

**RESOLUTION # 14-05**  
**City of Saint Paul Bikeways Plan**

WHEREAS, the Saint Paul Parks and Recreation Commission is an appointed body established to advise the Mayor and City Council on long-range and city-wide matters related to Parks and Recreation; and

WHEREAS, the proposed bikeways plan will dramatically influence the development of Saint Paul’s bicycle infrastructure for years to come; and

WHEREAS, once in place the plan will make biking in Saint Paul safer, more convenient, as well as more accessible; and

WHEREAS, the proposed bikeways plan will more than double the Saint Paul bicycling network from 144 miles to 358 miles; and

WHEREAS, the plan also proposes to complete the Grand Round loop trail to provide a path around the entire city; and

WHEREAS, the plan proposes constructing a 1.7 mile bicycle loop on Kellogg, Jackson, Saint Peter, and Tenth Streets in downtown; and

WHEREAS, the Department of Public Works has opened a public comment period; and

WHEREAS, the Parks and Recreation Department supports enhancing bicycling opportunities throughout the city as well as supports an open process to gather feedback to shape the plan; and

NOW, THEREFORE, BE IT RESOLVED, that the Saint Paul Parks and Recreation Commission endorses and supports the process for the bikeways plan.

Adopted by the Saint Paul Parks and Recreation Commission on February 12, 2014:

Approved:	Yeas	___
	Nays	___
	Absent:	___

Resolution # 14-05

Attested to by:

\_\_\_\_\_  
Staff to the Parks and Recreation Commission

**Resolution # 14-05**  
**City of Saint Paul Bikeways Plan**

**PROJECT DESCRIPTION:**

Support of the process for the City of Saint Paul Bikeways Plan

**STAFF COMMENTS:**

The proposed draft of the citywide bikeways plan will dramatically influence the development of Saint Paul's bicycle infrastructure for years to come. This draft plan will also provide improvements to the overall city transportation plan by promoting safety and mobility downtown and by making Saint Paul's transportation system more efficient by giving residents additional transportation options to choose from.

Highlights of the plan include:

- More than doubling the Saint Paul bicycling network from 144 to 358 miles
- Completing the Grand Round loop trail to provide a path around the entire city
- Constructing a 1.7 mile bicycle loop on Kellogg, Jackson, Saint Peter and Tenth Streets in downtown.

The public comment period is open and city residents are encouraged to provide feedback on the draft plan by attending an open house or providing feedback online.

**REQUEST OF THE COMMISSION:**

Adopt Resolution # 14-05 in support of the process for the City of Saint Paul's Bikeways plan.

**COMMUNITY CONCERNS:**

None known.





The Most Livable  
City in America

# Saint Paul Bikeways Plan

DRAFT

DRAFT - January 21st, 2014

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## 1.0 INTRODUCTION

The *Saint Paul Comprehensive Plan* adopted in 2008 establishes a strong vision to increase the number of bicycle trips throughout the city. The plan set a goal to increase the bicycle mode share from 2% in 2000 to 5% in 2025 and increase the mode share of bicycling commuters from 0.6% to 2.5% during the same period. The plan states a vision to become a world-class bicycling city, accommodating cyclists of all skill levels for both transportation and recreation while encouraging bicycle use as a part of everyday life. The plan promotes the development and maintenance of a complete and connected bikeway system, encouraging and supporting bicycling as transportation.

### 1.1 Purpose

The purpose of the *Saint Paul Bikeways Plan* is to establish a framework and work plan that will allow the City of Saint Paul to accomplish the goals in the comprehensive plan to increase the mode share of bicycling and establish a network of bikeways throughout the city. This plan identifies a proposed bicycle network and provides a list of projects and funding strategies to facilitate the construction and implementation of bikeway infrastructure. The primary task of this plan is to designate corridors for future development of bikeways. This plan is a necessary step in fulfilling the following directives from the 2008 comprehensive plan:

- 3.4 Develop and maintain a complete and connected bikeway system.
- 3.6 Fill gaps in the bikeway system.
- 3.8 Promote “bicycle boulevards” as a new type of bikeway.

### 1.2 Vision

Riding a bicycle is one of life’s simplest pleasures. Bicycling is the easiest and most affordable way to travel around Saint Paul. Riding a bicycle allows residents to travel safely, conveniently, and efficiently as they go about daily business. Adults and children of all experience levels, skill levels, or preferences can comfortably travel by bicycle. Saint Paul is an attractive place to live and work for individuals and families who choose to reduce the number or frequency of trips made by automobile.

Bikeways in Saint Paul offer direct routes between important destinations, and the city ensures that bikeways are well maintained year-round. The bikeways in Saint Paul connect seamlessly with bikeways in surrounding communities, making regional bicycle travel attractive.

Downtown Saint Paul bikeways are connected elegantly with the surrounding neighborhoods. Bicycle facilities throughout downtown allow even the most casual of cyclists to access destinations downtown. Downtown is a critical hub where multiple trails and bikeways converge. Saint Paul residents know that riding a bicycle is the easiest, most convenient, and most affordable way to access downtown for events and for conducting business.

Bicycling is a favorite pastime in the city as residents enjoy the many off-street trails, the Grand Round, and the network of low-stress bicycle boulevards.

### 1.3 Public Planning Process

This planning initiative began in 2011 with a concerted effort to understand how bicyclists are using the existing bike network and to gain a better understanding of what would encourage additional bicycle ridership.

#### Social Media and Newsletters

Throughout the development of this plan, several methods were used to publicize the efforts and encourage participation. The city distributes a monthly electronic newsletter via email to a list of subscribers. At the time of this writing, there are over 1,380 individuals who have self-selected to receive the monthly updates. The newsletter reports on all new and ongoing efforts relating to bicycling throughout the city, including opportunities to participate in the public involvement efforts detailed here. In addition the Department of Public Works maintains a Facebook and Twitter account, and opportunities to participate were publicized through these channels.

#### Transportation Committee

The Transportation Committee of the Planning Commission was established in 2010. The Committee advises the Planning Commission on transportation-related plans, policies, and projects, and creates a transparent public forum for such decisions. All Transportation Committee meetings are open to the public and welcome participation from the public. A presentation was given to the Transportation Committee in June of 2011 to inform the committee of the intent to draft this plan and to collect feedback and recommendations from the Committee. A second presentation was given to the Committee in April of 2013 to provide an update on the efforts completed and the feedback received from the public.

#### 2011 Open Houses

A series of three open houses was held in September of 2011 to gather input from the community. Those who attended were asked to identify on maps and verbally where they enjoyed riding a bicycle and what challenges they faced along the way. Attendees were asked to complete two open-ended statements:

- A bikeway network is important because...
- Barriers today for biking are...

A summary of the responses to these questions was posted on the city website and is presented in the Appendix.

#### 2011 Web Survey

An electronic web-based survey was created in the fall of 2011 to gather input from the public about how they use the bicycle network. The city received 243 responses to the survey, which collected some general demographic information. The survey asked respondents to identify their home zip code, workplace zip code, gender, and age. The survey asked respondents to identify why they ride bicycles and allowed respondents to provide feedback on what would encourage them to ride a bicycle more often. Nearly 75% of respondents identified that more bikeways or better access to existing bikeways would help them ride a bicycle more often. A summary of the web survey results was posted to the city website and is presented in the Appendix.

#### 2012-2013 Mapping Criteria

Based on the results of the 2011 Open Houses, the 2011 Web Survey, and the information contained within the 2008 comprehensive plan, a set of criteria was developed to be used by city staff to create a draft network of proposed bikeways. The criteria established spacing guidelines for bikeways, as well as provided a list of the factors that must be considered while identifying the

draft bikeway network. The mapping criteria was posted to the city website and is presented in the Appendix.

### [2013 Open Saint Paul Questions](#)

In April 2013, three questions were posted on the city website using the Open Saint Paul engagement tool. Open Saint Paul is a web-based message board that allows users to leave comments and responses to questions posted by the city. It is a virtual simulation of the public hearing process. The Open Saint Paul tool allows users to “participate” by leaving comments that are publicly visible and “support” a comment left by another commenter, or to “attend” the hearing by reading the responses left by other commenters. Residents were asked to respond to three questions:

- What is your vision for bicycling in the City of Saint Paul? What key objectives should the Citywide Bicycle Master Plan accomplish? (40 comments, 65 participants, 297 attendees)
- Where are bicycle facilities needed? Please be specific. Are there examples of good bikeway designs from Saint Paul or other cities that you would like to see repeated in Saint Paul? (29 comments, 44 participants, 193 attendees)
- What concerns do you have about riding a bicycle in Saint Paul? Where would you like to ride a bicycle, but currently do not because of safety concerns? (45 comments, 69 participants, 254 attendees)

The forum was open to commenters through November 2013. A transcript of the comments received is available on the city website and is presented in the Appendix.

### [2012-2013 Draft Mapping and Plan Preparation](#)

Throughout 2012 and 2013, city staff from the Department of Public Works, the Department of Parks and Recreation, and the Department of Planning and Economic Development collaborated to create a draft network of proposed bikeways and to complete a draft of this planning document. The draft plan was presented to the public in January 2014.

### [2014 Involvement Efforts and Adoption Process](#)

This section will be updated as the planning process proceeds towards adoption.

## 1.4 Plan Scope and Use

Bicycle planning literature in the U.S. often refers to the five “E’s”, referring to efforts cities must undertake to take a fully comprehensive and holistic approach to bicycle planning. Evidence has shown that cities who are most successful at promoting high levels of bicycle ridership must address all five of the E’s:

- **Engineering** – Improving physical infrastructure for bicycling
- **Education** – Creating materials to help bicyclists, motorists, pedestrians and others on how to safely interact. Teaching all roadway users how to follow the rules of the road.
- **Encouragement** – Increasing participation and awareness of bike facilities and benefits of cycling through events, campaigns, incentives, etc.
- **Enforcement** – Working with law enforcement officers and others to improve bicyclist and motorist compliance with rules of the road and other relevant ordinances.
- **Evaluation** – Planning for data collection and analysis to determine effectiveness of bicycling programs and infrastructure.



This plan addresses the first of the five E's: Engineering. The scope of this document is limited to identifying engineering solutions and strategies for implementing bikeways throughout the city. Education, Enforcement, Encouragement, and Evaluation are equally important, and should be addressed through subsequent planning efforts.

This is a corridor-level planning document that identifies specific corridors for future investment in bikeway infrastructure. Each corridor recommended in this plan has been subjected to a basic feasibility analysis. However, the scope of this plan does not permit looking at each corridor with a level of detail sufficient to complete final design. The details of each of the corridor recommendations in this plan will require further analysis during the final design and implementation phases of each bikeway project.

This plan does not assess the current physical condition of existing bikeway facilities, though it does evaluate the appropriateness of each existing bikeway facility type within the larger bikeway network. It does not assess the need for small-scale improvements to existing bikeways (for example, a reconfiguration of a single intersection to address a safety concern).

As a corridor-level planning document, this plan can not anticipate the many small-scale connections throughout the city that potentially provide great value to the community. For example, the construction of a short trail spur connecting a neighborhood to an adjacent trail may not be identified in this plan, though it is clearly in the spirit of promoting bicycle travel throughout the city. Such proposals should be judged to be consistent with the recommendations of this plan.

This plan should not be interpreted as a recommendation *against* providing bicycle facilities on any corridors. This plan does not identify any corridors where bicycle facilities would be inappropriate (beyond the corridors where bicycles are prohibited) or would not provide value and benefit to bicyclists. The corridors for which this plan does not make recommendations should be interpreted as corridors where this plan did not identify the development of bicycle facilities as a priority, either because of limited space, because there are other priorities for the corridor, or because the corridor was not recognized as integral to establishing a network of bikeways.

## 2.0 WHY BICYCLING MATTERS

### 2.1 The Changing Landscape

#### Growth and Congestion

As Saint Paul continues to grow, population and redevelopment pressures will test our existing transportation infrastructure. According to the Metropolitan Council population forecasts, Saint Paul is projected to add an additional 45,000 residents by the year 2030<sup>1</sup>. As Saint Paul is fully developed within its boundaries, this growth will result in an increasingly dense built environment, and is likely to increase congestion on our streets and highways. Redevelopment pressures and increasing land values in the urban core will make automobile-oriented land uses increasingly difficult to accommodate, necessitating a flexible and multi-modal approach to transportation.

#### Behavior Change

A noted shift in transportation behavior is occurring nationwide. In the Twin Cities metropolitan area, motorized trips per household, motorized trips per person, and the total number of car trips have all declined since 2000. Similarly, licensed drivers per household, and vehicles per household have declined since 1970. Since 2000, the Twin Cities metropolitan mode share changes reflect a 6% decrease in driving, and a 13% increasing in bicycling.<sup>2</sup>

While a variety of factors contribute to these behavioral trends, considerations include: the cost of owning and operating an automobile, environmental and sustainability concerns, a desire for an active lifestyle, telecommuting and communication technology, the close proximity of employment and amenities in urban centers, the economic effects of the recession, and other time-competitive transportation modes.

### 2.2 Bicycling complements our existing transportation infrastructure

A safe and connected network of bicycle facilities will afford Saint Paul greater choice in transportation options. Providing practical transportation choices will maximize the efficiency of our current transportation system, providing options that better utilize the existing infrastructure. When paired with transit, for example, bicycling can effectively expand and enhance mobility, extending trip distances and better connecting people to their jobs, schools, medical facilities, recreation, and entertainment.

