DEPARTMENT OF TRANSPORTATION

10-Year Capital Highway Investment Plan 2022 - 2031

MINNESOTA GO

Planning Minnesota's Transportation Future

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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
(MnSHIP) update cycles. MnSHIP was last fully updated in January 2017. An adjustment to the investment direction was made in February 2019 to reflect the additional transportation funding from the 2017 and 2018 Legislative Sessions. 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:

MnSHIP is MnDOT's vehicle for deciding and communicating capital investment priorities for the state highway system. It is updated every five years.

- 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

Each year, MnDOT staff develops investment guidance to ensure that collectively MnDOT is achieving the outcomes established in its highway investment document, MnSHIP.

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

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 Federal Infrastructure Bill

On November 15, 2021, President Biden signed the five-year Infrastructure Investment and Jobs Act (IIJA). This bill provides additional funding over the next five years for transportation infrastructure, including state highway construction. This CHIP was developed prior to the passage of IIJA and does not reflect the additional funding authorized in the bill. State highway projects in the CHIP may be addressed sooner and new state highway projects could be added over the next ten years. MnDOT will be evaluating projects to fund with the development of next year's CHIP document published in 2022.

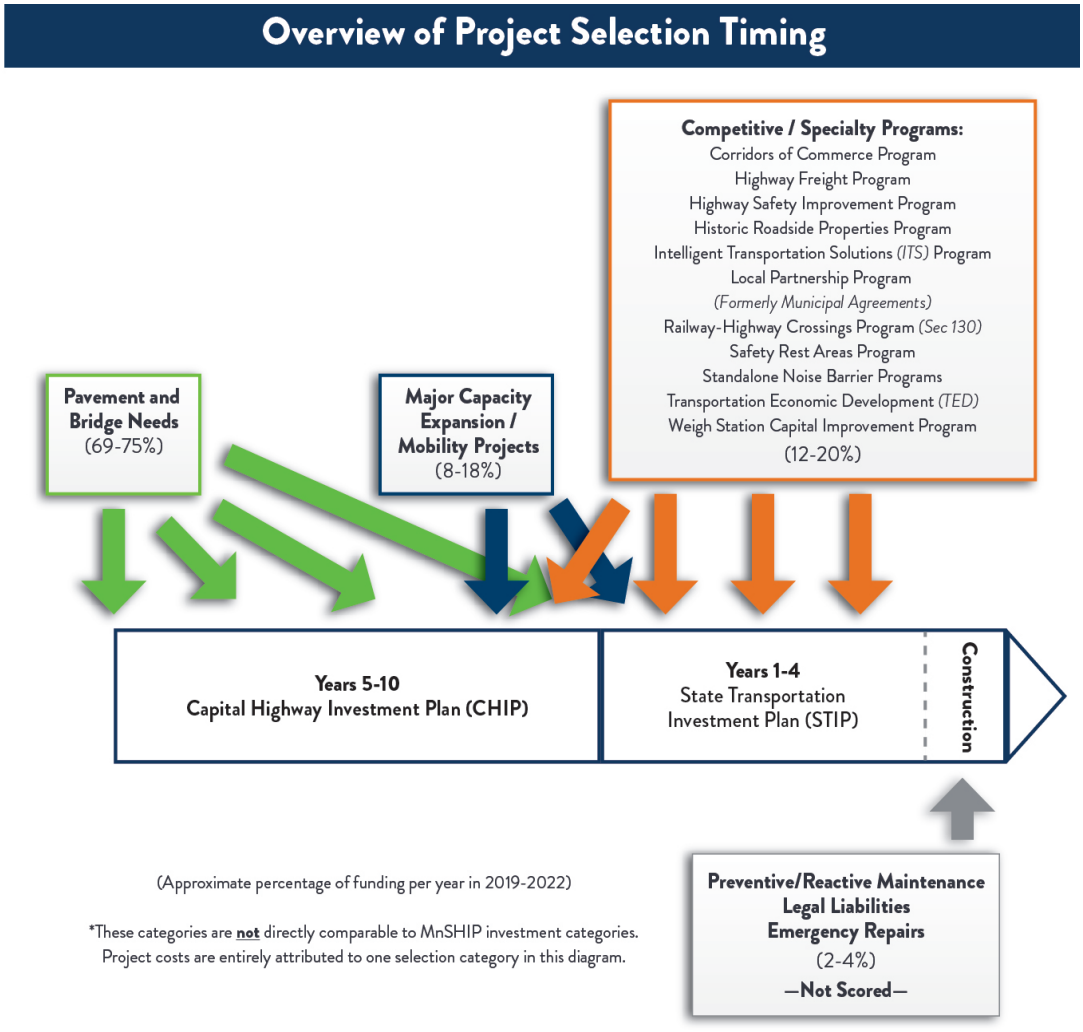
MnDOT Project Selection

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 Capital Highway Investment Plan and 4-year State Transportation Improvement Program. 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 allsystem 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 (SMTP) and the investment guidance in the 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 (see map below), 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 types of projects 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 Capital Highway Investment Plan.

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

Pavement and bridges on the NHS are scored and selected separately from non-NHS pavement and bridges. A map of the state highway system showing which roads are part of the NHS is included in Figure 4 on page 6.

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, TIGER 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.

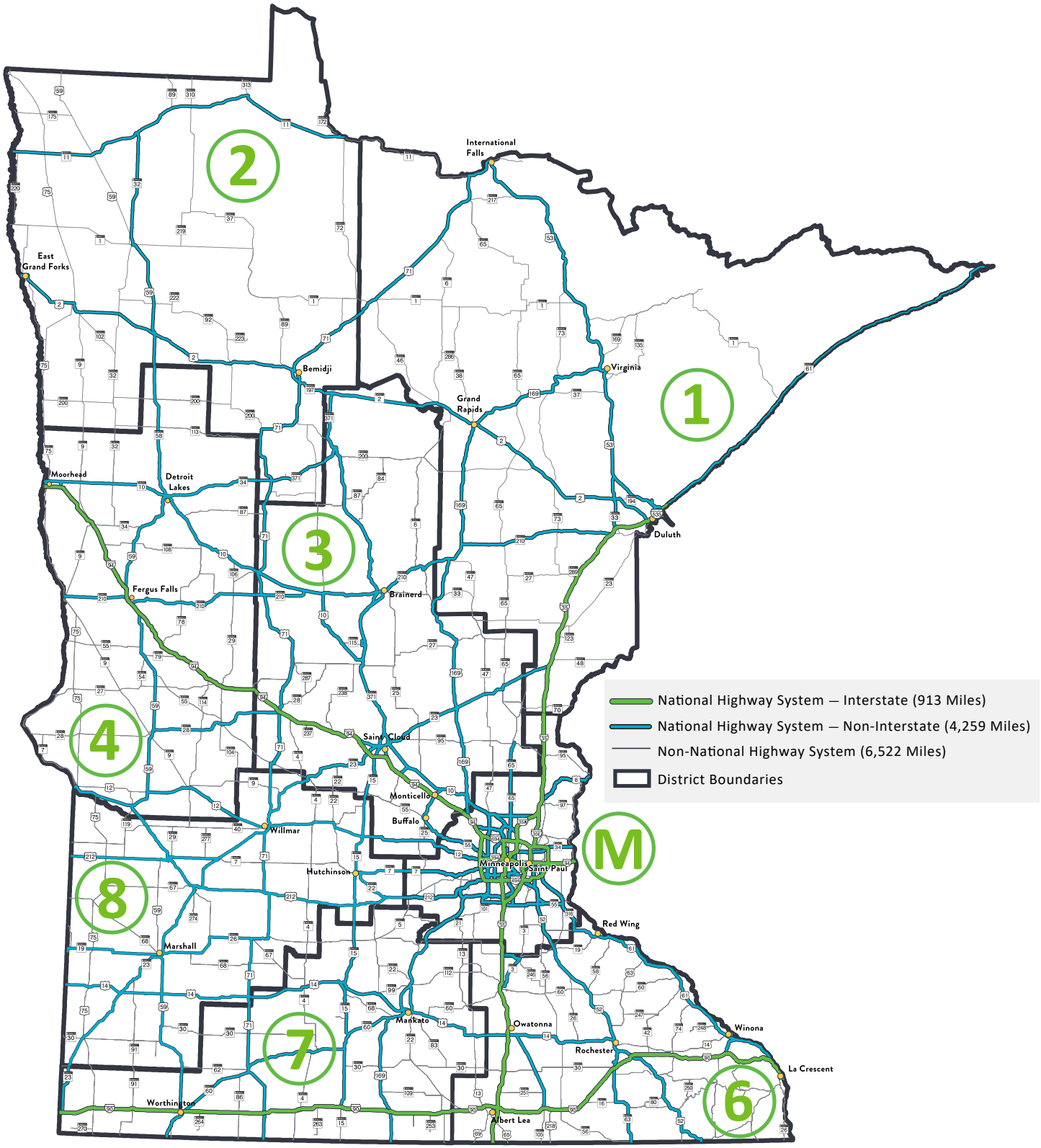
The current list of competitive programs includes:

