DEMONSTRATION PROJECT IMPLEMENTATION GUIDE

A Resource for the Development of Short Term, Low Cost, Temporary Roadway Projects to Promote and Advance Walking and Bicycling

November, 2019

DEPARTMENT OF TRANSPORTATION

ACKNOWLEDGMENTS

About the guide

The information in this Implementation Guide is provided as a resource to assist communities and agencies in implementing short-term, low-cost, temporary roadway projects to promote and advance Safe Routes to School and active transportation initiatives.

The guide is consistent with best practices in national and state roadway safety planning and design and is being published as MnDOT Technical Memorandum 19-04-TR-01. There is no expectation or requirement that agencies implement any specific safety strategies; it is understood that actual implementation decisions will be made by local agency staff based on considerations of safety, economic, social, and political issues and location-specific considerations.

We gratefully acknowledge the participation of the following individuals and organizations in the development of this Demonstration Project Implementation Guide.

Advisors

- Bryan Anderson, MnDOT, District 1 Planning Director
- Janelle Anderson, MnDOT, Tort Claims and Standards
- Melissa Barnes, MnDOT, Metro North Area Engineer
- Lindsey Bruer, MnDOT, District 8 Planning Director
- Kelly Corbin, MnDOT, Safe Routes to School
- Dave Cowan, MnDOT, Safe Routes to School Coordinator
- Amber Dallman, MnDOT, Pedestrian, Bicycle, and Transit Planning Supervisor
- Bryan Dodds, MnDOT, Metro District Operations and Maintenance Office Director
- Brad Estochen, MnDOT, Traffic Safety
- Aaron Johnson, City of Minneapolis
- Ken Johnson, MnDOT, Pavement Markings
- Tiffany Kautz, MnDOT Traffic Standards Engineer
- Jamal Love, MnDOT, Geometric Design
- Vic Lund, St. Louis County, Traffic Engineer
- Thomas Lundberg, MnDOT, District 4 Program Development Manager
- Chad Millner, City of Edina, Director of Engineering
- Joanne Moze, Senior Program Evaluator, Blue Cross Blue Shield of Minnesota
- Shawna Mullen, Zeitgeist Arts
- E.G. Nelson, Community Health & Health Equity, Blue Cross Blue Shield of Minnesota
- Tara Olds, MnDOT State Aid
- Greg Pates, MnDOT, Design Flexibility Planner
- Jennifer Pelletier, Evaluator, Minnesota Department of Health
- Jessica Peterson, Horizon Public Health
- Sara Pflaum, MnDOT State Aid
- Sonja Piper, MnDOT Bicycle and Pedestrian Safety Engineer
- Hannah Pritchard, MnDOT, Pedestrian and Bicycle Engineer
- Mark Ray, PE, City of Crystal, Director of Public Works/ City Engineer
- James Rosenow, MnDOT, Design Flexibility Engineer
- Jessica Seide, Goodhue County Health and Human Services
- Emily Smoak, Principal Planner, Minnesota Dept. of Health
- Josie Tayse, MnDOT, Signing
- Zach Tess, MnDOT Project Manager
- Mackenzie Turner-Bargen, MnDOT, Metro District Bicycle and Pedestrian Planning
- Maren Webb, MnDOT, Senior Planner

MINNESOTA SAFE ROUTES TO SCHOOL

DEPARTMENT OF TRANSPORTATION

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CONTENTS

01 INTRODUCTION

What is a demonstration project?

For the purposes of this guide, demonstration projects are short term, low-cost, temporary roadway projects used to pilot potential long-term design solutions to improve walking, bicycling and public spaces. Projects may include, but are not limited to, bicycle lanes, crosswalk markings, curb extensions and median safety islands.

Short-term

Demonstration projects can be in place for anywhere from one-day to four months. Shorter projects will have a different focus than longer projects. On the short end, a one- or two-day project may be more about community engagement and exploring new ideas. Longer projects—such as those that are in place for an entire season—may be more focused on evaluating pedestrian and driver behavior and the impact of the project on traffic measures such as pedestrian usage, vehicle speeds or yielding rates.

Low-cost

The cost of demonstration projects will vary depending on the type, size and duration of the project as well as the materials used. In general, material costs range from $100 to $10,000 per installation. The cost of a demonstration project is typically significantly less than the potential final capital infrastructure project being considered.

Temporary infrastructure installations

This guide, produced by the Minnesota Department of Transportation, is focused on infrastructure demonstration project installations that would occur within a roadway right-of-way open to motor vehicle traffic and make a change to the environment for people walking, bicycling, and/or driving. A primary example of an installation would be the realization of a Safe Routes to School strategy. SRTS projects are focused on improving the walking and/or bicycling experience through an intersection, along, or across a street.

PROGRAM-BASED DEMONSTRATION PROJECTS

While this guide focuses on temporary infrastructure, there are many other types of programming-based demonstration projects, including:

- **Open Streets initiatives**: temporarily provide connected stretches of car-free streets for people walking, bicycling, skating and enjoying social activities
- **Temporary wayfinding projects**: design and install quick, light and affordable street signs for people walking and bicycling
- **Pop-up cafes**: provide a temporary restaurant in an underutilized location

Why use this approach?

Demonstration projects allow public agencies, community partners, and people walking, bicycling, taking transit, and driving to evaluate potential infrastructure improvements before potentially investing in permanent changes. Benefits of using a demonstration project approach include:

- Test aspects of safety improvements before making further investments.
- Inspire action and build support for project implementation.
- Develop further public awareness of the potential issue and conceptual options.
- Increase public engagement by inviting stakeholders to try demonstration projects for active transportation.
- Increase understanding of active transportation needs in the community.
- Encourage people to work together in new ways and strengthen relationships between government agencies, elected officials, non-profit organizations, local businesses, and residents.
- Gather data from real-world use of streets and public spaces.
- Increase collaboration between education, engineering, encouragement and enforcement from initial project steps through removal.

Who is this guide for?

This guide builds off of precedents and state of the practice in Minnesota and across the country to provide an approach to planning, designing, implementing, and evaluating demonstration projects in Minnesota. This guide is for anyone interested in demonstration projects, including MnDOT staff, county and municipal roadway owners, engineers, planners, Safe Routes to School teams, and community leaders. The following chapters include:

- An at-a-glance overview (two-page checklist) of the demonstration project process and timeline including key phases, strategies, and considerations for a successful project (Chapter 2).
- Details for local team leaders to build a successful local team; choose a site and project type; and plan, design, evaluate, maintain, and remove the demonstration project (Chapters 3 through 7).
- Follow-up guidance for summarizing lessons learned and next steps (Chapter 8).

Image 1.01: *A team prepares to install a demonstration project*

HOW TO ADDRESS LIABILITY CONCERNS

Construction, operation and maintenance of public roads, bikeways, and walkways involve varying levels of risk. Everyone involved in the development and implementation of a demonstration project needs to consider safety at every stage of the project.

The demonstration project concepts described in this guide highlight geometries and designs that have the potential to increase safety for users of the roadway when appropriately applied. It is also important for all parties to consider potential liability concerns during all phases of a demonstration project.

Consider taking the following actions to address liability concerns.

- ☑ Document the existing conditions at the site (e.g. speeding, poor yielding, pedestrian volumes, sight distances) and how the proposed treatments may impact them.
- ☑ Document the design process and rationale for identifying the proposed treatments. There may be more than one appropriate potential treatment to address a particular issue, so the process will likely include considerations such as community input, maintenance needs, or cost.
- ☑ Document and formalize the relationship between project partners (e.g. who is providing funding, who is designing the project, who is performing installation).
- ☑ Follow state and national standards, such as those found in the Minnesota Manual on Uniform Traffic Control Devices.
- ☑ Project partners may want to consider obtaining liability insurance for the project, which may or may not be a requirement of the permit approval process.

02 STEPS FOR A SUCCESSFUL PROJECT

6 MONTHS

3 MONTHS

Planning and installation checklist

The following checklist provides an at-a-glance understanding of key steps for a successful demonstration project. Additional details, considerations, and resources to support project identification, planning, design, implementation, and evaluation are provided later in this guide.

Building the team *(see Chapters 3 & 4)*

AT LEAST SIX MONTHS BEFORE INSTALLATION

- ☑ Assemble community and agency stakeholders including the road authority if project sites have been identified.
- ☑ Convene Visioning Meeting to:
  - → Review relevant plans & studies.
  - → Determine additional existing information to be collected.
  - → Identify potential project sites, their issues, and why a project is needed.
  - → Review project types that may address the issues.
  - → Identify road authority for potential sites, if not already involved.
  - → Discuss additional stakeholders to include.
  - → Discuss what a successful outcome will look like.
- ☑ Refine potential project site list, as needed.

Choosing a site and selecting a project type *(see Chapter 4)*

AT LEAST THREE MONTHS BEFORE INSTALLATION

- ☑ Convene Project Development Workshop to:
  - → Introduce project to workshop participants.
  - → Visit and evaluate potential project sites.
  - → Select a preferred project site based on selection criteria.
  - → Build consensus around problems and potential solutions at project site.
  - → Discuss public engagement needs/plan.
  - → Discuss potential demonstration project types that address goals and needs at the selected site.
  - → Discuss duration and potential evaluation strategies.
  - → Discuss permitting requirements.
- ☑ Confirm support from road authority and identify permitting needs.
- ☑ Sketch initial project layout in coordination with road authority.
- ☑ Draft installation plan in coordination with road authority.
- ☑ Identify necessary project materials, quantities, costs and vendors in coordination with road authority.

HOW TO PICK A SITE

Teams leading demonstration project installations need to consider several questions when choosing a site for a demonstration project. For example, has there been any previous planning or support for a project at that location? Are the physical characteristics of the site appropriate for a demonstration project? Has the site been evaluated to identify issues for people walking and biking? The MnDOT School Hazard Observation Tool is a free resource that helps identify critical safety issues in the immediate area surrounding a school. Chapter 4 includes information about site selection and project types.

ADA COMPLIANCE

The Americans with Disabilities Act (ADA), enacted on July 26, 1990, is a civil rights law prohibiting discrimination against individuals on the basis of disability. Along roadways, ADA is most commonly applied through the use of curb ramps that allow people using mobility devices to easily move from the sidewalk into the roadway at a crosswalk and tactile warning strips that help visually impaired people identify a crossing location. Demonstration projects should not remove or reduce access for people using mobility devices; they should improve access if possible.

2 MONTHS | 1 MONTH | PROJECT IN PLACE | 2 WEEKS

Planning and design *(see Chapter 5)* and conducting evaluation *(see Chapter 6)*

ONE TO TWO MONTHS BEFORE INSTALLATION

Coordinate with the Road Authority on their involvement in each of the following steps.

- ☑ Refine project layout, installation plan, removal plan, and materials as needed.
- ☑ Determine need for Temporary Traffic Control during installation and removal.
- ☑ Consider emergency, maintenance and transit vehicle access.
- ☑ Procure project materials for installation.
- ☑ Seek support from residents and business owners on the block adjacent to the project area.
- ☑ Define evaluation strategies and develop data collection methods and materials.
- ☑ Identify people to assist with data collection, outreach, and project installation/removal.
- ☑ Create educational and promotional materials to share with project partners and supporters.

APPROXIMATELY ONE MONTH BEFORE INSTALLATION

- ☑ Develop detailed plan/timeline for project installation and removal highlighting material transport and arrival, temporary traffic control timing (if needed), set-up of project elements, programming and evaluation activities, volunteer shifts, and site inspection.
- ☑ Submit applications for permits to the road authority, if needed.
- ☑ Create Temporary Traffic Control Plan in coordination with road authority, if needed.
- ☑ Conduct outreach to residents, business owners, and other stakeholders near the project.
- ☑ Conduct baseline data collection.

COMMUNICATION

Frequent and consistent communication with people who travel through the project area about what the project is for, how long it will last and what happens once it is removed is critical to the success of a demonstration project.

