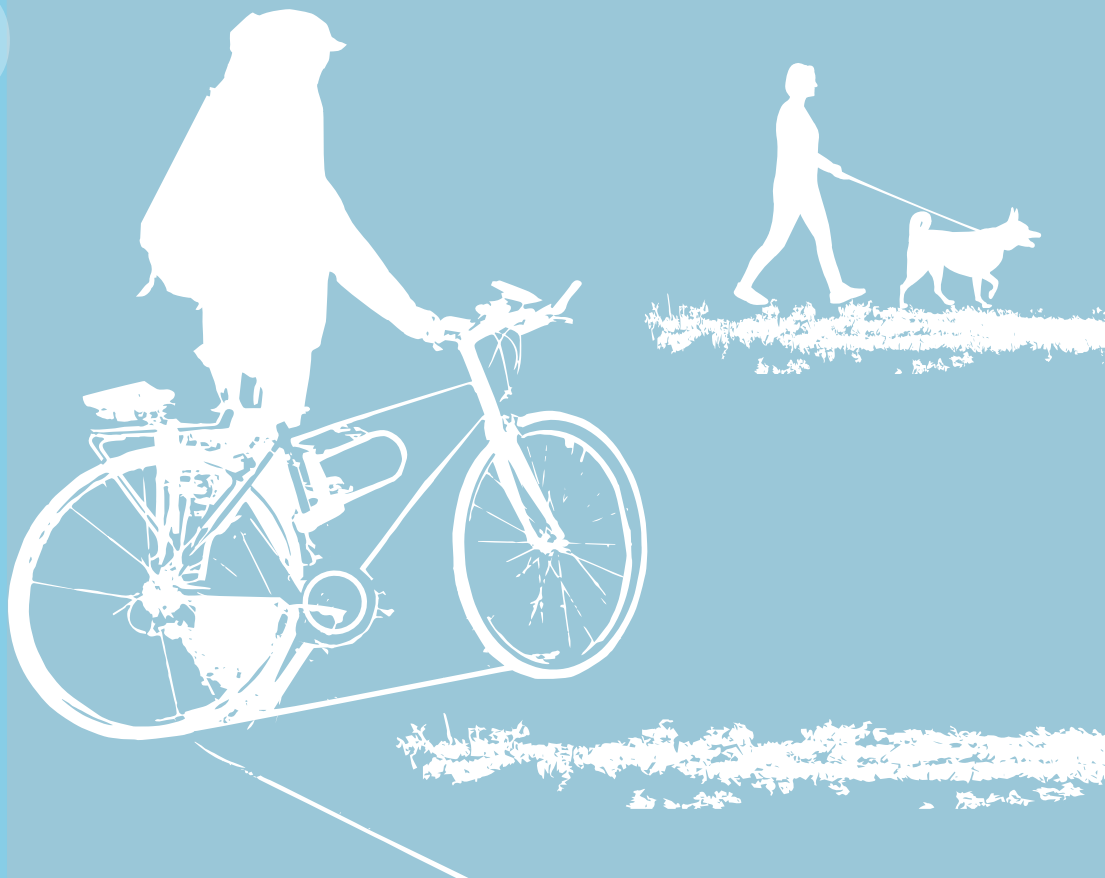




TRANSPORTATION POLICY PLAN

Chapter 7: Bicycle And Pedestrian Investment Direction

2040





TRANSPORTATION POLICY PLAN

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Chapter 7: Bicycle and Pedestrian Investment

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Bicycle and Pedestrian Investment Direction

Overview



Bicycling and walking are becoming increasingly important in the Twin Cities for commuting to work or school, running personal errands, and traveling to entertainment and activity venues. The potential for further expanding bicycling and walking in the region for transportation purposes is significant.

According to data from the U.S. Census Longitudinal Employer Household Dynamics, approximately 20% of all employees who work in one of the major employment clusters in the Twin Cities live less than three miles from their workplace. About 20% of all bicycle trips in the region are less than one mile long and nearly 45% are less than three miles in length, according to the Council's 2010 Travel Behavior Inventory. So the proximity of the region's residents to their places of employment aligns well with residents' tendencies to travel by bike or walk for shorter trips.

Although bicycling can accommodate longer trips, walking still accounts for a higher percentage of all trips region wide (6.5%), than either biking (2%) or transit (3%) and is critical to the start and end of trips by any mode. The high level of importance of both walking and biking in connecting to the regional transit system should also be noted; there are many more residents who live within three miles of transit service (compared to proximity to work) who could take advantage of improved opportunities to combine transit with walking or biking.



Improvements to facilitate and encourage these connections (like bike lockers and storage facilities at transit stations or new local bikeway and sidewalk connections) will go a long way to expanding the reach of the transit system and in creating new opportunities for people to walk and bike for transportation. As a more comprehensive regional bicycle system and pedestrian facilities continue to develop over time (including better options for bicyclists and pedestrians to get across or around physical barriers like rivers, rail corridors, freeways, and multi-lane arterial roadways), walking and biking trips may continue to increase in volume and distance.

Based on bike and pedestrian counts from 2008 through 2013 by Transit for Livable Communities as part of the federal Non-Motorized Transportation Pilot project, biking activity increased 78% and walking increased 16% at 43 benchmark locations in Minneapolis, its surrounding suburbs, and Saint Paul. This was largely the result of investing more than \$28 million over this time period in 75 miles of new on-street bikeways and off-street trails and sidewalks, along with the education and promotion programs required to take full advantage of the new improvements. ([Bike/Walk Twin Cities Non-Motorized Transportation Pilot project report.](#))

According to the 2010 Travel Behavior Inventory, walking increased 16% and biking 13% between 2000 and 2010 region wide. In the core cities of Minneapolis and Saint Paul, walking and biking grew at an even faster rate; walking increased 32% and biking 20%, respectively, during that time.

The regional trail system and other off-street trails have played an increasingly important role in walking and bicycling for transportation, particularly in the urban and suburban developed areas of the region. According to Metropolitan Council estimates, there were over 11 million visits to the 300 miles of regional trail in 2012, which is a 69% increase in 10 years. Three Rivers Park District studies have shown that use by commuters has grown by about 7% per year on some of its urban trails.

