



CRITICAL CONNECTIONS INVESTMENT FOLIO

# Bicycle Infrastructure

**Bicycle Infrastructure** is one of the ten investment categories in MnSHIP. MnSHIP is a fiscally constrained plan, meaning that it must balance the needs and risks of this category against those of the other investment categories. Each investment category has its own folio describing the trade-offs of different investment levels. Please see page 4 for a list of additional folios.

## Why is Bicycle Infrastructure important?

Providing bicycle infrastructure in Minnesota is an important and growing part of MnDOT's multimodal network. Bicycle infrastructure helps address many of the challenges and opportunities Minnesota is facing, including:

- **An aging and increasingly diverse population** - Providing alternatives such as bicycling gives quality of life and access improvements to those unable or not wanting to drive private automobiles.
- **More Minnesotans living in urban settings** - 41% of all trips are less than three miles (2009 National Household Travel Survey). This distance is quickly covered by a bicycle ride. As Minnesota becomes more urban and congestion and rising fuel prices become more prevalent, there may be more of a demand for bicycling facilities.
- **Energy shifts** - Economic forecasts and concerns about the natural environment are shifting to address rising energy costs and fossil fuel emissions' role in global warming. Providing alternatives to driving supports the reduction of greenhouse gas emissions.
- **Health impacts** - Minnesotans are struggling with obesity and other health issues. Proving safe and active transportation alternatives to driving will help promote a healthier lifestyle for all Minnesotans.

Though bicycle infrastructure - alone - will not solve the above challenges, it can help. A robust bicycle network will provide opportunities for Minnesotans to continue enjoying a high quality of life and assist MnDOT in being good stewards of the environmental, physical, and economic health of the state.



Vehicle and bicycle users share use of the road; delineated bicycle lane indicates recommended space to travel.

## How does Bicycle Infrastructure support the Minnesota GO Vision and Statewide Multimodal Transportation Plan?

Investing in Bicycle Infrastructure supports the guiding principles laid out in the 50-year vision for the state's transportation system, Minnesota GO. Among those are:

- Leveraging public investments to achieve multiple purposes;
- Emphasizing reliable and predictable options; and
- Ensuring accessibility to users of all abilities and incomes.

Building upon these principles, investment in Bicycle Infrastructure strengthens multiple strategies identified in the Statewide Multimodal Transportation Plan (SMTP), notably:

- Work together to improve accessibility and safety for everyone traveling on, along, and across roads;
- Plan, design, develop, and maintain projects in a way that is consistent with the principles of Context Sensitive Solutions;
- Apply multimodal strategies that ensure a high return-on-investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota; and
- Support and develop multimodal connections that are accessible for all Minnesotans regardless of socioeconomic status or individual ability.

## How are we investing now?

Bicycle projects are typically undertaken concurrent with pavement and bridge projects. Many bridge reconstruction or expansion projects include bicycle infrastructure, especially those funded through the Chapter 152 bridge program (see Bridge Condition folio). Bridge projects can include paths, bike lanes, and separated trails that connect to existing trails. Pavement projects may include bicycle infrastructure to respond to identified priorities and local demand. Examples include expanded shoulders and bike lanes. Historically, many of these improvements have been funded through Transportation Enhancement funds. With the passage of the new federal transportation bill (MAP-21), these projects may be funded through Transportation Alternatives funds.

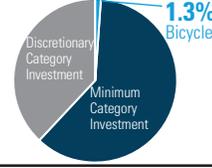
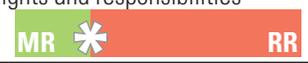
MnDOT is currently conducting a **Statewide Bicycle Planning Study** which will provide a statewide inventory of current and planned biking facilities and recommend performance measures to guide future investment in the state's bicycle infrastructure. A second phase of the project will identify a priority network for bicycling throughout the state.

