NOVEMBER 2023

2024-2033 CAPITAL HIGHWAY INVESTMENT PLAN

State highway projects selected and developed for construction over the next 10 year based on the MnSHIP investment direction

MINNESOTA GO

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Purpose Of 10-Year Capital Highway Investment Plan

The 10-Year Capital Highway Investment Plan is updated annually to communicate the Minnesota Department of Transportation's proposed capital investments for the next ten years. It serves as an annual check-in during MnDOT's 20-Year State Highway Investment Plan update cycles.

Each year, MnDOT staff develops investment guidance to ensure that collectively MnDOT is achieving the outcomes established in its highway investment document, MnSHIP. The annual CHIP also creates the opportunity to compare investments to the investment guidance established in MnSHIP, ensuring accountability. The primary objectives of the CHIP are to:

- Detail MnDOT capital investments over the next ten years on the state highway network
- Compare planned and programmed projects with the investment priorities established in MnSHIP, and explain any change in direction or outcomes
- Facilitate coordination between MnDOT districts and local units of government on future investments
- Improve the transparency of MnDOT's proposed capital investment and decision-making

The CHIP includes projects in two time periods:

- Years 1-4, called the State Transportation Improvement Program, which represent projects MnDOT selected for funding and committed to delivering
- Years 5-10 which represent MnDOT's planned projects

During the 2021 Legislative Session, new requirements for the CHIP were included in State statute. (174.03, Subd. 12). The annual CHIP must:

- Be based on expected funding during the plan period
- Identify investments within each of the asset categories including bridge, pavement, geotechnical, pedestrian, bicycle, and transit asset categories
- Recommend specific trunk highway segments to be removed from the trunk highway system
- Deliver annual progress toward achieving the state transportation goals established in section 174.01.

Selecting projects on the state highway system is an annual process. MnDOT starts identifying potential projects 10 years in advance. MnDOT district staff work each year with MnDOT central office and specialty office staff to complete a 10-year list of projects for each district on the state highway system. MnDOT then combines the districts' project lists into the 10-Year Capital Highway Investment Plan.

NEW FOR THIS YEAR'S CHIP

MNSHIP DRAFT INVESTMENT DIRECTION

MnSHIP is currently being updated but is not yet finalized. The draft MnSHIP includes new investment categories and a draft investment direction. The new investment categories are:

- Advancing Technology
- Climate Resilience
- Local Partnerships (replacing Regional Community Improvement Priorities)
- Main Street/Urban Pavements
- Rest Areas (replacing Facilities)

For the project information in the rest of the document. Climate resilience is included in Roadside Infrastructure and Main Streets/Urban Pavements is included in Pavement Condition. Once the MnSHIP investment direction is finalized, those categories will be tracked separately.

This CHIP is based on the MnSHIP draft investment direction for years 2028-2033. Years 2024-2027 are based on the 2017 MnSHIP investment direction.

2023 LEGISLATIVE FUNDING

In the 2023 session, the state legislature provided additional funding for transportation. This additional funding is not included in 2024-2033 CHIP. The transportation funding bill was passed after the draft CHIP was completed. However, the additional funding will be included in the final MnSHIP document and the 2025-2034 CHIP.

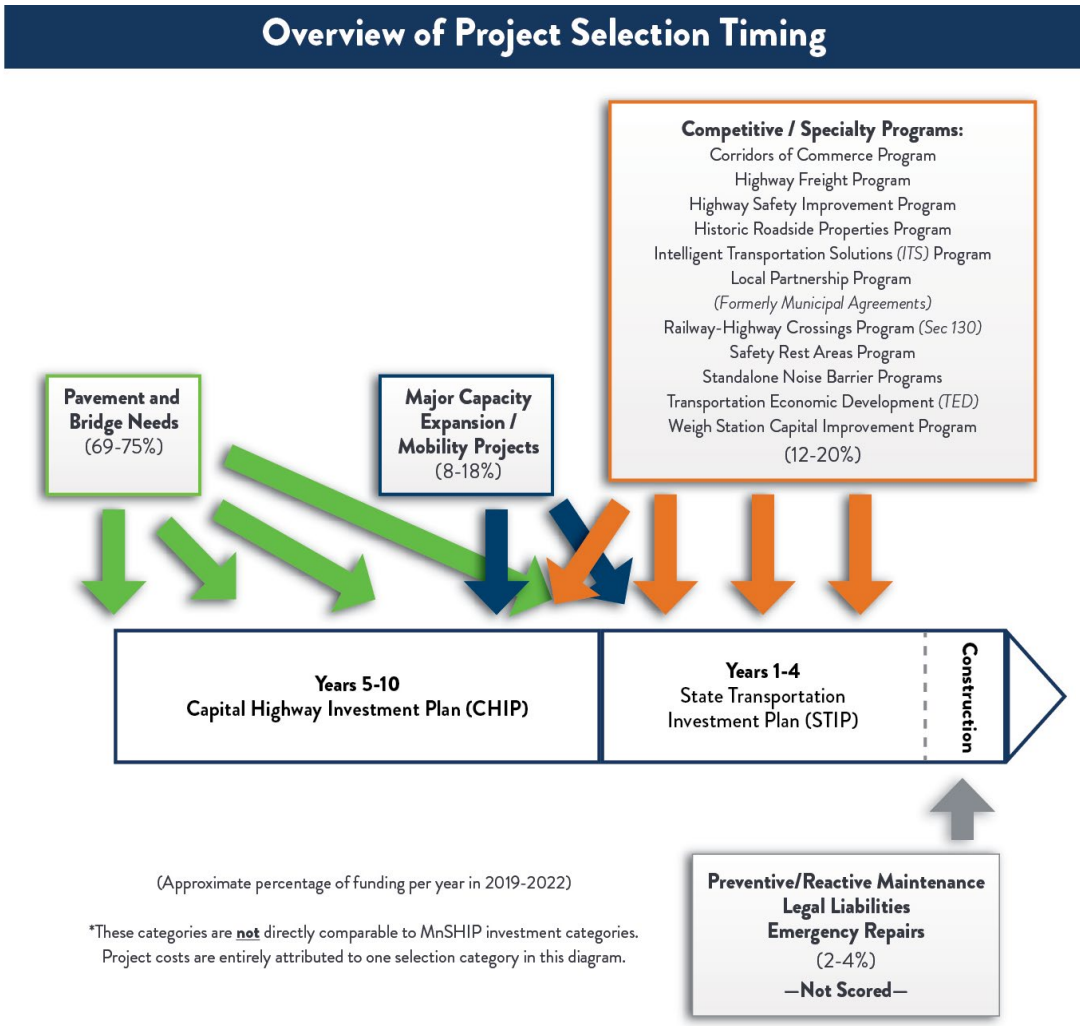
Project Selection and Investment

As required by MnDOT's Project Selection Policy, MnDOT uses scores to prioritize and select highway construction projects. Project selection is the decision to fund a project and add it to the list of projects to be constructed. Selected projects are listed in the 10-year CHIP and 4-year STIP. The score assigned to candidate projects is a key factor in the project selection decision, but MnDOT may consider other factors in addition to the score. MnDOT provides a short explanation when a high scoring project is not selected or when a lower scoring project is selected. Those explanations and the full list of candidate projects considered for selection can be found here: http://www.dot.state.mn.us/projectselection/.

MnDOT scores and selects pavement sections and specific bridges that need work typically five to ten years before construction. Once selected, MnDOT identifies and evaluates alternatives as well as other legal requirements, opportunities to advance legislative goals, objectives in state plans, and other repairs and improvements that make sense to do at the same time. The department follows a complete streets approach, which considers the needs of all system users, regardless of mode choice, who will use the road or bridge. MnDOT balances all of the identified needs and opportunities against the funding guidance of MnSHIP and looks for cost-effective and affordable solutions. MnDOT also works with local and regional partners, metropolitan planning organizations, tribal governments and regulatory agencies and seeks public input during the development of the project.

The chart below provides an overview of the timing of MnDOT's project selection categories and programs.

Figure 1: Overview of Project Selection Timing



For other types of projects, such as targeted safety improvements or major expansions of the system, MnDOT usually selects projects three to six years before construction. MnDOT manages a variety of special programs with specific objectives. Each program scores candidate projects against a set of criteria. Cities, counties and other groups may apply for funding or suggest specific project ideas for many of these programs. Examples include the Highway Safety Improvement Program, Transportation Economic Development Program, and Corridors of Commerce Program.

MnDOT also sets aside funding to fix and maintain things like rest areas, traffic cameras and ramp meters, historic roadside properties, truck weigh stations, noise walls, and other infrastructure. Each of these programs has its own selection process. Projects are typically scored and selected two to five years before construction.