This documented demand for on- and off-street bikeway facilities offers a significant opportunity for a modal shift that would help to reduce congestion, improve air quality, improve personal health, and is an attractive and marketable component for making the Twin Cities a desirable place to live. In addition, it is important to acknowledge that recreational bicycling is also growing, especially among young families, and that there is a corresponding need for protected or off-road bicycle facilities to accommodate less experienced cyclists. Bicycling for recreation and transportation also provides local economic benefits around the metro area.

Within and near congested activity centers, biking and walking can be effective transportation solutions because they accommodate shorter-distance trips and require less space, less infrastructure, and fewer investment dollars than other transportation modes. Because walking is fundamentally tied to the end points of any trip (no matter the mode of travel) and pedestrian planning is integral to transportation planning for other modes, there are multiple references and detailed descriptions of pedestrian facility planning, design, and funding in other sections of this Transportation Policy Plan.

The specific sections for highways, transit, and land use and local planning address pedestrian planning issues as they relate to state highway funding in Chapter 5, "[Highway Investment Direction and Plan](#)," connecting to the regional transit system in Chapter 6, "[Transit Investment Direction and Plan](#)," and to land use planning and urban design best practices in Chapter 3, "[Land Use and Local Planning](#)."

While previous updates of the Transportation Policy Plan recognized that bicycling and walking were essential modes of transportation and encouraged the development of facilities to allow safe biking and walking, specific planning for these facilities was done at the local rather than regional level because of the relatively short distance of these trips. Pedestrian facilities are still generally best planned at the local level, but bicycle trips are often long enough to cross municipal boundaries. In fact, more than half of the region's trips by bicycle (approximately 55% according to the Council's 2010 Travel Behavior Inventory) are greater than three miles in length. The Council and its transportation partners will plan for these longer bicycle trips in order to maximize the potential impact of choosing bicycling over driving alone for transportation.

With the increasing interest in bicycling for transportation, an arterial backbone network of regional bicycle facilities for transportation was developed and is included for the first time in this Transportation Policy Plan. This Regional Bicycle Transportation Network will continue to be refined and updated over time. The network is intended to be supplemented by local bikeway facilities similar to the way local streets supplement principal and minor arterials for motor vehicles.

Regional Bicycle Transportation Network

Regional Bicycle System Study

The *Regional Bicycle System Study* was completed in 2014 to develop a more complete understanding of how the region's on-street bikeways and off-street trails connect and how they work together to serve regional transportation trips by bicycle. The main outcomes of the study were to develop a [Regional Bicycle Transportation Network](#) that includes a subset of Priority Regional Bicycle Transportation Corridors and a definition for [critical bicycle transportation links](#). [Details of the study](#) process, methodology, and analysis results can be found on Metropolitan Council's website.

A set of guiding principles for developing the Regional Bicycle Transportation Network was developed by a project advisory committee and reviewed in a series of public workshops in 2013. The following guiding principles were used to develop a regional bikeways network that would:

- **Overcome physical barriers and eliminate critical system gaps.**
Specifically addressing gaps and barriers in the regional system will improve convenience and continuity for bicyclists.
- **Facilitate safe and continuous trips to regional destinations.**
Developing and upgrading bicycle facilities along the Regional Bicycle Transportation Network will improve the convenience and safety of bicycling along these facilities.
- **Function as arteries to connect regional destinations and the transit system year round.**
Emphasizing Priority Regional Bicycle Transportation Corridors (as identified in this plan) through the implementation of the Regional Bicycle Transportation Network will provide the needed connections to regional destinations and the regional transit system.
- **Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.**
Bicyclists have varying levels of comfort to ride based on facility type (on-street facility vs. off-road trail), roadway characteristics, and personal levels of experience and ability. In some urban, high demand corridors it may be appropriate to develop both an on-street facility and an off-road trail to accommodate the full range of cyclist preferences.
- **Integrate and/or supplement existing and planned infrastructure.**
When developing the Regional Bicycle Transportation Network, existing and planned infrastructure should be used when possible to reduce the need to purchase new right-of-way and to minimize the growing financial burden of preserving and maintaining existing facilities.
- **Provide improved opportunities to increase the share of trips made by bicycle.**
Implementing a complete Regional Bicycle Transportation Network that provides convenient connections to key regional destinations and the regional transit system will increase the likelihood of choosing bicycling for transportation over other travel modes.

- **Connect to local, state, and national bikeway networks.**

Connecting to other established bicycle networks will expand the reach and effectiveness of the regional network.

- **Consider opportunities to enhance economic development.**

New bicycling investments can be an effective tool for creating local economic development opportunities and to foster the Twin Cities' image as a highly livable region with many bike-friendly destinations.

- **Be equitably distributed throughout the region.**

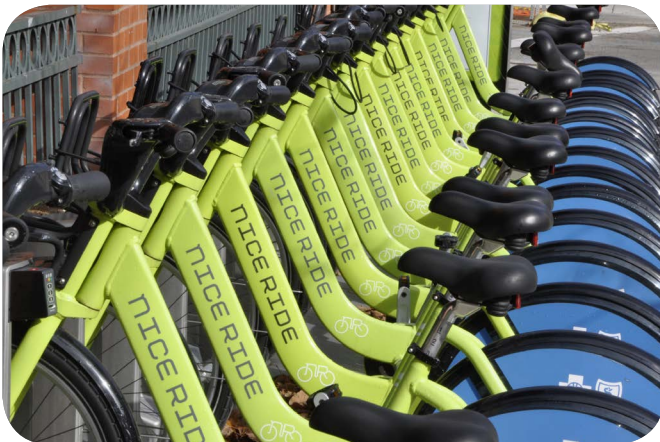
Social equity and regional geographic balance were emphasized in identifying the Regional Bicycle Transportation Network. By focusing on population and employment concentrations, the network will be able to attract the greatest number of riders. By also applying the Metropolitan Council's identified Areas of Concentrated Poverty (where at least 50% of the residents are people of color), the network will offer equitable access to bicycling and the economic opportunities and health benefits afforded by bicycle options.

- **Follow spacing guidelines that reflect established development and transportation patterns.**

The Regional Bicycle Transportation Network corridors were developed in a way that applied spacing concepts based on urban and suburban development patterns and plans. The resulting network is denser and has greater accessibility compared to regional bikeway corridors found in other metropolitan regions.

- **Consider priorities reflected in adopted plans.**

The Regional Bicycle Transportation Network was developed to reflect local bicycle plans and policies that inform regional priorities.



Development of a Regional Bicycle Transportation Network

A number of available data sets and mapping systems were used as base inputs for developing the Regional Bicycle Transportation Network.