Installing, maintaining, and removing the project *(see Chapter 7)*

- ☑ Notify residents and business owners near the project of installation impacts.
- ☑ Install project per agreed upon concept, materials, and build-day timeline, and in compliance with safety, permitting, and traffic control requirements, per the road authority.
- ☑ Document the installation and final product with photos and videos.
- ☑ Conduct data collection while project is in place, using the same tools and methodology as the baseline data collection.
- ☑ Conduct field visits and site maintenance as determined necessary by the local road authority.
- ☑ Prepare for removal of the demonstration project; create a Traffic Control Plan in coordination with road authority, if needed.
- ☑ Remove the demonstration project according to the agreed upon project timeline, and inform people who travel within the project site of changes to the roadway.

Following up *(see Chapter 8)*

WITHIN APPROXIMATELY TWO WEEKS OF REMOVAL

- ☑ Convene the core planning team, including the road authority, for a project debrief.
- ☑ Compile input from residents, businesses, and other stakeholders.
- ☑ Develop and share evaluation summary with core team and partners.
- ☑ Summarize lessons learned and determine next steps.

MN MUTCD COMPLIANCE

The Minnesota Manual on Uniform Traffic Control Devices include required design and safety standards for streets. These standards are applicable to all roads in Minnesota that are open to the public and are updated periodically. Consult the current MN MUTCD when selecting the site and project type.

03 BUILDING THE TEAM

A successful demonstration project is led by a team comprised of people with the time, energy, skills, authority, and willingness to plan, obtain approvals, implement the project, and remove the project with associated debriefing. When assembling a core team to lead project planning, design, and implementation, it is important to have a plan for engaging with community partners and members of the broader public early in the process. This chapter provides guidance on building a core team and engaging with other potential project partners in the community.

WHO IS THE ROAD AUTHORITY?

Under State Statute the road authority is the entity with jurisdiction over the operation and maintenance of the road—for example, the State, a County, a City, or a Town.

It is essential that the road authority is engaged early and often in the demonstration project process. Even though demonstration projects are temporary, engineering judgment and discretion play a role in the decision to implement a demonstration project; the road authority needs to have a full understanding of the risks associated with the project. As the responsible party, the road authority has the ultimate authority to approve or deny a demonstration project.

Every county has a designated County Engineer who is a Professional Engineer, as do most cities. However, in smaller communities, there may not be a P.E. available, either as an employee or as a contractor. In these cases, the governing body of the community (e.g., the town board) shoulders the responsibility for anything that happens on their roadway. In these situations, the road authority may want to seek out advice from a P.E. while developing the project. Some options for this assistance could include MnDOT District Engineers or County Engineers (see the appendix for information on MnDOT Districts).

Core team

The Core Team is the group that will be responsible for identifying a project site and project type, leading planning and design, and coordinating implementation and evaluation. Having the right people, agencies, and skills represented on the Core Team throughout the lifetime of the project is key for success. While the project leader and team composition will vary from community to community, it is critical that the Core Team includes the road authority and that they are regularly involved in the entire process.

Consider the following groups, agencies, or individuals for potential inclusion as part of the Core Team:

- Road authority representative(s) (required)
- City planning/transportation department
- Safe Routes to School team (for a Safe Routes to School demonstration project)
- Law enforcement
- City communications
- Elected officials
- Transit owner/operators
- Local Public Health staff
- Representatives from a local Safe Communities Coalition
- Community partners (see page 14)
- Other agency representatives (e.g. Parks and Recreation, Metropolitan Planning Organization, Regional Development Commission)

It is recommended that the core team is assembled at least six months before the installation of the demonstration project. During this time, convene a visioning meeting with as many people from the core team as possible to review relevant plans and studies; identify potential project sites, their issues, and why a project is needed; and review project types that may address the issues. If the road authority is not already a part of the core team, now is the time to identify who the appropriate road authority is (based on the potential project site locations). The visioning meeting is also a good time to identify any additional stakeholders to include on the core team.

No matter who is represented on the project team, having people who can fill the following roles will help with project planning, design, implementation, and removal/evaluation:

- Communicators to assist with project communications, social media, and general outreach and engagement
- Coordinators to help organize programming, project planning, budget, permit applications, evaluation and other logistics
- Designers who can help with initial project design, detailed site plans, traffic control plans, evaluation and material identification and procurement

Image 3.01: *A demonstration project installation team prepares paint*

Community partners

There are a variety of ways that community partners can be engaged in the planning and design process. Reach out to local business owners, non-profit organizations, community leaders, influencers, and residents early and often to educate them about the project and invite input and participation. In some cases, it may be appropriate or advantageous to include community partners as part of the core team. Community partners can also help support the project by communicating and promoting the project through their networks, recruiting volunteers (if appropriate and allowed by the road authority), donating materials, assisting with project programming and notifying people of the project's removal.

- School community/associations
- Residents
- Local non-profits
- Advocacy organizations
- Business owners/associations
- Daily commuters and transit users
- Neighborhood associations
- Local sports associations
- Property owners

Marketing and communication strategies to reach the broader public

A significant percentage of people who interact with the project will be members of the broader community who most likely have not been highly involved in project planning, design, or implementation. Use direct mailing, traditional and social media to get the word out about the project including the location, proposed roadway changes, project purpose and goals, and duration. If appropriate, consider holding a public workshop (ideally near the project site) during initial project planning and design to gather feedback and ideas for potential modifications. Gathering public input can help build public support for changes and may reveal issues or ideas that previously weren't considered. While the project is installed, invite people to experience the changes and provide feedback to see if the demonstration project is meeting the stated goals.

It is important to have consistent messages about what concerns and issues the demonstration project is helping to address and its intended benefits. There are many tools to share project information with key stakeholders and members of the broader public. Communicate early and often to inform, promote, engage, recruit, and energize people about the project. See the Appendix for communication resources.

Press release: A press release can be distributed to local news media channels to share information about the project more broadly. Depending on the timing, a press release can include information such as the project purpose, location, goals, and ways to get involved.

Newsletter/email listserve: Newsletter and email messages can be customized for certain stakeholder groups such as business owners, advocates, or members of a school community.

Social media: Twitter, Facebook, Instagram, NextDoor, YouTube and other social media platforms can be great ways to communicate information to key stakeholders and to the public.

Door to door: Door to door engagement near the project site provides an opportunity to have more personal conversations with people who may be directly impacted by the project. Encourage people to ask questions, share ideas, express concerns, and invite them to get involved.

Image 3.02: *Applying paint to street with roller and extension handle*

Posters or flyers: Posters and flyers can include key project information and compelling graphics to inform people of the upcoming demonstration project. Share posters or flyers with project partners and nearby businesses to display for employees, visitors, and passersby.

Promotional kit: Promotional kits can include sample email text, Facebook and Twitter posts, and project-related graphics to make it easy for project partners and supporters to share information with their networks.

Talking points: Provide talking points to community partners and any project volunteers who will be involved with data collection, project installation, stewardship, and removal. Talking points help to ensure that everyone is on the same page about messaging and communication.

One-pagers and postcards: One-pagers and postcards allow people to take key project information home with them and can provide links to project websites or online engagement tools. They can be handed out during public workshops, data collection, project installation, stewardship, removal, or any other time that team members and project partners may engage with the general public about the project.

Public workshop: Hold a public workshop during the initial project planning and design to gather feedback and ideas for potential modifications. Workshops can offer members of the public an opportunity to engage more deeply in the demonstration project.

Project website: A website—either as a standalone site or a subpage on an existing website—can be an up-to-date central repository for information about the planning, installation, and evaluation of a demonstration project.

Other existing community or city channels: Check to see what other existing communication channels may exist for disseminating information about the demonstration project. Examples may include a city newsletter, local newspapers, local community television, and announcements during Council meetings.

COMMUNICATIONS PLAN

A communication plan that outlines the time line and methods for communication during the project planning, installation, and removal establishes clear community expectations.

04 CHOOSING A SITE AND SELECTING A PROJECT TYPE

Choosing the project location

Many factors need to be considered when choosing a location for a demonstration project. A strong need or desire to make a change at a specific location may have already been identified. This location may be identified in a previous plan (for example, a Safe Routes to School Plan, Active Living Plan, a Bicycle/Pedestrian Master Plan, Comprehensive Plan), or another planning process that included conversations with community members.

Select a location that improves overall safety and pedestrian and bicycle access to priority destinations within a community. These destinations are places such as schools, parks, homes, and food sources like grocery stores or convenience stores. Look for a project that provides an opportunity to address equity in the community such as a location in a low-income neighborhood.

Focus evaluation techniques on how the proposed changes at the location impact the site and whether they achieve intended goals. Mid-block locations or un-signalized intersections often create barriers to safe, convenient, and complete networks for people walking and bicycling. Projects focused on uncontrolled crossing locations (i.e., where no traffic signals or stop/yield signs exist) can allow communities to address safety and improve the quality of life for people of all ages and abilities.

Always include the road authority in conversations when selecting a project location. The road authority will ultimately need to approve the location and can advise on whether any permits are needed, and the time required to apply for and secure permits, if needed.

Physical site characteristics

Consider the following physical characteristics when choosing the demonstration project location. Choosing a site with these existing characteristics can simplify planning and installation of a demonstration project.

Desirable physical site characteristics:

- Clear sight distance (i.e., the area does not have fixed objects, such as low-hanging trees, that obscure visibility), unless issues would be corrected by the project
- Posted speed 40 mph or below
- No more than four lanes of traffic (not including turn lanes).
- Average daily traffic of 15,000 motor vehicles per day or less
- Usable curb ramps present
- Adequate existing lighting

Thinking ahead—long-term physical site characteristics:

Depending on the community, additional characteristics related to making long-term site changes may need to be considered, especially if there is interest in pursuing a longer-term project based on the results of the demonstration. These characteristics include:

- State, county, or local road ownership
- Roadway design standards or requirements
- Presence of drainage structures
- Presence of other utilities
- Other reconstruction factors

Planning considerations

In addition to physical site characteristics, consider some broader planning factors when choosing the demonstration project location.

Strongly preferred factors

- Potential to improve overall safety and pedestrian access to priority destinations
- Opportunity to prioritize equity - aim to select a site that supports health for children or older adults who are low-income, of color, native, immigrants, or who have disabilities
- Need or desire, demonstrated in one or more of the following ways:
  - » Location and/or issue has been identified in a previous plan such as a SRTS Plan, Comprehensive Plan, Pedestrian or Bicycle Plan, other planning process, or engineering study.
  - » There is already strong community support and consensus around a project location and/or issue.
  - » Previous community engagement has indicated the location and/or issue is a priority.

Preferred factors

- Potential for long term funding or upcoming construction
- Improves safety or access for priority populations

Undesirable factors

- No community engagement has occurred; it's recommended that in-person engagement has already happened—as part of a previous plan or other planning process (e.g., a student listening session, community meeting, etc.).
- No support from road authority.

Image 4.01: *Lane reallocation demonstration project. Note: engineering judgment was used when selecting project features such as trees.*

ESTIMATING THE PROJECT BUDGET

Larger projects will generally cost more than smaller projects due to the quantity of materials. Longer-term projects will generally cost more than short-term projects due to the durability, replacement and on-going maintenance of materials. Consider any costs related to acquiring a permit from the Road Authority as the project budget is developed. Understanding the project budget early in the planning and design process will help the team make decisions about the project scale, type, and duration. Consult the materials list provided in the appendix to this guide to get an idea of the potential cost of a demonstration project. As the final concept is developed, the cost estimate can be refined.

Identifying needs and project goals

Each group will come into the planning process with different knowledge, tools, and goals. Whether the Core Team had a specific site in mind from the beginning or not, it is important to conduct a site visit and discuss existing challenges, constraints, opportunities, and goals during a project development workshop with the entire core team, including the road authority. If using a previously completed plan, reference the engagement and outreach that was performed to identify the need. If an engineering study was completed, refer to the study to identify the issue.

Once a site is selected based on the characteristics and factors above, focus on building consensus among the Core Team on what the issues, goals, and opportunities are. Before identifying potential solutions or design considerations, develop a list of the existing challenges and concerns with the existing location's configuration. Come to an agreement as a group on what the problems are (e.g., driver yielding, crosswalk encroachment, speeding, sight lines, etc.) before proceeding further; it is important that the potential design of the demonstration project works to address the problems. Finally, develop a list of project goals that are specific, measurable, achievable, relevant, and have time constraints.