Finally, MnDOT holds a small amount of funding to fix damage caused by each winter season or to make emergency repairs. The department selects these projects the same year they are constructed. They are not selected using numeric scoring and are not included in the CHIP.

PROGRAM FUNDING DISTRIBUTION

MnDOT's selection of state highway construction projects follows the policy direction established in the Statewide Multimodal Transportation Plan and the investment guidance in MnSHIP.

MnSHIP establishes an overall distribution of expected revenue to meet the objectives, strategies and performance measures in the SMTP on the state highway system. The plan also includes expected outcomes and performance targets the agency uses to inform project selection. MnSHIP dedicates the majority of funding to fixing pavement and bridges, but also allocates funding to other categories such as safety, congestion relief, other roadside infrastructure, and improvements for pedestrians, bicyclists and freight.

Based on the investment guidance in MnSHIP and federal and state laws, MnDOT divides available and planned funding into programs and categories within which projects are selected. For projects selected within each of the agency's eight districts (**Figure 2** *next page*), MnDOT distributes anticipated funding using formulas, which consider the condition of pavement and bridges, size of the network, and use of the system within each district.

PROJECT SELECTION PROCESSES

MnDOT selects projects within categories based on project type and within specialty and competitive programs. Each category and program has a separate process to evaluate, prioritize and select projects.

The majority of MnDOT projects are selected within project categories based on the guidance of the MnSHIP. These categories include:

- Asset management: the rehabilitation and replacement of pavement, bridges and other infrastructure
- Targeted safety improvements: improvements to reduce the number of crashes and people injured or killed on Minnesota state highways
- Mobility and capacity expansion: improvements to traffic flow, congestion relief, travel time reliability, the movement of freight or connections for active transportation users

ASSET MANAGEMENT PROJECTS

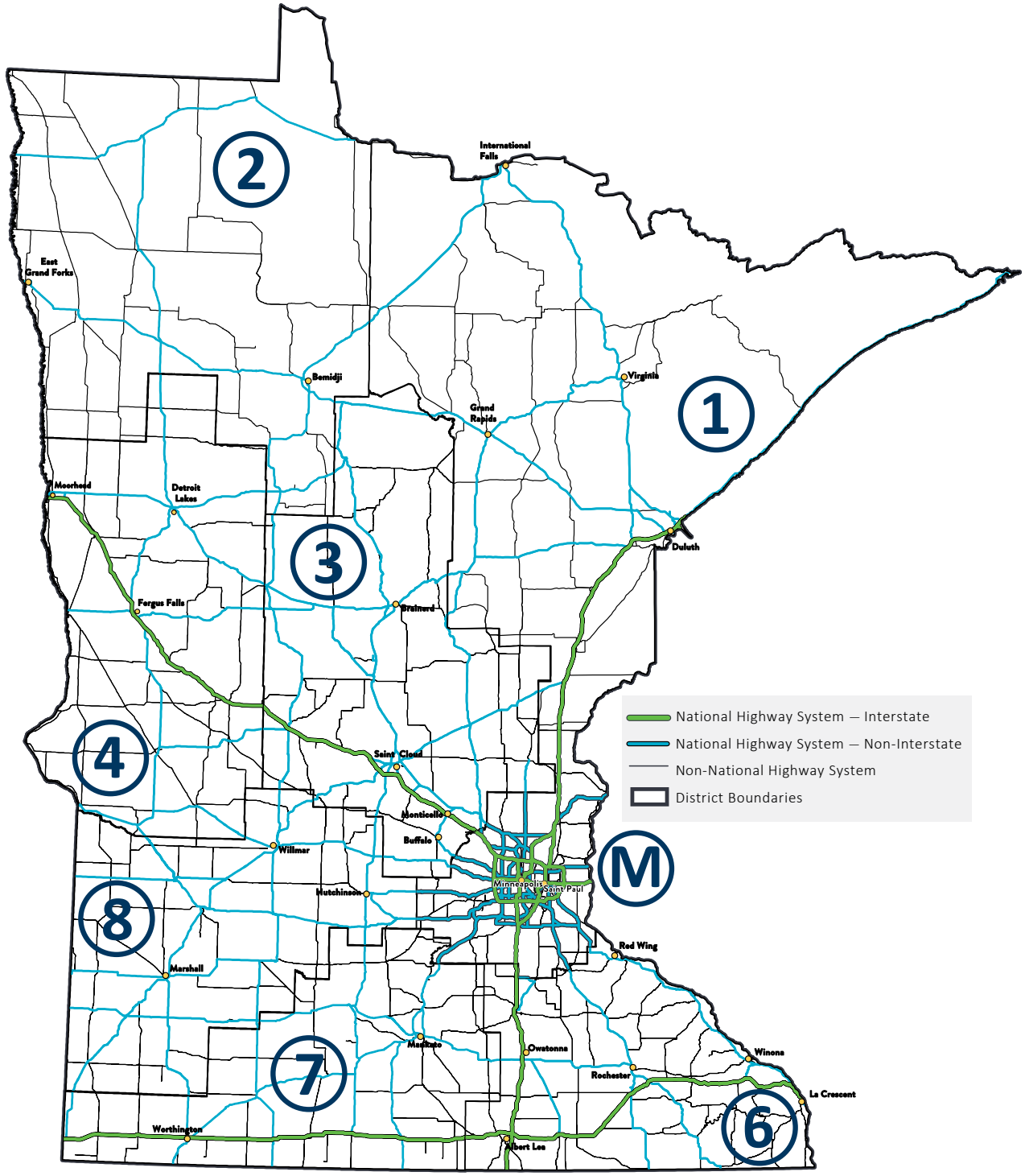
Projects selected under the asset management category include the rehabilitation and replacement of pavement, bridges and other infrastructure.

The majority of MnDOT highway construction projects are pavement and bridge projects. MnDOT scores these projects based on pavement and bridge needs. Projects are selected to address a primary pavement or bridge need and added to the 10-year CHIP.

The selection of pavement and bridge projects are informed by district staff, experts from MnDOT's bridge and materials offices and two asset management software programs: the Highway Pavement Management Application and the Bridge Replacement and Improvement Management System. MnDOT's approach to managing pavement and bridge conditions is based on:

- Investment direction, performance measures and planned outcomes in MnSHIP
- National goals and performance targets for interstates and the National Highway System
- Guidance and strategies in the Transportation Asset Management Plan

Figure 2: State Highways and MnDOT District Funding Boundaries



Pavement and bridges on the NHS are scored and selected separately from non-NHS pavement and bridges.

The final project may address a substantial number of needs beyond the pavement or bridge need that precipitated the project. Projects may move years based on local coordination, project delivery, timing of other nearby construction projects, and funding shifts. The need score remains unchanged unless the project no longer addresses the precipitating need, or if the project changes to meet one of the thresholds for major capacity expansion and mobility projects.

TARGETED SAFETY IMPROVEMENTS

MnDOT evaluates options to improve safety as part of every project. Not every safety concern can always be addressed on every project, but MnDOT makes a concerted effort to address the safety of all users during the project development process.

MnDOT also manages the Highway Safety Improvement Program, which specifically targets improvements that reduce the number of fatal and serious injury crashes. In addition, the Railway-Highway Crossings Program, Intelligent Transportation Systems Program and Safety Rest Area Program each fund projects that increase and support safe travel on state highways. Other competitive programs such as the Corridors of Commerce Program, Minnesota Highway Freight Program, Local Partnership Program, and Transportation Economic Development Program include safety factors in the scoring process.

MOBILITY AND CAPACITY EXPANSION

MnDOT evaluates options to improve the safety, efficiency and functionality of the transportation system as part of every project. When developing pavement and bridge projects, MnDOT looks for opportunities to make targeted improvements that address traffic flow and travel time reliability, the movement of freight, or connections for people walking, rolling or biking. Most significant capacity expansion and mobility projects (for example, converting a signalized intersection into an interchange or adding lanes to a freeway) are now selected through competitive programs like the Corridors of Commerce Program, Minnesota Highway Freight Program or the Transportation Economic Development Program. However, MnSHIP does allocate some funding to address congestion relief and improve mobility, primarily in the Twin Cities metropolitan area.

Smaller improvements (costing less than $10 million) identified through the Congestion Management Safety Plans, Metropolitan Planning Organization Long Range Transportation Plans, or the Greater Minnesota Mobility Study do not need a separate score if delivered as part of a pavement or bridge project. Projects initiated by cities and counties on the state highway system meeting one of the criteria above that receive competitive funding through the Metropolitan Council's Regional Solicitation or federal competitive programs like INFRA or BUILD do not need be to be scored to receive MnDOT match funds. They are considered selected through that competitive process.