#### Green Line LRT

With the Green Line light rail transit (LRT) line opening in 2014, Saint Paul has a unique opportunity to enhance bicycle access to Green Line stations, increasing accessibility while supporting ridership along the line. The Central Corridor Action Plan adopted by the city in 2010 advocates for bicycle and pedestrian connections and facilities that create a safe and inviting environment around the LRT line and surrounding area.<sup>3</sup> Developing safe and accessible bicycle connections to the Green Line will increase mobility, enhance community livability and sustainability, and attract new transit riders.

#### Nice Ride Minnesota

In 2011-2013, Nice Ride Minnesota, the non-profit bike-sharing program of the Twin Cities, made a significant expansion into Saint Paul.<sup>4</sup> Investing in bicycle facilities in Saint Paul will help capitalize on the existing network of Nice Ride stations, providing safe and connected bikeways that encourage utilization and promote Nice Ride as a practical and efficient solution for short trips within the Twin Cities.

### [The Existing Bicycle Network](#)

Greater connectivity within Saint Paul's existing bicycle network will significantly enhance mobility and convenience. A more connected and balanced network will encourage and promote bicycling as transportation, helping people more safely and effectively travel throughout the city. Locally, increased neighborhood accessibility will improve quality of life and create new economic opportunities. It will also promote multi-modal transportation options, providing the infrastructure to better connect bicyclists with other transportation modes and facilities. Connections to regional amenities like the Gateway State Trail and Samuel Morgan Regional Trail will encourage travel into the city, and support bicycling as a tool for both transportation and recreation.

## **2.3 Affordability and Equity**

To distinguish Saint Paul as a vital place for people and economic development, equitable access to transportation is a necessity. With over 20,000 residents in Ramsey County without access to a vehicle, bicycling can provide enhanced mobility and access to those who rely on transit, shared rides, and walking for transportation.<sup>5</sup> According to the US Census American Community Survey data, roughly 15% of Saint Paul residents do not have vehicles available for daily use. As the costs of owning and maintaining a car continue to rise,<sup>6</sup> bicycling positions itself as a comparatively affordable transportation option while maintaining the independence and trip choice often associated with car ownership. When paired with transit, bicycling can increase trip distances and decrease travel time, better linking people with employment, education, and entertainment. Investing in bicycle facilities, particularly in Saint Paul's low-income neighborhoods with high transit-dependent populations, will promote greater transportation equity and better connect Saint Paul residents with the services, jobs, and amenities they rely on.

## **2.4 The Benefits of Bicycling**

### [Practical and Competitive](#)

Similar to the initial appearance of the bicycle in urban areas in the late 1800's, bicycling is once again emerging as a practical and efficient mode of transportation. Saint Paul's urban environment is conducive to bicycle travel, often providing competitive travel times on short-distance trips without the parking concerns associated with automobiles. While not immune to the realities of a northern climate, Saint Paul residents embrace the challenges of winter, aided by plowed and maintained bicycle facilities throughout the city. As automobile-oriented uses become increasingly difficult to accommodate, the limited space requirements and high efficiency of bicycle facilities make a compelling case for further investment. Changing demographics, attitudes, and lifestyles encourage multi-modal transportation options, while research continues to correlate bicycling with health, economic, safety, and environmental benefits.

### [Bicycling is a convenient and affordable means of exercise](#)

Bicycling is a fun and practical way of incorporating physical activity into your daily routine. Burning between 300 and 500 calories an hour, bicycling is an affordable and dependable mode of transportation that allows you to stay fit as you commute.<sup>18</sup>

### [Bicycling helps reduce health risks associated with obesity](#)

Obesity is a national epidemic, and Minnesota is no exception. According to the Minnesota Department of Health, two out of every three Minnesotans are overweight or obese, due in part to insufficient physical activity.<sup>7</sup> The benefits of physical activity in decreasing obesity and enhancing overall health are well established, having proven to reduce the risk of heart disease, diabetes, high

blood pressure, and other chronic illnesses. Active transportation can incorporate physical activity into daily routines, providing regular opportunities for exercise while bicycling and walking. The Minnesota Department of Health supports active transportation as a means to increase opportunities for physical activity, promote sustainable change in the overall health of the community, and decrease money spent towards health care.<sup>8</sup> A network of safe and well-connected bikeways will support active transportation in Saint Paul, allowing people of all ages and abilities to achieve daily physical activity and while increasing their physical and mental well being.

### [Bicycling strengthens Saint Paul's economy](#)

Bicycling has an extensive and comprehensive impact on Saint Paul's local and regional economy. According to a recent study by the University of Minnesota, as the number of Nice Ride bike-sharing stations in the Twin Cities has grown, so has the economic activity in the areas surrounding them. The study estimated that cyclists spent \$150,000 *more* annually near bike sharing stations as a result of the Nice Ride program.<sup>9</sup> More directly, bicycling supports local Saint Paul bike shops, manufacturers and distributors, rental outlets, wholesalers, and non-profit organizations. These impacts are wholly positive, and represent a bicycling-specific local economy. While more difficult to assess, indirect economic considerations, like reduced personal and societal health care costs associated with regular physical activity, are also important considerations, and reflect the comprehensive impact of bicycling on Saint Paul's economy.

### [Bicycling promotes a healthy environment](#)

Traditional air pollutants from automobiles, such as fine particles, ozone and toxic air contaminants, contribute to serious health effects, particularly among the young and elderly and Minnesotans with heart and lung conditions.<sup>10</sup> The Minnesota State Legislature identifies increased bicycling as a statewide environmental goal for the transportation sector, promoting it as an energy-efficient, nonpolluting and healthy form of transportation.<sup>11</sup> Investing in improved bicycling infrastructure in Saint Paul will support this goal, reducing vehicle miles traveled, fine particle emissions, and greenhouse gas emissions through the replacement of automobile trips with bicycle trips.

### [Bicycling Improves Safety in Saint Paul](#)

A recent Minneapolis bike crash analysis revealed an emerging trend: corridors with more bicycle traffic tend to have lower crash rates.<sup>12</sup> The analysis notes that the increasing number of bicyclists themselves appear to be improving safety. Similar trends have been reflected in data from California and Portland studies, finding that crash rates decline as bicycling traffic increases.<sup>13,14</sup> Supporting bicycle infrastructure that increases the number of cyclists in Saint Paul will improve the safety of our streets.

Another pertinent consideration is the relationship between improved bicycling facilities and a safer cycling environment. Through context-sensitive design, bicycling infrastructure can improve safety for bicyclists, motorists, and pedestrians. These improvements employ a variety of design techniques and facility types, and consider factors such as traffic volumes, vehicle speeds, and road widths to guide appropriate facility design and improve safety.

## 3.0 BIKEWAYS ACCESSIBLE TO EVERYONE

To become a truly world-class bicycling city, Saint Paul's bicycling network must accommodate cyclists of all levels, abilities, and preferences. Safety, both real and perceived, is essential in creating a network of bicycle facilities that are practical and convenient for all users.

### 3.1 Who are cyclists?

Many characteristics have been used by various agencies or organizations to classify bicycle riders, including age, gender, comfort level, physical ability, and trip purpose. These typologies can be a valuable tool in helping to understand how and why people choose to ride bicycles and the preferences of each type of cyclist.

While each of these typologies is useful and instructive in some circumstances, each of these systems fails to fully capture the diverse population and preferences of people who choose to ride bicycles. People rarely fit into a single category, and a cyclist's preferences may change by time of day, trip purpose, traffic conditions, travel companions, weather, or other factors. For example, a cyclist who is comfortable riding in mixed traffic during daytime hours on a weekend may not be comfortable on the same street during rush hour traffic or during nighttime hours when visibility is reduced. Likewise, an individual's preferences while commuting may be different on days when they carry a young child with them for part or all of the commute.

### 3.2 Trip Purpose

Trips made by bicycle can be described as either utilitarian or recreation. The term describes the purpose of the trip only, and does not imply any other characteristics about the trip or the preferences of the cyclists, including travel speed, cyclist experience, or the facility type used.

#### Utilitarian Trips

Utilitarian or nondiscretionary trips are needed as part of a person's daily activities. This includes commuting to work or school, work-related non-commute trips, shopping or errands, or taking a child to school or daycare. Utilitarian trips made by bicycle can replace or seamlessly link with other transportation modes such as transit or motor vehicle trips.

While some people may choose to use a bicycle, others may use bicycles for utilitarian trips because they do not have access to an automobile or possess a driver's license, have no transit available, or are otherwise dependent upon bicycling.

#### Recreation Trips

Recreation or discretionary trips include trips made for exercise or leisure. Recreational trips can range from short trips within a neighborhood, to long rides covering much greater distances. The most basic type of recreation trip might be a leisurely family bike ride through a park, however there are many other more complex examples as well. For example, when a couple rides bicycles to a restaurant for dinner and then to a movie theater, this is a discretionary trip for recreational purposes, even if no trails were used in the process.

#### Trip Purpose and the Bicycle Network

It is sometimes difficult to differentiate between utilitarian and recreational bicycling because the same bikeway network can be used for both purposes. In many cases, it is not easy to determine which label best describes the trip. Trip chaining, the process of making intermediate stops at multiple destinations between two anchors, further complicates the equation.

For example, imagine an individual who uses a bicycle to ride home after work, but occasionally chooses to take the long way home to take advantage of the comfort and attractiveness of a trail running through a regional park. Imagine another individual who rides a bicycle from work to their child's daycare center, then bikes with the child to the nearest ice cream shop before heading home. In both of these examples, it is not clear whether the trip is best described as utilitarian, recreation, or some combination of both.

### 3.3 Bicyclist Typology Systems

Despite their weaknesses, bicyclist typologies systems can still be a useful tool to help inform how we plan bikeways through the City of Saint Paul. Below are several common classification systems.

#### Federal Highways Administration

In 1994, the Federal Highway Administration developed the following general categories of bicyclist types to assist planners and designers in determining the impact of different facility types and roadway conditions on bicyclists.

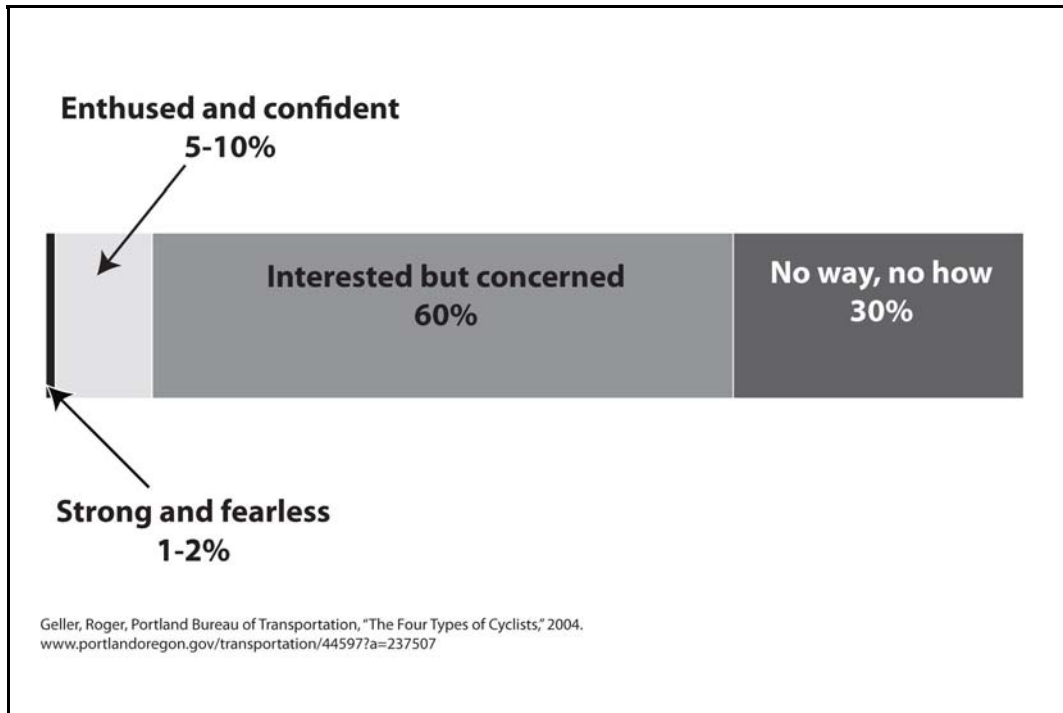
- **Group A** - Advanced Bicyclists – Advanced or experienced riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay.
- **Group B** - Basic or less confident adult riders may also be using their bicycles for transportation purposes, e.g., to get to the store or to visit friends, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles.
- **Group C** - Children, riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities.

This typology system has been widely adopted and endorsed by numerous agencies.