Consensus among the Core Team regarding the issues and goals at the selected site will help with the remaining steps in the process. The issues and goals identified early in the process shape decisions for the rest of the project, from choosing a project type and selecting evaluation methods to public engagement and project communication.

Selecting the right project components

The selected demonstration project should have safety benefits for all people using the roadway. Rather than considering each of the following project components individually, work with the road authority to determine how the components can be combined with each other. For example, components such as stop lines and high-visibility crosswalk markings would typically be installed with curb extensions and/or median safety islands, and not as standalone projects.

See Chapter 5 for more information about project components and materials, and see the Appendix for a detailed materials list.

Project component: stop line

DEFINITION

Stop lines show motorists where to stop for pedestrians in advance of a crosswalk.

SITE CONSIDERATIONS

Install stop lines in coordination with marked crosswalks. Stop lines can be used on intersection approaches with stop signs or at traffic signals. At midblock crossing or uncontrolled approaches a STOP HERE FOR PEDESTRIANS sign may be needed to supplement the stop line.

DESIGN CONSIDERATIONS

Stop lines should be perpendicular to travel lanes (not parallel to the adjacent street or crosswalk) and used in combination with marked crosswalks. Stop lines should be located at least eight feet in advance of a marked crosswalk at an intersection and at least 20 feet in advance of a mid-block crosswalk (see MN MUTCD Sec. 3B.16). On multilane approaches, consider adding traffic signs to reinforce for people driving that they need to stop for pedestrians, such as the STOP HERE FOR PEDESTRIANS sign (see MN MUTCD Sec. 2B.11).

Image 4.02: *STOP HERE FOR PEDESTRIANS (R1-5b) Sign*

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape
- Stencil (purchased or made)
- STOP HERE FOR PEDESTRIANS signs

Image 4.03: *Stop line installation*

Project component: high-visibility crosswalk markings

DEFINITION

High visibility crosswalk markings highlight pedestrian crossing locations. Ladder, zebra, and continental crosswalk markings are more visible to approaching motorists than the more common parallel lines.

SITE CONSIDERATIONS

Crosswalk marking may be applied where pedestrian traffic is anticipated and encouraged. Crosswalk markings delineate the path that people walking and bicycling on a sidewalk or sidepath are meant to take across the street and help alert drivers to their presence. The MN MUTCD discourages the indiscriminate use of crosswalk markings and suggests that an engineering study should be completed by an engineer prior to installation (MN MUTCD Sec 3B.18). This study can be as simple as a site visit and notes, or a more complex data-driven analysis. If a site has been selected as a demonstration project location, then the inclusion of crosswalk markings may likely be appropriate.

Crosswalk marking demonstrations will be easiest at intersections or crossings where ADA-compliant curb ramps are in place and where walkways exist on both sides of the street. If the site does not already have compliant ADA-compliant curb ramps, temporary ramps can be added as part of the demonstration project. See page 31 for more information about ADA-compliance and demonstration projects.

DESIGN CONSIDERATIONS

Stripe the crosswalk as wide as or wider than the walkway it connects to (no less than six feet wide, per MN MUTCD). Align the crosswalk as closely as possible to the pedestrian desire line. If feasible, consider crosswalk markings in combination with other treatments such as a stop line, curb extensions, or median safety islands to increase pedestrian visibility and minimize pedestrian crossing distances. At locations where people driving may need additional information to alert them to the presence of pedestrians, signs and warning beacons could be used to enhance the crosswalk marking. FHWA's STEP Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations includes information about additional enhancements and their application. Finally, consider the lighting at the intersection—if ambient lighting is low, use retroreflective materials.

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape
- Crosswalk stencil (purchased or made)

CROSSWALKS

A marked crosswalk is a type of pavement marking that indicates to pedestrians the recommended location to cross the roadway and also alerts approaching motorists as to where pedestrians may be crossing the street.

In Minnesota, a legal crosswalk does not necessarily have to have a marked crosswalk. State laws (MN STATUTE 169.011, subd. 20 and STATUTE 169.21, subd. 2) define a legal crosswalk as the extension of the sidewalks across a road, whether it has a marked crosswalk or not.

Marked crosswalks are often installed at signalized intersections, at a school zone crossing (whether signalized or not), and at unsignalized locations where engineers determine that there are enough pedestrians to justify a marked crossing.

Crosswalks may be marked at midblock crossing locations as well as at intersections.

Image 4.04: *Demonstration team installing crosswalk markings. Paint may be applied with a sprayer (as pictured) or a roller.*

Project component: curb extensions

DEFINITION

Curb extensions, also called bump-outs or bulb-outs, visually and physically narrow the roadway. They create shorter crossings for pedestrians and increase visibility of people walking and driving, and provide additional space for amenities including parklets, bike parking, and landscaping. For a demonstration project, consult with the road authority about what types of amenities would be allowed in the roadway as part of a temporary curb extension installation.

SITE CONSIDERATIONS

Curb extensions can be used at intersections or mid-block crossings and on commercial or residential streets. Curb extension demonstrations will be easiest on streets with shoulders or curbside parking.

DESIGN CONSIDERATIONS

At a minimum, the length of a curb extension needs to be at least the width of the existing crosswalk markings, if present. Curb extensions may need to be slightly narrower than adjacent parking lanes (consider engineering factors, including the vehicles using the roadway, snow/ice maintenance, etc.). Barrier elements such as flex posts, planters, and other vertical elements can be used to demarcate the curb extension from parking and travel lanes. Consider combining a curb extension with a marked crosswalk and stop or yield bar.

Image 4.05: *Curb extension demonstration project*

Minnesota state law prohibits parking within 20 feet of a crosswalk at an intersection and within 30 feet of stop signs, flashing lights, or traffic signals. Installing a curb extension that extends 20 or 30 feet long is one strategy to passively enforcing state parking laws while also providing more space for people walking. Consider adding signs enforcing parking restrictions.

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape
- Earth-tone colored paint
- White flexible posts or longitudinal channelizer

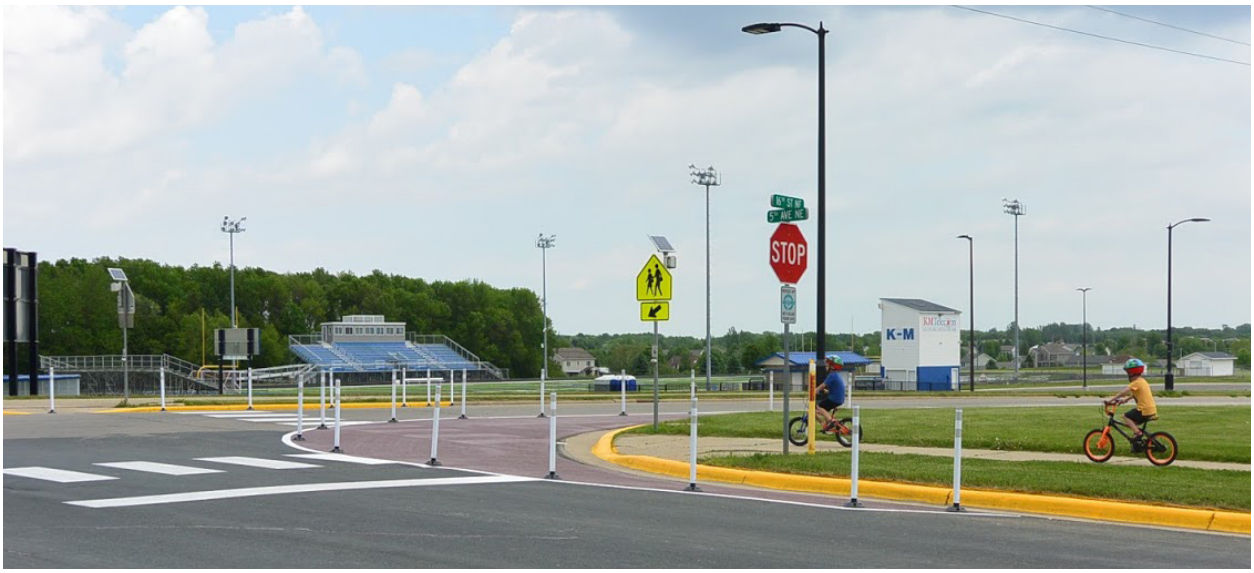


Image 4.06: *Children on bikes preparing to cross the street at a curb extension*

Project component: median safety island (pedestrian refuge island)

DEFINITION

Median safety islands create a two-stage crossing for pedestrians which may make crossing the street easier and safer. Median safety islands shorten pedestrian crossing distance and reduce the number of lanes pedestrians have to cross at once. This addresses one of the most dangerous risks people face when crossing by allowing pedestrians to cross fewer lanes of traffic at a time. Generally, median safety islands are located between opposing lanes of traffic.

SITE CONSIDERATIONS

Median safety islands may be used at signalized or non-signalized crossings along streets where people walking or bicycling would benefit from being able to cross one direction of traffic at a time. Projects may be easiest to install in a location where a striped median, left-turn lane, or two-way left-turn lane is present, but not actually needed for left-turning traffic. Note that installing and removing this type of project can be more challenging because medians are located in the center of an active street. Traffic control and safety planning for installation may require more thought and preparation.

DESIGN CONSIDERATIONS

Ideally, median safety islands are at least 10 feet wide to allow a bicycle with a trailer to wait; however, they can be as narrow as six feet in constrained conditions (length of one bicycle). Median safety islands that are at least 40 feet long or longer are generally more noticeable for approaching motorists. When installed on a two-way street, median safety islands should be placed along the centerline of the roadway between opposing vehicle travel lanes with a KEEP RIGHT sign placed on each end (MN MUTCD Sec. 2B.32). Take into consideration street and sidewalk maintenance needs such as snow removal and sweeping when planning for long-term median safety islands.

COMPONENTS AND MATERIALS

- Yellow traffic paint or temporary pavement marking tape
- Earth-tone colored paint
- Yellow flexible posts or longitudinal channelizer
- KEEP RIGHT signs

Image 4.07: *Example of a median safety island (pedestrian refuge island)*

Project component: conventional, buffered, or separated bike lane

DEFINITION

A bike lane is a designated space for people to ride bicycles within the street right-of-way. Buffered bike lanes include an additional striped buffer between the bike lane and adjacent vehicle travel (or parking) lane, and separated bike lanes include physical separation between the bike lane and adjacent vehicle travel lane.

SITE CONSIDERATIONS

Bike lane demonstration projects may require more detailed traffic control planning. In addition, it's important to consider how to transition the project end points. The easiest way to create a separated bike lane is to simply add a buffer and physical barrier to an existing conventional bike lane. Streets with curbside parking can also work well if parking can be prohibited during the demonstration project. Streets with shoulders or wide outside lanes can also work well depending on the space available. Consider the frequency of curb cuts or driveways and existing trash/recycling collection schedules and cart pickup locations.

DESIGN CONSIDERATIONS

For all bike lane types, a vehicle travel lane of 10-11 feet should be preserved, per the MnDOT Roadway Design Manual and State Aid Standards. Common dimensions for bike lanes are included below. For more information on bike lane design, there are several references available. These include the MnDOT Bicycle Facility Design Manual and the Federal Highway Administration Separated Bike Lane Planning and Design Guide.

CONVENTIONAL BIKE LANE

Ideal dimensions for a conventional bike lane are 5-7 feet.

BUFFERED BIKE LANE

Include a painted buffer of 2 feet in addition to a 5-7 foot bike lane.

SEPARATED BIKE LANE

Include a physical barrier of 3 feet or greater in addition to a 5-7 foot bike lane. A common physical barrier element for separated bike lane demonstration projects is the flex post. See the materials list in the Appendix for other barrier options.

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape for lines
- White traffic paint and stencils or temporary pavement marking message kit for bike lane markings
- Bike lane-related signs
- White flexible posts or longitudinal channelizer for separated bike lanes

Image 4.08: *Example of a conventional bike lane*

Image 4.09: *Example of a buffered bike lane*

Image 4.10: *Example of a separated bike lane*

Project component: mini traffic circle

DEFINITION

Mini traffic circles may reduce speeds at minor intersection crossings and are good potential treatments for existing stop-controlled intersections. Mini traffic circles operate in the same way as larger roundabouts: stay right and yield to people already in the intersection.

