Complete Streets

HANDBOOK

August 2022

DEPARTMENT OF TRANSPORTATION

Contents

What this Handbook and Complete Streets is All About

Core commitment

The Minnesota Department of Transportation (MnDOT) has led the way nationally in Complete Streets, beginning in 2013 when the agency became one of the first DOTs in the country to develop a statewide Complete Streets Policy. The policy ensures compliance with Minnesota Statutes §174.75 which directs MnDOT to implement a Complete Streets Policy. The Complete Streets Policy also supports the transportation system goals in Minnesota Statutes §174.01 and MnDOT's mission, the Minnesota GO Vision, the Statewide Multimodal Transportation Plan, and MnDOT's Strategic Plan. The Policy was revised in 2016 to consolidate all relevant guidance and establish a reporting requirement.

Creating the MnDOT Office of Sustainability and Public Health in 2019 prompted a third update in 2022 to better align policy direction and implementation guidance with the agency's vision of a multimodal transportation system that maximizes the health of people, the environment, and our economy.

Purpose and audience

This Handbook provides Complete Streets implementation guidance to support a transportation system that's safe, functional, and convenient for all users.

This Handbook is a companion to the MnDOT's Complete Streets Policy that provides guidance for staff and partners on how to implement and comply with reporting requirements of the Policy.

The process described in the Handbook can apply to any transportation project, regardless of project size, jurisdiction, or functional classification. The approach can be used for transportation networks, urban streets, rural highways, downtown main streets, interstate highway crossings, or single intersection improvements. The Handbook is especially useful in circumstances where opinions differ about how to prioritize needs, determining what alternatives to develop and evaluate, or when rightsizing is a concern. Some transportation projects, including some maintenance activities, landscaping, or roadside infrastructure projects that don't directly affect the layout or users, are exempt from the MnDOT Complete Streets Policy and reporting requirements. See sub-section "Complete Streets exemptions and reasons for not addressing an identified need" for more information.

Complementary Design Guidance and Resources

This resource complements existing design guidelines that MnDOT and other agencies use for project development. There are many different plans, programs, and policies within MnDOT and other agencies to consider when applying a Complete

Streets approach. Some documents set the stage for understanding statewide or local system plans or articulate community economic development plans and visions. Others provide guidance for project development and technical design. The Handbook provides high-level implementation guidance for Complete Streets by suggesting resources to consult and a conceptual decision-making framework.

Responsibilities

Meeting the safety, mobility, and access needs of people walking and biking, using transit, driving, and freight (both trucks and rail) is the core responsibility of transportation professionals. A Complete Streets approach ensures the needs of all user groups, traveling along and across rural roadways or urban streets, are considered during all phases of planning, scoping, project development, construction, operations, permitting, and maintenance activities. Compliance of the Policy is required by all MnDOT employees and MnDOT partners such as local agency representatives, consultants, and contractors, who make decisions about trunk highway projects.

Key MnDOT stakeholders affected by the policy include:

- Project Sponsors (e.g., District Engineers, Assistant District Engineers)
- Planners
- Project Managers
- District and Office/Modal Public Engagement and Communications Professionals
- Office of Project Management and Technical Support
- Office of Transportation System Management
- Modal Offices
- Traffic Engineers, Landscape Architects and Designers
- Resident Construction Engineers and Project Engineers
- Maintenance Engineers, Maintenance Superintendents and Maintenance Supervisors
- Office of Sustainability and Public Health (Policy Owner)

Tribal Coordination and Consultation

Minnesota is home to 11 federally recognized reservations or communities and 12 federally recognized sovereign governments. Each tribe is a separate sovereign nation — unique unto itself and distinct from all other federally recognized tribes. Each tribe has an independent relationship with the United States and the State of Minnesota. The sovereignty of tribes is formally recognized in Minnesota Statute Section 10.65, Executive Order 19-24 signed by Governor Tim Walz and MnDOT's Tribal Nations Policy. It is important to recognize the long history and enduring relationship between Indigenous peoples' connection to "Mni Sota" and the lasting impacts of policies detrimental to the balance of nature. Mutually respectful relations between Indigenous and non-Indigenous peoples are founded on long-term relationship-building, learning processes, and developing solutions. Meaningful consultation at a Leadership level (Governor and Commissioner) assists in building better relationships and ensuring a transportation system that works for all Minnesotans.

Relating to the MnDOT Complete Streets Policy and Handbook, staff must work with the tribes over the entire development, construction, and maintenance of projects. Tribal government road directors meet quarterly at the Advocacy for Tribes and Transportation (ACTT) board meetings with District Engineers and the Federal Highway Administration (FHWA). Each District leads annual Tribal-District Planning meetings with tribal nations to coordinate and communicate on construction-related programs.

State Government to Tribal Government Coordination with relevant Tribal Nations Officials is required at all stages of the process and must be carried out by staff implementing the policy. This applies to all projects located within a reservation's boundaries or impacting tribal interests (i.e. environment and climate change, employment and contracting, cultural resources and history, jurisdiction).

The MnDOT Office of Tribal Affairs has tools to equip staff with the knowledge, skill, and ability to understand key concepts about jurisdiction in Indian Country and understanding if a project is located within Indian Country.

1. **Minnesota Statute Section 10.65**
2. **MnDOT Tribal Nations Policy**
3. **Indian Country Guidance**
4. **Tribal-MnDOT Interactive Map**
5. **Tribal State Relation Training and e-Learning**
6. **1:1 support from Office of Tribal Affairs staff**

Overview of Complete Streets at MnDOT

What are Complete Streets?

Minnesota Statutes §174.75 defines "Complete Streets" as "the planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of people of all ages and abilities using the transportation system. Complete streets considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to local context and recognizes that the needs vary in urban, suburban, and rural settings."

What's different about Complete Streets?

Transportation design is rightsizied.

The right street is built in the right space.

Pedestrian, bicycle, transit, and freight needs are addressed.

Design flexibility is used.

Stakeholders and local communities are supported.

While this law technically applies only to the state trunk highway system, local road authorities are encouraged to adopt similar policies or to implement projects in a similar fashion. Effective implementation and operation of Complete Streets relies on multijurisdictional collaboration and shared responsibility for an integrated network of state and local roads that serves all modes of transportation and people of all ages and abilities.

Complete Streets does not mean that every road will have separate facilities for every mode of transportation. It means that:

- All modes are thoughtfully considered in the planning and design of all transportation policies, systems, networks, facilities, programs, and activities;
- Conscious decisions are made about how and where each mode is served;
- User needs, financial feasibility, local interests, and adherence to state transportation policy are considered; and
- Network connections and individual linear facilities are factored into all transportation plans and project designs.

Designing a Complete Street is more than just including facilities or singular design components for different transportation users. It's designing and operating the entire right of way to provide safe and convenient access for everyone who is using the road. This may mean adding a sidewalk or median to help people walking cross safety, converting vehicle travel lanes to other uses, narrowing vehicle lanes, or changing parking configurations.

A Complete Streets approach applies to decisions from statewide system investments to those about snow removal on a single road. That makes the topic challenging, but provides opportunities to find creative solutions. It raises many questions that require intentional decision-making:

- How should a Complete Streets approach affect decisions about statewide investments?
- How does a Complete Streets approach fit with, or require changes to, existing MnDOT programs and processes?
- Does it, or should it, change how certain funding categories are defined and what is funded in those categories (for example, preservation projects)?
- How can a Complete Streets approach support safety for transportation system users, especially those most vulnerable, when space is constrained?
- How does a Complete Streets approach impact project scoping?
- Does a Complete Streets approach inform speed based upon user vulnerability?
- Does a Complete Streets approach change how snow removal or other maintenance activities are conducted? Is special equipment required? How does it impact maintenance costs and responsibilities?

This Handbook may not provide explicit answers to all questions above, or others that might surface. It's meant to outline a process and guidance to help transportation professionals intentionally address key questions and balance transportation user needs for different communities and facilities.

Why is a Complete Streets approach important?

A Complete Streets approach is central to meeting the needs of the public. The needs, desires, and abilities of people using Minnesota's transportation system are continually changing, and MnDOT's approach to transportation planning, design, construction, operations, and maintenance constantly evolves to adapt. While traditional roadway design focuses almost solely on motor vehicle capacity and motor vehicle traffic volumes, a Complete Streets approach challenges transportation professionals to think comprehensively about project goals and community impact.

In the past, many transportation plans inadvertently created "incomplete" streets that don't provide safe places for people walking, biking, or taking public transportation. These streets tend to be particularly dangerous for people with disabilities, people of color, older adults, children, and low-income communities who suffer disproportionately from transportation-related illness, injury, and death.[1]

Many past transportation planning, design, and operations decisions have inadvertently created ***"incomplete"*** *streets.*

Providing Benefits for All Communities

What a Complete Street looks like will differ depending on individual community's needs and should be defined through close collaboration with local partners. A Complete Streets approach is flexible and offers value for all communities, from rural to suburban to urban. For example, sections of a highway that serve as a community main street can be designed to provide safe access, along and across, to community destinations while also serving regional mobility needs. Reconfiguring lane striping or wider shoulders on rural highway sections can improve safety for people walking or biking while also serving vehicle, freight, and agriculture industry needs. A Complete Streets approach provides a framework to determine needs and find the best solution.

Providing Safer Infrastructure

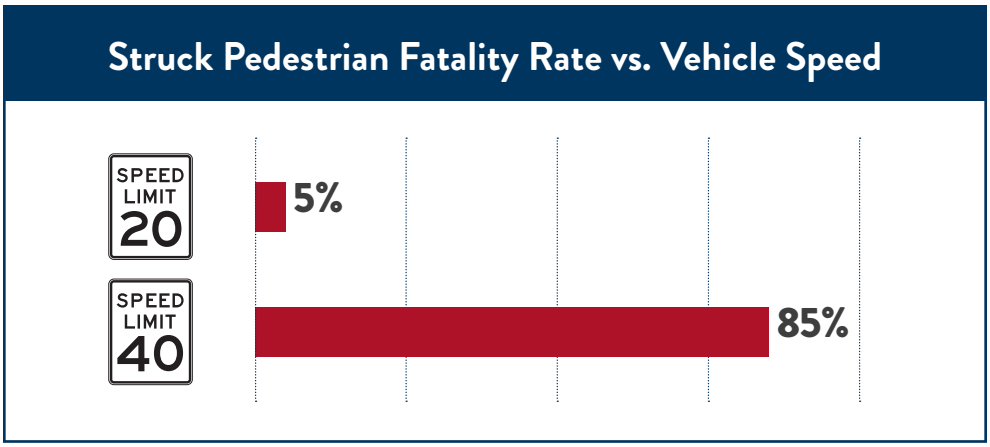
Increasing bicycling and walking as a percentage of all trips is a state transportation goal.[2] Meeting this goal requires intentional planning as people walking and biking are the most vulnerable from a safety perspective. People often make choices about walking or biking based on their perception of safety. For example, perceived or real traffic-related dangers are common barriers cited by parents for not allowing children to walk school.[3]

Minnesota is seeing a larger share of crashes involving people walking and biking that result in fatal and serious injuries. Both speed-related and total fatalities have increased.[4] Minnesota is also seeing differences in equitable access and safety outcomes for all users on the transportation system. Older adults, people walking in low-income communities, and American Indian/Alaskan Native, Black/African American, and Hispanic people are at greatest risk of dying while walking.[5]

[1] *https://smartgrowthamerica.org/wp-content/uploads/2016/08/cs-equity.pdf*
[2] *https://www.revisor.mn.gov/statutes/cite/174.01*
[3] *http://guide.saferoutesinfo.org/introduction/the_tdecline_of_walking_and_bicycling.cfm*
[4] *https://www.dot.state.mn.us/sustainability/docs/2020-sustainability-report.pdf*
[5] *https://minnesotago.org/application/files/7214/5825/5846/Racial_Inequality_Public_Final.pdf*

There is a significant correlation between vehicle speed and fatalities for people walking and biking. At 20 miles per hour, there is a 5% fatality rate for people walking from being struck by a car. This fatality rate rises to 85% at 40 miles per hour.[6] A Complete Streets approach can help calm traffic, reduce speeds, decrease fatalities, reduce injuries from crashes, and avert costs from medical treatment as well as the cost of property damage.