- 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

Figure 2: State Highway System



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 2017 MnSHIP identified 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. This is especially challenging given the widening gap between MnDOT's projected transportation revenues and investment needs.

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 Condition	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.
Jurisdictional Transfer	Jurisdictional Transfer includes the costs associated with transferring ownership of a road to or from MnDOT. Transferred roads provide the right level of service, and better meet customer expectations for maintenance, ride quality, and safety.
Facilities	Facilities investments include rehabilitation and replacement of the 52 MnDOT-owned rest areas and 10 weight enforcement operational buildings and weigh scales. The Facilities investment category does not include buildings such as district headquarters or other operational facilities.
Traveler 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
Twin Cities Highway Mobility	MnDOT pursues the following strategies to address regional mobility issues in the Twin Cities metro area: **Active Traffic Management.** 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 express 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 MnPASS, which currently operates on I-394, I-35E, and I-35W. **Major 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 MnPASS has been evaluated and found not to be feasible.
Greater Minnesota Highway Mobility	Investments in this category include projects that improve travel time reliability for people and freight on the National Highway System outside of the Twin Cities area. The NHS is the priority network for mobility investment in MnSHIP. Typical investments include low-cost improvements such as upgraded signals, turn lanes, intersection improvements, or passing lanes.
Freight	Freight includes the movement of all goods that originate or terminate in Minnesota across all modes. Investment in this category comes from the National Highway Freight Program created in the FAST Act.