**Where are we headed?**

Under current funding levels, MnDOT is projected to spend an average of \$14.4 million annually on Bicycle Infrastructure for the next 20 years, due entirely to pavement and bridge projects that include a bicycle component. No **stand-alone** bikeway projects (those completed solely to enhance bicycle infrastructure and not

**Tips for Using This Table**

- Performance Levels**
- **Performance Level 0 (or PL 0)** represents a strategy in which Bicycle would receive less than current funding. PL 0 corresponds to the most extreme risk level MnDOT would potentially consider.
  - Costs + benefits increase while risks decrease from left to right.
  - MnDOT's current spending in Bicycle Infrastructure corresponds to **PL 1**.
  - PLs for Bicycle Infrastructure are independent of other performance categories.
  - All PLs assume current funding for Pavement + Bridge Conditions (PL 1 + PL 3) except where noted (Bicycle PL 0). Approximately 2.3% of the Pavement and 3.5% of the Bridge investment funds Bicycle projects.
- Investment Levels**
- The **pie charts** represent the distribution of MnSHIP's total planned investment (\$14.3 billion) at each PL.
  - **Minimum Category Investment** is the amount required to invest at PL 0 in every other category, and current PLs for pavement and bridge in Bicycle PLs 1, 2 and 3.
  - **Discretionary Category Investment** is the remaining revenue available for additional investment beyond the Minimum Category Investment for all categories in MnSHIP.
- Outcomes**
- MnDOT does not have established targets for bicycle infrastructure along state highways. Current and future bicycle planning efforts will establish an inventory of the network and create the foundation to establish and make progress towards targets.
  - Given the lack of performance targets, outcomes are identified as a decline or improvement compared to current conditions.

PERFORMANCE LEVEL OPTIONS		
Bicycle Infrastructure		
<b>Overarching Goal:</b> Improve quality of life for system users and environmental health of the state by providing a safe, convenient and connected bicycling network within urban areas and connecting regional centers throughout Minnesota. Statewide, provide system users with a convenient mode choice.		
	<b>Performance Level 0</b> <i>Lowest cost, greatest risk</i>	<b>Performance Level 1</b> <i>Lower cost, higher risk</i>
<b>Investment Approach</b> <i>(Scenario Planning Folio)</i>	PL does not correspond with an Investment Approach	<b>Approach A</b> <b>Approach B</b> (approximate)
<b>Investment Level</b> <i>Total</i> Years 5-10 (2017-2022) Years 11-20 (2023-2032)	\$182 M \$12 M/yr \$11 M/yr 	\$230 M \$14 M/yr \$15 M/yr 
<b>Investment Description</b>	<ul style="list-style-type: none"> <li>• Current pavement + bridge investments drop to PL 0 + PL 2, thus reducing investment in bicycle network</li> <li>• No stand-alone bikeway projects undertaken</li> </ul>	<ul style="list-style-type: none"> <li>• Invest in bike network via current pavement + bridge investments</li> <li>• No stand-alone bikeway projects undertaken</li> </ul>
<b>Outcomes</b> <i>How would investment strategy alter bicycle infrastructure?</i> <b>- Decline in conditions</b> <b>= Current conditions</b> <b>+ Improved conditions</b>	<ul style="list-style-type: none"> <li>- Shoulder pavement conditions deteriorate + push bicyclists into traveled lanes or off roadway</li> <li>- Bridges replaced/reconstructed without accommodating bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>= Pavement investment remains constant, accommodating bicyclists similar to current conditions</li> <li>= Most replaced/reconstructed bridges accommodate bicyclists as appropriate</li> </ul>
<b>Risks</b> <b>H = High Risk</b> <b>M = Medium Risk</b> <b>L = Low Risk</b>	<ul style="list-style-type: none"> <li>(M) Increased crashes, safety issues</li> <li>(M) Fragmented network</li> <li>(M) State highways a barrier to bicycle movement</li> <li>(H) Needs not accommodated for in project scoping results in few improvements</li> <li>(M) Lack of uniformity in + knowledge of bicycle network causes small # of people to use it</li> <li>(L) Lack of awareness of bicycle rights and responsibilities</li> </ul> 	<ul style="list-style-type: none"> <li>(M) Increased crashes, safety issues</li> <li>(M) Fragmented network</li> <li>(M) State highways a barrier to bicycle movement</li> <li>(M) Needs not accommodated for in project scoping results in few improvements</li> <li>(M) Lack of uniformity in + knowledge of bicycle network causes small # of people to use it</li> <li>(L) Lack of awareness of bicycle rights and responsibilities</li> </ul> 
<b>Risk Management Strategies</b> <i>What strategies would MnDOT use to manage risk?</i>	<ul style="list-style-type: none"> <li>• Collaborate with regional, local + internal partners on bike projects</li> <li>• Continue Share the Road Campaign + Statewide Bicycle Planning Study</li> <li>• Ensure Districts preserve good shoulder condition on identified priority bike network</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborate with regional, local + internal partners on bike projects</li> <li>• Continue Share the Road Campaign + Statewide Bicycle Planning Study</li> </ul>