Providing safer infrastructure for the most vulnerable transportation system users requires intentional design for larger, less vulnerable users like freight and emergency vehicles. Understanding common challenges that freight and emergency vehicle operators face and proactively addressing these challenges, while also addressing other user needs, can improve predictability of movement and safety for all.



Increasing Mobility and Access for All People

Complete Streets extends beyond the required Americans with Disabilities Act (ADA) accommodations. Addressing ADA as an integrated part of a comprehensive Complete Streets approach improves mobility and access for everyone, regardless of mode or ability. Complete Streets is about integrating people and place to provide access to community assets. This entails providing connections for modes within the larger network of MnDOT's infrastructure and supporting local system connections to improve mobility and access for all abilities.

Advancing Transportation Equity

One third of Americans do not drive.[7] This number includes seniors who are no longer comfortable or able to drive, people with disabilities, children, and people with lower incomes. Car ownership is expensive, costing a national annual average of $9,561[8], and should not be a requirement for getting around safely and efficiently.

[6] *https://smartgrowthamerica.org/wp-content/uploads/2020/10/Driving-Down-Emissions-FINAL.pdf*
[7] *https://smartgrowthamerica.org/wp-content/uploads/2016/08/cs-equity.pdf*
[8] *https://newsroom.aaa.com/wp-content/uploads/2020/12/Your-Driving-Costs-2020-Fact-Sheet-FINAL-12-9-20-2.pdf*

Dependence on driving a motor vehicle can be a significant burden for lower-income communities. In the Twin Cities, a household with a median income spends 48.9% of its income on transportation and housing, compared to 75.3% for a low-income household.[9] This reduces available funds for expenses like childcare, health care, and recreation. Central to this disparity is a persistent racial wealth gap as Black, American Indian, Hispanic, and Hmong households have the highest poverty rates of all populations in Minnesota.[10]

Investing in a convenient and accessible multimodal transportation system is particularly important for Black, Indigenous and People of Color (BIPOC) communities and in communities with high percentages of new immigrants who may suffer disproportionately from streets that don't provide safe options fro walking, biking, or taking transit.

Building Stronger Economies

Complete Streets are a good transportation investment. Complete Streets projects can cost less than or be comparable in cost to a non-Complete Streets project while delivering transportation benefits like better safety performance and mode choice.[11] A Complete Streets approach can include inexpensive upgrades within the existing right-of-way, such as restriping and signal timing, to increase safety and convenience for people walking and biking.

While state trunk highways commonly carry high-speed, regional traffic, they can also serve as commercial main streets in many small cities and towns throughout Minnesota. A study of small Minnesota cities suggests that Complete Streets reconstruction projects may improve the economic activity of small cities, particularly when considering revenues from property taxes. Minnesota cities with populations of 20,000 or less that included a Complete Streets reconstruction project demonstrated a significant and positive impact on property taxes when compared with the same size cities without a Complete Streets project.[12]

While before-and-after data on economic impact is in its infancy, recent national analysis indicates Complete Streets support areas of growth such as higher employment levels, new businesses, and increased property values.[13]

[9] *https://minnesotago.org/application/files/7214/5825/5846/Racial_Inequality_Public_Final.pdf*
[10] *https://www.health.state.mn.us/communities/practice/healthymnpartnership/docs/2017MNStatewideHealthAssessment.pdf*
[11] *https://smartgrowthamerica.org/wp-content/uploads/2016/08/safer-streets-stronger-economies.pdf*
[12] *https://researchprojects.dot.state.mn.us/projectpages/pages/projectDetails.jsf?id=23960&type=CONTRACT&jftfdi=&jffi=projectDetails%3Fid%3D23960%26type%3DCONTRACT*

Supporting Healthy, Safe and Climate Smart Communities

Complete Streets benefit public and environmental health by encouraging more people to choose active forms of transportation and shift from private vehicles to more sustainable transportation modes. In walkable, bikeable communities, every trip taken is an opportunity to integrate physical activity into daily routines. Too few Americans currently get the recommended amount of physical activity — only 1 in 4 adults and 1 in 5 high school students fully meet physical activity guidelines for aerobic and muscle-strengthening activities.[14]

People are more active when they have pleasant and safe places to do so. Research shows people who live in walkable neighborhoods get 35–45 more minutes of moderate physical activity each week, making them less likely to be overweight or obese. People who ride transit tend to move more, taking 30% more steps a day than people who drive.[15] Complete Streets design elements, such as sidewalks, crosswalks, bike paths and lanes, as well as trees, lighting, and benches, can make a big difference.

Climate change is impacting Minnesota and transportation is the #1 source of carbon pollution. MnDOT is directed in Minnesota Statutes §174.01 to reduce carbon pollution from transportation, promote and increase walking, biking, and transit, and meet the energy and environmental goals of the state.

Complete Streets involves investing in improvements that make multimodal transportation options more comfortable and safer. Increasing biking, walking, and transit can help reduce greenhouse gas emissions from transportation and create more livable communities by improving air quality and reducing impacts of extreme heat and precipitation.

[13] *https://smartgrowthamerica.org/wp-content/uploads/2016/08/safer-streets-stronger-economies.pdf*
[14] *https://www.cdc.gov/physicalactivity/activepeoplehealthynation/why-should-people-be-active.html*
[15] *https://smartgrowthamerica.org/wp-content/uploads/2016/08/safer-streets-stronger-economies.pdf*

Principles of a Complete Streets approach

This Handbook presents a flexible, process-driven approach that can be used as a starting point to implement Complete Streets at various scopes and scales. The following are core principles.

Multimodal Perspective

Complete Streets employs a multimodal perspective, which means the entire transportation system is considered. The approach involves developing a multimodal understanding of how different modes interact and how intermodal connections can be fostered to support a balanced solution without giving undo priority to one mode at the expense of the others.

Network Considerations

Complete Streets considers the entire transportation network, not just a single corridor, in planning and design. This entails both understanding the role of the project in the modal system network plans as well as considering how to provide connections between the project and transportation system networks.

Practitioners commonly think about the linear aspects of a project—i.e., people using various modes to travel along the project. A Complete Streets approach considers how all people move along and across the project. Particularly if people walking or bicycling can safely and conveniently cross the project to access other transportation facilities and destinations.

Collaboration and Multidisciplinary Teams

Complete Streets relies on collaboration amongst the entire project team, close coordination with partners, and clear communicate with all stakeholders. This includes early collaboration with operations partners to ensure that what's built is maintainable. The best understanding of community goals, user needs, and acceptable solutions relies on an approach that engages a full range of users, a multi-disciplinary team, partner agencies, and all potentially affected stakeholders.

Place/Context-Based Perspective

Complete Streets look different from place to place. There is no "standard." Practitioners need to consider existing and future users and land uses, transportation networks, key destinations, activities, trip generators/origins, and the broader context in the development of possible solutions. Complete Streets will look different in rural communities than they do in more urban counterparts. For example, roads surrounded by agricultural use may apply a Complete Streets by providing wider shoulders that allow safe bicycling and walking and connections to regional trail and public transportation networks.

Implementing Complete Streets at MnDOT

Overview of the Complete Streets Project Transportation Hierarchy Tool

There are a range of transportation users – people walking, people biking, people hauling freight, people riding transit, and people driving – each group of transportation users has a different set of needs and priorities. The Complete Streets Project Transportation Hierarchy Tool in this Handbook offers a starting point for MnDOT staff. The Hierarchy Tool offers a process and resources to consider user needs and to link those needs to context categories, user types, transportation characteristics, and local plans, policies, and values. The Hierarchy Tool is most applicable during planning, scoping, and preliminary design (30%), but can also be referenced during final design, construction, operations, and maintenance.

The Hierarchy Tool provides:

- Practical guidance as a starting point for determining transportation user (modal) priorities
- A central location for Complete Streets terminology and resources
- A direct connection to MnDOT guidance related to transportation system users and context categories

The Hierarchy Tool provides a baseline project hierarchy for a range of context categories. The baseline considers the goal of preventing serious injury or death for the most vulnerable users (safety), ease of travel, and expected volume of users for a given context category (land use and volume). Working from the baseline, staff should identify a project-specific hierarchy to calibrate with partners and stakeholders. The project-specific hierarchy articulates expected planning, design, and operational elements for each user group. A higher transportation hierarchy rating means a higher level of service for that user group. A lower rating means a lower level of service than other user groups.

How to use the Complete Streets Project Transportation Hierarchy Tool

The Hierarchy Tool is primarily for MnDOT staff who plan, design, and engineer roadway projects. It can also be a resource for MnDOT staff who set policy direction for the agency as well as municipalities, counties, metropolitan planning organizations (MPO), regional development organizations (RDO), and community or advocacy organizations who implement Complete Streets throughout the state. Example applications of the hierarchy are included in Table 1.

Note: *This does not need to be a daunting process. The research required to complete this process is the same research that is needed for any transportation project. The Hierarchy Tool organizes this typical information into a centralized, cohesive process.*

Table 1. How to use the Complete Streets Project Transportation Hierarchy Tool

Who	When and How:
MnDOT Project Planning staff	**Planning:** Use the Hierarchy Tool to preliminarily identify context categories and expectations to frame initial project review. This preliminary work is consistent with current activities performed during the project charter phase. Work with partners, including local stakeholders and internal operations staff to inform adjustments. **Reporting:** Use the Hierarchy Tool findings to fill out Complete Streets Project Report (CSPR) form at planning phase, with the Project Sponsor.
MnDOT Project Management staff	**Scoping:** Use the Hierarchy Tool to confirm context categories, design considerations, and transportation hierarchy, and guide project programming decisions. Work with partners, including local stakeholders and internal operations staff, to inform adjustments. **Design:** Use the Hierarchy Tool findings to guide decisions in collaboration with partners. Includes working with operations and maintenance staff to inform adjustments. **Reporting:** Update CSPR at conclusion of scoping phase (started in planning phase) and at 30% final design, with the Project Sponsor.
MnDOT Maintenance Engineers and staff	**Planning-design:** Work with planners, project managers, and stakeholders to identify operations and maintenance considerations and commitments.
MnDOT Environmental Stewardship staff	**Programming:** Use the Hierarchy Tool ratings for funding guidance and action items for specific design elements. **Environmental Review:** Use the Hierarchy Tool ratings and design considerations to help develop environmental review documents.
MnDOT Tribal Affairs staff	**Planning-design:** Use the context categories, design considerations, and the Hierarchy Tool rating results to review infrastructure needs and solutions with Tribal Nations Officials.
Minnesota Department of Health or another State Agency	**Planning-design:** Use the context categories, design considerations, and the Hierarchy Tool rating results as a compliment to existing and future agency planning initiatives.
County, MPO, RDO/ RDC, Municipal Government	**Planning-design:** Use the overall decision-making framework and/or project specific context categories, design considerations, and the Hierarchy Tool rating results as a compliment to existing and future agency planning initiatives and to review infrastructure needs and solutions.

Considerations

The following are key issues or considerations that are central to the application of the Hierarchy Tool:

- **Jurisdiction:** While MnDOT has jurisdiction over state routes, crossing routes are often the jurisdiction of local government agencies. Therefore, the Hierarchy Tool considers all roadway jurisdictions.
- **Functional classification:** Most MnDOT routes are principal arterials and minor arterials, but there are exceptions. The Complete Streets approach considers crossing routes and in some cases, parallel routes within a common network. The Hierarchy Tool applies to all functional classification types. Functional classification is a consideration in Step 3 of the process.
- **Safety and user priorities:** Project transportation hierarchies should consider safety and user vulnerability as a primary factor. People walking and biking are more vulnerable to injury than those operating a motor vehicle. User priorities are not universal for all context categories; project-level context should be considered when identifying expected users for each project.
- **Freight, transit, and maintenance and operations:** These user groups require important considerations and should be explicitly included in the modal priority discussion.
- **Project types:** The transportation hierarchy should apply to all categories of project types, the same way the MnDOT Facility Design Guide applies to all project types. Major reconstruction projects may provide a clear opportunity to reallocate space within the right-of-way to address the needs of all users. Preservation projects provide opportunity to address inequities, particularly for the most vulnerable users. The Hierarchy Tool should be applied at all stages of project development, including planning, scoping, design, construction, and operations/maintenance.
- **Design guidance:** While user transportation hierarchies serve as a starting point for project designs, this is not a design tool. Staff should refer to the latest design guidance documents and allow for design flexibility.