Cyclopath. Cyclopath is a local online bicycle route mapping tool developed by the University of Minnesota. The tool assists bicyclists in finding suitable bicycle routes and enables users to provide feedback about the condition and connectivity of the existing bikeways network. The Cyclopath base network provided a valuable starting point for developing a “universe” of potential regional bicycle corridors because it included the street and highway network in its entirety, in addition to existing off-road trails. Cyclopath user route requests also provided a robust dataset of origins and destinations which was used to analyze bicycle demand in specific corridors. About 190 corridor segments were identified for the initial “universe” of potential bicycle corridors which were winnowed down to a set of corridors for a Regional Bicycle Transportation Network based on the analysis summarized below.

Regional trail system. One important base input for identifying a Regional Bicycle Transportation Network was the network of existing and planned regional trails that are designated by the Metropolitan Council as part of the Regional Parks System. The Council oversees long range planning and provides funding assistance for the acquisition and development of regional parks and trails, which are owned, developed, and operated by 10 regional park implementing agencies.

Existing and planned regional trails, as well as general regional trail search corridors, are identified in the [2040 Regional Parks Policy Plan](#) and are designed as multi-use facilities to serve both recreation and transportation trips. Although many of these trails were located to optimize their scenic or recreational value rather than to serve transportation as their primary function, some trail user studies have indicated a shift toward greater use by commuters in recent years, particularly in the urban and suburban developed areas of the region.

One task of the Regional Bicycle System Study was to identify which regional trails within the urban and suburban areas of the region are functioning primarily for bicycle transportation and should therefore be included on the Regional Bicycle Transportation Network. As a result, many regional trails were identified as important components of this regional network.



Geographic information systems (GIS) analysis. The methodology and approach for scoring and prioritizing the Regional Bicycle Transportation Network was a direct reflection of the [guiding principles](#) described earlier. A geographic information systems (GIS) analysis was used to evaluate each potential corridor based on measures of seven key analysis factors:

- **Emphasis on Regional Destinations.** A key function of a regional network is connecting regional destinations to population centers. For purposes of bike study corridor identification and evaluation, regional destinations were defined as:

“Regional activity nodes or corridors where people work, shop, recreate, or are entertained. These may be further defined by one or more activity thresholds. Regional Destinations will typically be centers where multiple transportation modal options, such as high-level transit service, are provided.”

- **Regional Job Concentrations.** Regional employment data were used to identify job concentrations across the region. These concentrations constitute many of the primary destination clusters that are important to serve via the Regional Bicycle Transportation Network. The threshold for any area to be recognized as a regional or sub-regional concentration was at least 7,000 jobs with a minimum density of 10 jobs per acre. The analysis included metropolitan, regional, and sub-regional concentrations with varying job densities.
- **Other Regional Destinations.** Because the list of regional employment and activity centers was not all-inclusive, other destinations were added including sports venues, entertainment centers, highly-visited regional parks, colleges and universities, and large high schools. These were based on various other data sources and direct feedback received from a project advisory committee and at the public workshops and focus group sessions held during the Regional Bicycle System Study. Data generated from an online bicycle destinations recording tool (resulting from more than 200 user hits recorded during the regional bike study process), were also used to determine the list of regional destinations.
- **Bicycle Travel Demand.** The user route requests and cyclist origin and destination data collected via Cyclopath provided a great resource for estimating bicycle demand across the seven-county region.
- **Connecting with Transit.** The most meaningful connections between bicycle infrastructure and the regional transit system occur at stations on regional transitways, at major transit centers and at high-user park-and-rides. These locations offer the highest frequency of transit service and the greatest potential for the transfer and storage of bicycles.
- **Future Population.** Projected population densities across the region were used to ensure that the Regional Bicycle Transportation Network will serve long range transportation needs that closely match future population growth and distribution across the region.
- **Regional System Equity.** The relationship of the Regional Bicycle Transportation Network corridors to identified Areas of Concentrated Poverty (where at least half the residents are people of color) was analyzed to ensure that the proposed identified bicycle network provided a level of equitable service to communities that may have diminished economic opportunity. Bicycling offers a flexible and cost-effective means of travel to residents of these areas unable to afford a car.

Regional Bicycle Transportation Network

Regional Bicycle Transportation Network Vision

The goal of the Regional Bicycle Transportation Network is to establish an integrated seamless network of on-street bikeways and off-road trails to most effectively improve conditions for bicycle transportation at the regional level and to encourage planning and implementation of future bikeways by cities, counties, parks agencies, and the state, in support of the network vision (see Figure 7-1). The network is subdivided into two tiers for regional planning and investment prioritization.