#### Portland: Four Types of Transportation Cyclists

In 2004, The Portland Office of Transportation published a report that described four general categories of transportation cyclists and their differing needs. Through surveys and research, they identified four categories of residents and their relationship to bicycle transportation<sup>15</sup>:

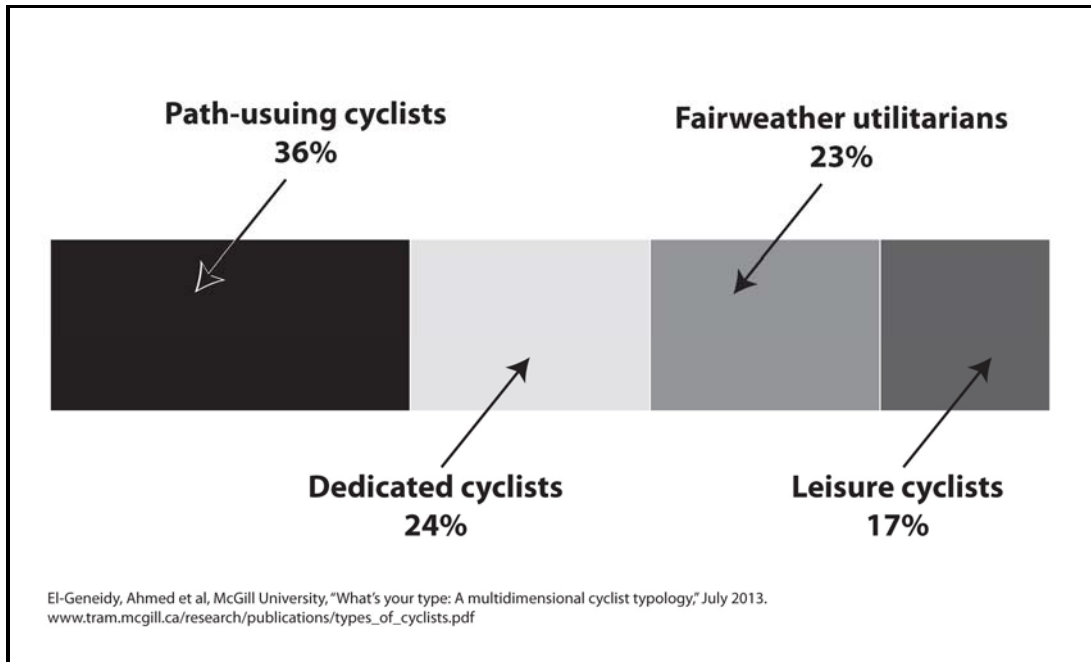
- **“No way, no how” (30%)** – As the name implies, this category represents people who will not ride a bicycle for transportation, either out of disinterest or the inability to do so.
- **Interested but Concerned’ (60%)** – People in this category would like to ride more, but do not feel safe on busy streets with fast moving traffic nearby. Fewer and slower-moving cars would help them feel more comfortable. Constituting 60% of the demographic spectrum, this category represents the majority of residents.
- **Enthusied and Confident’ (5-10%)**- This group is those who have been attracted to cycling as a result of previous investment in the bicycle network. They are comfortable sharing the road way with automobile traffic, but they prefer to ride on dedicated facilities such as bike lanes or paths.
- **Strong and Fearless’ (1-2%)** – This category, by far the smallest, will ride regardless of roadway conditions and regardless of investment in bicycle facilities.



### Montreal Cyclist Typology

Another model, developed by Damant-Sirois, Grimsrud, and El-Geneidy at McGill University in Montreal, also identifies four separate and distinct categories of cyclists, but identifies differing motivating factors for each category, which suggests differing engineering and planning interventions may be successful<sup>17</sup>.

- **Path-using Cyclists** – These cyclists are motivated by the fun of riding, its convenience, and the identity that cycling allows for. They would rather use a continuous cycling route, separated from car traffic with a barrier rather than other types of facilities.
- **Dedicated Cyclists** – These cyclists are motivated by the speed, predictability, and flexibility afforded by bicycle transportation. They identify as cyclists and may be comfortable riding in traffic outside of dedicated bicycle facilities. They are not strongly impacted by weather conditions.
- **Fairweather Utilitarians** – Are contextual users who do not cycle in bad weather and will choose another mode if it is more convenient. They prefer to cycle on paths and may not identify as ‘cyclists.’
- **Leisure Cyclists** - This group cycles because they enjoy it rather than its role as a fast and convenient mode of transportation. They identify as cyclists, are influenced by weather conditions, and prefer to use bicycle facilities segregated from traffic.



### 3.4 Misconceptions about Bicycle Riders

Several misconceptions or stereotypes about people who ride bicycles have been stated in the past. This plan makes a conscious effort to avoid perpetuating these misconceptions. Some of these are listed below:

- There is a tendency to associate greater levels of cycling experience with a preference for integration with motorized traffic. In reality, level of experience or skill in handling a bicycle does not necessarily dictate a preference for certain facility types, or a desire to integrate with motorized traffic. Many experienced and dedicated cyclists prefer off-street trails or low-volume streets that provide separation from motorized traffic.
- There is a tendency to associate bicyclists who are commuting to work with a preference for on-street bike lanes rather than trails or other facility types. In reality, off-street trails (even trails developed primarily for a recreational purpose) and low-volume residential streets can form the backbone of a bike network for individuals commuting to work.
- There is a tendency to assume that individuals cycling for recreation are using only off-street paths. In reality, bicycle facilities of all types may be used as part of a recreational trip. In most cases, a bicyclist wanting to ride recreationally on a trail will have to ride between their home and the trail on facilities other than off-street trails.
- There is a tendency to assume that if a cyclist is willing and able to integrate with motorized traffic on a roadway without any bicycle facilities, then there is no need to provide any additional facilities or safety enhancements for that cyclist. In reality, a cyclist's willingness to integrate with motorized traffic on a busy roadway should not be confused with a preference for those riding conditions. Many individuals who are currently cycling on busy streets without bike facilities would welcome additional bike facilities.



### 3.5 Planning for Trip Purpose & Typology

Understanding trip purpose is an important part of planning for bikeways throughout Saint Paul, however, this plan intentionally avoids designating any existing or proposed routes for a particular trip purpose or a particular type of cyclist. This plan acknowledges that all people have various preferences depending on circumstances, and accommodates those preferences by recommending a wide variety facility types throughout the city. By providing a diverse mixture of cycling facilities throughout the city, the plan ensures that all people, regardless of preferences, will have access to a facility type that caters to their preferences.

The variety and differentiation represented by cyclist typologies highlights the wide range of bicyclists. For some, bicycling is intimidating or uninteresting. For others, bicycling is integral to their identity and lifestyle. Some cyclists prefer dedicated bicycle facilities separated from traffic, while others favor riding in traffic on the street. As a result, bicycle infrastructure in Saint Paul must accommodate all categories and levels of riders. Making bicycling comfortable and practical for all users will increase and encourage use, and make Saint Paul a world class bicycling city.

## **4.0 JURISDICTION & PLANNING CONTEXT**

The bikeway network throughout Saint Paul is a collaborative effort between many units of government and partner agencies and organizations. This section will outline the general roles and duties of each agency as it relates to bikeways, as well as summarize the previous planning efforts that inform this plan.

### **4.1 Federal Highway Administration (FHWA)**

The Federal Highway Administration (FHWA) is a division of the U.S. Department of Transportation. It is Federal transportation policy to promote the increased use and safety of bicycling as a transportation mode. The FHWA interprets federal legislation and provides oversight for federal transportation programs. The FHWA encourages the development of bicycle facilities and provides local agencies with the tools needed to accomplish this.

The FHWA prepares, maintains, and updates the Manual on Uniform Traffic Control Devices (MUTCD) that establishes the appropriate use of all signage, pavement markings, roadway striping, traffic signals & beacons, and other traffic control devices, including those used on bikeways. The MUTCD sets the standard of how tools such as bike lanes, bicycle warning signs, or shared lane markings can be used by local agencies. The FHWA establishes the process local agencies must follow if they wish to stray from the MUTCD guidelines and experiment with new traffic control devices.

The FHWA conducts national research studies regarding safety impacts of bicycle facilities. They publish reports of proven safety countermeasures to expand the toolbox available to local agencies. They encourage the use of national design guidelines to improve bikeway design, including guidelines prepared by the American Association of State Highway and Transportation Officials (AASHTO), the National Association of City Transportation Officials (NACTO), and the Institute of Transportation Engineers (ITE).

Much of the funding available for the development of new bikeways is authorized by the federal legislature through programs administered by the FHWA. The Moving Ahead for Progress in the 21st Century Act (MAP-21) is the current federal transportation funding bill, which authorizes programs such as the Transportation Alternatives Program, Recreational Trails Program, and the Surface Transportation Program. The FHWA works with local agencies such as MnDOT, the DNR, and the Metropolitan Council to distribute these funds. Bikeways developed by local agencies using federal funds are subject to FHWA oversight and regulations.

The FHWA does not develop, own, operate, manage, or maintain any bikeways, deferring these roles to local agencies.

### **4.2 Minnesota Department of Transportation (MnDOT)**

The Minnesota Department of Transportation (MnDOT) owns and operates the trunk highways (TH) throughout the state, including a number of roadways throughout Saint Paul. In addition to the interstate and US Highways, MnDOT has jurisdiction over roadways such as portions of Snelling Avenue, Montreal Avenue, West and East 7th Street, Arcade Street, and Minnehaha Avenue.

MnDOT typically relies on the City or County to operate and manage bicycle facilities along trunk highways. An example of bicycle facilities along a trunk highway in Saint Paul is the existing bike lanes on Montreal Avenue.

MnDOT also plays an important role in providing critical connections across major barriers such as the Mississippi River. Many of the bridges across the Mississippi River are under MnDOT jurisdiction and provide critical connections for bicycles, such as the TH-5 (7th Street) bridge, the TH-149 (Smith Avenue) bridge, and, when reconstruction is complete, the US-52 (Lafayette) bridge.

MnDOT has many responsibilities relating to bicycling statewide and within the city of Saint Paul. In addition to day-to-day operations and delivery of construction and maintenance projects, MnDOT plans for statewide bicycle travel and helps set statewide transportation policies. MnDOT conducts research relating to transportation safety, including bicyclists.

In the Twin Cities, MnDOT works closely with the Metropolitan Council to plan for regional transportation facilities and administer state and federal transportation funding sources. MnDOT is currently in the process of completing a planning study with the Metropolitan Council to identify a set of regional bikeways that will inform the anticipated MnDOT Metro District Bicycle Plan. MnDOT also works closely with the Department of Natural Resources to administer the federal Recreational Trails funding program.

MnDOT regulates the use of traffic control devices, such as signals, signage, and roadway striping and markings through the development of the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD), the locally approved version of the federal MUTCD.

MnDOT typically does not maintain bicycle facilities within Saint Paul, with the exception of facilities provided on major bridge structures. While MnDOT may permit or encourage the development of bike facilities along or across MnDOT rights-of-way, ongoing maintenance and operation of those facilities is typically a local responsibility.

#### [MnDOT Bicycle Modal Plan \(2005\)](#)

The MnDOT Bicycle Modal Plan establishes the role of bicycle in Minnesota's transportation system. It reviews all State and Federal laws, policies, and guidance related to bicycle transportation. The modal plan clarifies policies under which accommodating bicycles is required on MnDOT projects, outlines an initiative to establish a scenic bikeway system throughout Minnesota, and provides basic bikeway design guidelines. An update to this plan is anticipated in 2014 under the title Statewide Bicycle System Plan.

#### [MnDOT Bikeway Facility Design Manual \(2007\)](#)

This document provides detailed guidance on the appropriate design and use of various treatments and facility types. It is a primary resource used by engineers and planners to implement the MnDOT vision and mission for bicycle transportation. Much of the guidance provided in this manual has been codified into the statewide State-Aid Rules, which frequently regulate the design of bicycle facilities on trunk highways, county roadways, and many municipal roadways.

#### [Minnesota GO Statewide Multimodal Transportation Plan \(2012\)](#)

Based on the Minnesota GO 50 Year Statewide Vision, the Statewide Multimodal Transportation Plan was completed in 2012. The Plan highlights the growing disparity between available resources and the work needed to maintain our existing infrastructure or expand and improve transportation networks. The plan establishes guiding principles that will inform updates to MnDOT's various

modal plans, including the Bicycle Modal Plan. The plan places a high emphasis on identifying multimodal solutions and projects that deliver a high return-on-investment.

#### [Statewide Bicycle Planning Study \(2013\)](#)

The Statewide Bicycle Planning Study provides foundational information to assist MnDOT in better integrating bikeway facility planning and integration into its day-to-day business. The study provided recommendations for MnDOT in the planning, programming, scoping, design, and implementation of trunk highway projects with consideration to state bikeways. A primary initiative of the study was to create a consistent statewide database of existing and planned statewide bicycle routes, including the production of a new State Bicycle Map.

#### [Mississippi River Trail \(MRT\) - US Bike Route \(USBR\) 45](#)

MnDOT has been the lead agency on the development of the Mississippi River Trail (MRT), also known as US Bike Route (USBR) 45. The US Bike Route System is a national effort to establish a network of numbered interstate bicycle routes across the nation. Approximately five numbered routes have been identified at a conceptual level that pass through Minnesota. One of these, the MRT passes through the Saint Paul. MnDOT has been the lead agency in identifying the specific alignment of the MRT, and is the lead agency in establishing all signage designating the route. In Saint Paul, the MRT is being established entirely on existing bikeway corridors through signage and wayfinding.

### **4.3 Department of Natural Resources (DNR)**

The Department of Natural Resources (DNR) manages the nearly 1,300 mile state trail network, of which 541 miles is paved and intended for use by people on bicycles, including the Gateway State Trail in Saint Paul. The DNR is responsible for all maintenance and management of the Gateway State Trail. The City and the DNR work together to ensure integration of the Gateway State Trail into the city bikeway network. Approximately 2.1 miles of the Gateway State Trail is located within Saint Paul.