User groups and vulnerability

It's all about safety. Understanding transportation users' priorities and their relative vulnerability is fundamental to the application of Complete Streets. Traffic crashes that kill and injure people are a serious public health concern that come with steep costs. MnDOT can prevent life-altering, costly crashes by focusing on creating environments that are appropriate for a mix of users in the area.

Vulnerability is defined here in terms of health and safety and applies to a transportation user group's relative susceptibility to severe injuries or death when involved in a vehicle related crash. Due to the relative safety provided to drivers by vehicles (e.g., seatbelts, airbags), speed, and mass, people walking and biking are the most vulnerable. Vulnerable users could include people of all ages and abilities walking and biking, older adults, and children.

Defining the range of users in the Hierarchy Tool sets the design parameters of needs for a project. Understanding the vulnerability of each user group helps create a baseline understanding of the expected users. The typical user groups on Minnesota roads and their relative vulnerability are defined in MnDOT's Family of Plans[16] and summarized in Table 2.

Table 2: User Groups and Relative Vulnerability

User	Description	Relative Vulnerability
	People who walk, people who use a mobility assistance device such as a walker or a wheelchair. Inclusive of all ages and abilities.	**High.** Due to the speed and mass of vehicles, people walking are the most vulnerable. Safety of the most vulnerable users must be priority, as they are most at risk.
	People who bike or roll, including people who use scooters, skateboard, etc. Inclusive of all ages and abilities.	**Medium-high.** Less vulnerable than people walking, but more vulnerable than people driving due to their speed and mass. The range of age and experience for bicyclists varies broadly, which affects the needs and designs for projects.
	People who ride transit. Transit users often walk or bike to get to a transit stop.	**High.** People taking transit have a similar level of vulnerability as people walking or biking.
	People who drive. Inclusive of all drivers and trip types.	**Low.** Because of the relative safety provided by a vehicle (e.g., seatbelts, airbags), people driving are less vulnerable than people walking and biking.
	People who drive freight vehicles.	**Low.** Because of the relative safety provided by a vehicle, people driving freight vehicles are less vulnerable than people walking and biking.

[16] *https://minnesotago.org/*

The Complete Streets Project Transportation Hierarchy Tool

The Complete Streets Project Transportation Hierarchy Tool is a four-step process that can help identify context cues, relative user priorities, and project specific design and operational/maintenance considerations. Application of the framework is not an additional step in the project development process. It leverages existing processes and work completed to identify user priorities, and reduces process inefficiencies as projects move from planning to scoping to implementation. For example, information typically gathered during project charter development may fulfill the suggested project review data in the first step. The framework is summarized in Figure 1. The sections that follow include additional guidance for each step in the process.

Figure 1: Transportation Hierarchy Framework, Process Summary

Step 1: Project review

Outcome: Review and document physical and operational characteristics.

The first step is to review the physical and operational characteristics of the project to gain a high-level understanding of the existing conditions, types of existing users, and issues that should be addressed in the project. It's also helpful to review the project area characteristics to identify unique segments or subareas (e.g., transition areas, important intersections, activity centers, etc.). Using the Table 3 checklist as a starting point, identify existing users, crash history, existing traffic control, noteworthy geometric characteristics, and activity centers for as many project segments/locations as needed for the project.

The following checklist is an illustrative example to support development of comprehensive project documentation for determining the project transportation hierarchy. Step 4 includes a project documentation form to capture the results of each step.

Table 3: Step 1 – Project Characteristics, by Segment

Characteristics	Considerations
User Demand • Vehicle counts • Heavy commercial counts • Pedestrian and bicycle counts • Transit ons/offs	Review demand by user group. Leverage existing traffic volumes by mode and forecast volumes if available. Note that low pedestrian or bicycle count volumes may point to an existing safety or access issue and not necessarily an indication of user demand. Documenting the existing mix of users will help determine context and modal needs.
Crash history and level of risk • Frequency • Severity • Crash types	Identify high crash locations and segments. Review crash patterns to identify patterns that may relate to design characteristics. For example, are there a high frequency of rear end crashes at an intersection? This may point to geometric or traffic control issues. Consider systemic crash risk analysis to identify high-risk roadway characteristics. Incomplete networks for people walking or biking and absence or presence of an existing facility is tied to safety, access, and mobility. Lack of documented crashes for people walking and biking do not automatically indicate the presence of safety for vulnerable user groups.
Existing traffic control • Traffic signals • Roundabouts • Stop signs • Pedestrian crossings • Other	Identify existing traffic signals, stop signs, roundabouts, pedestrian crossings, or other traffic control elements.
Noteworthy geometric or designation characteristics	Identify physical characteristics that may merit specific design consideration – grades, curves, slopes, etc. Identify if the project area is considered a historic district.
Demographic review	Complete a demographic review. Identify historically underrepresented populations such as BIPOC groups, low-income communities, less than fully able users, etc.
Tribal jurisdiction	Coordinate with Tribal Nation Officials if the project is within reservation boundaries or impacts Tribal interests – reference the MnDOT Tribal Map Application.
Activity centers	Identify current and future land use along with activity centers that could generate demand for specific users. For example, schools, commercial districts, government centers, etc.

Step 2: Context categories and baseline transportation hierarchy

Outcome: Identify context categories and baseline transportation hierarchy.

The second step is to select the context categories appropriate for each project segment. Nine context categories are described in Chapter 3 of the MnDOT Facility Design Guide.[17] Context is the unique combination of land-use characteristics that reflect the place, its inhabitants, and the activities and functions that occur along a highway now or in the future. The application of context categories is based on the principles of Context Sensitive Solutions[18], which is an approach to planning transportation projects that considers characteristics of surrounding communities.

The Hierarchy Tool assigns a value for each context category based on a high, medium, and low scale. A rating of 'high' means that user group is expected in the project area and merits a high level of consideration.

The baseline transportation hierarchy ratings for each mode are a starting point, not a project specific solution. Project specific transportation hierarchy ratings should be set in collaboration with local partners. Steps 1 through 4 offer guidance and resources for the collaboration process.

[17] *https://roaddesign.dot.state.mn.us/facilitydesign.aspx*
[18] *https://www.dot.state.mn.us/context-sensitive-solutions/index.html*

Figure 2: Step 2 – Context Categories and Baseline Transportation Hierarchy

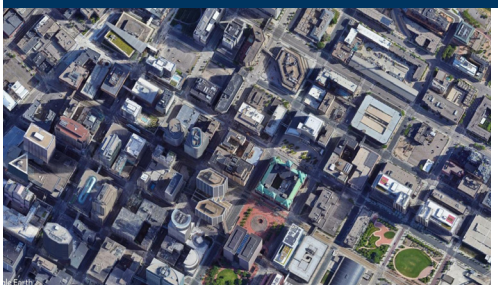
Baseline Hierarchy

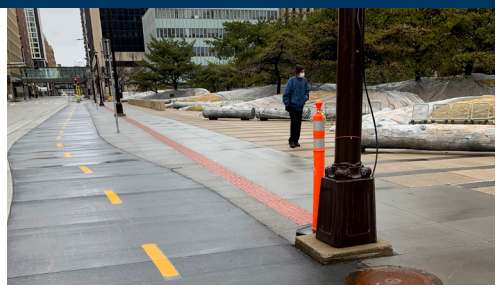
- High
- Medium
- Low

1

Pedestrian	Bicycle	Transit	Vehicle	Freight
High	High	High	Low	Medium

Urban Core





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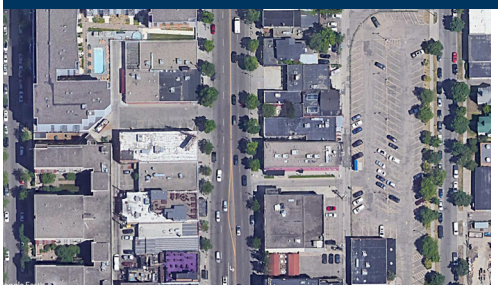
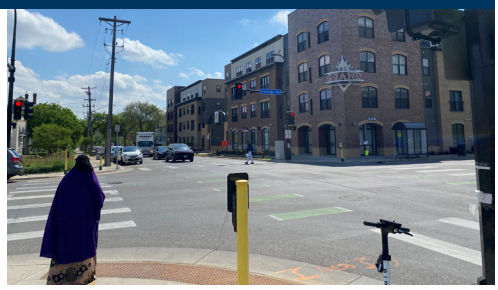
Pedestrian	Bicycle	Transit	Vehicle	Freight
High	Medium	High	Low	Medium

Urban Commercial

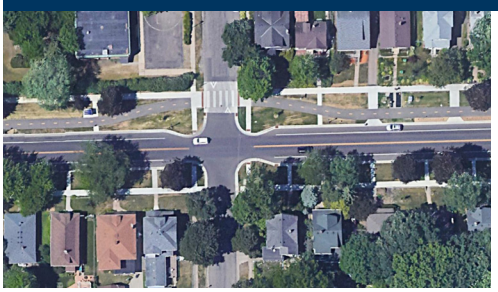




3

Pedestrian	Bicycle	Transit	Vehicle	Freight
High	High	Medium	Low	Low

Urban Residential



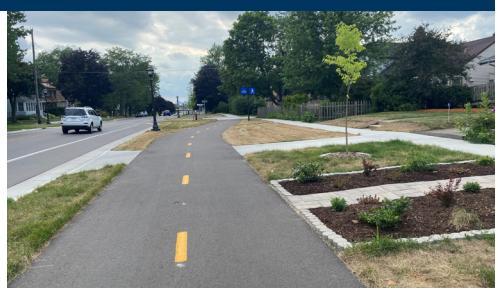
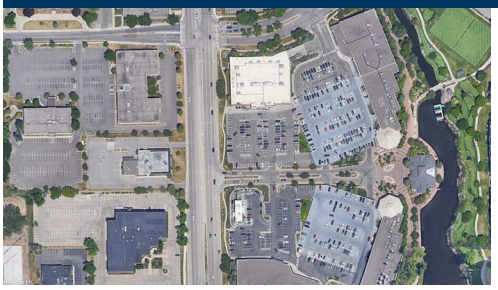


Figure 2: Step 2 – Context Categories and Baseline Transportation Hierarchy (continued)

Baseline Hierarchy

- High
- Medium
- Low

4 Suburban Commercial



5 Suburban Residential

6 Industrial

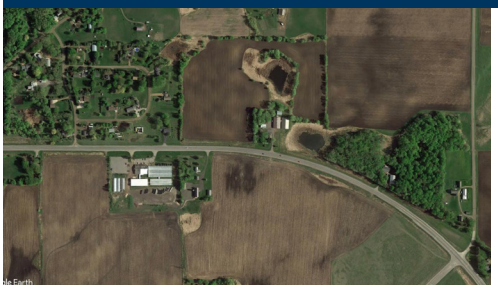
Figure 2: Step 2 – Context Categories and Baseline Transportation Hierarchy (continued)

Baseline Hierarchy

- High
- Medium
- Low

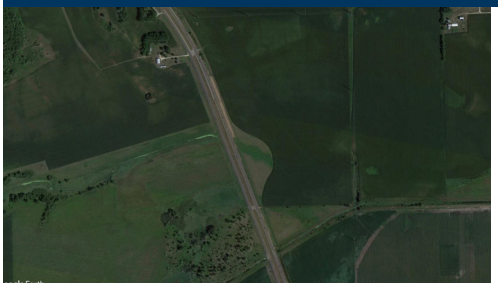
7 Rural Crossroad

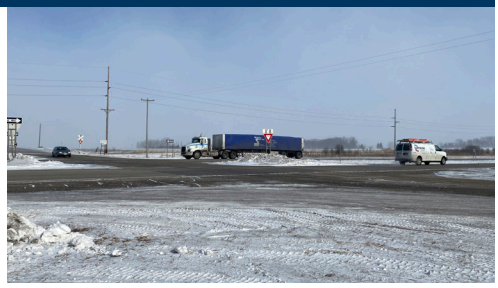
Pedestrian	Bicycle	Transit	Motor Vehicle	Freight
High	Medium	Low	High	Low



