

Bicycle Infrastructure

A CRITICAL CONNECTIONS INVESTMENT

Bicycle Infrastructure is one of the 14 investment categories of MnSHIP, a fiscally constrained plan MnDOT uses to balance the needs and risks of Minnesota's state highway network. Folios for each investment category describe potential levels of investment and associated outcomes. Through MnSHIP, MnDOT will create an investment direction that guides state highway capital investments for the next 20 years.

INVESTMENT CATEGORY DETAILS

What is Bicycle Infrastructure?

Bicycle Infrastructure investments enhance the state bicycle network while improving the safety, convenience and connectedness of bicycling on and across state highways. Examples projects include bicycle lanes, route signage, and separated facilities.

Why is Bicycle Infrastructure important?

Providing bicycle infrastructure is an important and growing part of the state's multimodal network. Bicycle infrastructure not only provides a safe, comfortable and connected network, it helps address other challenges and opportunities Minnesota and the metro area are 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** - 23% of the population growth in the metro district occurred in Minneapolis and Saint Paul between 2010 and 2012, compared to just 5 percent between 1990 and 2010. Generally, with urban living comes a reduction in the number of cars per household, and less overall driving. Distances can be quickly covered by a bicycle ride. As population growth continues in Minnesota's urban centers and congestion and fuel price volatility 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 energy consumption and fossil fuel emissions' role in global warming. Providing alternatives to driving supports the reduction of greenhouse gas emissions.
- **Health impacts** - Minnesotans, like many in the U.S., are struggling with obesity and other health issues. Proving safe and active transportation alternatives to driving can lead to healthier lifestyles 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.

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



Bicycling as a primary mode of transportation - 3% of metro area residents commute to work via bike.

- Support and develop multimodal connections that are accessible for all Minnesotans regardless of socioeconomic status or individual ability.

How has the planning context for Bicycle Infrastructure changed since 2013 MnSHIP?

In 2016, MnDOT completed its Statewide Bicycle System

Tips for using this table

Performance Levels

- **Performance Level 0 (PL 0)** represents a strategy which corresponds to the most extreme risk level MnDOT would consider for investing in Bicycle Infrastructure.
- MnDOT’s current spending in Bicycle Infrastructure approximately corresponds to **PL 1**.
- Cost + benefit increase and risks decrease from left to right.
- PLs for Bicycle Infrastructure are independent of other performance categories.

Investment Approach

- See **MnSHIP Investment Approaches** folio

Investment Levels

- The **pie charts** represent MnSHIP’s total planning investment for years 2022-2037 (\$16.3 billion) and the portion of it which will be dedicated to Bicycle Infrastructure investment at each PL.
- **Base investment for other categories** is the amount required to invest at PL 0 in every other category.
- **Remaining revenue available** is the additional investment beyond the base investment for all categories in MnSHIP.

Outcomes

- Highlights key outcomes associated with each PL. For Bicycle Infrastructure, outcomes correspond with key performance measures.

Risks

- Identified as **high**, **medium**, or **low** in each PL; each risk decreases in severity from left to right.

System Investment Strategies

- Details the steps MnDOT would make to mitigate risk at each PL.

Plan which provides direction on how to support bicycling on Minnesota state highways through investments, partnerships with locals and the establishment of a priority bicycle network. Through the public engagement process for the plan it was determined that most Minnesotans favored investment that