The DNR plays an important role in promoting bicycling statewide. While the state trail network is intended primarily for recreational use, experience has shown that under certain conditions, state trails can play an important role for utilitarian bicycle trips as well. This is especially true of state trails that penetrate into urban areas, such as the Gateway State Trail. The Gateway State Trail was opened for public use in 1993, originally as an extension of the Minnesota-Wisconsin Boundary State Trail, which was envisioned to connect the Twin Cities with Duluth.

The DNR plays an important role in funding bikeway projects by administering several funding programs available to help local agencies develop bikeways, including the Federal Recreational Trails program, the Local Trail Connections Program, the Parks and trails Legacy Grant Program, Regional Park Grant Program, and Regional Trail Program, though some of these programs are only available to agencies outside the Twin Cities region.

#### [Gateway State Trail Master Plan \(1985\)](#)

More accurately titled A Master Plan for the Gateway Segment of the Minnesota Wisconsin Boundary State Trail, this plan established the vision for the initial construction of the Gateway State Trail, including a desire to extend the trail into the “downtown area” of Saint Paul, though a preferred alignment for this extension was not identified. The plan identified the southwestern terminus of the trail near Arlington Avenue, though the trail has since been extended as far south as Cayuga Street. In conjunction with the MnDOT I-35E Cayuga Interchange project, the Gateway Trail will be extended approximately 0.7 miles south to University Avenue by 2016.

## 4.4 Metropolitan Council

The Metropolitan Council does not own, operate, develop, or maintain any bikeways or facilities. However, they play an important role in the planning and coordination of bicycle facilities throughout the Twin Cities region. Council staff works with MnDOT, counties, and municipalities on bicycle and pedestrian planning efforts in the region, and provides technical assistance to partner agencies. The Metropolitan Council supports the development of bikeway facilities through two primary systems:

- Regional Bicycle System
- Regional Trail System

The two systems are complementary, and some bikeways may be included in both systems. The two systems will be described below in greater detail.

### Regional Bicycle System

The Metropolitan Council is charged with creating and updating the 20 year Transportation Policy Plan (TPP), which was last updated in 2010 and establishes a regional transportation vision through the year 2030. The TPP establishes several policy objectives and strategies that promote and support bicycling as a critical part of the regional transportation network.

The Metropolitan Council provides planning guidance on land use issues related to bikeways and administers a competitive process for allocating federal transportation funds to bicycle and pedestrian projects. Since 1991, this program has awarded approximately \$112 million in federal funds for freestanding bicycle and pedestrian projects and has supported the inclusion of bicycle and pedestrian components in regionally funded highway projects.

In addition, the Metropolitan Council assists local governments through the following:

- Establishes regional policies and strategies relating to bicycling
- Assists with interjurisdictional coordination and planning
- Maps and inventories bikeways throughout the region
- Encourages educational and promotional programs
- Establishes priorities for distribution of federal funding
- Encourages a metro-wide system of signage and wayfinding

The Metropolitan Council, in conjunction with MnDOT, is currently in the process of completing a Regional Bicycle System Master Study. The study will provide the technical basis for updating the bicycling section of the TPP and to develop MnDOT's Metro District Bicycle Plan. The study will provide a proposed set of regional bikeway corridors and an update to the Regional Bicycle System map.

The study will provide a more complete understanding of the regional bicycle transportation network and how it functions, particularly with respect to on-road routes and facilities. Study will also help to define the role regional bicycle corridors within the larger transportation system.

At the time of this writing, a complete draft of the Regional Bicycle System Master Study is not yet available, though some preliminary regional bikeways maps have been presented for public input.

### Regional Trails

The Metropolitan Council designates and coordinates a system of regional parks and recreational facilities, including a network of recreational trails. These parks and trails play an important role in providing recreational opportunities, however regional trails also play a critical role in the bicycle transportation network as well. Regional trails may be either a standalone trail, or may be included within a regional park.

### Metro Transit

Metro Transit is a division of the Metropolitan Council that is primarily responsible for providing transit services throughout the Twin Cities, including light rail transit and the bus system. The primary role of Metro Transit in the Saint Paul bikeway system is in the provision of various bike parking system, and in helping people using bicycles to extend the feasible range of travel by combining their trip with transit. Nearly every bus in the Twin Cities is equipped with a front rack that allows passengers to carry a bike with them on the bus. Light Rail vehicles also permit bringing bicycles on board. Metro Transit is also responsible for providing bike racks or lockers at some transit station areas. Bike racks are included in the design of most of the Green Line station areas. High security bike lockers are primarily provided at the larger transit stations and facilities, such as the Smith ramp in downtown.

## **4.5 Ramsey County**

Ramsey County has jurisdiction over a number of roadways and parks within Saint Paul. Many of the larger roadways within the city are county roadways (e.g. Dale Street, Randolph Avenue, White Bear Avenue). County roadways are managed by Ramsey County Public Works. The County and City work together to determine what type of accommodations for bicycles are appropriate along county roadways. The bike lanes along Como Avenue between Dale Street and Rice Street are an example of bicycle facilities on a county roadway.

Ramsey County Parks & Recreation also manages trail facilities within Saint Paul, the trails within Battle Creek Regional Park being a good example. The City and County Parks departments work together to plan, develop, operate, and maintain high-quality trail facilities throughout the city. Active Living Ramsey Communities, an arm of the County Parks department actively plans and encourages bicycling as an important quality of life and health issue. They actively plan for bicycle facilities throughout Ramsey County.

The city and county work closely together to manage many aspects of the transportation system, including snow plowing, operation of traffic signals, roadway striping, and other responsibilities.

### Ramsey County 2030 Comprehensive Plan (2009)

The County Comprehensive Plan reiterates the importance of providing and maintaining a regional transportation system of bicycle/pedestrian pathways throughout the County for both recreational and utilitarian trips. The county comprehensive plan clarifies the county's role in providing bicycle infrastructure. The plan suggests that the county's role in providing for bicycle travel is to provide a link between municipal and state bikeway networks. The plan states that "accommodation of pedestrians and bicycles is very important to the County", and that "the County will encourage multi-modal forms of transportation wherever feasible."

## **4.6 City of Saint Paul**

The City is the primary agency responsible for planning and developing bicycle facilities within Saint Paul, even along corridors managed by agency partners such as Ramsey County or MnDOT.

Planning for, constructing, and maintaining bikeways in Saint Paul is a joint effort between the Department of Public Works, the Department of Parks and Recreation, and the Department of Planning and Economic Development. Facilities located within parks and along parkways are generally under the jurisdiction of Parks and Recreation, while facilities located outside of parks and parkways are generally under the jurisdiction of Public Works. However, the two departments work closely together to manage all of the facilities within the city. The Department of Planning and Economic Development works closely with both departments to facilitate long range planning, site review, and project development.

There have been numerous previous planning efforts conducted by the city relating to bicycle facilities – too many to list each plan individually here. However, the following is a summary of the most recent and relevant planning efforts.

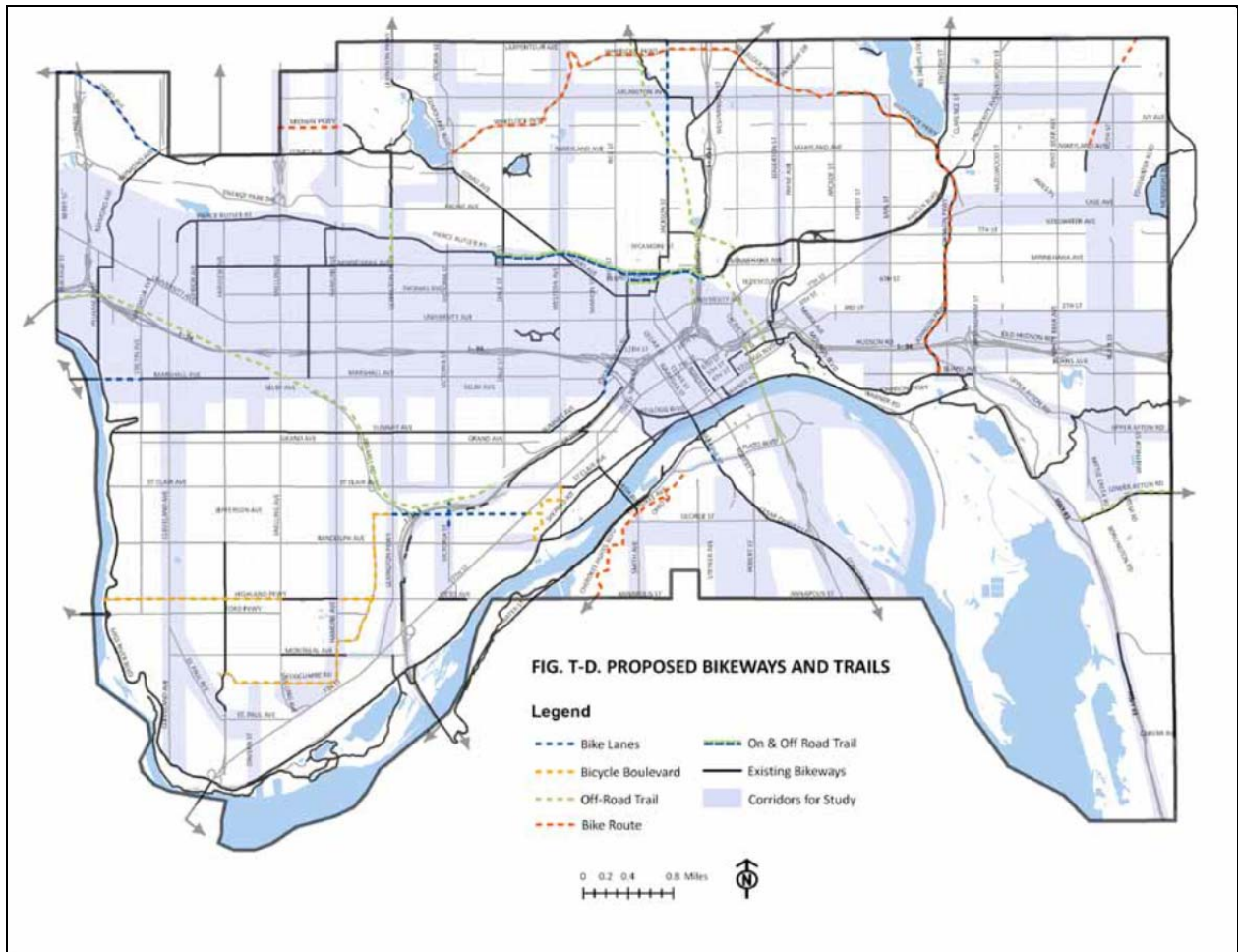
### [City of Saint Paul Comprehensive Plan \(2008\)](#)

The comprehensive plan strongly supports the development of a multi-modal transportation system, including the development of a citywide bicycle network. The plan states the importance of using a Complete Streets approach to planning the transportation system and promotes context sensitive design. The plan states a number of strategies and objectives supporting the creation of this Bikeways Plan. The following strategies are most directly relevant to this planning effort:

- 3.4 Develop and maintain a complete and connected bikeway system.
- 3.5 Support existing off-street shared-use paths and add facilities and amenities supportive of active living principles.
- 3.6 Fill gaps in the bikeway system.
- 3.8 Promote “bicycle boulevards” as a new type of bikeway.

The creation of this *Bikeways Plan* is a direct response to the directives and goals established in the comprehensive plan.

The comprehensive plan makes several recommendations regarding new bikeways to be developed throughout the city, however, the plan primarily establishes a number of search corridors for study. This plan is a direct response to the directive to study the identified corridors and make recommendations regarding a citywide bicycle network. The following image includes the recommendations for proposed bikeways included in the comprehensive plan.



