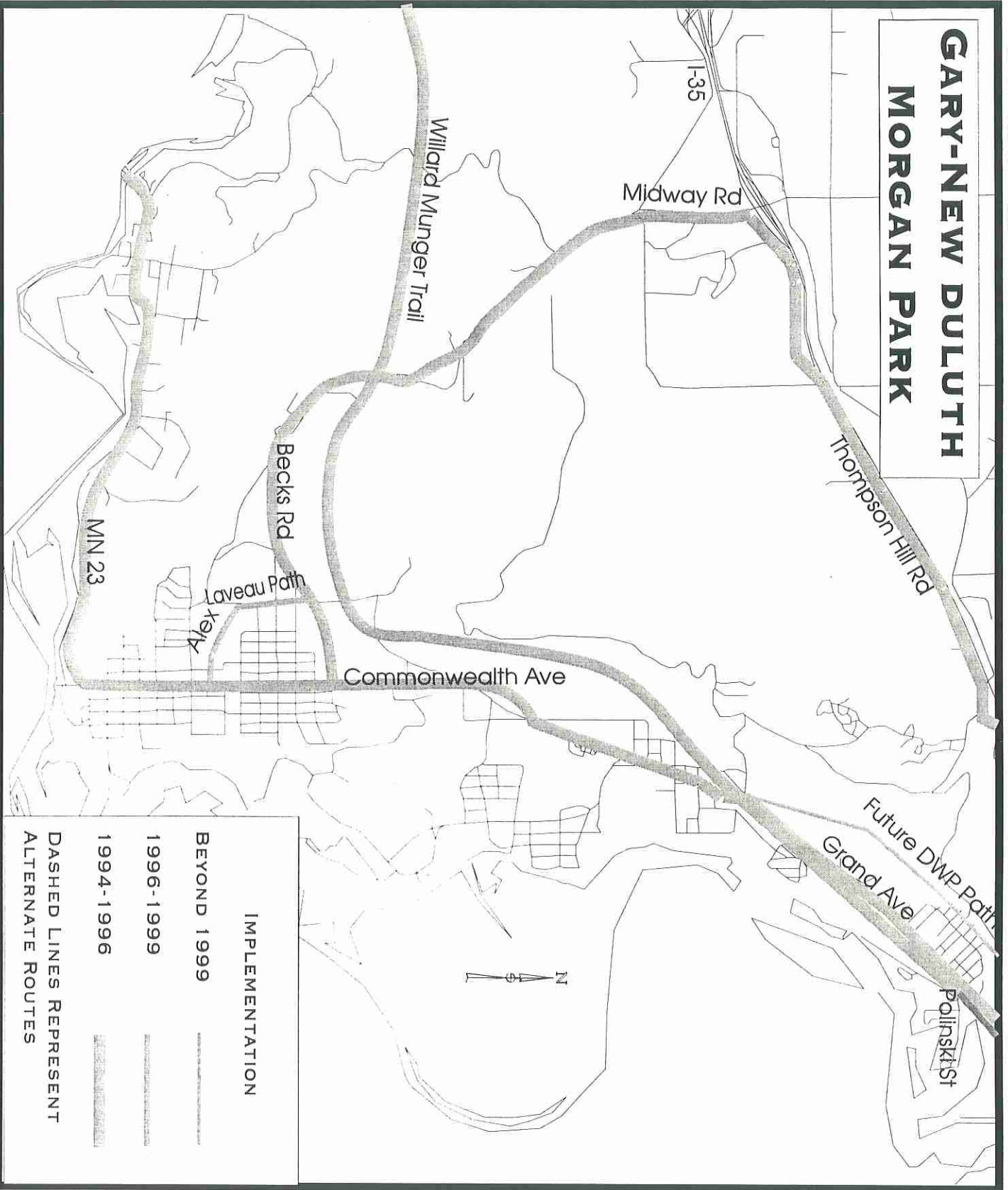
IMPLEMENTATION

- BEYOND 1999
- 1996-1999
- 1994-1996

DASHED LINES REPRESENT ALTERNATE ROUTES



GARY-NEW DULUTH MORGAN PARK



MAP IS NOT TO SCALE

CENTRAL ENTRANCE CORRIDOR

1. Central Entrance (Basswood Avenue to Trinity Road)

- a. **Bike route signage.** Designate Palm Street (Basswood Avenue to Robin Avenue), Robin Avenue (Palm Street to Orange Street) and Orange Street (Robin Avenue to Anderson Road) as bike routes to provide access to future bike facilities between Anderson Road and Trinity Road

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Anderson Road to Trinity Road in future development. The bicycle path should be located in a direct line west of the Orange Street/Anderson Road intersection. Traffic signals are recommended to be considered on Trinity Road to provide easier access to Miller Hill Mall (when development of the aforementioned site warrant a need for traffic signals on Trinity Road).

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

2. Central Entrance/Joshua Avenue intersection

- a. **Bicycle/pedestrian crossing.** Develop a bicycle/pedestrian crossing of the intersection with appropriate signal phasing, curb cuts and sidewalks.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth and Mn/DOT

3. Myrtle Street/Sundby Road (Basswood Avenue to Sundby Road cul-de sac)

- a. **Bike route signage.** Designate Myrtle Street and Sundby Road as a bike route to provide access to the Stone Ridge Mall area.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

- b. **Sundby Road off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the end of the Sundby Road cul-de-sac northerly to Stone Ridge Mall to provide access to the mall.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Duluth

4. Stone Ridge Mall/Cottonwood Road

- a. **Stone Ridge Mall off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the northern perimeter of Stone Ridge Mall to provide safe bicycle/pedestrian access to Joshua Avenue.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Duluth
- b. **Bike route signage.** Designate Cottonwood Road (Joshua Ave to Miller Hill Mall north entrance) as a bike route to provide access between the Stone Ridge Mall area and the Miller Hill Mall area.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

5. Basswood Avenue (Palm Street to Myrtle Street)

- b. **Bike route signage.** Designate as a bike route. Basswood Avenue has existing traffic signals at the intersection with Central Entrance providing cyclists an opportunity for easy crossing of the intersection.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Duluth

6. Improve Central Entrance/Mesaba Avenue intersection for bicycle use

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the intersection of Mesaba Avenue and 13th Street to Pecan Avenue. The path should be located south of the Marshall School ballfields (possibly Mn/DOT property) and avoid environmentally sensitive areas. Appropriate signage to route bicyclists crossing the Mesaba Avenue/Central Entrance Avenue to Pecan Avenue should also be installed.
Time frame: 1996-1999 Implementation
Jurisdiction: Mn/DOT and/or City of Duluth
- b. **Bicycle/pedestrian overpass/underpass.** Develop a bicycle/pedestrian overpass/underpass west of the Mesaba Avenue/Central Entrance intersection. The overpass or underpass would cross the intersection in an area that would be feasible and that connects with the overall route system. This option is extremely expensive to implement. The preferred option is 6.a.
Time frame: Implementation Beyond 1999
Jurisdiction: Mn/DOT

- c. **Curb cuts and signage.** Curb-cuts, bike crossing signs and painted markings should be installed or provided at locations that would offer bike route connectivity. Specific locations have not been identified, however once bike routes have been developed in the Central Entrance/Mesaba Avenue intersection vicinity, the following areas should accommodate bicycles. These areas include the Skyline Avenue/Mesaba Avenue intersection and the 11th Street cul-de-sac west of Central Entrance. Curb-cuts, bike crossing signs and painted markings provide additional safety for bicyclists and pedestrians near the intersection.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT, St. Louis County and/or City of Duluth

- d. **Bicycle traffic signal phasing.** Install bicycle/pedestrian phasing to the traffic signals at the Mesaba Avenue/Central Entrance intersection.

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT and St. Louis County

7. Central Entrance Path (West 13th Street to Basswood Avenue)

- a. **Develop maintenance plan for Central Entrance Path.** A maintenance plan should be developed by the City of Duluth to repair and sweep the Central Entrance bike path and provide for continuous maintenance. The path should be designated as a bike route after the maintenance plan is implemented.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

ANDERSON ROAD CORRIDOR

1. Anderson Road (Sundby Street to Haines Road)

- a. **Bicycle route signage.** Designate as a bicycle route. This would provide access between the Central Entrance route and the Piedmont area. Traffic signals exist at the Anderson Road/Central Entrance intersection providing access across Central Entrance. This segment is shown on the Central Entrance Corridor map.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

