



2015 Update **Alternative Transportation Plan**

CITY OF BLOOMINGTON, MINNESOTA
DRAFT - December 2014

Alternative Transportation Plan

City of Bloomington, Minnesota

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Planning Context SECTION

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Purpose

The purpose of the Alternative Transportation Plan (ATP) is to enhance the quality of life in the City of Bloomington through strategic investments over time in multi-modal transportation features that meet the needs of individuals and families living, working, and recreating in Bloomington.

In 2008 Bloomington adopted the original ATP, adopted under the name “Alternative Transportation Plan”. Since that time the City, in collaboration with other agencies (Metropolitan Council, Hennepin County, Three Rivers Park District, and others), has initiated a number of planning and implementation projects to further pedestrian and bicycle transportation in and around Bloomington. Highlights of these efforts include the 86th Street Multi-Modal Traffic Study, plans for the Intercity Regional Trail, the Hyland Trail Project, and the 2012 adoption of a Complete Streets Policy. This Alternative Transportation Plan Update incorporates the work accomplished since 2008 and provides direction for future implementation and maintenance efforts.

Plan Need

A comprehensive and cohesive alternative transportation system is needed to ensure the long-term health, safety, and wellness of the community. Rationale for the need for the original plan and the plan update include:

- » Responding to an increasingly vocal concern by citizens and community interests to enhance facilities for pedestrians and bicyclists
- » Improving community health and fitness by encouraging active living and fostering safety, accessibility, social capital, and emotional well-being
- » Increasing transportation options to reduce reliance on personal automobile-based modes of transportation – e.g., more access to bus and LRT service
- » Responding to increasing concerns about the safety of pedestrians and bicyclists in the built environment
- » Responding to regional and national trends in walking, biking, and transit usage as well as infrastructure investment, funding, and planning practices (see Figure 1.1 for a summary of trends)

Figure 1.1: Regional Trends in Alternative Transportation (Adapted from the Hennepin County 2040 Bicycle Transportation Plan)

Major Federal Funding

In recent years, Twin Cities communities have been recipients of major federal grants to support the implementation of bicycle and pedestrian infrastructure. Most notably, the Nonmotorized Transportation Pilot Program (NTPP), known locally as Bike Walk Twin Cities, has funded 54 miles of bikeways and 2,800 bike parking spaces, and helped to initiate a bike sharing program.

Bike Sharing

In 2010, Minneapolis became the first U.S. city to launch a large-scale bike share system, known as Nice Ride Minnesota. Funded through NTPP and Blue Cross Blue Shield of Minnesota, the system has grown to serve a range of Minneapolis and St. Paul neighborhoods and downtown areas, with more than 1,500 bikes and 170 stations as of 2014. The presence of bike sharing has served to increase the visibility of on-street bicycling and provide new opportunities for people to bike.

Transit-Bicycle Compatibility

With the addition of two light rail lines, commuter rail, and bus rapid transit, the county’s transit options have expanded significantly since 1997- and the county’s bicycle advisory committee and other entities have advocated in turn for the integration of bikes and transit systems. Today, Metro Transit buses and light rail trains are equipped to carry bicycles, and bike parking is routinely included at transit stations and park and rides. With new transit investments in the pipeline, transit ridership and bike-transit connections are expected to continue increasing in coming years.

More People are Biking

Bicycling has been increasing rapidly in Hennepin County for more than a decade both in sheer numbers and rider diversity. The population of people riding bicycles increasingly reflects the diversity of the population as a whole, with growing number of women, seniors, and nonwhite groups bicycling.

Driving Habits are Changing

Despite prior decades of steady increases in per capita vehicle miles traveled (VMT) in the U.S., since 2000, this trend appears to be reversing both at the national and state level. National per capita VMT has declined 7.2 percent from its peak in 2004 (based on 2013 VMT). Similarly in Minnesota, per capita VMT has declined 5.3 percent since 2004, and 4 percent on all roads in the County from its peak in 2001.

National data reveal that people 34 and younger are increasingly choosing modes other than driving, with declining per capita VMT and increasing numbers of bicycling, walking, and transit trips seen in the 16 to 34 year old age group between 2001 and 2009.

People are Using the Regional Trail System Differently

Use of the Three Rivers Park District regional trail system has increased steadily over the past decade and became an important for transportation as well as recreational trips. Commuter use of regional trails in Hennepin County has tripled.

The County’s Approach to Bicycling is Changing

Hennepin County has focused on improving bicycling conditions and as a result of past efforts and planning, bikeways have become a routine part of project development. The county has made a formal commitment to bicycling and active transportation with the adoption of a Complete Streets Policy in 2009.

Regional Context and Urban Form

The challenging bicycle and pedestrian infrastructural condition in Bloomington has much in common with other first-ring suburbs in Hennepin County. The historic development patterns in the Minneapolis area and its suburbs pose inherent constraints to addressing alternative or active approaches to transportation. Communities often labeled “developing suburbs,” such as Bloomington, Minnetonka, Maple Grove, Eden Prairie, Plymouth and Brooklyn Park, were built out between 1960 and 1990, most often with a decidedly auto-oriented development pattern which often did not include sidewalks, much less greenways and trails.

Figure 1.2 highlights some of the challenging barriers to a bicycle and pedestrian infrastructure as documented by Hennepin County.

In addition to the items listed in the table, a few other barriers are worth highlighting, including:

- » Surface street characteristics – the on-street bike facilities lack continuity in connectiveness or route guidance
- » Actual street use/speeds – bicyclists using a particular road encounter multiple lanes of traffic, with vehicles often traveling at higher than the posted speed limit
- » Limited regional connections – to destinations outside the city, many of which are quite extensive and offer a missed opportunity for local residents
- » Lack of end of trip facilities – such as well-placed bicycle parking racks or lockers, showers/changing space for commuters, etc.
- » Lack of right-of-way to retrofit the streetscape to include sidewalks, on-road bikeways, trails, trees, etc.

As these realities suggest, transitioning Bloomington’s infrastructure to be more multi-modal and pedestrian-focused poses some significant challenges that will take time and resources to address. Nonetheless, the thoughtful and incremental implementation of this and complementary plans (i.e., park system plan, etc.) will ensure that alternative transportation options for residents and visitors will continue to grow over time.

Figure 1.2: Regional Challenges to Establishing a Bicycle and Pedestrian Infrastructure (from Hennepin County Bike Plan)

Sidewalk Gaps

Gaps in pedestrian infrastructure, large and small, are quite typical along municipal boundaries. Current county policy states that the cost of pedestrian facilities is currently delegated to the city for any municipality with a population greater than 5,000 inhabitants. Since investment priorities do not commonly occur at city boundaries, closing gaps at the edges of communities will generally remain an issue due to lack of incentive to construct new sidewalks.

Freeway Interchanges

Freeways and other larger arterials pose significant barriers to pedestrian travel. Large commercial tracts generate traffic; retail, hotel, service station and restaurant employees need to walk to work. Travelers too walk to and from restaurants and hotels that are common in these areas and all of these pedestrians must cope with traffic entering and exiting freeways.

Sidewalks are often common only along the bridge structures that actually span the freeway and remain disconnected by a series of on and off ramps that usually do not have pedestrian infrastructure.

Left and Right Turn Lanes

Use of dedicated left and right turn lanes (slip lanes) at intersections is common in Hennepin County, which tends to give priority to cars turning across crosswalks. While these features facilitate vehicle flow, they can deter pedestrians if poorly designed.

Turning Radii and Right Turn Lanes

Right turn lanes with a wide turning radius were observed to allow vehicles to pass through an intersection without significantly reducing their speed. Other than occasionally marked crosswalks, there were no additional cues, signals or design maneuvers found to slow down the driver. This design was observed more often in recently constructed intersections than in older infrastructure. When painted, right turn lane crossings almost without exception are marked at the middle of the turning radius. Here, pedestrians risk crossing while the vehicle is traveling at relatively the same speed and where they are not in the driver’s direct line of sight. The right turn thus functions as a separate intersection where the pedestrian is no longer protected by the traffic and pedestrian signals required in the main intersection.

Unsignalized Crossings

Illegal road crossings outside of crosswalks occur frequently, most commonly on roads that have dense commercial land use or a significant distance between bisecting streets. Other common infrastructure patterns that encourage informal crossings are areas that do not provide pedestrian facilities on two sides of the street or do not provide a direct route to a common destination.

Park and Ride Facilities

In Hennepin County, park and ride locations were often found in areas that were very accessible by vehicle but less convenient for walking or bicycles. In Bloomington, this is less of an issue and the proposed system attempts to more effectively address this issue.

Demographics and Population Characteristics

In 2013, the official population estimates for Bloomington released by the Metropolitan Council were:

- » Population: 85,935
- » Households: 37,156

Figure 1.3 provides an overview of the 2010 population based on information from the U.S. Census Bureau.

As Figure 1.3 illustrates, like many communities, Bloomington's population is aging, with the upper two age groups seeing particular growth. Along with this changing demographic will be a higher percentage of "empty nesters" or households without school age children living in the community.

The city is also becoming more ethnically diverse. Although only around 11% of the population in 2000 was non-white, that percentage has grown significantly, to over 20%. The population of people who identify as Latino or Hispanic more than doubled in 10 years, as did the Black population. The fastest growing demographic by age in Bloomington is residents of 45 years and older, while the 20 to 44 age-group is declining.

Recent school demographic projections show enrollment increasing by 4.7 to 7.4 percent in the next ten years. By 2019 more than half of Bloomington Public School students will be minority students.

Influence of Demographic Change on Recreational and Social Trends

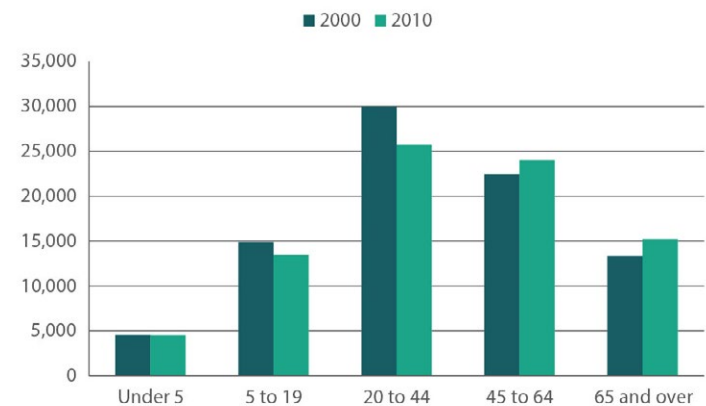
The aging of the population in Bloomington along with evolving recreational and societal trends will markedly affect the demand for public services and facilities. An aging population, for example, will likely result in a reduced demand for athletic complexes. Conversely, interest in passive recreation such as walking along a trail, sitting at a pleasant overlook, taking in the arts, gardening, adult and senior programs, and attending social gatherings in their many public and private forms will rise. In fact, the use of trails is the most popular form of recreation for all age groups.

Along with the changing demographic, all age groups have a growing list of recreational and social choices available to them. This translates into an ever increasing expectation of a high quality experience when an individual of almost any age participates in an activity or social event. Today youth in particular have much more diverse interests than in past generations, often making it much more difficult to engage them in active, outdoor recreational activities.

The changing demographic character of the city coupled with the changing recreational and social trends underscore the need for a well-balanced and flexible system that can respond

Figure 1.3: City of Bloomington Demographic Profile (Source: U.S. Census)

City of Bloomington	2000		2010	
Total Population	85,172	-	82,893	-
Female	44,040	51.7%	42,778	51.6%
Male	41,132	48.3%	40,115	48.4%
One Race	83,704	98.3%	80,304	96.9%
White	75,055	88.1%	66,087	79.7%
Asian or Pacific Islander	4,368	5.1%	4,904	5.9%
Black	2,917	3.4%	5,957	7.2%
American Indian, Eskimo, and Aleut	296	0.3%	329	0.4%
Other Races	1,068	1.3%	3,027	3.7%
Hispanic or Latino	2,290	2.7%	5,623	6.8%
0-4 Years Old	4,532	5.3%	4,505	5.4%
5-19 Years Old	14,852	17.4%	13,466	16.2%
20-44 Years Old	29,994	35.2%	25,710	31.0%
45-64 Years Old	22,436	26.3%	23,984	28.9%
65+ Years Old	13,358	15.7%	15,218	18.4%
Median Age	40.1	-	42.7	-



Since 2000, Bloomington has grown older, showing a 17 percent increase in the population 65 years of age and older, a 10 percent increase in the population 45-64 years of age, and declines or minimal growth in other age groups. Over the next 20 years, the 65 and over population will continue to grow while further declines in the school-aged population are anticipated.

to evolving, broad-based community needs. The plan update places considerable emphasis on addressing this issue by ensuring that the active and passive recreational and social interests of residents are reasonably accommodated, with a particular focus on the issue of quality.

Past Planning and Studies

2008 Alternative Transportation Plan and Progress to Date

Prior to the 2008 Alternative Transportation Plan, the City's alternative transportation system was an eclectic collection of trails, sidewalks, and bike routes throughout the city that had evolved over time. Public input from the prior planning process characterized the system as fragmented, inconsistent, and in need of upgrading. The 2008 plan laid the foundation for subsequent improvements to the system.

The existing alternative transportation system (shown in Figure 1.4) reflects new facilities, maintenance, and upgrades completed since 2008. Key improvements to date include:

- » Completed construction of Hyland Trail Corridor, except connection to Edina (Nine Mile Creek Trail)
- » Completed planning for Minnesota River Trail Corridor (Construction funded by State)
- » Completed construction of trail along Bloomington Ferry Road
- » Completed on-street bike facilities along 111th Street, Nesbitt, West 94th Street and Poplar Bridge.
- » Completed on-street bike facilities along West 90th Street, Northern Xerxes Avenue and West 86th Street.
- » Completed on-street bike facilities along West 102nd Street (Except Normandale to France Ave.)
- » Completed on-street bike facilities along Auto Club Road, 110th Street and Penn Avenue.
- » Completed portions of Bike facilities along 106th Street.
- » Initiated planning and design of Old Cedar Avenue bikeway and bridge rehabilitation. (2015 construction)
- » Completed planning and design of Intercity Trail (Three Rivers Park District to construct in 2015)
- » Several intersection improvements throughout the City

This update of the Alternative Transportation Plan builds on the community input, vision, and values of the original plan, but also reflects progress made against prior planning objectives and integrates new input from community engagement, City staff, and other stakeholders.

Rapid Health Impact Assessment (2008)

To aid public involvement in the planning process, the City of Bloomington routinely tests new approaches. As part of the 2008 ATP planning process, the City tested a new Rapid Health Impact Assessment (RHIA) tool developed by the Design for Health team. Design for Health is a collaboration between the University of Minnesota and Blue Cross and Blue Shield of Minnesota. The Health Impact Assessment tool is designed as an interactive workshop that brings together stakeholders to identify and assess health impacts of a project, plan or policy.

The Rapid Health Assessment tool was applied in a planning effort for the Xcel Energy Corridor Trail and was also used as a part of the 86th Street Multimodal Corridor Traffic Study. The aim of the assessments were to explore the potential health benefits, obstacles, and enhancements associated with these trail/multimodal projects. Input from these assessments were used to help determine support for including the corridors as part of the alternative transportation system. Based on these experiences, the City has found the assessment to be an effective tool if used in the planning stage of a project to proactively consider and develop strategies to mitigate possible health implications. See [Appendix X](#) for the Xcel Corridor RHIA.

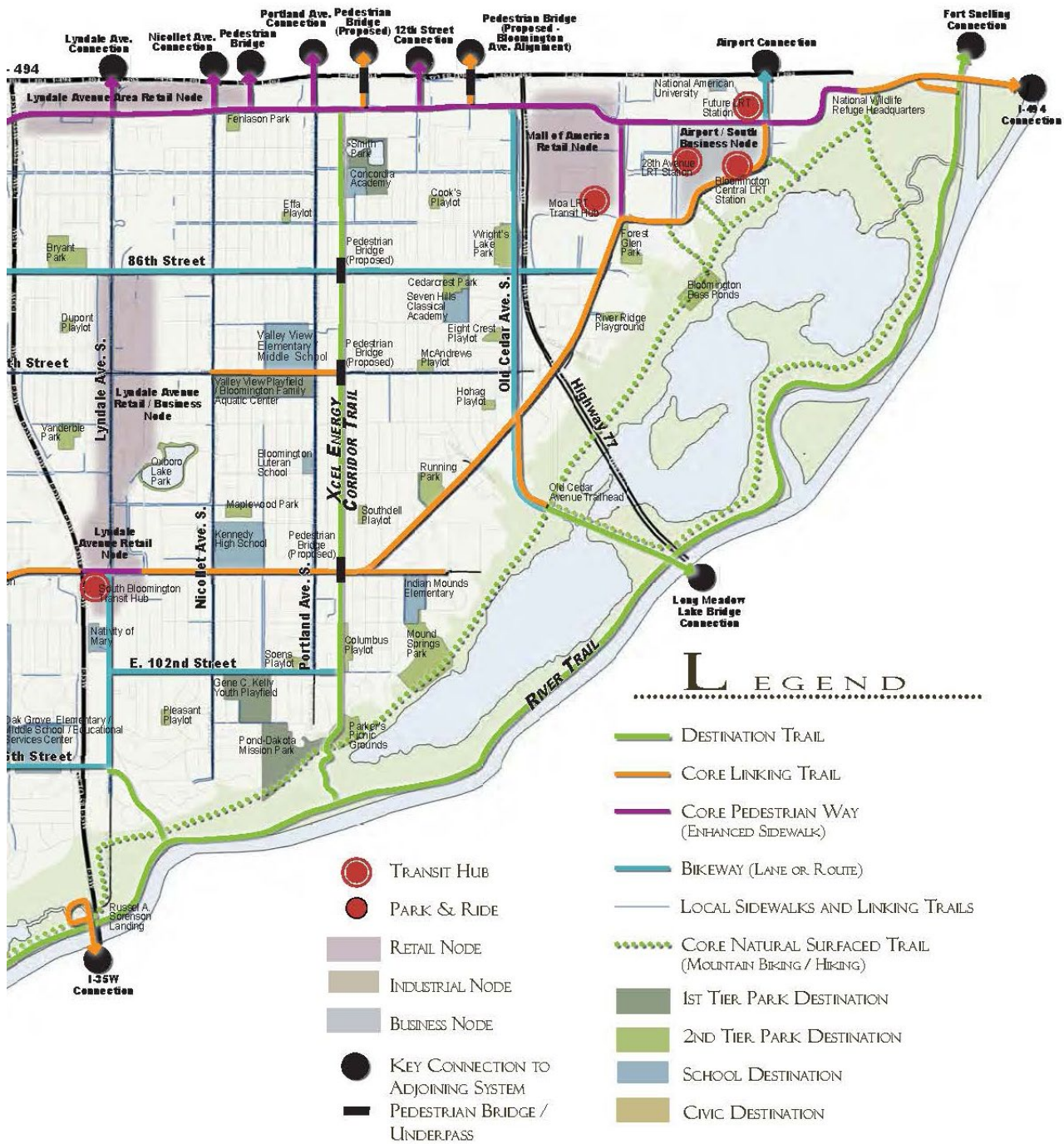
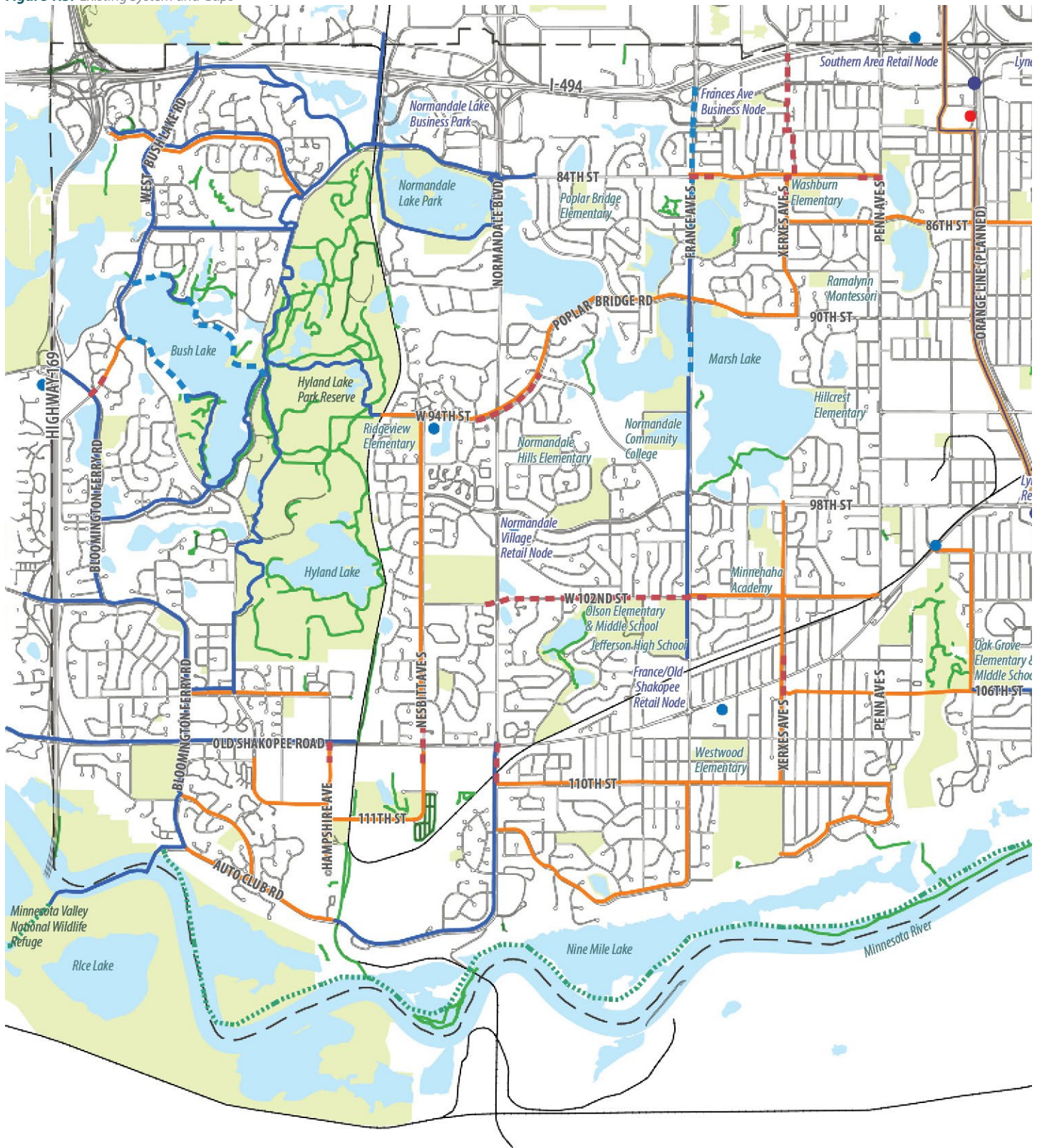
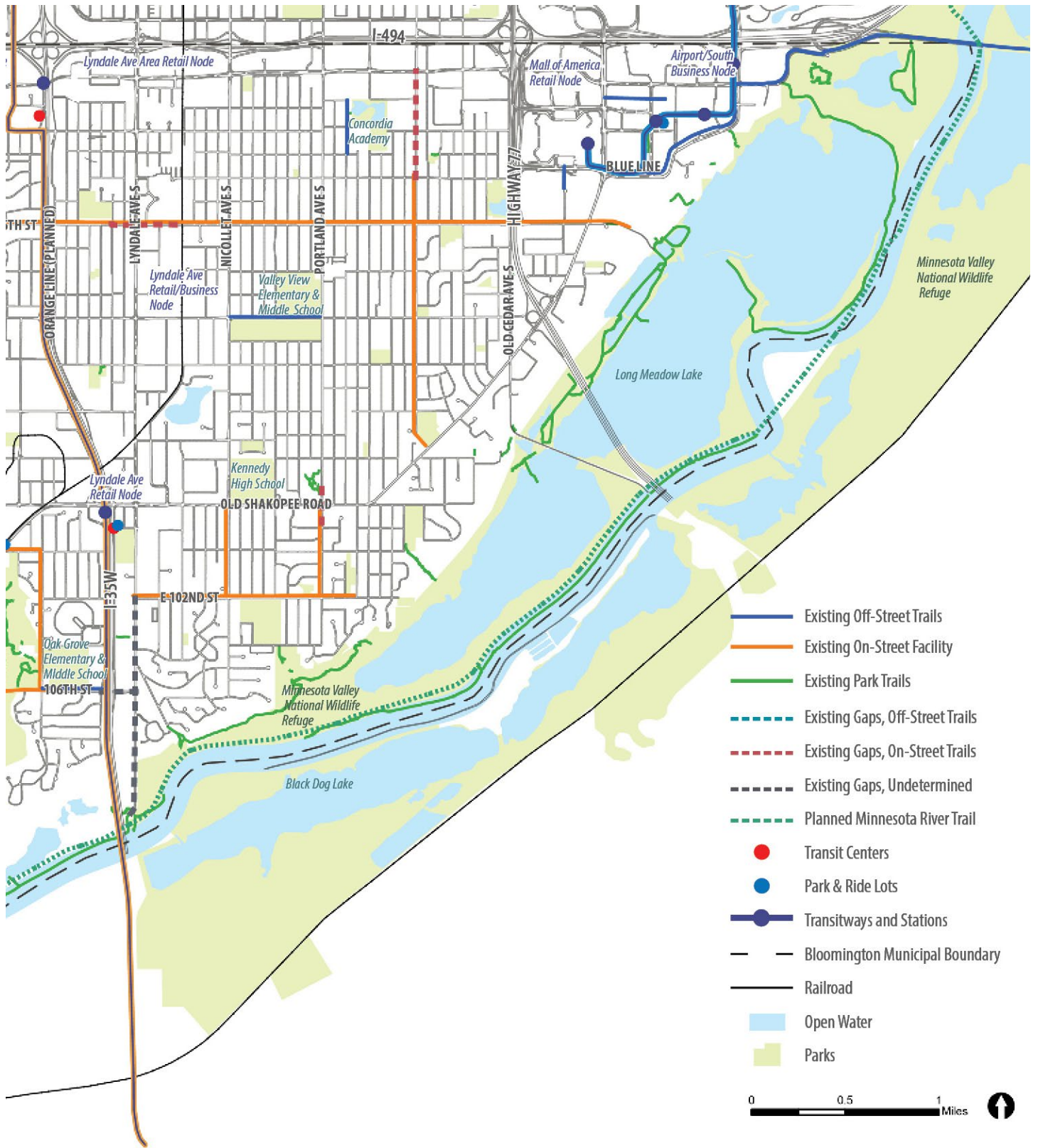


Figure 1.5: Existing System and Gaps





Public Participation in Shaping the Plan

The staff advisory committee, focus group meetings, an on-line questionnaire, open houses, stakeholder interviews, and presentations to local boards and commissions, website information and newspaper articles provided a variety of opportunities for the community to provide input into the planning process. These insights were valuable in many ways, especially in consideration of various routing options for trails and bikeways. The following summarizes the key points of these interactions.

Although the list is not an exhaustive reiteration of the issues brought up during the public process, it does capture the key themes and issues that the plan attempts to address. See [Appendix X](#) for a detailed summary of community input. Full survey results are available on-line at: [insert link](#)

Community Engagement by the Numbers:

300+ On-line Questionnaires Received

2 Community Open Houses (20+ attendees)

3 Focus Group Meetings (17 participants)

Figure 1.6: Summary of Input from Public Participation - by category

Barriers to Walking and Biking

- » Lack of sidewalks/trails and
- » Lack of on-street bike lanes and facilities (i.e. bike racks, tire pumps)
- » Lack or poor condition of crosswalks
- » Poor sidewalk/trail maintenance (including plowing)
- » High traffic volumes on major roads
- » Highway crossings, particularly across/over I-494
- » Missing connections between existing trails/sidewalks
- » Missing connections between parks/recreation areas
- » Lack of crossings/facilities across highways and Minnesota River

Improvements to Walking Conditions (see Figure 1.9)

When asked to rate the importance of various improvements:

- » 61% of questionnaire respondents rated "Street crossing safety improvements" as very important
- » 49% of respondents rated "Maintenance" as very important
- » 44% of respondents rated "Additional sidewalks" as very important

Common Desired Locations - Walking

- » France Avenue - Safer trail; wider sidewalks; safer crossings (108th, heritage hills, 98th, 494)
- » Normandale Boulevard - Improve sidewalk/road conditions; bike lanes
- » Old Shakopee Road - Wider sidewalks; crosswalks; repaving; traffic calming
- » Bush Lake Road - Sidewalk or trail; crossings
- » Penn Avenue - Wider/separated sidewalks
- » Crosswalks needed at various locations
- » Connections between existing trails and parks
- » Ped bridges and/or wider sidewalks over I-494
- » Old Cedar Avenue bridge
- » Normandale - Improve/widen sidewalk; crosswalks
- » Sidewalks/crosswalks around Jefferson H.S. and Olson ES/MS

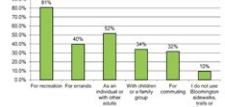
What we've heard so far: Online Questionnaire Summary

Almost 300 people have participated in an online questionnaire to gather initial input on Alternative Transportation Plan (ATP) updates needed! The questionnaire, along with input from community open houses and focus groups, will inform final ATP plan updates. The following is a summary of questionnaire responses received to date.