- **Tier 1 and Tier 2 Regional Bicycle Transportation Corridors**

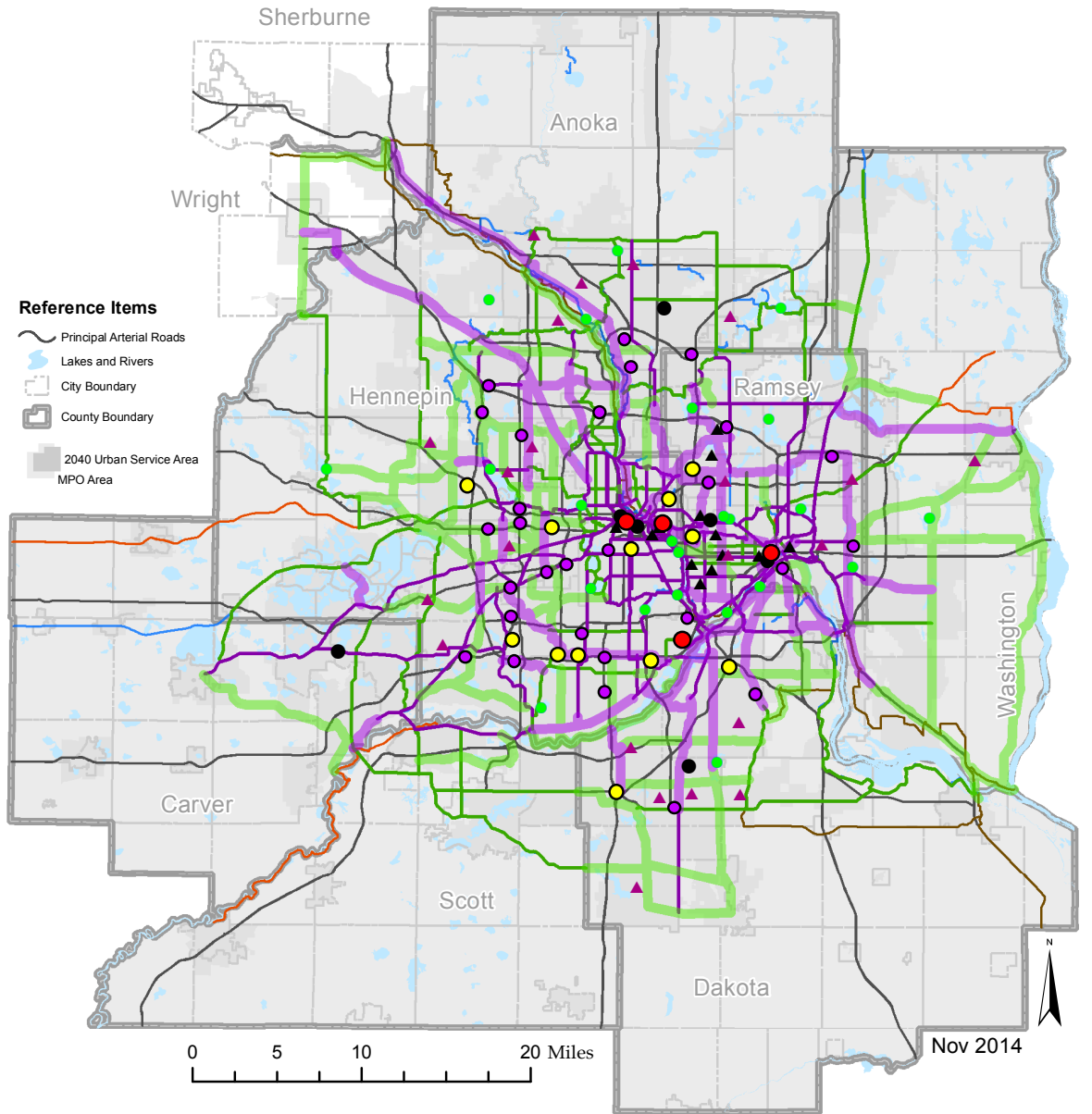
- **Tier 1 Priority Regional Bicycle Transportation Corridors** are a subset of the Regional Bicycle Transportation Network and have been identified as the highest priority for regional transportation planning and investment. The full Regional Bicycle Transportation Network with Tier 1 and Tier 2 corridors is shown in Figure 7-1 below. An interactive version is being developed. The priority corridors/alignments are planned in locations where they can attract the most riders and where they can most effectively enhance mode choice in favor of biking, walking, and transit over driving alone. High rates of bicycle travel demand, as well as current and planned population and employment densities, were heavily weighted in the analysis of corridors described earlier. Tier 1 and Tier 2 corridors are further described under the [Bicycle / Ped Investment Direction](#).
- **Tier 2 Regional Bicycle Transportation Corridors** are the remaining corridors in the overall Regional Bicycle Transportation Network (green corridors in Figure 7-1); these corridors are assigned the second tier priority for regional transportation planning and investment.

- **Tier 1 and Tier 2 Regional Bicycle Transportation Alignments**

Similar to the regional bicycle transportation corridors, there are Tier 1 and Tier 2 regional bicycle transportation alignments (shown as bold purple and green lines in Figure 7-1) where specific route alignments have been designated through the Regional Bicycle System Study process that included discussions with local agency staff. The designated Regional Bicycle Transportation Network alignments are based on local bicycle plans and in many cases (particularly in the core cities) already exist in some form and may need little or no improvement for the regional network. Other designated alignments have not been developed and are based on planned on-street and off-road route alignments or other factors as discussed with local agency staff. Those regional trails that provide direct transportation connections to and between regional destinations (as identified in the Regional Bicycle System Study) were included as Tier 1 alignments (purple lines in Figure 7-1).

Figure 7-1: Regional Bicycle Transportation Network Vision

Regional Bicycle Transportation Network Vision



- Reference Items**
- Principal Arterial Roads
 - Lakes and Rivers
 - City Boundary
 - County Boundary
 - 2040 Urban Service Area MPO Area

RBTN Alignments

- Tier 1 Alignments
- Tier 2 Alignments

RBTN Corridors (Alignments Undefined)

- Tier 1 Priority Regional Bicycle Transportation Corridor
- Tier 2 Regional Bicycle Transportation Corridors

Regional Destinations

- Metropolitan Job Centers
- Regional Job Centers
- Subregional Job Centers
- Large High Schools
- Colleges & Universities
- Highly Visited Regional Parks
- Major Sport & Entertainment Centers

Other Trail Systems

- Regional Trails (Regional Parks Policy Plan)
- Mississippi River Trail (US Route 45)
- State Trails (DNR)