CENTRAL ENTRANCE CORRIDOR

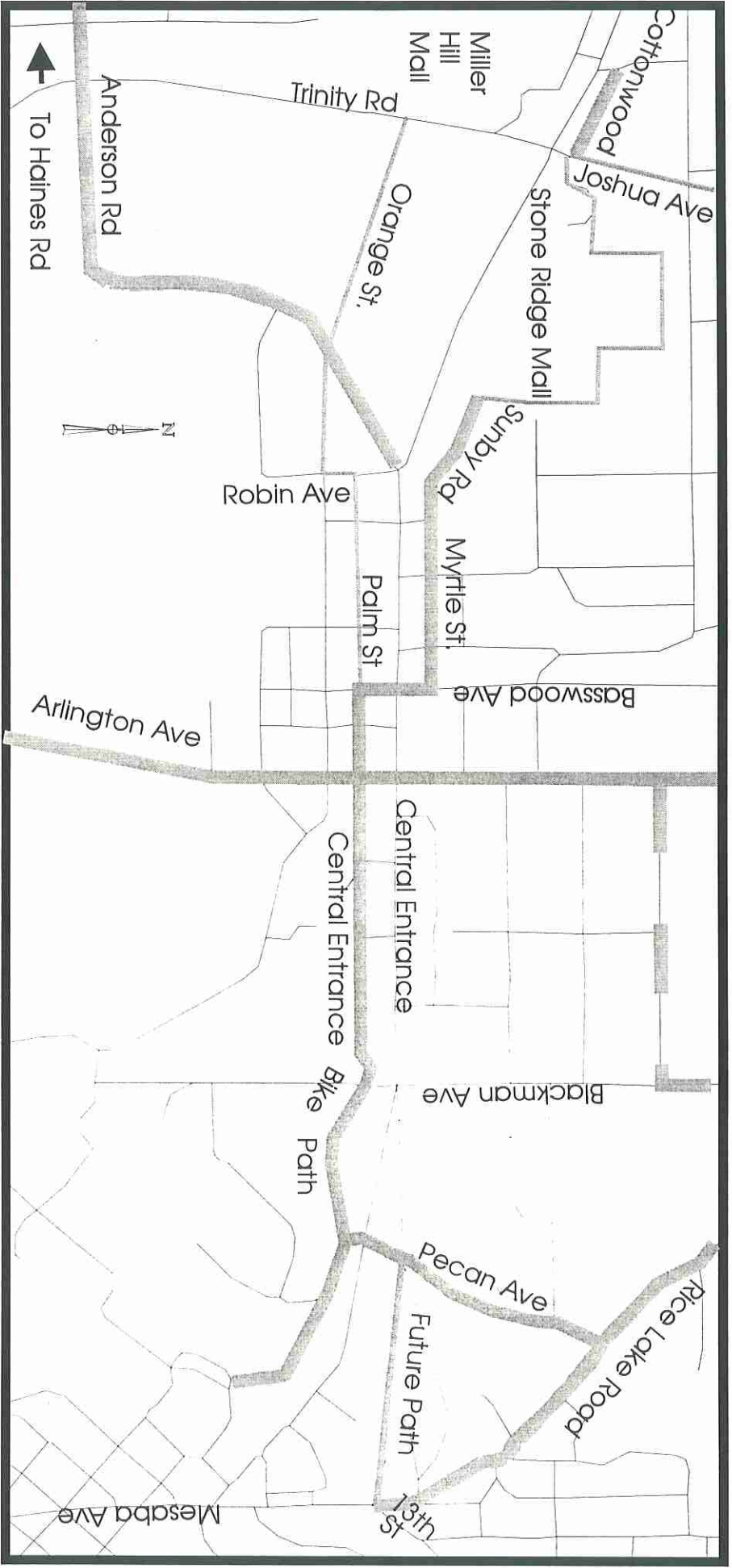
IMPLEMENTATION

BEYOND 1999

1996-1999




1994-1996

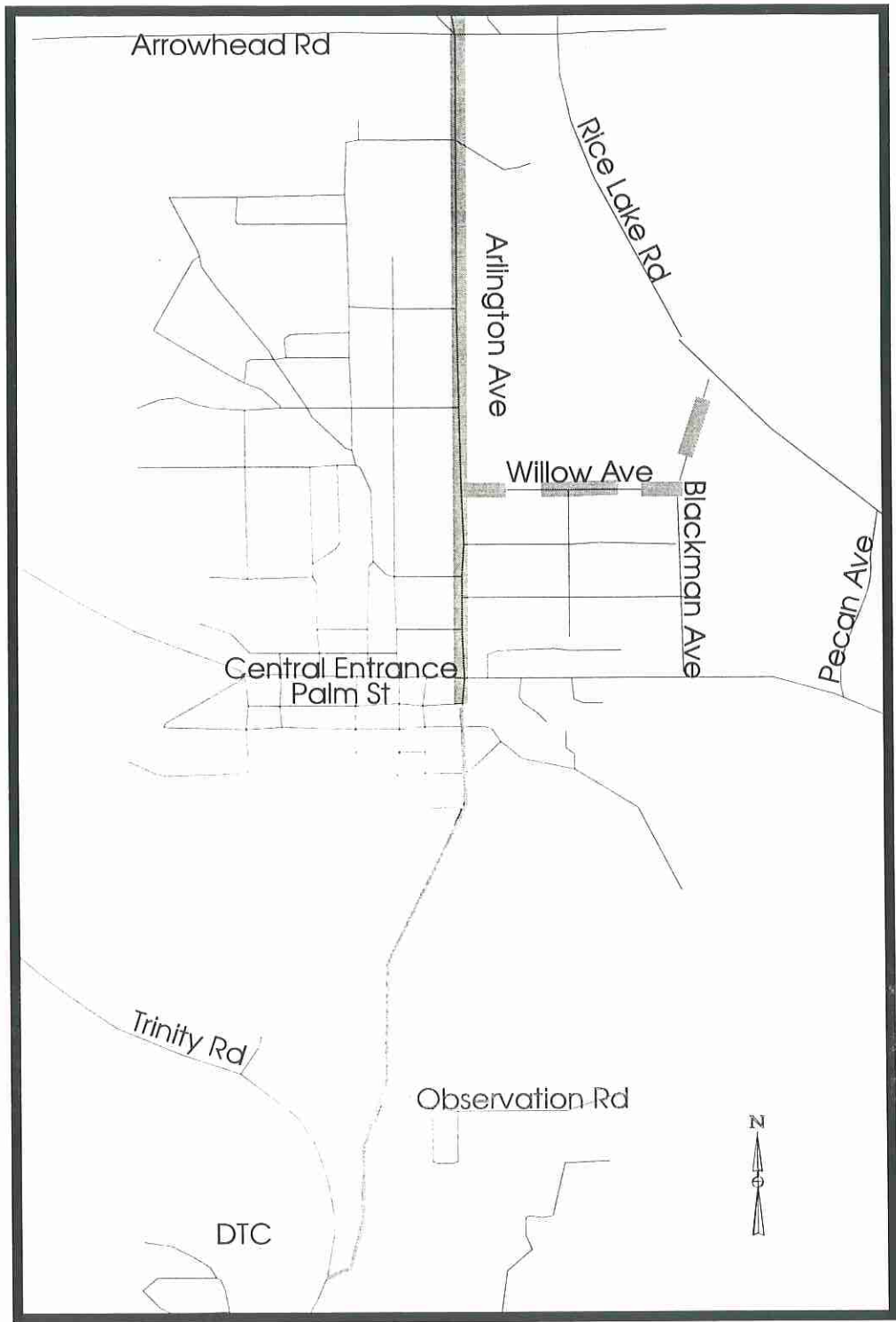
DASHED LINES REPRESENT
ALTERNATE ROUTES



MAP IS NOT TO SCALE

ARLINGTON AVENUE CORRIDOR

IMPLEMENTATION	
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DASHED LINES REPRESENT ALTERNATE ROUTES	



HOWARD GNESEN ROAD CORRIDOR

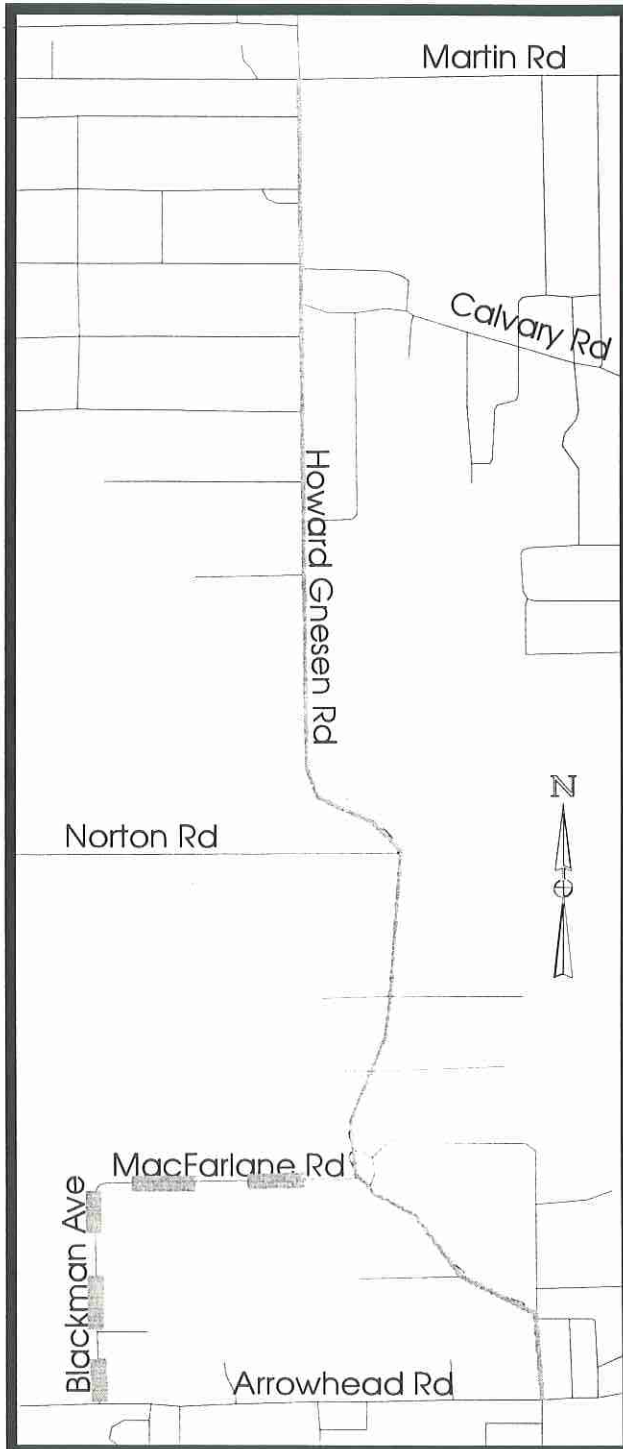
IMPLEMENTATION

BEYOND 1999 

1996-1999 

1994-1996 

DASHED LINES REPRESENT
ALTERNATE ROUTES



HOWARD GNESEN ROAD CORRIDOR

1. Howard Gnesen Road (Arrowhead Road to Martin Road)

- a. **Shoulder improvement.** Improve and widen the shoulders to accommodate bicyclists. In urban areas of the roadway, wide curb lanes should be provided. The roadway should be designated as a bike route after shoulders are improved.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

WEST END/PIEDMONT HEIGHTS CORRIDOR

1. Trinity Road (Skyline Parkway to Arlington Avenue)

- a. **Bike route signage.** Designate as a bicycle route. The roadway provides access between Piedmont Heights and Duluth Heights.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT

- b. **Provide bike lane.** Restripe the northbound lane to accommodate the northbound/uphill bicycle traffic to provide a wide shoulder or bike lane. Trinity Road currently accommodates two lanes of northbound traffic.