There's still time to fill out the questionnaire. To view the online questionnaire, go to: <http://bloomingtonmn.gov/cityhall/dept/commdev>
Or scan with your smartphone:

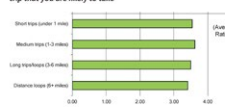
SIDEWALK, TRAIL, AND BIKEWAY USE

How do you use Bloomington sidewalk, trails, and bikeways? Check all that apply.



TRIP DISTANCES

Check the box describing the preferred length of walking or biking trip that you are likely to take:



BARRIERS TO WALKING AND BIKING

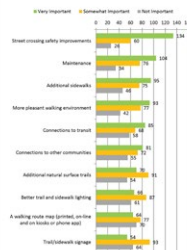
Respondents listed a number of barriers to walking and biking in Bloomington. Common issues raised include:

- Lack of sidewalks/trails
- Lack of on-street bike lanes
- Lack or poor condition of crosswalks
- Poor sidewalk/trail maintenance
- High traffic volumes on major roads
- Highway crossings, particularly across/over I-494
- Missing connections between existing trails/sidewalks

IMPROVEMENTS - WALKING

In your opinion, how important are the following to improving walking conditions in Bloomington? (see chart below)

- 61% of respondents rated "Street crossing safety improvements" as very important.
- 49% of respondents rated "Maintenance" as very important.
- 44% of respondents rated "Additional sidewalks" as very important.



IMPROVEMENTS - BIKING

In your opinion, how important are the following to improving bike conditions in Bloomington? (see chart below)

- 66% of respondents rated "On-street bike lanes (on-road)" as very important.
- 65% of respondents rated "Connections to other communities" as very important.
- 63% of respondents rate "Intersection and street crossing safety improvements" as very important.

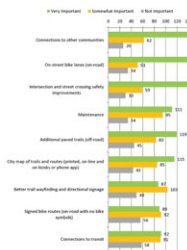


Figure 1.7: Questionnaire Responses: Which of the following best describes yourself? (Check all that apply):

Q: Which of the following best describes yourself?

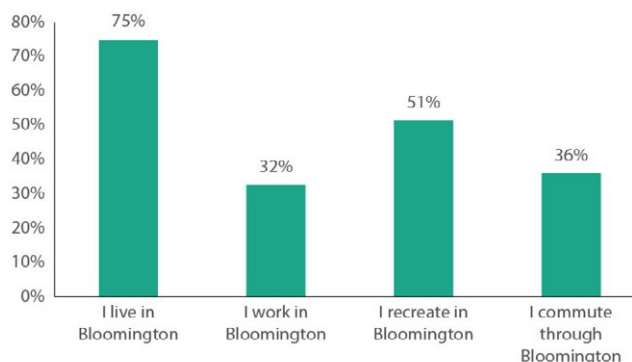


Figure 1.8: Summary of Input from Public Participation (Continued)

General Comments

Many of the comments included here were documented as part of the 2008 ATP planning process and echoed in recent public input. These ideas are reiterated here and continue to inform recommendations in the updated plan.

- » True system of trails and sidewalks is lacking in the city; bike and ped facilities are not always connected to another route or destination
- » Transportation infrastructure focuses on moving vehicles, not pedestrians or bicyclists, around the city
- » Trail and sidewalk systems need to complement each other and provide sufficient wayfinding, connect to destinations, relate to neighborhoods, and provide access to schools, parks, and libraries; Direct route to destination is often missing
- » Lack of support facilities is an issue – such as bike racks/lockers at destinations, bike shelters at the select destinations
- » Weather-proof system – year round use desired, but have to deal with maintenance and design issues (plowing, grades, drainage, width of facility)
- » Accommodation of and separation between different user groups
- » Needs of elderly and disabled population need to be considered; consider universal design, including for signage
- » Signal timing is a concern with respect to having enough time for pedestrians and bicyclists to safely get across intersections; signals are triggered by cars, but not bikes or pedestrians - need to design for all users
- » Safety is a big concern – safe routes to school, intersections, separation between vehicles and pedestrians/bicyclists; traffic calming measures are important
- » Public perception of safety is also issue – education, right type of facilities, adequate lighting, and police enforcement of laws are all necessary to change perception
- » Cultural change is a possibility – but need to create that environment through good planning, education, promotion, enforcement, and commitment of resources
- » Faith community, Chamber of Commerce, health care community, staging events are all possible avenues for education and promotion
- » Cost is a key consideration – What can the City of Bloomington reasonably afford to do?

Online Questionnaire Summary at Open House

Improvements to Biking Conditions (see Figure 2.8)

As part of the on-line survey, when asked to rate the importance of various improvements:

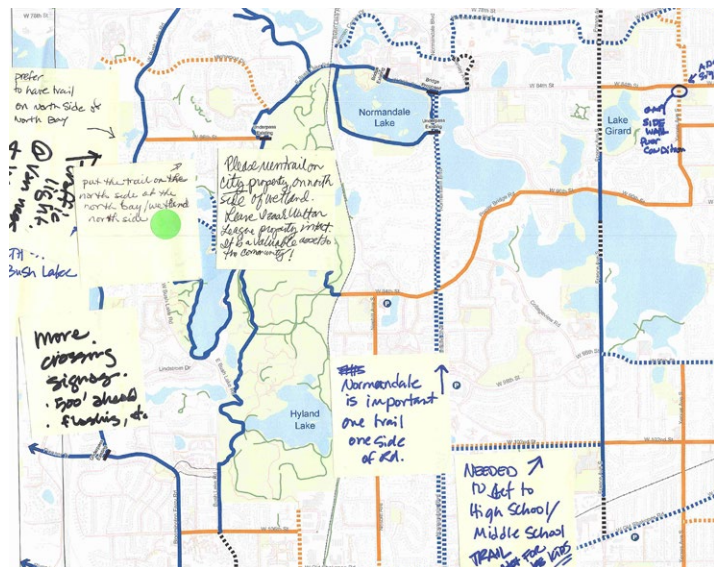
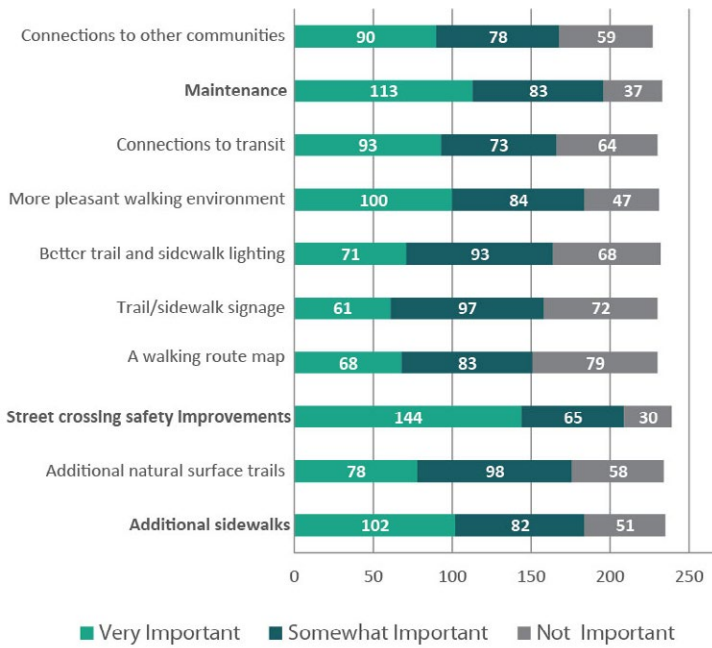
- » 65% of questionnaire respondents rated "On-street bike lanes (on-road)" as very important
- » 63% of respondents rated "Connections to other communities" as very important
- » 64% of respondents rate "Intersection and street crossing safety improvements" as very important

Common Desired Locations - Biking

- » France Avenue - Safer trail; wider sidewalks; safer crossings (108th, heritage hills, 98th, 494)
- » Normandale Boulevard - Improve sidewalk/road conditions; bike lanes; improve/widen sidewalk; crosswalks
- » Old Shakopee Road - Wider sidewalks; crosswalks; repaving; traffic calming
- » Bush Lake Road - Sidewalk or trail; crossings
- » Penn Avenue - Wider/separated sidewalks
- » Crosswalks needed at various locations
- » Connections between existing trails and parks (Hyland Park, Bush Lake Beach)
- » I-494 - Need ped bridges and/or wider sidewalks over
- » I-35W - Lack of safe crossings (esp. south of 86th/98th street)
- » Lack of safe crossings for highways (494, 35W, 62, 77)
- » Minnesota River - lack of crossings (77, 35W, west side of city, Cedar)
- » Need biking connections south into Burnsville
- » Need connections from 86th Street route
- » American Blvd and area around MOA- traffic, lack of trail/bike lanes
- » 98th Street - lack of bike lanes
- » Old Cedar Avenue bridge
- » Sidewalks/crosswalks around Jefferson H.S. and Olson ES/MS

Figure 1.9: Questionnaire Responses: In your opinion, how important are the following to improving walking conditions in Bloomington?

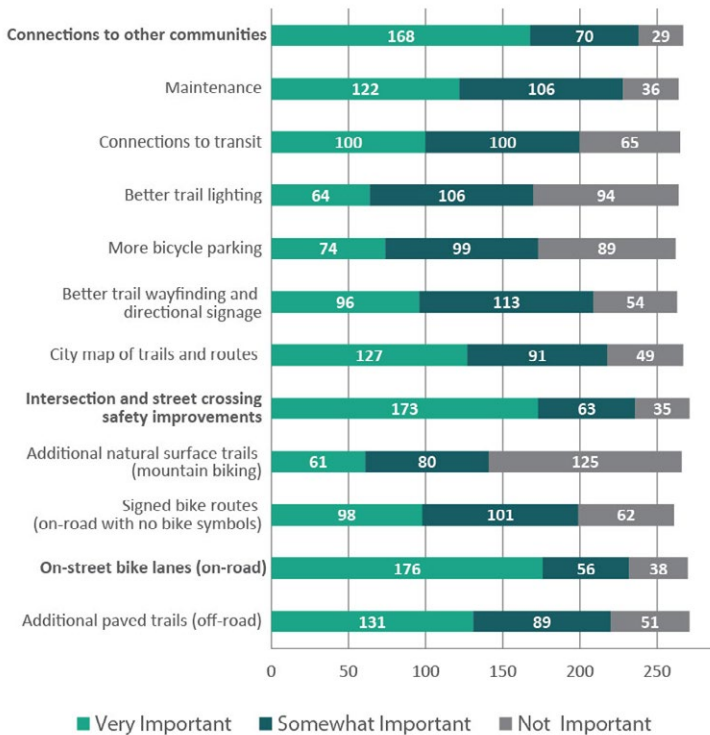
Q: In your opinion, how important are the following to improving walking conditions in Bloomington?



Annotated map from community open house

Figure 1.10: Questionnaire Responses: In your opinion, how important are the following to improving biking conditions in Bloomington?

Q: In your opinion, how important are the following to improving biking conditions in Bloomington?



Findings from Complementary Regional Studies

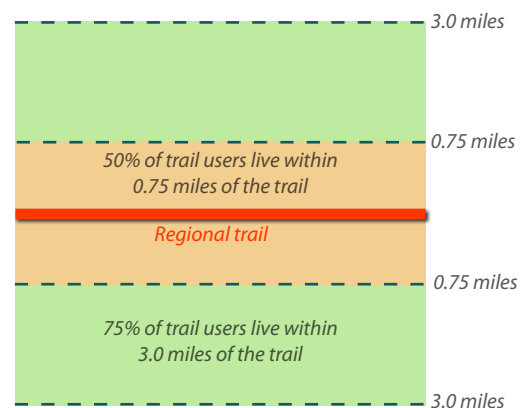
In addition to findings from the public process, a variety of state and regional trends are influencing planning outcomes, as the following considers. Findings by the Metropolitan Council, MN DNR, and other agencies suggest that future growth in participation in many areas of outdoor recreation is not as assured as was the case a decade or two ago. In numerous activities, research indicates that participation rates are expected to actually decline as Minnesotans shift their activity patterns based on evolving interests, age, and access to newer forms of recreation. Other key findings pertinent to this plan include:

- » Barriers to getting outdoors include time, family obligations, work responsibilities, lack of money, weather, insects (uncontrollable environment), lack of outdoor skills and equipment, lack of information and knowledge, and concerns about personal safety
- » More ethnically diverse population with more widely varying expectations
- » Obesity/health issues on the rise, with lifestyle choices a key factor
- » Greater diversity in recreation opportunities available to all age groups
- » Funding issues – less Local Governmental Aid (LGA) and other public dollars for acquisition and capital improvements; suggests greater need for non-traditional approaches
- » Technology is competing for people’s discretionary time and creating more sedentary time
- » Energy costs are rising and limiting people’s willingness to travel very far for recreation
- » Climate change is impacting our natural resources and weather
- » Growing disconnection with nature, which impacts personal development, societal well-being, stewardship of natural areas; also contributes to nature-deficit disorder in youth

In communities throughout the Twin Cities’ Metro Region, trails and bikeways continue to be one of the most popular recreation and transportation facilities. These facilities offer low cost transportation options, are good for the environment because they reduce automobile use, and they promote an active population. They also provide essential connectivity for those who cannot or choose not to drive including low income households, children, and the elderly. Trail based activities such as walking, hiking, biking, jogging, and dog walking are among the primary activities in regional parks (2008 Metropolitan Council Regional Parks and Trails Survey).

Trail research by the Metropolitan Council suggests that the majority of trail users live within three miles of the trail they are using, as Figure 1.11 illustrates. Providing residents with regional or community trails within 0.75 miles of their house provides the most benefit to residents.

Figure 1.11: Travel Distances For Regional Trails



Conclusions

The input received from residents during the public process, along with recreation, public health, and transportation trends, influenced this plan's recommendations. Despite varying opinions on specific needs, issues, and priorities, it is important to underscore that all residents that participated in the planning process consider a more robust alternative transportation system to be a valuable quality of life improvement.

In response to these inputs, the system plan emphasizes the following key points:

- » Quality is as or more important than quantity for encouraging use of alternative transportation features and facilities; providing high quality, safe, and well-maintained facilities will attract greater public use and in turn, increase public value and satisfaction
- » Future improvements should look to fill in missing connections in the system- between routes and to key destinations
- » The system must be balanced, diverse, and flexible enough to adjust to ever-changing needs of the community
- » Plan must be in accordance with true demand

[Section 2: Visions and Values](#) explores more deeply the vision, values, and principles that undergird the alternative transportation plan. [Section 3: System Plan](#) describes the future alternative transportation system, key routes and destinations, facility types, and best practices for the design of alternative transportation features. [Section 4: Implementation and Operations](#), speaks to the importance of pragmatism and balanced, incremental implementation and evaluation.



Vision and Values SECTION

2

Overview

This section of the plan describes the core vision and accompanying values associated with the alternative transportation system. These provisions establish the underlying rationale for making significant improvements to the public infrastructure over time to improve the quality of life in the City of Bloomington and better serve the transportation needs of individuals and families living, working, and recreating in Bloomington.

Citywide Vision and Values Statement

The alternative transportation plan is consistent with and builds upon the broader community vision articulated in the city's 2008 Comprehensive Plan. The community vision is supported by a values statement, as the following reiterates. (The provisions most pertinent to the alternative transportation plan are in **bold**).

Values Statement:

Bloomington is a community that people seek out as a place to live, conduct business and recreate. We have achieved this status by creating vibrant, safe, welcoming neighborhoods and by working together with our neighbors to promote the fun and vitality of community life.

- » We choose to shape the future rather than reacting to a changing environment.
- » We provide our children with the educational opportunities to succeed and lead Bloomington into the future.
- » We support the efforts of our business community, ensuring the availability of quality jobs, good and services.
- » We are stewards of our environment, promoting sustainability of our many resources and the creation of inviting public spaces.
- » We strive to preserve and enhance neighborhood vitality while promoting a strong balanced local economy.

Community Vision:

To build and renew the community by providing services, promoting renewal and guiding growth in an even more sustainable, fiscally sound manner.

Our people are:

- » Active: We participate in community life.
- » Cooperative: We help and support each other for the benefit of all.
- » Respectful: We hold our people and our institutions in high regard.
- » **Healthy: We support actions that promote our physical and emotional well-being.**

Our neighborhoods are:

- » Safe: Our personal safety is our highest priority.
- » Welcoming: We are friendly and open to all that live and work here.
- » **Enjoyable: We have high quality recreation and open spaces available to all**
- » Diverse: A variety of living options are available to all.

Our businesses:

- » Provide an important foundation for building community.
- » Supply good jobs: We have many high quality employment opportunities available.
- » Provide a variety of goods and services: Convenient and plentiful good and services are available.
- » Are active partners in community: Our businesses are engaged in civic life.

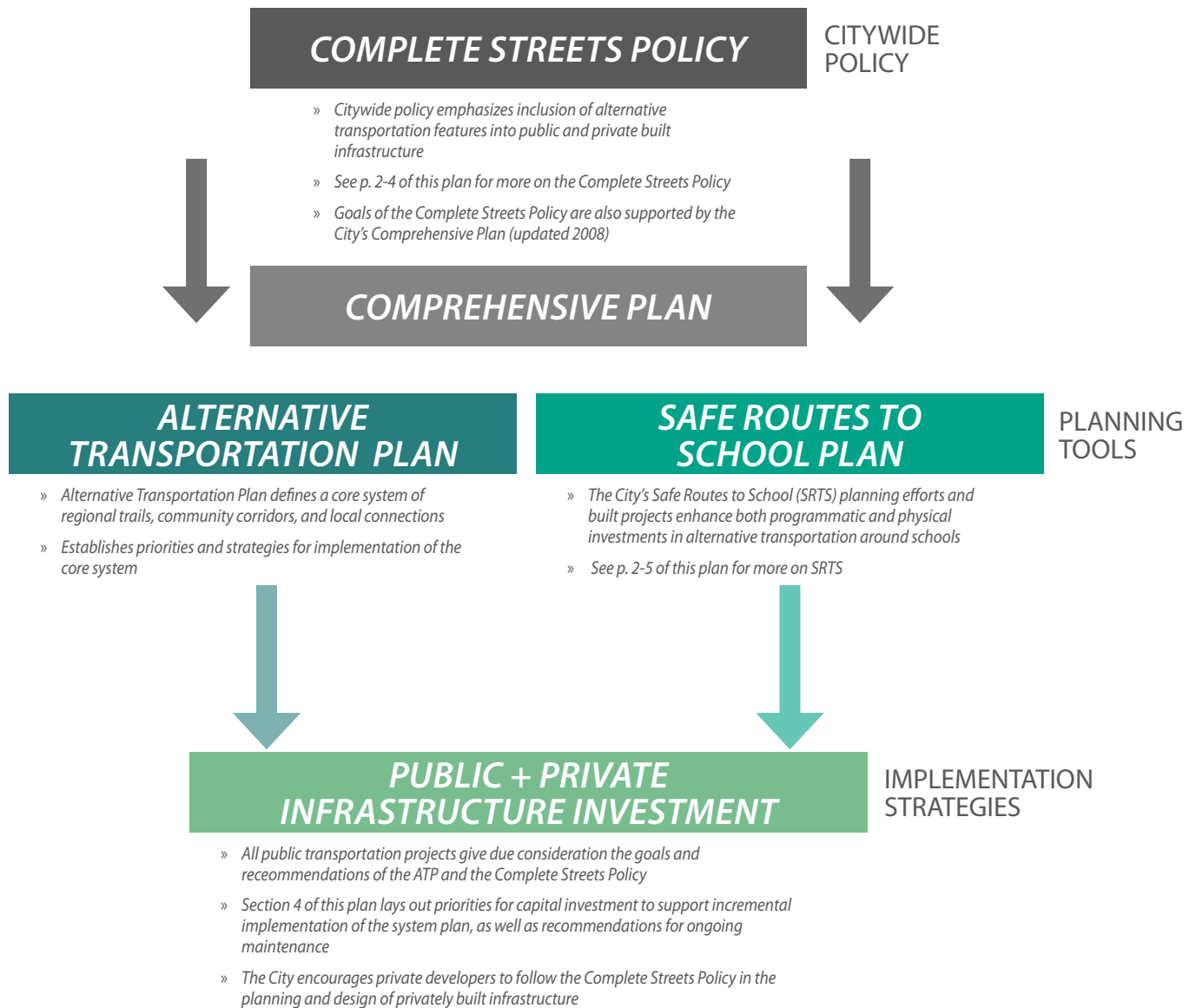
Our Government:

- » **Is a reflection of our community aspirations.**
- » **Spends tax revenues wisely: We invest our resources prudently for the benefit of all.**
- » **Encourages public participation: We ask our citizens for their opinions and their help.**
- » **Anticipates and adapts to challenges and opportunities: We plan for the future and take action.**
- » **Maintains and preserves public assets: We protect our environmental resources and maintain quality public facilities.**

Alternative Transportation Policy and Planning Framework

The following section describes the key policy and planning tools guiding the development of the alternative transportation system in the City of Bloomington. As the diagram below illustrates, a Complete Streets Policy provides overarching direction and goals for the development of alternative transportation features in the City’s public and private infrastructure. The Alternative Transportation System Plan described in this report, as well as planning efforts under the Safe Routes to School plan, provide physical plans and recommendations that support the aims of the Complete Streets Policy. Ultimately, implementation of the aforementioned plans is carried out through a combination of public and private investments.

Figure 2.1: Alternative Transportation Policy and Planning Framework



Complete Streets Policy

The Bloomington City Council approved a Complete Streets Policy in 2012 which completed one of the recommendations of the 2008 Alternative Transportation Plan. The policy is designed to “enhance safety, mobility, accessibility and convenience for transportation network users of all ages and abilities, including pedestrians, transit users, bicyclists, commercial and emergency vehicles, freight drivers and motorists, by planning, designing, operating and maintaining a network of multi-modal streets.” Bloomington’s Complete Streets Policy aligns with both the State of Minnesota and Hennepin County’s Complete Streets policies (adopted in 2010 and 2009, respectively). Full text of the Bloomington Complete Streets policy can be found at: <http://bloomingtonmn.gov/cityhall/council/cpolicy/completestreets.pdf>.

Key elements of the Complete Streets Policy are as follows:

- » Complete Streets is a flexible transportation planning and design process that considers the safety and accessibility needs of all users in order to create a connected network of facilities accommodating each mode of travel.
- » Complete Streets is not a prescriptive roadway design. Individual “complete” street designs vary based on context, including topography, road function, the speed of traffic, pedestrian and bicycle demand, local land use, and other factors. The City will implement Complete Streets in such a way that the character of the project area, the values of the community, and the needs of all users are fully considered. Therefore, Complete Streets will not look the same in all environments, neighborhoods, or development contexts, and will not necessarily include exclusive elements for all modes.
- » Project managers of the City’s transportation and development projects will give due consideration to bicycle, pedestrian, and transit facilities from the beginning of planning and design work.
- » Bicycle, pedestrian and transit facilities as shown in the City’s Alternative Transportation Plan will be considered in street construction, re-construction, rehabilitation projects, and all other street improvement projects except under specified conditions (see full policy for exception rules).
- » Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time.

- » The City will generally follow accepted or the best available technology when implementing improvements intended to fulfill this Complete Streets Policy, but will also consider innovative or non-traditional design options where a comparable level of safety for users is present.
- » The design of new or reconstructed facilities should anticipate likely future demand for bicycling, walking and transit facilities and should not preclude the provision of future improvements.
- » The City will work with neighboring communities, as well as other authorities who have jurisdiction within Bloomington, such as the State of Minnesota, Hennepin County, Three Rivers Park District and the Metropolitan Council, to enhance the regional continuity of the City’s multi-modal transportation network.
- » The City will encourage private developers to follow the Complete Streets Policy in the planning and design of privately built infrastructure.

City-Wide Land Use and Transportation Planning

Whereas this plan addresses alternative transportation issues at a city-wide scale, decisions made about future land uses and the larger transportation system in Bloomington will greatly affect the City’s success toward realizing the vision and values of this plan. To this end, the City’s 2008 Comprehensive Plan incorporates and aligns with the vision and intent of Alternative Transportation Plan. City review of transportation and redevelopment projects should continue to integrate alternative transportation and consider “active living” and “design for health” principles.

Alternative Transportation Plan

The Alternative Transportation Plan (ATP) is a key planning tool that supports the City’s Complete Streets Policy. The plan defines the core network of regional trails, community corridors, and local connections, and provides guidance and resources for the design of alternative transportation facilities. See Section 3 for more details on the Alternative Transportation System.

Safe Routes to School

The goal of the City's Safe Routes to School (SRTS) planning efforts is to enhance the core infrastructure of trails, sidewalks, and bikeways near schools consistent with the desired outcomes advocated by the Safe Routes to School Program. Infrastructure improvements are conducted as part of a comprehensive program, which is implemented incrementally on a priority basis in partnership with the School District.

SRTS Projects in the Planning Phase

Safe Routes to School District-wide Plan: The City and school district are currently working together to complete a Safe Routes to School District-wide Plan. The objective of the Plan is to identify ways to facilitate and encourage walking and biking to school. The Plan will provide recommendations for education, encouragement, enforcement, engineering and evaluation. Key outcomes of the plan will include:

- » School walking maps that show existing pedestrian and bike facilities around each elementary and middle school in Bloomington; these maps will be published by the City and District as a tool for families to identify their preferred walking route
- » Prioritization of safety improvement recommendations
- » Recommended site based encouragement activities

Even though the Plan is currently in a draft format, work has already begun to address the safety concerns identified during the Plan development. It is anticipated that the Plan will be

ready for presentation to the School Board and adoption by the City Council by spring 2015.