SPECIALTY AND COMPETITIVE PROGRAMS

MnDOT manages a variety of special programs with specific objectives. The programs either are established in state or federal statutes, have a limited specialized purpose and/or use a competitive application process to select projects. Cities, counties and other groups may apply for funding or suggest specific project ideas for most of these programs.

The current list of competitive programs includes:

- Corridors of Commerce Program: funds additional highway capacity on segments where there are currently bottlenecks in the system or projects that improve the movement of freight and reduce barriers to commerce.
- National Highway Freight Program: funds projects with measurable benefits for freight transportation.
- Highway Safety Improvement Program: funds projects that reduce fatal and serious injury crashes.
- Local Partnership Program (Formerly District Cooperative/Municipal Agreement Programs): funds locally initiated improvements to state highways, particularly locations where the local transportation network intersects with the state system and an improvement would benefit both systems.
- Railway-Highway Crossing Program: funds the elimination of hazards at railway-highway crossings, including the closure and consolidation of crossings, replacement of antiquated equipment and new grade crossing controls.
- Stand Alone Noise Barriers Program: fund construction of new noise barriers along state highways in locations where no noise abatement measures currently exist and no major construction projects are currently programmed.
- Transportation Economic Development Program: funds projects that support job creation and retention as well as other improvements with measurable economic benefits.

Other current specialty programs include:

- Historic Roadside Properties Program: funds the repair, rehabilitation and preservation of roadside properties that are either listed on, or eligible for, the National Register of Historic Places.
- Intelligent Transportation Systems Program: funds the installation of new or upgrade of existing electronics, communications, or information processing systems or services to improve the efficiency and safety of the state highway system.
- Safety Rest Area Program: funds construction, repair and rehabilitation of rest areas and waysides.
- Weigh Stations Capital Improvement Program: funds the installation, repair and replacement of the physical infrastructure necessary for the enforcement of state and federal weight and size commercial motor carrier laws.

ROLE OF PUBLIC AND STAKEHOLDER INVOLVEMENT

The public and stakeholders can influence MnDOT construction projects through participation in the planning, programming and project development processes.

MnDOT conducts public and stakeholder involvement when developing the SMTP, MnSHIP and other plans, which set the framework for project selection and how projects are developed. Participation in other MnDOT, metropolitan, regional and local plans and studies also shape individual projects and project prioritization.

MnDOT engages partners, stakeholders and the public in the project development process. Involvement at this stage influences the details of what is included and not included in a project, as well as the timing, delivery mechanism, and traffic mitigation of a project among other details.

While involvement in the planning process and project development offer the greatest opportunity to influence the projects MnDOT delivers, the public and stakeholders can also review and comment on

MnDOT's draft project selection decisions. As part of the project selection process, MnDOT districts work with a broad range of stakeholders through Area Transportation Partnerships (ATPs). These partnerships provide a collaborative decision-making process for the selection of projects that are recommended to receive federal funds. In addition, ATPs provide a local perspective on potential state-funded projects. Prior to finalizing the STIP, MnDOT posts a draft for public review and comment. Beginning with the 2020-2023 STIP, MnDOT also posts the scores for projects considered but not selected and the reasoning behind selection decisions with the drafts.

In urban areas with populations of 50,000 or more, project selection happens as part of a cooperative, continuous and comprehensive planning process between MnDOT and a Metropolitan Planning Organization. All federally funded and regionally significant MnDOT highway construction projects within MPO planning boundaries must be included or consistent with the metropolitan long-range transportation plan and included in the region's four year Transportation Improvement Program (TIP). Each MPO in the state posts their draft TIP for public review and comment.

MnDOT developed the CHIP to improve early project stakeholder coordination. The District CHIP documents include the scores for projects. MnDOT also posts the scores for projects considered but not selected and the reasoning behind selection decisions. The public and stakeholders can review and submit comments on the CHIP at any time.

A few competitive programs, such as the Corridors of Commerce Program, allow the public and stakeholders to submit project ideas as well as express support for specific candidate projects.

DESCRIPTION OF INVESTMENT CATEGORIES

MnDOT invests in the state highway system through various types of capital improvement projects. Some projects enhance the condition of existing infrastructure, whereas others add new infrastructure to the system. MnDOT tracks capital investment in highways by investment categories which are components of projects. A single MnDOT project can include investment from multiple different investment categories. The 2023 MnSHIP includes 14 investment categories. The individual categories are separated in five major objective areas as illustrated in **Figure 3**. There are many competing priorities for investment along the state highway system. MnDOT is responsible for selecting investments that best balance these priorities.

Figure 3: Investment Category Descriptions

INVESTMENT CATEGORY	CATEGORY DESCRIPTION
Pavement Condition	Pavement Condition investments include overlays, mill and overlays, full-depth reclamations, and reconstructions of existing state highway pavement.
Bridge Condition	Bridge Condition investments include replacement, rehabilitation, and painting of state highway bridges. The Bridge Condition category does not include supporting elements for bridges, such as signs, pavement markings, or lighting.
Roadside Infrastructure	Roadside Infrastructure Condition elements include drainage and culverts, traffic signals, signs, lighting, retaining walls, fencing, noise walls, guardrails, overhead structures, rest areas, Intelligent Transportation Systems (ITS), and pavement markings.
Rest Areas	Rest Areas includes funding to maintain or reconstruct state-owned rest areas.
Climate Resilience	Climate Resilience iincludes strategies to adapt infrastructure to resist damage from extreme weather events and improve resilience.
Transportation Safety	MnDOT currently uses a combination of three types of safety investments in its effort to improve safety and reduce the number of annual fatalities and serious injuries on Minnesota roads; Proactive lower cost, high-benefit safety features; Improvements at sustained crash locations; Railway-highway crossing improvements
Advancing Technology	Advancing Technology investments focus on preparing for the next generation of transportation technology such as communications networks, fiber, and traffic signals that communicate with connected and autonomous vehicles.