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT

2. Morris Thomas Road (Chambersburg Road to Haines Road)

- a. **Bike route signage.** Designate as a bike route. This route provides access between Hermantown and Duluth.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

3. Skyline Pkwy (40th Avenue West to 5th Avenue West) & 9th Street (5th Avenue West to Mesaba Avenue)

- a. **Bike route signage.** Designate as a bike route. In addition, designate Enger Park Rd as a bike route. This route provides access to Enger Park from West Duluth and downtown Duluth.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

4. Decker Road/Piedmont Avenue/Chambersburg Road

- a. **Bike route signage.** Designate the following roadways as bicycle routes. These roadways provide access between the Miller Hill Mall area and the Piedmont area.

Time frame: 1994-1996 Implementation

Jurisdiction: (listed after following roadway segment)

Decker Road (Mountain Shadow Drive to Piedmont Avenue), *City of Duluth*

Piedmont Avenue (Decker Road to Chambersburg Rd), *St. Louis County*

Chambersburg Rd (Piedmont Avenue to Hutchinson Rd), *City of Duluth*

5. Hutchinson Road (Chambersburg Road to Piedmont Avenue) and Piedmont Avenue (Hutchinson Road to Skyline Parkway)

- a. **Bike route signage.** Designate as a bike route. This route has a more casual grade and less motor vehicle traffic than Piedmont Avenue does in this area.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth and St. Louis County

6. Lincoln Parkway (Skyline Parkway to 3rd Street)/26th Avenue West (Michigan Street to 3rd Street)

- a. **Bike route signage.** Designate as a bike route. This route provides access between the Piedmont/Skyline Parkway area and the West End.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

7. Piedmont Avenue/Skyline Parkway intersection

- a. **Future bikeway facilities.** Provide for and design safe bicycle/pedestrian crossings and facilities when the intersection is improved and/or reconstructed.

Time frame: Implementation Beyond 1999

Jurisdiction: Mn/DOT

- b. **Bikeways map.** Specially indicate safety precautions on the map. This includes stating that bicyclists are advised to cross streets individually in place of the entire intersection at once. A special indicator should be placed on the bikeways map informing bicyclists that extreme caution should be used when traveling through the intersection and that alternate routes that avoid the intersection are encouraged.

Time frame: 1996-1999 Implementation

Jurisdiction: MIC

- c. **Bike route signage.** Install additional bike route signage at the intersection and on adjacent roadways. These signs should be placed near the intersection to alert motorists that bicyclists are present.

Time frame: 1994-1996 Implementation

Jurisdiction: Mn/DOT, St. Louis County and/or City of Duluth

8. West 1st Street (4th Avenue West to Glen Place) & Glen Place (West 1st Street to Michigan Avenue)

- a. **Bike route signage.** Designate as bike routes. This route provides access between upper Mesaba Avenue and Michigan Street while avoiding the Mesaba Ave/I-35 exit ramp area.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

9. West 4th Street (Mesaba Avenue to 10th Avenue West) & 10th Avenue West (West 4th Street to Skyline Parkway)

- a. **Bike route signage.** Designate as a bike route. This route provides access to Skyline Parkway.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Duluth

WEST END & PIEDMONT HEIGHTS CORRIDORS

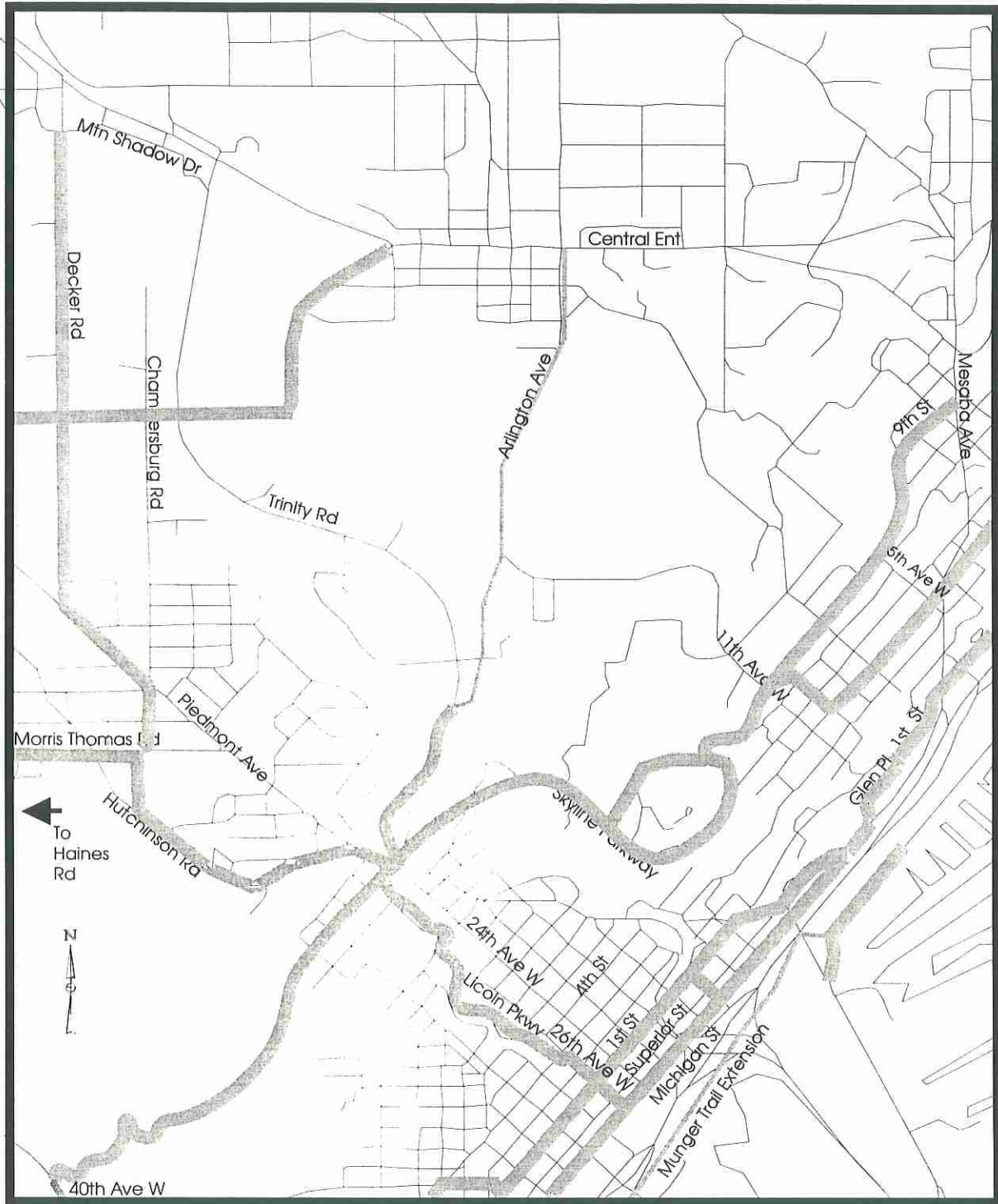
IMPLEMENTATION

BEYOND 1999

1996-1999

1994-1996

DASHED LINES REPRESENT
ALTERNATE ROUTES



City of Hermantown

Route Recommendations

1. Maple Grove Road (Haines Road to Solway Road)

- a. **Improve shoulders.** Improve the shoulders on the remaining areas of Maple Grove Road. Portions of Maple Grove Road have been improved to include wide shoulders/curb lanes. Other segments of Maple Grove Road are under construction (Lavaque Road to Midway Road). Maple Grove Road should be designated as a bike route after construction.
Time frame: 1996-1999 Implementation
Jurisdiction: St. Louis County
- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path north of Maple Grove Road near the Minnesota Power easement. The path would be located between Haines Road and .5 mile east of Midway Road. This would offer an alternative to Maple Grove Road
Time frame: Implementation Beyond 1999
Jurisdiction: City of Hermantown

2. Haines Road (Morris Thomas Road to Maple Grove Road)

- a. **Bike route signage.** Designate as a bike route. The roadway currently has wide shoulders/curb lanes to accommodate bicycles.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County

3. Arrowhead Road (Haines Road to Solway Road)

- a. **Bike route signage.** Designate as a bike route (Stebner Rd to Solway Rd).
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County and City of Hermantown

- b. **Evaluation of bicycle/pedestrian phasing.** Improve the intersection with US Hwy 53. Evaluate pedestrian/bicycle traffic signal phasing. Designate Arrowhead Road (Haines Rd to Stebner Rd) as a bike route.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County, Mn/DOT and City of Hermantown

4. Midway Road (Martin Road to Becks Road) northern segment within City of Duluth, southern segment within Midway Township.