Other SRTS Projects: Several location-specific SRTS projects are currently in the planning phase including:

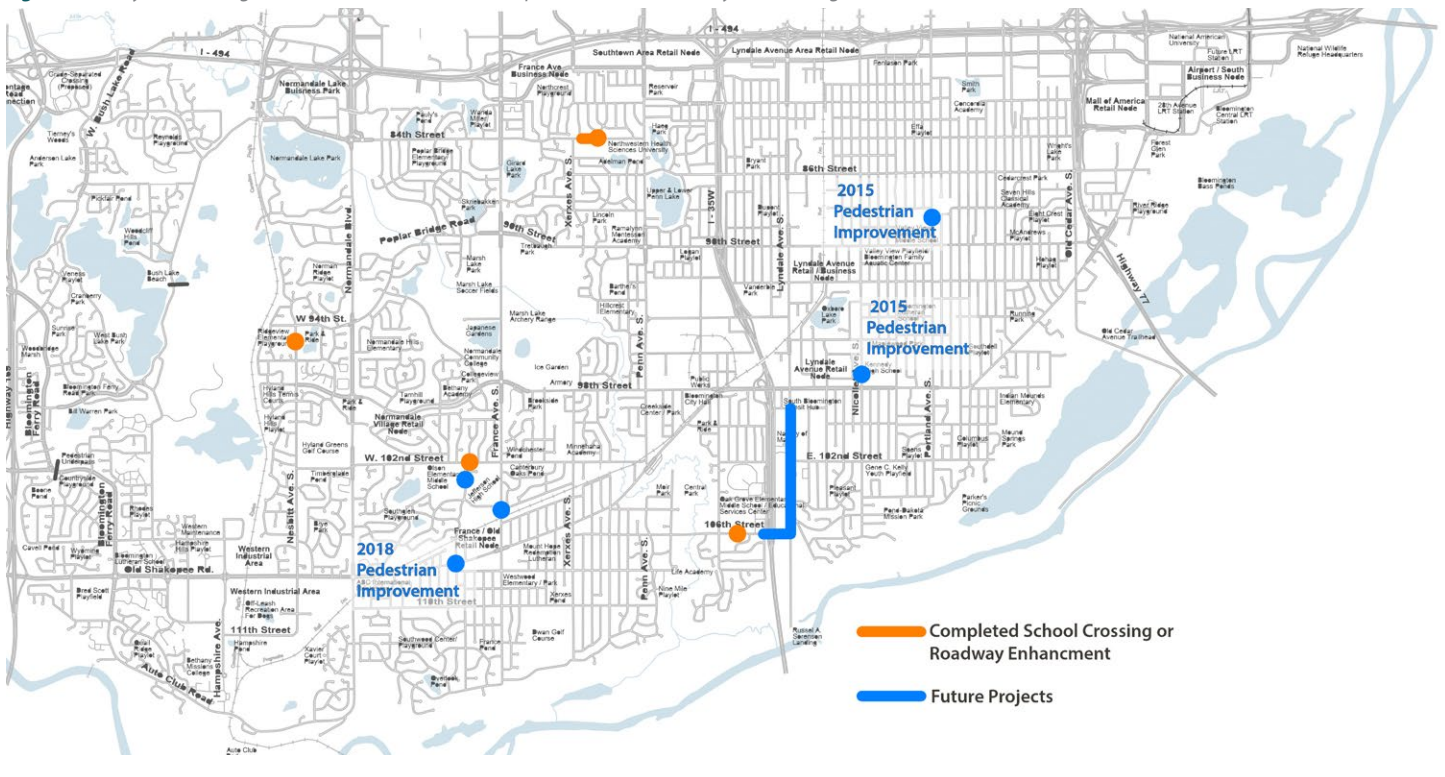
- » Pedestrian crossing safety improvements on Nicollet Avenue at John F. Kennedy High School driveway
- » Pedestrian crossing Safety improvements on Portland Avenue at Bishoff Lane (Valley View Middle and Elementary Schools)
- » Pedestrian and bicycle improvements around Thomas Jefferson High School and Hubert Olson Middle and Elementary Schools
- » Pedestrian and bicycle safety improvements along W 106th Street and East Bloomington Freeway (Oak Grove Middle and Elementary Schools)

Completed SRTS Projects

Several school pedestrian improvement projects have already been completed including:

- » **SRTS Funded Projects:** In 2010, the City filled gaps in the sidewalk network around four schools:
 - **Poplar Bridge Elementary:** Sidewalk infill along west side of Morris Avenue between 86th and 85th Streets
 - **Valley View Elementary and Middle Schools:** Sidewalk infill along west side of 3rd Avenue between E 91st and E 92nd Streets

Figure 2.2: City of Bloomington Public Schools Pedestrian Improvements (source: City of Bloomington)



- **Valley View Elementary and Middle Schools:** Sidewalk infill along north side of 88th Street between Park Avenue and 15th Avenue
- » **Oak Grove Middle and Elementary Schools:** Enhanced crosswalk across W 106th Street; right turn bay on W 106th Street into the school driveway; and a mixed-use trail along W 106th Street between Humboldt Ave E and the I-35W ramp
- » **Jefferson High School:** Enhanced crosswalk added to the existing W 102nd Street crosswalk at Harrison Avenue
- » **Ridgeview Elementary:** Mid-block crossing on Nesbitt Avenue relocated to a safer location by the City and supplemented with ADA accessible pedestrian ramps; on-site trail reconstructed by the District
- » **Washburn Elementary:** Enhanced crosswalk constructed on W 84th Street; 84th Street and Xerxes Avenue signal replaced with many pedestrian improvements; striping on W 84th Street modified from a 4-lane to a 3-lane; right turn bay constructed for right turning vehicles that stack onto W 84th Street from the school driveway; and school driveway opening widened and median separation added between the entering and exiting vehicles.
- » Other minor modifications have been completed to improve pedestrian safety around schools including the addition of street lighting at crosswalks and the restriction of parking within 100 feet in advance and 50 feet past school crosswalks
- » Bike racks have been added at many of the schools throughout the City/District with the use of Statewide Health Improvement Plan (SHIP) funding for SRTS

In Support of Active and Healthy Living

A spate of recent public health initiatives and studies have tout the benefits of active and healthy living, and reinforce the public health goals of Bloomington's Alternative Transportation Plan and policy directions. The following describes key research findings and resources relevant to the formation of this plan.

Active Living By Design – A Complementary Philosophy

The “Active Living by Design” movement spreading across the country is a complementary philosophy to that of Bloomington’s own vision and values. As defined by one of the initiators of the movement, active living by design “is a way of life that integrates physical activity into daily routines.” Key principles of this movement that apply to Bloomington include:

- » Physical activity is a behavior that can favorably improve health and quality of life
- » Everyone, regardless of age, gender, language, ethnicity, economic status or ability, should have safe, convenient and affordable choices for physical activity
- » Buildings should be designed and oriented to promote opportunities for active living, especially active transportation
- » Transportation systems, including transit, should provide safe, convenient and affordable access to housing, worksites, schools and community services
- » Parks and green space, including trails, should be safe, accessible and part of a transportation network that connects destinations of interest, such as housing, worksites, schools, community services and other places with high population density
- » Municipalities and other governing bodies should plan for ongoing interdisciplinary collaboration, promotion of facilities, behavioral supports, policies that institutionalize the vision of active living, and routine maintenance that ensures continued safety, quality and attractiveness of the physical infrastructure



Enhanced crosswalk at Oak Grove Middle School

Active Living by Design is a national program of the Robert Wood Johnson Foundation and is part of the UNC School of Public Health in Chapel Hill, North Carolina. Additional information and support is available online at <http://www.activelivingbydesign.org/>.

Figure 2.3: Key Research Findings from the Design for Health Initiative

Costs of Physical Inactivity

Physical inactivity causes numerous physical and emotional well-being concerns, is responsible for an estimated 200,000 deaths per year in the United States, and contributes to the obesity epidemic. The design of communities and the presence or absence of parks, trails, and other quality public recreational facilities affects people's ability to reach the recommended 30 minutes each day of moderately intense physical activity. A growing number of studies show that people in activity-friendly environments are more likely to be physically active in their leisure time. For example, findings clearly suggest that better access to facilities, pleasant surroundings, safe places, walkable neighborhoods, and activity-friendly environments all encourage higher levels of active recreation. Proximity, connectivity, and design quality of alternative transportation infrastructure can be added to this list to encourage higher levels of alternative transportation.

Giving children better access to healthy choices is vital to reducing the rate of obesity. Since the 1970s the percentage of obese children 6 to 11 years old has tripled. Obesity has doubled among preschool children and adolescents. Turning these statistics around means increasing children's physical activity and improving what they eat. Much research has focused on educating children and changing their behavior, but these approaches have had limited success. Changing the environments in which children eat and play is now seen as an essential strategy in fighting the obesity epidemic.

Accessibility

Being able to reach or access a variety of destinations (e.g., jobs, financial institutions, social contacts, health services, grocery stores) is critical to many dimensions of a healthy community. Particularly for the elderly, the young or the financially disadvantaged, transit is the mode of transportation that provides such access (where walking or cycling is too burdensome). Opportunities to access transit service, in terms of service location and service time, often rely on certain levels of density.

Emotional Well-Being

A number of studies have demonstrated how direct contact with vegetation or nature leads to increased mental health and psychological development. Recent data show that depression and other mental-health disorders will account for some of the world's largest health problems in upcoming decades. People do not have to actively use nature to benefit from it; rather, visual exposure is enough. It is important to consider that different groups of people have differing views of what constitutes nature in the built environment, with variation by education level, age, ethnicity, profession, residential location, etc.

Design for Health provides a series of informational fact sheets on a host of planning issues in support of local comprehensive planning. The informational sheet related to promoting accessibility and physical activity through comprehensive planning and ordinances may be of particular value, as is the case with other fact sheets in this series. Additional information and support is available online at <http://www.designforhealth.net/>.

Design for Health Initiative

Through their Design for Health initiative, the University of Minnesota and Blue Cross and Blue Shield of Minnesota have developed a set of complementary research findings that further enhance the active living philosophy and provide tools that support integration into the fabric of community plans. The information in Figure 1.22.3 provides an overview of pertinent findings from this research.

Design for Health bridges the gap between the emerging research base on urban design and healthy living and the questions and priorities of local governments. The first phase of the initiative (2006-2008) created innovative, practice-oriented tools to help integrate human health into urban planning and environmental design in nineteen partner communities. The second phase focused on tool development and public education. Partner communities in the program received various forms of technical assistance and training through the University of Minnesota.

BPH Healthy Lifestyle Initiative

Bloomington Public Health (BPH) promotes practices and behaviors to help people stay healthy. BPH's range of services is far-reaching, providing health care for all ages. One of the core principles of this service is the promotion of healthy and active lifestyles to prevent disease, such as heart attacks, obesity, and Type-2 Diabetes. To this end, BPH fully embraces the vision, values, and philosophies defined in this section as an essential part of enhancing the health and wellness of the community and improving the quality of life in Bloomington.

Alignment with Regional Plans and Policies

Across the region and country, there is growing recognition and real action being taken to more effectively incorporate pedestrian and bicycle traffic into multi-modal transportation systems. The following describes the major policies and design standards emerging in the region and the implications for local nonmotorized transportation planning.

Hennepin County Pedestrian Plan (2013)

This Hennepin County Pedestrian Plan addresses the county's role in making walking a safe and easy choice for residents. The plan is intended to guide implementation of pedestrian improvements within Hennepin County. This plan identifies three overarching goals:

- » *GOAL 1: Improve the safety of walking*
- » *GOAL 2: Increase walking for transportation*
- » *GOAL 3: Improve the health of county residents through walking*

The plan lays out broad strategies for improving pedestrian safety and access, but largely does not specify locations. Recommendations in the plan are intended to serve as guidance for future roadway construction and maintenance projects, and to highlight implementation strategies and key enhancements for existing county pedestrian facilities.

Hennepin County 2040 Bicycle Transportation Plan (Draft - October 2014)

The **draft** 2040 Bicycle Transportation Plan updates the county's 1997 bicycle plan to reflect current and growing uses of cycling in the region.

The planned bikeway system, shown in Figure 2.5, adds new on- and off-street facilities to the existing county system, and includes a number of planned facilities in the city of Bloomington. These recommendations align with the proposed routes and system plan described in Section 3.

In addition to physical route planning, the county bicycle plan describes the policy framework within which the plan was developed as well as strategies for coordination with other regional and local planning efforts. Key goals and policy directions are summarized in Figure 2.4.

Three Rivers Park District

Hennepin County is collaborating with Three Rivers Park District (TRPD) in the creation of the 2040 Bicycle Transportation Plan to ensure appropriate coordination and connections between county and TRPD facilities. See Figure 2.6 for an excerpt of the proposed regional trail system and TRPD facilities in Bloomington.

Figure 2.4: Key Policy Statements from the Hennepin County 2040 Bicycle Transportation Plan (**Draft** - October 2014)

2040 Bicycle Transportation Plan Vision and Goals (pp.10-13)

VISION: Riding a bicycle for transportation, recreation, and health is a comfortable, fun, routine part of daily life throughout the county for people of all ages and abilities.

RIDERSHIP GOAL: Promote the bicycle as a mode of transportation that is practical, convenient, and pleasant for commuting, health and exercise, and outdoor recreation.

BIKEWAY SYSTEM GOAL: Collaboratively build an integrated county bicycle system that allows bicyclists of varying skills to safely, efficiently and comfortably connect to and between all destinations within the county.

SAFETY AND COMFORT GOAL: Create a safe and comfortable county bikeway system.

» **SUSTAINABILITY GOAL:** Implement bikeways and support facilities as an essential tool in realizing environmental, social and economic sustainability.

MAINTENANCE GOAL: Protect the county's and the park district's investments in the bikeway system and reduce seasonal hazards through partnerships.

Related County Programs and Policies (pp. 75-76)

The 2040 Bicycle Transportation Plan is consistent with other county plans and policies, including:

- » Hennepin County Active Living Policies and Partnerships
- » Hennepin County Complete Streets Policy
- » Hennepin County Transportation Systems Plan
- » Hennepin County Public Works Strategic Plan
- » Hennepin County Pedestrian Plan

Three Rivers Park District Vision Plan (2010) articulates the following vision for the park system:

Through leadership, advocacy, innovation and action, Three Rivers is a model of a sustainable regional system of parks and trails that meets the needs of the present while ensuring that the needs of future generations are well-met.

The Vision Plan also recognizes the growing use of TRPD regional trails as transportation routes, as well as recreational destinations, and underlines the importance of these connections to the multi-modal transportation network.

Metropolitan Council 2040 Transportation Policy Plan (Draft - August 2014)

As with Hennepin County, the Metropolitan Council supports provisions for pedestrians and bicycles as part of alternative transportation investments in cities within its jurisdiction. This is reflected in the Council's **draft** 2040 Transportation Policy Plan (TPP). The TPP, among other objectives, provides communities with guidance to help structure local land use and transportation systems in ways that maximize future transportation investments and align with regional transportation goals and objectives. Figure 2.7 highlights key guidance from the TPP.

Adjacent Community Plans

It is most important that linkages to adjacent communities are provided and/or improved. Consistency with the bicycle plans for neighboring communities strengthens the systems in each city:

- » Edina (2007)
- » Richfield (2012)
- » Eden Prairie (2014)
- » Burnsville (1999)

Figure 2.5: Planned Bikeway System, Hennepin County 2040 Bicycle Transportation Plan (DRAFT - October 2014)

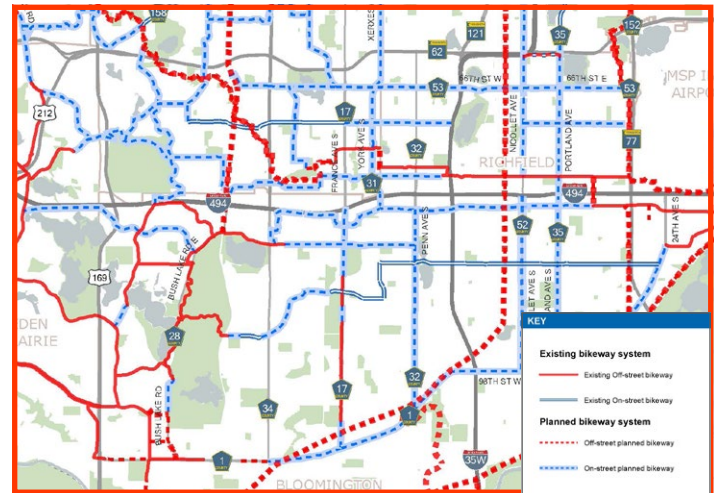
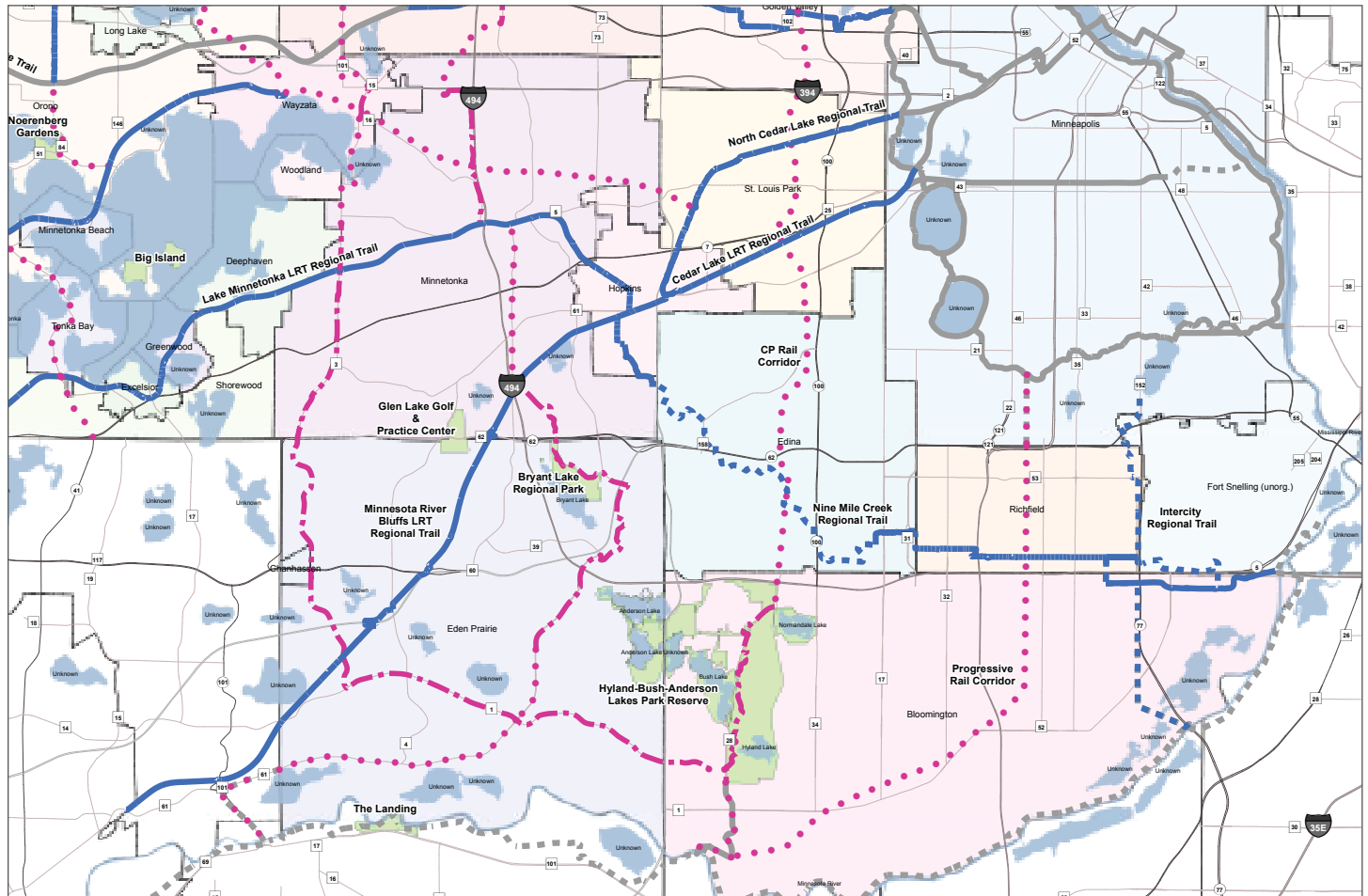


Figure 2.6: Proposed Regional Trail System - Three Rivers Park District, Hennepin County 2040 Bicycle Transportation Plan (DRAFT - October 2014)



Conceptual TRPD Regional Trail System

- Existing Regional Trail (Part of Existing TRPD Regional Trail System)
- Existing Local Trail - Proposed for Inclusion in TRPD Regional Trail System
- Proposed/Planned Regional Trail Corridor (Part of Existing TRPD Regional Trail System)
- Proposed/Planned Trail Corridor - Proposed for Inclusion in TRPD Regional Trail System

State and Other Non-TRPD Regional Trails

- Existing
- Planned

Figure 2.7: Relevant Guidance from the Metropolitan Council 2040 Transportation Policy Plan (Draft - August 2014)

Goals of the 2040 Transportation Policy Plan

GOAL: Safety and Security The regional transportation system is safe and secure for all users.

GOAL: Access to Destinations People and businesses prosper by using a reliable, affordable, and efficient multimodal transportation system that connects them to destinations throughout the region and beyond.

GOAL: Competitive Economy The regional transportation system supports the economic competitiveness, vitality, and prosperity of the region and state. Objectives include:

GOAL: Healthy Environment The regional transportation system advances equity and contributes to communities' livability and sustainability while protecting the natural, cultural, and developed environments. Objectives include:

GOAL: Leveraging Transportation Investment to Guide Land Use The region leverages transportation investments to guide land use and development patterns that advance the regional vision of stewardship, prosperity, livability, equity, and sustainability. Objectives include:

Guiding Principles for the Development of Regional Bicycle Corridors

The following guiding principles should inform local planning around regional bicycle corridors identified in the Metropolitan Council's Regional Bicycle Transportation Network:

Overcome physical barriers and eliminate critical system gaps. More attention and planning will be needed at the local level to identify existing gaps in the Regional Bicycle Transportation Network and opportunities to eliminate or divert from physical barriers. The Metropolitan Council will assist locals in planning for this critical element in developing the Regional Bicycle Transportation Network.

Facilitate safe and continuous trips to regional destinations. Planning for the development of bicycle facilities along the Regional Bicycle Transportation Network, as well as for connections between the Regional Bicycle Transportation Network and local bikeway systems, should be coordinated with Metropolitan Council staff.

Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users. Local roadway conditions and geometry, along with the available off-road trails network will largely determine what alignments and facility treatments may be feasible within an established regional bicycle corridor. Local agencies should try to accommodate cyclists from ages 8 to 80 with the full range in abilities from novice to avid cyclist by providing a range of off-street and on-street bicycle facilities. In some urban, high demand corridors, it may even be desirable to provide both an on-street bike facility (like a bike lane) and a parallel off-road trail. In most corridors with space for only an on-road facility, a conventional or buffered bike lane may be the optimal solution to attract the widest range of cyclists.

Integrate and/or supplement existing and planned infrastructure. Wherever possible, it is desirable to construct bicycle facilities along existing roadways or implement trails on corridors with minimal requirements for new land acquisition. This is important to assuring that scarce dollars for bicycle infrastructure can be efficiently invested to provide a complete regional network in a shorter timeframe.

Consider opportunities to enhance economic development. When planning specific alignments for the regional bicycle corridors, local bicycle planners should work closely with their economic development and land use planners to identify opportunities to enhance and/or serve as a catalyst to community development programs and projects. Connecting residential neighborhoods with shopping, entertainment, and work centers should be a major consideration when developing bicycle facility improvement projects.

Building a High Value Alternative Transportation System

A key concept of the ATP update is building a system that will be highly valued by local residents, under the presumption that a quality system will entice higher levels of use. The values ascribed to various forms of trails, pedestrian-ways, sidewalks, and bikeways are important because they are at the core of why a person uses a particular feature on a repeat basis. Studies clearly indicate that users make a distinction between alternative transportation features based on their perception of value, as Figure 2.8 illustrates.

As the graphic illustrates, safety and convenience are baseline determinants for whether a person will even use an alternative transportation feature irrespective of its quality. Once these two values are perceived as being acceptable, then the personal values will be given more consideration by the user. The following considers each of these values in greater detail.

Safety

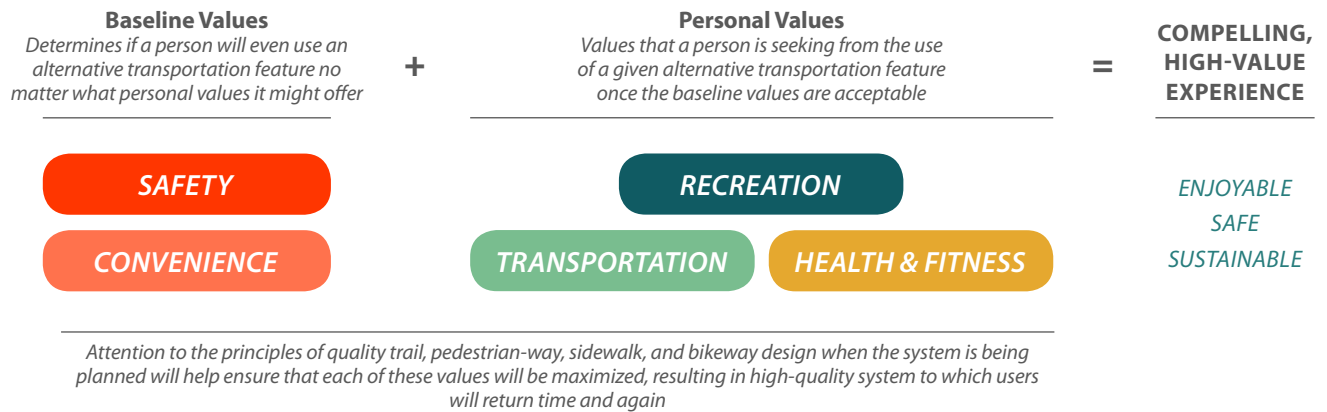
A sense of physical and personal safety is the most important value in that without it people are disinclined to use alternative transportation modes irrespective of how many other values might be provided. Physical safety can be relatively assured through good planning and design. Personal safety, which relates to a sense of well-being while using the system, is a less tangible yet still very important factor that cannot be taken lightly. This is especially important with safe routes to school, whereby parents will only allow their children to walk or bike to school if there is a high perception of safety.

Convenience

Convenience is important to day-to-day use of the alternative transportation system. As is clear from various studies, the vast majority of shared-use paved trails, for example, are used by those living within a few miles of the trail they use most frequently.

Although convenience is important, its influence is still tempered by recreational value. No matter how convenient, a poorly designed alternative transportation feature in an uninteresting setting will have limited recreational value. Alternatively, a well-designed feature in an interesting setting might draw users from some distance. The point is that all trails, sidewalks, and bikeways should be located where they are both convenient and offer the amenities that users are seeking.

Figure 2.8: Personal Values Ascribed to Alternative Transportation Features (Adapted from MN DNR's Trail Planning, Design, and Development Guidelines, 2007)



Recreation

Of all the values ascribed to an alternative transportation system, its recreational value is one of the most important in terms of predicting its level of use by the majority of residents, assuming that safety and convenience are not issues. In general, system features offering a high-quality recreational experience are those that:

- » Are scenic and located in a pleasant setting, natural open space, or linear corridor buffered from traffic and the built environment
- » Provide a continuous and varying experience that takes visitors to a variety of destinations and is a destination unto itself
- » Offer continuity with limited interruptions and impediments to travel

This underscores that system planning must be based on criteria that go beyond simply providing miles of trails, sidewalks, and bikeways – with considerable emphasis on the quality of the experience as much or more than quantity. While high-value, well located trails, for example, often pose more challenges to implement, the value of these features to the community will likely prove to be very high and worth the investment. Cities that have successfully integrated these types of trails often highlight them as key aspects of the community's quality of life.

Health and Fitness

Health and fitness is a growing and increasingly important user value that cannot be overlooked nor understated. Fortunately, this value is generally achieved if safety, convenience, recreational, and transportation values are met. Most critical to accommodating this value is developing an interlinking system that provides numerous route options of varying lengths as necessary to accommodate the types of uses envisioned.

Transportation (Commuting)

The transportation (commuting) aspect of an alternative transportation system is valuable to a subset of the overall user population. Although this is traditionally a value that appeals to a smaller group of users, an underlying goal of the plan is to entice recreational, fitness, and utilitarian users to use the system more and more for transportation. Transportation purposes includes using the system to get to work, school, local store, or around the neighborhood, along with other utilitarian trips that would otherwise be done using a motor vehicle. To that end, realizing the use of the system for transportation will only be successful if it is perceived as safe, convenient relative to a user's skill level, and of a high quality. Without such a system, residents will simply use their vehicle.

Guiding Principles

The visions and values defined in this section underscore the importance to the community of evolving the transportation system over time to better serve the broad array of contemporary transportation needs of individuals and families living, working, and recreating in Bloomington. The following defines the guiding principles used for development of the plan described in Section 3.

Four Guiding Principles

With the above in mind, four guiding principles provide the foundation for developing the Alternative Transportation System Plan, including:

- » **Principle #1:** Develop an initial or core system of interconnected, high value trails, pedestrian-ways, and bikeways to form the backbone of an alternative transportation system that will evolve over time and complement the existing vehicular-oriented system.
- » **Principle #2:** Incrementally fill in gaps and otherwise improve the pedestrian and bicycle public infrastructure to enhance safety and encourage the use of alternative forms of transportation within neighborhoods and along routes to school.
- » **Principle #3:** Include alternative transportation features into public and private built infrastructure as new development or redevelopment occurs over time.
- » **Principle #4:** Consider ongoing maintenance costs and funding opportunities in planning for future alternative transportation improvements to ensure that the system is sustainable and can be maintained over the long-term.