Relationship to the Regional Trail System

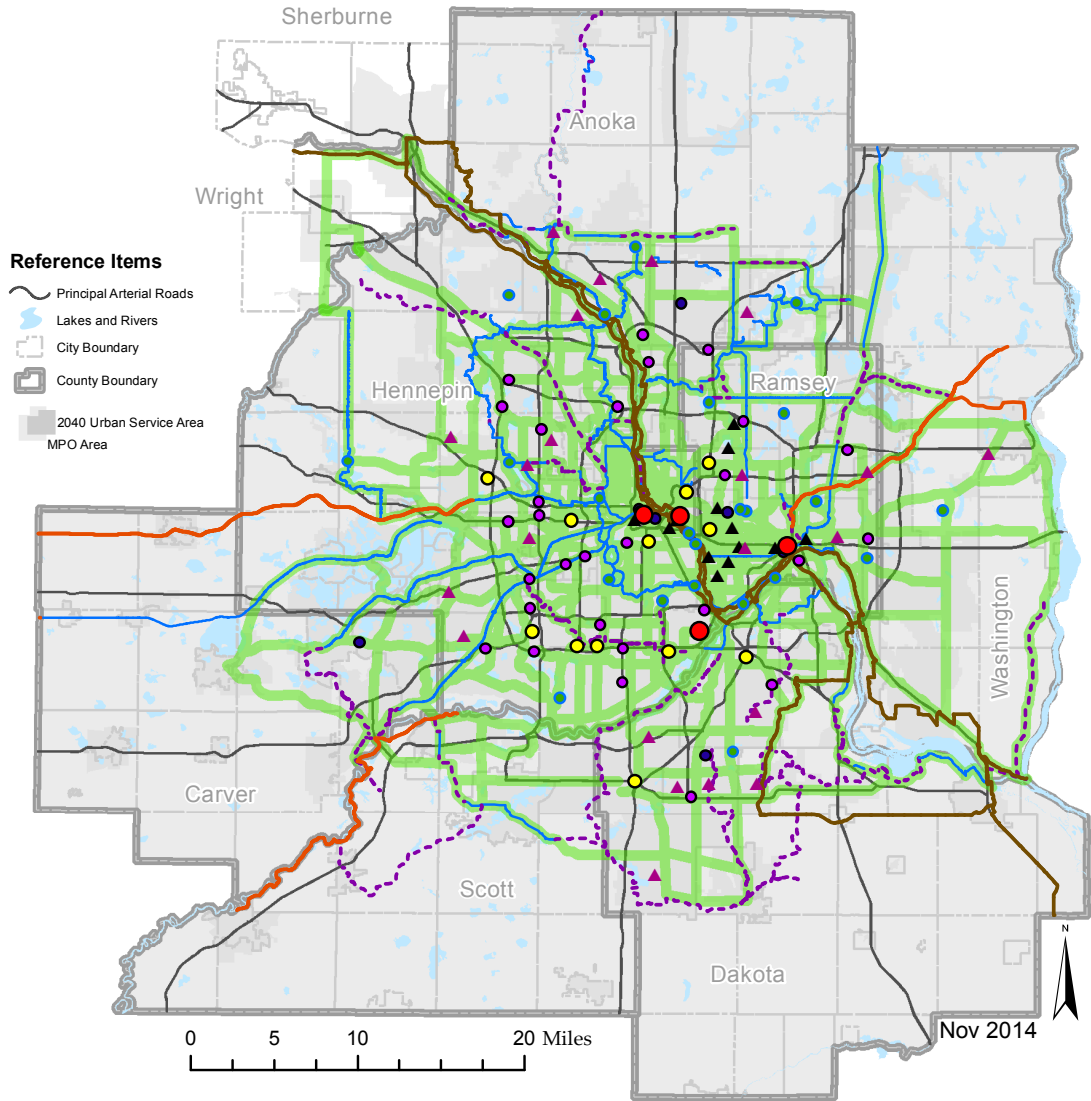
Regional trail corridors are designated by the Council in its *2040 Regional Parks Policy Plan*. The specific alignment of a regional trail is determined by the regional park implementing agency during the development of a trail master plan, which must be consistent with the regional parks plan in order to be approved by the Council. The park plan requires that regional trails provide connections between components of the Regional Parks System and notes that they are primarily multi-use recreation trails, although many trails also serve bicycle transportation functions. Recreational bicycling, although not the focus of this Transportation Policy Plan, is significant to the region in that it represents an important entry point for many cyclists to become familiar with the regional system and because ultimately, many recreational cyclists will become users of the system for commuting and other transportation purposes.

The role of regional trails in connecting to and between regional destinations, as identified in the Regional Bicycle System Study, was assessed and as a result, many regional trails were identified as important components of the Regional Bicycle Transportation Network. (See also [“Development of a Regional Bicycle Transportation Network”](#) for a more detailed discussion of study methodology.) It should be noted that there are regional trails outside of those that were included in the Regional Bicycle Transportation Network which may serve some transportation function at a more local level, just as there are many trails and on-street bikeways identified on the Regional Bicycle Transportation Network that will also serve recreation needs in the urban and suburban parts of the region. In practice, the Regional Bicycle Transportation Network, the regional trail system, and all local trail and bikeway networks will complement one another to serve the overall bicycle transportation and recreation needs of the region.

The proposed bicycle network corridors shown in Figure 7-2 are intended to serve as the “backbone” arterial system for biking in the region. Existing and planned regional trails are highlighted to depict their relationship to the Regional Bicycle Transportation Network corridors and to highlight the overlap between bicycle recreation and bicycle transportation networks. Cities and counties are encouraged to plan and implement local bicycle facilities that connect their local bikeway networks to the Regional Bicycle Transportation Network.

Figure 7-2: Regional Bicycle Transportation Network and Regional Trail System

Regional Bicycle Transportation Network and Regional Trail System



- Reference Items**
- Principal Arterial Roads
 - Lakes and Rivers
 - City Boundary
 - County Boundary
 - 2040 Urban Service Area MPO Area

- Regional Bicycle Transportation Network Corridors
- Regional Trail System (Regional Parks Policy Plan)**
 - Regional Trails
 - Planned Regional Trails
- Other Trail Systems**
 - Mississippi River Trail (US Route 45)
 - State Trails (DNR)

- Regional Destinations**
- Major Job & Activity Centers
 - Regional Job & Activity Centers
 - Subregional Job & Activity Centers
 - Large High Schools
 - Colleges & Universities
 - Major Sport & Entertainment Centers
 - Highly Visited Regional Parks

Defining Critical Bicycle Transportation Links

There are several types of barriers that can disrupt the connectivity of the Regional Bicycle Transportation Network and isolate communities from key destinations. The links overcoming these barriers are defined as Critical Bicycle Transportation Links.

Critical Bicycle Transportation Links. These perform one or more of the following:

- Serve to close a gap in the Regional Bicycle Transportation Network or connect a local bikeway to a major regional destination.
- Improve continuity and connections between jurisdictions (on or off the regional network)
- Improve or remove a physical barrier (on or off the regional network)

Closing a Gap in the Regional Bicycle Transportation Network. Gaps in the Regional Bicycle Transportation Network can be addressed by:

- Providing a missing link between existing or improved segments of the Regional Bicycle Transportation Network.
- Improving bikeability within a Regional Bicycle Transportation Network corridor to better serve all bicycling skill and experience levels within the corridor (for example, providing a safer, more protected on-street facility; improving traffic signals, signage, and pavement markings at busy intersections; or adding a bike route parallel to a highway or arterial roadway along a lower-volume neighborhood collector or local street).
- Providing a short (up to one mile) but critical link connecting a local bikeway to the Regional Bicycle Transportation Network, a major regional destination, a major transit-oriented development, or to a high-volume, multimodal transit station.

Improving Continuity and Connections between Jurisdictions. There are many cases around the region where an existing bikeway may stop at one city's border and not carry through to an adjacent city or county. Creating more consistent, continuous and connected bikeways will improve access to, and the overall bikeability and convenience of, local and regional bicycle systems.