- a. **Bike route signage.** Designate as a bike route. The roadway has wide shoulders that accommodate bicycles.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path adjacent to the roadway. However, the primary option is to use the roadway.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County and/or City of Hermantown

5. Lavaque Road (Morris Thomas Road to Proctor city limits)

- a. **Bike route signage.** Designate as a bike route when this segment is reconstructed. This segment currently is not bicycle-user friendly. Wide shoulders should be provided with consideration for bike lane striping.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

6. Ugstad Road/Lavaque By-pass (St. Louis River Road to Martin Road)

- a. **Bike route signage.** Designate Ugstad Road (St. Louis River Rd to Arrowhead Rd) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Hermantown

- b. **Traffic signal phasing.** Evaluate pedestrian/bicycle signal phasing or crossings at the US Hwy 53 intersection. Designate Ugstad Road (Arrowhead Road to Martin Road) as a bike route after traffic signal phasing improvements have been made.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Hermantown, St. Louis County and Mn/DOT

7. St. Louis River Road (Midway Road to Ugstad Road)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path to provide a connection between US Hwy 2 and Ugstad Road.
Time frame: Implementation Beyond 1999
Jurisdiction: St. Louis County and/or City of Hermantown
- b. **Bike route signage.** Designate St. Louis River Road (Midway Road to US Hwy 2) as a bike route.
Time frame: Implementation Beyond 1999
Jurisdiction: St. Louis County

8. Morris Thomas Road (Haines Road to Midway Road)

- a. **Bike route signage.** Designate as a bike route. Morris Thomas Road is also recommended as a bike route in Duluth to Chambersburg Road. Additional signage should also be installed near the intersection of Morris Thomas Road and US Hwy 2 to indicate Morris Thomas Road is a bike route. US Highway 2 should be used to reach Midway Road.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County, Mn/DOT and Hermantown

9. Solway Road (Maple Grove Road to Seville Road) & Seville Road (Solway Road to Midway Road)

- a. **Bike route signage.** Designate as a bike route. This route provides a north/south connection in western Hermantown. It also serves as an alternative to using Midway Road.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County
- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path to provide a connection between Maple Grove Road and US Hwy 2.
Time frame: Implementation Beyond 1999
Jurisdiction: St. Louis County/City of Hermantown

10. Future Western Hermantown Bike Path

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path in the utility easement located near Midway Rd (US Hwy 2 to Seville Rd) to provide an off-road recreational type trail in west Hermantown.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Hermantown

11. Stebner Road (Anderson Road to Arrowhead Road)

- a. **Bike route signage.** Designate as a bike route. This route provides a connection between Anderson Road and Arrowhead Road.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Hermantown

12. Anderson Road (Haines Road to Stebner Road)

- a. **Bike route signage.** Designate as a bike route. Anderson Road is also recommended as a bike route in Duluth.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Hermantown

13. Okerstrom Road (Morris Thomas Road to south termini)

- a. **Bike route signage.** Designate as a bike route. This route provides a connection to the park area.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Hermantown

HERMANTOWN

IMPLEMENTATION

BEYOND 1999 

1996-1999 

1994-1996 

DASHED LINES REPRESENT
ALTERNATE ROUTES



MAP IS NOT TO SCALE

City of Proctor

Route Recommendations

1. 2nd Avenue/Lavaque Road (2nd Street East to north city limits)

- a. **Bike route signage.** Designate Lavaque Road (St. Louis River Road to north city limits) as a bike route when this segment is reconstructed. This segment currently is not bicycle-user friendly. Wide shoulders, improved curves and sight lines should be provided with consideration for bike lane striping.

Time frame: Implementation Beyond 1999

Jurisdiction: St. Louis County

- b. **Bike route signage.** Designate 2nd Avenue (2nd Street East to St. Louis River Road) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

2. Westgate Boulevard/new frontage road (Ugstad Road to Boundary Avenue)

- a. **Bike route signage.** Designate as a bike route to provide an east-west connection in south Proctor.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Proctor

3. Boundary Avenue (9th Street East to Westgate Boulevard)

- a. **Bike route signage.** Designate Boundary Avenue (9th Street East to 2nd Street East) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Proctor and St. Louis County

- b. **Resurface/widen shoulders.** Improve the pavement and widen shoulders on Boundary Avenue (2nd Street East to Westgate Boulevard) to accommodate for bicyclists. Designate as a bike route when completed.

Time frame: 1996-1999 Implementation

Jurisdiction: St. Louis County

- c. **Bicycle/pedestrian traffic signal phasing.** Install bike/pedestrian traffic signal phasing at the intersection of Boundary Avenue and US Hwy 2.
Time frame: 1996-1999 Implementation
Jurisdiction: St. Louis County and Mn/DOT

4. 4th Street/5th Avenue (Ugstad Road to 2nd Street)

- a. **Bike route signage.** Designate as a bike route. The roadway is scheduled to be widened which will accommodate bicyclists.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County

5. 2nd Street (5th Avenue to Boundary Avenue)

- a. **Bike route signage.** Designate as a bike route.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County

6. St. Louis River Road (Ugstad Road to Birchwood Drive)

- a. **Bike route signage.** Designate as a bike route to provide bikeway system continuity.
Time frame: 1994-1996 Implementation
Jurisdiction: St. Louis County

7. 9th Street (2nd Avenue to Boundary Avenue)

- a. **Bike route signage.** Designate as a bike route.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Proctor

8. Bass Boulevard/Cypress Drive/Birchwood Drive (9th Street East to St. Louis River Road)

- a. **Bike route signage.** Designate as a bike route.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Proctor
- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved pedestrian/bike path to connect the Birchwood Drive cul-de-sac with St. Louis River Road.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Proctor

9. Ugstad Road (Westgate Boulevard to 4th Street)

- a. **Bike route signage.** Designate as a bike route. The roadway segment offers a connection between Westgate Blvd and 4th Street. Traffic volumes are low. However, the roadway may need improvement.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

10. Skyline Parkway (Boundary Avenue to Thompson Hill Road) & Thompson Hill Road (Skyline Parkway to Midway Road) west segment within Midway Township.

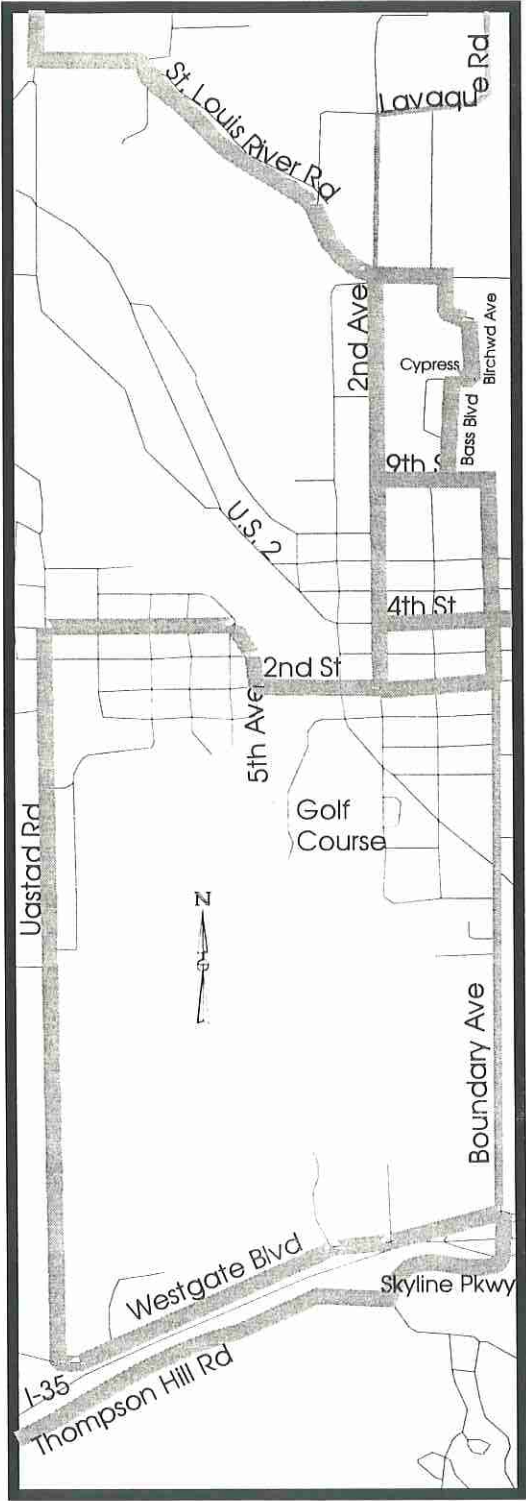
- a. **Bike route signage.** Designate as a bike route. The roadway segment offers a connection to Midway Road.