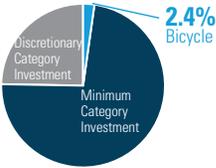
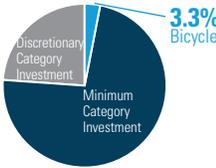
associated with other road construction work) would be pursued. Examples of stand-alone projects include bike lanes, sharrows (chevron symbols instructing vehicles to share the road with bicycles), route signage, trail segments and highway crossings, including bridges and tunnels.

**How do we measure Bicycle Infrastructure performance?**  
Currently, MnDOT does not have an inventory of the condition of all roads according to their suitability for bicycling. However, as part of the on-going bicycle planning, MnDOT is developing a way to document and catalogue the condition of bikeways throughout the state. Once complete, this information will help guide where

PERFORMANCE LEVEL OPTIONS

# Bicycle Infrastructure

**Performance Objectives:** Systematically and routinely consider bicycling trips (commuter + recreational) on highway infrastructure early in the scoping and planning process; maintain quality of pavement + bridge assets for bicycle accommodations; consistently accommodate bicyclists on identified priority network; eliminate fatalities + serious injuries through statewide strategic infrastructure improvements and education campaigns.

	<b>Performance Level 2</b> <i>Greater cost, lower risk</i>	<b>Performance Level 3</b> <i>Greatest cost, lowest risk</i>
<b>Investment Approach</b> <i>(Scenario Planning Folio)</i>	<b>Approach C</b>	PL does not correspond with an Investment Approach
<b>Investment Level</b>  <i>Total</i> <i>Years 5-10 (2017-2022)</i> <i>Years 11-20 (2023-2032)</i>	\$350 M \$22 M/yr \$22 M/yr  	\$470 M \$29 M/yr \$30 M/yr  
<b>Investment Description</b>	<ul style="list-style-type: none"> <li>Invest in bike network via current pavement + bridge investments</li> <li>Add \$7.5 M/yr in 2017-32 for bikeway projects</li> </ul>	<ul style="list-style-type: none"> <li>Invest in bike network via current pavement + bridge investments</li> <li>Add \$15 M/yr in 2017-32 for bikeway projects</li> </ul>
<b>Outcomes</b> <i>How would investment strategy alter bicycle infrastructure?</i>  <i>- Decline in conditions</i> <i>= Current conditions</i> <i>+ Improved conditions</i>	<ul style="list-style-type: none"> <li>= Bridge and pavement investments continue to support bicycle improvements</li> <li>+ Standalone bikeway projects are undertaken, mainly low-cost, high benefit projects such as bike lanes, sharrows, route signage, etc.</li> </ul>	<ul style="list-style-type: none"> <li>= Bridge and pavement investments continue to support bicycle improvements</li> <li>+ Stand-alone bikeway projects are undertaken, both low-cost, high benefit projects (bike lanes, sharrows, route signage, etc.), as well as projects of a more major investment such as trail segments and highway crossings (bike bridges or tunnels)</li> </ul>
<b>Risks</b> <i>H = High Risk</i> <i>M = Medium Risk</i> <i>L = Low Risk</i>  <i>MR = Managed Risk</i> <i>RR = Remaining Risk</i>	<ul style="list-style-type: none"> <li>(M) Increased crashes, safety issues</li> <li>(M) Fragmented network</li> <li>(M) State highways a barrier to bicycle movement</li> <li>(M) Needs not accommodated for in project scoping results in few improvements</li> <li>(M) Lack of uniformity in + knowledge of bicycle network causes small # of people to use it</li> <li>(L) Lack of awareness of bicycle rights and responsibilities</li> </ul> 	<ul style="list-style-type: none"> <li>(M) Increased crashes, safety issues</li> <li>(L) Fragmented network</li> <li>(L) State highways a barrier to bicycle movement</li> <li>(L) Needs not accommodated for in project scoping results in few improvements</li> <li>(L) Lack of uniformity in + knowledge of bicycle network causes small # of people to use it</li> <li>(L) Lack of awareness of bicycle rights and responsibilities</li> </ul> 
<b>Risk Management Strategies</b> <i>What strategies would MnDOT use to manage risk?</i>	<ul style="list-style-type: none"> <li>Continue collaboration strategies, Share the Road Campaign, and bicycle planning efforts</li> <li>Improve the priority bike network by investing in low-cost, high-impact bikeway projects</li> </ul>	<ul style="list-style-type: none"> <li>Continue collaboration strategies, Share the Road Campaign, and bicycle planning efforts</li> <li>Improve the priority bike network by investing in low- cost, high-impact projects</li> <li>Undertake larger capital projects on priority bike network</li> </ul>