Removing or Circumventing a Physical Barrier. Physical barriers to biking can be natural or man-made and include major rail corridors, rivers and streams, freeways or multi-lane arterial roadways. Projects that remove or provide more bikeable options around or across physical barriers (for example, providing grade-separated crossings where appropriate) can arise in a number of ways. Planning work may underscore the need for a local bikeway to improve options through a major barrier.

Additionally, major roadway infrastructure projects can provide opportunities to create bicycle connections across one or several barriers, particularly in instances where there is not a usable parallel alternative within a reasonable biking distance.

By their nature, projects to remove physical barriers can prove particularly costly and the potential to enhance such connections may be opportunity driven with respect to major highway, bridge, and transitway projects. Given the significant expense of building connections like bridges or underpasses and their anticipated long life, it is important to consider the inclusion of bicycle infrastructure in all projects that improve options to cross or get around these physical barriers, even if the full potential of the bicycle connection is not evident at the time of construction.



Implementing the Regional Bicycle Transportation Network

Local Planning for the Regional Bicycle Transportation Network Corridors and Alignments

The broad regional priority corridors shown in Figure 7-1 (one-mile wide in suburban/rural areas, one half-mile wide in the core cities) are intended to allow flexibility among local government agencies to tailor specific alignments for bikeway facilities through the local planning process. When specific alignments are designated through the local planning process, the regional corridor will be replaced on the Regional Bicycle Transportation Network map with the preferred alignment. These revisions to the Regional Bicycle Transportation Network map will be performed as an administrative task and will not require an amendment to this transportation plan.

In planning for specific Regional Bicycle Transportation Network alignments and developing bikeway improvement projects, agencies should consider all the [guiding principles](#) for regional bicycle corridors but with special attention to the following principles that are most effectively planned at the local level:

- **Overcome physical barriers and eliminate critical system gaps.** More attention and planning will be needed at the local level to identify existing gaps in the Regional Bicycle Transportation Network and opportunities to eliminate or divert from physical barriers. The Metropolitan Council will assist locals in planning for this critical element in developing the Regional Bicycle Transportation Network.
- **Facilitate safe and continuous trips to regional destinations.** Planning for the development of bicycle facilities along the Regional Bicycle Transportation Network, as well as for connections between the Regional Bicycle Transportation Network and local bikeway systems, should be coordinated with Metropolitan Council staff.
- **Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.** Local roadway conditions and geometry, along with the available off-road trails network will largely determine what alignments and facility treatments may be feasible within an established regional bicycle corridor. Local agencies should try to accommodate cyclists of all ages and for the full range in abilities from novice to avid cyclist by providing a range of off-street and on-street bicycle facilities. In some urban, high demand corridors, it may be desirable to provide both an on-street bike facility (like a bike lane) and a parallel off-road trail. In most corridors with space for only an on-road facility, a buffered or protected bike lane may be the optimal solution to attract the widest range of cyclists.
- **Integrate and/or supplement existing and planned infrastructure.** Wherever possible, it is desirable to construct bicycle facilities along existing roadways or implement trails on corridors with minimal requirements for new land acquisition. This is important to ensure that scarce dollars for bicycle infrastructure can be efficiently invested to complete the regional network in a shorter timeframe.

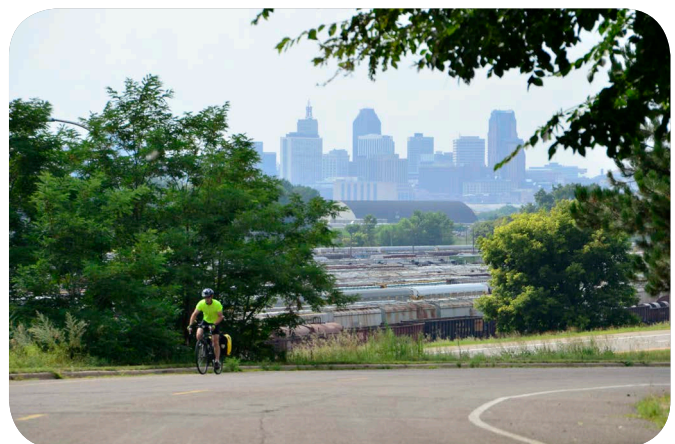
- **Consider opportunities to enhance economic development.** When planning specific alignments within the regional bicycle corridors, local bicycle planners should work closely with their economic development and land use planners to identify opportunities for the bikeway project to enhance and/or serve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

Placement of Regional Bicycle Network Alignments on Roadways

When identifying roadways and highway corridors appropriate for implementing specific alignments for regional bikeways, it is imperative that transportation agencies coordinate and collaborate in their planning activities. This will help to ensure that trade-offs between opportunities for implementing a bikeway and the physical constraints of the roadway corridor are fully considered. To that purpose, for major corridor studies and projects, meetings and other opportunities for engaging the public will be critical to inform the project development process.

The provision of safe and comfortable bicycle facilities in the roadway corridor should be the goal in order to achieve continuity for regional bicycle corridors and to facilitate direct access to corridor destinations. Planning for cyclist bikeability and convenience over a range of experience levels and abilities is an important focus for any major roadway project. Other competing priorities, including safety for all users and mobility for all transportation modes, will also need to be considered. This balancing of priorities is especially needed on highways, including A-minor arterials without sufficient right of way to provide an off-road facility (see “[Strategy C2](#)”).

Some highways serve as the only practical and effective crossing over a major barrier (such as, rivers, freeways, multi-lane highways, and railroad corridors). In these cases, safe bicycle and pedestrian accommodations should be provided on the highway segment that crosses over (or under) the barrier. On some highways with high traffic volumes, an intensive mix of trucks and buses, and limited right-of-way to provide designated on-street bicycle facilities, it may be appropriate to route the bicycle facility away from the highway when a nearby, parallel local street is available. This condition occurs more frequently on A-minor arterials in highly-developed, urban corridors than on A-minors in less developed, suburban or rural corridors; however, this will not always be the case and each corridor should be planned to address its unique issues and needs from both a local and regional perspective. As an alternative to locating regional bikeways along major highways, regional transportation partners could work together to plan and build new, continuous bicycle facilities that cross barriers via the local street system; with their lower traffic volumes and slower speeds, local streets can be improved to accommodate a broader range of cyclist abilities.