Time frame: 1994-1996 Implementation

Jurisdiction: St. Louis County

PROCTOR

IMPLEMENTATION	
BEYOND 1999	
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1994-1996	
DASHED LINES REPRESENT ALTERNATE ROUTES	



City of Superior

Route Recommendations

TOWER AVENUE CORRIDOR

(South Segment Map)

1. Tower Avenue (North 28th Street to 34th Street/37th Street)

- a. **Off-road bicycle/pedestrian path or bike lane.** Develop an off-road paved bicycle/pedestrian path adjacent to Tower Avenue or its frontage roads between North 28th Street and 34th Street.
Time frame: Implementation Beyond 1999
Jurisdiction: WisDOT and/or City of Superior
- b. **Bike route signage.** An alternative is to place signage at the intersection of 34th Street and the east frontage road stating the next bike route is six blocks north. Most cyclists are familiar with the area and will choose their own route to get north. In addition, signage similar to freeways signs indicating that the business district continues north on Tower Avenue should be considered at the Tower Avenue/North 28th Street intersection. Signage should also be installed showing the bike route continues east/west on North 28th Street. A kiosk could be placed at the 34th Street/east frontage road intersection showing where the cyclist is by map with the complete bike route system also shown on the map.
Time frame: Implementation Beyond 1999 (alternative to 1.b.)
Jurisdiction: City of Superior
- c. **Bike route signage.** The planned extension of Oakes Avenue (N 28th St. to N 31st St.) should be signed as a bike route when completed. This extension would offer a connection between the Tower Avenue bike route and the N 28th St. bike route.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior

2. Tower Avenue (34th Street to 37th Street)

- a. **Improve roadway surface.** Improve the roadway surface on 37th Street (Hammond Avenue to Tower Avenue) and Hammond Avenue (31st Street to 37th Street). The intersection of 37th Street and Tower Avenue will have a traffic signal that may warrant improved road conditions as more traffic is estimated to use 37th Street and Hammond Avenue. Designate 37th Street (Hammond Avenue to Tower Avenue) and Hammond Avenue (North 28th Street and 37th Street) as a bike route after roadway improvement.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior
- b. **Signage and crosswalk markings.** Appropriate signage, crosswalk markings and bicycle/pedestrian traffic signal phasing should be installed at the 37th Street/Tower Avenue intersection to direct bikes and pedestrians to the path on the west side of Tower Avenue.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior
- c. **Bike route signage.** Designate Hammond Avenue (North 28th Street to North 34th Street) and North 34th Street (Hammond Avenue to Tower Avenue) as a bike route. This should be considered an alternative option to 2.a.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior
- d. **Bike route signage.** Designate the proposed frontage road located on the east side of Tower Avenue (34th Street to 37th Street) as a bike route. This should be considered an alternative option to 2.a. and 2.c.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior
- e. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the west side of Hammond Avenue (29th Street to 34th Street) if heavy motor vehicle traffic volumes warrant.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior

2. Tower Avenue (34th Street to 52nd Street)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on Tower Avenue (North 34th Street to 52nd Street). A planned bicycle/pedestrian path is to be developed west of Tower Avenue with future construction. Designate the path as a bike route.

Time frame: 1996-1999 Implementation

Jurisdiction: WisDOT and City of Superior

3. Tower Avenue (52nd Street to Village of Superior south limits)

- a. **Bike route signage and crossings.** Appropriate crossings and bike route signage should be developed on Tower Avenue at 52nd Street.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

- b. **Sidewalks.** Six-foot wide sidewalks will be installed on both sides of Tower Avenue from 52nd Street into South Superior. Cyclists could walk bicycles on the sidewalks if they are not comfortable riding on Tower Avenue. However, the sidewalks will not be signed as a bike route.

Time frame: 1996-1999 Implementation

Jurisdiction: WisDOT

- c. **Bike route signage.** Tower Avenue should be signed as a bike route between 52nd Street and the south Village limits. However, space limitations confine any future bicycle facility development. This segment has lower speeds posted. A wide curb lane or shoulder would benefit bicycle travel on this segment.

Time frame: 1994-1996 Implementation

Jurisdiction: WisDOT

- d. **Alternate bike route.** Alternative route signing (or an alternate route shown on a map) could be installed to direct riders to use Ogden Avenue (or Oakes Ave) to 52nd Street. Ogden Avenue has less traffic and lower speeds. However, many uncontrolled intersections may exist and pavement surfaces are questionable.

Time frame: 1994-1996 Implementation (contingent upon implementation of 3.c.)

Jurisdiction: City of Superior

4. Pattison State Park area

- a. **Bike route signage.** Install signage at Pattison State Park showing that STH 35 is a bike route to Superior. The WisDOT Wisconsin Bicycle Map shows that this segment of STH 35 is a recommended bike route with paved shoulders. The Duluth-Superior Bikeway Map should also be made available at Pattison Park when completed.

Time frame: 1994-1996 Implementation

Jurisdiction: MIC and DNR

EAST 2ND STREET CORRIDOR

(East Segment Map)

1. East 2nd Street Corridor (Wisconsin Point/Moccasin Mike Road to 39th Avenue East)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Moccasin Mike Road to 39th Avenue East on the railroad track right-of way. This segment will be included as part of the Tri-County Corridor Trail. The completed path should be signed as a bike route. In addition, an off-road paved bicycle/pedestrian path should be developed from East 2nd Street/Moccasin Mike Road to Wisconsin Point.

Time frame: 1996-1999 Implementation

Jurisdiction: City of Superior and Douglas County

- b. **Bike route signage.** Appropriate signs should be placed at the County Rd. E/Moccasin Mike Rd/East 2nd Street intersection to direct bicyclists to the path and alert motorists. Appropriate signage should also be installed at the intersection of 39th Avenue East and East 2nd Street to show path access at this location. Traffic signals exist at this intersection providing respectable access to the trail.

Time frame: 1996-1999 Implementation

Jurisdiction: City of Superior and/or Douglas County

2. East 2nd Street Corridor (39th Avenue East to 18th Avenue East)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from 39th Avenue East to 18th Avenue East on the railroad track right-of way. The Tri-County Corridor Trail is to extend officially to 30th Avenue East. Points north will be under the jurisdiction of the City of Superior. An alternative route may need to be developed near the Burlington Northern property located near 21st Avenue East (east of East 2nd Street). When completed the path should be designated as a bike route.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

- b. **Bike route signage.** Appropriate signage should be installed at the intersection of 18th Avenue East/East 2nd Street and 31st Avenue East to indicate path access at these locations. Traffic signals exist at 18th Avenue East/East 2nd Street intersection providing appropriate access to the trail.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

- c. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from the 18th Avenue East/East 2nd Street intersection and 31st Avenue East/East 2nd Street intersection to access the path.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

3. East 2nd Street Corridor (18th Avenue East to Marina Drive)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from 18th Avenue East to Marina Drive on the railroad track right-of way. Designate as a bike route when completed.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

- b. **Bike route signage.** Appropriate signage should be installed at Barker's Island access points, at the intersections of 9th Avenue East/East 2nd Street and Belknap Street/East 2nd Street to show trail access at these locations. Traffic signals exist at the Belknap Street/East 2nd Street intersection providing respectable access to the trail. The access roadways to Marina Drive should have marked bicycle lanes or bike route signage.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

- c. **Bicycle/pedestrian overpass.** Develop a pedestrian/bicycle overpass over East 2nd Street. The overpass (bridge) would connect local neighborhoods and the Fairlawn Mansion Museum with Barker's Island, the Park Tourist Center, the Meteor, and the Vista Queen. Thus, pedestrians and bicyclists would not need to cross four lanes of traffic on East 2nd Street to reach Barker's Island. The overpass could be located near the 9th Avenue entrance to Marina Drive. This should be considered as an alternative only as this option is very expensive to implement and develop.

Time frame: Implementation Beyond 1999 (alternative to other options)

Jurisdiction: City of Superior and/or Douglas County

4. East 2nd Street Corridor (Marina Drive to Winter Street) (West Segment Map)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Marina Drive to Winter Street on the railroad track right-of way or appropriate City owned right-of-way. Designate as a bike route when completed.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior and/or Douglas County

- b. **Bike route signage.** Appropriate signage should be located on Winter Street to direct bicycle traffic to the path access. Consider a striped bike lane on Winter Street under the East 2nd Street viaduct to the path.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

5. East 2nd Street Corridor (Winter Street to Main Street)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Winter Street to Main Street on the railroad track right-of way or appropriate City owned right-of-way and/or alleys. Designate as a bike route when completed.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

6. East 2nd Street Corridor (Main Street to Connor's Point)

- a. **Improve roadway/bike route signage.** Improve the pavement surface on Main Street. Designate as a bike route when completed. Provide paved shoulders or striped bike lanes on Main Street (if increased motor vehicle traffic is present).

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

- b. **Bicycle/pedestrian overpass.** Develop a pedestrian/bicycle overpass over East 2nd Street. The overpass (bridge) would connect the north residential areas of Superior with Connor's Point. Thus, pedestrians and bicyclists would not need to cross four lanes of traffic on East 2nd Street to reach Connor's Point. The overpass could be located near the Main Street entrance off East 2nd Street. This should be considered as an alternative only as this option is very expensive to implement and develop.
- Time frame: Implementation Beyond 1999 (alternative to other options)
- Jurisdiction: WisDOT, City of Superior and/or Douglas County

7. Amnicon Falls State Park area

- a. **Bike route signage.** Install bike route signage at Amnicon Falls State Park indicating directions to Superior and the East 2nd Street Corridor path. The following route should be signed as a bike route between Amnicon Falls State Park and Superior: County Road E (between TH 2 and Co. Rd. Z), County Road Z (between Co. Rd. E and TH 13), Trunk Highway 13 (between Co. Rd. Z and Co. Rd. UU), and County Road UU (between TH 13 and Amnicon Falls). The WisDOT Wisconsin Bicycle Map shows that this route is a recommended bike route. In addition the Duluth-Superior Bikeways Map should be made available at Amnicon Falls State Park when completed.
- Time frame: Implementation Beyond 1999
- Jurisdiction: MIC, City of Superior, DNR and/or Douglas County

NORTH 28TH STREET CORRIDOR

(East Segment Map)

1. 18th Avenue East (East 2nd Street to East 10th Street)

- a. **Bike route signage.** Designate 18th Avenue East as a bike route. An off-road bike path is recommended to connect 18th Avenue East at East 2nd Street with the East 2nd Street corridor bike path.
- Time frame: 1994-1996 Implementation
- Jurisdiction: City of Superior
- b. **Bike lanes.** Re-designate the outside driving lanes as bike lanes. This should be considered a long term recommendation after further study of bicycle use on the roadway.
- Time frame: 1994-1996 Implementation
- Jurisdiction: City of Superior

2. North 28th Street (East 10th Street to Bardon Avenue) See West Segment map

- a. **Bike route signage and crossings.** Install appropriate bike route signage and crossing markings at the East 10th Street/North 28th Street intersection. Designate North 28th Street as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

- b. **bike lane/widened curb lane.** Restripe the roadway to provide for bike lanes or widen the curb lanes to accommodate bicycles if the roadway cannot accommodate bicycles as is.