Bicycle Infrastructure

Overarching Goal: 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.		
	Performance Level 0 <i>Lowest cost, greatest risk</i>	Performance Level 1 <i>Lower cost, higher risk</i>
Investment Approach <i>(See Approach folio)</i>	Approach A, B	Approximately corresponds with current investment
Investment Level <i>Total</i> <i>Years 5-10 (2022-2027)</i> <i>Years 11-20 (2028-2037)</i>	\$206 M \$10.2 M \$14.5 M 	\$275 M \$13.6 M \$19.3 M
Investment Description	Reduced investment and limited bikeway projects	Current level of investment, maintain existing bicycle infrastructure
Outcomes <i>To what extent would MnDOT meet Bicycle Infrastructure goals and objectives?</i>	<ul style="list-style-type: none">• Bicycle infrastructure deteriorates• Shoulders are not maintained to support bicycling	<ul style="list-style-type: none">• Investments maintain existing bicycle facilities in good condition• Enhancements to priority network and bikeway projects improve the quality of infrastructure
Risks	Medium <ul style="list-style-type: none">• Actual and perceived safety decreases• Incomplete bicycle network• Network barriers decrease safety and access• Decreased and financially inefficient bicycle infrastructure investments• Bicyclists discouraged from using facilities• SBSP guidance not followed, breeds public distrust	Medium <ul style="list-style-type: none">• Network barriers decrease safety and access• Decreased and financially inefficient bicycle infrastructure investments• Bicyclists discouraged from using facilities Low <ul style="list-style-type: none">• Actual and perceived safety decreases• Incomplete bicycle network• SBSP guidance not followed, breeds public distrust
System Investment Strategies <i>What strategies would MnDOT use to manage risk?</i>	<ul style="list-style-type: none">• Focus 70% of bicycle investments in urban areas and 30% in rural areas• Upscope bridge and pavement projects to improve safety and connectivity of the state bikeway system	<ul style="list-style-type: none">• Focus 70% of bicycle investments in urban areas and 30% in rural areas• Upscope bridge and pavement projects to improve safety and connectivity of the state bikeway system

facilitates local bicycle travel two times higher than investments for long-distance bicycle travel. Additionally, there was a clear preference for bicycle facilities that provided the greatest separation between bicyclists and drivers (e.g. separated bicycle lanes and shared-use paths).

In 2013, MnDOT adopted a Complete Street policy (www.dot.state.mn.us/planning/completestreets) which states bicyclists’ needs must be considered in the development phase of every project, thereby impacting MnDOT’s ability to provide quality bicycle infrastructure investments.

How does MnDOT measure performance in Bicycle Infrastructure?

The Statewide Bicycle System Plan (SBSP) established both measures and indicators to track the performance of Minnesota’s state bicycle network. Over time, indicators and measures provide quantitative information useful for understanding progress toward meeting MnDOT’s overall vision of making bicycling a safe, comfortable, and convenient transportation option for all people.

A few indicators include:

- The percent of bicycle commuters in Minnesota
- Average daily bicycle traffic volumes

Bicycle performance measures include:

- The percentage of MnDOT projects where identified existing conditions do not adequately meet bicycling needs and improvements for bicyclists are included
- Number of State Bikeways designated in state statute and mapped

For more information on bicycle performance measures and indicators, please see the Statewide Bicycle System Plan (www.dot.state.mn.us/bike/system-plan/).

How did MnDOT create the investment levels?

The performance levels outlined in the table represent plausible investment levels for Bicycle Infrastructure. A risk-and performance-based analysis

Performance Objectives: Systematically and routinely consider bicyclists (commuter and recreational) on state highways early in the scoping and planning process; maintain quality of assets for bicycle accommodations; consistently accommodate bicyclists on identified priority networks; eliminate fatalities and serious injuries through statewide strategic infrastructure improvements.	
Performance Level 2 <i>Greater cost, lower risk</i>	Performance Level 3 <i>Greater cost, lower risk</i>
Approach C	Does not correspond with an approach
\$413 M \$20.5 M \$29.0 M 	\$550 M \$27.3 M \$38.7 M
Bikeway projects are initiated beyond those through pavement and bridge projects	Multiple number of bikeway projects are initiated beyond those through pavement and bridge projects
<ul style="list-style-type: none">• Investments maintain existing bicycle facilities in good condition• Enhancements to the priority network and bikeway projects improve the quality of bicycle infrastructure• Designation and signage of 3 high priority state bikeways	<ul style="list-style-type: none">• Investments maintain existing bicycle facilities in good condition• Enhancements to the priority network and bikeway projects improve the quality of bicycle infrastructure• Designation and signage of 3 high priority and 5 medium priority state bikeways.
Medium <ul style="list-style-type: none">• Network barriers decrease safety and access Low <ul style="list-style-type: none">• Actual and perceived safety decreases• Incomplete bicycle network• Decreased and financially inefficient bicycle infrastructure investments• Bicyclists discouraged from using facilities• SBSP guidance not followed breeds public distrust	Low <ul style="list-style-type: none">• Actual and perceived safety decreases• Incomplete bicycle network• Network barriers decrease safety and access• Decreased and financially inefficient bicycle infrastructure investments• Bicyclists discouraged from using facilities• SBSP guidance not followed breeds public distrust
<ul style="list-style-type: none">• Focus 70% of bicycle investments in urban areas and 30% in rural areas• Upscope bridge and pavement projects to improve safety and connectivity of the state bikeway system• Collaborate with locals on separated lanes and bike lanes on urbanized-priority roadways	<ul style="list-style-type: none">• Focus 70% of bicycle investments in urban areas and 30% in rural areas• Upscope bridge and pavement projects to improve safety and connectivity of the state bikeway system• Collaborate with locals on separated lanes and bike lanes on urbanized-priority roadways• Focus on all state bikeways