8 Rural

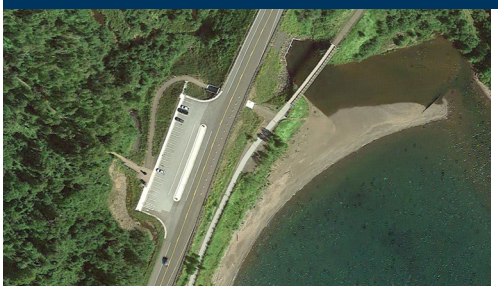
Pedestrian	Bicycle	Transit	Motor Vehicle	Freight
Medium	Low	Low	High	High

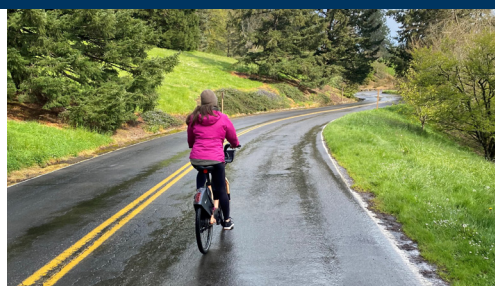




9 Natural

Pedestrian	Bicycle	Transit	Motor Vehicle	Freight
High	High	Low	Medium	High





Step 3: User mix adjustments

Outcome: Review project specific context, plans, and policies and identify 1) transportation hierarchy rating modifications and 2) design considerations for further study.

The third step is to review project specific plans, policies, and context category cues to gain an understanding of user group needs and refine the baseline transportation hierarchy from Step 2. Consider how the project area, context and user needs may change based on information from the plans. Use the matrix presented in **Appendix 1** as a reference to guide baseline hierarchy adjustments for each of the project segments. The matrix provides a consolidated resource list for the project team to consider and customize, it is not intended to be an absolute checklist.

As part of this process, project specific details will likely need further review as the project develops. Use the template included in Step 4 to document the results.

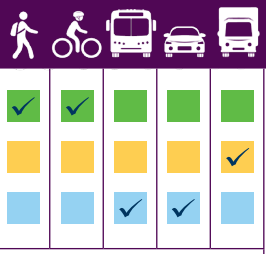
Step 4: Project specific transportation hierarchy and documentation

Outcome: Document project specific transportation hierarchies and design considerations.

Step 4 pulls everything together to document the project's transportation hierarchy by segment along with considerations for further study. Drawing on the work completed in Steps 1, 2, and 3 and based on the results of community/stakeholder engagement, assign project specific transportation hierarchy ratings for each project segment. Document the rationale as well as any project specific design considerations in the Complete Streets Project Report.

The table below is an example of the type of information that should be documented. A project reporting template follows to facilitate identification and documentation of project-specific hierarchy ratings and considerations by segment.

Table 3: Step 4 – Example Transportation Project Hierarchy Ratings and Considerations, by Segment

Segment	Context Category	Project Specific Transportation Hierarchy	Transportation Hierarchy Adjustments *(Refer to Step 3)*	Considerations for Future Study *(Refer to Step 3)*
Segment 1 (3rd Ave to 4th Street)	☑ Urban core ☐ Urban commercial ☐ Urban residential ☐ Suburban commercial ☐ Suburban residential ☐ Industrial ☐ Rural crossroad ☐ Rural ☐ Natural		• Transit user rating lowered because project is in an area with no fixed route or demand responsive transit service with no immediate plans to add service in the future.	• This segment includes a skewed intersection with documented crash issues. • There is an assisted living facility fronting the corridor.

EXAMPLE

Table 3: Step 4 – Example Transportation Project Hierarchy Ratings and Considerations, by Segment

Segment	Context Category	Project Specific Transportation Hierarchy (Pedestrian, Bicycle, Transit, Car, Freight)	Transportation Hierarchy Adjustments *(Refer to Step 3)*	Considerations for Future Study *(Refer to Step 3)*
	☐ Urban core ☐ Urban commercial ☐ Urban residential ☐ Suburban commercial ☐ Suburban residential ☐ Industrial ☐ Rural crossroad ☐ Rural ☐ Natural	Check appropriate box above High Medium Low		

Segment	Context Category	Project Specific Transportation Hierarchy (Pedestrian, Bicycle, Transit, Car, Freight)	Transportation Hierarchy Adjustments *(Refer to Step 3)*	Considerations for Future Study *(Refer to Step 3)*
	☐ Urban core ☐ Urban commercial ☐ Urban residential ☐ Suburban commercial ☐ Suburban residential ☐ Industrial ☐ Rural crossroad ☐ Rural ☐ Natural	Check appropriate box above High Medium Low		

Segment	Context Category	Project Specific Transportation Hierarchy (Pedestrian, Bicycle, Transit, Car, Freight)	Transportation Hierarchy Adjustments *(Refer to Step 3)*	Considerations for Future Study *(Refer to Step 3)*
	☐ Urban core ☐ Urban commercial ☐ Urban residential ☐ Suburban commercial ☐ Suburban residential ☐ Industrial ☐ Rural crossroad ☐ Rural ☐ Natural	Check appropriate box above High Medium Low		

Documentation and Evaluation

Project reporting

Documenting how MnDOT applies Complete Streets is central to implementation of the Complete Streets Policy. MnDOT project planning staff and project managers are responsible for documenting application of the Complete Streets approach through the MnDOT Complete Streets Project Report (CSPR). Project Sponsors are responsible for reconciling any Policy noncompliance issues with staff and approving the CSPR.

- **Project Planning staff:** Start the CSPR at project planning and submit for Project Sponsor approval. Work with Project Sponsor to reconcile any noncompliance issues.

  Note: This is a recommended responsibility for project planning staff, however this responsibility may be performed by another function at the discretion of District leadership.

- **Project Managers:** Update CSPR at project scoping and 30% final design. Submit for Project Sponsor approval and work with Project Sponsor to reconcile any noncompliance issues.

- **Project Sponsors:** Review CSPR at planning, project scoping, and 30% final design. Approve if compliant with policy direction. Work with planners at planning stage and project managers at scoping and 30% final design to reconcile policy noncompliance before approving.

Information captured in the CSPR enables MnDOT staff to brief agency leadership on implementation and identify trends or common challenges that may benefit from new guidance and/or resources. All MnDOT construction projects that directly affect transportation system users require completion of the CSPR. Projects exempt from the Policy and documentation are detailed in the following section.

Complete Streets exemptions and reasons for not addressing an identified need

Exemptions

The following project activities are exempt from the Complete Streets Policy and reporting requirements:

- Emergency, routine, preventative, or localized maintenance and repair work that does not change the structure or layout of the road and does not meet the ADA alteration threshold (refer to MnDOT ADA Tech Memo for specific guidance).
- Projects such as storm water tunnels, storm sewers, landscaping, and slope stabilization that do not directly affect transportation system users or layout.
- Roadside infrastructure projects on freeways that do not involve entrance/exit ramps, loops, or overpasses such as high-tension cable guardrails, sign replacements, and overhead sign structure replacements.
- Installation or replacement of fiber optic cables, other transmission lines, solar panels, or other energy infrastructure in state owned right-of-way.

Reasons for not addressing an identified need

In accordance with Minnesota Statutes §174.01, and §174.75, suitable multimodal alternatives will be incorporated in project development, construction, operations, and maintenance of all appropriate new and improved infrastructure projects. However, there may be cases where MnDOT may not be able to address an identified need of a particular user group.

If the project team, in collaboration with local partners, determine that an identified need cannot be addressed for a user group, the Project Sponsor, after consultation with the Planner and Project Manager, must document justification through the CSPR form at project planning, scoping, and 30% final design. Documentation must clearly identify the reason(s) for not addressing the identified need of the user group.

The following justification examples should be used as a **starting point for substantiation**, not an absolute checklist, as application of Complete Streets is unique for each project.

Table 4: Examples of Reasons for Not Addressing an Identified Need

Categories of Reasons for Not Meeting Need	Justification Examples (Use as starting point)
1) User group prohibited. The user group is legally prohibited from using the highway according to Minnesota Statutes §169.305.	• People walking, bicycling, or using other nonmotorized traffic are legally prohibited. • There are no intersections present where people walking, bicycling, or using other non-motorized traffic are legally prohibited.
2) Absence of need. There is no evidence of a current need to provide for the user group, no plans identify the project corridor for future use, and land use trends suggest an absence of future need over the life of the project.	**Absence of bicyclist need:** • Roadway is not identified as a high, medium, or low priority corridor in the MN State Bicycle System Plan, is not identified as a prioritized bicycling infrastructure improvement investment in the appropriate MnDOT District Bicycle Plan, and does not complete a connection gap to a designated state bikeway or U.S. Bicycle Route. • Roadway is not within one mile of a school or bicycling improvements for access and crossings have not been identified through MnDOT's Safe Routes to School Program. • Surrounding land uses do not include frequent destinations for bicyclists, including grocers, convenience stores, restaurants, libraries, schools, parks, tourist destinations, transit stations, or other critical community destinations. • Parallel or adjacent local roadways provide context-appropriate alternative bikeway options without placing undue burden in terms of access or travel distance for bicyclists. **Absence of pedestrian need:** • Roadway is not identified as a priority location for walking in MnDOT PAWS (Tier 1, 2 or 3). • Roadway is not within one mile of a school or pedestrian improvements for access and crossings have not been identified through MnDOT's Safe Routes to School Program. • Surrounding land uses do not include frequent destinations for people walking, including grocers, convenience stores, restaurants, libraries, schools, parks, tourist destinations, transit stations, or other critical community destinations. **Absence of transit need:** • Section 5311 rural transit system/systems in the area provide demand response (curb-to-curb pickup/drop-off service) or deviated route service and there are not nearby transit stations or bus stops. • Section 5307 small urban transit system plans or MPO regional plans do not identify the roadway as a current or future planned transit service corridor. • Intercity bus service stop locations do not exist along the roadway or within the corridor.

Table 4: Examples of Reasons for Not Addressing an Identified Need (continued)

Categories of Reasons for Not Meeting Need	Justification Examples (Use as starting point)
	Absence of transit need (continued): • Bus shoulder bypass lanes do not exist along the roadway or within the corridor. • Bus maintenance/parking facility access or operations will not be affected. **Absence of freight need:** • The project is located on a low traffic corridor that is specifically identified for turnback/jurisdictional transfer, or is on a county, city, or township road with low truck counts (under 100 Heavy Commercial Annual Average Daily Traffic). • The corridor is not identified as an Oversize Overweight Super Load Corridor.
3) Disproportionate project development impact. All identified options require excessive expenditure of time and/or money due to a variety of challenges, such as design, permits or right of way acquisition.	• Cost(s) to meet needs of people walking, biking and/or using transit exceed the district's annual allotment for the investment category based on MnSHIP direction, but acknowledgment is made to include consideration of need in future scoping. • Meeting freight needs requires excessive expenditure for the current project, but acknowledgment is made to include consideration of freight need in future scoping. • Expanding preservation project scope would significantly reduce or compromise the preservation of existing trunk highway assets. • Expected service life of bridge significantly reduces return on investment for bridge replacement, rehabilitation, or modification at this time.
4) Refusal to consent. Property owner with jurisdiction refuses consent.	• Local unit of government with jurisdiction does not approve of pedestrian, bicycle, or transit physical design components and ADA accommodation obligations have been met. • Railroad authority does not approve of physical infrastructure to meet the needs of people walking or bicycling within their right of way.
5) Disproportionate maintenance impact. All identified maintenance options by MnDOT and a local unit of government with jurisdiction or other transportation partner (i.e. transit agency, trail authority, etc.) result in excessive expenditure of money or pose maintenance process changes that are not feasible.	• Alternative operation and maintenance resources were explored with the local unit of government and deemed insufficient and ADA accommodation obligations have been met. • Local unit of government lacks sufficient equipment and/or resources for efficient year-round operation and maintenance of nonmotorized facilities. • MnDOT and local unit of government with jurisdiction cannot reach an agreement on operation and maintenance responsibilities.