Time frame: Implementation Beyond 1999 (2.a. is the primary option)

Jurisdiction: City of Superior

- c. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from East 10th Street to Bardon Avenue on the existing sidewalk north of North 28th Street. Designate as a bike route when completed. This option should be considered if developing bike lanes or widening the curb lane is not feasible.

Time frame: Implementation Beyond 1999 (2.a. and 2.b are the primary options)

Jurisdiction: City of Superior

- d. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from East 10th Street to Bardon Avenue on the south side of North 28th Street if environmental conditions (wetlands) prohibit development north of the roadway. Designate as a bike route when completed.

Time frame: Implementation Beyond 1999 (alternative to 2.c.)

Jurisdiction: City of Superior

3. North 28th Street (Bardon Avenue to Cummings Avenue)

- a. **Bike route signage and crossings.** Designate and sign as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

- b. **bike lane/widened curb lane.** Restripe the roadway to provide for bike lanes or widen the curb lanes to accommodate bicycles if the roadway cannot accommodate bicycles as is.

Time frame: Implementation Beyond 1999 (3.a. is the primary option)

Jurisdiction: City of Superior

- c. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Bardon Avenue to Cummings Avenue on the existing sidewalk north of North 28th Street. Designate as a bike route when completed. This option should be considered if developing bike lanes or widening the curb lane is not feasible. Appropriate signage showing a bike path crossing should be installed at Bardon Avenue, Mariner Mall, Hill Avenue, Spartan Road, and Catlin Avenue. This signage will alert motorists of the crossings near the intersections with North 28th Street.
Time frame: Implementation Beyond 1999 (3.a. and 3.be are the primary options)
Jurisdiction: City of Superior

4. North 28th Street (Cummings Avenue to Hammond Avenue)

- a. **Bike route signage.** Install appropriate bike route signage and crossing markings at the Cummings Avenue/North 28th Street intersection.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior
- b. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from Cummings Avenue to Hammond Avenue south of North 28th Street. Locations of homes north of North 28th Street require the path to be located south of the roadway where adequate space exists. Designate as a bike route when completed. Appropriate crossing and/or bike route signage should be installed at the North 28th Street/Hammond Avenue intersection.
Time frame: Implementation Beyond 1999
Jurisdiction: City of Superior

5. 37th Street/Hammond Avenue (31st Street and Tower Avenue)

- a. **Bike route signage.** Designate Hammond Avenue (28th Street to 37th Street) and 37th Street (Hammond Avenue to Tower Avenue) as a bike route. Appropriate signage, crosswalk markings and possible bicycle/pedestrian traffic signal phasing should be installed at the 37th Street/Tower Avenue intersection to direct bikes and pedestrians to the path on the west side of Tower Avenue.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior
- b. **Improve roadway surface.** Improve the roadway surface on 37th Street and on Hammond Avenue between 31st Street and 37th Street. The intersection of 37th Street and Tower Avenue will have a traffic signal that may warrant improved road conditions as more traffic is estimated to use 37th Street and Hammond Avenue.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

- c. **Bike route signage.** Designate Hammond Avenue (28th Street to 34th Street) and 34th Street (Hammond Avenue to Tower Avenue) as a bike route. Appropriate signage, crosswalk markings and possible bicycle/pedestrian traffic signal phasing should be installed at the 34th Street/Tower Avenue intersection to direct bikes and pedestrians to the path on the west side of Tower Avenue. This should be considered as an alternative to 5.a. and 5.be
Time frame: 1994-1996 Implementation (alternative to 5.a. and 5.b.)
Jurisdiction: City of Superior
- d. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path on the west side of Hammond Avenue between 29th Street and 34th/37th Street if heavy motor vehicle traffic volumes exist. This should be considered as an alternative to 5.a., 5.be, and 5.c.)
Time frame: 1994-1996 Implementation (alternative to 5.a., 5.be and 5.c.)
Jurisdiction: City of Superior

6. North 28th Street (Tower Avenue to Wyoming Avenue)

- a. **Bike route signage.** Designate and sign as a bike route. Consider developing a bike lane if motor vehicle traffic volumes conflict with bicycles in the future. Improvement of bike crossing areas of railroad tracks is also recommended.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

7. Wyoming Avenue (North 28th Street to Belknap Street)

- a. **Bike route signage.** Designate and sign as a bike route. Consider developing a bike lane if motor vehicle traffic volumes conflict with bicycles in the future.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

8. Belknap Street (Wyoming Avenue to Susquehanna Avenue) and Susquehanna Avenue (Belknap Street to Bong Bridge bike/pedestrian path)

- a. **Bike route signage.** Designate as a bike route. Install appropriate signage directing bicyclists to the Bong Bridge bike/pedestrian path.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

9. Scenic route proposal

- a. **Scenic route proposal.** The City of Superior could consider designating a scenic route through Billings Park (on Belknap Street and North 28th Street), along the St. Louis Bay, and in/near the Municipal Forest. This type of route is not vital to the complete bicycle route system. However, a scenic route would offer variety and connectivity to the complete system. The suggestion of restricting Billings Drive (N 42nd Street to STH 105) to non motorized uses only was discussed by the Study Advisory Committee. The Committee decided that this was not a viable option as it would prevent citizens not capable of using bicycles or walking (elderly and physically disabled) from enjoying the area.

Time frame: Implementation Beyond 1999 (alternative option)

Jurisdiction: City of Superior

EAST 5TH STREET CORRIDOR

(East and West Segment Maps)

1. East 5th Street (31st Avenue East to 6th Avenue East)

- a. **Bike route signage.** Designate and sign as a bike route. In addition, possible bike lanes could be striped on the roadway since it has wide curb lanes. Occasional parking currently exists in the wide curb lanes. This route provides an alternative to the East 2nd Street Corridor.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

- b. **Bike route signage.** Designate and sign 9th Avenue East (East 5th Street to East 2nd Street) as a bike route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

- c. **Off-road bicycle/pedestrian path.** An off-road paved pedestrian path should be developed from the 9th Avenue East/East 2nd Street intersection to provide access with Barker's Island. This option is considered an alternative to using Marina Drive.

Time frame: 1994-1996 Implementation (alternative)

Jurisdiction: City of Superior

2. East 5th Street (6th Avenue East to Belknap Street)

- a. **Bike route signage.** Designate as a bike route. Install appropriate signs and/or markings to direct bicyclists and alert motorists near the Belknap Street/East 5th Street intersection.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

3. Chicago-Northwestern Bicycle/Pedestrian Path (26th Avenue East to Hill Avenue)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path from 26th Avenue East to Hill Avenue where a line of the Chicago-Northwestern Railroad presently runs through the East End, Central Park and Wade Bowl Neighborhoods. This recommendation is supported by the City of Superior Park System Master Plan. However, this is a long-term proposal contingent upon the abandonment of the tracks. The feasibility of having parallel routes located closely together should also be considered (this path and the East 5th Street route).

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

STINSON AVENUE CORRIDOR

(East and West Segment Maps)

1. Stinson Avenue (56th Street to East 14th Street)

- a. **Off-road bicycle/pedestrian path.** Develop an off-road paved bicycle/pedestrian path parallel to the roadway. This roadway has heavy truck traffic and is remote from other parts of the city. A separate path should be safer than widened shoulders because trucks may use the widened shoulders as another lane. Any future bike paths on Stinson Avenue should also conform and be incorporated with the City's park plan of providing a trail to the south near the golf course.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

2. 56th Street (Tower Avenue to Stinson Avenue)

- a. **Bike route signage.** Designate and sign as a bike route after an off-road bicycle/pedestrian path is developed on Stinson Avenue.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

3. Stinson Avenue (East 14th Street to East 5th Street)

- a. **Bike route signage.** Designate this segment of Stinson Avenue as a bike route when a bike path is developed on Stinson Avenue.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

4. 23rd Avenue East (East 5th Street to East 2nd Street corridor path)

- a. **Bike route signage.** Designate 23rd Avenue East as a bike route when a bike path is developed on Stinson Avenue.

Time frame: Implementation Beyond 1999

Jurisdiction: City of Superior

NORTH 21ST STREET CORRIDOR

(West Segment Map)

1. North 21st Street (Wyoming Avenue to Washington Avenue)

- a. **Bike route signage.** Designate as a bike route. This route provides access between the Billings Park area and Tower Avenue.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

2. North 21st Street (Washington Avenue to Banks Avenue)

- a. **Bike route signage.** Install signage indicating that bicyclists should walk their bicycles over the pedestrian/bicycle crossing on the south side of the bridge as a bike route. This crossing is quite narrow and may not adapt to two-directional pedestrian and bicycle traffic. Bicyclists may also have the option of using the roadway.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

3. North 21st Street (Banks Avenue to East 5th Street)

- a. **Bike route signage.** Designate and sign as a bike route.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

4. Cross-campus path (Weeks Avenue to Morterelli Drive)

- a. **Off-road bicycle/pedestrian path.** An alternative is to develop an off-road paved bicycle/pedestrian path from Weeks Avenue to Morterelli Drive. The path would cross University of Wisconsin-Superior property between Weeks Avenue and Morterelli Drive. The path would provide access to the UWS recreation areas. UWS officials should be consulted with concerning the implementation of this option.
Time frame: Implementation Beyond 1999 (alternative)
Jurisdiction: City of Superior and UWS
- b. **Bike route signage.** Designate and sign Morterelli Drive (future path to North 21st Street) as a bike route to provide bikeway system continuity.
Time frame: Implementation (alternative)
Jurisdiction: City of Superior