SITE CONSIDERATIONS

Mini traffic circles have been shown to work well at four-way stop intersections on low volume/low speed streets, although they may be appropriate at two-way stop intersections. Work closely with the road authority during planning and design. Installing a mini traffic circle may be more challenging because it is in the middle of the roadway. Traffic control and safety planning for installation may require more effort. The paths for buses, emergency vehicles, and other commercial vehicles should all be evaluated before implementing a mini traffic circle to ensure they can travel through the intersection.

DESIGN CONSIDERATIONS

Pay careful attention to the available lane width and turning radii with mini traffic circles. Consider marking crosswalks to clarify where pedestrians are meant to cross and where they have priority. On residential streets, the travel space should be about 15 feet wide (measured from the corner to the nearest point on the edge of the traffic circle).

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape for edge lines
- White flexible posts for edge lines
- Yellow traffic paint or temporary pavement marking tape for center lines or median areas
- Yellow flexible posts or longitudinal channelizer for splitter islands and central island
- Operational signs

Image 4.11: *Example of a mini traffic circle constructed with parking stops and signs*

Project component: lane reduction

DEFINITION

A lane reduction reduces the number of travel lanes on a street.

SITE CONSIDERATIONS

Lane reductions work best on streets that have multiple lanes of traffic in each direction where the existing volume may not require multiple lanes. Reducing the number of lanes can help reduce speeding and multiple-lane crash threat risks at pedestrian crossings. Lane reductions can also free up space for demonstrations of different uses such as separated bike lanes, bike parking, or parklets.

DESIGN CONSIDERATIONS

Work closely with the road authority to determine if a lane reduction is feasible based on existing traffic volumes. Options may include converting a travel lane to a dedicated turn lane at an approaching intersection or merging two lanes into one with a LANE ENDS (W4-2) sign (MN MUTCD Sec. 2C.42). If a lane reduction demonstration includes a signalized intersection, signal detection or timing may need to be adjusted. Talk to the road authority about how to address these potential impacts.

COMPONENTS AND MATERIALS

- White traffic paint or temporary pavement marking tape for edge lines and lane lines
- Yellow traffic paint or temporary pavement marking tape for center lines and medians
- White flexible posts for outside curbs
- Yellow flexible posts for medians
- Operational signs

Image 4.12: *Right-turn lane removal and curb extensions demonstration project*

Image 4.13: *Traffic lane conversion from 4 to 3 lanes with buffered bike lanes*

Enhanced amenity options

The following examples may be considered as complements to demonstration projects with extra space adjacent to the curb.

Image 4.14: *People enjoying a parklet in Minneapolis*

PARKLET

A parklet is a sidewalk extension that provides more space and amenities for people using the street.

Parklets are usually installed in parking lanes or shoulders (the edge of the roadway) and take up the space that would typically be used for storing one or two cars. They typically extend out from the sidewalk at the level of the sidewalk to the width of the adjacent car storage area. They work best in areas where there is additional demand for more public space, usually on neighborhood retail or commercial streets. Parklets can also work well at schools to provide additional space for outdoor learning, bike parking, seating, or waiting for the bus.

Most parklets feature unique design elements that include plantings, seating, and/or bike racks. The duration of the demonstration project will be important in selecting appropriate materials. Consider combining a parklet with a curb extension. Parklets should be specifically designated for public use and not assigned to any particular business or group. MnDOT has developed guidance on how parklets can be used within the right of way of the trunk highway system; this guidance can be found in the Right of Way Manual.

ON-STREET BICYCLE CORRAL

Bike corrals transform a standard parking space into on-street bicycle parking. Bike corrals can accommodate up to 12 bicycles in the amount of space typically used for one vehicle.

Bicycle corrals are typically located in places where the sidewalk is too narrow to accommodate bicycle racks, or where the demand for bicycle parking surpasses supply. At school locations, consider the age of students and the proximity to the school's entry/exit doors. Demonstration projects could replace one or more vehicle parking spaces with on-street bicycle parking.

Corrals should be at least eight feet in width, orient bicycles perpendicular to the curb, and be designed to accommodate eight or more bicycles securely to a fixed, heavy object. Consider combining an on-street bicycle corral with a curb extension or parklet.

Bike racks should provide two points of contact with the bicycle, allow locking of the frame and at least one wheel with a U-lock, and be intuitive to use. See the Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking Guide for more information.

Image 4.15: *Protected on-street bike corral*

05 PLANNING AND DESIGN

Before beginning demonstration project planning and design, refer back to the previous chapter to check on consensus around the problem identification process (reference "Choosing a Project Location" and "Identifying Needs and Project Goals" in Chapter 4). Information in Chapter 5 uses the identified problem and selected project components from Chapter 4 as a foundation for moving forward with more detailed planning and design.

Site design

Initial sketch

Develop an initial sketch of the project site and potential design solutions as part of the early visioning and project exploration. The purpose of the initial sketch is to generate and visualize ideas quickly in order to narrow down possibilities and build consensus around a more focused project. Draw ideas on tracing paper over aerial maps, use online tools like Streetmix, or basic computer software like PowerPoint to generate ideas and refine solutions. The initial sketch can also be an opportunity to note existing features that need further exploration such as driveways, bus stops, parking, drainage, fire hydrants, and other elements that may be a factor in detailed design.

Refinement

Once the project location, project type, and general application have been defined, it's time to start thinking more critically about site design and layout. The road authority will know how to reference roadway design standards, including the MN MUTCD and whether Temporary Traffic Control is required during installation (see more below about MN MUTCD and Temporary Traffic Control).

Final concept

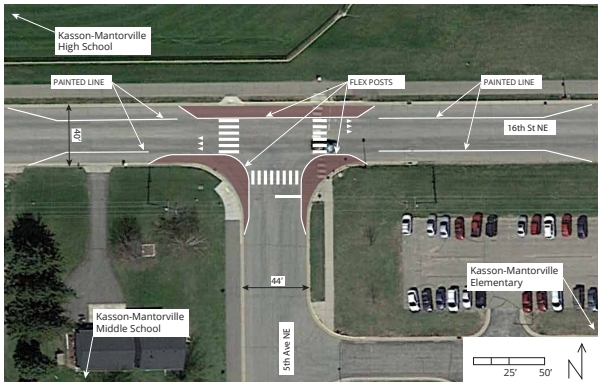
During detailed design, the demonstration project needs to be drawn to scale to illustrate how the proposed installation will be laid out in reference to the existing street features such as curbs and curb ramps. In coordination with the road authority, select an appropriate motorized design vehicle (e.g., if the demonstration project requires school buses to maneuver, detailed design should show how turning movements will be accomplished). Consider, also, how emergency and transit (if applicable) vehicle access will be maintained. Consult with the road authority regarding their requirements for approving the design.

Project duration

Project duration could be decided based on project goals, project budget, or community support. However, it will also impact other decisions including materials, evaluation metrics, and even design and coordination.

Materials and cost: As a rule of thumb, longer projects will require more durable materials, and more durable materials will have a higher cost. More information on material selection and procurement is available below.

Image 5.01: *Initial design sketch example*



5th Ave NE & 16th St NE
Kasson-Mantorville Schools
Kasson, MN
MnDOT SRTS Demonstration Project

DRAFT CONCEPT - NOT FOR CONSTRUCTION
4/12/19

Image 5.02: *Refined concept example*

Evaluation methodology and analysis: Shorter projects can be a great tool for testing new treatments and sparking conversations about potential changes. For example, a week-long demonstration curb extension at a school can be a great way to engage students in data collection while evaluating any immediate impacts to school bus maneuverability.

Longer projects will allow people to adjust, resume old habits, or develop new travel patterns. Data-driven analysis of behavior changes is more feasible with a longer project duration. For example, a multiple-week installation of a mid-block marked crossing and curb extension can be evaluated using before/after motor vehicle speed and yielding compliance in addition to qualitative evaluation methods.

When selecting evaluation metrics and conducting analysis, it's important to understand the limitations and implications of the data based on project duration. Chapter 6 discusses evaluation methods in more detail.

Planning, design, and communication: Longer projects may have a more significant impact on adjacent residents or business owners. Take, for example, a separated bike lane demonstration project that requires parking removal. The communication and coordination with residents and city services will be much more involved and nuanced for a multi-month project than a one-day project.

Material selection

Coordinate closely with the road authority to select materials for the demonstration project. Materials should be selected based on the context of the specific project and for the expected project duration. Pavement marking texture is important, since some types of paint can be come slippery when wet. Some materials are not appropriate for use in the roadway. Any objects that are placed in the roadway should be MN MUTCD compliant and crashworthy. Work with the Core Team to identify specifics about the materials including colors, dimensions, quantities, and vendors.

MnDOT has an Approved/Qualified Products List for products that have been approved or qualified for use on MnDOT roads. Local designers may cite MnDOT's APL as a reference for information for non-MnDOT locations; however, the APL is not conclusive, and many products MnDOT uses are not required to be on the approved/qualified product list. Coordinate with the road authority to always follow the MN MUTCD when selecting materials.

For a shorter-term project (e.g., two to three weeks), diluted tempera paint or temporary pavement marking tape may be an option for easy removal at the end of the project; for longer-term projects, more durable acrylic traffic paint may be more appropriate (however, it is much harder to remove—coordinate with the road authority on the type of paint to use and potential approaches to project removal). Common materials for demonstration projects are included in the table in the Appendix.

ONLINE VISUALIZATION TOOLS

Streetmix is an example of a free online visualization tool that allows the user to design, remix, and share their neighborhood street. Additionally, one can add trees or bike lanes, widen sidewalks, or reduce traffic lanes while learning how these decisions can impact the street's available right-of-way, and one's community.

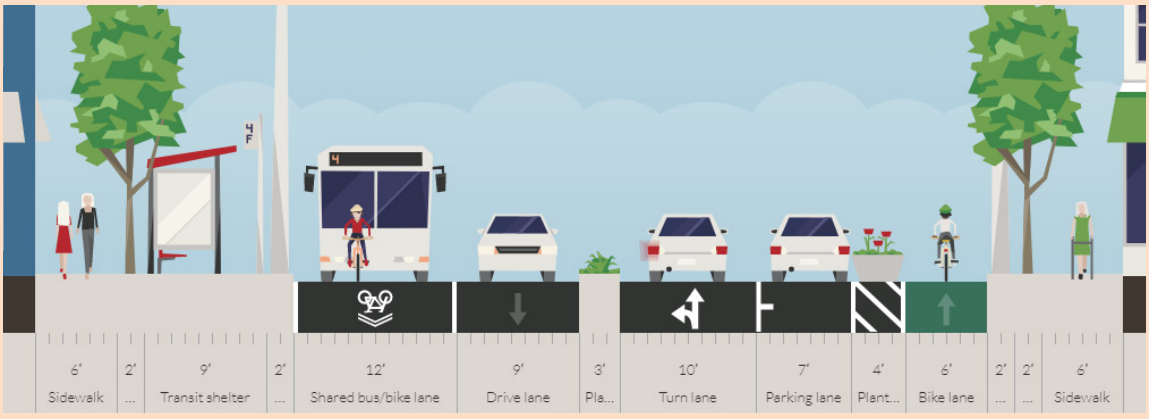


Image 5.03: *Streetmix example*

MN MUTCD Considerations

The Minnesota Manual on Uniform Traffic Control Devices governs traffic control devices (e.g., signs and pavement markings) in order to ensure consistency in messaging to drivers. By law, all road authorities must follow the MN MUTCD (MN Statute 2018, section 169.06, Subdivisions 1, 2, and 3). Consistency is key to safer transportation infrastructure as the meaning of each device needs to be universally understood by all road users. Only use treatments that are compliant with the MN MUTCD. The use of non-standard treatments could increase the risk of a crash or injury, and liability related to the use of non-standard treatment falls to the road authority.

Specifically, the MN MUTCD includes recommended colors for various treatments and discourages non-standard use of color as it could distract drivers, reducing their ability to notice pedestrians or other moving elements.

Additionally, the MN MUTCD provides guidance on crosswalk design and pavement color. Many communities have created more colorful crosswalks or added colorful pavement markings to curb extensions as a way to enhance conspicuity and express the identity of a place through on-street artwork. However, the FHWA has ruled against this on several occasions; the most recent interpretation on this can be found in Interpretation Letter 309-24.