Bicycle Facility Types that Meet Regional Bicycle Corridor Functionality

There is a range of bicycle facility treatments, both off road and on street, which may be applied in different parts of the region to accomplish the function of regional bicycle corridors and to maximize their attractiveness to potential bicyclists. Local planners will need to consider their community's local corridor context (for example, urban, suburban, rural) to determine the feasibility of an off-road trail facility, or to identify which on street bikeway type would be most appropriate for the specific corridor at hand. For the bicycle facility types described below, the following resources may be useful for more information about practical applications and design guidelines:

- Minnesota's Best Practices for Pedestrian/Bicycle Safety, MnDOT
- NACTO Urban Bikeway Design Guide, Second Edition, National Association of City Transportation Officials
- Bikeway Facility Design Manual, MnDOT
- Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO)

In addition to off-road trails, the following list of on-street bicycle facility types provides a few suggested examples for implementing the Regional Bicycle Transportation Network and are listed in ascending order of complexity:

- **Wide paved shoulders:** On some roadways, especially in the rural areas of the region, this may be the most feasible treatment. To make these facilities more prominent to cyclists and motorists, "Bike Route" or "Share the Road" signs and/or pavement markings may be added appropriately along the route.
- **Bicycle Boulevards:** In urban and some suburban areas, bicycle boulevards may be an appropriate treatment to improve a designated regional bicycle corridor. Bike boulevards are low volume, lower speed roads that are designed to give cyclists priority over vehicles. These facilities typically apply relatively low-cost treatments, such as signs and pavement markings, along with traffic speed and/or traffic volume management devices. Bicycle boulevards can be especially effective in providing a more bicycle-friendly alternative to a parallel running, high volume, arterial street or highway.
- **Conventional bicycle lanes:** Bike lanes can facilitate a safer and more comfortable trip for cyclists by providing a dedicated space for on-street bicycle travel. These facilities are most often placed on the right-hand sides of the street (so they flow with traffic) between the general traffic lane and the curb or parking lane and are designated through pavement striping and markings and/or signage. These facilities are one of the more common treatment types in urban areas and are also suitable in suburban areas along medium or high-volume streets.
- **Buffered bicycle lanes:** Buffered bike lanes are conventional lanes that are combined with a buffer space designated with pavement markings that separate vehicle traffic from bike lane traffic. This treatment type may be appropriate for urban and suburban areas on streets with high traffic volumes, high speeds, and/or high volumes of trucks or buses. Buffered bike lanes may also be appropriate along medium-to-high volume roads with lower speeds to help meet the needs of younger or less-experienced cyclists.

- **Protected bikeways or cycle tracks:** Protected bikeways or cycle tracks are on-road or off-road facilities that are physically separated from lanes of moving traffic. Cycle tracks can be designed as on- or off-road facilities and are often times separated from general traffic lanes with a vertical element such as a bollard or an elevated curb. There are one-way and two-way cycle track designs and in areas where on-street parking is allowed, they can be placed between the parking lane and sidewalk. Cycle tracks have been developed mostly in densely developed urban locations like commercial downtown districts in large cities.

Potential Funding Sources

Federal Funding Sources

The 2012 federal transportation act Moving Ahead for Progress in the 21st Century (MAP-21) established a new program, Transportation Alternatives Program (TAP), to provide for a variety of non-motorized transportation projects that were previously eligible activities under separately funded programs including Transportation Enhancements, Safe Routes to School, and the Recreational Trails program.

Under MAP-21, approximately \$7 million will be available to the region annually through the TAP. Bicycle and pedestrian facilities are also eligible for funding under the federal Surface Transportation Program (STP) and the region has a history of funding larger bicycle facility projects using STP funds. Congestion Mitigation Air Quality (CMAQ) funds are also eligible for bicycle and pedestrian projects that can demonstrate an air quality benefit, though the region has not traditionally used CMAQ funds for these purposes.

In the Twin Cities region, the Transportation Advisory Board (TAB) is responsible for allocating the federal TAP, STP and CMAQ funds available to the region through a biennial Regional Solicitation. As described in the [Transportation Finance](#) section, the solicitation was evaluated and revised to ensure it is consistent with the outcomes and principles of *Thrive MSP 2040*, the Transportation Policy Plan, and the requirements of MAP-21. The revised solicitation process will allocate federal funds through three categories: roadway, transit and bicycle and pedestrian projects. Each solicitation will determine the amount of federal funds spent within each category; however, it is assumed that at a minimum the full amount of available TAP funds will be allocated to bicycle and pedestrian projects.

State and Local Funding Sources

MnDOT uses state highway funds to improve the trunk highway system with accommodations for bicyclists and pedestrians. These investments are often made as part of larger highway pavement and bridge projects and may include trails and sidewalks parallel to the roadway or as part of a reconstructed bridge structure, as well as bike lanes in some urban corridors or wide paved shoulders in rural areas. See the Highways Investment Plan section for more on anticipated future highway funding levels for [bicycle and pedestrian improvements on the trunk highway system](#).

Regional trails identified by the Council in its Regional Parks Policy Plan are eligible for funding through the Council's regional parks capital improvement program (CIP). The Parks CIP is funded with state bonds, Metropolitan Council bonds and Parks and Trails Legacy Fund appropriations. The state's Parks and Trails Legacy Fund represents a dedicated funding source for outdoor recreation, to be used for parks and trails of state or regional significance. Regionally significant trails in the metro area are those defined in the Regional Parks Policy Plan. The Metropolitan Council disburses state funds to partially finance the costs of operating and maintaining the regional parks system. Regional park implementing agencies also use their local funds for constructing, maintaining, and operating regional trails.

City, county, and park agency funds have been integral to supporting the development, maintenance, and preservation of local multi-use trail and bikeway systems. These funds typically derive from local property taxes for trail system improvements and from property assessments in the case of city street improvements. Like MnDOT, counties and cities may also use their roadway state aid revenues from the state gas tax to invest in bicycle and pedestrian facilities as part of roadway and bridge reconstruction projects on county and municipal state aid roads.



Regional Funding Needs

The local funds identified above make up the bulk of revenue supporting bicycle and pedestrian networks and will continue to be critical to the provision of pedestrian and bicycle infrastructure so that these local investments can effectively complement and round out the regional system. However, as a result of diminishing tax revenues and the increasing costs of ongoing maintenance (including winter snow removal to accommodate year-round use), preservation, and rehabilitation needs for bicycle and pedestrian facilities, there is a large shortfall of dollars available to fund existing system needs. Current revenues are also inadequate to fund new infrastructure needs including the vision for the Regional Bicycle Transportation Network and the local bikeways systems needed to supplement the regional network.