Quality Over Quantity

In support of these principles, the plan strongly advocates the overarching idea that quality should take precedence over quantity. The key understanding here is that higher levels of use of alternative forms of transportation will only occur if the facilities meet or exceed expectations and desirable design standards and aesthetic qualities. Developing facilities that do not reach this standard tend to perform poorly and serve to disenfranchise those they were intended to serve.

Under this pretense of quality first, the alternative transportation plan purposefully strives to avoid overreaching and instead focuses on what is reasonably achievable in a quality fashion. Overreaching in this context refers to making hard choices about priorities and avoiding recommending a new trail or sidewalk along every street when the achievability of doing goes beyond practical realities. Whereas doing so may indeed be a desired long term vision, this plan identifies core networks in a reasoned manner. Should the provisions of the plan be accomplished, future plans can build upon these past successes.

Core User Groups Being Served

The alternative transportation system plan described in Section 3 focuses on non-motorized forms of transportation, including pedestrians and bicyclists. Pedestrians include walkers, hikers, and in-line skaters of varying ability and mobility. In general, the intent of the plan is to develop facilities for ambulatory people as well as those in wheelchairs or using other forms of assistance. Accommodating seniors and the elderly is especially important given the aging of the population. Expanding pedestrian-level access to bus and LRT service is also an important goal of the alternative transportation plan.

Although not widely used today, alternative forms of personal transportation should also be kept in mind as the plan is implemented. For example, small scooter-type one-person vehicles are becoming more available. Policy decisions regarding the use of alternative forms of personal transportation on trails, sidewalks, and pedestrian-ways should keep pace with implementation of the plan, meaning that these forms of transportation should be fully considered as each major plan element is planned and implemented.



ATP System SECTION

3

System Overview

The Alternative Transportation Plan System (ATP system) defines the core network of regional trails, community corridors, and local connections that will connect residents and visitors to key destinations in the City and adjoining communities. This following describes the major components of the ATP System and provides broad guidance for the design of alternative transportation facilities and related amenities.

The **key alternative transportation routes** identified in the ATP System, shown in Figure 3.2, respond to recommendations, priorities, and concerns voiced by a wide range of stakeholders, representing those who live, work, and recreate in the City of Bloomington. Input on the system was collected through various stakeholder engagement activities, including community open houses, focus groups, an online questionnaire, and ongoing collaboration with City staff, the planning commission, elected officials, and regional planning entities. See p. 1-8 to 1-10 in Section 1 for a summary of community input.

Destinations

“Accessibility,” or the ability to reach a variety of destinations, is an important consideration in designing for active, healthy communities. By prioritizing connections to key local and regional destinations, the ATP system supports improved accessibility for pedestrians and bicyclists. The ATP system, shown in Figure 3.2 highlights destinations throughout the city. These key destinations are a important component of the system plan and provide part of the underlying rationale for alternative transportation planning. The following considers the various types of destinations.

Parks and City-Based Public Facilities

Parks are key destinations at both the community and neighborhood level, and providing safe and convenient access to all parks is the primary objective. For community-scale parks, where visitors are likely to come from a broader, community-wide service area, more robust alternative transportation features are appropriate. For neighborhood parks that draw visitors primarily from within the neighborhood, focusing on existing infrastructure and more localized connections may be sufficient. For example, a community scale park such as Dred Scott Playfield, which draws visitors from across the city, may warrant a range of potential alternative transportation facilities such as bikeways, trails, and sidewalks. A city-based public facility such as Bloomington’s Civic Plaza would warrant similar facilities. On the other hand, for Brye Park, which serves a more localized population, improvements over time should focus on enhancing the existing infrastructure of sidewalks and local trails, with particular attention to completing missing links and replacing narrow sidewalks.

Metro Transit Connections

The metropolitan transit system in Bloomington consists of bus routes throughout the city and LRT connections within Airport South. Support facilities include park and ride lots, transit centers, and LRT stations. Bike lockers are provided in select locations on a fee basis. The route system is determined by Metro Transit (a service of the Metropolitan Council) based on ridership and demand. Figure 3.1 illustrates the transit routing system in the Bloomington area, along with the locations for park and ride lots and transit centers/stations.

A priority of the ATP system is to entice higher levels of use of the metropolitan transit system by making access to park-and-ride lot locations, transit centers, and LRT stations via trails, sidewalks, and bikeways more complete, accessible, and safe. Working closely with transit authorities on providing support facilities and amenities (i.e., bike lockers, bike racks and bike racks on buses and LRTs) in convenient locations where the metro transit system interfaces with the core alternative transportation system is part of this priority. This includes both established transit locations as well as other select locations in the city where standalone bicycle facilities could be provided along various bikeways, trails, and pedestrian-ways.

Schools(Public and Private)

Both public and private schools are considered key destinations for improved alternative transportation facilities. Under this plan, the goal is to enhance the core infrastructure of trails, sidewalks, and bikeways near schools as part of a comprehensive Safe Routes to School (SRTS) Program, which will be implemented over time on a priority basis in partnership with the School District. Although the alternative transportation system plan shares common goals with the SRTS program, site-specific plans will be prepared as the SRTS program is implemented to ensure safe access issues pertinent to a given school are addressed.

Accessibility enhancements associated with school sites will occur in phases as resources allow. The SRTS program builds on the existing alternative transportation system and infrastructure improvements that resulted from the original 2008 Alternative Transportation Plan (ATP) (See page 2-5 for more on SRTS).

Retail, Business, and Commercial Nodes

The 2008 ATP prioritized high-activity commercial nodes where there was a critical mass of visitor/employee traffic to justify connection to a city-wide alternative transportation system. The updated system plan builds on improvements completed since 2008 and expands the existing system to enhance access to additional, second-tier commercial destinations.

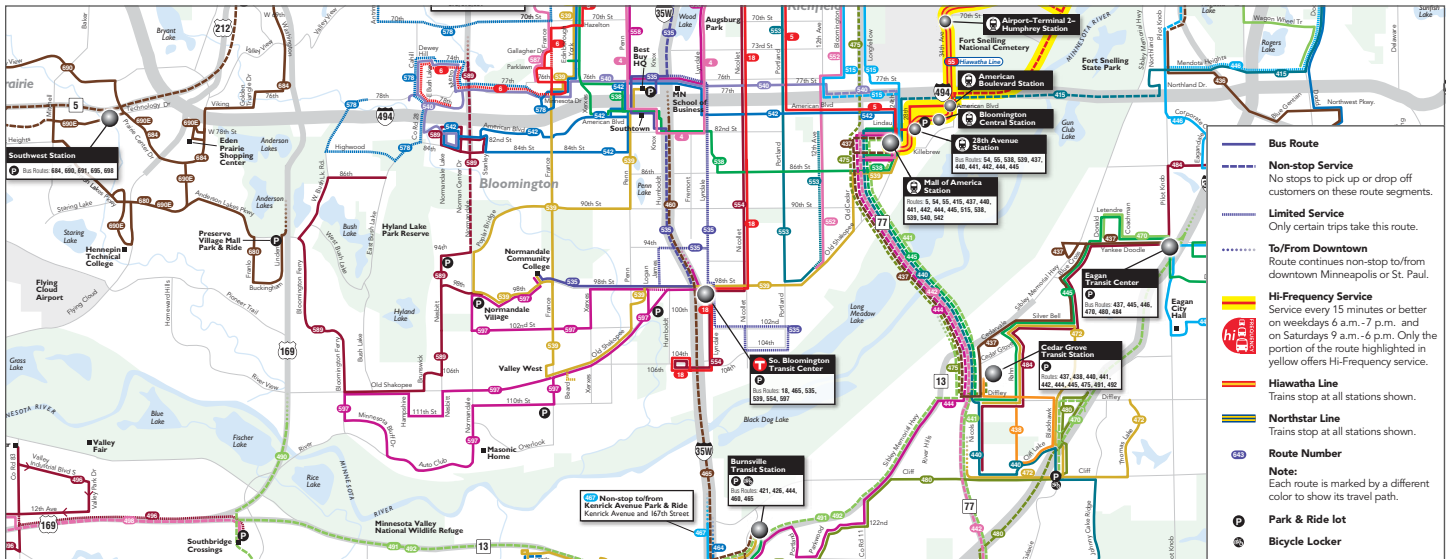


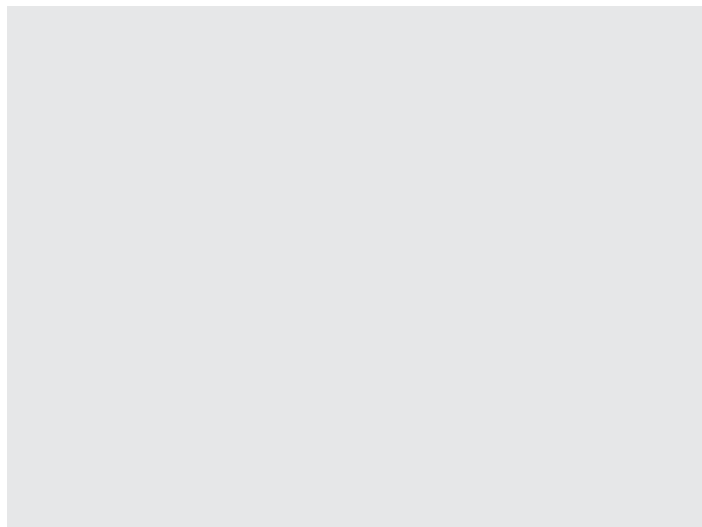
Figure 3.1: Metro Transit system in Bloomington area (source: Metro Transit)



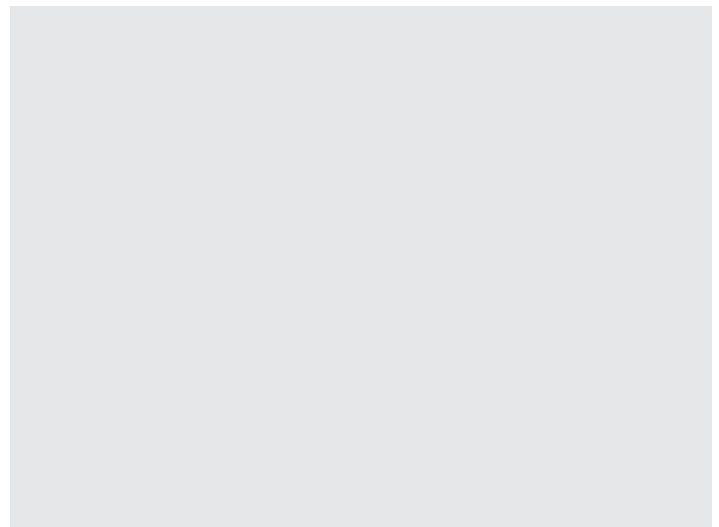
Parks and City-Based Public Facilities



Metro Transit Connections: Blue Line LRT Station with Bike Lockers and Bike Racks in foreground



Schools(Public and Private)



Retail, Business, and Commercial Nodes

Figure 3.2: ATP System



This plan does not prescribe specific facility types (trail, sidewalk, bike lanes, etc.) for the planned routes, but does make general recommendations for routes that may be suitable for an on-street versus off-street facilities. Decisions about what facility type is appropriate for a given route should be made in light of the specific context and constraints of that route, cost factors, public input, and other considerations.

See p. 3-12 for a general discussion of alternative transportation facility types that may be implemented in the city.



Key Alternative Transportation Routes

The system plan establishes a network of key alternative transportation routes throughout the city that support alternative modes of transportation and enhance access to key regional and local destinations. The system plan does not specify the type of facility (trail, sidewalk, bikeway, etc.) recommended for a particular route, but designates general “route types” that work in concert to ensure a high level of access to alternative transportation facilities to serve a range of users and activities:

- » Regional trails provide high value recreation, fitness, and transportation trails connecting to regional destinations in and around the city.
- » Community corridors support the regional trail system by providing connections to local destinations within the city and connect to adjacent cities.
- » Local connections link residential areas not served by regional trails and community corridors to the broader system.

The system plan is designed to be ambitious in its vision, yet realistic and achievable in the context of resources available to the City. Section 4 of this plan addresses implementation of the system plan, including identification of priority projects, phasing, funding, and operations.

The following considers the three alternative transportation route types in greater detail.

Regional Trails

Regional trails are routes that pass through or provide connections to regional destinations in and around the City. The regional trails form the backbone of the alternative transportation network, providing commuting routes and recreational corridors, and enhancing access to transit facilities. Regional trails are typically off-road facilities. The routes are generally of a greater length to allow for inter-city or inter-county connections. Regional trails are typically operated at a county or state level and are typically multi-use trails, but may include other facility types based on the context and constraints.

Community Corridors

Community corridors provide intra-city connections to local destinations in the city as well as access to the regional trails. Local destinations may include recreational, institutional, and commercial uses, as well as transit facilities. These routes are typically operated at the City level. Community corridors may include a combination of on-street and off-street facilities, and should aim to provide the highest level of bike facility possible (with regard to level of protection and separation from motor vehicle traffic) within physical and financial constraints. For example, where space or other constraints do not allow for a multi-use trail, a combination of sidewalk and on-street bike facility should be considered as the minimum treatment.

Local Connections

Local connections provide the finest level of level of connectivity in the system, serving primarily as access routes to higher levels of the system. These facilities provide access from residential areas and make the final connections to destinations that are not immediately adjacent to regional trails or community corridors. Local connections are typically operated at the City level. Facilities may include a combination of on-street and off-street facilities, furnishing, at a minimum, sidewalk connections and signed bike routes.



Regional trail on the northern end of the Hyland Trail Corridor enhances access to the regional park



Hyland Regional Trail



Minnesota Bluffs On-road facility



Normandale Lake District

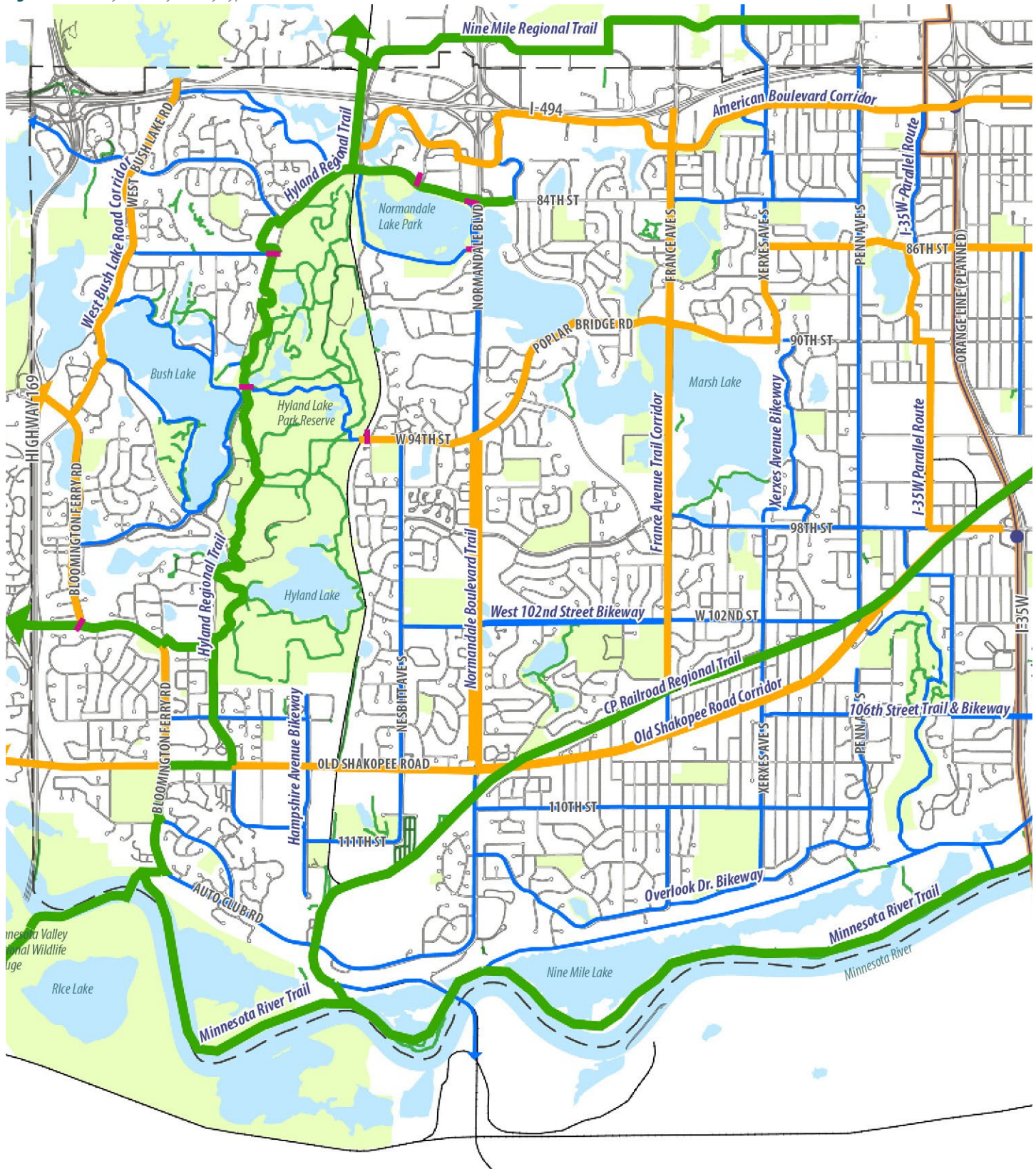


Local Connections - need description



Local Connections - need image and description

Figure 3.3: ATP System - By Facility Type



The ATP system defines the core network of regional trails, community corridors, and local connections that will connect residents and visitors to key destinations in the City and adjoining communities. The key destinations and key alternative transportation routes identified in the ATP system respond to recommendations, priorities, and concerns voiced by a wide range of stakeholders, representing those who live, work, and recreate in the City of Bloomington.







User Groups and Preferences

Each of the facility types described in this section serves a particular purpose in meeting local needs. Recognizing that different user groups have different preferences and needs, the following discussion rates various facility types based on their value to individual user groups. The higher the value rating, the more likely that facility type will be used by a particular user group.

The table below considers the most common alternative transportation user groups Bloomington, and the values and preferences that are likely to be of greatest importance to those groups.

Figure 3.4: Preferences of Common User Groups

User Group	Preferences	Symbols
Family Group – Various Modes	Safety and convenience are top priorities, followed by a pleasant recreational experience. Controlled, traffic-free access to sidewalks and trails is preferred. Length of trail is less important than quality of experience. Will typically only use low-volume residential streets when biking or skating, and rarely busy streets even with bike lanes or routes.	 FAMILY
Recreational Walker, Bicyclists, Skateboarders, In-Line Skater and Roller Skiers	Same as family user group, with trail continuity and length also being important for repeated use. 20 miles of connected trails are needed for bicyclists, at a minimum. This user group is also more comfortable with street crossings. Bicyclists, skateboarders, and in-line skaters will use roads that are not too busy. Loops are preferred over out-and-back routes for variety.	 RECREATIONAL
Fitness Walker/Jogger, Bicyclists, In-Line Skater and Roller Skiers	Length of trail and continuity are most important, although an appealing setting is also desired. Bikers are reasonably comfortable on busier roads, but prefer bike lanes/routes with adequate separation from vehicles. Bikers will often use a combination of roads and trails to create a desirable loop, which is much preferred over out-and-back routes.	 FITNESS
Transportation Walker, Bicyclists, In-Line Skater and Roller Skiers	Directness of route is important. Will use a combination of sidewalks, trails, residential streets, and roads that are relatively safe, convenient, and direct. Bike lanes/routes are preferred on busy roads to improve safety. Bicyclists are not overly dependent on trails, but will use them if convenient and not too heavily used by families and recreational users, who tend to slow them down. Walkers need a trail or sidewalk.	 TRANSPORTATION

RESOURCES FOR FACILITY DESIGN AND MANAGEMENT

The development of Bloomington's alternative transportation system should be consistent with the standards, best practices, and design guidelines established by leading experts in alternative transportation planning.

MNDNR (Minnesota Department of Natural Resources) The MNDNR Minnesota Trail Planning, Design, and Development Guidelines provides the baseline standards and guidelines for developing multi-use trails and natural-surfaced trails.

International Mountain Bicycling Association (IMBA) has several guidebooks for building sustainable mountain biking and hiking trails

AASHTO (American Association of State Highway and Transportation Officials) AASHTO's Guide for the Development of Bicycle Facilities provides information on how to accommodate bicycle travel and operations in a variety of roadway conditions. The AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities provides guidance on the planning, design, and operation of pedestrian facilities along streets and highways.

The Federal Highway Administration (FHWA) regards the AASHTO guides as the primary national resources for the design, planning, and operations of bicycle and pedestrian facilities. The FHWA also supports the use of the NACTO Urban Bikeway Design Guide and the Institute of Transportation Engineers Designing Walkable Urban Thoroughfares, particularly for urban areas.

NACTO (National Association of City Transportation Officials) The NACTO Urban Bikeway Design Guide provides best practices and design guidelines for the development of urban bikeways and complete streets. NACTO also publishes the Urban Street Design Guide which presents additional principles and practices for street design, including intersection design features and other safety elements.

MNDOT (Minnesota Department of Transportation) the MNDOT Bikeway Facility Design Manual provides design and planning guidance for on-street and off-street bicycle facilities. MNDOT's Minnesota's Best Practices for Pedestrian/Bicycle Safety describes and evaluates a range of strategies to improve bicycle and pedestrian safety. The information in the document is consistent with FHWA and AASHTO guidance.

Americans with Disabilities Act (ADA) Whenever possible, alternative transportation facilities should meet accessibility standards as established by the ADA Standards for Accessible Design.

City of Bloomington Park Trails, Regional Trails & Sidewalk Usage Policy This policy establishes principles for the appropriate management of City park trails, regional trails, and sidewalks, including facility management, ADA compliance, and strategies for minimizing usage problems.

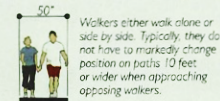
[Insert link to policy here.](#)

RELATIONSHIP BETWEEN TRAIL USERS AND TRAIL WIDTHS ON MULTIPURPOSE PAVED TRAILS

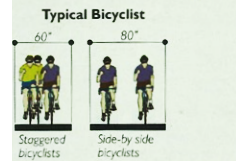
TRAIL USER SPACE REQUIREMENTS

Space requirements for common trail users are shown below. The dimensions denote space, which includes the physical space and basic maneuvering.

Typical Pedestrian (Walker/Jogger)



Typical Bicyclist



Typical In-line Skater



TRAIL WIDTHS REQUIRED TO ACCOMMODATE VARIOUS COMBINATIONS OF TRAIL USERS

Trail widths should be based on the public values offered and a clear understanding of the type of users that will be drawn to it and accommodated. For example, if the setting is scenic, location convenient, and/or length is suitable for elite users, the trail will likely attract many types of users with various skill levels. The trail's width must be based on these realities if the trail is to be successful. Doing otherwise could lead to higher levels of conflict, an increased propensity for accidents, and general visitor dissatisfaction — none of which is a desirable end.

Typical Two-Directional Trails at Various Widths



As trails widen, people begin to use them differently. Understandably, the most successful trails are those that accommodate the patterns of use people are inclined toward. At a neighborhood level, a "strolling width" is appropriate. On a major trail, the expectations of more specialized users and higher volumes of use should rightfully be accommodated.

Typical Shared-use Separated Trails



The first level of separated directional trails has shared uses going in a common direction, as illustrated. This is most common in wide-open areas with moderately heavy use patterns.

Typical Designated Use and Direction Trails

MNDNR Minnesota Trail Planning, Design, and Development Guidelines



NACTO Bikeway Design Guide

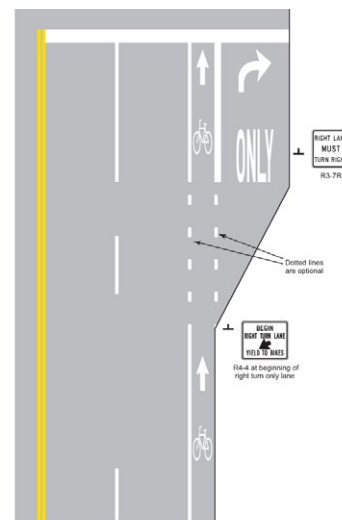


Figure 9C-3 Example of Bicycle Lane Treatment at a Right Turn Only Lane

MNDOT Bikeway Facility Design Manual

Alternative Transportation Facility Types

Decisions about what facility type (trail, sidewalk, bike lanes, etc.) is appropriate for a given route should be made in light of the specific context and constraints of that route (traffic volumes, right-of-way, land uses, etc.), cost factors, public input, and other considerations. The following describes the possible facility types that may be implemented in the city- and provides resources and general guidance on facility design, location, and best practices.

This planning process does not prescribe facility types for the planned routes, but does makes general recommendations for routes that may be suitable for an on-street versus off-street facilities (see Figure 3.2).

On-Street Facility Types



Signed Bike Route

- » On-street facility in which bicycles and vehicles share a lane of travel
- » Routes are marked with signage
- » Routes may include pavement -markings such as a “sharrow” to increase motorist awareness
- » Suitable for a local street that is low-speed and has low traffic volumes
- » Less investment in signage, traffic calming, and landscaping than a bike boulevard.