was undertaken in the summer of 2015 to illustrate potential future scenarios. Performance levels reflect investments between 2022 and 2037 (2018-2021 funding levels influenced by 2013 MnSHIP). PL 0 through PL 4 represent a range of options to help stakeholders and decision-makers understand outcomes, risks, and system investment strategies for Bicycle Infrastructure.



How does MnDOT typically invest in Bicycle Infrastructure?

Investing in Safety and Comfort - Minnesotans express strong preference for separated bicycle facilities.

The eight MnDOT Districts have varying bicycle infrastructure needs. MnDOT's bicycle section in the Office of Transit assists Districts in identifying priority needs for network improvements. Bicycle projects are typically undertaken concurrent with pavement and bridge projects. Many bridge reconstruction or expansion projects include improvements such as shared-use paths and bicycle lanes. Pavement projects may include bicycle infrastructure to respond to identified priorities and local demand. Examples include expanded shoulders, bicycle lanes, and separated bicycle facilities.

Where is MnDOT headed?

Under current funding levels (identified in 2013 MnSHIP), MnDOT will invest approximately \$16 million per year in Bicycle Infrastructure. Investments include pavement and bridge related improvements, the completion of an additional state bike trail and projects along the high priority state bikeways. This level of

Find more information with these additional folios!

System Stewardship

- Pavement Condition
- Bridge Condition
- Roadside Infrastructure Condition
- Jurisdictional Transfer
- Facilities

Transportation Safety

- Traveler Safety

Critical Connections

- Twin Cities Mobility
- Greater Minnesota Mobility

- Accessible Pedestrian Infrastructure

Healthy Communities

- Regional + Community Improvement Priorities

Other

- Project Delivery
- Small Programs

funding corresponds with Performance Level 1 in the table on page 2.

What risks are addressed through increased Bicycle Infrastructure investment?

Generally, the more MnDOT invests in Bicycle Infrastructure, the more MnDOT is able to reduce these key risks for bicyclists:

- Inability to maintain the system in good repair leads to increased bicycle crashes and fatalities. Actual and perceived safety decreases, while comfort and usage decreases.
- Ad hoc investment based on pavement and bridge projects results in an unreliable, inconsistent bicycle network and inability to invest in bicycle facilities in urban areas and along identified priority network with higher demand and impact.
- The trunk highway system presents a barrier to people that wish to cross or travel along it; decreases safety, isolates communities and limits access for bicyclists.
- Bicycle infrastructure is not integrated through early scoping and project development phases; results in no/limited improvements to the network or more expensive implementation to alter the design/construction phases or to initiate future construction.
- Gaps in the network and lack of uniformity and knowledge of the bicycle system makes fewer people likely to use the network.
- Inability to invest in separated bicycle facilities, the preferred facility as stated preference in the Statewide Bicycle System Plan, leads to public distrust especially among non-motorized transportation advocates.

How is MnDOT enhancing financial effectiveness through Bicycle Infrastructure?

Through the 2015 SBSP, MnDOT knows there is a demand for increased bicycle investments. More biking can reduce the number of trips people make driving - lessening the amount of vehicles on the road and any associated congestions. This benefits other road users, puts less wear and tear on the state highways, and potentially lengthens the time between roadway improvements.

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