Performance measures

MnDOT will track both process and outcome performance measures to support project teams in applying guidance, increase transparency and accountability, support informed decision-making, and facilitate process improvements. Performance measures are identified at both the MnDOT District level and agency-wide.

The Office of Sustainability and Public Health will generate annual progress reports from the CSPR for District leadership and the Senior Leadership Team.

Table 5: MnDOT Complete Streets Process Measures

Process Measure	Description	Desired Direction	Reporting
Complete Streets Project Report (CSPR) completion	Annual percent of eligible MnDOT projects that have completed a CSPR	100%	Percent; agency-wide and by District
CSPR approval	Annual percent of completed CSPRs that are approved by the Project Sponsor	100%	Percent; agency-wide and by District

Table 6: MnDOT Complete Streets Outcome Measures

Outcome Measure	Description	Desired Direction	Reporting
Bicycling improvements	Annual percentage of MnDOT projects with an identified need that include bicycling improvements. Identified as a goal in the MnDOT Statewide Bicycle System Plan.[19]	90%	Percent; agency-wide and by District
Equitable walking improvements	Annual percent of MnDOT programmed projects that benefit high-priority areas for walking, targeting projects in Tier 1, 2, or 3 Priority Areas for Walking (PAWS) locations.[20] Proposed measure in the MnDOT Statewide Pedestrian System Plan.[21]	Increase in percent of MnDOT programmed projects that benefit high-priority areas	Percent; agency-wide and by District
Safety improvements	Total number of MnDOT projects on non-limited access roadways that include Federal Highway Administration proven safety countermeasures.[22] Proposed measure in the MnDOT Statewide Pedestrian System Plan.[23]	Increase of MnDOT projects that include safety countermeasures	Number and trend; agency-wide and by District
Meeting user needs	Share of MnDOT programmed projects currently meeting or scoped to meet needs of identified user groups, including pedestrian, bicyclist, transit, and freight.	Increase in MnDOT projects with improvements to meet user needs	Percent and trend; agency-wide and by District

[19] *https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=15532433*
[20] *https://mndot.maps.arcgis.com/apps/View/index.html?appid=1cc55aa66d3844a98402c84673f73d14*
[21] *https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=13492374*
[22] *https://safety.fhwa.dot.gov/provencountermeasures/*
[23] *https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=13492374*

Appendices

Appendix 1: Step 3 Resources for Transportation Project Hierarchy Modifications and Design Considerations

	Plans and Policies	Overview	Example Transportation Project Hierarchy Considerations	Example Transportation Project Hierarchy Modifications	Example Design Considerations
1	Roadway Functional Classification	Functional classification is the grouping of streets and highways into classes according to the character of service they are intended to provide. It is intended to define a balance between access and mobility with the higher-level classes favoring mobility and the lower favoring access. Functional classification is an inherently vehicle centric system.	Identify the functional classification of the roadway segments and cross streets in the project area. Adjust transportation hierarchy ratings based on class, as needed.	Principal arterials: Favor reliable vehicle travel times for trips with a regional or through function. Consider safe facilities along and across for non-motorized users when in higher speed settings. Minor arterials: Favor mid-length regional trip with a connection to major arterials for through travel. Major collector: Favor neighborhood travel with a higher emphasis on connections to activity centers. Consider higher service levels for non-motorized users along and across the corridor. Minor collector: Serves local travel with connectivity to higher functioning routes. Favor connectivity over mobility for all users. Local: Provides access to adjacent land uses for all users. High speed vehicle travel is not appropriate.	See the MnDOT Facility Design Guide. Consider the following: Level of vehicle travel time reliability Level of vehicle access
2	Statewide Pedestrian System Plan (SPSP)	The SPSP guides MnDOT's investments to improve places for people walking along and across the state's highway system.	Is the project on a Tier 1, 2 or 3 Priority Areas for Walking? See the online interactive map. Do surrounding land uses include frequent destinations for people walking, including grocers, convenience stores, restaurants, libraries, schools, parks, transit stations, or other critical community destinations?	If yes, consider a higher rating for people walking.	See the MnDOT's Pedestrian page for resources on Crossings and Intersections and Policies and Practices. Consider: Managing vehicle speeds Enhanced crossings Separation from traffic
3	Minnesota Safe Routes to School Plan (MnSRTS)	The MnSRTS establishes an action plan to improve walking and biking to school for youth in Minnesota.	Is the roadway within one mile of a school or has pedestrian improvements identified through MnDOT's Safe Routes to Schools Program?	If yes, consider a higher rating for people walking.	See the MnDOT Safe Routes to School design and engineering resources.
4	Strategic Highway Safety Plan (SHSP)	The Minnesota Strategic Highway Safety Plan is for all traffic safety partners at the state, county, and local government level as well as users of the roadway system.	Does the project include high crash frequency/severity locations and segments? Does the roadway have factors associated with greater risk of fatal and serious injury crashes? Review crash data, risk factors, and traffic data, including crashes with non-motorized and vulnerable roadway users. Look for trends in contributing factors for high crash areas and roadways with similar context. Identify and consider specific SHSP strategies related to the crash trends and roadway types for the project.	If yes, consider a higher rating for a given user group in accordance with SHSP action strategies. For example, if the project includes a high number of crashes or higher risk for people walking at an intersection crossing, consider a higher rating for walkers at that location.	See the MnDOT Facility Design Guide. Consider safety counter measures for the specific crash trends or risks for the project. For example: At an intersection with an increased risk for non-motorized users, consider such countermeasures as curb extensions and/or median refuge islands that can shorten the distance a pedestrian needs to walk, provide a place to stop safely, and help manage vehicle speeds at crossings.
5	Statewide Bicycle System Plan	The Bicycle System Plan provides a framework to make bicycling safe, comfortable, and convenient for all people. MnDOT's District Bicycle Plans are a key step toward realizing the vision of the Statewide Bicycle System Plan.	Is the project identified as a high, medium, or low priority corridor in the Statewide Bicycle System Plan? Is project identified as a prioritized bicycling infrastructure improvement investment in the appropriate District bicycle plan? See the District bicycle plan's online interactive maps. Does the project complete a connection gap to a designated state bikeway or U.S. bicycle route?	If yes, consider a higher rating for people bicycling.	See the MnDOT Bicycle Facility Design Manual for bikeway design guidance. Dedicated facilities Transition areas and intersections Crossing locations

Appendix 1: Step 3 Resources for Transportation Project Hierarchy Modifications and Design Considerations (continued)

Plans and Policies		Overview	Example Transportation Project Hierarchy Considerations	Example Transportation Project Hierarchy Modifications	Example Design Considerations
6	Greater MN Transit Investment Plan (GMTIP)	The GMTIP is an investment and strategic plan to improve transit mobility options for all Greater Minnesotans regardless of age, ethnicity, income, or disability.	Is the project on a public transit route? Go to the the local transit providers site and search system maps.	If yes, consider a higher rating for people taking transit.	Consider transit facility improvements including connections to other users. Transit stop enhancements Vehicle travel time reliability Pedestrian and bicycle connections
7	Statewide Freight System Plan	The Freight System Plan for Minnesota provides an integrated system of freight transportation in Minnesota – highway, rail, water, air cargo, and intermodal terminals – that offers safe, reliable, and competitive access to statewide, national, and international markets.	Is the project a critical freight corridor and/or near a major freight destination? Reference Table 6.8, Table 6.9 and Figure 6.4 of the Statewide Freight System Plan. Is the project on or intersecting with an Oversized Overweight Super Load Corridor?	If yes, consider a higher rating for people driving freight vehicles.	See the MnDOT Facility Design Guide. Consider: Safety-related measures Infrastructure condition measures Mobility measures
8	State Highway Investment Plan	The Highway Investment Plan for Minnesota directs capital investment for Minnesota's state highway system.	Is the project identified as a critical investment need (see Figure ES-5)? What does the plan say about the project?	If yes, adjust transportation hierarchy ratings to reflect plan investment outcomes (e.g., pedestrian, bicycle, freight, bridges, etc.).	See the MnDOT Facility Design Guide. Consider all user/mode specific considerations above, safety features, vehicle travel time reliability, and access.
9	Statewide Ports & Waterways Plan	The Ports & Waterways Plan for Minnesota identifies strategies to preserve and enhance the ports and waterways system.	Is the project near an entry to one of Minnesota's nine ports (see Figure 2.1)?	If yes, consider a higher rating for freight.	See the MnDOT Facility Design Guide.
10	State Rail Plan	The Rail Plan for Minnesota guides the future of both freight and passenger (intercity) rail systems and rail services in the state.	Is the project near a rail yard?	If yes, consider a higher rating for freight.	See the MnDOT Facility Design Guide.
11			Does the project cross a rail line?	If yes, consider a higher rating for freight.	Consider safety modifications for project specific user groups.
12	Scenic Byways Corridor Management Plans	A Corridor Management Plan is developed by the communities and transportation agencies along a scenic byway. It outlines how to protect and enhance the byway's intrinsic qualities.	Is the project near or part of a scenic byway?	If yes, consider the impact on byway assets and for the needs of recreational travelers, residents, and freight.	Depending on the findings, refer to example design considerations in MnDOT's modal plans above. Make design decisions to directly serve target user groups.
13	State Transportation Improvement Program (STIP)	The STIP lists Minnesota's four-year transportation improvement program and includes all state and local transportation projects using federal highway and/or federal transit funding, along with state transportation projects using 100% state funds.	Is the project part of the current STIP?	If yes, consider the nature of the project and adjust transportation hierarchy ratings accordingly (e.g., if there's an identified pedestrian safety need, consider a higher rating for people walking).	Depending on the nature of the project, refer to example design consideration in MnDOT's user/modal plans above.

Appendix 1: Step 3 Resources for Transportation Project Hierarchy Modifications and Design Considerations (continued)

	Plans and Policies	Overview	Example Transportation Project Hierarchy Considerations	Example Transportation Project Hierarchy Modifications	Example Design Considerations
14	Maintenance and Operations Plans	The Maintenance and Operations Plans manage operations and maintenance activities throughout Minnesota.	Have ongoing operations and maintenance implications of the project been considered?	Talk to maintenance staff early in the process. Instead of asking what doesn't work, ask how it can work. Adjust the project as appropriate while maintaining the intention behind the project transportation hierarchy mix.	Depending on the nature of maintenance comments, refer to example design consideration in MnDOT's user/modal plans above.
	MnDOT Bridge Preservation and Improvement Guidelines	Guidelines that describe best management practices for economical management of existing bridge and culvert structures.	Does your project involve a bridge? How do bridge facilities align with planned road facilities? Consider expected service life of the bridge to help inform investment options.	Consider implications for the project transportation hierarchy mix.	Consider aligning Complete Streets project work and bridge replacement or reconstruction work. Refer to guidelines and make decisions to serve target user groups.
15	MnDOT Advancing Transportation Equity Initiative	MnDOT's Advancing Transportation Equity Initiative aims to better understand how the transportation system, services and decision-making processes help or hinder the lives of people in underserved and underrepresented communities in Minnesota.	What are the key recommendations from the District's Advancing Transportation Equity report?	Consider implications for the project transportation hierarchy mix.	Depending on the findings, refer to example design considerations in MnDOT's modal plans above. Make design decisions to directly serve target user groups.
16			What are the demographics of the project area?	Consider the historically underrepresented populations in the project area and what their needs might be. Reference MnDOT's transportation equity definition.	
17			What are the major activity centers in the project area? Are there any large apartments, schools, religious centers, recreation areas, or other notable gathering places?	Consider how people, historically underrepresented populations, will access these places.	
18	Public Engagement at MnDOT	Public engagement refers to the commitment to listen first and ultimately inform, consult, involve, collaborate and/or empower stakeholders in transportation decision making.	Are the public and stakeholders part of the project decision making process? Refer to the six step process in the MnDOT Public Engagement Planning Handbook.	Identify issues and needs of stakeholders and public. Consider input in project decision making process and communicate decisions with stakeholders and the public.	Depending on the findings, refer to example design considerations in MnDOT's modal plans above. Make design decisions to directly serve target user groups.
19	Comprehensive Plan	Regional Development Commission, Tribal Nations, City, County, or Township comprehensive plans.	Is the project identified in local plans or studies? What do they say about the project?	Identify goals, priorities, design characteristics, etc. noted in transportation plans. What do they say about the project? Consider as input to development of project specific transportation hierarchy ratings.	Depending on the nature of findings, refer to example design consideration in MnDOT's user/modal plans above.
20	Transportation Plans	MnDOT District, Area Transportation Partnerships (ATP), Metropolitan Planning Organizations (MPO), Tribal Nations, County, City, or Township transportation plans. Includes pedestrian, bicycle, and transit plans.			
21	Transportation Studies	MnDOT District, Area Transportation Partnerships (ATP), Metropolitan Planning Organizations (MPO), Tribal Nations, County, City, or Township transportation studies.			
22	Policies and Ordinances	Tribal Nations, City, County, or Township policies and ordinances.	Is the project impacted by local policies or ordinances?		