[Parks and Recreation System Plan \(2010\)](#)

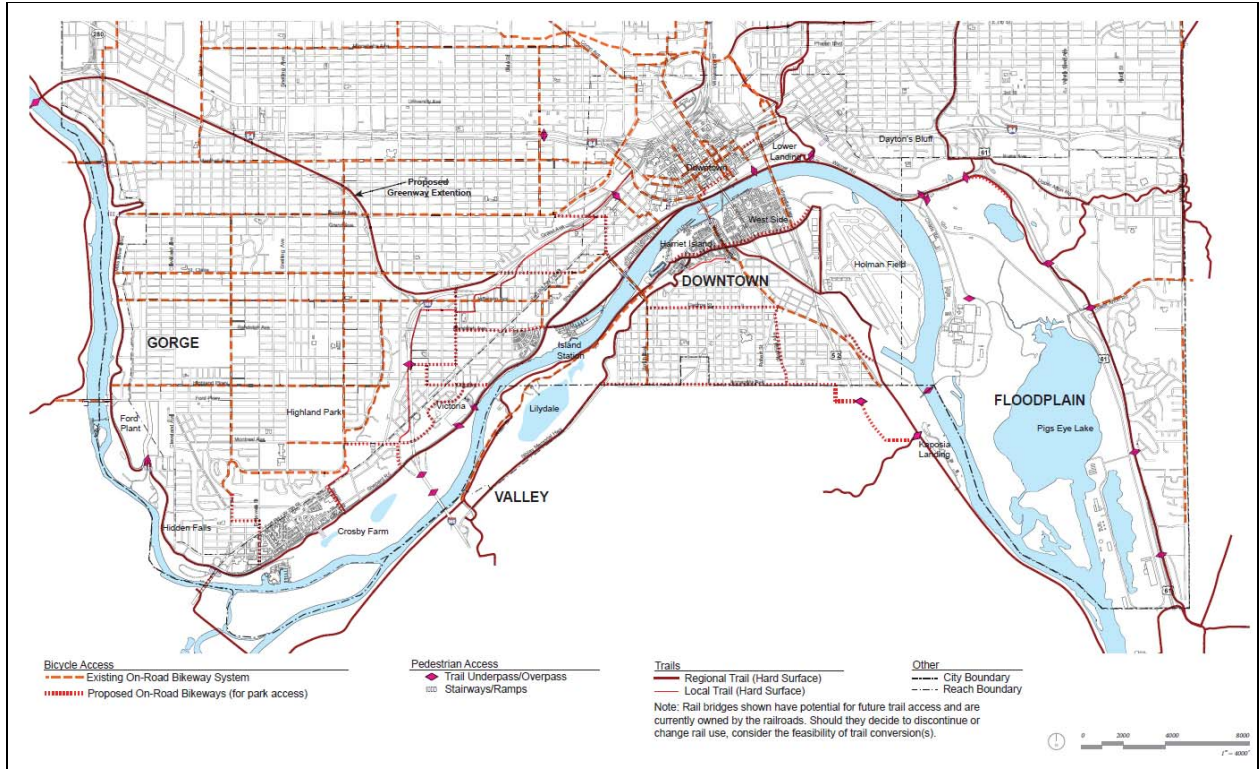
This plan establishes a strong vision for bicycling, primarily within the context of Regional Parks & Trails, the Grand Round, and on city Parkways. The plan places a high emphasis on completing the city Grand Round, particularly along Johnson Parkway, Wheelock Parkway, Como Avenue, Pelham Boulevard, and Raymond Avenue. The plan envisions a number of new bikeways throughout the city, some of which have already been constructed, such as bike lanes along Ruth Street, the development of a trail within Cherokee Park and Ohio Street, and extension of the Furness Parkway trail. The plan strongly recommends the development of an extension of the Midtown Greenway from Minneapolis through the Ayd Mill Road corridor in Saint Paul. The following image includes the bikeway recommendations from the Parks and Recreation System Plan.





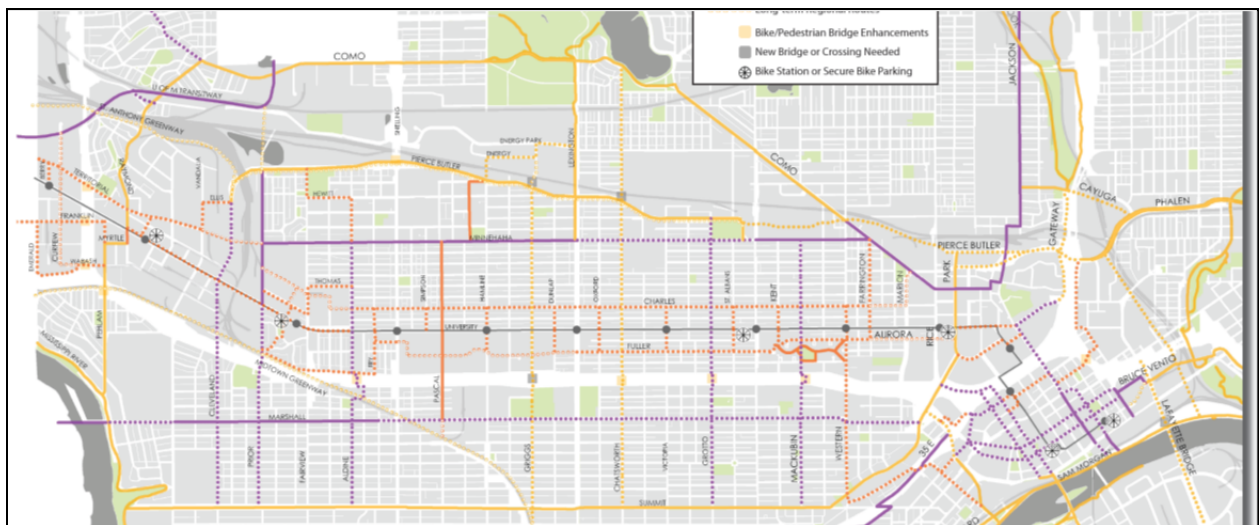
### [Great River Passage \(2012\)](#)

The Great River Passage plan places great emphasis on enhancing and improving the many existing trails along the Mississippi River corridor. The plan promotes the Mississippi River as a critical corridor for bicyclists and establishes a vision for drawing more users to the trails and the river. The plan establishes support for improving access to the river through bike lanes, shared lanes, off-street paths, and bicycle boulevards. The plan identified a number of proposed bikeways to connect the existing bikeway network to the Mississippi River corridor. The following image from the Great Passage Plan identifies these routes.



### [Bike Walk Central Corridor Action Plan \(BWCCAP\)](#)

The Bike Walk Central Corridor Action Plan was developed in anticipation of the Green Line LRT development to plan for bicycle and pedestrian access along and across the Green Line. The plan identified bike routes and gave recommendations for facility types along these corridors. The plan identified a fine-grained network of bikeways.



### [Complete Streets Resolution \(2009\)](#)

In March of 2009, the city council approved a resolution adopting a complete streets policy. The resolution directs city staff to approach roadway implementation projects with a “Complete Streets” approach to encourage walking, biking and transit usage. The resolution states that complete streets will be “achieved over time, project by project”.

### [Other Plans](#)

There are numerous other planning efforts that inform the development of this plan, including Small Area Plans and District Plans, which have been adopted as addenda to the comprehensive plan. The level of detail into which each of these plans gives recommendations regarding bikeways varies greatly. In addition, there have been a number of planning efforts that were adopted by the city council but not as addenda to the comprehensive plan, as well as numerous studies that were not adopted by the council. The city has also completed numerous corridor studies and trail studies, including a master plan for each of the regional trails throughout the city.

## **4.7 Adjacent Municipality Planning Efforts**

It is critical for the bikeways proposed in this Bikeways Plan to be consistent with the planning efforts of the surrounding municipalities. Each of the adjacent municipalities are at various stages of progress in terms of planning for and developing a network of bikeways. Some cities, such as Minneapolis and West Saint Paul have adopted bicycle plans. Others have included information relating to bikeways within their city transportation plans or parks plans. Each agency takes a slightly different approach to planning for bikeways. Some agencies lean heavily towards a particular facility type, such as off-street trails, and don’t address facility types such as bicycle boulevards. Other cities, such as Minneapolis, have established a complex mixture of facility types identified for development. In either case, coordination between the City of Saint Paul and its neighbors is critical to ensure that bikeways effectively cross municipal boundaries.

## 5.0 BICYCLE NETWORK FRAMEWORK

### 5.1 Introduction

This planning document identifies specific corridors throughout Saint Paul that will be targeted for investment to improve safety and operations for bicyclists. Each corridor is identified for a specific facility type group, which describes the operational characteristics of each bikeway. This plan also establishes a new bikeway functional classification system that will be used to describe how each bikeway will function within the larger bikeway network.

### 5.2 Facility Type Groups

There are many different types of bikeway facilities, and each has inherent operational characteristics. Some of the most common facility types in Saint Paul include bike lanes and off-street paths. In recent years, the City of Saint Paul has begun developing a new type of bike facility often called a “bicycle boulevard.” Across the U.S., a number of cities are also developing relatively new bicycle facilities referred to as “cycle tracks” or “protected bike lanes”. In addition, there is a wide array of signage and pavement markings that can be used to designate and improve bikeways.

The wide range of bicycle facility types available to engineers is rapidly evolving and expanding, and the task of determining which facility type is appropriate for each corridor requires a detailed engineering examination of each corridor, which is beyond the scope of this planning effort. However, this planning effort has established several facility type groups that identify bikeway facility types with similar operational characteristics. Rather than identifying a specific facility type for each corridor, this planning effort identifies the preferred facility type group for each corridor, leaving final decisions about the specific facility type for a later date when additional data can be collected.

*For example, this plan may identify a corridor for the development of an off-street path facility. There are many variations that this facility could take – it could be a shared-use path with pedestrians, or it could be a path intended only for bicycles adjacent to a sidewalk for pedestrians. This plan will not specify on which side of the street the trail should be located, or how wide that trail should be. It will not identify which signage or pavement markings should be used along that trail. All of these are questions of final design that will need to be answered through an engineering study at the time of implementation.*

*A second example – this plan may identify a corridor for the development of an in-street separated lane facility. This may take the form of a bike lane established through the use of paint. It may have bike lanes in both directions on the street, or only one direction. The bike lane may include a painted buffer zone between moving traffic and the bicycle lane. The design may also include locating a parking lane between moving traffic and the bike lane, a strategy sometimes referred to as a “cycle track”. Again, each of these variations of in-street separated lane facilities may be appropriate in different locations depending on circumstances. The exact final configuration of the facility will be determined through an engineering study at the time of implementation.*

This planning document is not intended to provide engineering design guidance for the various types of bikeway facilities. At the time of this writing, the City is in the process of developing a *Street Design Manual* that provides detailed information about the proper design of bikeway

facilities. For additional discussion of the operational characteristics or design considerations of various bicycle facility types, readers are referred to the Street Design Manual.

The five groups of bikeway facility type groups discussed in this plan are as follows:

- Type 1: Shared Lane
- Type 2: Enhanced Shared Lane
- Type 3: Bicycle Boulevard
- Type 4: In-Street Separated Lane
- Type 5: Off-Street Path

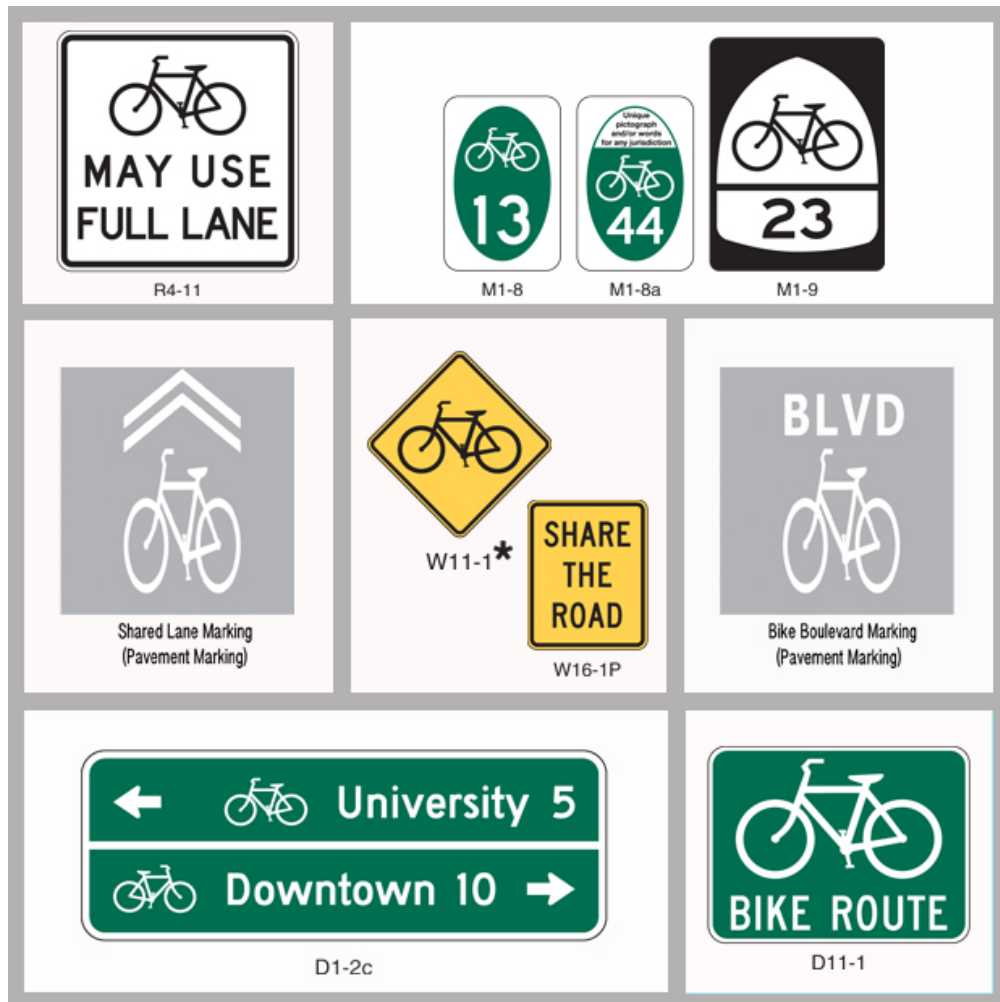
### Group 1: Shared Lane

A shared lane is a roadway where bicycles are permitted that is not included in one of the other facility type groups. These corridors do not have any signage, striping, or pavement markings specific to the operation of a bicycle. Bicyclists and motorists share the roadway and are subject to all of the same applicable laws and expectations as motorists. This type of facility works best on low-volume, low-speed roadways, however, roadways with any volume of motorized traffic or traffic speeds may be classified as shared lane facilities.