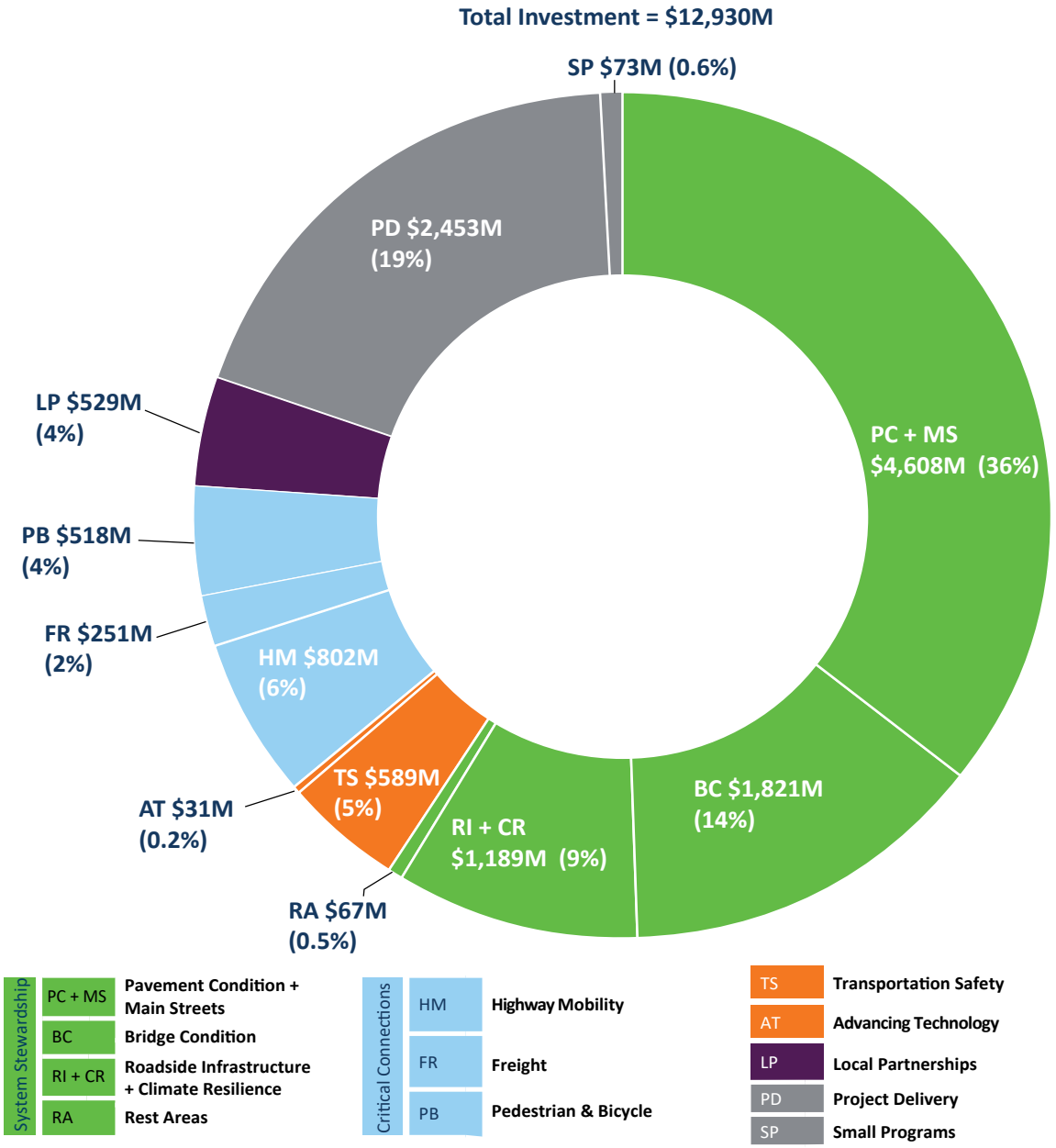
INVESTMENT CATEGORY	CATEGORY DESCRIPTION
Highway Mobility	Investments in this category include projects that improve travel time reliability for people and freight on the National Highway System. In greater Minnesota, typical investments include low-cost improvements such as upgraded signals, turn lanes, intersection improvements, or passing lanes. MnDOT pursues the following strategies to address regional mobility issues in the Twin Cities metro area: **Active Traffic Management and transit-supportive investments.** Operational improvements to help manage the effects of congestion, which include variable message signs (traveler information systems), freeway ramp metering, dynamic signing and re-routing, bus-only shoulder lanes, reversible lanes, dynamic speed signs, and lane specific signaling. **Spot mobility improvements.** Lower cost, high-benefit projects that improve traffic flow and provide bottleneck relief at spot locations. These projects include freeway and intersection geometric design changes, short auxiliary lane additions, and traffic signal modifications to ease merging and exiting traffic. **E-ZPASS lanes.** Priced managed lane projects that provide a predictable, congestion-free travel option for transit users, those who ride in carpools, or those who are willing to pay. In the Twin Cities, this system is called E-ZPASS, which currently operates on I-394, I-35E, and I-35W. **Strategic capacity investments.** Projects aimed at enhancing mobility, safety, multimodal, or freight movements such as improved or new interchanges. General-purpose lanes may be considered in order to correct lane continuity or in other rare instances where E-ZPASS has been evaluated and found not to be feasible.
Freight	Freight includes investments to improve the reliability, efficiency, and safety of freight truck movement on the state's highway network.
Pedestrian and Bicycle	Investments in this category include maintaining and expanding pedestrian and bicycle infrastructure including making it accessible for all.
Local Partnerships	Local Partnerships includes strategies and programs that partner with cities and counties to address community priorities including quality of life and economic development.
Main Street/ Urban Pavements	Main Street/Urban Pavements provides additional funding for projects in urban areas to deliver more improvements along state highways.
Project Delivery	Project Delivery includes components of projects that are critical to ensure the timely and efficient delivery of highway projects. These components include right-of-way costs, consultant services, supplemental agreements, and construction incentives.
Small Programs	The Small Programs category includes investments that are not specifically identified or prioritized within MnSHIP, but make up a part of MnDOT's overall capital investment. Small Programs typically respond to short-term, unforeseen issues or are used to fund one-time specialized programs that do not fit into a MnSHIP investment category. If funding is required beyond the short-term, an effort is made to incorporate the program into a MnSHIP investment category during the next MnSHIP update.

SUMMARY OF INVESTMENT PLAN

Investments by category in MnDOT's 10-Year CHIP (2024-2033) are shown in the pie chart below (**Figure 4**).

The investment priorities in this plan are consistent with those established in MnSHIP (see **Figure 22** for comparison). As in MnSHIP, investments are focused on system stewardship (pavement condition, bridge condition, roadside infrastructure condition) with a lesser mix of other investments. The individual projects in the 10-Year CHIP have been mapped and are available at MnMAP, MnDOT's online mapping application. Projects are also displayed in the District Investment Plans.

Figure 4: 10-Year Capital Highway Investments, 2024-2033



INVESTMENT OVERVIEW AND PERFORMANCE OUTCOMES

As part of the 10-Year CHIP process, MnDOT projects performance outcomes based on planned projects. The following pages display projected performance through 2033 by investment category.

With the investments in the 10-Year CHIP, asset conditions are projected to be worse than the draft MnSHIP outcomes. Pavement Condition outcomes on the Other NHS and Non-NHS are in-line with those established in MnSHIP. The exception is Interstate pavements which are projected to be worse than the MnSHIP projections. Bridge condition on the NHS and Non-NHS is projected to be worse than the anticipated outcomes in MnSHIP. While investment levels in the CHIP are comparable to MnSHIP, revised estimates of future bridge projects identified higher project costs leading to fewer bridges being addressed with allocated funding. Along with increases in projected costs, changes to the bridge inspection process and bridge modeling have led to worse projected outcomes for bridges than were presented in MnSHIP.

The performance outcomes in other categories are more difficult to project as they are subject to changes in the economy, driving behavior, and demographics, and are not entirely the result of MnDOT investments. Given that the spending levels for these categories are similar to the levels established in MnSHIP, MnDOT expects the outcomes in these categories for the 10-Year CHIP to be similar.

PAVEMENT INVESTMENT STRATEGIES

- Increase preventive maintenance spending on the Interstate and NHS pavements to increase their life
- Use low cost preventive maintenance strategies such as crack sealing, chip seals and micro surfacing to prolong the pavement life. As pavement conditions deteriorate, these resources will be redirected towards reactive maintenance needs
- Use innovative strategies such as thin concrete overlays over bituminous to evaluate cost/benefit of alternative pavement fixes
- Continue to assess pavement condition and evaluate options to respond to those highways that display the highest needs that are cost effective and will optimize pavement life

OUTCOMES

Despite significant investment, pavement condition on all systems are projected to worsen over the next ten years and exceed most state system targets. Interstate pavement are projected to be 4.5% poor by 2033 and miss the 2% target. Interstate pavement is anticipated to be 75.4% good, continuing to meet the 70% target. Non-interstate NHS poor pavement will increase from 0.5% in 2022 to 6.7% in 2033, exceeding the 4% target. Non-interstate NHS good pavements are predicted to deteriorate from 83.1% to 59.4% by 2033 and not to meet the 65% target. Non-NHS poor pavement will increase from 1.0% to 8.7% in 2033, just exceeding the target of 8% poor. Non-NHS good pavements are predicted to deteriorate from 77.5% to 44.3% by 2033 and not to meet the 60% target.

Figure 5: Historic Pavement Condition

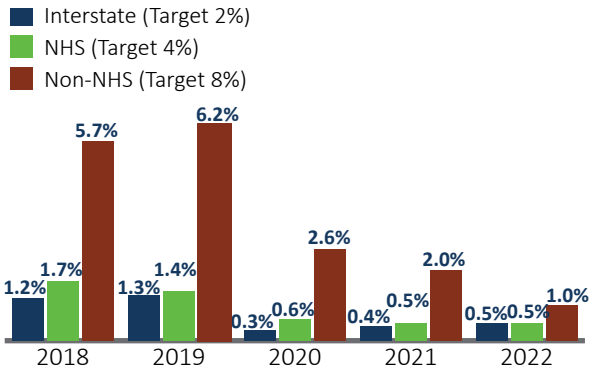


Figure 6: Projected Percent of Pavements in Poor Condition

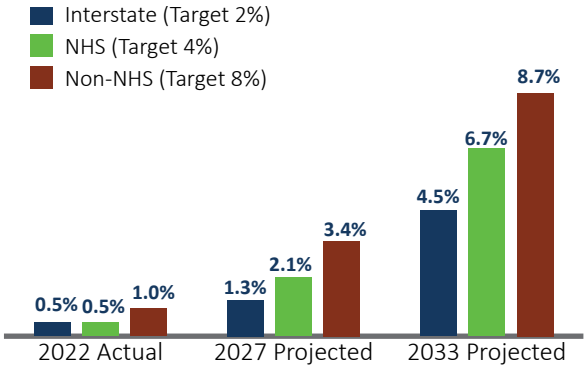


Figure 7: MnDOT Pavement and Bridge Assets

DISTRICT	CENTERLINE MILES*	NUMBER OF BRIDGES (INCLUDING BRIDGE CULVERTS)
1	1,554	542
2	1,802	362
3	1,584	430
4	1,571	336
6	1,435	864
7	1,269	469
8	1,406	353
Metro	1,097	1,448
TOTAL	**11,717**	**4,804**

** Centerline miles represent the total length of a given road from its starting point to its end point. The number and size of the lanes on that road are ignored when calculating its centerline mileage.*

BRIDGE INVESTMENT STRATEGIES

- Perform maintenance activities focused on preventive repairs
- Complete individual bridge management plans for high priority preservation bridges
- Evaluate deterioration models and performance targets to better forecast investment needs

OUTCOMES

Bridge condition on the NHS is projected to deteriorate from 6.8% poor in 2022 to 7.9% by 2033. NHS bridges in good condition will rise from 28.2% to 37.1% by 2033. Non-NHS bridges will also worsen going from 4.3% to 12.4% poor. Non-NHS bridges in good condition are predicted to decline and will be 23.6% by 2033. Both bridge systems will miss their targets in 2033. (**Figure 9**).