In this, FHWA states that:

> "Examples of acceptable treatments include brick lattice patterns, paving bricks, paving stones, setts, cobbles, or other resources designed to simulate such paving. Acceptable colors for these materials would be red, rust, brown, burgundy, clay, tan or similar earth tone equivalents. All elements of pattern and color for these treatments are to be uniform, consistent, repetitive, and expected so as not to be a source of distraction. No element of the aesthetic interior treatment is to be random or unsystematic. No element of the aesthetic interior treatment can implement pictographs, symbols, multiple color arrangements, etc., or can otherwise attempt to communicate with any roadway user."

The following is a summary of guidance for material colors based on MN MUTCD Considerations:

- Use yellow flex posts on yellow center areas like median centerlines, and white flex posts on side areas like curb extensions.
- Use red, rust, brown, burgundy, clay, tan or similar earth tone pavement color equivalents.
- Do not use blue in curb extensions as it could be confused with a disability parking zone.
- Do not use green as a solid color unless it is within a bike facility (the lane itself, not the buffer).
- If patterns are used, keep them at a pedestrian scale, so that they may not be distracting to motorists on the approach.
- Geometry of tapers, mini traffic circles, and curb extensions need to comply with design speed to the greatest extent possible.
- Keep width of marked crosswalks, bike lanes, and travel lanes within established ranges (e.g., do not install a four-foot wide marked crosswalk).

If ambient lighting is low, use retroreflective paint. If flex posts are used in combination with painted lines (e.g., white flex posts on side areas like curb extensions), then the flex posts would count for retroreflectivity.

Demonstration projects should not include changes to intersection control (e.g., two-way stop control, all-way stop control, or traffic signal).

Image 5.04: *Rust colored paint in a curb extension outlined with white paint*

ADA CONSIDERATIONS

The Americans with Disabilities Act, enacted on July 26, 1990, is a civil rights law prohibiting discrimination against individuals on the basis of disability. Whenever possible, communities are encouraged to select a location for a demonstration project that already has ADA-compliant curb ramps. However, incomplete existing ADA-compliance should not be a reason to prevent a demonstration project from happening.

Wherever feasible, temporary ADA improvements should be incorporated into demonstration projects. If the site has unusable ramps (or no ramps at all), the demonstration project should include temporary ramps. Temporary curb ramps are easiest to install in coordination with temporary curb extensions. If the demonstration project includes a curb extension, the project should include the use of a temporary detectable warning surface (truncated domes) to indicate crosswalk direction. These temporary installations are a great way to show how an ADA-compliant permanent project will provide access.

If the demonstration project does not include a curb extension (e.g., a separated bike lane next to the curb) and a temporary ramp cannot be included, it is recommended that a demonstration in this type of location does not include a marked crosswalk (i.e., do not create additional upgrades that are not accessible). There is a strong case for selecting a location that already has usable ADA ramps.

Work closely with the roadway owner to ensure that temporary ADA improvements, including ramps, are usable and compliant with ADA requirements. If the project includes moving a transit stop, then provide visual and audible notification (audible message device).

Temporary traffic control

Temporary Traffic Control refers to signs, cones, and markings that are used during construction. TTC may be needed during the installation of the demonstration project to protect workers and volunteers from vehicle traffic and to redirect pedestrian/bike traffic as needed during the work.

A major goal of demonstration projects is to evaluate and experience street design options. In order to understand the impact of potential changes, streets should remain open to vehicle traffic once the project is installed. Once it is installed, all necessary traffic control should be included as part of the demonstration project and all signs and markings should be MN MUTCD compliant devices that drivers would normally see outside of a construction zone.

The road authority is responsible for determining applicable TTC for the installation of the demonstration project, which may include closing all or part of the road to vehicle traffic for the duration of the installation. Someone trained in the design and installation of TTC should be responsible for developing the TTC plan for a demonstration project installation.

The Minnesota Temporary Traffic Control Field Manual (MN MUTCD Sec. 6K) is a valuable resource for those developing TTC plans.

Image 5.05: *Temporary traffic control during demonstration project installation*

06 DOCUMENTING AND EVALUATING

Why document and evaluate?

Data collection is a critical component of evaluating the success of a demonstration project. Documenting conditions before and during the project installation creates a record of the community's hard work planning and designing the temporary changes and how the project impacts the community. Remember to take photos and video before project installation, during installation, and while the project is active. Careful documentation through data collection, evaluation, and report creation is valuable because data can help the project team understand the successes of the project, create a summary report for future reference, and make adjustments for future iterations.

Collecting and evaluating data can help answer questions related to project impacts. The methods described in this chapter are intended to collect qualitative and quantitative data about the conditions before and after the demonstration project is installed. Communities can collect data about walking, bicycling and driving activity, and survey people who walk, bicycle, drive, live, visit, work, go to school or shop in this area to get a better sense of the demand for and effectiveness of the improvements.

Thoughtful evaluation can help to build support for active transportation and achieve long-term goals around equitable street design. If the project does not perform as intended, future designs can be calibrated to reflect lessons learned.

This chapter provides an overview of evaluation methods and provides guidance on when and how to gather data and document results.

Developing evaluation questions

The first step in planning evaluation is developing the questions that the evaluation will seek to answer. Engage the Core Team and other key stakeholders, such as community groups and businesses located near the project site, to articulate the evaluation questions. Avoid yes/no questions. Examples of evaluation questions include:

- How many people engaged with the project site?
- What impact did the project have on driver behavior at this site?
- How did the project affect pedestrians' perception of safety at the site?
- What did users like and dislike about the project?

The evaluation questions will determine the best data collection methods and tools to use.

Guidance for data collection

When to collect data

Ideally, plan to collect data before, during, and after the demonstration project is installed. Collecting data before the project and during the project is especially important when it comes to quantitative data so that there is a baseline to examine changes over time. Qualitative data may be less impacted by time of day, day of week, weather, or special events. Document the project through photographs, or other visual documentation methods as discussed in subsequent sections, when collecting data.

Consistency in data collection

To make the most of the data, use consistent data collection methods to the greatest extent possible. This is especially true for quantitative data like traffic counts, vehicle speeds, and vehicle delay. That means collecting data during the same time of day and day of week, and making decisions as needed to account for weather, construction, or other activities that may impact people's behavior. For example, if baseline counts are taken between 2-4 p.m. on a Wednesday, counts collected during a project installation should also be conducted between 2-4 p.m. on a weekday (Tuesday-Thursday). Depending on the location and surrounding context, it is often advisable to collect data during two or more time periods, such as a weekday evening peak (or several weekday peaks) and Saturday afternoon. To reduce variability, data collected on multiple weekdays at the same time of day can be averaged together. Data collected from different days/times can provide insight on how conditions and use of the project site differ depending on the day/time.

Day of week

For typical user counts near schools, collect data midweek on Tuesday, Wednesday, or Thursday. Saturday is recommended for weekend counts (if applicable for other types of project

locations), but collection on Sunday may be preferred for some communities or locations, for example if the project site is located near a place of worship with Sunday services.

Time of day

Collecting data during daily peaks provides the largest sample size for comparing before/during or year after year data. Identify two consecutive hours for data collection that overlap peak activity. For example, collect counts from 2 p.m. to 4 p.m. on a weekday (centered around school dismissal, for example) or 12 p.m. to 2 p.m. on a Saturday.

Weather

Pedestrian and bicycle volumes are much more affected by weather than driving volumes. If it is raining, snowing, or excessively hot, postpone data collection to another day.

Special events

Avoid collecting data on holidays, during construction, or other events or special circumstances that may impact pedestrian, bicycle, or driver behavior. Data may be collected during recurring events, such as a farmer's market, if the event is active before and while the demonstration project is in place. If collecting data during a recurring event, it is recommended to also collect data during a non-event time. Qualitative data such as public perception surveys may be less impacted by special events.

Evaluation methods

Below are common qualitative and quantitative evaluation methods for demonstration projects. See the Appendix for example evaluation tools and templates.

Interactive data collection

Interactive or engaged data refers to data that is collected from people (i.e. asking people to answer a question or give information). Examples include quotes or observations. This kind of data is useful in telling the story of the project in a genuine and human-focused way.

PERFORMANCE METRICS TO EVALUATE WITH INTERACTIVE EVALUATION METHODS:

- **Pedestrian and Bicycle Level of Service / Level of Traffic Stress:** how users perceive a service condition (delay, travel time, speed, comfort). Walking and bicycling Level of Service and Level of Traffic Stress can be assessed through various methodologies depending on context and desired outcomes, but generally focus on assessing comfort levels under specific situations.
- **User Perceptions:** measurement of how safe a person feels under various network scenarios. For example, a person walking will likely perceive a street to be unsafe if it lacks sidewalks and permits high motor vehicle speeds. The measure predominantly applies to infrastructure and roadway network conditions, not safety as an element of security.

THE FOLLOWING METHODS CAN BE USED TO GATHER INTERACTIVE DATA:

Intercept Surveys: Develop a brief (no more than 3 questions) survey to ask people who pass through the project area.

Questionnaires: Use paper or electronic questionnaires to gather more detailed information on site, or as a follow-up to the project. To keep people engaged, keep it brief—aim to create a questionnaire that can be easily completed in five

Image 6.01: *Interviewing passersby next to a demonstration project installation*

minutes or less. If appropriate, consider developing different surveys for different stakeholder groups.

Interviews & Testimonials: Input from some key stakeholders may be of particular importance to the project. For example, if changing an intersection or roadway adjacent to a school, interview student patrols or adult crossing guards to get their input. Develop a list of key stakeholders to interview and record their thoughts so that, with permission, their feedback can be used as testimonials in the future.

Idea Board / Comment in a Box: Provide a space for people to quickly write down ideas and see what others have shared. This could be a large chalkboard, blank paper or canvas, or other space where people can write or add ideas on sticky-notes. Consider providing prompts to generate feedback such as "I like this because..." or "I dislike this because..." Provide the tools necessary for people to easily share their thoughts on the idea board. If possible, staff the idea board to orient people to the project and invite people to share feedback.

Chalk Talk: Chalk Talk is a silent way to get everyone in a group participating - to reflect on complex issues or questions, generate ideas, check on learning, develop projects, or solve problems. Chalk Talk starts with a single question written on a chalk board or large piece of paper. Participants add comments or answers to the initial question and subsequent comments as they feel moved, and draw a connecting line between their contribution and the question or comment they're responding to. The Chalk Talk thinking exercise provides an opportunity for everyone to be given a chance to be heard. Thinking becomes visible and it encourages people to consider others' viewpoints.

Social Media: Develop a hashtag for users of social media to have conversations and share input and ideas related to the demonstration project.

Dotmocracy: Dotmocracy, or voting with dots, is a method of voting with dot stickers or markers to collect and recognize levels of agreement.

Passive evaluation

Passive evaluation refers to data that can be collected through passive observation or analysis. Examples include pedestrian, bicycle, and vehicle counts or traffic speeds. Choose passive evaluation methods that will help determine how the project may have impacted key users, and whether or not it was a success. Video, automated data collection, and manual data collection are all viable strategies for passive data collection.

PERFORMANCE METRICS TO EVALUATE WITH PASSIVE EVALUATION METHODS:

- **Adherence to Traffic Laws:** a measure of how well people driving, bicycling, and walking obey current traffic laws, such as yielding rates and crosswalk usage.
- **Average Travel Time:** the average time it takes road users, including people walking and bicycling, to travel a specified distance.
- **Delay:** average delay (seconds) associated with bicycling and walking at specific locations or across longer distances.
- **Mode Split:** proportion of total commute trips by transportation mode (i.e., walking, bicycling, etc.).
- **Pedestrian Space:** measurement or proportion of public right-of-way dedicated to walking activities, including sidewalks, plazas, median refuges, and crosswalks.
- **Volume:** measured number of people walking and bicycling in a specified area for a designated period of time.