HAMMOND AVENUE/GRAND AVENUE CORRIDOR

(West Segment Map)

1. Hammond Avenue (North 28th Street to North 5th Street)

- a. **Bike route signage.** Designate as a bike route. Hammond Avenue would provide a north-south route in the center of Superior.
Time frame: 1994-1996 Implementation
Jurisdiction: City of Superior

2. Grand Avenue (Belknap Street to North 5th Street)

- a. **Bike route signage.** Designate as a bike route. This roadway should be considered as an alternative to Hammond Avenue.
Time frame: 1994-1996 Implementation (alternative)
Jurisdiction: City of Superior

CATLIN AVENUE/NORTH 12TH STREET CORRIDOR

(West Segment Map)

1. Catlin Avenue (North 6th Street to North 28th Street)

- a. **Bike route signage.** Designate Catlin Avenue as a bike route. A bike lane should be considered in the future due to increased bicycle use and student bicyclists present. A four-way stop exists at the Catlin Avenue/North 12th Street intersection providing convenient access to the North 12th Street corridor route. A traffic signal exists at the Catlin Avenue/Belknap Street intersection providing convenient crossing of Belknap Street. Future roadway construction near the UWS campus should be incorporated with this recommendation. UWS is planning to improve Catlin Avenue from Belknap Street to 19th Street by creating a bicycle/pedestrian friendly environment with landscaping and removal of parking. The construction is scheduled to occur in 1995 and will accommodate bicyclists and pedestrians as part of the construction project.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior and/or UWS

2. North 12th Street (Catlin Avenue to Hill Avenue)

- a. **Bike route signage.** Designate as a bike route. A bike lane should be considered in the future due if increased bicycle use is present. A four-way stop exists at the Catlin Avenue/North 12th Street intersection providing convenient access to the Catlin Avenue corridor route. This route ends at Catlin Avenue. Wade Bowl recreation area is located in the vicinity, and most likely would be the destination point for cyclists using this route. Most bicycle trips traveling west of Catlin Avenue would occur south of Belknap Street.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

3. East 5th Street (North 12th Street to Belknap Street)

- a. **Bike route signage.** Designate and sign as a bike route to provide access to the East 5th Street corridor.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

4. Winter Street (Hammond Avenue to East 2nd Street)

- a. **Bike route signage.** Designate as a bike route to provide access to the East 2nd Street Corridor route. Since Winter Street is a designated truck route, FHWA guidelines recommend 5 foot-wide bike lanes for roadways under 2,000 ADT and 6 foot-wide bike lanes for roadways over 2,000 ADT.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

5. Hill Avenue (North 12th Street to Winter Street)

- a. **Bike route signage.** Designate as a bike route to provide access between North 12th Street and Winter Street and with East 2nd Street Corridor route.

Time frame: 1994-1996 Implementation

Jurisdiction: City of Superior

RAILROAD CROSSINGS

AASHTO guidelines recommend that railroad-roadway grade crossings should ideally be at right angles to the rails. The greater the crossing deviates from this ideal crossing angle, the greater is the potential for a bicyclist's front wheel to be trapped in the flangeway causing loss of steering control. It is also important that the roadway approach be at the same elevation as the rails.

Consider the materials of the crossing surface and to the flangeway depth and width. If the crossing angle is less than approximately 45 degrees, consider widening the outside lane, shoulder, or bicycle lane to allow bicyclists adequate room to cross the tracks at a right angle. Where this is not possible, commercially available compressible flangeway fillers can enhance bicyclist safety. Occasionally, abandoned tracks can be removed. Install warning signs and pavement markings according to local and state laws.




The following recommended bike routes cross or potentially cross railroad tracks. The above guidelines should be considered when route development occurs at the following locations:

- ☛ Catlin Avenue (between North 8th Street and Winter Street)
- ☛ Winter Street (between Catlin Avenue and Elm Avenue)
- ☛ North 12th Street (between Poplar Avenue and Hill Avenue)
- ☛ East 5th Street (between Hill Avenue and E Street)
- ☛ The North 28th Street bike path (between Hill Avenue and Spartan Road)
- ☛ North 28th Street (between Oakes Avenue and Elmira Avenue)

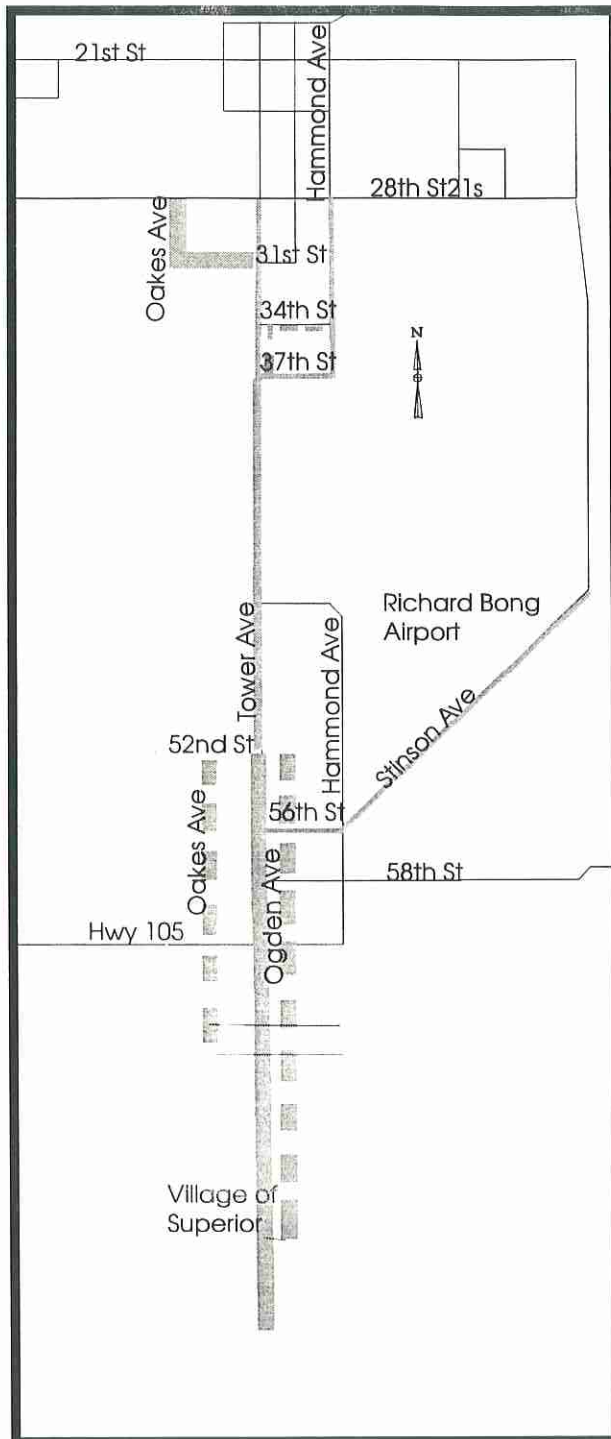
- ☞ The Stinson Avenue bike path (between 55th Street and Hill Avenue)
- ☞ Hammond Avenue (between Winter Street and North 8th Street)

SUPERIOR, WI SOUTH SEGMENT

IMPLEMENTATION

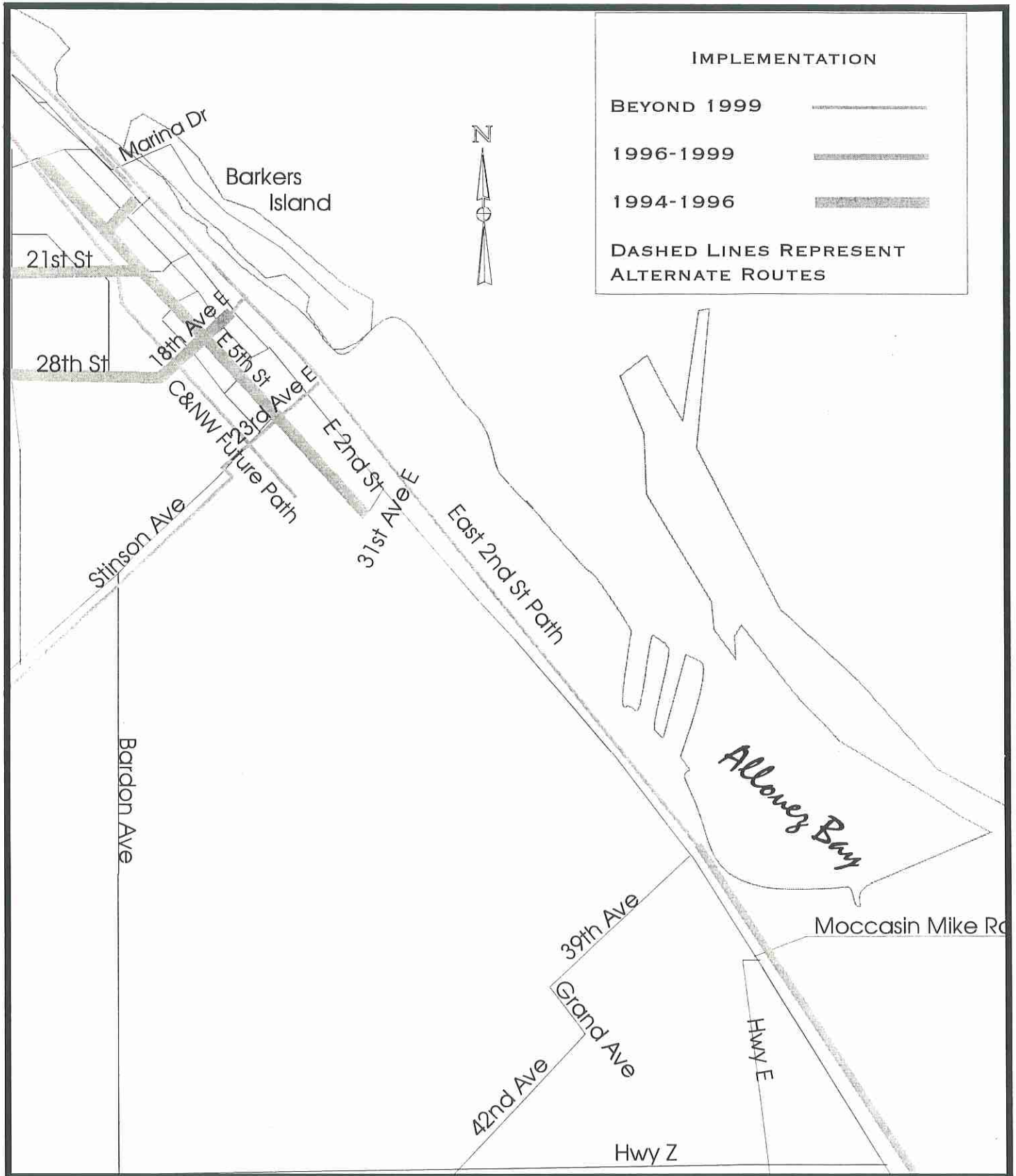
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DASHED LINES REPRESENT
ALTERNATE ROUTES