Figure 8: Historic Bridge Condition

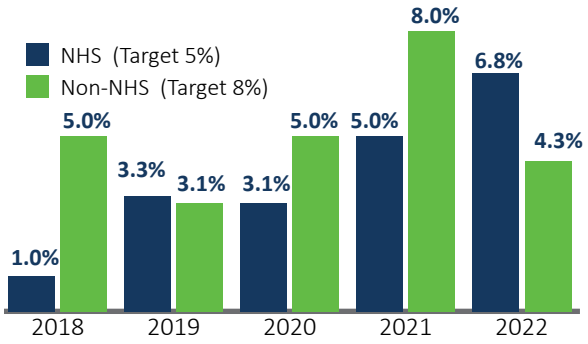
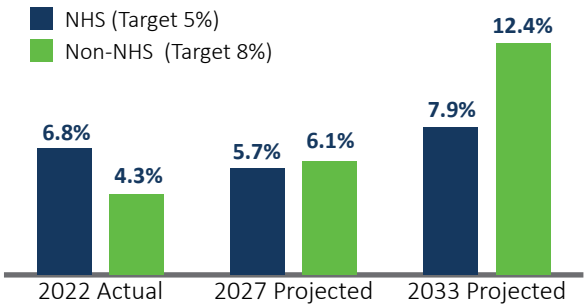


Figure 9: Projected Percent of Bridges in Poor Condition



ROADSIDE INFRASTRUCTURE INVESTMENT STRATEGIES

- Continue to coordinate roadside infrastructure investments (culverts, guardrail, signing) with other preservation projects
- Replace infrastructure with greatest exposure to the traveling public, mostly through pavement/bridge projects

OUTCOMES

In general, the system's roadside infrastructure elements are expected to deteriorate relative to today's levels. However, NHS routes will receive more frequent upgrades to roadside infrastructure elements compared to non-NHS routes due to the relative frequency of pavement and bridge projects on those roads. Geotechnical assets including retaining earth systems are not reported separately but are a part of the roadside infrastructure investment category.

REST AREA INVESTMENT STRATEGIES

- Prioritize health- and safety-related repairs to rest areas unless replacement is warranted
- Prioritize ADA improvements
- Coordinate rest area improvements with truck parking improvements and pavement projects

OUTCOMES

With increased investment in rest areas in MnSHIP, ADA compliance will be addressed at all rest area locations by the end of the plan. However, the percentage of facilities needing significant renovation or replacement is projected to increase.

CLIMATE RESILIENCE INVESTMENT STRATEGIES

- Coordinate on planned and programmed projects to identify resilience needs
- Implement priorities identified in the Resilience Improvement Plan and the Carbon Reduction Strategy
- Implement priorities identified in the Statewide Multimodal Transportation Plan
- Implement actions in the 2022 Minnesota Climate Action Framework

OUTCOMES

Districts will fund a range of resilient infrastructure projects based on their needs. Investments will include flood mitigation projects, proactive resilient infrastructure, snow fence projects, and planting and implementation of green assets. This is a new investment catgory in MnSHIP and most of the investments have not yet been identified in the CHIP.

TRANSPORTATION SAFETY INVESTMENT STRATEGIES

- Invest in high priority, lower cost proactive projects such as rumble strips, high tension cable barrier and intersection lighting
- Reactively install roundabouts and J-turns at sustained crash locations
- Implement non-motorized safety countermeasures at priority locations
- Modify the design of highways for appropriate speeds based on land use context and user needs

OUTCOMES

After remaining steady for the last ten years, fatalities on Minnesota roads increased sharply in 2021 and decreased slightly in 2022, rising to 488 and decreasing to 444 and still substantially above the targets (**Figure 10 and Figure 11**). While MnDOT will continue to make investments in traveler safety, the goal of TZD cannot be achieved through infrastructure improvement alone. Full implementation of all identified safety projects will have a great effect on overall safety, but may fall short of preventing those fatalities and serious injuries that occur on the many local systems throughout the state or are a result of driver behavior such as distracted or impaired driving. Serious injuries and non-motorized fatalities and serious injuries have also been rising since 2021 after several years of a downward trend and missed their reduction targets (**Figure 12 through Figure 15**).

Figure 10: Historic Traffic Fatalities

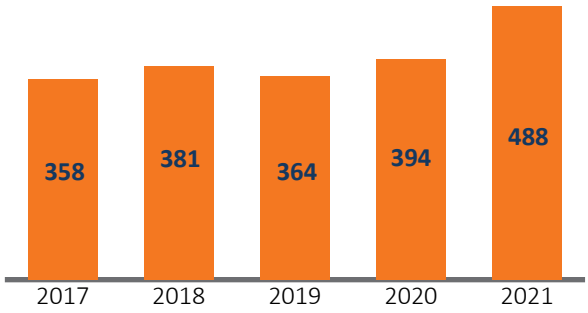


Figure 11: Yearly Targets for Reduction in Traffic Fatalities

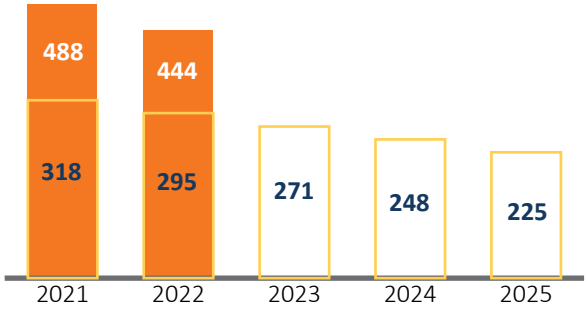


Figure 12: Historic Serious Injuries

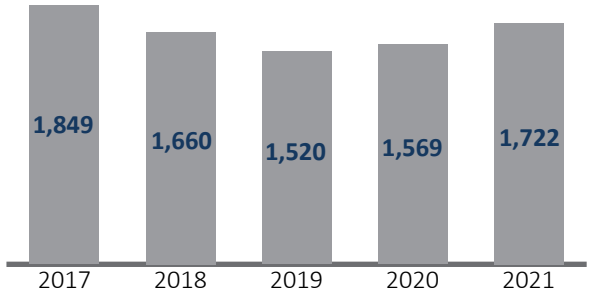


Figure 13: Yearly Targets for Reduction in Serious Injuries

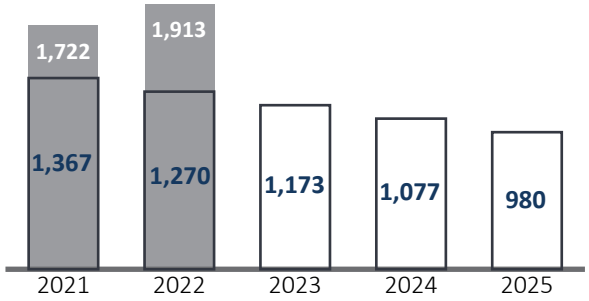


Figure 14: Historic Non-Motorized Fatalities and Serious Injuries

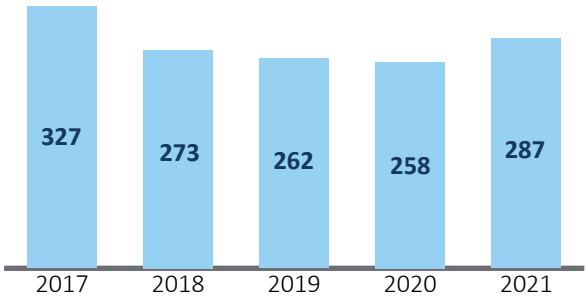
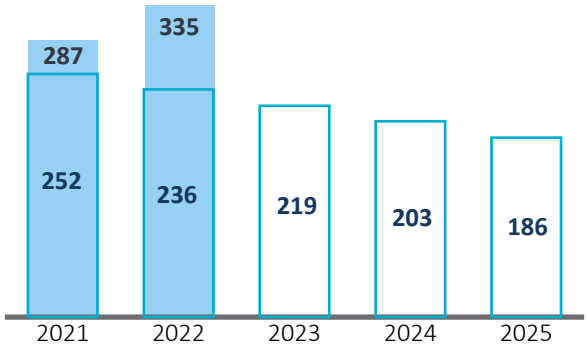