THE FOLLOWING METHODS CAN BE USED TO GATHER PASSIVE DATA:

School Zone Hazard Observation Tool: This resource identifies safety issues surrounding a school. It was developed for Safe Routes to School projects but could be used for broader demonstration project needs. Safety issues may include unsafe crossings, distractions, illegal parking, or others. The tool could be used before the demonstration project to inform site selection or during the project to evaluate the extent to which changes to the site impact behavior.

Pedestrian, Bicycle, and Vehicle Counts: Whether volume data is collected by video, automated counters, or manual counts, data will ultimately be documented in the same way. Create a schedule that accounts for consistent data collection windows and uniform counting periods (for example a two-hour count broken up into 10 or 15-minute intervals). Collect data during the same time period before and after the project is in place. See Appendix for a sample worksheet and additional instructions.

Vehicle Speeds: In many cases, the project goal may be to reduce driver speeds. Speed data can easily be conducted with a radar gun or road tubes. It can also be approximated by marking a 100-foot measurement on the roadway and using a stopwatch to record the time it takes for a driver to travel that distance. Coordinate with the road authority or MnDOT district to borrow road tubes for vehicle speed data collection.

Activity Counts: Beyond counting who is passing through the project area, record who is staying and what they are doing.

This may be especially useful for projects that include a public gathering space such as parklets or temporary plazas. This can be accomplished through regular activity counts, which are conducted at standard intervals just like volume counts. For activity counts, gather information about what people are doing (sitting, standing, reading, etc.), perceived personal characteristics such as age or gender, how long they're staying, and other metrics that may be useful for the project.

Driver Stop and Yield Compliance: Observe and record the number of drivers who yield or stop for pedestrians in the marked crosswalk before, during, and after the project. If applicable, consider also noting where motorists are stopping or yielding for pedestrians compared to the marked crosswalk location.

Vehicle Delay or Red Light Stop Times: Measuring vehicle delay can be valuable if there are concerns about traffic backups as a result of the project. Have a project partner or volunteer use a stopwatch to time how long it takes for them or other motorists to get through the project area before and after the project is in place. Another option is to simply count the queue of drivers waiting at a red light.

Pedestrian Crossing Distance: Measure the pedestrian crossing distance before and during the project and note changes in terms of crossing distance and/or crossing time. Reference the MN MUTCD for calculations on estimating pedestrian crossing time.

Emergency and transit vehicle access: Invite the fire department, transit operators, and other emergency vehicles to navigate the project site to test how well their vehicles can maneuver around the demonstration project. Record the results with video. Consider conducting early during installation day so that adjustments can be made in the field if necessary.

Resources Leveraged: Track volunteer involvement, in-kind donations, financial contributions, and other resources. These metrics demonstrate support for the project and can be valuable if questions arise about project costs or staff time.

Event Attendance: Record the approximate number of people who attend an event or interact with the project by the number of materials picked up such as pamphlets or stickers.

Bicycle Parking Inventory and Utilization: Track the number of bicycle racks present in the project area and the number of bicycles locked to designated bike parking spaces and/or other objects such as sign posts.

Selecting evaluation methods

The following matrix provides examples evaluation methods to consider based on observed problems at a project site and the demonstration project type selected. The best evaluation methods for a particular demonstration project will depend on the site and the context of the project. The Road Authority may also have a specific evaluation method or study that they typically use to evaluate changes to the roadway.

In addition to photos and videos of the demonstration project process, installation, and impacts, the evaluation itself should be documented in a report. This report should include an overview of the project, project team representatives, evaluation methodology, and documentation of results/ lessons learned. This type of report can be very valuable in obtaining future funding for a permanent installation and gaining long-term support from stakeholders not directly involved in the demonstration project. At the same time, success could mean showing that the chosen project installation is not right for that site. The road authority, community planning organization, and other community agencies that may need to reference it in the future should all have a copy of the evaluation report.

> Because of their infrequency, crashes may not be a good before and after evaluation tool. Crash history at a site may help identify that site for treatment, but it will be difficult to measure the demonstration project's impact on crashes over a short period of time.

Image 6.02: *Informational sign posted at demonstration project. Note: Engineering judgment was used in the selection of project features such as planters.*

Image 6.03: *Photograph from demonstration project installation - Kasson, MN*

Visual documentation methods

Collecting photographs and visuals are essential for telling the story of the demonstration project. Potential documentation methods include:

Before and after photographs: Before and after photographs can provide a striking visual. If possible, explore opportunities to capture aerial photography (from a nearby window, balcony, rooftop, or drone footage). Try to take photos from the same location and angle before and after the project is installed for a clear comparison. Coordinate with school administrative staff prior to photographing on or near school grounds. Each school has a unique process regarding photography. Some schools may require consent forms or other photograph release forms prior to approving the photography. Some schools may have also a list of students whose parents have not consented to their being photographed. Even after obtaining consent from a school to photograph students, avoid taking pictures of students' faces.

Video recording: Collect video of project installation (including emergency vehicle testing) and of people engaging with the project or sharing their thoughts about it. Consider using time-lapse video to illustrate the transformation of the project site and to show how it functions while installed.

Event photographs: Take photographs throughout the project including initial team meetings and community partner engagement, planning and design, installation, stewardship, data collection, and removal.

Photovoice: People using the project, including students, neighbors or other community members, photograph barriers in and around the area. They may also document improvements during the demonstration project. Refer to the guidance provided above regarding the need for sensitivity and school approval when photographing students.

Reporting and using evaluation results

After data collection is complete, compile and analyze the data. Develop materials to report and communicate the findings of the evaluation to the Core Team, other key stakeholders, and the public. Refer back to the evaluation questions to help organize the results. Consider a variety of formats to communicate the results, including reports, fact sheets, infographics, presentations, and social media posts. Use appropriate data visualization tools, such as charts, graphics, and dashboards. See Chapter 8 for more information on how to use the results of the evaluation.

Any signs aimed at drivers should be simple so as not to cause distracted driving. In order to be compliant with the MN MUTCD, do not include phone numbers or websites on signs for drivers. Signs aimed at people walking can be more detailed. A nearby school may be a good location to display information about the project.

Evaluation methods matrix

WHAT IS THE PROBLEM?	POTENTIAL SOLUTIONS:	WHAT DOES SUCCESS LOOK LIKE?	SUGGESTED EVALUATION METHODS:
Low driver yield rates	• Crosswalk markings • Crosswalk signage • Stop line • Curb extensions • Median island • Lane reduction	• Increase in driver yielding behavior	• Intercept surveys • Idea board / Comment in a box • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Driver stop and yield compliance • Pedestrian crossing distance
Conflicts between motorists and pedestrians at crosswalk locations	• Crosswalk markings • Crosswalk signage • Stop line • Curb extensions • Median island • Lane reduction	• Reduction in conflicts between motorists and pedestrians	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Driver stop and yield compliance • Change in pedestrian crossing distance
Inadequate visibility between pedestrians and motorists	• Crosswalk markings • Crosswalk signage • Stop line • Curb extensions • Median island • Lane reduction	• Increase visibility between pedestrians and motorists	• Intercept surveys • Questionnaires • Interviews and testimonials • Driver stop and yield compliance • Pedestrian crossing distance
Multiple threat crashes	• Lane reduction • Curb extensions • Median island • Stop line	• Reducing risk of multiple threat crashes	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Driver stop and yield compliance • Pedestrian crossing distance • Conflict diagram
No designated bicycle facility; fear/concern of using existing bicycle facility	• Protected bike lane	• Designated bicycle facilities are provided • Increase in bicyclist comfort • Increase in the number of people bicycling	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Estimated Level of Traffic Stress
Desire to concentrate pedestrian crossings at strategic location	• Crosswalk markings • Stop lines • Crosswalk signage • Curb extensions • Median island • Lane reduction	• Increase in the share of pedestrian crossings at strategic locations	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Activity counts

WHAT IS THE PROBLEM?	POTENTIAL SOLUTIONS:	WHAT DOES SUCCESS LOOK LIKE?	SUGGESTED EVALUATION METHODS:
Long or difficult pedestrian crossings	• Curb extensions • Median island • Lane reduction • Parklet	• Reduction in pedestrian crossing distance • Increase in comfort, ease, safety of pedestrian crossings	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Driver stop and yield compliance • Pedestrian crossing distance
Not enough separation between pedestrians and motorists	• Parklet • Lane reduction • Protected bike lanes	• Increase separation between motorists and pedestrians • Increase in pedestrian comfort	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Activity counts or public space usage analysis
Lack of community space	• Parklet	• Increase in presence of community space • Increase in use of community space	• Intercept surveys • Questionnaires • Interviews and testimonials • Idea board / Comment in a box • Chalk talk • Dot-mocracy • Pedestrian, bicycle, and vehicle counts • Activity counts
Speeding/desire for traffic calming	• Lane reduction • Curb extensions • Median island • Mini traffic circle • Parklet	• Reduction in traffic speeds • Increase in pedestrian/ bicycle comfort	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Vehicle speeds • Activity counts • Driver stop and yield compliance
Queue space for bus loading or street crossing is inadequate	• Parklet • Curb extensions	• Increase in queue space for bus loading or street crossings	• Intercept surveys • Questionnaires • Interviews and testimonials • Pedestrian, bicycle, and vehicle counts • Queue space measurements
Bicycle parking not provided; not enough bicycle parking is provided	• Bike corral	• Use of bike corral • Increase in number of parked bicycles • Reduction in number/share of bicycles locked to sign posts or other objects	• Bicycle parking inventory and utilization

Figure 6.01: *Evaluation method reference chart.*

07 INSTALLING, MAINTAINING, AND REMOVING THE PROJECT

Installation-day planning and coordination will be unique for each community and depend on the type of project; however, there are some general questions that all communities need to consider from installation day to project removal. Those questions are summarized below.

Installation-day planning and execution

The installation of a demonstration project requires a thoughtful breakdown of tasks, roles, and responsibilities. The questions below will help the organizer to understand how many people may be needed for the installation, the need for Temporary Traffic Control and other materials/tools that may be needed.

- **What type of project is being installed?**
  - How will the materials be delivered to the site?
  - What support materials are needed (e.g., marking chalk, tape measures, scissors, paint rollers, etc.)?
  - Does the street need to be prepared in advance (e.g., swept if painting)?
- **What is the traffic volume and speed limit on the subject street?**
  - Check that this meets the desirable site characteristics in Chapter 4.
  - Coordinate with the road authority to determine if TTC is required.
- **Are there special roadway operations considerations?**
  - What types of vehicles are using the street?
  - Are any detours needed?
- **Will the area be accessible to pedestrians during the work?**
  - Coordinate with the road authority to phase the installation of the demonstration project if needed.
  - Reference Chapter 5 for ADA considerations.
- **Who is doing installation?**
  - Are volunteers able to assist? Check with the road authority.
  - Installation by road authority/contractor is preferred; community groups could assist with permission and under the liability of road authority.
  - Do any of the materials have Hazard Communication Safety Data Sheets? This is not preferred; if so, additional precautions may be necessary.
  - Check to see if a photo release is required for using photos taken at the installation site.
  - Who will document installation and the final product? Refer to Chapter 6 for documentation information.
- **How long will installation take?**
  - A typical intersection installation (e.g., curb extensions and crosswalks) takes about four to eight hours to install with about eight people.
  - Provide high-visibility clothing meeting ANSI/ISEA 107-2004 (or ANSI/ISEA 107-2010) Performance Class 3 requirements for volunteers.
  - Consider splitting the installation into segments (e.g., mark curb extensions with dots of spray paint and paint the crosswalks on Day 1; snap chalk lines for edges of curb extensions; paint curb extensions, and install flex posts on Day 2).
  - Consider providing water and snacks/lunch to volunteers.
  - Consider if there is a public restroom nearby.
- **Is installation weather dependent?**
  - If so, schedule a backup rain date ahead of time.
- **Will the road authority be available the day of? When can they be on site?**
  - It is recommended that the road authority is present, directs installation, and performs a walk-through of the site after the project is installed.
- **How are costs for installation, maintenance, and removal being addressed?**
  - Consider these costs early in the project planning and development.
  - See more information in Chapter 5.