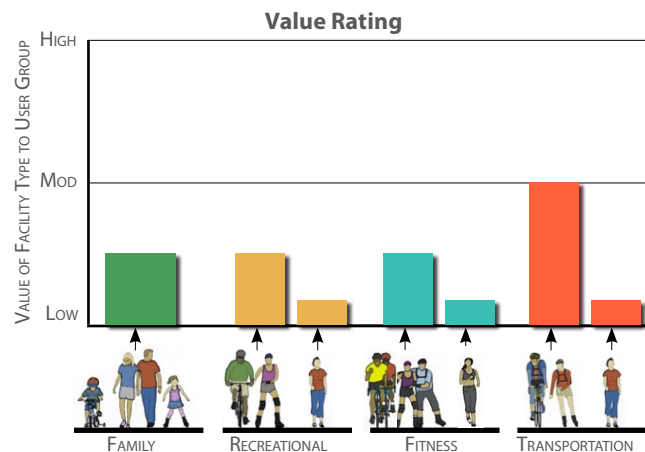


Figure 3.5: Value of Facility Type to User Groups - Signed Bike Route

On-Street Facility Types (Continued)



Bike Boulevard

- » On-street facility in which bicycles and vehicles share a lane of travel
- » Suitable for a local street that is low-speed and has low traffic volumes
- » Routes are marked with enhanced signage and pavement-markings such as a “sharrow” to increase motorist awareness
- » Emphasis on traffic calming techniques such as bump outs, median islands, vehicle diverters, roundabouts, and landscaping
- » May give bicycles greater priority by turning stops signs to give bicycles the right of way
- » Can provide an alternative to higher speed roadways that may be more intimidating for bicyclists with less experience or confidence
- » Encourages less-experienced bicyclists, but serves more experienced riders as well



Shoulder

- » On-street facility in which bicycles ride in the paved shoulder alongside motor vehicle traffic
- » Suitable for moderate-to-high traffic volume roadways
- » Provides an alternative bicycle connections where multi-use trails or bike lanes are not possible, but provides less visual and physical separation from motor vehicle traffic
- » More suited to confident riders (recreational and commuters) comfortable biking alongside moderate-to-high speed traffic

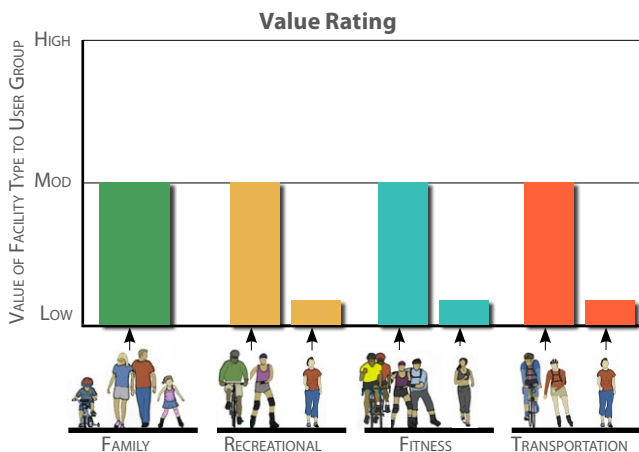


Figure 3.6: Value of Facility Type to User Groups - Bike Boulevard

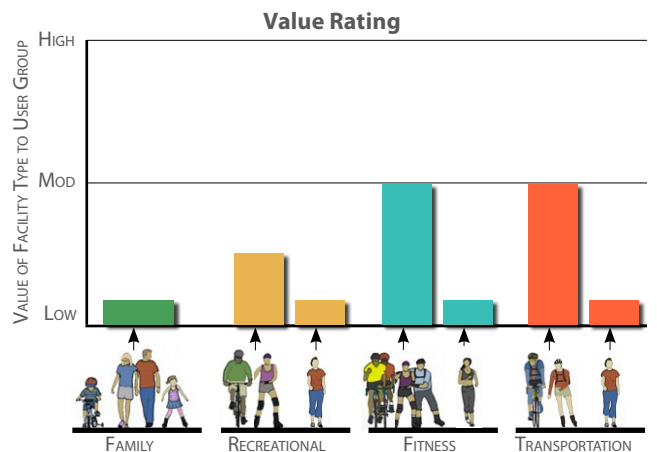


Figure 3.7: Value of Facility Type to User Groups - Shoulder

On-Street Facility Types (Continued)



Bike Lane

- » On-street facility in which bicycles ride in a dedicated lane alongside motor vehicle traffic
- » Bike lane is striped and includes pavement markings and signage to increase motorist awareness
- » Can be enhanced to include a striped or "buffered" space (if space allows) between the bike lane and motor vehicle lane and/or between the bike lane and an on-street parking lane, to protect from motor vehicles and from the door-opening zone of parked cars
- » Suitable for moderate traffic volume roadways
- » Offers more separation from motor vehicles than bike boulevards, bike routes, and shoulders
- » Suited to bicyclists comfortable moving alongside moderate-speed traffic; may not be preferable for less confident/experienced riders depending on context
- » Can be a low-cost option when adequate right-of-way is available, and can be incorporated into roadway repaving or restriping projects



Protected Bike Lane

- » On-street facility in which bicyclists are separated from motor vehicle traffic by a physical barrier such as bollards, parked vehicles, jersey barriers, or a concrete median
- » Can be designed to accommodate two-way bicycling on one side of the roadway
- » Can be separated from adjacent motor vehicle travel lanes by a curb; this type of high-priority protected bikeway is known as a cycle track
- » Offers a high-degree of separation from motor vehicle traffic
- » Suitable for high traffic volume roadways
- » A more comfortable on-street option for encouraging less-experienced bicyclists, but serves more experienced riders as well

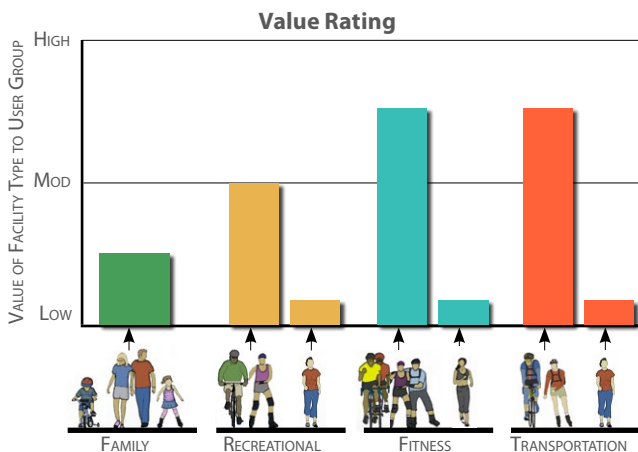


Figure 3.9: Value of Facility Type to User Groups - Bike Lane

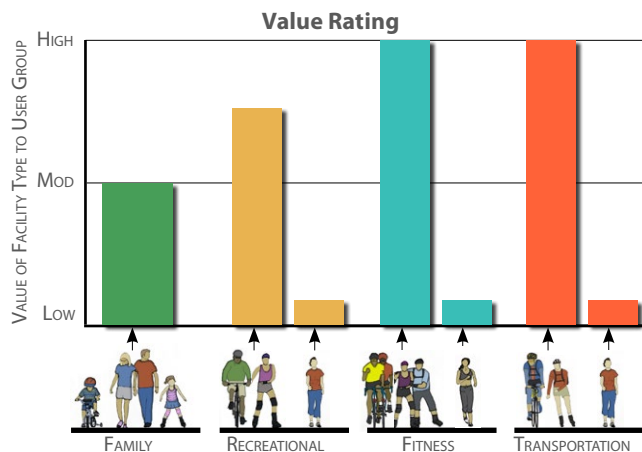


Figure 3.8: Value of Facility Type to User Groups - Protected Bike Lane

Off-Street Facility Types



Multi-Use Trail

- » Off-street facility that provides a shared space for bicyclists, pedestrians and other (non-vehicular) users
- » Can be designed with designated lanes for bicycles and pedestrians, especially in high usage areas and along commuter bike routes, to improve safety and avoid conflicts between users
- » Provides an off-street biking option in areas where motor vehicle speeds and volumes make on-street bikeways less appropriate; high degree of separation from motor vehicle traffic
- » Can be located outside of the street right-of-way and are often sited along abandoned or active rail corridors, waterways or through parks
- » Fewer street crossings and longer contiguous stretches of trail enhance the value of these facilities for recreation, fitness, and transportation users
- » Generally suited for a wide range of users and bicyclist of all ability levels; may not be desirable for bicycle commuters and more confident riders if trail is poorly-maintained, does not take a direct route, or does not have designated facilities for bicycles and pedestrians



Sidewalk

- » Off-street facility that includes a paved path for walking and running
- » Can be enhanced with streetscape amenities such as landscaping, street trees, and other amenities to improve the public realm and create a more safe, comfortable, and visually appealing environment for users
- » Provides a safe, dedicated space for pedestrian travel; may also support bicyclists and other nonmotorized users in areas where pedestrian volumes are relatively low and/or it is unsafe to ride in the street.
- » Typical City sidewalks are 6' wide for local roads and 8' wide along collector streets. Wider sidewalks should be considered for higher use areas.

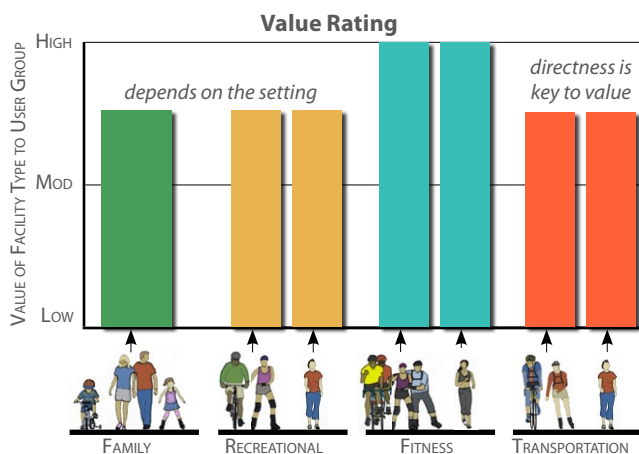


Figure 3.10: Value of Facility Type to User Groups - Multi-Use Trail

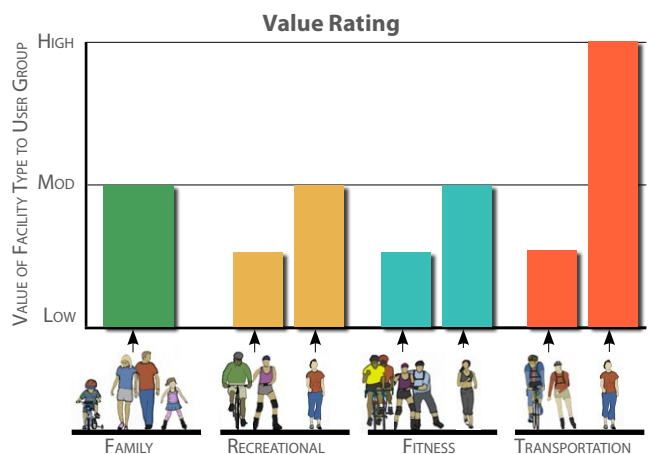


Figure 3.11: Value of Facility Type to User Groups - Sidewalk

Off-Street Facility Types (Continued)



Natural-Surfaced Trail

- » Off-street facility that provides unpaved, soft-surfaced tread for recreational activities such as hiking, skiing, and mountain biking
- » Can be located in city and regional parks and other community open spaces to take advantage of an appealing natural setting
- » Along the Minnesota River Valley, natural trails are typically native soil-surfaced and used for mountain biking and hiking
- » Fewer street crossings and longer contiguous stretches of trail enhance the value of these facilities for recreation and fitness users
- » Creating loops, even short ones, adds interest and meet the needs of recreation and fitness-oriented user groups
- » Signage and designated-use trails can enhance the safety and comfort of trail users
- » These trails offer high recreational value for specific user groups whose needs are not accommodated with other types of facilities; plan recognizes high demand for a robust natural-surface trail network within the city, especially along the Minnesota River Valley, a regional amenity and premier area for mountain biking and hiking
- » The Minnesota Trail Planning, Design, and Development Guidelines (MN DNR 2007) provides the baseline design standards and guidelines for developing multi-use trails and natural-surfaced trails
- » The International Mountain Biking Association (IMBA) has several guidebooks for sustainable mountain biking and hiking trails

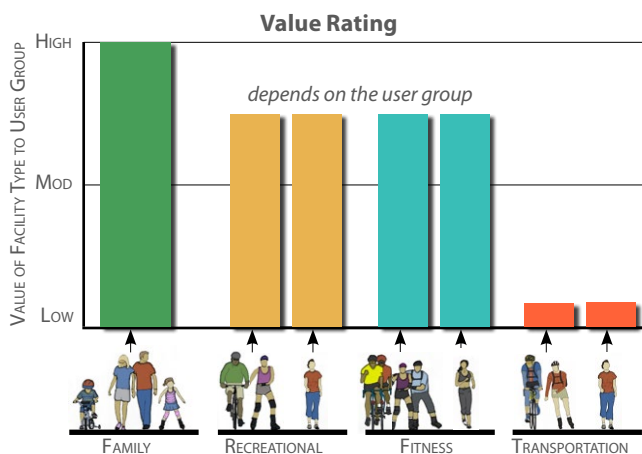
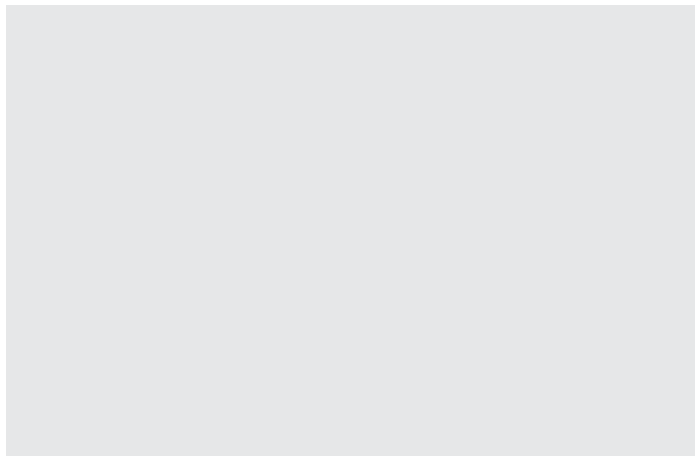


Figure 3.12: Value of Facility Type to User Groups - Natural Surfaced Trail



Pedestrian Only Path

- » Off-street facility that provides a dedicated space for pedestrian use
- » Can be located outside of the street right-of-way and are often sited along abandoned or active rail corridors, waterways or through parks; typically located within parks
- » Can be applied to areas unsuitable for bicyclists due to grades or potential for conflict with other users

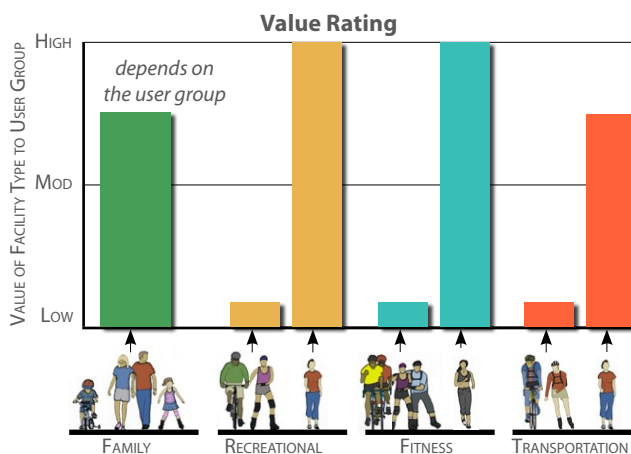


Figure 3.13: Value of Facility Type to User Groups - Pedestrian Only Path

Best Practices

The previous section outlines the general characteristics of alternative transportation facility types that may be implemented as part of the system plan. Equally important to encouraging alternative transportation is the design of support facilities, amenities, and streetscape features associated with these transportation facilities. The following outlines best practices to enhance the function, safety, comfort, and appeal of Bloomington's alternative transportation facilities.

These best practices support the aims of the City's Complete Streets policy to promote multi-modal access and accommodate pedestrians, transit riders, bicyclists, motor vehicle driver, and all users, regardless of age or ability. Complete streets design goes beyond simple providing a path, sidewalk, or trail, but designing the overall street environment to ensure the safety and comfort of a wide range of users. In addition to the system plan and best practices outlined here, the City's Safe Routes to School program is an integral part of actualizing the Complete Streets policy. See Section 2 for more on Complete Streets and Safe Routes to School.

Traffic Management

Reducing traffic speeds is an effective strategy for improving the safety and comfort of alternative transportation users. Lower speeds can be accomplished through a range of proven traffic calming measures. The Federal Highway Administration (FHWA) defines traffic calming as a combination of mainly physical measures that reduce the negative effects of motor vehicle use and improve conditions for nonmotorized users. Such measures include the following:

Lowering and enforcing speed limits

Lowering and enforcing traffic speeds, particularly speed limits under 20 miles per hour, has been shown to increase safety for pedestrians and bicyclists. Additionally, lower effective travel speeds improves the perceived sense of safety for all nonmotorized users, particularly in areas where bicycles travel in on-street facilities alongside or sharing a lane with motor vehicle traffic. This perception of safety plays a major role in influencing individual decision-making about walking or biking.

Speed limit reduction and enforcement is particularly important around schools, parks, and other areas where you might see a higher level of nonmotorized users and particularly young children. Partnering with local law enforcement to ensure traffic laws are obeyed (this includes enforcement of speeds, yielding to pedestrians in crossings, and proper walking and bicycling behaviors) is key to the effectiveness of such traffic calming measures.

Physical traffic calming devices

Figure 3.14 on the following page provides an overview of common physical traffic calming devices, including vertical deflections, horizontal shifts, closures, and roadway narrowings.

STATS ON SPEEDING:

Speeds over 20 mph significantly increase the likelihood of fatality in the case of a crash. Consider these statistics:

- » *If someone is hit by a car going at 40 mph, there is a 70 percent chance that person will die*
- » *If someone is hit by a car going at 30 mph, there is a 20 percent chance that person will die*
- » *If someone is hit by a car going at 20 mph, there is a 2 percent chance they will die.*

Advocates for bicycle and pedestrian safety recommend reducing speed limits on residential streets and near schools to 20 or 25 mph.

Source: <http://transalt.org/issues/speeding>



PHYSICAL TRAFFIC MANAGEMENT DEVICES

The following traffic calming best practices were adapted from the Institute for Transportation Engineer's fact sheet on traffic calming measures (<http://www.ite.org/traffic/closure.asp>).

- » Vertical deflections, horizontal shifts, and roadway narrowings are intended to reduce speed and enhance the street environment for non-motorists.
- » Closures (diagonal diverters, half closures, full closures, and median barriers) are intended to reduce cut-through traffic by obstructing traffic movements in one or more directions.

Vertical deflections

Speed Hump

- » Rounded raised areas of pavement typically 12 to 14 feet in length
- » Often placed in a series (typically 300 to 600 feet apart)
- » Applicable on residential streets; not typical on major roads, bus routes, or primary emergency response routes
- » Midblock placement, not at an intersection
- » Not on grades greater than 8 percent
- » Works well with curb extensions

Speed Table (Raised crosswalks or raised crossings)

- » Long raised speed humps with a flat section in the middle and ramps on the ends; sometimes constructed with brick or other textured materials on the flat section
- » Typically long enough for the entire wheelbase of a passenger car to rest on top
- » Applicable on local and collector streets and main roads through small communities
- » Works well in combination with textured crosswalks, curb extensions, and curb radius reductions
- » Can include a crosswalk

Raised Intersection

- » Flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps
- » Works well with curb extensions and textured crosswalks
- » Often part of an area-wide traffic calming scheme involving both intersecting streets
- » Applicable in densely developed urban areas where loss of parking would be unacceptable

Closures

- » Closures are typically applied only after other measures have failed or been determined to be inappropriate
- » For all types of closures, provisions are available to make diverters passable for pedestrians and bicyclists
- » Often used in sets to make travel through neighborhoods more circuitous - typically staggered internally in a neighborhood, which leaves through movement possible but less attractive than alternative (external) routes



Speed Hump



Speed Table



Raised Intesection



Insert image of 91st and James N. of City Hall

Horizontal Shifts

Neighborhood Traffic Circle (intersection islands)

- » Raised islands, placed in intersections, around which traffic circulates
- » Motorists yield to motorists already in the intersection
- » Requires drivers to slow to a speed that allows them to comfortably maneuver around them
- » Different from roundabouts
- » Applicable at intersections of local or collector streets
- » One lane each direction entering intersection
- » Not typically used at intersections with high volume of large trucks and buses turning left



Neighborhood Traffic Circle

Chicane (deviations, serpentine, reversing curves, staggerings)

- » A series of narrowings or curb extensions that alternate from one side of the street to the other forming S-shaped curves
- » Appropriate for midblock locations only
- » Most effective with equivalent volumes on both approaches
- » Typically, is a series of at least three curb extensions
- » Can use on-street parking to create chicane



Chicane

Roadway Narrowings

Choker (neckdowns, bulbouts, knuckles, or corner bulges)

- » Curb extensions at midblock or intersection corners that narrow a street by extending the sidewalk or widening the planting strip
- » Can leave the cross section with two narrow lanes or a single lane
- » Applicable on local and collector streets, and main roads through small communities
- » Work well with speed humps, speed tables, raised intersections, textured crosswalks, curb radius reductions, and raised median islands



Choker

Center Island Narrowing (midblock medians, median slow points, or median chokers)

- » Raised islands located along the centerline of a street that narrow the travel lanes at that location
- » Often landscaped to provide visual amenity and neighborhood identity
- » Can help pedestrianize streets by providing a mid-point refuge for pedestrians crossings
- » Sometimes used on wide streets to narrow travel lanes
- » Works well when combined with crosswalks



Center Island Narrowing

Road Diets

Reducing motor vehicle lane widths or eliminating motor vehicle travel lanes (also known as a “road diet”) is another way of calming traffic that also reclaims space in the roadway for alternative transportation treatments. Road diets can achieve the following potential benefits:

- » Reducing traffic speeds
- » Reclaiming space for bikeway treatments or additional public realm enhancements (e.g. landscaping, street furnishings, etc.)
- » Improving bicycle and pedestrian safety
- » Increasing visibility and sight distance
- » Encouraging an active streetscape and support the pedestrian realm
- » Improving roadway aesthetics

Safe Crossing

A successful pedestrian and bicycle network requires safe and convenient street crossing opportunities. Wide roads carrying large traffic volumes are significant obstacles to pedestrians, making facilities on the other side difficult to access. Safe street crossings also benefit motorists, in which an automobile driver parking on one side of the road may desire access to points across the street. A pedestrian system with sidewalks and crossing opportunities also allows a driver to park once and then walk to multiple destinations.

Providing safe street crossings, whether at controlled intersections or grade separated crossings, is a critical aspect of an effective alternative transportation system. If people do not feel safe crossing the street on foot or bike, they may not choose to travel by these modes. In the community survey conducted

as part of this plan update, more than 75% of respondents rating “intersection and street crossing safety improvements” as “very important” or “somewhat important” to improving walking and biking conditions in Bloomington, ranking it as one of the highest priority improvements.

The following strategies should be considered in the design of street crossings for existing and future alternative transportation facilities:

Improvements to Signalized Intersections

Long crossing distances, free right turns on red, vehicle speeds, signal timing, lighting, and sight lines can contribute to real and perceived safety issues at signalized intersections. While detailed design and site-specific analysis and engineering are needed to appropriately balance the needs of users at any particular intersection, the following measure can be considered to improve crossing conditions:

- » Highly visible pavement markings such as zebra, ladder, continental, or triple four
- » Increased signal time for pedestrians to cross
- » A leading pedestrian-only signal that allows pedestrians to pass most or all of the way through an intersection before motorized vehicles can advance
- » Pedestrian countdown signals
- » Extension of bicycle lanes (where applicable) through the intersection
- » Bicycle signals
- » Adequate driver visibility through proper sight distance triangles
- » Design for slow vehicle right turn movements (tighter turning radii: 5-25 feet)



Bicycle lane striping through a signalized intersection



Mid-block crossing with pedestrian activated flashing lights and median island

- » Pedestrian refuge islands
- » Curb extensions to reduce crossing distance and improve visibility of pedestrians by motorists
- » Adequate lighting

Improvements to Uncontrolled Intersections

Uncontrolled crosswalks and mid-block crossings may be used where distances to controlled intersections are too far to be convenient for pedestrians or cyclists, particularly in areas where there is a high level of pedestrian activity or a history of safety issues. While site-specific analysis is needed to determine the appropriateness of these measures at any given crossing location (based on number of vehicle lanes, ADT, posted speed limit, roadway geometry, etc.), the following techniques may be considered to improve crossing conditions:

- » Crosswalk located in area that optimizes pedestrian crossings (e.g. crossings connect directly to key destinations such as bus stops, parks, or other areas with high levels of pedestrian traffic)
- » Crossings in designated school zones:
- » Well-marked crosswalks
- » Use of adult crossing guards
- » School signal and markings and/or traffic signal with pedestrian signals
- » Pedestrian activated flashing lights
- » In-street crossing signs
- » Refuge islands
- » Overhead signs
- » Speed limit reduction
- » Speed limit enforcement



Crosswalks and adult crossing guards in school zones

- » Dynamic driver feedback signs
- » Roundabouts
- » Street narrowing measures such as curb extensions
- » Adequate lighting for night visibility

Grade Separated Crossings

In areas where signalized intersections may not be sufficient to provide safe crossings for bicyclists and pedestrians (due to high vehicle traffic volumes, high vehicle speeds, or other physical barriers), grade separated crossings may be appropriate. Key design considerations for grade separated crossings include:

- » Adequate lighting – this is critical to maintaining the perceived or real sense of safety on these facilities
- » Adequate width to accommodate likely users and avoid conflicts between pedestrians and faster moving modes
- » Potential to use the bridge crossing for other uses- for example as an iconic structure, public art, community gathering place, or viewing station to natural or cultural attractions in the city
- » Multiple access choices (i.e. providing stairs and ramps- many bicyclists prefer carrying bicycles up stairs, rather than riding a circuitous ramp; providing access for mobility impaired users)
- » Wider stair ways and access ramps with broader turns (avoid switchbacks) for maneuverability and improved safety
- » Attractive railings, fencing, or other enclosures (where possible, design for a feeling of openness or permeability to avoid the sense of isolation)



Artful design for a grade-separated bike and pedestrian bridge

Signals

Commonly, traffic signals are timed to accommodate smooth motor vehicle flows at a desired operational speed. In urban areas, these speeds exceed typical bicycling and walking speeds of 10 to 20 MPH and 2 to 3 MPH, respectively. Signal timing, or the lack thereof, can create difficulties for bicyclists trying to maintain a constant speed to take advantage of their momentum, which in turn tempts bicyclists to get a jump on a light or to simply run red lights out of frustration. The situation is even more frustrating to pedestrians, who often can only walk one or two blocks at a time, stopping at nearly every light

Where bicycle and pedestrian use is high, signal timing should take into account the convenience of bicyclists and pedestrians. On signals that function “on-call” (with video detectors), there are several improvements that can be made to benefit cyclists and pedestrians:

- » Placing video detectors in bike lanes on side streets to trip the signal
- » Placing video detectors in bike lanes to prolong green phase when a bicyclist is passing through (the upcoming yellow phase may not allow enough time for a cyclist to cross a wide intersection)
- » Placing push-buttons close to the street where a bicyclist can reach them without dismounting



Conveniently location pedestrian push-buttons

Improvements for pedestrians may include:

- » Incorporating a pedestrian phase in the signal sequence, rather than on-demand, in locations with high pedestrian use
- » Placing pedestrian push-buttons in locations that are easy to reach, facing the sidewalk and clearly in-line with the direction of travel (this will improve operations, as many pedestrians push all buttons to ensure that they hit the right one)
- » Placing additional actuators prior to the intersection, to decrease pedestrian waiting time
- » Adjusting the signal timing to accommodate average walking speeds, or to limit the time a pedestrian has to wait
- » Adding “countdown” timers to indicate time remaining to cross the roadway



Adjusted signal timing ensures adequate time for safe pedestrian crossing

Support Facilities

Support facilities are an integral part of the alternative transportation system, supporting the end of trip needs of users and creating a more welcoming and supportive environment for walking and biking. Support facilities include the following:

Bicycle Parking

For the bikeway network to be used to its full potential, secure bicycle parking should be provided at likely destination points. The perceived threat (and reality) of bicycle theft being common due to the lack of secure parking is often cited as a reason people hesitate to ride a bicycle to certain destinations. The same consideration should be given to bicyclists as to motorists, who expect convenient and secure parking at all destinations.

Bicycle parking facilities are generally grouped into 2 classes:

- » Long term – provides complete security and protection from weather; is intended for situations where the bicycle is left unattended for long periods of time, such as apartments and condominium complexes, schools, places of employment and transit stops; these facilities are usually lockers, cages, or rooms in buildings that provide real security for the bicycle
- » Short term (less than 2 hours) – provides a means of locking the bicycle frame and both wheels, but does not provide accessory and component security or weather protection unless covered; it is for decentralized parking where the bicycle is left for a short period of time and is visible and convenient to the building entrance

Covered parking should generally be provided at multi-family residential, school, industrial, and commercial destinations. Where motor vehicle parking is covered, bicycle parking should also be covered. Covered spaces can be building or roof overhangs, awnings, lockers, or bicycle storage spaces within buildings.



Typical short-term bicycle parking

Covered parking needs to be visible for security, unless supplied as storage within a building. Bicycle parking should be located in well lit, secure locations within 50 feet of the main entrance to a building, but not further from the entrance than the closest automobile parking space. To reduce theft, a highly visible location with much pedestrian traffic is preferable to obscure and dark corners. Racks near entrances should be located so that there are no conflicts with pedestrians.

Bicycle racks must be designed to:

- » Avoid bending wheels or damaging other bicycle parts
- » Accommodate high security U-shaped bike locks
- » Accommodate locks securing the frame and both wheels
- » Avoid tripping pedestrians
- » Be covered where users leave their bikes for a long period of time
- » Be easily accessed from the street and protected from motor vehicles

In addition to common bicycle racks, end of trip facilities include secure, longer-term bike storage lockers and showers/changing space for commuters.

Currently, there are no established standards for a specific number of bicycle parking spaces at a given type of destination in Bloomington. To aid this discussion, the table in Figure 3.15 developed for Portland, Oregon provides a baseline for establishing a minimum number of bicycle parking spaces for select types of destinations. See also Hennepin County's 2040 Bicycle Transportation Plan for sample bicycle parking requirements and best practices.

Note that the City is currently developing local standards for bicycle parking spaces based on local research. The standards will take into consideration site-specific needs and actual and



Bicycle lockers (long-term parking)

projected use numbers. A common approach in applying a standard is to establish a baseline “proof-of-parking” capacity at a given destination consistent with the standard, then provide actual bicycle parking spaces as demand warrants. In general, employment and retail centers should voluntarily provide parking to satisfy the demands of customers and employees.

Directional signs are needed when bicycle parking locations are not visible and obvious from building entrances or transit stops. Instructional signs may be needed if the design of bicycle racks isn’t readily recognized as such. For security reasons, it may be desirable not to sign long-term employee parking within a building, to avoid bringing bicycles to the attention of potential thieves.