Figure 15: Yearly Targets for Reduction in Non-Motorized Fatalities and Serious Injuries



ADVANCING TECHNOLOGY INVESTMENT STRATEGIES

- Traveler information: Provides current and anticipated travel and weather conditions, route and mode options (and other information) via dynamic message signs, 511, web, social media and text
- Invest in road weather management systems
- Utilize traffic signal optimization currently available
- Develop adaptive ramp optimization and monitoring

OUTCOMES

Advancing Technology includes investments in Intelligent Transportation Systems (ITS), Transportation System Management and Operations and Connected and Automated Vehicles. Investments in this category expand technology infrastructure to address transportation safety and mobility needs. This is a new investment category in MnSHIP and most of the nvestments have not yet been identified in the CHIP.

HIGHWAY MOBILITY INVESTMENT STRATEGIES

- Focus on investments that provide reliable congestion-free options on Twin Cities metro area corridors
- Focus on low cost spot mobility projects that provide safety benefits and reduce delays
- Focus investment to improve travel time reliability through low-cost, high-benefit operational improvements such as upgraded traffic signals, ITS, turn lanes and passing lanes

OUTCOMES

In the Twin Cities Metro area, MnDOT and the Metropolitan Council will be able to continue to invest in Highway Mobility to implement the following:

- Corridors of Commerce project on MN 252
- Various intersection improvements

Standalone mobility projects in Greater Minnesota are chosen by individual MnDOT districts and emphasize criteria based on safety and travel time reliability and address the biggest mobility issues at specific locations. These project locations have been identified and prioritized in the Greater Minnesota Mobility Study. MnDOT will invest $264 million through the STIP years (2024-2027) to complete several operational and low-cost capital improvements on the NHS. While investment in greater Minnesota is limited compared to the Twin Cities, Interstate reliability statewide remains high (**Figure 16**).

In 2020, the implementation of stay-at-home orders due to the COVID-19 pandemic virtually eliminated congestion. Since 2020 congestion has steadily increased, but the long-term effects of the work from home trend following the COVID-19 pandemic are unclear (**Figure 16 and Figure 17)**.

Figure 16: Historic Interstate Reliability

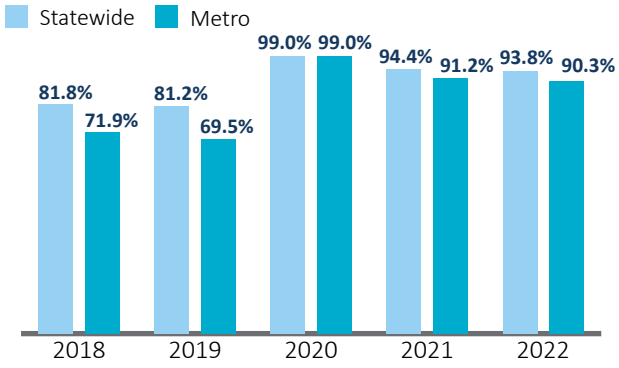
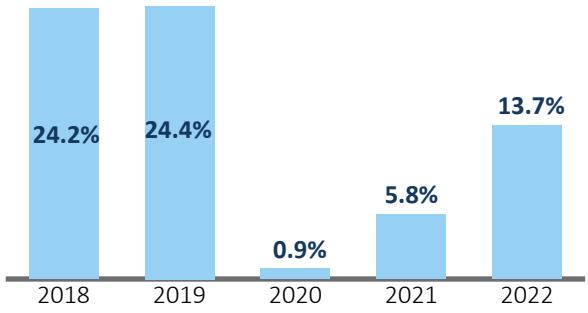


Figure 17: Historic Percent of Metro Freeways Congested During Peak Travel Times



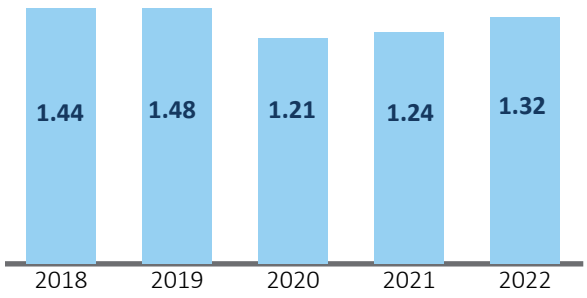
FREIGHT INVESTMENT STRATEGIES

- System investment strategies that were identified in the Freight System and Investment Plan include safety related improvements and freight congestion/efficiency improvements on the NHS as well as establishing first/last mile connections to the non-NHS
- Implement projects to address freight needs identified in the Manufacturer's Perspectives Study and the District Freight Plans

OUTCOMES

During the COVID-19 pandemic, Truck Travel Time Reliability improved as traffic volumes fell on state highways. The Truck Travel Time Reliability Index (**Figure 18**) measures the consistency of commercial truck travel times on the interstate system. An index value of 1.0 is the lowest possible score and indicates the highest level of travel time reliability.

Figure 18: Truck Travel Time Reliability



Eleven projects have been identified in fiscal years 2024-2027, such as freight planning studies, expansion and interchange projects, and rest area improvements. These include projects on the state highway system as well as locally led projects.

During the ten years of the CHIP, state highway projects are anticipated to address mobility issues at several locations identified in the 2020 Minnesota Statewide Freight Bottlenecks Report. The 2026 I-94/MN 252 Corridors of Commerce project may assist with freight bottlenecks at the following locations:

- I-694, eastbound from E River Road to Silver Lake Road in Fridley
- I-694, westbound from Silver Lake Road to the I-94/TH 252 junction in Brooklyn Center

PEDESTRIAN AND BICYCLE INVESTMENT STRATEGIES

- Use Priority Areas for Walking Score (PAWS) and Suitability for the Pedestrian and Cycling Environment (SPACE) tool to prioritize locations for pedestrian and bicycle improvements
- Make pedestrian improvements via complete streets and to complete gaps in the network
- Focus 70% of bicycle investments in urban areas and 30% percent of investments in rural areas
- Add to existing bridge and pavement projects to improve safety and connectivity of the state bikeway system

OUTCOMES

MnDOT is committed to achieving substantial ADA compliance of the state pedestrian network by 2037. Districts will fund a range of pedestrian and ADA projects based on their needs. Investments will be primarily curb ramps, sidewalks and accessible pedestrian signals at intersections, implemented concurrently with pavement and bridge projects. MnDOT will be able to complete some stand-alone ADA improvements, focusing on complete streets and filling gaps in the sidewalk network. **Figures 19** through **Figure 21** show the progress MnDOT is making towards the goal of 100% substantial compliance by 2037.

With the Bicycle investment identified in MnSHIP, MnDOT will make progress towards implementing the District Bike Plans and supporting the SMTP target of 60% of Minnesotans bicycling or walking at least weekly.