### Group 2: Enhanced Shared Lane

An enhanced shared lane has the same operational characteristics as the Group 1 facilities mentioned above. This is a corridor where bicyclists and motorists share the roadway and are subject to all of the same applicable laws and expectations as motorists. However, these corridors are identified using some form of signage or pavement markings intended to provide greater visibility for cyclists, or as wayfinding guides for cyclists to find preferred routes. Enhanced shared lanes are best suited to roadways with lower operational speeds and traffic volumes. Specific treatments for these corridors will depend on context, however, common treatments may include:

- Shared Lane Markings (“Sharrows”)
- W11-1 or W15-1P Bicycle Warning or SHARE THE ROAD Signage
- R4-11 BIKES MAY USE FULL LANE signage
- D1 series wayfinding signage
- D11-1 series BIKE ROUTE signage
- M1 series identification signage



*Shared Lane Markings were installed on Prior Ave in 2013, establishing the corridor as an enhanced shared lane facility.*

### Group 3: Bicycle Boulevard

A bicycle boulevard is a shared lane facility that has been identified for prioritizing non-motorized travel above motorized travel. These streets remain open and usable by motorists, and these facilities generally do not impact on-street parking. However, longer motorized trips on bicycle boulevards are discouraged, providing a lower-speed, traffic-calmed environment where longer-distance trips by bicycle are more attractive. Specific treatments for these corridors will depend on context, however, common treatments may include:

- Traffic calming elements
- Bump-outs
- Neighborhood traffic circles
- Elements to facilitate bicycle movement, such as crossing medians where a bicycle boulevard crosses a larger roadway
- Shared Lane Markings (“Sharrows”)
- Bicycle boulevard pavement markings
- D1 series wayfinding signage
- M1 series identification signage



*Bicycle Boulevard type facilities designate low-stress bikeways on local residential streets.*

### Group 4: In-Street Separated Lane

An in-street separated lane designates a portion of a roadway for exclusive use by bicyclists. These facilities provide dedicated space for cyclists on a roadway, and typically accommodate a higher bicycle operating speed than other facility types. These facilities are most appropriate on roadways with higher operating speed or volumes. Separated lane facilities enhance the safety of people on bicycles by providing dedicated space, which allows motorists to more easily pass cyclists. This facility type group includes the following types of facilities

- Bike Lanes (Shared Lane Markings may be used for short segments)
- Buffered Bike Lanes
- Bike Shoulder
- Protected Bike Lanes or cycle tracks (including one-way or two-way facilities)
- Climbing Bike Lane



*Left: A bike lane on Burns Avenue was established in 2013. Right: A buffered bike lane.*



*Left: a one-way cycle track protected by a parking lane and buffer and showing optional green paint. Right: a two-way cycle track, protected with optional flexible bollards and buffer.*

### Group 5: Off-Street Path

An off-street path provides bicyclists with space separated from motor vehicle travel. These facilities are often (but not always) shared with pedestrians, and thus typically have a lower operating speed for bicyclists than other facility types. Off-street paths tend to attract the widest variety of users. When at-grade street crossings are kept to a minimum, off-street paths can greatly enhance safety for cyclists.

Sidewalks are not off-street paths. Minnesota statutes permit bicycle riding a bicycle on sidewalks except for in business districts, though riding on sidewalks is discouraged for adult cyclists. However, the distinction between sidewalks and off-street paths is not always clear to users, as both sidewalks and paths may have various widths and be constructed of various pavement materials. A typical concrete sidewalk along residential streets in Saint Paul is approximately 5 feet in width and is not a recommended place for adult cyclists. A wider concrete sidewalk outside of



residential neighborhoods may provide a better user experience than cycling in the street, depending on conditions.

This plan considers all pedestrian bridges (e.g. over freeways) to be shared-use paths, even in cases where the existing bridge includes stairs on the approaches or is relatively narrow and may require walking a bicycle. In current form, such bridges may be a significant deterrent to bicycle travel. However, as pedestrian bridges age and are replaced, the replacement bridges will be designed to accommodate bicycles as required by the Americans with Disabilities Act (ADA). Determining compliance with ADA requirements for all facilities, including bridges, is beyond the scope of this plan.



*Left: Battle Creek Regional Trail.  
Right: Path adjacent to Mississippi River Boulevard.*

### 5.3 Functional Classification

Each bikeway within the city is assigned to one of three bikeways functional classifications:

- Major Bikeways
- Minor Bikeways
- Access Bikeways

The functional classification system is intended primarily to help ensure that the bikeway facility types developed within each transportation corridor are consistent with how bicyclists are anticipated to use the bikeway. The bikeway functional classification system does not specify a facility type for each corridor, however it suggests that the operational characteristics of the facility type assigned to each corridor should be consistent with the intended purpose of the bikeway.

Bikeway functional classification, much like the roadway functional classification system, is primarily a planning tool designed to help guide city policies regarding development, maintenance, and design of bikeways rather than something that will be visible to persons riding bicycles throughout the city.

Distinguishing features between the bikeway functional classification system include:

- The level of investment anticipated on each corridor
- Connections to major attractions or trip generators
- The relative number of anticipated users
- Trip and facility length and connectivity to other bikeways or jurisdictions

- The appropriate modal balance relative to the competing needs of the multi-modal transportation system.

The following sections describe each of the functional classifications.

### Major Bikeways

Major bikeways form the backbone of the bicycling network. They carry the majority of longer-distance bicycle trips and provide the primary connections to major attractions and trip generators. Major Bikeways provide the primary connections across major barriers (e.g. rivers, railroad tracks, freeways) or to other adjacent communities. Greater weight should be given to the needs of bicycles regarding questions of how to balance the competing multi-modal needs. Major bikeways should be designed to anticipate a larger number of users.

Major bikeways should be distributed throughout Saint Paul at approximately one-mile spacing. This plan prioritizes facility types on Major Bikeways that provide dedicated space to cyclists, such as bike lanes, cycle tracks, or off-street paths. The designation of a corridor as a Major Bikeway emphasizes the needs of bicyclists along these corridors. In some cases (but not all cases), it may be necessary to remove parking, travel lanes, or other roadway features to establish space for use by bicycles, and when these occasions arise on a Major Bikeway, this designation gives greater weight to the needs of bicycles than on other bikeways.

Where space does not permit the development of dedicated space facilities, or other conditions do not warrant this treatment, shared space facilities such as bicycle boulevards or enhanced shared lanes may be recommended. When the Major Bikeway classification is applied to off-street trails where shared use with pedestrians is anticipated, the Major Bikeway classification does not imply that the needs of bicyclists outweigh the needs of pedestrians using the same facility.

All facilities and corridors that have been determined to be of regional significance by the Metropolitan Council, either as regional bikeways or regional trails, are Major Bikeways.

### Minor Bikeways

Minor Bikeways are anticipated to provide neighborhood level connectivity to the Major Bikeway network. They should be spaced at approximately a half-mile apart and ensure that every destination in the city is within a quarter-mile of a Major or Minor Bikeway.

Minor Bikeways may be recommended for the development of dedicated space facilities (in-street separated lane or off-street path facilities) depending on the space available and the larger roadway and traffic context, however the Minor Bikeway designation does not establish the same preference for bicycles relative to other transportation modes as the Major Bikeway designation. Designation as a Minor Bikeway should not be interpreted as a willingness to compromise on elements of bikeway design related to safety.

### Local Access Bikeways

Local Access bikeways are intended to serve as circulation routes throughout the city that provide “front door” access to every destination in the city. Most trips made by bicycle will use an access bikeway for some portion of the trip. All streets where bicycling is legally permitted that are not identified as Major Bikeways or Minor Bikeways are classified as Access Bikeways. This designation serves as a policy reminder that bicyclists should be anticipated on every street where bicyclists are permitted. No signage, striping, marking, or other investment for bicycles is anticipated on these corridors at this time. However, this designation should serve as a reminder that bicyclists should be expected on these corridors.

## 6.0 EXISTING BIKEWAYS

There are approximately 850 miles of roadway in Saint Paul available for use by people riding bicycles, some of which have been improved through the implementation of bicycle facilities. The complete network of bicycle facilities in Saint Paul includes every roadway where people are legally allowed to ride bicycles as well as a network of off-street paths, some of which parallel an adjacent roadway while others follow an independent right-of-way.

At the time of this writing, the City of Saint Paul has a total of 144 miles of improved bicycle facilities, including facilities owned and managed by agency partners (e.g. DNR). Half of the existing facilities throughout the city are off-street paths, with bike lanes and shoulders composing an additional 35% of the bike network. The remaining 15% of the existing bicycle network is comprised of bicycle boulevards or enhanced shared lanes.

Facility Type		Existing* Facilities (miles)	Percent of Bikeway Network
Off Street Facilities	Off-Street Paths	72.7	50%
	<i>Off-Street SubTotal:</i>	<i>72.7</i>	<i>50%</i>
On-Street Facilities**	Bike Lanes***	31.6	22%
	Bikeable Shoulders***	18.1	13%
	Bike Boulevards	1.0	1%
	Enhanced Shared Lanes	20.6	14%
	<i>On-Street SubTotal:</i>	<i>71.3</i>	<i>50%</i>
<b>TOTAL</b>		<b>144.0</b>	<b>100%</b>

\*This table excludes bikeways that are planned, funded, or under construction, but not yet open for public use.

\*\*This table excludes the roughly 780 miles of roadways where bicyclists are permitted to ride, but no specific improvements have been made to facilitate bicycle travel.

\*\*\*This table reports total miles of roadway, not mileage of lanes. Roadways with bike lanes on one side of the street only are not differentiated from roadways with bike lanes on both sides.

### State Trails

State trails are owned, managed, and operated by the Minnesota Department of Natural Resources (DNR). The DNR owns and operates one trail facility in the City of Saint Paul. The Gateway State Trail was opened for public use in 1993, originally as an extension of the Minnesota-Wisconsin Boundary Trail, which was envisioned to connect the Twin Cities with Duluth. Approximately 2.1 miles of the trail is located within Saint Paul. The current southern terminus of the Gateway State Trail is located at Cayuga Street, though in conjunction with the I-35E Cayuga Interchange project, the Gateway Trail will be extended approximately 0.7 miles south to University Avenue by 2016. The 1986 master plan created by the DNR established a desire to extend the trail into the “downtown area”, though a preferred alignment for this extension was not identified.

## Regional Trails

There are a number of bicycle facilities within the city that has received a regional designation by the Metropolitan Council. Bicycle facilities may be considered a regional trail if they are located within a regional park or as a standalone regional trail. A complete listing of existing regional parks and trails, as well as several additional proposed regional facilities is located in the Parks and Recreation chapter of the 2008 Comprehensive Plan.

Off-street paths in Saint Paul that have received regional trail designation include the Sam Morgan Regional Trail, Mississippi Gorge Regional Trail, Lilydale-Harriet Island Regional Trail, Trout Brook Regional Trail, Battle Creek Regional Trail, and the Bruce Vento Regional Trail.

On-street bicycle facilities may also be designated as regional trails. On-street bicycle facilities in Saint Paul that have received regional trail designation include Summit Avenue, portions of Como Avenue, Pelham Boulevard, Wheelock Parkway, and the Point Douglas Road.

## Grand Round

The 2010 Saint Paul Parks and Recreation System Plan describes the desire to enhance the 27 mile Grand Round system throughout the city. The Grand Round - a scenic green parkway for drivers, pedestrians, and people on bicycles around the entire city has been a vision for Saint Paul for over 100 years. Some sections of the Grand Round are in place (along the Mississippi River) while other parts of the loop route are incomplete.

The Parks System Plan envisions a full-amenity (parkway, open space, and off-road trails) Grand Round encircling the entire city and a series of other off- and on-road trails and bikeways crossing the city from east to west and north to south.

The Grand Round is identified on Figure 1.

## Shared Lanes

Bicycles are permitted to ride on most roadways within the city, or approximately 850 miles of roadway. These streets include a wide range of roadways, including higher volume higher speed roadways and low volume low speed residential streets. There are a number of streets in Saint Paul where bicycling is permitted but the vast majority of the population would consider them uncomfortable places to ride a bicycle (e.g. TH 61 between I-94 and Lower Afton Road). However, many of these roadways are low-volume low-speed residential roadways that function well for most people on bicycles without any additional investment.

## Roadways where Bicycles are Prohibited

There are several roadways in the City of Saint Paul where bicycling is prohibited. These are limited access roadways and freeways and the accompanying ramps that have high motorized vehicle speeds and volumes. These roadways are shown on Figure 2. The roadways where bicycles are prohibited in the City of Saint Paul include the following roadways:

- Interstate 94
- Interstate 35E
- Trunk Highway 280
- US Highway 52
- US Highway 61 (south of Lower Afton Road)
- Trunk Highway 5 (west of approximately Wheeler Street)
- Ayd Mill Road

While bicycling is prohibited from riding in the roadway in these corridors, several of them provide off-street accommodations for bicyclists. For example, the TH-52 (Lafayette) bridge over the Mississippi River is currently under construction. Upon completion, the new bridge will provide an off-street trail to accommodate bicycles and pedestrians. Similar accommodations are already provided on the I-35E and TH-5 bridges over the Mississippi River.

## 7.0 BIKEWAY IMPROVEMENTS

This chapter outlines the full city bikeway network, including recommendations for new bikeways to be developed. Each existing and proposed bikeway is assigned a functional classification and facility type. The recommendations given in this chapter are designed to ensure that people can comfortably use bicycles to reach all destinations throughout the city.

### 7.1 Bikeway Identification Process

The planned improvements to the bikeway network are based on a set of mapping criteria established early in the planning process for this Bikeways Plan. The full mapping criteria used to develop the recommendations in this Bikeways Plan are provided in the Appendix and are summarized below. The bikeways identified in this plan are based on a combination of the recommendations adopted from previous planning efforts as well as field work to identify new corridors.