The Council recognizes that, as with other modes, there are significantly more needs for bicycle and pedestrian infrastructure than there are available funds. Between 1993 and 2011, there were about \$204 million in stand-alone bicycle and pedestrian projects constructed with federal Regional Solicitation funds (including Transportation Enhancements and Surface Transportation Program funds). However, only about 37% of total project requests were funded with this level of funding available over that time period.

As a result of this general scarcity of funds to support biking and walking, any new state transportation funding package should include additional funding for bicycle and pedestrian infrastructure, with priority for implementing the Regional Bicycle Transportation Network to support bicycling for transportation.

Investment Direction

The Council, through its Transportation Advisory Board’s Regional Solicitation process, makes specific categories of federal transportation funds available to local governments on a competitive basis for pedestrian and bicycle facilities and safety programs.

The Transportation Advisory Board solicits applications for federal funding for these improvements from the Transportation Alternatives Program (TAP) and Surface Transportation Program (STP) and can provide funds from the Congestion Mitigation/Air Quality program, if it chooses.

The sections that follow list and describe the basis for the region’s priorities for investment in bicycle and pedestrian infrastructure through the Regional Solicitation for federal transportation funds. Additional funding for bicycle and accessible pedestrian highway infrastructure through MnDOT is described in the Highway Investment Direction and Plan under [current revenue](#) and [increased revenue](#) scenarios.

Regional Bicycle Transportation Network

Projects proposed to enhance or complete new segments or connections of the Regional Bicycle Transportation Network will be given priority for federal transportation funding, provided that operations and maintenance commitments are made by the project applicant for the entire segment of proposed bikeway and any adjoining segments within the applicant’s jurisdiction. The network is subdivided into two tiers for regional planning and investment prioritization:



- **Tier 1, Priority Regional Bicycle Transportation Corridors and Alignments** (as previously shown in [Figure 7-1](#)) should be given the highest priority for transportation funding; these are the corridors and alignments determined through the *Regional Bicycle System Study* (2014) to provide the highest transportation function by connecting the most regional activity centers through the developed urban and suburban areas of the region.
- **Tier 2, Regional Bicycle Transportation Network Corridors and Alignments** (also shown in [Figure 7-1](#)) should be given the second highest priority for transportation investment. These corridors and alignments provide transportation connectivity to outlying regional destinations within and beyond the urban/suburban areas and serve to connect priority regional bicycle transportation corridors/alignments.

Critical Bicycle Transportation Links

Potential bicycle facility improvement projects can be defined as Critical Bicycle Transportation Links if the planned improvement performs one or more of the following functions:

1. Serves to close a gap in the Regional Bicycle Transportation Network; this includes improving bikeability and convenience for all age/experience levels within urban, high demand corridors that may already have a continuous bikeway facility (for example, adding an off-road trail where there is only an on-street bike lane in an urban high-demand corridor, or adding a bike lane where only a trail exists).
2. Improves continuity and/or connections between jurisdictions (whether it is on or off the regional network); this includes extending a specific bikeway facility treatment across jurisdictions to improve consistency and inherent bikeability and convenience for all cyclists.
3. Provides an alternative that crosses or gets around a physical barrier including a river or stream, railroad corridor, freeway, or multi-lane highway.

Bicycle facility improvements meeting any of the above criteria for Critical Bicycle Transportation Links will be considered a regional priority for planning and regional investment.

Other Key Investment Prioritization Factors for Pedestrian and Bicycle Projects

Opportunities for Pedestrian Improvements. Regional funding priority will be geared toward stand-alone pedestrian projects that are connected to transit service or regional job concentrations. These include:

- Along existing or potential high-frequency arterial bus routes in the urban core and suburban communities
- Transit-oriented developments around existing or programmed transitway stations
- Existing transit stations, transit centers, or frequent-service park-and-ride locations that are within a reasonable walking distance to residential development or activity centers, or metropolitan job concentrations like the downtowns and the University of Minnesota
- Projects that are included as part of a community's Americans with Disabilities Act (ADA) transition plan and/or demonstrations of best practices in design for use by people of all ages and levels of mobility
- Metropolitan, regional, and sub-regional job concentrations defined in *Thrive MSP 2040*

Safety. Regional evaluation criteria will favor infrastructure projects that significantly improve safety for bicyclists and pedestrians while maintaining or enhancing the ease of bicycling or walking. Funding can also be provided to projects that do not improve network connectivity but significantly improve the safety of bicycling or walking (including users of all ages and levels of mobility) or that address an identified safety problem. An example of this type of project would be improvements to intersections that receive a high level of bicycle and/or pedestrian traffic but which were not originally designed with bicycle/pedestrian safety in mind.

Cost Effectiveness. Bicycle and pedestrian projects should be cost-effective to construct and to maintain. When determining the right solution for a safety or connectivity problem, local agencies should first consider methods that use existing right-of-way and infrastructure to improve the desirability of biking or walking before considering the construction of entirely new facilities that would require new right-of-way and/or increase operations and maintenance costs.

Multimodal Projects. Roadway projects submitted for federal funding should include features that benefit all users of the transportation system including pedestrians and bicyclists (including users of all ages and levels of mobility) in addition to vehicular modes. Regional evaluation criteria should favor roadway projects that meet the needs of pedestrians and bicyclists with an emphasis on safety and barrier removal. In addition, evaluation criteria for stand-alone bicycle and pedestrian improvements should favor projects that support compact mixed-use transit-oriented development within employment centers and those that provide direct connections to high-service transit facilities.

Bicycle Connections to Transit. Regional evaluation criteria should favor local bicycle projects that connect to an existing or planned regional transitway or a bus transit stop or station location. These potential connections should be emphasized in the project development process in order that local opportunities to facilitate multimodal trips via bicycles and transit can be maximized.

Reconstruction of Existing Facilities. In addition to building new facilities for bicyclists and pedestrians, local jurisdictions are encouraged to apply for Regional Solicitation funds for reconstructing existing facilities where the project would improve the bikeway or pedestrian path to a quality level superior to that of the existing facility and where facilities have been properly maintained. Projects considered for federal funding should also have an approved plan for maintenance or a maintenance agreement to ensure that the facility remains in good repair and is passable.