Figure 19: Percent of Curb Ramps Meeting ADA Compliance

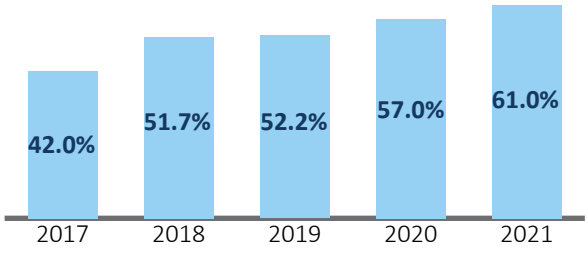


Figure 20: Percent of Sidewalks Meeting ADA Compliance

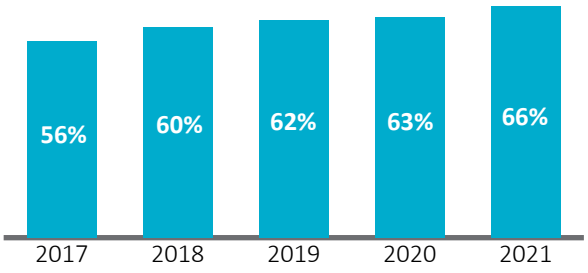
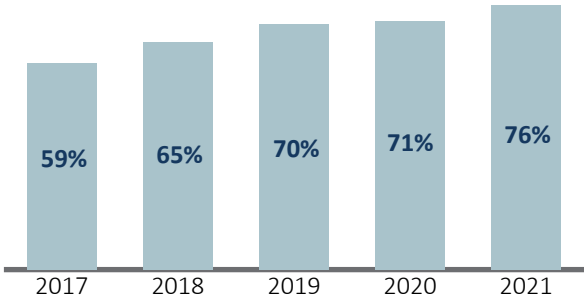


Figure 21: Percent of Signals Meeting ADA Compliance



LOCAL PARTNERSHIPS INVESTMENT STRATEGIES

- Maintain the TED program
- Expand partnerships with local agencies/communities that leverage funds to complete larger projects

OUTCOMES

MnDOT is committed to partnering with local communities to deliver improvements to the state highway system to integrate the highway into the local community and improve livability. With the Local Partnerships investment identified in MnSHIP, MnDOT will be able to continue that partnership with local communities and advance local priorities.

The following turnbacks are programmed in this CHIP:

- Portions of old US 2 east of Crookston in 2024
- Robert Street from the Mississippi River Bridge to 11th Street in St. Paul in 2025

MAIN STREETS/URBAN PAVEMENTS

Investment in Main Streets/Urban Pavements provides additional funding for projects in cities and towns to deliver more improvements along state highways. This includes segments of the state highway that are non-freeways and function both as a state highway and as a city street in an urban context. Additional improvements addressed could be local utilities under the road, drainage infrastructure, a longer-term ADA fix, or redesigning the roadway to meet the community's quality of life, and transportation equity needs. Specifically, the Main Streets/Urban Pavements investment in MnSHIP covers additional pavement costs related to adding a project in an urban area or changing the scope of a planned pavement resurfacing project to allow more substantial work in conjunction with the project.

OUTCOMES

This is a new investment category in MnSHIP and most of the nvestments have not yet been identified in the CHIP.

PROJECT DELIVERY

Project Delivery includes components of projects that are critical to ensure the timely and efficient completion of highway projects. These components include right of way costs, consultant services, supplemental agreements and construction incentives. MnDOT assumes that it will continue to spend approximately 20% of its funds in this category. This is consistent with recent averages due to the similarity in improvement types scheduled through 2033.

SMALL PROGRAMS

Small Programs is used to fund short-term, unforeseen issues and one-time priorities/needs as they arise. Some programs do not easily fit into a MnSHIP investment category. If funding is required beyond the short-term, an effort is made to incorporate the program into a MnSHIP investment category during the next MnSHIP update. Components of Small Programs in MnSHIP include centrally managed programs and historic property investments.

District Project Highlights

MnDOT will complete many important projects during the next ten years. The following projects are highlighted for their complexity and/or their advancement of the Minnesota GO Vision. The years listed refer to state fiscal year, which runs July 1 - June 30th. Multi-year projects are listed in their first year of construction.

PAVEMENT	ROUTE	DISTRICT	YEAR
Resurface northbound and southbound Hwy 169 from just west of CR 67 to CR 103, rehabilitate 2 bridges, and in MT Iron pedestrian improvements on Emerald Ave from Hwy 169 to Enterprise Drive South	US 169	1	2024
Reconstruct Hwy 61 from East of Lake County Rd 26 to East of Park Rd in Two Harbors	MN 61	1	2024
Resurface Hwy 11, improve pedestrian accessibility and add roundabouts at intersections Hwy11/Hwy 313 and Hwy 11/Lake Street in Warroad	MN 11	2	2024
Resurface Hwy 89 and pedestrian improvements between Marshall CR 54 and Grygla	MN 89	2	2025
Resurface and sidewalk improvements on Hwy 2 in Fosston	US 2	2	2027
Reconstruct MN 55, Brown Ave ot Poplar Ave and REsurface from Poplar Ave to 0.25 miles east of Annandale Blvd in Annandale with ADA improvements	MN 55	3	2025
Resurface and upgrade urban section of MN 210 from Baxter Drive to end of 4-lane east of Brainerd	MN 210	3	2026
Complete streets reconstruction in Pelican Rapids and resurface bridge over Pelican River	MN 108 / US 59	4	2024
Reconstruct Hwy 75 from 24th Ave S to Hwy 10/Main Ave, and Hwy 10 from Red River to east of 10th Street in Moorhead, improve ADA and replace signals	US 10 / US 75	4	2027
Reconstruct HIghway 250 in Lanesboro	MN 250	6	2026
Resurface Hwy 22 from Mankato to St. Peter, construct 1 new bridge, replace 1 bridge and repair 3 bridges	MN 22	7	2025
Reconstruct Hwy 19 from 4th St to Bruce St in Marshall, replace sidewalks and pedestrian crossings to meet ADA standards and bike lane striping from Channel Parkway to 4th St	MN 19	8	2025
Resurface pavement on Hwy 36 from Jct I-35W in Roseville to just east of Edgerton in Maplewood/Little Canada and extend auxiliary lane, guardrail replacement, ADA improvements and reconstruct ramp at I-35W and Cleveland Ave	MN 36	Metro	2024

BRIDGE	ROUTE	DISTRICT	YEAR
Replace four bridges and 3.2 miles of pavement on I-35 from 1.0 South to 2.2 miles North of State Highway 48 in Hinckley	I-35	1	2024
I-90/US 52 Bridge replacements and interchange improvements	I-90 / US 52	6	2024
Replace two bridges on Hwy 212, 1.0 miles west of CR 9 in Plato	US 212	8	2026
Rehab 25 bridges, lighting, sidewalk, ADA on I-394 from Penn AVe to 11th St N and rehab six bridges on I-94 from Glenwood Ave N to I-394 in Mpls	I-394 / I-94	Metro	2026

SAFETY	ROUTE	DISTRICT	YEAR
Twin Ports Interchange project	I-35	1	2025
Construct a roundabout in Glencoe at the intersection of Hwy 212 and Morningside Drive	US 212	8	2024

MOBILITY/EXPANSION	ROUTE	DISTRICT	YEAR
MN 23 urban reconstruction in Milaca	MN 23	3	2026
Replace I-90 birdges over Hwy 52 and reconstruct interchange ramps	I-90	6	2024
Reconstruct Hwy 60 in Lake Crystal from CR 20 to CR 112, improve pedestrian crossings, and repair bridge	MN 93	7	2025
Install new bridge at Jct of Hwy 23 and Hwy 9	MN 9 / MN 23	8	2027
Improve the safe and reliable movement of people and goods across multiple modes and across Hwy 252 from I-94 to Hwy 610 and on I-94 from 4th St N to Hwy 252 in Mpls, Brooklyn Center and Brooklyn Park	I-94 / MN 252	Metro	2026

FLOOD MITIGATION	ROUTE	DISTRICT	YEAR
Reconstruct Hwy 93 from Hwy 169 to flood wall in Henderson, repair one bridge and add two bridges	MN 93	7	2024

Investment Comparison

COMPARISON TO MNSHIP

Each year the 10-Year CHIP compares planned and programmed investments to the guidance established in MnSHIP. **Figure 22** shows the comparison between the 10-Year CHIP investment and the investment in corresponding years of MnSHIP (2024-2033). Investment in the CHIP grew compared to expected funding in MnSHIP from the additional discretionary grant highway funding from the new federal infrastructure bill, the Infrastructure Investment and Jobs Act, and Corridors of Commerce projects. Some of the differences to note between the 10-year CHIP and MnSHIP guidance include:

- Corridors of Commerce projects are included in this CHIP investment totals but are not considered as a part of the MnSHIP investment direction. Overall investment over the next ten years is higher than planned investment due to their inclusion.
- Roadside Infrastructure + Climate Resilience is higher by over $133 million compared to guidance due to districts programing larger infrastructure improvement projects and planning for future infrastructure resilience projects.
- Higher Transportation Safety investment due to safety improvements on a few larger projects in the STIP.
- Higher Pedestrian and Bicycle investment due to a few large federal solicitation projects that have Pedestrian and Bicycle components.
- Highway Mobility investment increased due to additional Twin Cities metro area mobility projects funded through the Corridors of Commerce program.
- Freight investment is lower than guidance due to funding from the Minnesota Highway Freight Program going towards freight safety, mobility, and intermodal facilities connections improvements off the state highway network.
- RCIP (Local Partnerships) investment increased due to federal solicitation projects.
- Project Delivery investment increased slightly compared to funding guidance but remains just under the 20% of the total program assumption in MnSHIP.