Bicycle Hub/Repair Stations

Bicycle repair stations are typically free facilities that provide amenities such as a tire pump, tire air gauge, tire levers, tools, etc. along major bicycle routes, at transit station, and outside bicycle shops and bike-friendly businesses. More expansive than a repair station, a bicycle hub may include additional amenities to support bicycle commuters or distance riders, including changing rooms, restrooms, showers, and long-term bicycle parking. Such bicycle hubs are often located in combination with other related uses such as a transit stations, bicycle repair shop, cafe/coffee shop, and other bicycle-friendly businesses.

The City has plans to install bicycle repair stations at Dred Scott Playfield, Hyland Lake Park Reserve and Bloomington Civic Plaza in 2015.

Trailheads and Rest Stops

Trailheads within parks in Bloomington are an important support facility within the alternative transportation system. Amenities at trailheads may include:

- » Vehicle parking
- » Bicycle parking
- » Water
- » Restrooms
- » Kiosk with trail information
- » Benches
- » Trash receptacles

Rest stops at key location along regional trails and community corridors can provide smaller-scale amenity areas, similar to trailheads, and may include wayfinding, landscaping, benches, and water.

Figure 3.15: Minimum Bicycle Parking Requirements- low density suburban, exurban or rural areas (Hennepin County 2040 Bicycle Transportation Plan DRAFT)

Type of Use	Short-term bicycle parking requirements	Long-term bicycle parking requirements
Commercial	Office: 1 space for each 20,000 s.f. of floor area, minimum of 2 spaces	1 space for each 12,000 s.f. of floor area; minimum of 2 spaces
	Retail: 1 space for each 5,000 s.f. of floor area, minimum of 2 spaces	
Multi-family residential	0.05 for each bedroom; minimum of 2 spaces	0.5 spaces for each bedroom
Institutional /public uses (museums, libraries, hospitals, religious uses, etc.).	1 per 5,000 s.f. of floor area; minimum of 4 spaces	1 per 30 employees; minimum of 2 spaces
Manufacturing/industrial	None required; consider minimum of 2 at public building entrance	1 space per 15,000 s.f. of floor area; minimum of 2 spaces
Transit stations	LRT or BRT stations: Spaces for 1.5 percent of daily boardings	LRT or BRT stations: Spaces for 4 percent of daily boardings
	Park and rides: minimum of 6 spaces	Park and rides: minimum of 6 spaces

Note: Bicycle lockers may be a good fit for long-term parking in low density areas where less than six long-term spaces are needed. Electronic lockers (first-come first-served with keycard access) are strongly recommended over lockers leased to individuals

Transit Integration

Integrating the alternative transportation system with the Metro Transit system plays an important role in making walking and bicycling a part of daily life in Bloomington. As the System Plan illustrated on page 3.1, regional trails and community corridors connect with established transit hubs and park & ride lots wherever possible. With increasingly convenient linkages, the potential to increase the use of bus and light rail transit is enhanced.

To encourage a more robust integration of bicycles with transit, four main components are necessary:

- » Allowing bicycles on transit
- » Offering secure bicycle parking at transit locations
- » Improving bikeways to transit locations
- » Education

The first two of these are largely controlled by Metro Transit, which already provides bike racks on all Metro Transit buses and Blue Line trains at no additional charge. The third item will be addressed through the implementation of this plan. The fourth is best addressed jointly between the City of Bloomington and Metro Transit through a coordinated local effort.

As with the rest of the system, quality of end of trip facilities is critical to increased uses. Providing quality long-term bicycle parking at transit stations in particular is necessary to reassure bike commuters that their bicycles are safe and secure until they return. A mix of short and long-term bike parking is typically provided at transit centers. Programs such as Metro Transit's "Guaranteed Ride Home" for cyclists who ride their bike to work three times a week or more also help reduce reluctance to travelling without an automobile.



Bicycle Repair Station

Bicycle "Park and Ride" Sites

Currently, transit-oriented bicycle facilities are provided at designated vehicular park and ride lots and transit hubs. However, these may not always be the most safe and convenient locations for bicyclists to get to via the street or trail system. As such, the validity of providing stand-alone bicycle park and ride facilities in select locations along the bikeway and trail system should be considered as the core alternative transportation plan is implemented. The best way to determine where and the extent to which this should occur is to observe bicycle commuting patterns and work with local bicycle groups. Realistically, these patterns will not fully emerge until some of the key bikeway and trail corridors defined under this plan have been established.



Bicycle Racks on Metro Transit Buses

Education, Marketing, and Promotion

Improvements to the physical environment are most effective if couple with on-going marketing, promotion, and educational efforts. Program and events that promote walking, biking, and other nonmotorized modes can help to activate the alternative transportation system and increase the visibility and use of these infrastructure investments. Such programming may include:

- » Bloomington Active Living Biking and Hiking Guide
- » “Bike-Walk Week” events, including bike to work/school incentives, group rides, and other events
- » Community bike rides with the mayor or other City officials
- » Rides organized by local walking, biking, or outdoor recreation clubs
- » Parades, carnivals, block parties, and other street events that promote walking, biking, and other forms of outdoor recreation
- » School and community education classes about bicycle and pedestrian safety, bicycle commuting, and bicycle repair
- » Bicycle Friendly Business and Bicycle Friendly Community certification (a program of the League of American Bicyclists)
- » Bloomington Bicycle Alliance- **work with XX** bicycling issues and facilities

Web-based tools for promoting alternative transportation are another means to education and inform the public about planning, programs, and resources related to walking, biking, and other nonmotorized modes of transportation. Some potential components of an alternative transportation informational webpage include:

- » Links to maps (existing and proposed routes and facility types)
- » Interactive maps or other web-based forms that allow users to report crash incidents, comment on infrastructure conditions, safety concerns, and/or favorite rides/routes
- » Information on current and past planning and construction projects, programs to promote walking and biking, and other community health-related initiatives
- » Educational materials explaining the features and functions of alternative transportation infrastructure (e.g. explanation of pavement markings, facility types, tips for sharing the road, etc.)



Group bicycle rides



Community events to promote walking and biking

Signage and Wayfinding

Included in the Alternative Transportation Plan (system plan) is a mix of amenities that also includes signage. The application of appropriately planned and scheduled signs helps the public understand their environment and guides them to known and new destinations. Planning signage means interpreting the needs and requirements for providing efficient and confident access. The following describes the features of an effectively programmed, designed and scheduled sign system to address multi-model traffic sign system and describe how signage should be planned and managed. The content of this section has been prepared for use by the City of Bloomington in context with the overall system plan.

Creating a “Readable” Environment

Signs designed to address wayfinding must provide clear, unambiguous answers to four questions: where am I and where am I going; how will I get there; how will I know when I have arrived. Good signage helps to explain the facility and, in a sense, answers questions before they are asked. A well-planned system enables people to find their destination readily and quickly, reducing the need to search or to ask questions.

Sign System Design

A family of signs is a hierarchy of structures designed as a standard to be applied throughout a defined area. While the content may vary from sign to sign the common design provides a consistency and relationship that connects each individual sign to the system. The reason for applying messages is to inform, instruct or convey information to the reader. The following typical sign types are defined to serve a specific range of posted information:

Regulatory signs

Regulatory Signs provide trail rules, appropriate uses, access information and can include posting of enforceable instructions, restrictions and traffic rules. These signs typically contain standard forms and graphics and are applied along road lanes and off road trails. (see Figure 3.16)

Directional signs

Directional Signs present directions, locations, scale and distances to destinations. They are typically designed to be attached to existing structures or free-standing, standard forms. They can also be information graphics applied along sidewalks, roadways and off road trails and other posted locations. These signs provide information that names and directs people to destinations. (see Figure 3.17)



off-street trails

on-road lanes

Figure 3.16: Regulatory Signage

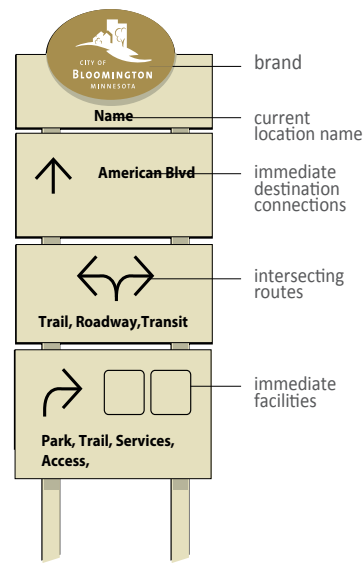


Figure 3.17: Directional Signage

Waymarker signs

Waymarker Signs provide specific cues that provide orientation and scale. Waymarker signs may be applied along sidewalks, roadways and off road trails. They indicate connections from the immediate stop to the larger transportation network. (see Figure 3.18)

Directory signs

Directory Signs provide information about the trail within the larger context of the city. Designed to hold orientation maps, event, sponsorship and other items, the form of the directory may vary from larger kiosks to simple panel displays. Located along road lanes and off road trails, they present overview maps showing the immediate stop and how it relates to the larger transportation network. (see Figure 3.19)

Sign dimensions

The number of characters and the type size as well as the length of the message determine the overall size of a sign. The size of a sign can be reduced by rephrasing the message in a manner that requires fewer characters. The following should be considered when planning the design of a sign system:

- » Consistent graphic presentation of information, (type style, size, reading distances, contrasts, conditions)
- » Application of well formed graphic standards
- » Use of maps and other orientation and information resources
- » Application of pictograms, icons and selected graphics
- » The scale, style, and durability of the signs in the context of their environment

The posted message needs to be communicated clearly while also scaled to “fit” appropriately within the facility or surrounding conditions. The ultimate size and location of the sign must balance this need to be large enough to be readable without being a visual obstruction or distraction. The ultimate size of a sign is a critical factor and should be assessed during the planning process. This applies to exterior signs in particular, where environmental or aesthetic concerns should be part of the criteria that are considered in determining the size and location of a sign. (see Figure 3.20)

Placement of signs

Choosing a proper location and orientation is key to a sign’s effectiveness; the following points should be observed when determining the placement of a sign.

The viewing distances referred to the mix of the various facility types with the observer standing or approaching the sign. The pace or speed of the observer coming upon the sign while walking, jogging, cycling or driving a vehicle should determine the placement, scale and amount of information that can be posted. The reading of sign messages is usually a kinetic process with the sign typically fixed in place while the reader is moving past the message at various speeds and distances. If



Figure 3.18: Waymarker Signs



Figure 3.19: Kiosks on sidewalk setback



Figure 3.20: Applied Brand City of Bloomington

it is expected that a cyclist is to be informed by reading a sign without missing a pedal stroke, the content on the sign must be well placed, clearly posted and short enough in length to be read and understood very quickly. If by contrast the amount of information is larger and the choices posted are more detailed or complex, the example of the cyclist is still valid where a message should be placed in advance of the sign, providing the option to slowdown and pause to read the more detailed sign content.

Appropriate Placement

Exterior signs can be installed by various means. The methods of installation include the following: mounted on or into grade or finished surfaces; erected on posts to be freestanding; suspended from overhead structures, walls or fences or bracket mounted to suspend from existing structures such as light or traffic control stanchions. As applicable, factors such as landscape (terrain, vegetation) or architecture (surface, texture, color, modules) should be fully considered when determining the installation of a sign. The nature of the facility or site, the message and type of sign, and the needs of the user public will suggest the most appropriate form and mode of installation.

All signs that serve the same communication function should be installed in a manner that is consistent throughout the city where similar pathways or routing conditions exist. Signs that serve similar purposes should appear at the same height and in a similar context as facility features observed as one approaches a decision-point, for example. Uniformity of sign placement should be part of the planning process.

Sign quantities and distance

Several factors influence decisions on how many signs will be needed to provide information on a particular route. These include the nature of the environment (differentiate types of facilities and complexity), the distance between the starting

point or decision points and the destination, and the number of decision points along any given route. It is good practice to consider locating directional signs just before each decision point. When there are long distances between decision points, a prompting message may need to be repeated, confirming the direction towards the single or multiple destinations. (see Figure 3.21)

The need to provide information and specific directions along a route should not be interpreted as a call to install many additional, reassuring signs. Providing information that lists fixed distance from the sign's location to each destination provides a reassuring sense of orientation and scale in addition to providing potential options to trip planning and scheduling. Placing too many signs along a pathway can create too many reference points while a well thought out sign plan containing more informative content will usually result in fewer, more useful and strategically placed signs.

Sign Partners

Consider scheduling signs throughout the network of connecting routes in partnership with current and proposed multi-modal sign and information system partners who have or are currently locating signs within and adjoining with the city. These may include the Three Rivers Park District, MnDOT, and/or US Fish and Wildlife Service (Refer to resources for Facility Design and Management, earlier in section 3). The mix and variety of facilities located throughout the community provides the city with an efficient and most functional solution by agreeing to support the mixed communication goals of these various multi-modal partnering groups. If planned appropriately, this can be accomplished with little more than simple revisions or changes to the content of a map or directional sign.



Figure 3.21: Applied Signs- four basic sign types

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Implementation SECTION

4

Overview

The alternative transportation system plan establishes an overall vision for the community that is ambitious yet realistic if incrementally implemented. This section sets forth an overall implementation strategy and baseline priorities to guide that process. Operations, maintenance, and education are also considered in this section as an important aspect of implementation planning.

Keeping the Momentum

The City of Bloomington has made improvements to the alternative transportation system over the past several years. These improvements are recognized as added amenities by residents and visitors. As more transportation options become available, users will expect additional expansion of the system and they will expect that the trails, bikeways, sidewalks and associated amenities are maintained to the same standards, or better, as other elements in the city.

As planning efforts continue according in accordance with the vision and plan in Sections 2 and 3, project implementation efforts will proceed as well. Additions to the alternative transportation system and other changes in the city's infrastructure may have altered future system needs as priorities may have changed. It is beneficial to re-assess project priorities and re-prioritize projects that have not been completed with new projects that have been added through the on-going planning process.

The vision and values set forth in Section 2 suggest that Bloomington is at a threshold with respect to transportation planning, with more emphasis being placed on balancing transportation options within the city. Through the public process, citizens and their elected and appointed officials have reassessed past practices and considered various means to enhance the public infrastructure to better accommodate alternative modes of transportation. As described in Section 3, providing a more robust network of interconnected trails, pedestrian-ways, and bikeways is achievable from a physical planning perspective.

Implementation of the plan will continue with inherent challenges and tradeoffs. Both diligence and patience will be required as the plan is realized. Thoughtful phasing and prudent implementation decisions will be critical to successfully making changes to the public infrastructure that affect various user groups in different ways. Especially with bikeways, testing ideas along select corridors is advised in order to understand tradeoffs, judge impacts to established traffic patterns, and assess the true value they offer. Fiscal limitations also reinforce the importance of focusing resources on the highest value amenities first to gain public support and enthusiasm.

Success in implementing the plan will require insightful leadership and a willingness to use a variety of strategies to manage change and leverage financial resources to full advantage.



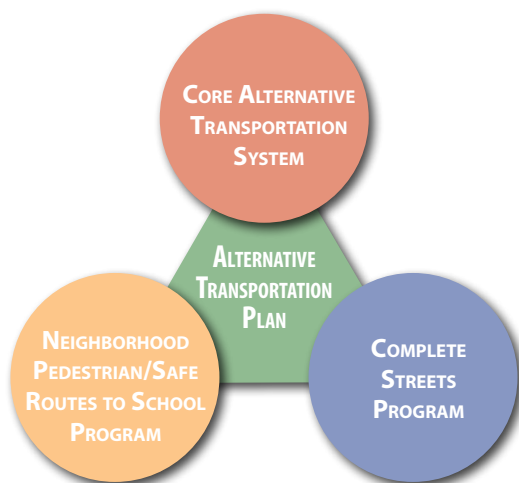
Integrating the Alternative Transportation Plan with the Comprehensive and Other Plans

Through formal City Council action, the Alternative Transportation Plan becomes part of the City's larger Comprehensive Plan, as is the case with the updated 2008 Parks and Recreation Master Plan. Periodic updating of the plan is recommended to ensure that it evolves over time in response to changing needs, opportunities, and learned experience.

Plan Requires Additional Review in Context of Other Plans

Note that implementation of this plan will require additional technical review relative to other City plans to determine feasibility, relative tradeoffs, and timing coordination with other development initiatives as district plans and development area studies evolve. In other words, implementation of this plan will not happen in a vacuum and final outcomes will often be affected by other community planning concerns.

Figure 4.1: Alternative Transportation Policy and Planning Framework



See p. 2-3 for more on the alternative transportation policy and planning framework

A Balanced Approach to Implementation

As defined in Section 2, the alternative transportation framework consists of three key policy and planning tools: The City's Complete Streets Policy, the Alternative Transportation Plan, and the Safe Routes to School Program (see Figure 4.1). Each of these adds value to public infrastructure in complementary ways. Taking a balanced approach to implementing each of these will ensure that multiple community values are being concurrently realized and that the wide-ranging expectations of residents are well served as time goes on. A balanced approach also provides the City more latitude in taking advantage of opportunities as they arise.

Consistent with this framework, the implementation strategy consists of three implementation categories. Each of these will have its own implementation strategy and set of priorities, as considered later in this section.

A Disciplined Approach to System Investments

An important consideration in developing an implementation strategy for each these categories is that the opportunities to enhance the system are quite substantial and diverse. The magnitude of potential investments to achieve full plan implementation will undoubtedly require setting priorities that respond to realistic resource limitations.

The temptation to spread investment dollars too thinly across the entire system is also a major implementation consideration. Unfortunately, this strategy often falls short in that limited improvements do not have a major effect on the public's perception that the quality of the system has improved. This often leaves residents with a sense of unmet expectations, which can result in a decrease in the perceived value of the system, rather than an enhancement.

By focusing on raising the level of service through strategic and prioritized investments, the role that the system plays as a defining element in the City's infrastructure can be strengthened.

Long-Term Commitment to a Sustainable System

A sustainable system is the point to which the community is willing to support implementing the system plan to receive desired public benefits. Benefits relate to cultural (personal and social) and economic values that individual residents and the larger community find important and are willing to support by making investments in the system.

To be sustainable, implementation of the plan must take into account the long-term commitments required to develop, operate and maintain, and ultimately replace each aspect of the system as it moves through its lifecycle. Figure 4.2 illustrates this important point.

As illustrated, the total investment required to sustain a given component of the system is the cumulative cost for initial development, routine operations and maintenance costs, and redevelopment once a given amenity reaches the end of its useful lifecycle. Given the major implications to long-term funding, the City should define the level of service it can indefinitely sustain at the point of initial implementation.

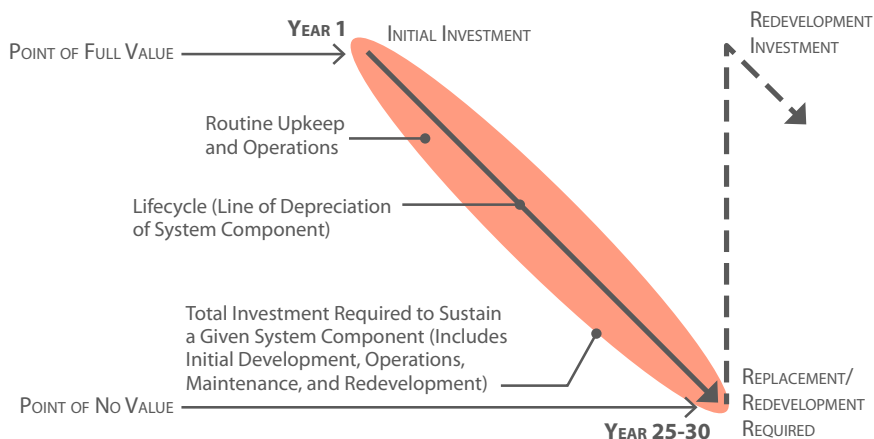
Prioritization Criteria for System Enhancements

The following table outlines general criteria for prioritizing plan implementation. The criteria are broad enough to encompass the predominant factors in the decision process, yet limited enough to be manageable for decision makers to gain consensus and take action. The criteria listed in the table were used as appropriate in establishing the following priorities for each the implementation categories.

Figure 4.3: Criteria for Prioritizing Plan Implementation

Evaluation Criteria	Criteria Description
Community Demand	Action is warranted due to identified community demand based on needs assessment studies, public input, and defined trends.
Redevelopment/ Upgrading of Alternative Transportation Facility	Action is warranted due to facility being: In an unsafe condition or of poor quality Old and at the end of its useful lifecycle Ineffective at servicing current needs
Redevelopment Opportunity	Action is warranted to take advantage of redevelopment opportunity where alternative transportation features can be integrated.
Funding Availability/ Partnership Opportunity	Actions is warranted due to: Funding availability for specific use Partnership opportunity for specific type of development
Safety	Action is warranted due to: Resolve an immediate safety issue that needs to be addressed
Accessibility	Action is warranted to provide access to key destinations, and community and regional amenities including transit
Economic Efficiency	Action is warranted to make use of efficiencies gained by combining work with other public works initiatives (Pavement Management Program)

Figure 4.2: Figure 4.2 – Lifecycle Costs and Long-Term Commitments to Sustaining Each System Component



Implementation Strategies and Priorities

The strategy for implementing the system plan and establishing priorities is underpinned by two objectives:

1. Developing a balanced system offering multiple community values
2. Taking advantage of opportunities as they arise

At times, these objectives will be in conflict in that opportunities to develop various aspects of the system will present themselves in an unbalanced, “out-of-order” manner. As such, the implementation of the plan inherently requires some degree of flexibility to respond to opportunities as they arise. The City Council will have to consider these issues as they occur and determine the best course of action, which could include a rethinking or departure from the stated priorities.

The following defines the implementation strategy and priorities associated with each of the categories illustrated in Figure 4.1.

Implementation Strategy for the Alternative Transportation System Plan

The alternative transportation system consists of trails, pedestrian-ways, and bikeways categorized as Regional Trails , Community Corridors, and Local Connections. Since each of these accommodates different user groups, concurrently investing in each of these over time is the overall recommendation to ensure that each user group’s needs are being addressed. Within each of these components, priorities were established by the Task Force based on value judgments, cost implications, and perceptions of demand, as the following considers. Actual implementation may change priorities based on funding and other variables considered by the City Council.

Note that the priorities related to implementation planning at a system level, which ranks one item relative to another in terms of overall value. It does not take into consideration day-to-day decisions to complete a missing segment of trail or sidewalk where doing so has more immediate value. It also does not take into consideration more immediate safety concerns, in which replacement of a trail segment is necessary due to existing quality issues.

Regional Trails and Community Corridors

With respect to trails, the main strategy is to make investments in the highest value trail corridors first to maximize the cost-benefit of system enhancements. Consistent with research findings, investing in destination trails offers the highest return on investment as reflected in expected use levels. Said another way, completion of these corridors will, with little doubt, be highly valued by the community – if designed and built to the highest standard. In terms of priorities for implementation, the following is recommended. Regional priority corridors are mapped in Figure 4.4. Community and local priority corridors are mapped in more detail on the following pages.

Priority #1 – Minnesota River Trail Corridor (Regional Trail)

This trail corridor has proven to be very popular and highly valued by virtually all user groups. Given the interconnections with other systems, it will also be of high value to transportation users commuting to other cities. The City of Bloomington should continue to work with the MN DNR and USFW to design and implement this corridor. This corridor provides many connections to other Bloomington trails and is a high priority due to the commitment of funding from the State of Minnesota.

Priority #2 – Hyland Trail Corridor (Regional Trail)

With much of this trail corridor already completed, the implementation focus is on finishing missing links. The remaining segment that is a priority for completion is the northern connection of the planned Nine Mile Creek Trail. Once completed the City should seek designation as a Regional trail by the Metropolitan Council. As a designated regional trail it would be eligible for Metro Regional Parks CIP and maintenance funding. Connections to the Minnesota River Valley State Trail and Nine Mile Creek Regional Trail make it a solid candidate for a regional trail designation.

Priority #3 – Intercity Trail (Regional Trail)

Three Rivers Park District anticipates completion of a large segment of the Intercity Trail in 2017. The City of Bloomington will also be completing a segment of the trail with the rehabilitation of the Old Cedar Avenue Bridge. The remaining gap, Old Shakopee Road to 86th Street, becomes a high priority.

Priority #4 – Nine Mile Creek Trail (Regional Trail)

Three Rivers Park District will also be implementing a portion of the Nine Mile Creek Trail adjacent to Bloomington. This trail provides an east-west connection between the Hyland and Intercity trails and provides opportunities for connections to Edina, Richfield, and Minneapolis. Continuing progress on this trail, including segments along Airport Lane and 34th Avenue in Bloomington, should be a priority.

Figure 4.4: ATP System - Priority Corridors: Regional trail connections highlighted



This map highlights the priority corridors that provide regional connections. Additional community and local priority corridors are mapped on the following pages.

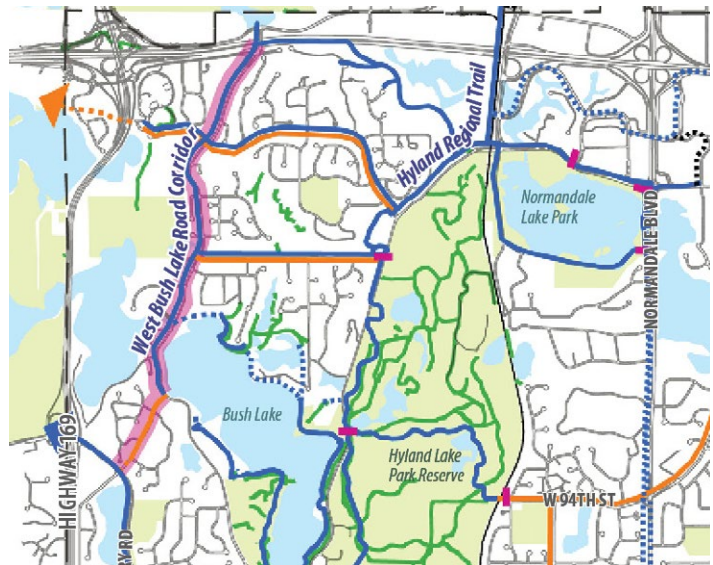


Priority #5 – West Bush Lake Road Corridor (Community Corridor)

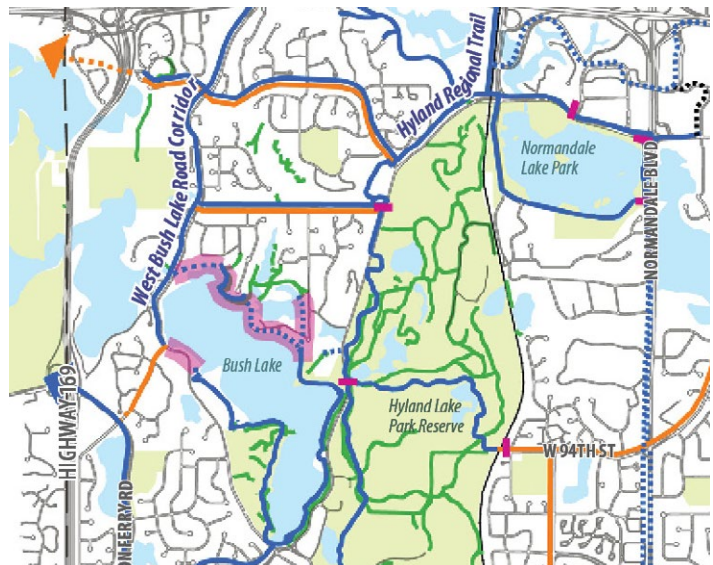
This corridor builds on the existing off-road trail and underpass along West Bush Lake Road and continues along Veness Road to the south and from Oakmere Road to the north to provide a north-south corridor.

Priority #6 – Bush Lake Park Trails (Community Corridor)

This includes trail connection on the south/west side of the lake, as well as trail connection along the north side of the lake. The City will continue to evaluate the need to provide trails along both the north shore of the lake and around North Bay. The trail segment on the south/west side of the lake is a higher priority because it currently is a gap in the recreation and transportation system and there is no existing sidewalk or trail in this segment for pedestrians or cyclists to use.