#### Spacing

The 2008 *Saint Paul Comprehensive Plan* established the spacing and facility type standard that “bikeways should be no more than a half-mile apart, and arterial striped bike lanes and/or off-street trails should be more than one mile apart.” This Bikeways Plan interprets and fulfills this directive by establishing spacing guidelines for Major and Minor Bikeways at one-mile and half-mile spacing respectively.

This plan strives to identify bikeways that achieve geographic and socio-economic equity. Spacing bikeways at no greater than one-half mile apart guarantees that most properties in the city will be no more than a quarter mile from a bikeway.

#### Previous Planning Efforts

Much planning has been completed in the past by both the City and other partner agencies. This plan strives to be consistent with these other planning efforts to the extent possible.

#### Making Direct Connections

Bikeways should make critical connections for bicyclists throughout the city. Providing direct and continuous routes between destinations is critical. Bicycle routes that meander or make unnecessary turns are less likely to be an effective means of increasing the number of bicyclists using the facility. Especially in the case of signed bike routes or bicycle boulevards, facilities that turn or meander for reasons that are not readily apparent to people riding bicycles may be confusing for users. In some cases, cyclists may be willing to travel additional distance to utilize a more attractive route, but this is dependent on a number of variables that are not easily identified. This plan places a high priority on providing direct, straight, and continuous bikeway corridors.

Bikeways should connect key destinations to each other, and connect residential neighborhoods with employment and commercial centers, schools, and other key destinations. New proposed bikeways should build off and connect with existing bikeways and transitways.

#### Modal Balance

Bikeway facility types and locations must be a reflection of the existing context, including both topography and the context of the built environment. Bikeway recommendations must consider factors such as roadway motorized traffic volume, signal locations, roadway width, right-of-way width, and topography. In some cases, providing appropriate accommodations for bicycles requires tradeoffs from other transportation systems, such as narrowing travel lanes, removing travel lanes,

or removing on-street parking. This plan strives to avoid these impacts to the extent possible, and to minimize them where impacts do occur.

### Effectiveness

The bikeways identified in this plan were selected because they offer potential to increase bicycle ridership, to improve safety conditions, and to address critical gaps in the network. This plan does not propose development of bikeways where this potential is limited. The effectiveness of each bikeway is weighed against the relative cost. Though specific cost estimates for each bikeway are not known, an informal estimation was performed to determine that the initial and ongoing costs are reasonable compared to other bikeway alternatives.

### Safety

This plan prefers bikeways that minimize conflict with other travel modes and accommodates people with varying levels of experience and diverse preferences. Special consideration is given to areas where there are known safety concerns. This plan prefers recommendations for bikeways where proven safety design features can be included (e.g. a route where dedicated bike lanes can be developed is preferred over a route with similar traffic characteristics where dedicated bike lanes can not be developed).

## **7.2 Merging Facility Types and Functional Classification**

The framework presented in this plan establishes a loose connection between the functional classification and facility type that is identified for each corridor. The facility type assigned to each corridor should be consistent with the larger transportation context of that corridor. A facility type that works well in one context does not necessarily work well in another.

The Bikeway Functional Classification established in this plan mirrors the roadway functional classification. Roadways that tend to carry higher volumes of motorists are likely to provide the most direct and convenient routes for cyclists as well. This is often because these routes provide necessary connections across major barriers, such as rivers, freeways, or railroad tracks, or because these routes provide a concentration of useful destinations that people may want to access by bicycle.

Facility types that provide dedicated space for cyclists, specifically off-street paths and in-street separated lane facilities, are better suited to accomplish the purposes of the Major Bikeway functional classification, and they are the preferred facility types for Major Bikeways. In some cases bicycle boulevards may also effectively serve this purpose if they are of sufficient length and provide direct connections. Enhanced shared lane facilities are discouraged from use within the Major Bikeway network as they typically provide the least degree of separation from motorized traffic, however, in some cases, other suitable alternatives cannot be identified.

Bikeway Functional Classification	Facility Type Group				
	1	2	3	4	5
	Shared Lane	Enhanced Shared Lane	Bicycle Boulevard	In-Street Separated Lane	Off-Street Paths
Major Bikeways	--	Permitted	Permitted	Preferred	Preferred
Minor Bikeways	--	Permitted	Preferred	Preferred	Preferred
Access Bikeways	Preferred	--	--	--	--

### 7.3 Proposed Bikeways

This Bikeways Plan identifies a full bikeway network of 358 miles, an increase of 214 miles of new bikeways. This is a 149% increase in bikeways, compared to the existing 144 miles of bikeways. The complete functional classification and facility types for each link in the bikeway network are shown on Figure 3 and Figure 4.

This plan envisions a bikeway system based primarily on off-street paths and in-street separated lane facilities such as bike lanes or cycle tracks. Approximately 68% of the identified full bikeway network is comprised of off-street path or in-street separated lane facilities. An additional 13% of the full bikeway network is comprised of bicycle boulevard facilities.

Facility Type		Existing Facilities (miles)	Proposed Facilities (miles)	Total Facilities (miles)	Percent of Bikeway Network
Off Street Facilities	Off-Street Paths	73	58	131	37%
	<i>Off-Street SubTotal:</i>	<i>73</i>	<i>58</i>	<i>131</i>	<i>37%</i>
On-Street Facilities	In-Street Separated Lanes*	50	60	110	31%
	Bicycle Boulevards	1	46	47	13%
	Enhanced Shared Lanes	21	49	70	20%
	<i>On-Street SubTotal:</i>	<i>71</i>	<i>156</i>	<i>227</i>	<i>63%</i>
<b>TOTAL</b>		<b>144</b>	<b>214</b>	<b>358</b>	<b>100%</b>

\*This table reports total miles of roadway, not mileage of lanes. Roadways with bike lanes on one side of the street only are not differentiated from roadways with bike lanes on both sides. Existing mileage includes bikeable shoulders. All corridors that currently have bikeable shoulders are proposed to transition to bike lanes.

The vast majority of the bikeways identified in this plan can be implemented quickly, dependent on resources. In some cases, this plan identifies future bikeways that cannot be easily implemented on a short-term time frame because there may be a substantial disruption or challenge involved, because development of the bikeway is contingent on another event occurring (e.g. redevelopment of a large parcel), or because the city has little control over the timeline. For example, this plan identifies the use of several active railroad corridors for the development of shared-use path facilities. While the city is committed to pursuing these opportunities, the timeline for these projects is generally controlled by the railroad companies. These more challenging bikeways are



identified in this plan as Long Term facilities, and they comprise roughly 7% of the full bikeway network identified in this plan.

Functional Class	Total Facilities* (miles)	Percent of Bikeway Network
Major	199	56%
Major Long Term	17	5%
Minor	135	38%
Minor Long Term	7	2%
<b>TOTAL</b>	<b>358</b>	<b>100%</b>
*Includes existing facilities		

The Major Bikeway network stresses separation between motor vehicles and bicycles, while the Minor Bikeway network relies more heavily on shared facilities. Over 90% of the identified Major Bikeway network is comprised of off-street paths or in-street separated lane facilities. In contrast, only 32% of the Minor Bikeways network is comprised of off-street paths or in-street separated facilities, Nearly 29% of the Minor Bikeway network is comprised of bicycle boulevard facilities and nearly 40% is comprised of enhanced shared lane facilities.

Facility Type		Major Bikeways			Minor Bikeways			Total Facilities (miles)
		Near Term Facilities (miles)	Long Term Facilities (miles)	Total Major Facilities (miles)	Near Term Facilities (miles)	Long Term Facilities (miles)	Total Minor Facilities (miles)	
Off Street Facilities	Off-Street Paths	94	16	110	19	1	20	131
	<i>Off-Street SubTotal:</i>	<i>94</i>	<i>16</i>	<i>110</i>	<i>19</i>	<i>1</i>	<i>20</i>	<i>131</i>
On-Street Facilities	In-Street Separated Lanes*	84	1	85	24	1	25	110
	Bicycle Boulevards	6	0	6	41	0	41	47
	Enhanced Shared Lanes	14	0	14	52	4	56	70
	<i>On-Street SubTotal:</i>	<i>104</i>	<i>1</i>	<i>105</i>	<i>116</i>	<i>5</i>	<i>122</i>	<i>227</i>
<b>TOTAL</b>		<b>199</b>	<b>17</b>	<b>216</b>	<b>135</b>	<b>7</b>	<b>142</b>	<b>358</b>

\*This table reports total miles of roadway, not mileage of lanes. Roadways with bike lanes on one side of the street only are not differentiated from roadways with bike lanes on both sides.

## 7.4 Implementation Flexibility and Contingency

The facility type groups identified here are intended to allow this planning document to make informed recommendations about which facility types should be developed along specific corridors throughout the City without having the resources to be able to complete a full engineering study for each corridor. The recommendations made in this plan will require confirmation and further development within each corridor before implementation can take place.

In some cases, it may not be possible to implement the desired facility type on a short-term time frame. In these cases, an interim recommendation may be made. Enhanced shared lanes may be implemented on a corridor where an in-street separated lane facility is desired, but the current

roadway width or operational characteristics do not permit the development of this type of facility. In these cases, the development of an enhanced shared lane facility may be used to communicate a future desire for development of an in-street separated lane facility, which should be considered when the roadway is reconstructed.

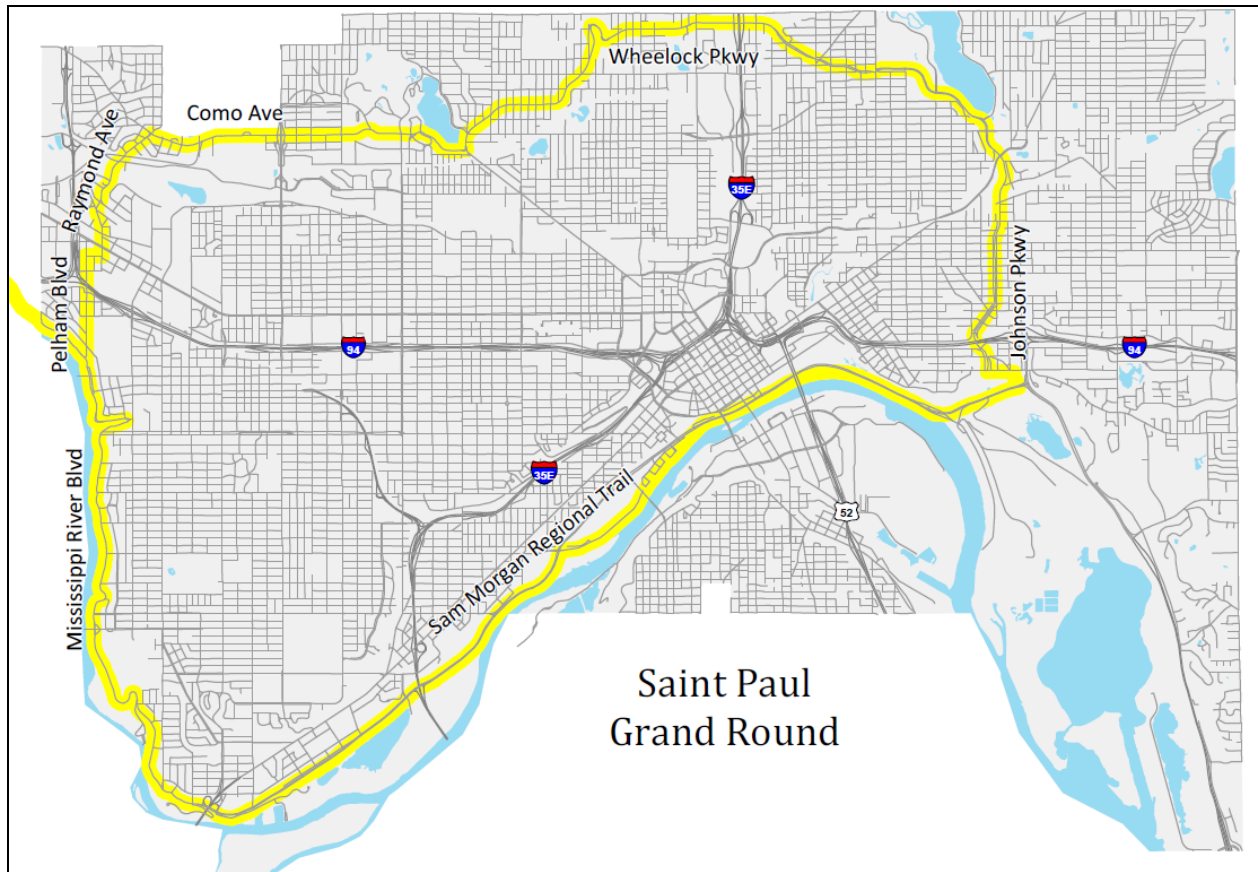
The distinguishing characteristics between enhanced shared lane and bicycle boulevard type facilities are not always clear. In some cases, the two may exhibit similar operational characteristics, depending on traffic volumes, speeds, and roadway geometry. As a result, implementing an enhanced shared lane facility may be viewed as an interim step towards developing a full bicycle boulevard. Enhanced shared lanes may be implemented on a corridor where a bicycle boulevard facility is desired, but it may not be feasible on a short-term timeframe to implement all of the traffic calming elements required to achieve the desired modal balance along the corridor. In these cases, it may be feasible to establish the route at relatively low cost as an enhanced shared lane facility, while continuing to work towards implementing additional elements envisioned for the full bicycle boulevard facility.