Figure 22: Investment Plan Investment Comparison

INVESTMENT CATEGORY	10-YEAR CHIP	MNSHIP GUIDANCE	DIFFERENCE FROM MNSHIP	DIFFERENCE FROM MNSHIP ($ IN MILLIONS)
Pavement Condition + Main Street/Urban Pavements	35.6%	36.8%	-1.1%	$213
Bridge Condition	14.1%	15.0%	-0.9%	$28
Roadside Infrastructure Condition + Climate Resilience	9.2%	8.8%	0.4%	$133
Facilities (Rest Areas + Weigh Stations)	0.5%	0.5%	0.1%	$13
Transportation Safety	4.6%	3.3%	1.2%	$191
Advancing Technology	0.2%	0.3%	-0.1%	-$7
Highway Mobility	6.2%	6.3%	-0.1%	$51
Freight	1.9%	2.7%	-0.8%	-$77
Pedestrian and Bicycle	4.0%	3.7%	0.3%	$77
RCIP (Local Partnerships)	4.1%	3.7%	0.4%	$87
Project Delivery	19.0%	18.4%	0.5%	$249
Small Programs	0.6%	0.4%	0.1%	$23
TOTAL ($ IN MILLIONS)	**$12,930**	**$11,950**		$980

DISTRICT INVESTMENT COMPARISON

Figure 23 displays the investment percentages for each district over the ten year period. Each district has different needs and the mix of investment varies from district to district. MnDOT is committed to meeting performance outcomes on a statewide level but each district has the flexibility to prioritize its own projects, particularly on the non-NHS.

Figure 23: District Investment Comparison

INVESTMENT CATEGORY	1	2	3	4	6	7	8	METRO	CO	TOTAL INVESTMENT ($ IN MILLIONS)
Pavement Condition + Main Street/Urban Pavements	35%	48%	56%	51%	41%	46%	57%	30%	2%	$4,608
Bridge Condition	28%	12%	12%	3%	19%	16%	9%	15%	4%	$1,821
Roadside Infrastructure Condition + Climate Resilience	8%	14%	8%	9%	12%	12%	9%	7%	12%	$1,189
Facilities (Rest Areas + Weigh Stations)	0%	0%	0%	0%	0%	0%	0%	0%	4%	$67
Transportation Safety	3%	4%	4%	4%	4%	5%	4%	4%	6%	$589
Advancing Technology	0%	0%	0%	0%	0%	0%	0%	0%	2%	$31
Highway Mobility	0%	0%	0%	0%	1%	0%	0%	17%	0%	$802
Freight	0%	0%	0%	0%	0%	0%	1%	0%	15%	$251
Pedestrian and Bicycle	3%	5%	4%	5%	4%	3%	2%	5%	4%	$518
RCIP (Local Partnerships)	1%	2%	1%	14%	1%	1%	2%	2%	17%	$529
Project Delivery	22%	16%	14%	13%	18%	15%	15%	19%	29%	$2,453
Small Programs	0%	0%	0%	0%	0%	0%	0%	0%	4%	$73
TOTAL INVESTMENT ($ IN MILLIONS)	$1,317	$565	$1,397	$855	$1,147	$992	$590	$4,514	$1,553	$12,930

Remaining Undermanaged Risks

While MnDOT tries to manage and mitigate risks to the state highway system, there are several risks, which without additional funding and resources, will continue to be undermanaged. Below is the list of those risks that are common across the districts.

- Urban Highway Projects: State highway projects through urban areas tend be more costly projects to deliver because of their complexity, utilities and other infrastructure and level of required local coordination and public involvement. In many instances, these roads function both as state highways and as city streets. MnDOT is limited in the number of urban projects it can deliver over the next ten years.
- Pavement and Bridge Condition: Even with a majority of investment focused on repairing or reconstructing pavement and bridges, pavement and bridge conditions are predicted to worsen over the next ten years under projected funding levels.
- Non-Pavement and Bridge Needs: MnDOT will be unable to address all identified safety, bicycle, pedestrian, and other infrastructure needs such as culverts, lighting, or guardrail replacement, with the current level of investment.
- Project Delivery and Coordination: Over the next 10 years, MnDOT will be delivering more projects and several large complex projects which will require more resources to deliver and manage traffic impacts caused by construction.
- Lack of Expansion/Modernization: With pavement and bridge conditions expected to continue to deteriorate, MnDOT has focused majority of investment to maintain the existing state highway system. The limited investment MnDOT is able put towards expanding capacity and modernizing the state highway system is not sufficient to match the needs or expectations of stakeholders and the public.

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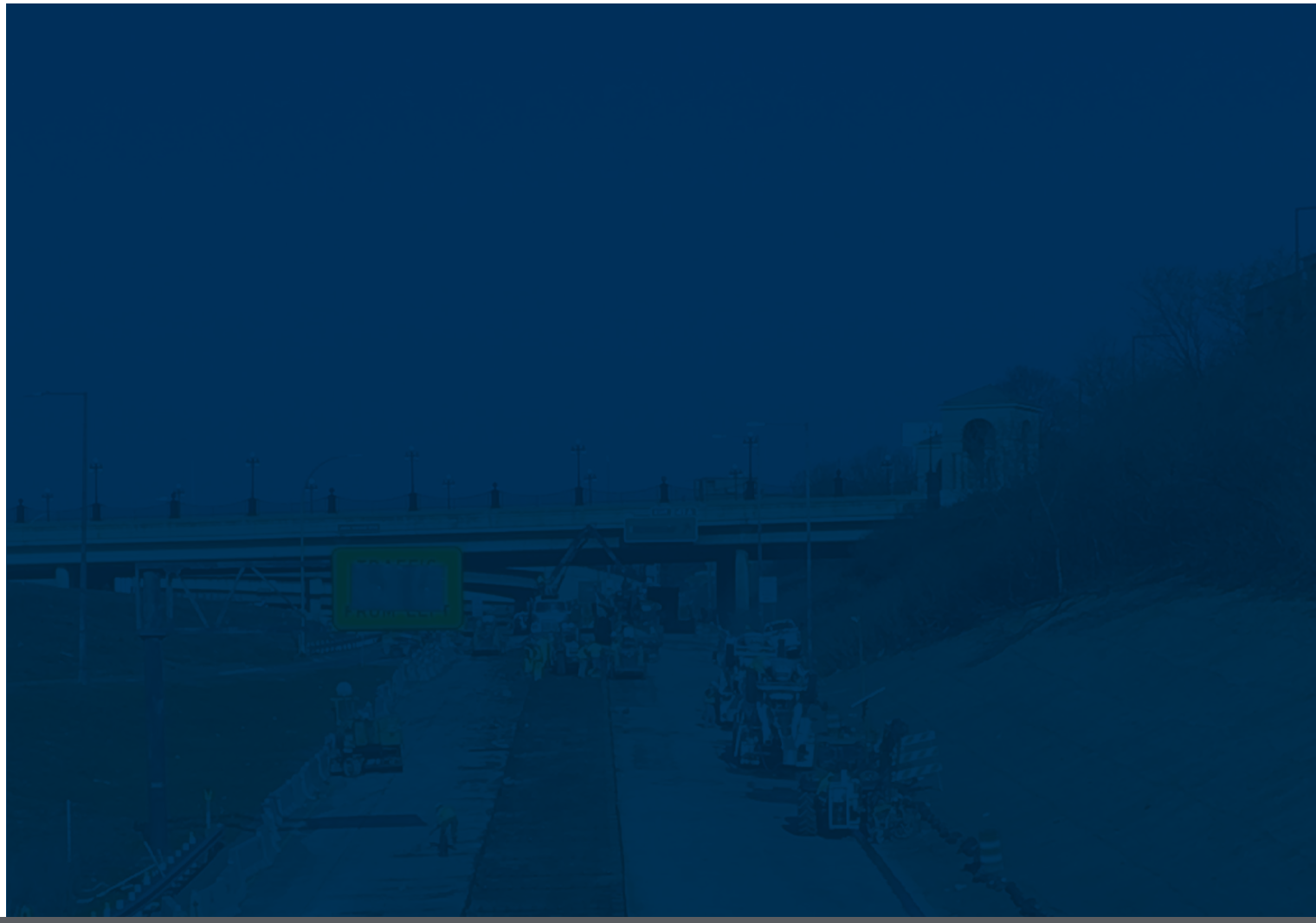

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