Appendix 2:

Complete Streets Case Studies

Hwy 4 in Glenwood, MN, showing Complete Streets elements including a raised cycle track, curb extensions, and street furniture

Background

Many past transportation plans and designs have inadvertently created "incomplete" streets—those without safe places for people to walk, bike, or take public transportation. These streets are particularly dangerous for people of color, older adults, children, and low-income communities who suffer disproportionately from transportation-related illness, injury, and death. People of all ages and abilities, using a variety of modes of transportation (pedestrian, transit, bicycle, automobile, freight) need to reach their destinations safely, conveniently, affordably, and comfortably no matter which mode they choose.

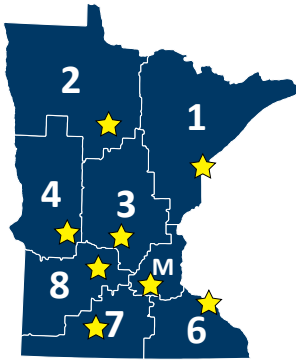
These case studies were developed as part of the Minnesota Department of Transportation's Complete Streets policy update in 2022, and are a resource for MnDOT staff, partners and residents. They showcase how MnDOT and partners implement Complete Streets principles on a range of project types in different land use contexts, with varying budgets.

The complete streets approach is flexible and offers value across community context types, from rural to suburban to metropolitan. Benefits include improved safety, community connectedness, increased access to active transportation options, and environmental and economic benefits. Each of these case studies touches on some of those benefits and highlights success stories where projects demonstrated collaboration with local partners, community engagement, or incorporating freight, transit, or maintenance considerations.

To view up-to-date guidance on Complete Streets, visit the MnDOT Complete Streets web page at

dot.state.mn.us/planning/completestreets

District Case Studies



1. Lake Ave. bridge, Duluth
2. Highway 2, Cass Lake
3. Highway 24, Annandale
4. Highways 28, 29, and 104, Glenwood
Metro. Highway 21, Jordan
6. Highway 61, Lake City
7. Highway 4, St. James
8. Highway 4, Cosmos

The Value of Complete Streets

- Provides safer streets for all traveler modes
- Increases mobility and access
- Advances transportation equity and economic vitality
- Supports healthy and climate-smart communities

Highway 61 in Lake City, MN, showing a Rectangular Rapid Flashing Beacon and improved crosswalk

The icons at left are used throughout the case studies to denote benefits and themes related to Complete Streets.
L-to-R: Community connectedness/engagement, active transportation, collaboration, maintenance, economics, freight, and safety

DEPARTMENT OF TRANSPORTATION

Complete Streets
Highway 35 in Duluth, MN

Land Use Context:
Urban core

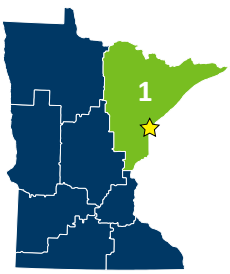
Project Type:
Bridge Redeck

Complete Streets Themes:
Safety | Collaboration | Community Connectedness | Active Transportation

Project Budget:
$2 Million, MnDOT funding

Project Background

- The Lake Ave. Bridge over I-35 (Highway 35) connects the downtown Duluth business district with Canal Park, a tourist and recreational destination on the other side of the freeway.
- The bridge is the main access point to Canal Park, but it was perceived as a barrier for people walking and biking.
- The City of Duluth was completing a full reconstruction of Superior St., a main downtown business corridor that intersects Lake Ave. MnDOT was able to adjust the timing of the bridge redecking project on the Lake Ave. bridge over Highway 35 to align with the city's timeline for road closures. The reduced traffic due to COVID-19 also allowed MnDOT to expedite construction, minimizing impacts to local businesses.
- Sidewalks, pedestrian ramps and signals were brought into compliance with ADA requirements, and bicyclist needs for crossing Highway 35 were addressed by narrowing traffic lanes and adding a bike lane across the bridge.



Lake Ave. bridge over Hwy 35 during construction, showing green-striped bike lane and new sidewalk

Complete Streets Elements

Bike lanes – On-street bike lanes designate a preferential space for bicyclists through the use of pavement markings and signs. Bike lanes can help meet the needs of people who are interested in bicycling, but prefer a low-stress environment.[1]

The bike lanes on the bridge provide a designated place for people biking to connect to destinations in downtown Duluth and Canal Park including the Lakewalk trail.

Lane adjustment – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance. The additional space can be used to increase access to safe multimodal options, like bicycling facilities and wider sidewalks.[2]

Working within a defined area, MnDOT and the City of Duluth were able to realize improvements for people biking and walking across the Lake Avenue bridge by narrowing the travel lanes from 14' to 11' and removing the raised center median. This provided space to add bike lanes and extend ADA-accessible pedestrian ramps.

[1] MnDOT Bicycle Facility Design Manual

[2] NACTO Street Design Guide: Lane Width

Complete Streets
Highway 35 in Duluth, MN

Before

Lake Ave. bridge over Hwy 35 before construction

After

Lake Ave. bridge over Hwy 35 after construction, showing bike lanes, sidewalk, and lane adjustment

Complete Streets Themes

Community Connectedness

- Improved pedestrian and bicycle facilities on the bridge allow residents and visitors to travel between destinations on either side of the interstate, which was perceived as a barrier for nonmotorized users.

Collaboration

- In addition to coordinating project timelines, MnDOT collaborated with the City of Duluth by conducting a shared public outreach process. MnDOT consulted with the City's Superior Street stakeholder groups, pedestrian and bicycle advocacy groups, and established outreach connections.
- After construction, the City assumed responsibility for maintenance of the bike lane and sidewalk.

Safety

- Pushing vehicle traffic farther away from the sidewalk, narrowing traffic lanes and providing a designated space for bicyclists to use to cross the bridge has increased the perceived feeling of safety for people walking and biking.
- Narrowing travel lanes can help reduce vehicle travel speed, which greatly reduces the impact and likelihood of crashes.

Active Transportation

- As the primary connector for people walking and biking between downtown Duluth and Canal Park, the improved bicycle and pedestrian facilities provide a safer, more comfortable place for people walking and biking to cross the interstate.

Additional Example

Highway 1 southeast of Ely, in a rural natural land use context, is a route used by recreational bicylists. A four- to five-foot paved shoulder was included in the project and a lower design speed was maintained. The accomodations on the shoulder were a low-cost adjustment that improved the safety of the corridor, decreasing crashes by 70% and improving the perceived feeling of safety for people biking along the route.

DEPARTMENT OF TRANSPORTATION

Complete Streets
Highways 371 and 2 in Cass Lake, MN

Land Use Context:
Suburban commercial/residential

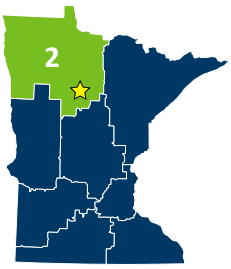
Project Type:
Reconstruction

Complete Streets Themes:
Safety | Collaboration | Community Connectedness | Active Transportation

Project Budget:
$3 Million, MnDOT funding

Project background

- Highway 371 runs north-south through Cass Lake. Highway 2 separates a residential area on the south side of the road from businesses, tribal resources, and the tribal government center on the north side.
- This stretch of Highway 371 had very old pavement and no sidewalk, so community members had to walk and bike along the road to get to destinations on the other side of town.
- Cass Lake is the headquarters location of the Minnesota Chippewa Tribe and Leech Lake Band of Ojibwe. Two-thirds of the city's population is American Indian.
- A shared-use trail south of town connects to an area school and a county road. The Leech Lake tribal government identified extending the trail north through town as a priority and offered to participate in funding, but was not required to contribute because adding sidewalks was a priority for MnDOT.



Highway 371 after construction, showing a new sidewalk (left), lane adjustment, and shared-use path (right).

Complete Streets Elements

Shared-use path – A sidepath is a type of shared-use path that is parallel to a roadway but is physically separated from motor vehicle traffic with a curb and buffer of grass or landscaping. Increased separation from vehicle traffic increases comfort for people walking and biking. A shared-use path is more likely to attract community members who are interested in bicycling, but prefer a low-stress environment.[1]

Lane adjustment – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance. The additional space can be used to increase access to safe multimodal options, like bicycling facilities and wider sidewalks.[2]

Vehicle travel lanes and shoulders were narrowed to slow vehicle speed and provide new bicycle and pedestrian facilities. The wide right-of-way allowed for the addition of a sidewalk on one side of the road, a shared-use path on the other, and grass boulevards on both sides without expanding the right-of-way.

[1] MN Bicycle Facility Design Manual

[2] NACTO Street Design Guide: Lane Width

Complete Streets
Highways 371 and 2 in Cass Lake, MN

Before

Highway 371 in Cass Lake, MN before construction

After

Highway 371 in Cass Lake, MN after construction, showing sidewalks and lane adjustment

Complete Streets Themes

Community Connectedness

- The improved walking and bicycle infrastructure allows Cass Lake residents and visitors to walk or bike to destinations north of Highway 2 including employment centers like the hotel and casino, and services such as the Indian Health Service clinic and tribal government buildings. The improved traffic signal at the intersection of Highways 371 and 2 provides a safer crossing.

Active Transportation

- Sidewalks on one side of Highway 371 and a shared-use path on the other provide a safe, comfortable, and convenient option for people to walk and bike as part of their daily activities in Cass Lake.

Safety

- The comfort and safety of walking and biking along the roadway has been much improved by separating people walking and biking from traffic with the addition of a sidewalk and shared-use trail.
- Narrowing travel lanes can help reduce vehicle travel speed, which greatly reduces the impact and likelihood of crashes.

Collaboration

- The Leech Lake Tribe, the City of Cass Lake and MnDOT collaborated on this project. The Tribe prioritized providing a sidewalk or trail along Highway 371 and connecting the new trail to existing trails.

Additional Example

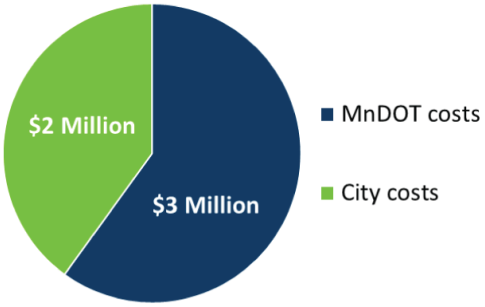
Other projects in the district have included similarly dramatic improvements for people walking and biking. For example, Highway 1 in Thief River Falls had narrow sidewalks on either side of the road. The community advocated to change the layout of the right-of-way to include a shared-use path on one side and maintain a sidewalk on the other side. This new trail connects a residential area to a community college and city recreation fields. Local youth can now safely walk or ride their bikes to the recreation fields.