Maintenance & stewardship

Maintenance and ongoing stewardship of the demonstration project installation will depend on how long the project is installed and the project extents. Very short term projects may not require any ongoing maintenance. Projects lasting a week or more will likely require a plan to maintain the project elements in their "as-installed" condition. Projects that extend over an entire block will require more time to maintain than a project only on one corner of one intersection. Determine the level of maintenance required during the planning stages and discuss a plan for touching up markings

or adjusting site elements over the life of the project. The questions below may help the Core Team to understand how much maintenance may be expected.

- What other activities nearby may impact the demonstration project site (i.e. bus stops or other pedestrian generators)?
- What kind of materials are involved?
  - » Plan to periodically check that flex posts haven't been damaged, moved, or removed.
  - » Make a plan to keep plants watered and weeded.
  - » Check periodically to see if any of the paint requires "touch up" painting and that any covered markings stay covered.
  - » Check periodically to see if any of the edges of traffic tape have been torn or if any sections have been removed.
- Will the project be installed in the winter?
  - » Consider if snow will need to be removed.
  - » Check site drainage to reduce risk of ice.
- What provisions are there for trash removal?
- What provisions are there for sweeping?

Image 7.01: *Application of traffic tape*

Project removal

Project duration should be agreed upon before the project is installed in coordination with the road authority. The project should be removed in a way that is safe and clear for the traveling public. People's walking, biking, and driving behaviors may have changed while the project was installed. Remove all conflicting signs, pavement markings, and other modifications so that it is clear what walking, biking and driving behavior expectations are once the project is removed.

- What is the plan to remove the project? Who is doing the removal?
- How will it be clear to drivers, bikers, and pedestrians what the removal means for interaction between all modes?
- Will the area be accessible to pedestrians during the work?
- Is traffic control required?
- Will there be any permanent impact to the existing infrastructure? How will existing infrastructure be restored to MN MUTCD standards?
- How long will the project take to remove?
- Where will the reusable materials be stored?

Image 7.02: *Flex posts installed with butyl pads*

08 FOLLOWING UP

Project debrief

Immediately after the event, follow up with project partners, volunteers, and agency staff, and others to debrief, share photos, and invite input on the project process. Thank sponsors and donors publicly via social media, email newsletters, and any other public recaps of the project.

Prior to project removal, gather the Core Team to debrief. Aim to meet while the project is still in place in order to make any applicable notes, and then meet again within one or two weeks of project removal while it's fresh in everyone's mind. Consider developing a short questionnaire to gather input from key stakeholders about the project process. Ask what they think about the project impact and what worked or didn't work about the process. Feedback forms could also be completed on-site or shared online. Compile all of the evaluation data and determine what the data show.

Develop a summary of the project including data collected, relevant observations and key takeaways from stakeholder surveys, media coverage, and project photos or video. Share the summary with community partners, elected leaders and local decision-makers, and the general public.

Image 8.01: *A bicyclist at a curb extension demonstration project*

Lessons learned and next steps

Keep the momentum going! Document lessons learned and action items for longer-term change. Summarize findings and share them with agency partners, including MnDOT. There may be lessons learned that can benefit other Minnesota communities as they plan and implement a demonstration project.

Image 8.02: *Median demonstration project*

APPENDIX

CONTENTS

MnDOT resources and contacts

MnDOT districts

For demonstration projects on MnDOT Trunk Highways, MnDOT district staff should be involved in the planning and implementation as the road authority. To find your district, see the map below, or follow the link to find your district by city.

Find your District by City

Contact information for the each of the MnDOT districts can be found here:

- District 1
- District 2
- District 3
- District 4
- Metro District
- District 6
- District 7
- District 8

ADDITIONAL RESOURCES

- **Minnesota Safe Routes to School (**http://www.dot.state.mn.us/saferoutes/**)**
- **MnDOT Distict Permit Staff (**http://www.dot.state.mn.us/utility/districtcontacts.html**)**
- **Minnesota Temporary Traffic Control Field Manual (**http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/**)**
- **LRRB Addressing Citizen Requests for Traffic Safety Concerns (**http://www.dot.state.mn.us/research/ reports/2017/2017RIC05.pdf**)**

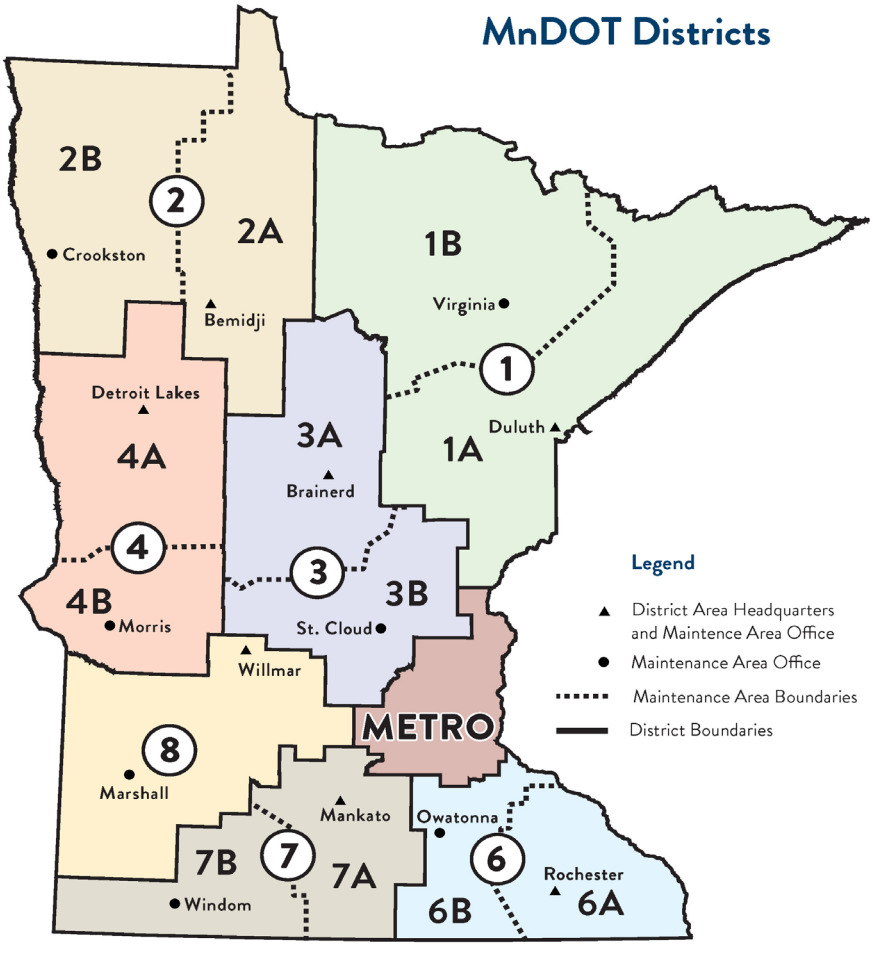


Image: *MnDOT District Map*

Materials list

Common materials for demonstration projects are included in the table below. Material price estimates compiled from a 2019 survey of online retailers. Prices may change and/or fluctuate with time.

ITEM	PURPOSE	ESTIMATED UNIT COST
VERTICAL SEPARATION		
Surface Mount Flexible Delineator, white, 36"	Used along with white striping to create elements such as curb extensions or separated bike lanes. Place one flexible delineator every 8-10' around a curb extension and one every 8-20' for bike lanes.	$50
Surface Mount Flexible Delineator, yellow, 36"	Used along with yellow striping to create elements such as medians or centerlines. Place one delineator every 5' to demarcate median.	$50
Plastic Curb, yellow	Used to emphasize the presence of a temporary median or other infrastructure. Place one temporary curb approximately every 8'. Some types of temporary curb may also be used with flexible delineators.	$150
Adhesive butyl pad, 4" or 8" square	Temporarily secure flexible delineator posts to the pavement.	$2
PAVEMENT MARKING		
Striping paint (white)	Spray within pavement marking stencils to create bike lanes symbols and other pavement markings.	$20
Reflective Removable Tape, white - 6"	Use to stripe edge of curb extensions	$ 700
Reflective Removable Tape, yellow - 6"	Use to stripe centerlines or edges of median safety island	$ 700
Reflective Removable Tape, black - 6"	Use to cover existing pavement markings	$800
Tempera Paint (liquid, 1 gallon container), earth tone red	Paint the inside of curb extensions and other elements with an earth tone color, such as red. Paint may be diluted with water based on expected project duration. Paint quantities will vary based on demonstration project design. Add corn starch to diluted paint as a thickening agent.	$30
Tempera Paint (liquid, 1 gallon container), white	Paint high visibility crosswalks. Paint may be diluted with water based on expected project duration. Paint quantities will vary based on demonstration project design. Add corn starch to diluted paint as a thickening agent.	$30
Corn Starch	Add corn starch to diluted paint as a thickening agent.	$5
Acrylic Traffic Paint (liquid, 1 gallon container), earth tone	Use for longer duration installations.	$100
Acrylic Traffic Paint (liquid, 1 gallon container), white	Use for longer duration installations.	$100
Bike Lane Stencil (78"), 1/16" width	Create a crisp pavement marking.	$125

ITEM	PURPOSE	ESTIMATED UNIT COST
Bike Lane Arrow (72"), 1/16" width	Create a crisp pavement marking.	$100
Glass Beads, 50 lb bag	Add to wet paint for reflectivity.	$50
SIGNS/TRAFFIC CONTROL		
Traffic cones (pack of 6)	Demarcate work area.	$225
Roll Up Sign 36x36 and stand - "Work Zone Ahead"	Placed in advance of installation site. Use two signs for corridor installation or four for intersection installation.	$ 250
Temporary signage and sign stand	Include signage to indicate temporary changes. For example, "KEEP RIGHT" (R4-7) by medians.	$300
INSTALLATION AND CLEANUP SUPPLIES		
Stiff bristle room and dust pan	Clean pavement in advance of installation.	$ 10
Roller cover set (standard size, typically 9" to 12")	Use for pavement markings.	$10
Roller cover set (4")	Use for lane line markings.	$6
Roller frame (standard size, typically 9" to 12")	Use for pavement markings.	$7
Roller frame (4")	Use for lane line markings.	$7
Roller extension pole 3-6'	Use for pavement markings.	$25
Buckets	Use for mixing paint.	$3
Plastic tub/tray for roller	Use for pavement markings.	$3
Disposable nitrile gloves (10 count minimum, per 1 unit)	Gloves for installation volunteers.	$ 5
Box cutter	Cutting traffic tape.	$10
Scissors	Misc cutting of materials.	$6
Safety vests	On-street safety.	$5
Cotton twine	Mark curves of curb extensions.	$5
Tape measure (35')	Misc measuring.	$15
Sidewalk chalk, sticks (box)	Mark misc elements.	$5
Chalk reel (100') and powder chalk	Mark straight lines before installing traffic tape.	$10

Glossary

AASHTO: The American Association of State Highway and Transportation Officials is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents all transportation modes; its primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

ADA: The Americans with Disabilities Act ensures access to the built environment (i.e., streets and buildings) for people with disabilities.

ADT: Average Daily Traffic is a measurement of the average number of motor vehicles (i.e., cars and trucks) that use a roadway over a 24-hour period.

FHWA: The Federal Highway Administration provides stewardship over the construction, maintenance and preservation of the Nation's highways, bridges and tunnels. FHWA also conducts research and provides technical assistance to state and local agencies in an effort to improve safety, mobility, and livability, and to encourage innovation.

MN MUTCD: The Minnesota Manual on Uniform Traffic Control Devices contains standards for traffic control devices (i.e., primarily signs and stripes) that regulate, warn and guide road users along all roadways within the State of Minnesota.

Parklet: Parklets are temporary extensions of the sidewalk space into the parking space. They help develop streets as vital public spaces for travel and to support social and economic activity.

Priority Destinations: The five top walking destinations for Minnesotans are grocery stores, bus/transit stops, residential areas, parks, and schools, as defined in Minnesota Walks.

Road authority: The road authority is the entity charged with operation and maintenance of the road—for example, the state, a county, a city, or a town.

SRTS: Safe Routes to School programs aim to make it safer for students to walk and bicycle to school and encourage more walking and bicycling where safety is not a barrier.

Temporary Detectable Warning Surface (Truncated Domes): Truncated domes allow pedestrians navigating with a cane to detect the location and direction of a street crossing.