West Bush Lake Road Corridor



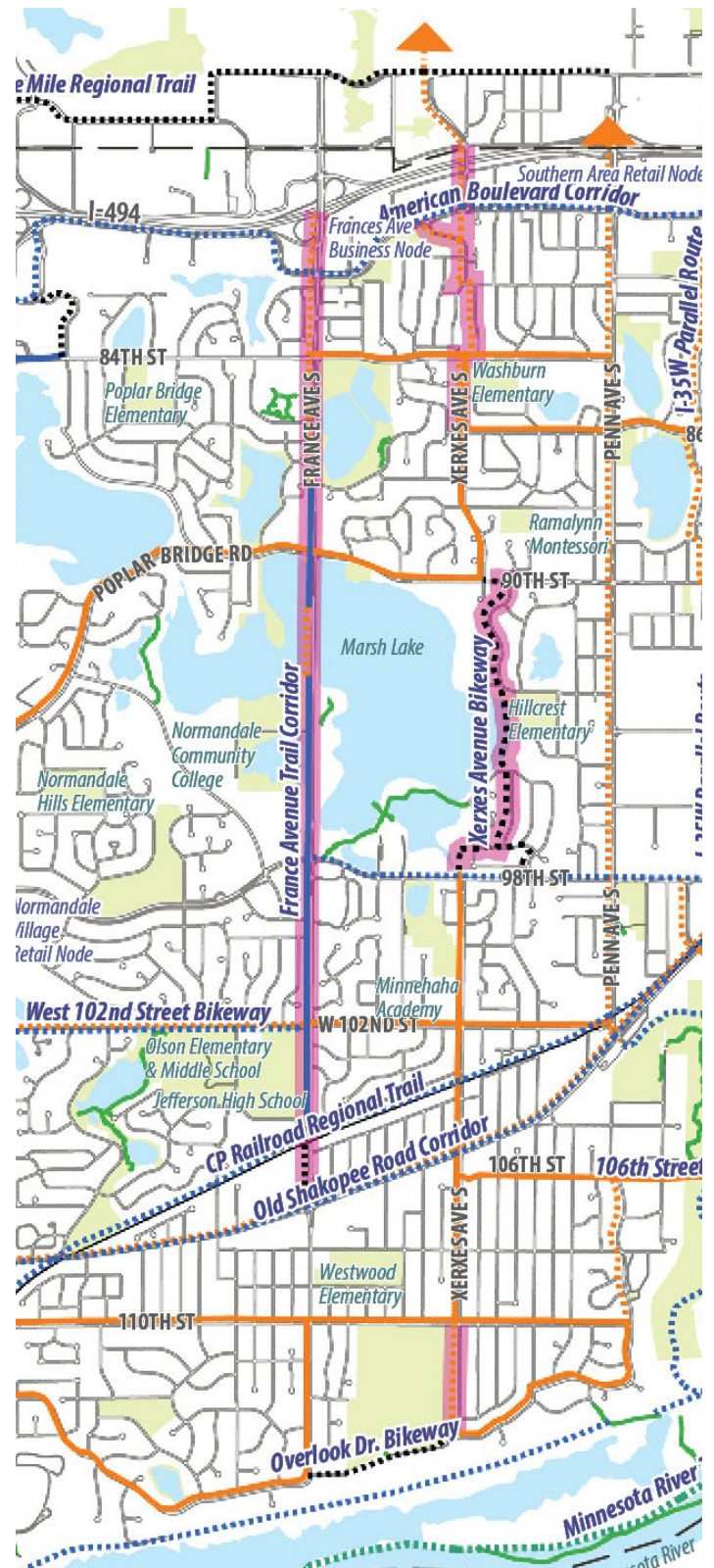
West Bush Lake Park Trails

Priority #7 – Xerxes Avenue Bikeway (Community Corridor)

The Xerxes Avenue Bikeway builds on the progress of prior work to provide two connections to the existing 86th Street Corridor, Edina to the north and the Old Shakopee Road Corridor to the south. This is a lower priority primarily due to the need to develop the trail on the east side of Marsh Lake in order to fill the gap between the south and north end of Xerxes Avenue. Since the development of the trail is a more costly item, it will likely take longer to fund through the City’s CIP.

Priority #8 – France Avenue Trail Corridor (Community Corridor)

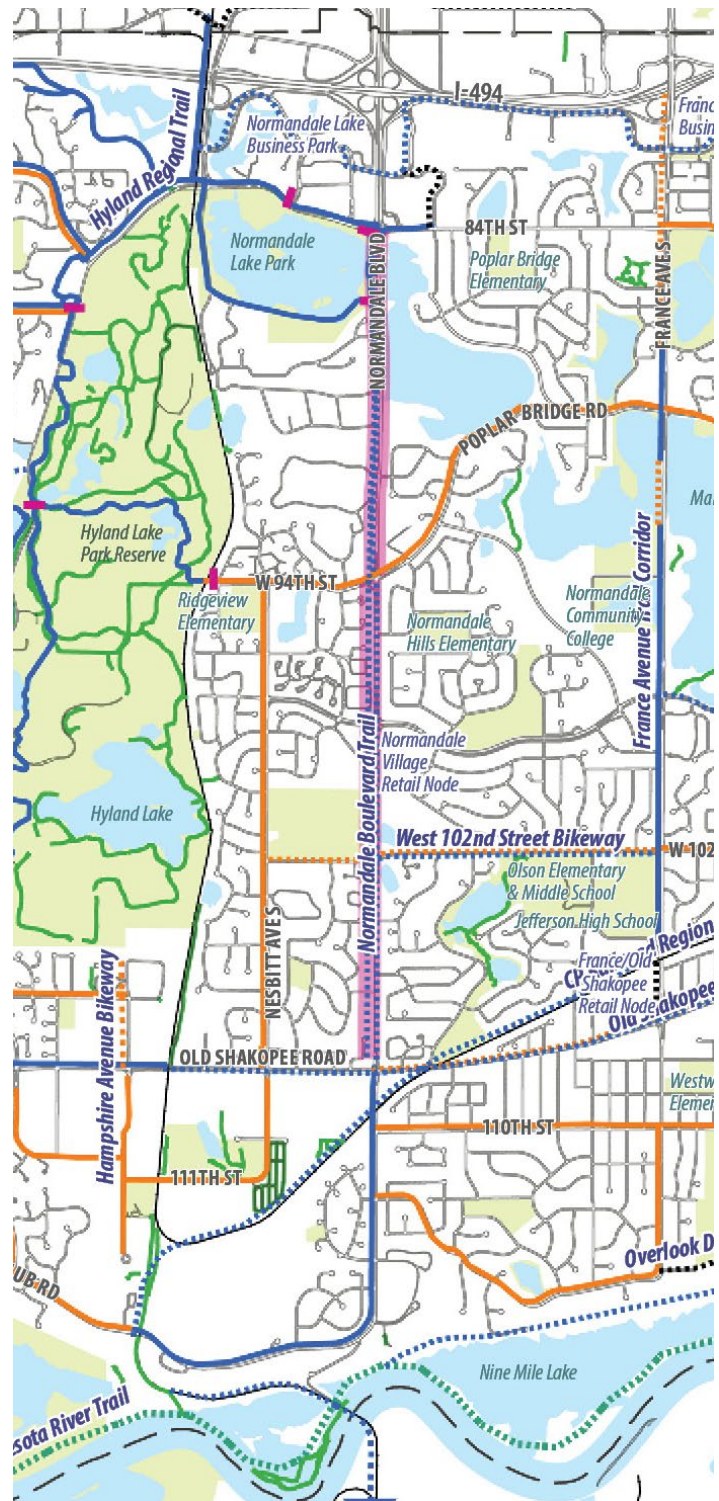
The France Avenue trail provides another important north-south connection between American Boulevard and Old Shakopee Road including connections to 86th Street Bikeway and Normandale Community College. The priority focus with this corridor is completion of the missing trail links, especially sections that are now shoulders on the street. Although addressing these sections will be relatively costly, it is of little value to improve other segments unless these limitations are improved first. Once that is complete, incrementally replacing trails and sidewalks over time is recommended until the entire corridor meets the desirable standard.



Xerxes Avenue Bikeway and France Avenue Trail Corridor

Priority #9 – Normandale Boulevard Trail (Community Corridor)

Existing trails along Normandale Boulevard are substandard and in poor condition. As a corridor identified on the Hennepin County Bicycle Plan, and an important community corridor, this corridor should be a priority for the reconstruction of the trails and sidewalks to current standards. Completing this segment provides an important connection to Normandale Community College and the 86th Street Bikeway.



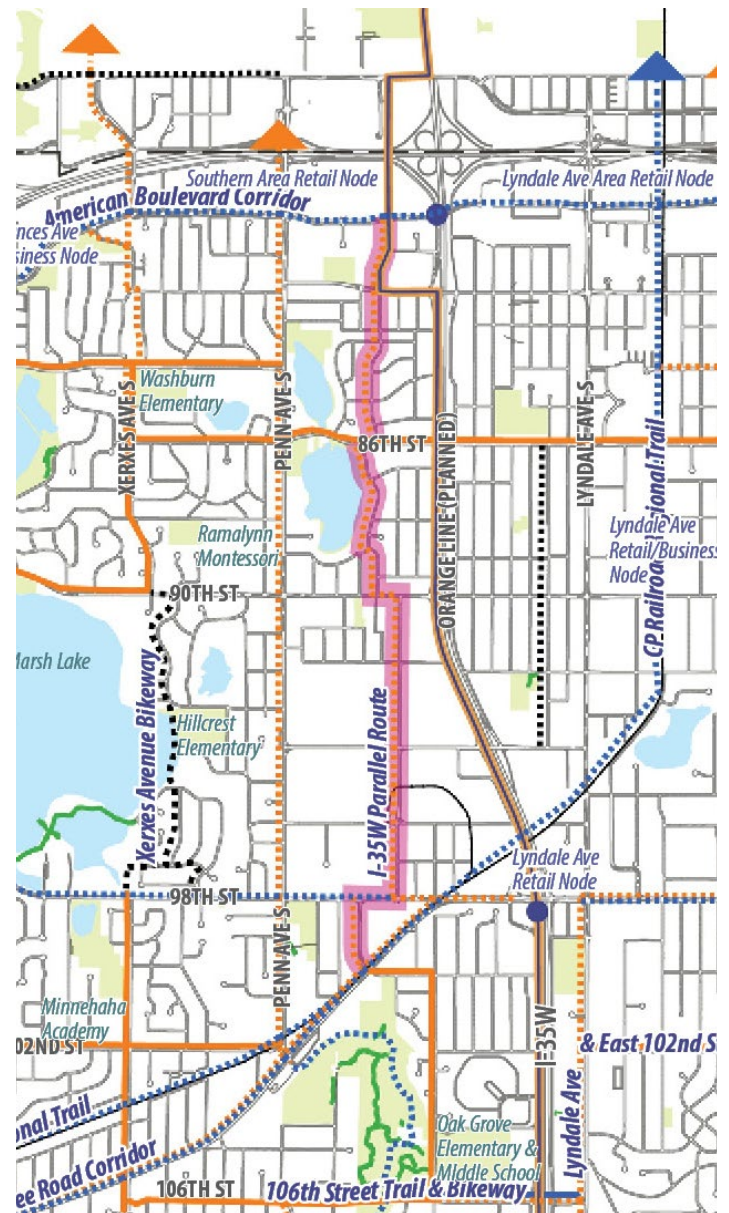
Normandale Boulevard Trail

Priority #10 – I-35W Parallel Route (Community Corridor)

The I-35W Parallel Route provides an opportunity for a significant addition to the City’s transportation system by providing a bicycle/pedestrian element to the heavily used I-35W corridor. Connections to a new I-35W Bridge over the Minnesota River, City Hall and Orange Line transit facilities make this an important corridor for residents of Central Bloomington. This trail also provides convenient access to the Minnesota Valley Trail and the connections to communities to the south.

Priority #11 – American Boulevard Corridor (Community Corridor)

The American Boulevard corridor is an important connection between the Intercity, Nine Mile Creek and Hyland trails. The continuation of pedestrian-way enhancements as part of street improvements along this corridor are recommended, as is filling any gaps that currently exist. As with the previous corridor, this will take many years given cost realities.



I-35W Parallel Route,



American Boulevard Corridor

Priority #12 – Portland Avenue Corridor (Community Corridor)

The Portland Avenue Corridor is identified on the Hennepin County Bicycle Plan and provides a direct north-south route between Old Shakopee Road and American Boulevard for the bicyclist in east Bloomington. This includes connections to 86th Street and Old Shakopee Road. It also provides connections to the Intercity and Nine Mile Creek regional trails.

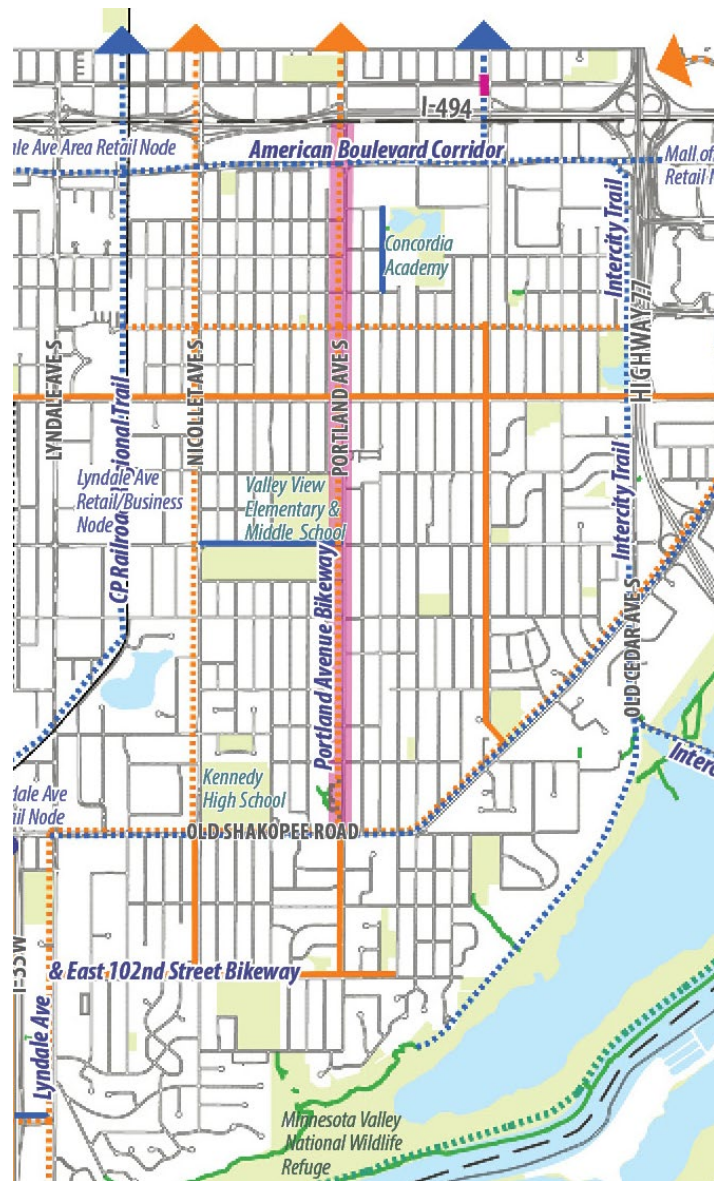
#13 – Old Shakopee Road Corridor (Community Corridor)

This corridor is among the most complex, trafficked, and costly of the corridors to improve. For that reason, it is a lower priority in that improvement costs are likely to be high while public value relatively modest as compared to the other corridors. In the near term, priority focus should be on completing missing gaps and continuing to provide enhanced pedestrian connections to retail and business nodes, as they develop.

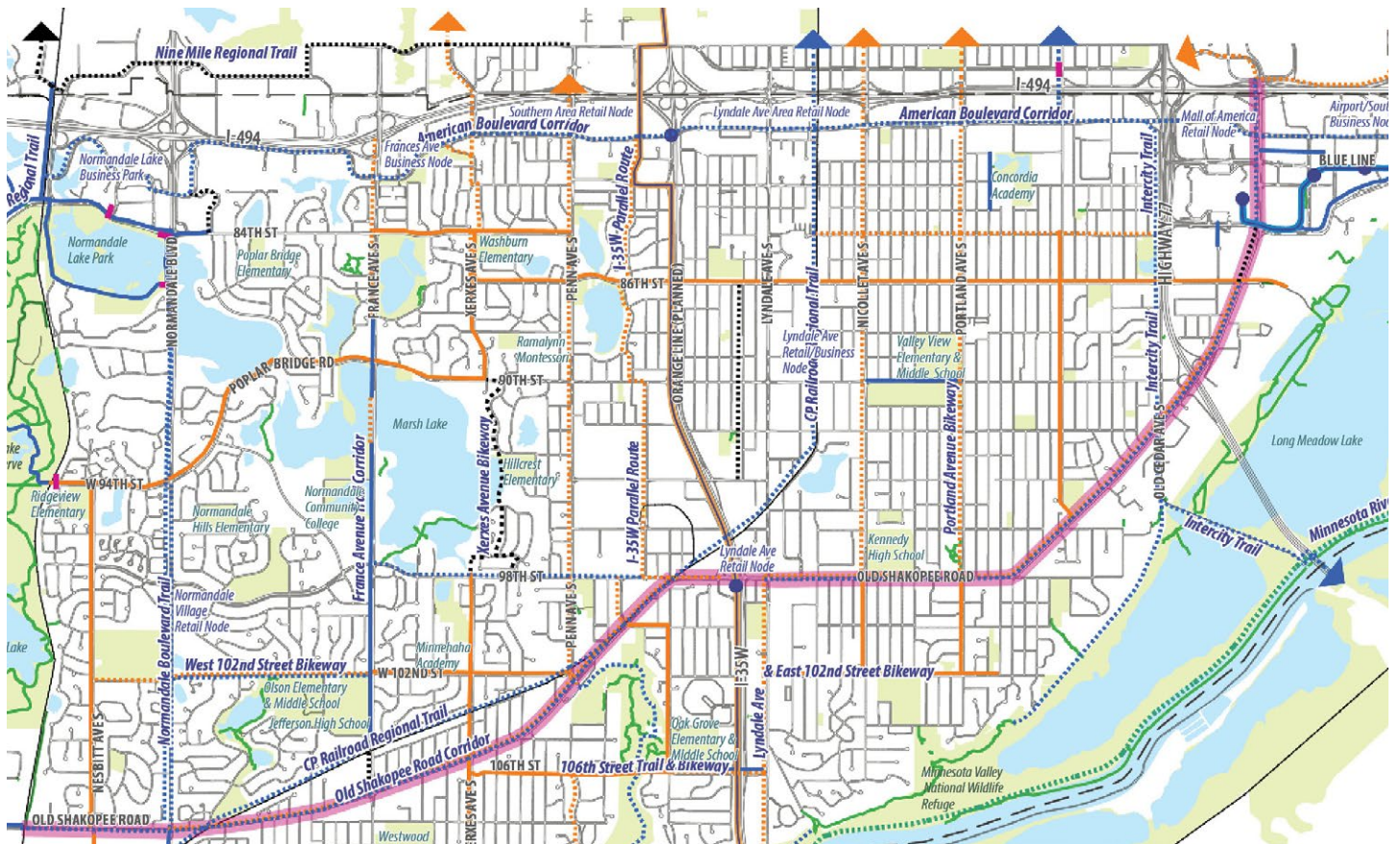
Applying the Complete Streets Program guidelines as segments of this corridor are upgraded over time is the recommended approach to enhancing this corridor for pedestrians and bicyclists.

Priority #14 – CP Railroad Corridor (Regional Trail)

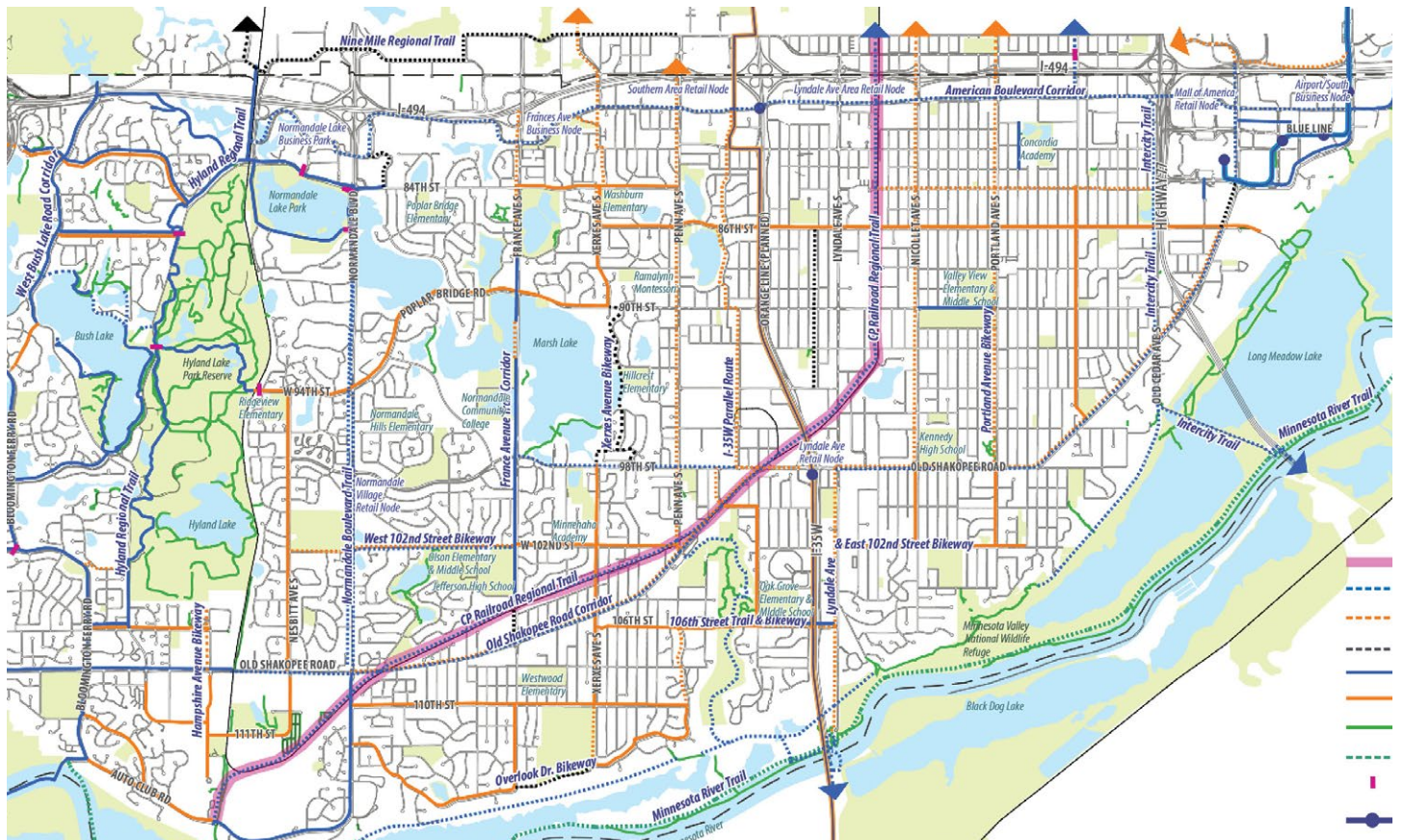
The CP Railroad Corridor is identified as a regional trail corridor on the Hennepin County Plan due to the ability to provide an independent trail alignment from the Southwest Metro to Minneapolis. Costs to implement, and the opportunity for other corridors to serve the same areas, make this a low priority. See figure 4.4 to see the entire trail corridor in context.



Portland Avenue Corridor



Old Shakopee Road Corridor



CP Railroad Corridor (Regional Trail)

Local Connections

With respect to local connections, the first implementation priority starts with reconfiguring streets with fewer constraints (i.e., major intersections) before attempting to reconfigure a more complex corridor, as is the case with the second priority. With each priority, the City will need to test ideas, understand tradeoffs, and judge impacts to established traffic patterns before actual implementation – which will likely affect the actual order of priority once implementation begins. With this strategy in mind, the following is the recommended priorities for reconfiguring streets to accommodate bikeways.

Priority #1 – West 102nd Street Bikeway

Much of this local connection has been completed since 2008, however a gap remains between Normandale Boulevard and France Avenue. This segment should be a high priority for completion.

Priority #2 – Hampshire Avenue Bikeway

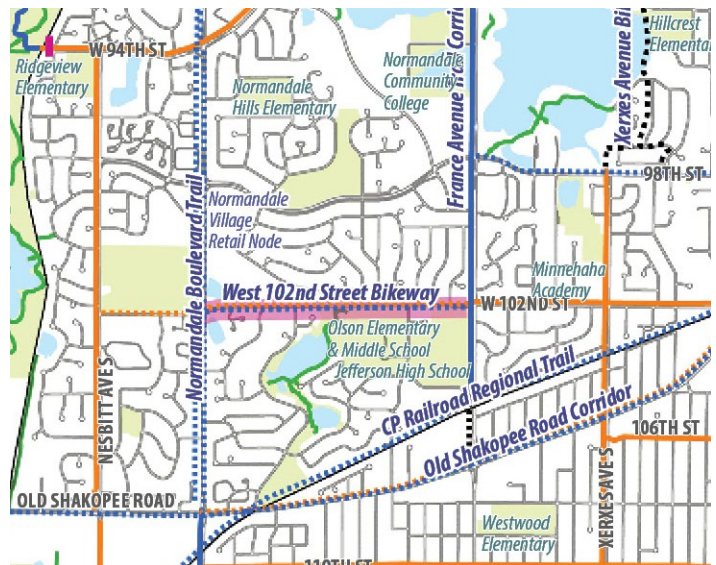
This bikeway complements the previous bikeway and creates an appealing connection between Hyland Park and the Bloomington Ferry Road Trailhead. It also poses relatively few constraints, with the exception of the linking trail segment on the southern section.

Priority #3 – 106th Street (Trail and Bikeway), Lyndale Avenue, and East 102nd Street Bikeway

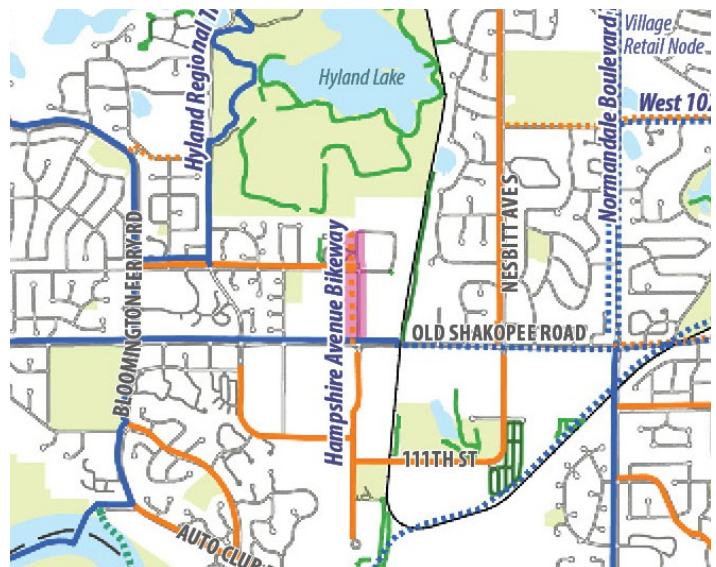
Establishing these bikeway segments would complete the southern bikeway across the city. It is listed a little lower than some of the other bikeways to give the City more time to determine the best approach along 106th Street – i.e. whether an on-road bikeway is achievable or if the linking trail needs to be improved.