Complete Streets
Highway 24 in Annandale, MN

Land Use Context:
Suburban commercial

Project Type:
Reconstruction

Complete Streets Themes:
Economics | Active Transportation | Safety | Collaboration

Project Budget:


Project background
- The City was interested in walking environment improvements to better meet the needs of pedestrians in the downtown business corridor. Foot traffic in the area typically increases in the summer, so improvements like wider sidewalks, amenity zones, and curb extensions were included.
- Parking and travel lane widths were reduced, contributing to the safety of the roadway. Wide shoulders and low speeds contribute to a comfortable space for bicycling on the corridor.

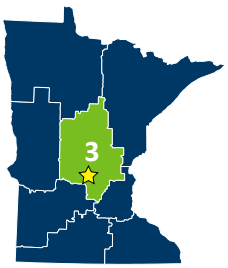


Illustration showing an amenity zone, a curb extension and reduced lane widths in downtown Annandale

Complete Streets Elements

Lane adjustment – Travel and parking lane widths were reduced, and the overall width of the right-of-way was reduced from 64 feet to 48 feet to allow for wider sidewalks and amenity zones. Narrower travel lanes help promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance.[1]

Curb extensions and improved crosswalks – Curb extensions—also called bulb outs or bump outs—extend a small section of sidewalk into the roadway at intersections or at midblock crossings. Curb extensions and high-visibility crosswalks increase road safety and pedestrian comfort by shortening the distance pedestrians have to cross and increasing visibility between drivers and people walking. By visually narrowing the roadway, curb extensions encourage drivers to slow down when approaching the intersection. They also create tighter corner radii, which slow down turning motorists.[2]

Amenity zones – Amenity zones include landscaping and lighting to make the streetscape more pleasant and inviting for people walking.

[1] NACTO Street Design Guide: Lane Width

[2] MnDOT Curb Extensions Infosheet

DEPARTMENT OF TRANSPORTATION

Complete Streets
Highway 24 in Annandale, MN

Before

An intersection along Hwy 24 before construction

After

An intersection along Hwy 24 after construction, showing curb extensions, new sidewalk and decorative pavers, and improved crosswalks

Complete Streets Themes

Economics

- Complete Streets elements provide a more welcoming streetscape for people walking and bicycling through Annandale's downtown business corridor, bringing increased foot traffic to local businesses. Local business owners have noticed an increase of foot traffic in the downtown business corridor.

Active Transportation

- Pedestrian infrastructure in downtown and wide shoulders outside the downtown business corridor provide safer places for people to walk and bike through Annandale.

Safety

- Narrow travel lanes reduce the speed that vehicles travel through downtown.
- Curb extensions and improved crosswalks help increase safety and visibility for people walking across the street.

Collaboration

- MnDOT and the City of Annandale worked together to align project timelines and scope, adjusting the scope to accomodate the city's utility project.
- Under the maintenance agreement, the city is responsible for plowing downtown, clearing sidewalks, and maintaining the aesthetic treatments.

Additional Example

In 2020, a resurfacing project was completed on Highway 12 in Cokato, MN. To address a safety issue related to two pedestrian fatalities crossing the road, entrance treatments, a raised concrete median, curb extensions, improved crosswalks, and rectangular rapid flashing beacons were added. These treatments improve safety for people walking across the street by slowing vehicle traffic and making the crossing more visible.

Complete Streets
Highways 28, 29, 104 in Glenwood, MN

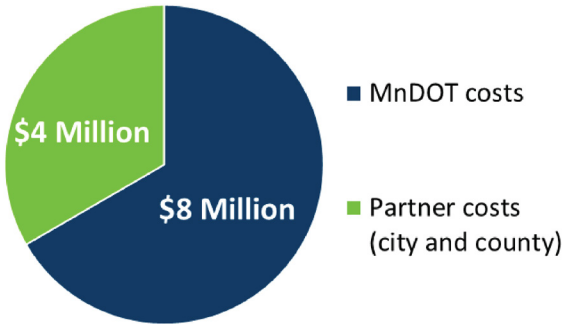
Land Use Context:
Urban commercial/residential

Project Type: Reconstruction

Complete Streets Themes:

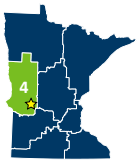
Collaboration | Active Transportation | Economics | Safety | Freight

Project Budget:



Project background

- There was abundant right-of-way at approximately 110 feet building-to-building, and the crash rate near downtown was twice the state average.
- The community requested speed-mitigation measures and bike lanes, but lane reduction was contentious among some in the business community due to loss of truck parking and business access.
- Throughout the public engagement process, a range of options were presented to the community. Photos from a lane removal project in Battle Lake were shared to demonstrate its benefits.
- The City Council voted to support the highway reconfiguration and to proceed with the Complete Streets design. After construction, the community has seen benefits including improved safety, opportunities for active transportation, and economic benefits.



Hwy 28 (Minnesota Ave.) in downtown Glenwood, showing lane adjustment, raised cycletrack, and landscaping

Complete Streets Elements

Lane adjustment – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance.[1]

Minnesota Ave. in downtown had four 12-foot through-lanes. One through-lane was removed, one repurposed as a center left-turn lane, and parking stall width was reduced.

Raised cycletrack – Raised cycletracks are bicycle facilities that are vertically separated from motor vehicle traffic. Many are paired with a furnishing zone between the cycle track and vehicle travel lane and/or pedestrian area.[2]

Adjusting the width of driving lanes and parking stalls allowed for the inclusion of raised cycle tracks on both sides of the street. Adding cycletracks downtown closed the gap in the local bike trail network.

Landscaping and lighting – Amenity zones serve as a buffer between pedestrian and vehicle traffic and provide an inviting street environment. Improved lighting, trees, planters, benches, table sets, waste receptacles, and bike racks create a strong street character.

[1] NACTO Street Design Guide: Lane Width
[2] NACTO Urban Bikeway Design Guide

Complete Streets
Highways 28, 29, 104 in Glenwood, MN

Before

Hwy 28 (Minnesota Ave.) before construction

After

Hwy 28 (Minnesota Ave.) after construction, showing lane adjustment, raised cycletrack, bumpouts, and improved crosswalk

Complete Streets Themes

Collaboration

- MnDOT adjusted the project timing to fit with the City's planned sewer project.
- MnDOT worked with local partners to find a Complete Streets solution that addressed business owners' concerns about parking.
- The City of Glenwood obtained equipment such as Bobcats with plows and blowers to clear snow.

Economics

- The vibrant streetscape and improved bicycle and pedestrian facilities draw residents and visitors downtown. Passing through town on foot or by bicycle provides more opportunities to stop and patronize local businesses.

Safety

- Narrowing the roadway and travel lanes lowers vehicle travel speeds, and bumpouts shorten crossing distance. A raised cycle track separates bicyclists and vehicle traffic.
- There has been only one minor crash involving pedestrians in the roughly two years post construction.

Freight

- These highways are oversize/overweight freight routes, so it was important to ensure trucks could make turning movements.
- The raised cycle track drops to grade at intersections to allow for freight turning movements.
- Although 11-foot travel lanes are often recommended in a context like this, 12-foot lanes were maintained to address community concerns about freight traffic.

Active Transportation

- Improved sidewalks and cycletracks that connect to bike trails provide safe places for residents and visitors to get physical activity.

Improved crosswalk

Raised cycletrack and bumpouts

DEPARTMENT OF TRANSPORTATION

Complete Streets
Highway 21 in Jordan, MN

Land Use Context:
Urban commercial

Project Type:
Preservation / mill and overlay

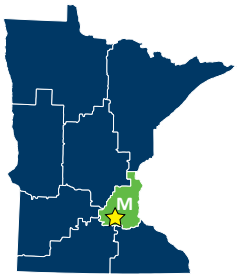
Complete Streets Themes:
Economics, Active Transportation, Safety, Freight

Project Budget:
$1 Million - MnDOT funding

Intersection in downtown Jordan, showing bike lane, curb extension, and improved crosswalk

Project background

- In the project planning and design phases, the project team determined that the curb lines of the street would remain the same. One of residents' main concerns was a perceived speeding problem. A speed study was conducted, and the results did not support a speeding problem. Nevertheless, the speed study allowed staff to engage the community about what they wanted to achieve.
- The roadway draws substantial pedestrian traffic as a commercial corridor for Jordan. Community members wanted to create a place where people wanted to be that also allowed traffic to move. This was achieved by calming traffic with reduced lane widths, reducing crossing distances at intersections, and providing a bike lane. Even with these traffic-calming measures, only one parking space was lost on the length of the project.



Complete Streets Elements

Lane Adjustment and Bike Lanes – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance.[1]

On-street bike lanes designate a preferential space for bicyclists through the use of pavement markings and signs.[2]

This project included traffic-calming elements that addressed the perceived speeding problem without adding a large expense to the project, including bike lanes and reduced-width vehicle and parking lanes.

Curb Extensions and Improved Crosswalks – Curb extensions—also called bulb outs or bump outs—extend a small section of sidewalk into the roadway at intersections or at midblock crossings.[3]

In this project, curb extensions and improved crosswalks reduce pedestrian crossing distance, increase visibility for pedestrians and drivers, and cultivate more foot traffic for local businesses. Curb extensions were calibrated to accomodate turning movements by freight trucks and snowplows.

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[2] NACTO Street Design Guide: Lane Width
[2] MnDOT Bicycle Facility Design Manual Ch. 5: Bicycle Facilities
[3] MnDOT Curb Extensions Infosheet

Complete Streets
Highway 21 in Jordan, MN

Before

Highway 21 in downtown Jordan before construction

After

Highway 21 in downtown Jordan after construction, showing lane adjustment and bike lanes

Complete Streets Themes

Economics

- Even with a narrow scope of work and small project budget, several improvements to the walking and biking environment were realized for the community.
- Complete Streets elements provide a more welcoming streetscape for people walking and bicycling through Jordan's downtown business corridor, bringing increased foot traffic to local businesses.

Active Transportation

- On-street bike lanes, improved crosswalks, and curb extensions provide safer places for people to walk and bike through downtown Jordan, encouraging active transportation. Shortening the crossing distance improves community connectedness and helps reduce the perception of the highway as a barrier.

Safety

- Traffic calming to address residents' and local businesses' speeding concerns was a focus of the project. Narrowing travel lanes helps reduce vehicle travel speed. At lower speeds, drivers have a wider field of vision and are more likely to notice pedestrians and other road users. This can help reduce the likelihood and impact of crashes.

Freight

- The roadway is a freight entry point for Highway 169. MnDOT staff worked with advocates representing both freight and pedestrian groups to meet the corridor's needs. The end product reduced crossing distances for people walking, while also ensuring that turning radii met freight vehicle needs by calibrating each ramp.

Additional Example

In 2020-21, Highway 25 from Mayer, MN to Watertown, MN underwent a resurfacing/reconstruction project. In Mayer, sidewalks were upgraded to meet ADA standards, sidewalk widths were increased, and parking lanes were narrowed. In Watertown, sidewalks were added on both sides of the street as part of Main Street reconstruction funding.

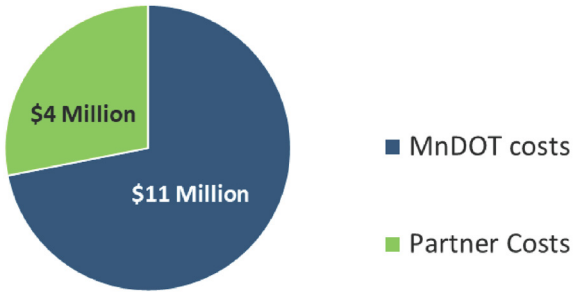
Complete Streets
Highway 61 in Lake City, MN

Land Use Context:
Suburban commercial/residential

Project Type:
Reconstruction

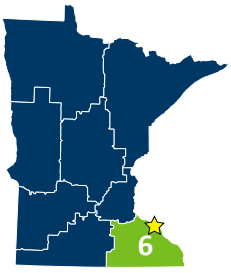
Complete Streets Themes:
Safety | Collaboration | Community Connectedness | Maintenance

Project Budget:



Project Background

- The planning study for this project recommended a four-to-three lane conversion (roadway reallocation) to increase safety by making traffic speeds more uniform and consistent through the downtown lakefront corridor and to lessen the ongoing maintenance costs where traffic forecasts did not warrant the need for four lanes.
- The roadway reallocation allowed for the five-foot sidewalk on the lakefront side to be expanded to a ten-foot shared-use path. On the opposite side of the road, 3,300 feet of seven-foot sidewalk were added to complete gaps and improve sidewalk connectivity parallel to the lakefront.