to invest in bicycle infrastructure statewide.

### What are the risks to be addressed with the Bicycle Infrastructure investment?

Generally, the more MnDOT invests in Bicycle Infrastructure Condition, the more we are able to reduce these key risks:

- Lack of investment in bicycle infrastructure does not align with statewide guiding principles of leveraging public investments to achieve multiple purposes, ensuring accessibility, integrating safety and emphasizing reliable and predictable options;
- Continuing to defer investments statewide decreases opportunities for healthy living and reduced oil dependency; and
- Fewer travel options for Minnesotans.

### How are we optimizing resources?

Investing concurrently with pavement and bridge projects ensures the timely addition of bicycle infrastructure when roads are in good condition (as opposed to near the end of their lifecycle). This strategy helps MnDOT maximize the longevity and effectiveness of the bicycle investment.

### What does MnDOT control?

MnDOT has the authority to add bicycle infrastructure on or across the approximately 12,000 miles of state highway. While many of these miles may be suitable bicycling routes, local roads may provide better alternatives. For example, a county or local road may provide a superior bicycling route due to volume, type of traffic, and/or speeds. However, because MnDOT does not control that road, it is difficult to invest in bicycling facilities on it, but when appropriate, MnDOT coordinates efforts with local units of government.

### Look for these additional folios!

#### Overview + Background

- What is MnSHIP?

#### Investment Category Folios

- Pavement Condition
- Bridge Condition
- Roadside Infrastructure Condition
- Traveler Safety
- Twin Cities Mobility
- Interregional Corridor Mobility
- Accessible Pedestrian Infrastructure
- Regional + Community Improvement Priorities
- Project Support

#### Scenario Planning

- MnSHIP Investment Approaches

### What would MnDOT do with dedicated bicycle funds?

Currently, MnDOT does not undertake stand-alone projects specifically initiated to improve bicycle-related needs. If the Bicycle Infrastructure category were to be funded beyond its current level (PL 1), MnDOT would undertake projects specifically aimed at improving bicycle conditions.

An annual investment of \$7.5 million (PL 2) would allow MnDOT to complete stand-alone projects at a scale it has not yet undertaken. This level of investment is estimated to fund one of the following: 293 miles of bike lane striping, 17-34 miles of cycle track (physically separated bike paths), 17 miles of a shared use paths/trails, 2,200+ miles of bike route signage, 3,300+ miles of sharrow markings, or 1,000+ miles of colored bike lanes. These numbers show that an investment of approximately 2% of the total MnSHIP investment could have dramatic impacts on the bicycle infrastructure throughout the state.

### How will Bicycle Infrastructure funds be invested in Minnesota?

The eight MnDOT Districts have varying bicycle infrastructure needs. MnDOT's Central Office has a bicycle section in its Transit Office which will assist Districts in identifying priority needs for network improvements within each District.



*Many people are choosing bicycling as an alternative to driving private vehicles.*

### For more information contact:

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