Priority #4- Overlook Drive Bikeway

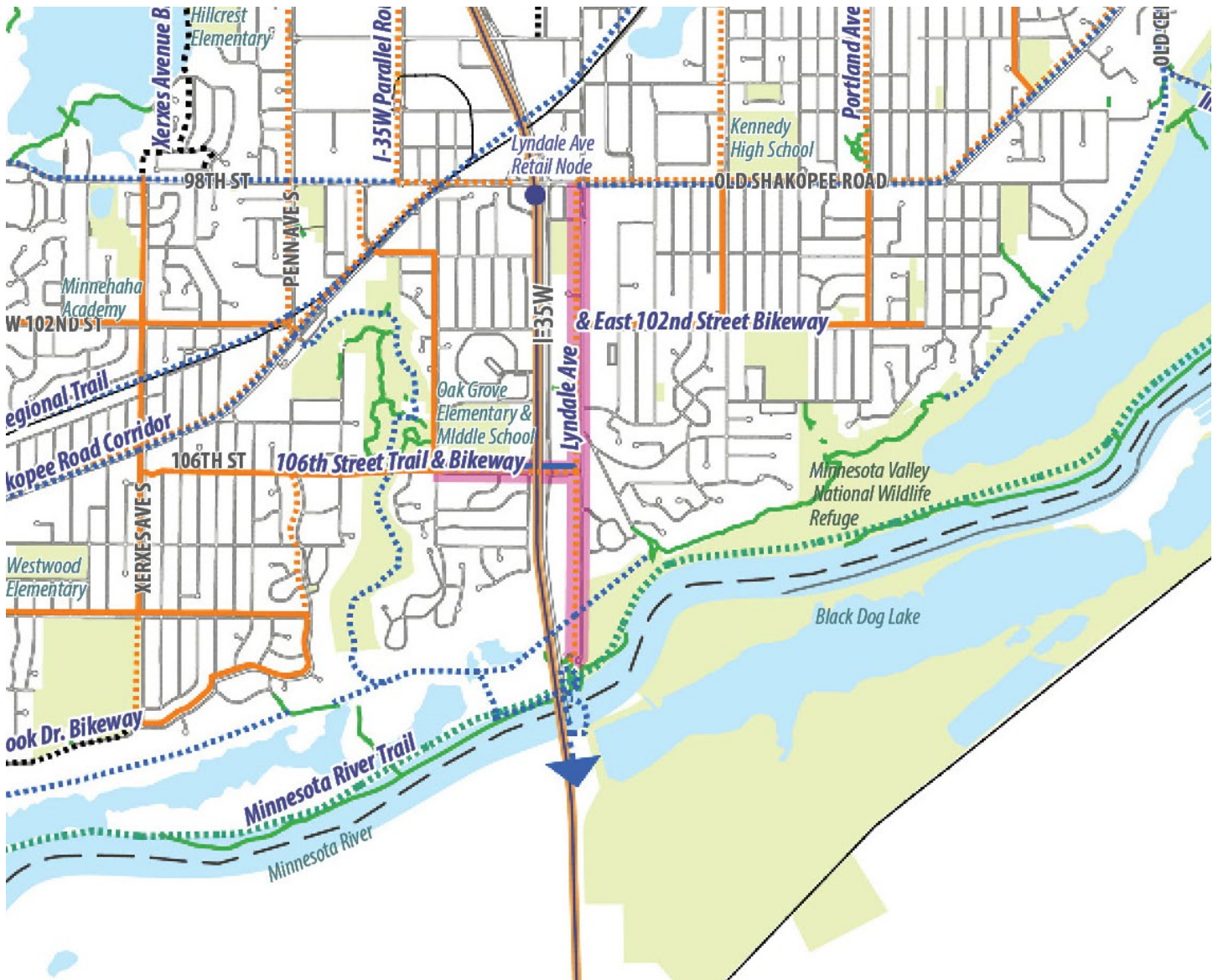
This segment would connect the on-street facilities on Overlook Drive with the facilities on France Avenue.



West 102nd Street Bikeway



Hampshire Avenue Bikeway



106th Street Trail and Bikeway, Lyndale Avenue and East 102nd Street Bikeway



Overlook Drive Bikeway

- Priority Corridors Highlighted
- Proposed Off-Street Trails
- Proposed On-Street Trails
- Proposed Facility, Undetermined
- Existing Off-Street Trails
- Existing On-Street Facility
- Existing Park Trails
- Planned Minnesota River Trail
- Grade-separated Crossing (proposed and existing)
- Transitways and Stations
- Bloomington Municipal Boundary
- Railroad
- Open Water
- Parks

Implementation Strategy for Neighborhood Pedestrian/Safe Routes to School Program

There are two primary implementation strategies for this component of the system plan, as the following considers.

Neighborhood Pedestrian Program

As defined in Section 3, in existing developed neighborhoods not subject to redevelopment, the focus is on the removal of barriers that diminish the likelihood of a person walking or biking to a destination. Common barriers include gaps in the sidewalk system, inconsistent standards, and lack of end-of-trip facilities at destinations, especially schools. The implementation strategy for addressing these issues is expansion of the City's successful Pavement Management Program (PMP).

The PMP provides a systematic program of street rehabilitation and repair in order to assure that the city streets are serviceable, safe, functional, and provided at a reasonable cost to meet the needs of residents and the traveling public. Initially, the program focused on the upkeep of approximately 360 miles of city streets within its boundaries. This includes seasonal maintenance activities such as snow removal, crack sealing, street patching, sweeping, as well as structural maintenance of the street system.

More recently, the program is being expanded to cover other infrastructural features including trails, sidewalks, and streetscape amenities. Continued expansion of this program to address to document and systematically address the neighborhood pedestrian issues defined in under this plan is expected and recommended.

In neighborhoods subject to redevelopment, removal of existing barriers and application of the Complete Streets guidelines defined in Section 3 is recommended to enhance the use of alternative forms of transportation at the neighborhood level.

Safe Routes to School Program

To complement the City's own PMP program, continuing to pursue other funding to enhance pedestrian-level access to schools is recommended, as has been the City's recent practice. Although this type of program is often underfunded, it is still important for the City to pursue these programs to augment local funding sources.

Implementation Strategy for Complete Streets Policy

The Complete Streets policy focuses on incorporating alternative transportation features into all new public and private developments or redevelopment. Newer developments along American Boulevard and the retail nodes along Old Shakopee Road are examples of where the City is already incorporating many of the features important to enhancing pedestrian-level access and encouraging alternative forms of transportation.

Continued expansion of these practices consistent with the City's Complete Streets policy and best practices described in Section 3. The Complete Streets policy should be considered for all new or upgraded streets, transit facilities, public spaces, and private development areas to ensure safe access and movement for all users of various modes of transportation.

In addition to continued application of the Complete Streets policy, expansion of the Pavement Management Program (PMP) to cover sidewalks, trails (including those in parks), and streetscape features is recommended. Once implemented, gaps in the system that currently exist would be eliminated over time, which in turn would encourage greater use of alternative forms of transportation.

Implementation Cost Projections

The forthcoming cost projections define the potential costs associated with implementing the core components of the system plan to reach an optimal level of development. The projections are based on a combination of site-specific development issues and professional judgments based on projects of similar size and characteristics. The projections are based on 2015 dollars, which will require inflation adjustments over time.

The cost projections take into consideration assumptions regarding the basic age of existing amenities. The actual timing of upgrading a particular component will affect whether there is any value in salvaging an existing feature or simply replacing it. With trails, it is assumed that developing a destination or linking trails entails removal of the existing trail or sidewalk and replacing it with a new one meeting desirable standards.

Timing will also affect the cost projections – which generally mean costs will rise above what is shown the further out upgrades are made.

Use of the Cost Projections

The intended use of the cost projections is to aid the City Council in developing an overall funding and implementation strategy, including:

- » Defining the potential magnitude of the public investment needed to develop the system to its optimal level.
- » Comparing the relative cost of one park or trail improvement over that of another.
- » Determining the level of service threshold that the community is willing to support with local funding.
- » Prioritizing and budgeting for capital improvement initiatives based on funding availability.

Limitations of the Cost Projections

Implementation costs will vary, perhaps significantly, depending on the actual conditions found out in the field, final design and scope of a given project, and economic conditions at the time of bidding and implementation. To remain relevant, the cost projections should be updated on a periodic basis to stay in alignment with potential cost increases over time, and to factor in costs to replace items that have subsequently worn-out.

Given the uncertainties of size and scale associated with implementing the Neighborhood Pedestrian/Safe-Routes to School Program and Complete Streets Program, projecting costs for these elements is too uncertain at a system planning level to be of much value. Instead, projecting the costs for these improvements is best accomplished through the PMP as gaps in the infrastructure are more accurately documented and prioritized.

Cost Projections for Trails and Bikeways

Projecting the costs for developing these trails and bikeways without the benefit of site surveys and design layouts offers certain practical limitations. Given this, it is important to underscore that the cost projections presented here are for planning purposes and that more detailed evaluation is required to firm up costs as the City develops their funding packages and grant applications.

The forthcoming cost projections for trails are based on estimated unit costs assuming generally good construction conditions and requiring a modest degree of site preparation (e.g., soil corrections), storm water work, and limited retaining walls. Commonly, trail development ranges from \$500,000 to \$700,000 per mile, exclusive of bridges or underpasses. With limited right-of-way and other constrictions, trail projects in Bloomington tend to be on the higher end of the cost range. Based on recent bidding on local area projects, the cost projections for implementing the core trail plan as defined in Section 3 are based on a \$680,000 average cost per mile. The cost to replace existing sidewalks in a road corridor with a paved trail, such as along American Boulevard, is based on a \$340,000 average cost per mile.

With bikeways, cost projections relate to restriping streets from 4-lane to 2-lane configurations. Cost projections for implementing the core bikeway plan are based on a \$101,000 average cost per mile. This includes blacking out existing painted lines, painting new lines, and on-road stenciling associated with bike lanes at major intersections. Bikeway signage is estimated at \$1,500 average cost per mile. Added together, per mile costs for bikeways is approximately \$102,500.

Cost Projections for Expanding PMP to Cover Sidewalks, Trails, and Streetscape Features

Projecting the costs for covering sidewalks, trails, and streetscape features cannot be determined until the inventory is complete. That said, it is clear that the total cost to replace worn-out asphalt trails, improve substandard sidewalks, and fill gaps in the system would be in the millions of dollars.

Figure 4.5: Potential Cost for Implementation of Regional trails and Community Corridors

Segment	Estimated Length	Projected Costs
<p>Priority #1 – Minnesota River Trail Corridor (Regional Trail)</p> <p>Includes paved trail following river and connections to local access points.</p> <p><i>Owner: DNR</i> <i>Lead: DNR</i> <i>Fund:</i></p>	16.67 miles	\$11,336,000 (MNDNR Budget \$2,500,000)
<p>Priority #2 – Hyland Trail Corridor (Regional Trail)</p> <p>Since much of this trail is completed, estimate only includes paved trails on the north end of this corridor.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	0.56 miles	\$381,000
<p>Priority #3 – Intercity Trail Corridor (Regional Trail)</p> <p>This includes a small segment of the trail corridor from 86th Street to the Old Cedar Avenue bridge.</p> <p><i>Owner: COB</i> <i>Lead: TRPD</i> <i>Fund: Federal Grant</i></p>	1.11 miles	\$755,000
<p>Priority #4 – Nine Mile Creek Trail (Regional Trail)</p> <p>This estimate is for a short segment of trail along airport lane and 34th Avenue.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	1.55 miles	\$1,054,000
<p>Priority #5 – West Bush Lake Road Corridor</p> <p>This corridor builds on the existing off-road trail and underpass along West Bush Lake Road and continues along Veness Road to the south and from Oakmere Road to the north.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	1.52 miles	\$1,034,000
<p>Priority #6 – Bush Lake Park Trails</p> <p>This includes trail connection on the south/west side of the lake, as well as trail connection along the north side of the lake.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	1.67 miles	\$1,136,000
<p>Priority #7 – Xerxes Avenue Corridor</p> <p>This estimate includes filling of gaps between north of 84th Street along the east side of Marsh Lake and south of 110th.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	2.94 miles	\$300,000
<p>Priority #8 – France Avenue Trail Corridor</p> <p>Includes replacing existing paved trails and some sidewalks along this corridor with new and wider trails. Assumes many of the existing trails and sidewalks are reaching the end of their effective lifecycle or are substandard. City estimate includes \$1,000,000 budget for retaining walls, etc., for areas of limited space between the road edge and wetlands.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	3.15 miles	\$2,142,000 (City estimate \$3,380,000)
<p>Priority #9 – Normandale Boulevard Trail Corridor</p> <p>Includes replacing existing paved trails and sidewalks along this corridor with new and wider trails. Assumes many of the existing trails and sidewalks are reaching the end of their effective lifecycle or are substandard.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	5.95 miles	\$4,046,000
<p>Priority #10 – I-35W Parallel Route</p> <p>Assumes a primarily off-road facility between American Boulevard and Bloomington City Hall.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	2.72 miles	\$277,000
<p>Priority #11 – American Boulevard Corridor</p> <p>Assumes that completion of pedestrian-ways along this street will be included incrementally as part of ongoing streetscape improvements by the City under separate budget.</p> <p><i>Owner:</i> <i>Lead:</i> <i>Fund:</i></p>	6.90 miles	\$2,346,000

Figure 4.8: Trail Maintenance Costs

Type	Unit	Projected Costs	Notes
On-street sweeping	Mile	\$583.00	Cost per mile
Sweeping	Mile	\$200.00	Cost per mile
Snow and ice removal	Mile	\$50.00	Cost per mile
Mowing clear zones	Mile	\$600.00	Cost per mile
Asphalt crack repair	LF	\$1.00	Includes blowing out debris
Asphalt edge/patch repair	SY	\$40.00	Includes sawcut, removal, base repair and paving
Sealcoating	SY	\$1.25	One coat of emulsion-only (no rock)

Maintenance and Replacement Cost Budget Considerations for Trails

Undertaking routine and preventive maintenance ensures a safe environment, reduces hazards, and helps control future repair costs. (Maintenance costs and responsibility for maintenance should be assigned when projects are planned and budgets developed.) Replacement costs also have to be factored into cost planning. Generally, trails can be expected to have up to a 25-30 year lifecycle with regular maintenance.

For long-range budgeting purposes, factoring in an annual maintenance and replacement cost of 10 percent of infrastructure replacement costs accounts for year-to-year maintenance plus replacement of the facility after 25-30 years.

Figure 4.7: Suggested Seasonal Schedule for Inspections

Season	Inspection Focus
Spring	Inspect for damage from winter use and freeze-thaw cycles. Check for erosion, plugged culverts, fallen vegetation, vandalism, user and maintenance vehicle-caused damage, slumping, cracking, and other visible signs of surface imperfections. Record problems and schedule maintenance on a priority basis.
Summer	Inspect regularly and after storms for damage to facilities. In addition to items listed for spring, also inspect vegetation growth and encroachment and pay special attention to drainage ways and ditches that may have eroded during the spring runoff. Record all problems and schedule maintenance on a priority basis.
Fall	Inspect regularly and after storms for damage to facilities. Focus on maintenance that should be done before winter to avoid more damage during spring thaw. Pay special attention to culverts and drainage ways that will be needed to handle spring runoff. Fill cracks.
Winter	This is a good time of year to check low areas and drainages that cannot be easily accessed during the summer. This includes culverts, ditches, and beaver ponds. Winter is a good time to conduct major vegetation maintenance and trimming activities because heavier vehicles can access trail corridors while the ground is frozen and fewer if any users are on the trails.

Operations and Maintenance Considerations

The following operations and maintenance guidelines provide general recommendations for monitoring and maintaining paved trails, sidewalks, and bikeways. The objective is to prolong the life of these based on common practices in Minnesota and take into consideration climate and other site conditions. Note that the guidelines are generic and not a substitute for maintenance programs tailored to site specific conditions. In all likelihood, these considerations would be integrated into the City's existing PMP as defined on page 4.7.

Monitoring and Inspections Schedule

Monitoring and inspections of all facilities should occur throughout the year to detect maintenance issues before safety is compromised. The management plan and monitoring inspection schedule will be consistent with the City's Pavement Management Program (PMP), which stresses right action at the right time. The following table provides an overview of inspections that can be completed during each season.

Inspections Schedule Considerations

A routine inspection schedule is important for staying on top of maintenance issues and taking care of problems at an early stage. The following is a suggested seasonal schedule for inspections.

A Paved Trail Inspection Template is included in the [Appendix X](#) that includes a list of items that should be reviewed when inspecting trail facilities.

General Maintenance Guidelines

Maintenance of paved trails, sidewalks, and bikeways falls into a number of basic categories, as the following considers.

Vegetation Management

To maintain an acceptable clear zones and to preserve the integrity of the trail and sidewalk surfaces, vegetation along these facilities needs to be managed. Preventing vegetation from breaking up the edges of the asphalt surface is especially important to extending a trail's life cycle. If vegetation is left unchecked, cracking, crumbling, and surface holes can rapidly develop.

Woody vegetation close to the trail can send root suckers under and then through the asphalt, destroying the integrity of the pavement. This vegetation needs to be removed by cutting or trimming and removing the trimmed material from the site.

A vertical clearance of ten feet above trails and sidewalks should be maintained. Trimming overhead branches and removing

dangerous limbs is an activity that should be reviewed on an annual basis.

A two to three foot "clear zone" should be maintained on both sides of trails and sidewalks. Within this area, there should be no obstructions such as trees, signs, posts or fences. The "clear zone" should be maintained by mowing turf grass or, in wooded areas where grass will not grow, wood mulch can be installed along the shoulder. If erosion has taken out vegetative cover, solve the problem before restoring vegetation.

Asphalt Crack Repair

Routine crack repair is critical to trail longevity. It is especially important to complete this work before winter. In general, all cracks wider than three-eighths inch should be filled. Those wider than one-half inch should be cut out and patched. Longitudinal cracks, which are typically structural problems, should be cut out and patched, not filled.

In areas where cracking is extensive and the subgrade is deemed stable by an engineer, an overlay can be used since the problem will not be resolved through crack filling. Note that drainage of the trail needs to be reviewed to make sure it is not compromised if an overlay is added. If so, the drainage issue must be corrected.



Mowing the "clear zone"

Repairing Crumbling Edges

Broken or crumbling edges are typically caused by either poor subgrade preparation before paving or heavy maintenance vehicles deflecting the asphalt surface and causing it to fail, especially in the spring during the frost-out period. Poor subgrade drainage can also be a factor in edge failure. If the trail, subgrade, and base material are poorly drained and remain wet, especially through freeze-thaw cycles, pavement failure can be expected, typically starting at the edge where the pavement is the weakest.

Cutting out the damaged area and inspecting the subgrade is required in these instances. If the subgrade is confirmed to be stable, the area can be patched using Mn/DOT specifications for asphalt repair, which include the use of a tack coat to seal the patch from moisture. If the patching area is large, removal of the entire area and replacement is recommended, since patches can annoy trail users.



Patching

Pitting and Grooving

Pitting and grooving can be caused by trail grooming or snowplowing equipment. If the damage is extensive enough to be of concern, an asphalt overlay of at least 1 inch is recommended. In the most severe cases, or when this is a routine problem (such as the approach to a bridge), using concrete for a section 30 feet or less is a common approach.

Slumping, Caving, and Holes

Slumping, caving, and holes can be attributed to many factors, including animals, erosion, culvert failure, settling at bridge approaches, and subgrade problems.

To repair holes caused by animals, smooth them out, repack the subgrade, and fill with an asphalt patch, which should be compacted. The patch should be level with or slightly crowned (but not lower than) the adjoining surfaces to avoid trapping water and causing future problems.

In situations where erosion and culvert failure are the problems, identify and address the cause before making the repair. Use the patching approach described above.

The area where an asphalt trail surface abuts a bridge deck is highly susceptible to separation, cracking, and slumping. Although specific repairs depend on the bridge design, the typical problem is the lack of a solid backing for the asphalt surfacing to be placed against or over. Either concrete or pressure-treated wood can often be used in these situations, although site-specific solutions are most common due to the variability of what can be encountered. The bridge manufacturer, who should be contacted to ensure that solutions do not compromise the bridge integrity, may have additional suggestions.



Sealcoating



Asphalt crack repair and seal combined

Sealcoating

Sealcoating relates to surface treatments used to cover minor surface imperfections and asphalt deterioration from weathering and oxidation. Although sealcoating has its advocates, it also poses some significant limitations, including:

- » Short life span – with extreme variability between products
- » Tendency for the finished surface to become slippery when wet unless a material such as sand or crushed rock chips are added (which is not desirable for most bicyclists and in-line skaters)
- » Incompatibility and inconsistency in products – with some products found to not bind to asphalt very well

For these reasons, the cost/benefit of sealcoating is uncertain and some maintenance departments forgo it and do an overlay on a shorter rotation with the money saved. Note that as products improve, the cost/ benefit of sealcoating may become more justifiable. For best results, seal coating should be applied in the second year to prevent moisture from seeping into surface cracks and voids and to prevent the surface from drying out. Thereafter, seal coating every 3 to 5 years is common.

Management Plans

A management plan identifies maintenance needs and responsibilities. A management plan that includes the maintenance component for a proposed facility should be prepared during project planning and be funded as part of implementation approval.

Additionally, a management plan should include a means for users of the system to report maintenance and related issues and to promptly address them. User-initiated maintenance requests should follow an established procedure to help avert deterioration of the city's infrastructure and reinforce resident-ownership of the system.

Maintenance Schedules

A maintenance schedule is the best way to ensure that specific maintenance activities are completed and at the optimal frequency. A maintenance schedule can be a simple spreadsheet or it can be incorporated into the City's asset management software that tracks pavement management. A sample spreadsheet for trail maintenance is included in [Appendix X](#).

Routine Maintenance Considerations

In addition to seasonal monitoring and inspections, routine maintenance also needs to be undertaken consistent with City of Bloomington policies. The following highlights a few areas of particular importance.

Snow and Ice Removal

To foster year-round use of trails and pedestrian-ways, a snow and ice removal policy and accompanying plan is necessary. When provided on a designated trail, pedestrian-way, or bikeway, snow and ice should be pushed well out of the travel lane. Bikeways, gutters, and curb ramps should not be used as snow storage areas for snow removed from streets. When snow and ice is removed from trails, it should be pushed far enough away from the trail edge to maintain the two-foot clear zone on both sides of the trail.

Sweeping

Loose sand and debris on the surface of all trails, pedestrian-ways, and bikeways should be removed at least once a year, normally in the spring. Sand and debris will tend to accumulate on bicycle lanes and shoulders because automobile traffic will sweep these materials from the automobile portions of the roadway. This is especially true for bicycle lanes that are located directly adjacent to a curb, where debris collects already. Other times when sweeping is necessary include after storm events when vegetation debris has fallen on trails and in the fall after all leaves have dropped from trees. Proper trail sweeping is important to maintain safe trail surfaces since trail use will continue until snowfall, and throughout the winter if trails are plowed for year-round use.

Drainage Facilities

Drainage facilities often deteriorate over time. Ensuring that bicycle-safe drainage grates are located at the proper height greatly improves bicyclist safety. Adjusting or replacing catch basins that have deteriorated or present a hazard should occur as needed to ensure continued safe operations and improve drainage. When a catch basin or drainage grate is located within or adjacent to a trail, it is important that the grate openings are small and set perpendicular to the direction of travel so that bicycle or in-line skate wheels to not get caught in the spacing. Neenah Foundry and other grate manufacturers make grate covers specifically for locations where bicycles and other small-wheel activities will occur.

Natural Surfaced Trails

With respect to natural-surfaced trails, implementation priority centers on expansion of the trails along the Minnesota River Valley, with the first step being to open up negotiations with various affected agencies to determine the extent to which this can occur. This step should be followed by detailed alignment planning. Note also that implementation of this trail plan is inherently lock-stepped with the proposed destination trail along the river. Second to the trail along the river is implementation of the nature trails defined under the Park and Recreation Master Plan.

Education and Promotion

Complementing the alternative transportation system defined under this plan with an education program is important to increasing actual use and safety of the system. The following covers the most important aspects of education and promotion programs to foster increased participation in the use of alternative forms of transportation in Bloomington.

Bicyclists, motorists, and pedestrians each have a responsibility for making all modes of transportation safe. Effective safety programs can reduce the risk of crashes and injuries while giving pedestrians and bicyclists greater confidence to use alternative transportation facilities.

Typically, safety training focuses on:

- » Developing and reinforcing safe skills in children and adults
- » Teaching bicyclists their rights and responsibilities
- » Increasing awareness of motor vehicle operators of the rights of bicyclists and pedestrians, especially their responsibility to safely share the road with bicycles and respect pedestrians in crosswalks.

With children, working closely with local schools to provide safety training and teach riding skills is recommended. Critical messages for children and adults include always wear a helmet, obey traffic laws, ride with the flow of traffic, and be visible.

With motor vehicle operators, the goal is to increase awareness of the alternative transportation system and following established laws related to accommodating bicyclists on roadways and pedestrians in crosswalks.

Promoting the Safe Use of Alternative Transportation Facilities

The City is encouraged to actively promote the use of the system through various programs and forms of communication. The following provides a few suggestions in this regard.

Special Events and Programs

Events ranging from weekend group rides to major bike rides and walking-for-a-cause should be promoted, similar to events routinely held in other cities. City-based, non-profit, and advocacy groups should be encouraged to sponsor events and activities that promote healthy lifestyles through physical activity. Advocating local walking clubs is also gaining favor in some communities, with the City providing a conduit for interested residents to meet up with others.

Special events can help raise the profile and potential for bicycle commuting and walking, educate the community of the facilities that are available, and promote healthy lifestyles.

For example, the City of Bloomington currently hosts walking and biking events, such as Iron Girl and The Race for the Cure.

School-Age Programs

Encouraging healthy, active lifestyles at the earliest ages is important to establishing life-long habits. Working closely with local schools to encourage students and staff to develop these habits is recommended. This ranges from implementation of Safe Routes to School Programs to establishing awards and incentives for riding or walking to school. Student discounts at area bicycle shops can also be an effective tool for encouraging bicycling.

Adult Bicycle Incentive Programs

Increased use of bicycle transportation can be encouraged with adult incentive programs as well. For example, business associations can provide discounts to shoppers who arrive by bike; employers can provide close to the door and secure bike parking areas; and transit facilities can provide high quality and secure bicycle facilities.

Bike and Trail System Maps

An alternative transportation system is only of value if residents first understand it and then know how to access and use it to get around the community and to various destinations. Providing system maps (i.e., Hike and Bike Guide) in printed and electronic form are a high-benefit, low cost approach to promoting the use of the system. In addition to providing system information, maps can provide information on rules, safety, and connections to transit hubs. Another helpful tool is the use of web-based mapping that allows users to define their own routes.

Law Enforcement

As with motor vehicles, enforcement of bicycle and pedestrian laws, in concert with educational programs and peer pressure, will foster the safe and responsible use of the alternative transportation features defined under this plan. Being effective in this regard will require a close working partnership between local law enforcement, City staff, local schools, and local advocacy groups in coordinating educational programming backed up by appropriate law enforcement.

Outreach and Public Involvement

Bloomington continues to expand its outreach effort to improve public awareness of its programs and services. This outreach effort will be extended to informing the community about the alternative transportation system as it evolves. This including the use of:

- » Printed Materials: Bloomington develops and distributes on a periodic basis brochures and maps, including trail and park maps.
- » Electronic Communication: Bloomington has a well-established web page to inform citizens about the City's functions and services. Bloomington also uses Twitter and Facebook to keep residents informed about current events in the city. For large projects, Bloomington may establish a web site or project specific Facebook page to keep neighbors and the general public up to speed on the project schedule and progress. In addition, the public can contact the City offices through the e-mail system.
- » Other Outreach: Other forms of outreach and marketing include displays at events, articles in local publications, the production of flyers and brochures and the display of information at City Hall kiosks. The City also publishes news releases and advertisements in local community and metropolitan area newspapers that highlight upcoming programs and facility openings.

Bloomington is committed to continuing public involvement through the implementation of the system plan. The degree to which this will occur will vary depending on what aspect of the plan is being implemented.

For larger scale projects, such as development of a major trail, public involvement in the actual design process may be fairly extensive and involve representation from key stakeholders. In addition, forums for broader public input (e.g., open houses and presentations) should also be used as needed to communicate and exchange ideas with interested citizens. For smaller scale projects, notification of interested parties would be a more appropriate approach.

The objectives associated with involving citizens in the implementation process include:

- » Determine who the stakeholders are and their interest in a particular development initiative
- » Understand their needs and unique perspectives
- » Identify and understand concerns and problems
- » Develop alternatives and find appropriate solutions with input from stakeholders

In addition, Bloomington will continue to take advantage of new and evolving tools such as the Rapid Health Assessment

described in Section 1 (see also [Appendix X](#)) to involve the community in the planning process.

Funding Sources

Founding sources for operations and maintenance activities are different than capital projects. Funding for operations and maintenance typically comes from one of three sources:

- » Metropolitan Council park and trail funds
- » Legacy Amendment funding
- » City of Bloomington CIP funds

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