The in-street separated lane facility group includes an important allowance for the use of shared lane markings in locations where a full bike lane is desired, but not feasible at this time. For example, a corridor may have sufficient width to implement bike lanes in most places, but turning lanes widen the roadway at key intersections, resulting in insufficient width to continue the bike lanes through the intersections. In these cases, it may be feasible, depending on context, to use shared lane markings to guide cyclists through the intersection. The use of shared lane markings along a route where separated bicycle lanes are desired should be viewed as an interim measure.

In some cases, the improvements identified in this plan include a contingency, meaning that development of the bikeway is contingent upon another action. A summary of these contingencies and other notes regarding a few of the routes is presented in the Appendix.

## **7.5 Grand Round Enhancement**

The Saint Paul Grand Round plays an important role in the bicycle transportation and recreation network. This plan establishes a vision for much of the Grand Round to accommodate all types of users by providing multiple facility types within the same corridor. For much of the Grand Round, both an off-street paths and on-street bike lanes are envisioned to attract users of all preferences. Off-street paths will attract slow bicyclists and pedestrians, while on-street bike lanes will attract faster cyclists.



Some portions of the Grand Rounds have already been implemented with multiple facility types in the same corridor. For example, the Mississippi River Boulevard includes an off-street path along the west side of the roadway along the bluffs of the Mississippi River gorge. The corridor also provides a southbound on-street bike lane to attract cyclists traveling at higher speeds and to help limit interaction between bicycles and pedestrians. Similarly, Wheelock Parkway between Arcade Street and Phalen Boulevard also provides on-street and off-street facilities. This plan envisions extending these facilities to other parts of the Grand Round, including Wheelock Parkway west of Arcade Street, Johnson Parkway, and portions of Pelham Boulevard.

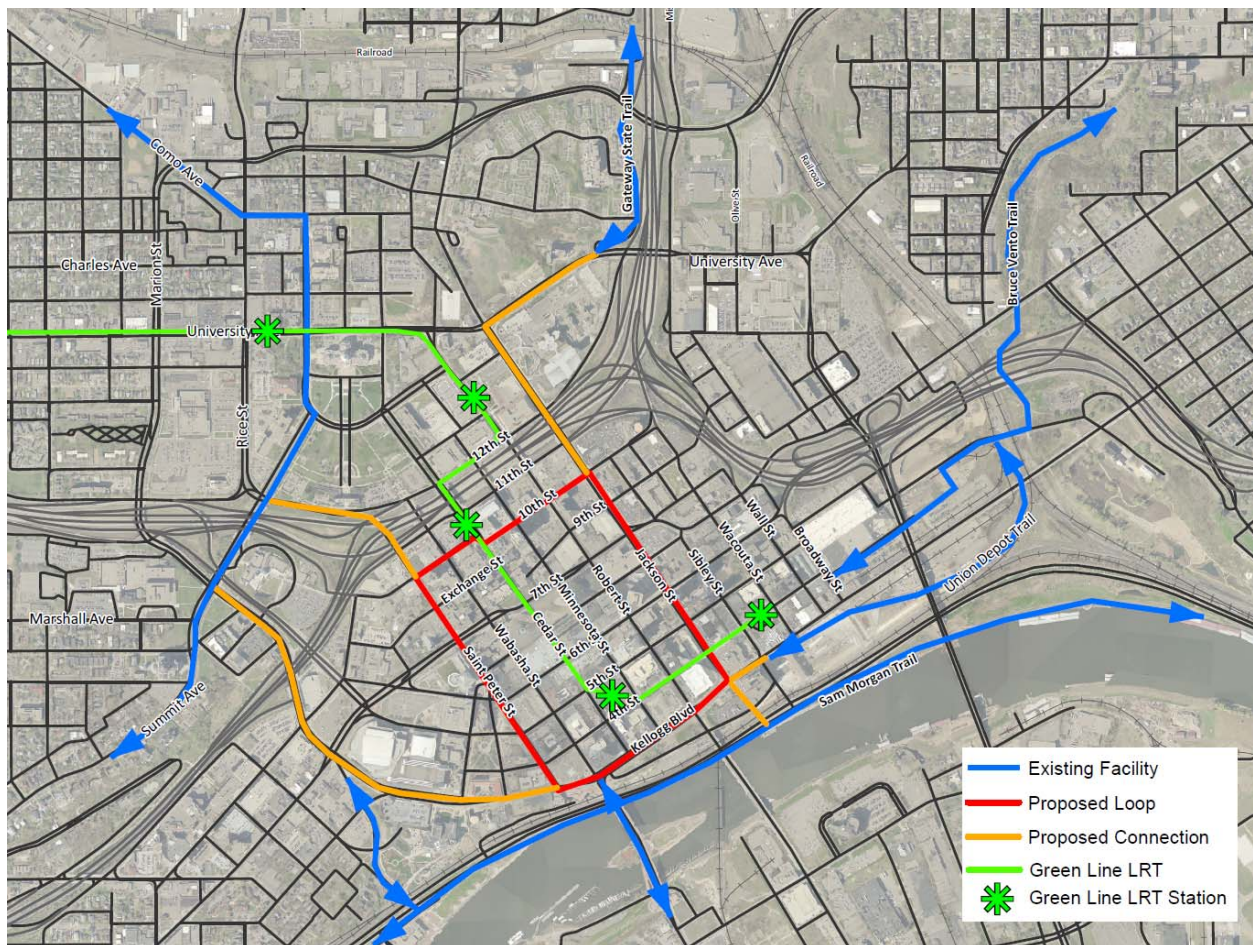
This vision does not include on-street facilities where the Grand Round follows the Sam Morgan Regional Trail. On-street bicycle facilities are not recommended for Shepard Road or Warner Road. This vision also does not recommend off-street path facilities along Raymond Avenue and portions of Como Avenue where right-of-way is limited. On-street bicycle facilities are recommended in these locations.

## 7.6 Downtown Trail Loop and Shared Lanes

This plan recommends the development of a unique off-street trail network throughout the downtown area as well as enhanced shared lanes on most downtown streets. This strategy is designed to make downtown a hub in the city bicycle network and to effectively and safely accommodate cyclists of all preferences. The trails are designed to accommodate slower bicyclists and to encourage new or casual cyclists to visit downtown. The enhanced shared lanes throughout downtown will accommodate faster cyclists who are seeking the operational and speed benefits of integrating with motorized traffic.

The trail alignment creates a loop network within the downtown core, with connecting trails to the existing and planned routes into downtown. The trails are off-street path style facilities that accommodate two-way bicycle traffic, even on one-way streets. The loop trail will follow an alignment on Saint Peter Street, Kellogg Boulevard, Jackson Street, and 10th Street, effectively placing a majority of downtown within two or three blocks of the trail. Connections between the loop and other existing and planned routes into and out of downtown will be developed as follows:

- west along Kellogg Boulevard to connect to the bikeways on Summit Avenue and Marshall Avenue, and Eagle Parkway
- east on Kellogg Boulevard to connect to the Union Depot, which will connect users to the Bruce Vento Regional Trail and the Indian Mounds Regional Trail
- north on Saint Peter Street to connect to the existing bike lanes on John Ireland Boulevard, Park Street, and Como Avenue
- south along Jackson street to connect with the Sam Morgan Regional Trail
- north on Jackson Street to connect to the Gateway State Trail
- direct connection to the existing bicycle lanes on the Wabasha Bridge



*Downtown loop trail alignment.*

The trails throughout downtown will be of a different aesthetic character than other trails throughout the city. Generally off street path facilities are constructed using asphalt, and are surrounded by turf, landscaping, or other boulevards on both sides. In the downtown core, the

trails will take on more of an urban character and may be constructed out of a number of different materials, including concrete to provide a distinctive appearance. Despite the different look and feel of these urban trails, they will share similar operational characteristics with other popular off-street trails throughout the city. People who are comfortable riding a bicycle on off street trails will find these facilities familiar and attractive.

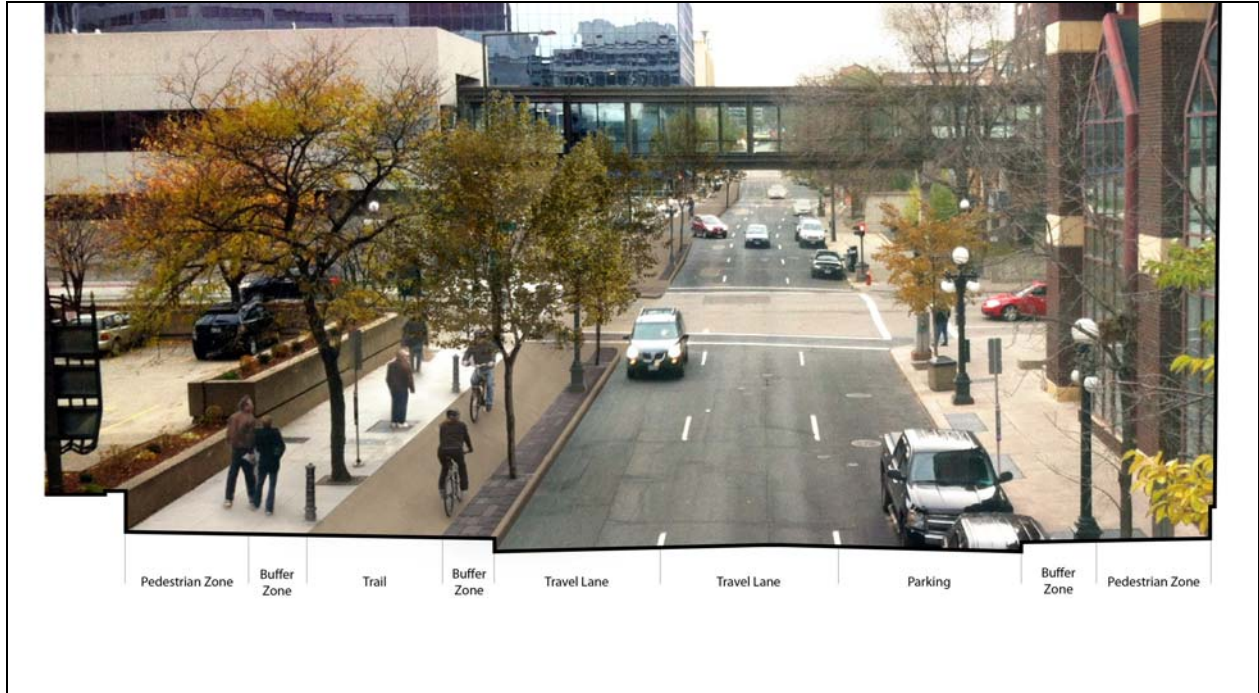
The downtown trail network is a unique recommendation that places Saint Paul at the forefront of bicycle planning in the U.S. Very few other cities have developed similar facilities. Saint Paul may look to the Indianapolis Cultural Trail for design inspiration. The Indianapolis Cultural Trail is a similar 8-mile network of off-street paths through downtown Indianapolis connecting the major cultural institutions throughout the city. In Saint Paul, the off-street trail network would connect popular attractions such as the Xcel Center, the Ordway Theater, the Science Museum of Minnesota, the Minnesota History Center, the Union Depot, the Farmers Market, the Lowertown Ballpark, the Landmark Center, the Minnesota Children’s Museum, and other institutions and businesses throughout downtown.



*Indianapolis Cultural Trail*

Right-of-way in downtown Saint Paul is scarce, and implementing any effective strategy to accommodate bicyclists in downtown will require tradeoffs from other systems, including potential removal of on-street parking or existing travel lanes. The loop recommended in this plan has carefully considered these potential tradeoffs and has taken great care to identify alignments that minimize impacts to adjacent properties and traffic flow. The recommendation for off-street trails that accommodate two-way bicycle travel on one side of the street limit the scope and scale of potential impacts. For example, developing a two-way trail on Saint Peter Street (which is a southbound one-way street) means that northbound bicycle travel can be accommodated without any impacts to the adjacent northbound Wabasha Street. Likewise, a recommendation for a two-way trail on one side of Jackson Street means that no impacts to the other side of Jackson Street are necessary.

The full off-street trail loop and the connections to surrounding facilities is estimated to cost \$18 million. The first phase of this, a trail along Jackson Street connecting the Gateway State Trail to the Sam Morgan Regional Trail is estimated to cost \$5 million. The following two images are conceptual representations of the trails as they may be developed along Jackson Street.



*Rendering of off-street trail along Jackson Street.*



*Rendering of off-street trail along Jackson Street.*

## 7.7 Freight Rail Crossings

Figure 3 presents six locations where freight rail corridors present a substantial mobility barrier to bicycle transportation, and new crossings are proposed. The majority of these crossings were first identified in previous planning efforts. Since freight rail crossings are permitted only at the discretion of the railroad companies, the exact location and type of crossing appropriate in each location is subject to approval by the railroad companies. In the past, railroad companies have strongly preferred grade-separated crossings (bridges) over at-grade crossings.



## 8.0 IMPLEMENTATION

This section will be updated as public engagement process continues. At a minimum this section will include:

- A short discussion of possible funding sources
- Implementation strategies
- A discussion of how to prioritize investment in bikeways
- A specific list of high-priority projects to be implemented within the next several years.

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