Evaluation tools

Existing Conditions Evaluation
Driver Yield Compliance

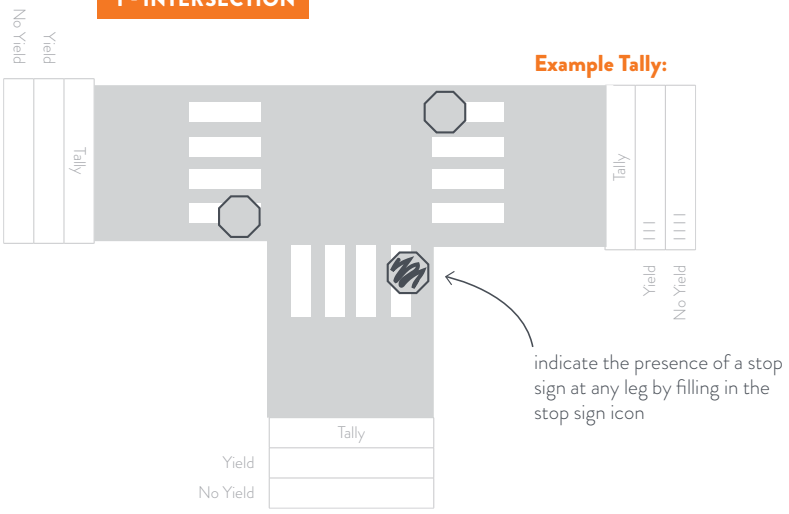
DATE _____

START TIME _____

END TIME _____

DATA COLLECTED ☐ Before Project ☐ During Project

T - INTERSECTION



Instructions

Timing of data collection:

- Collect data in ten minute increments during peak arrival or dismissal activity.
- Space for 40 minutes is provided, but if peak activity is longer, print off additional data sheets. If peak activity is less than 40 minutes, use only the space needed.

Stop sign considerations:

- Fill in the stop sign icon to indicate where stop signs are located at the intersection, if any.
- If a driver obeys a stop sign and stops for a person crossing, do not record any tally mark.
- If a driver obeys a stop sign, proceeds (inches forward), then stops again to yield to a person crossing, mark as a "yield".

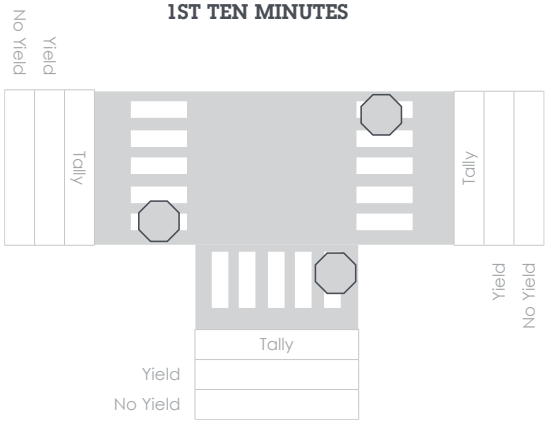
Things to think about:

- Depending on the amount of people walking, biking, and driving, one person per crossing may be required for observation and accurate data collection.
- Record a mark in the tally box where the person crosses. In the above example, if a driver approaches from the left then yields to a person using the right crossing, the tally mark should go in the right tally box. In other words, mark driver yield/no yield where the person crossing is, not where the driver is.
- Record people biking if they use the same crossing space as people walking.

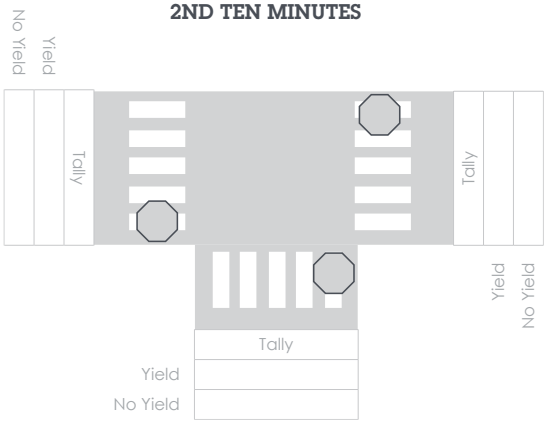
Driver Yield Compliance

COUNTS TAKEN ☐ Before Project ☐ During Project

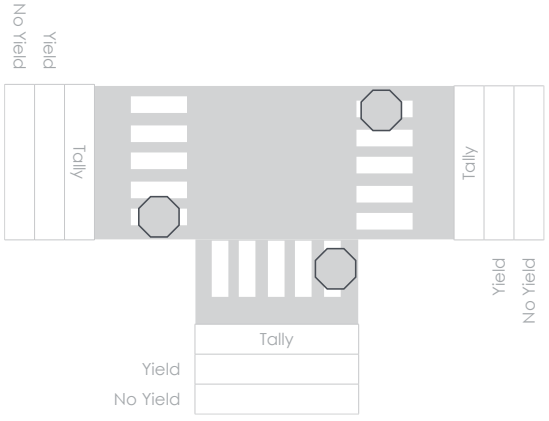
1ST TEN MINUTES



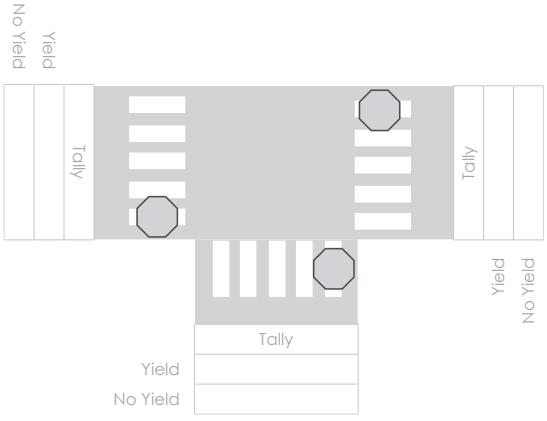
2ND TEN MINUTES



3RD TEN MINUTES



4TH TEN MINUTES



Other Observations

Safe Routes to School
Temporary Demonstration Project

This temporary project helps us think about ways to make walking and bicycling to school more comfortable.

What do you think about these temporary changes?

	Yes, I agree! ✔	I'm not sure. ✔	No, I disagree. ✔
 Walking is easier and feels safer with the changes.			
 Biking is easier and feels safer with the changes.			
 Drivers can see people trying to cross the street more easily.			
 Drivers wait for people to walk through the crosswalk.			
 People drive more slowly and cautiously than before the changes.			

Things I like about the project:

Things I would change:

Safe Routes to School
Temporary Demonstration Project

What does it feel like to walk and bike through this intersection?

Leave a checkmark where you agree!

	Yes, I agree! ✔	I'm not sure. ✔	No, I disagree. ✔
 Walking across the intersection feels safe.			
 Biking across the intersection feels safe.			
 Drivers can clearly see people trying to cross the street.			
 Drivers wait for people to walk through the crosswalk.			
 Drivers are more aware of bicyclists and pedestrians.			

Things I like about this intersection:

Things I would change:

Safe Routes to School
Demonstration Project Survey

The Minnesota Department of Transportation, in partnership with local schools, installed a short term, low cost, temporary project in your community! The project will pilot long-term design solutions to improve walking and bicycling.

The cost of this project is significantly less than the potential long-term infrastructure project being considered. Paint and flexible posts are meant as temporary materials. Long term design choices could include concrete curb extensions instead of the painted area. Please take a moment to share your thoughts and opinions about walking, bicycling, and driving past this intersection. Responses are anonymous.

1. How did you get here today?
Other (please specify):

- **a.** Walk
- **b.** Bike
- **c.** School bus
- **d.** Car / truck (driver or passenger)

2. Do these changes make you more likely to take this route?

- **a.** Yes
- **b.** No
- **c.** Neutral / no opinion

Please explain:

3. What is it like to travel past the temporary project?

	Yes, I agree!	I'm not sure.	No, I disagree!
Walking is easier and feels safer with the changes			
Biking is easier and feels safer with the changes			
Drivers can see people trying to cross the street more easily			
Drivers wait for people to walk through the crosswalk			
People drive more slowly and cautiously than before the changes			

Any other observations or comments?

4. Overall, how do you feel about the appearance of these changes?

- **a.** Positive
- **b.** Neutral
- **c.** Negative
- **d.** Unsure

Please explain:

5. How do you feel about any or all of these changes becoming permanent? For example, instead of paint, longer term curb extensions could be concrete.

- **a.** Positive
- **b.** Neutral
- **c.** Negative
- **d.** Unsure

6. What do you like about the demonstration project?

7. What would you change about the demonstration project?

8. Other thoughts, comments, feedback?

9. What is your age? (OPTIONAL)

- **a.** 10 or under
- **b.** 11-13
- **c.** 14-17
- **d.** 18-35
- **e.** 36-55
- **f.** Above 55

10. Who are you here with? (OPTIONAL)

- **a.** Friends / classmates
- **b.** Family
- **c.** By myself
- **d.** Other (please specify):

Communication examples

The following resources are provided to show a variety of communication examples that relate to demonstration projects. Frequent and consistent communications about demonstration project planning, installation, and removal establishes clear community expectations. In addition to the general messages presented, these examples show how agencies, jurisdictions or project partners can highlight their involvement in demonstration projects. These examples show template and formatting ideas, and provide sample communications that can be used as inspiration for communities across the state of Minnesota. Placeholder text is displayed in parentheses. Communities should customize this information before distributing.

Installation talking points

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project is an inexpensive way to try out street improvements using short-term materials.

Demonstration projects provide flexibility to observe, learn, and make adjustments before investing in permanent changes.

The goal of the demonstration project is to test new designs and ideas to improve the safety, health, happiness, and vitality of the community. Community members have the opportunity to try new designs and share feedback and ideas.

PROJECT PROCESS

Workshops took place in **(month)** to select project sites and start the design process. MnDOT, the local school district, and **(community name)** worked closely to plan and design projects.

Communities are providing materials and coordinating volunteers to help with data collection and installation.

Similar short-term projects have previously been installed in other communities throughout Minnesota and in other states.

###

Volunteer Recruitment Flyer

Safe Routes to School Demonstration Project

JOIN US!

What are demonstration projects?

Demonstration projects are short-term, low-cost, and highly flexible ways to experience potential street improvements that promote active transportation, safety enhancements, and promote healthy and vibrant communities.

Project

Description

Location:

Duration:

Volunteer Opportunities

Date
Objective
Volunteers Needed

Date
Objective
Volunteers Needed

Help us promote active transportation and vibrant, comfortable streets and communities!

For questions, comments, or to get involved, please contact:

Contact Name
email
phone

Press Release

For Immediate Release

CONTACT: (NAME)

PHONE: (PHONE)

(COMMUNITY NAME) To Launch Demonstration Pilot Project

The **(City / Town)** of **(Name)** is set to launch a short-term, low-cost active transportation demonstration project **(at / along) (street).** The project will allow members of the public to try out potential street changes designed to improve safety and enhance the community. The pilot will start on **(date)** and be installed for approximately **(duration)**. The project will include **(project description)**.

This demonstration offers an opportunity to collect public input regarding street improvements using temporary, low-cost materials before investing in longer-term solutions. Changes will be evaluated during the project to consider project impacts. There are many ways for you to get involved. Residents and visitors are invited to come and try the demonstration while it is installed. Interested in volunteering with project set up and/or evaluation? Please contact **(name and contact information)**.

###

Facebook posts

POST OPTION #1

Walking and biking demonstration projects are coming to **(community name)** in **(season / year)**!

(Community) will host an active transportation demonstration project on **(location)** from **(start date)** to **(end date)** to test real-life solutions to improve the safety, active living, and beauty of the community.

You are invited to come and participate! For more information, including how to volunteer, please contact **(name and contact information)**.

Don't forget to "Like" and "Share"!

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POST OPTION #2

How can we make lasting improvements to our community?

Short-term demonstration projects are a way to experience changes to our streets that could improve the health, safety, and beauty of the community.

(Community) will host active transportation demonstration projects in **(season / year)**! You are invited to come and participate! For more information, including how to volunteer, please contact **(name and contact information)**.

Help spread the news! Hit "Like", "Share", or leave a comment below.

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