Highway 61 in Lake City MN, showing shared-use path, sidewalk, and roadway reallocation

Complete Streets Elements

RRFBs – Rectangular Rapid Flashing Beacons (RRFBs) include flashing lights that increase driver awareness of the presence of pedestrians at crosswalks at uncontrolled intersections or mid-block.[1]

A **roadway reallocation**, also known as a road diet, converts a four-lane road into a three-lane road. The additional space can be used to incorporate safe multimodal options, like bicycling facilities and wider sidewalks.[2]

Landscaping, aesthetic improvements, and lighting – Elements that make the sidewalk and trail more inviting include colored concrete bands and brick paver accents, landscaping including perennials and trees, and decorative light poles.

Curb extensions – Curb extensions, also called bulb outs or bump outs, extend a small section of sidewalk into the roadway at intersections or midblock crossings. Curb extensions increase safety and comfort by shortening the crossing distance and increasing visibility between drivers and people walking.[3]

Shared-use path – A shared-use path is physically separated from motor vehicle traffic. Separation from motor vehicle traffic increases comfort for people walking and biking. A shared-use path may attract trail users who are interested in bicycling, but prefer a low-stress environment.[4]

[1] Minnesota's Best Practices for Pedestrian and Bicycle Safety, p. 49
[2] MnDOT Roadway Reallocation Infosheet
[3] MnDOT Curb Extensions Infosheet
[4] MnDOT Bicycle Facility Design Manual, p. 5-21

Department of Transportation

Complete Streets
Highway 61 in Lake City, MN

Before

Highway 61 in Lake City, MN before construction

After

Highway 61 in Lake City, MN after construction, showing planted median, roadway reallocation, sidewalks, and shared-use path

Complete Streets Themes

Safety

- Four-to-three lane conversions (roadway reallocation) can lead to more uniform and consistent traveler speeds and fewer crashes. The adjustment on this project is predicted to reduce the number and severity of crashes.
- Anecdotally, drivers now stop for people walking through intersections where they hadn't before.

Community Connectedness

- Improved crosswalks and RRFBs at key intersections allow safer access across the highway from downtown to the lakefront and to destinations like the lakefront trail, condominiums, the campground, downtown businesses, and the marina. Aesthetic elements enhance the look and feel of downtown and the lake walk.

Collaboration

- MnDOT staff worked with the city council, community partners and residents to build support for the four-to-three lane conversion (roadway reallocation). Some did not see the necessity of what was perceived as a significant change to the roadway.
- While the conversion was not proposed in response to a documented safety issue (i.e., serious injury or fatality data), the existing layout had a high risk of pedestrian safety impacts. Showing safety data from similar projects and potential improvements (e.g. the opportunity to convert the sidewalk to a multi-use trail) helped build support.

Maintenance

- The city uses a skidsteer with a broom attachment to remove snow from trails for winter maintainence on the bumpouts. The thickness of the bituminous material was increased to four inches to allow for heavier use by maintenance equipment.

Additional Example

An upcoming project in LeRoy (2023) will utilize MnDOT's Community Roadside Landscape Partnership Program, which provides reimbusement for landscaping along the right-of-way. The project design includes an eight-foot buffer for plantings. MnDOT landsacape architects will assist with selecting planting options and designs.

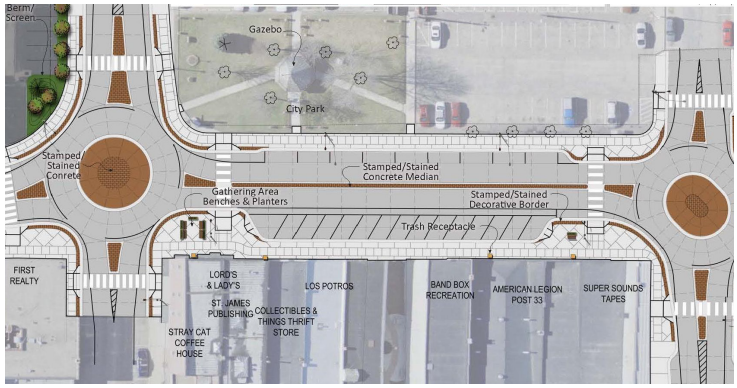
Complete Streets
Highway 4 in St. James, MN

Land Use Context:
Urban commercial

Project Type:
Reconstruction

Complete Streets Themes:
Collaboration | Freight | Safety | Community Engagement | Active Transportation

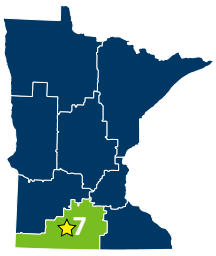
Project Budget:
$19.1 million, including MnDOT and local partners' contributions and grants



Plan view of Hwy 4 in St. James, showing mini-roundabouts, lane adjustment, back-in angle parking and improved sidewalks

Project background

- This project reconstructed a section of Highway 4 that was in poor condition, upgraded city utilities and provided ADA-compliant curb ramps.
- The average daily traffic was 5,000-7,000 vehicles; about ten percent were heavy commercial vehicles.
- Community members hoped to reduce speed and delays through intersections.
- City officials expressed a desire to eliminate traffic signals at two intersections. Mini-roundabouts provided a solution that also addressed the desire to reduce speed and delay through intersections.
- Staff used the engagement technique of Systematic Development of Informed Consent, which involves understanding the public's needs and objectives, demonstrating competence in addressing those needs, and building trust. Staff led with addressing the community's needs, rather than leading with one-size-fits-all solutions.



Complete Streets Elements

Mini-Roundabouts – Traffic signals on Highway 4 in downtown St. James were replaced with mini-roundabouts. Roundabouts are considered safer, more efficient, and environmentally friendly. They reduce crossing distances for people walking through the intersection.[1] Mini-roundabouts can be constructed within the existing footprint of the roadway.

Lane Adjustment – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance. The additional space can be used to increase access to safe multimodal options, like bicycling facilities and wider sidewalks.[2]

One travel lane was removed and lane widths were reduced. The lane adjustment created a safer environment for people walking and bicycling to businesses in the center of town by slowing traffic and reducing crossing distances.

Back-in angle parking – Parallel parking was replaced with back-in angle parking. Back-in angle parking can reduce crashes, provide additional space, calm traffic through town, and improve visibility. The MnDOT Office of Traffic Safety prepared a summary of back-in parking pros and cons to inform the community during public meetings.[3]

[1] St. James TH 4 Project Newsletter, May 2015

[2] NACTO Street Design Guide: Lane Width

[2] St. James TH 4 Project Newsletter, May 2015

DEPARTMENT OF TRANSPORTATION

Complete Streets
Highway 24 in St. James, MN

Before

Highway 24 in St. James before construction

After

Highway 24 in St. James after construction, showing mini-roundabout, back-in angle parking and improved crosswalks

Complete Streets Themes

Collaboration

- Instead of using a one-size-fits-all approach, MnDOT staff worked with local partners and the community to understand and address their unique needs.

Community Engagement

- About 20 percent of the population are seniors and more than one-third are Latino. MnDOT staff developed a targeted engagement approach to reach these communities.
- Public engagement staff attended community events and spread information through other media such as previews at the local theater. Project briefs in Spanish were distributed to high school students, who passed them along to their parents.

Safety

- Mini-roundabouts, narrower lanes, and back-in angle parking improve the safety of the road by slowing traffic and improving visibility.

Freight

- To increase public familiarity with the concept of mini-roundabouts, staff organized driving simulations with freight trucks and school buses to show that roundabouts do not limit access for large vehicles. The video was posted on the project website.
- A public event provided residents an opportunity to learn about mini-roundabouts, practice back-in angle parking, and visit downtown shops near the project during construction.

Active Transportation

- Improved sidewalks, crosswalks and curb extensions make walking through downtown more comfortable.
- Back-in angle parking and mini-roundabouts make bicyclists more visible to drivers.

Complete Streets
Highway 4 in Cosmos, MN

Land Use Context:
Rural Crossroads

Project Type:
Reconstruction

Complete Streets Themes:

Safety | Collaboration | Community Connectedness | Active Transportation

Highway 4 in Cosmos, MN, showing curb extensions, landscaping, and lane adjustment

Project Background

- The purpose of this project was to remedy deteriorated pavement and sidewalks.
- The existing highway was 80 feet wide from curb to curb, but it was not a heavily trafficked road segment, so the road could be narrowed to 44 feet. The narrower width allows for wider sidewalks that are buffered from vehicle traffic by strips of grass or landscaping plants and safer crossings for people walking or bicycling across the highway.

Complete Streets Elements

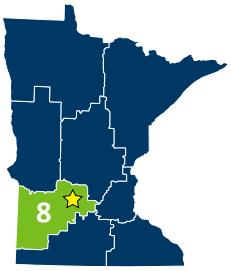
Lane adjustment – Narrower travel lanes promote slower driving speeds, contributing to a safer roadway by reducing the severity of crashes and shortening crossing distance.[1]

Travel lanes and shoulders were narrowed to slow driving speed. The lane adjustment allowed for the completion of a connected, six-foot sidewalk on each side of the road and a 12-foot buffer of grass or landscaping on both sides. Angle parking was maintained on two blocks in the downtown area.

Landscaping, aesthetic improvements and lighting – Landscape elements like trees and plantings provide ecological benefits and make the right-of-way safter and more pleasant for walking or bicycling. Elements of this project that make the sidewalk and trail more inviting include boulevard trees, rain gardens including native species, new light posts and bollards with LEDs, and decorative concrete.

Curb extensions – Curb extensions—also called bulb outs or bump outs—extend a small section of sidewalk into the roadway at intersections or midblock crossings. Curb extensions increase safety and comfort by shortening the distance people walking have to cross and increasing visibility between drivers and people walking.[2]

[2] NACTO Street Design Guide: Lane Width
[2] MnDOT Curb Extensions Infosheet



DEPARTMENT OF TRANSPORTATION

Complete Streets
Highway 4 in Cosmos, MN

Before

Highway 4 in Cosmos, MN before construction

After

Highway 4 in Cosmos, MN after construction, showing curb extensions and lane adjustment

Complete Streets Themes

Safety

- Narrower lanes can result in less aggressive driving and makee it easier for drivers to avoid a crash.
- Curb extensions increase safety and comfort by shortening the distance people walking have to cross and increasing visibility between drivers and people walking.

Collaboration

- There was some resistance to adjusting the width of the lanes, but MnDOT staff worked to come to an agreement with City staff and residents by providing more information about the benefits of the new design.
- MnDOT and the City compromised by including a few blocks of parking on one side of the road.

Community Connectedness

- During construction, the City made concurrent improvements to public amenities like the library and community center. The improved sidewalk condition and connectivity made it easier for community members to access these amenities by walking.

Active Transportation

- The improved sidewalks along Highway 4 are a popular walking route. Once the project was complete, including improved lighting, more people started using the sidewalks as a recreational walking route at night. The six-foot width allows two people to walk side by side.

Additional Examples

- In Glencoe, Highway 212 is a four-lane highway through town with a four-way stop intersection. A corridor study raised concerns about speed and safety for people walking or biking through the intersection. A roundabout was selected to make walking and biking across the highway safer.
- As part of a pavement preservation project on Highway 75 north of Madison, paved shoulders were extended from two to six feet to accomodate bicycle traffic on the roadway, which is on a bicycle investment route identified through MnDOT's District 8 Bicycle Plan.