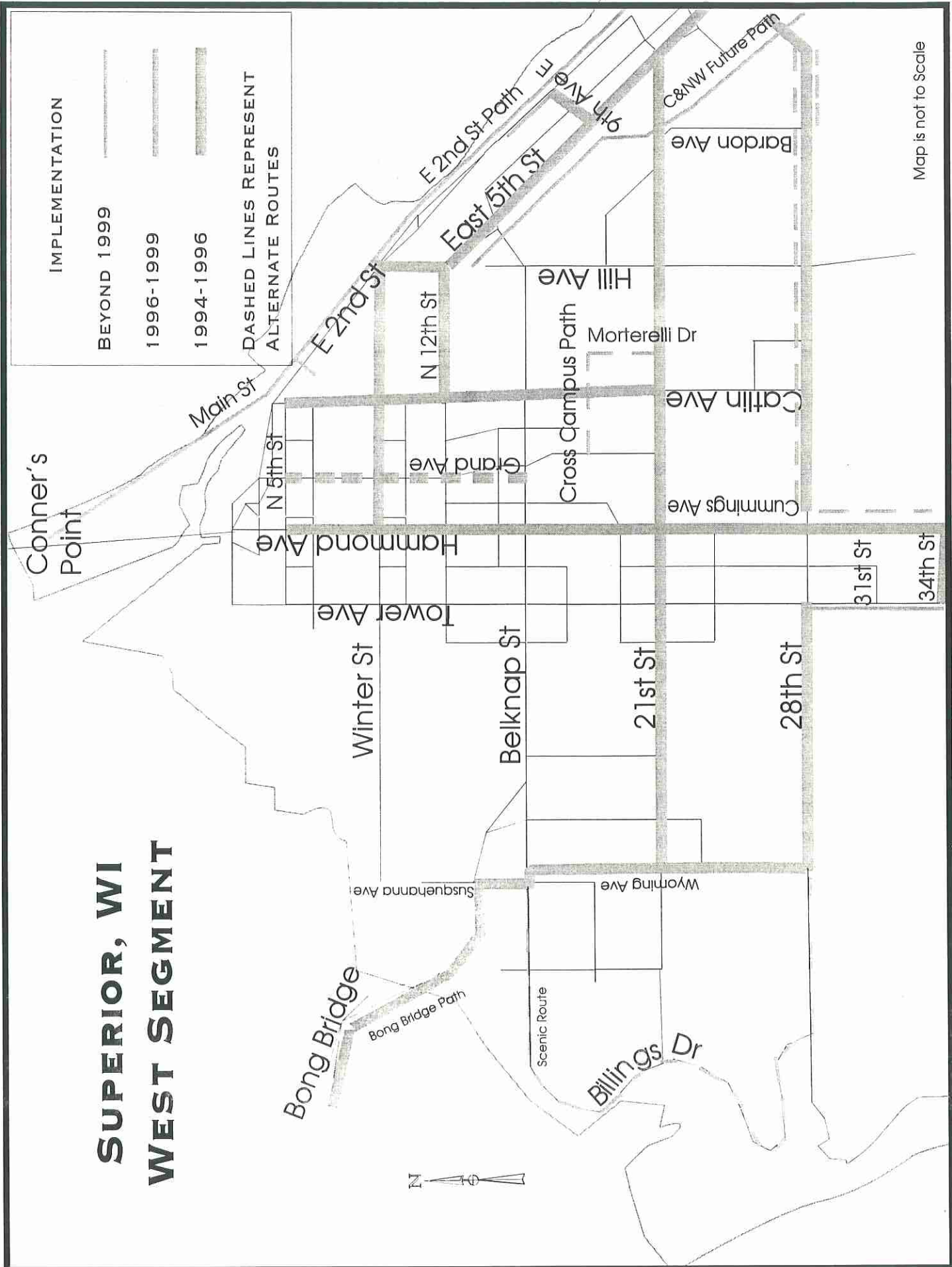
MAP IS NOT TO SCALE

SUPERIOR, WI EAST SEGMENT



Not to Scale

SUPERIOR, WI WEST SEGMENT



IMPLEMENTATION

BEYOND 1999

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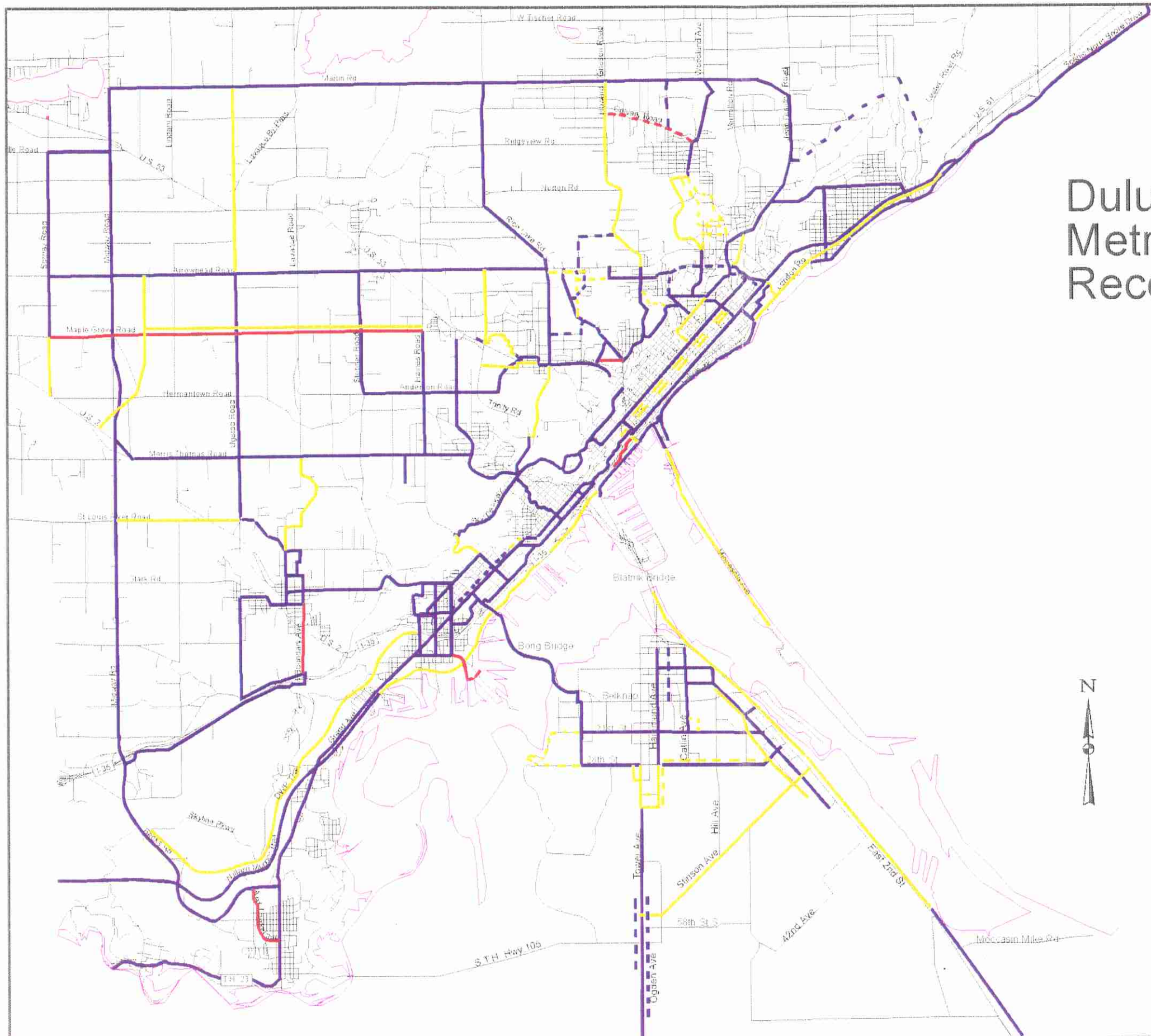
1994-1996

DASHED LINES REPRESENT
ALTERNATE ROUTES

Map is not to Scale



Duluth-Superior Metropolitan Bikeways Recommendations



	Beyond 1999 Implementation
	1996-1999 Implementation
	1994-1996 Implementation
	Alternate
	Roadway
	Shore Line



August 1994

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"Case Study No. 8, Organizing Citizen Support and Acquiring Funding for Bicycle and Pedestrian Trails."

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