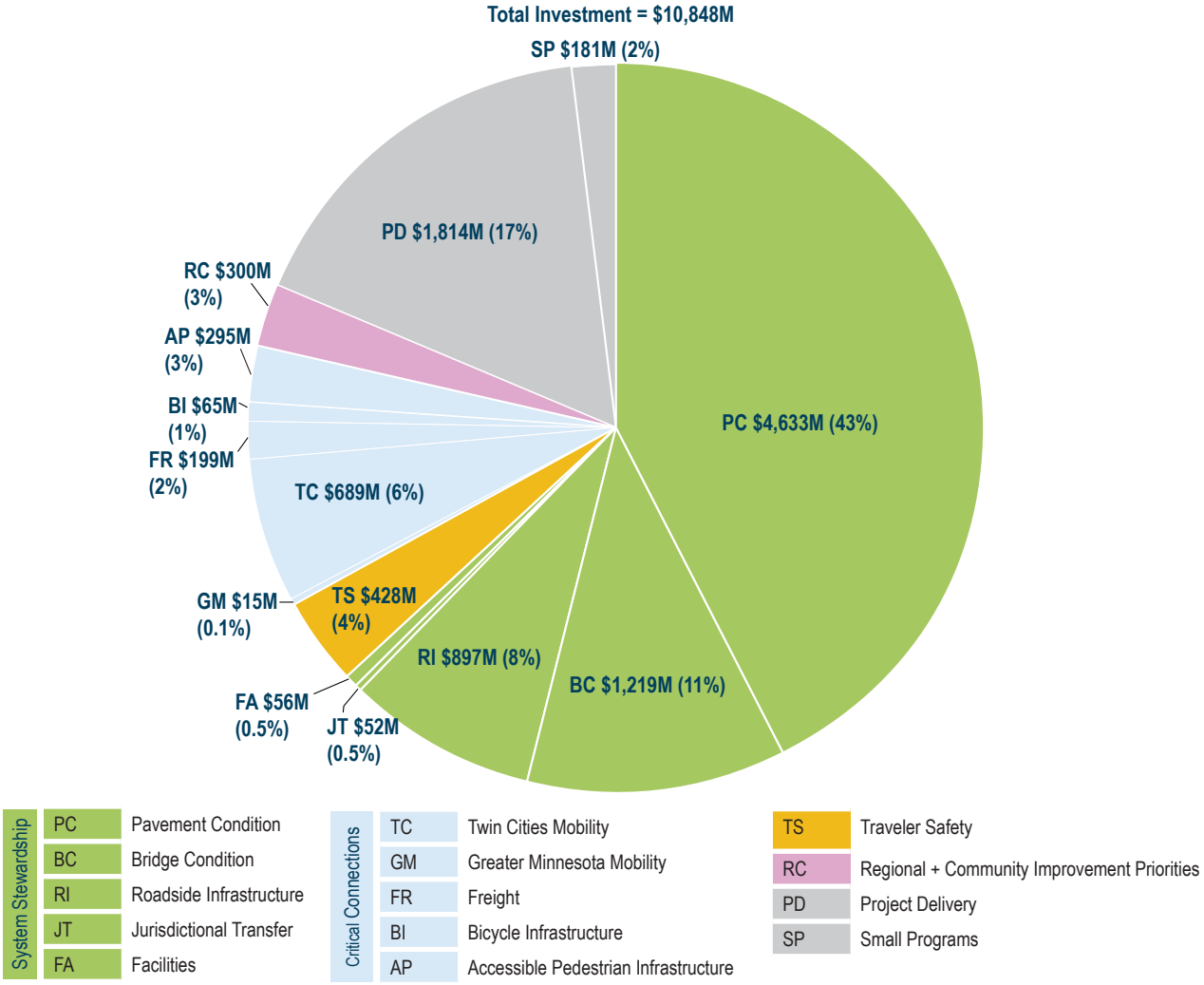
INVESTMENT CATEGORY	CATEGORY DESCRIPTION
Bicycle Infrastructure	This category includes reconstructed and new infrastructure to accommodate bicyclists along or across state highways. Typical improvements include bike lanes, signage for bicycle routes, crossings over or under state highways, at-grade crossings and maintaining shoulders on identified priority routes.
Accessible Pedestrian Infrastructure	Typical improvements include projects to bring curb ramps into compliance with ADA standards, installation of accessible pedestrian signals and other pedestrian improvements across and along state highways.
Regional & Community Improvement Priorities	RCIPs are collaborative investments that respond to regional and local concerns beyond system performance needs. Typical improvements include intersection improvements, projects that support multimodal connectivity, landscape improvements, bypass or turning lanes, access management solutions, improvements that support complete streets, and regional or spot capacity projects.
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 (2022-2031) are shown in the pie chart below (**Figure 4**).

The investment priorities in this plan are consistent with those established in MnSHIP (see **Figure 9** 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, 2022-2031



Performance Outcomes

As part of the 10-Year CHIP process, MnDOT projects performance outcomes based on planned projects. **Figure 5** displays projected performance through 2031.

With the investments in the 10-Year CHIP, MnDOT is expecting to achieve most of the results planned for in MnSHIP. Pavement Condition outcomes are in-line with those established in MnSHIP. Bridge condition is the exception. 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 less 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 will be utilized 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, but will still meet most state performance targets for good and poor pavement. Interstate pavement are projected to be 1.5% poor by 2031 and continue to meet the 2% target. Interstate pavement is anticipated to be 86.4% good, continuing to meet the 70% target. Non-interstate NHS poor pavement will increase from 0.6% in 2020 to 3.0% in 2031, meeting the 4% MnSHIP target. Non-interstate NHS pavement is anticipated to be 72.5% good, continuing to meet the 65% target. Non-NHS poor pavement will increase from 2.6% to 6.9% in 2031, making the target of 10% poor. Non-NHS good pavements are predicted to deteriorate from 72.5% to 53.8% by 2031 and not to meet the 60% target.

The Remaining Service Life (RSL) for pavements is determined by the anticipated years before a section of pavement is in need of a major repair or recontruction project. All three systems RSLs are predicted to decrease over the next ten years. Interstate pavement is predicted to decline from 19.9 years to 17 years by 2031. Non-interstate NHS pavement is predicted to decline from 12.2 years to 10.8 years by 2031. Non-NHS pavement is predicted to decline from 10 years to 7.2 years by 2031.

Figure 5: MnDOT Pavement and Bridge Assets

DISTRICT	CENTERLINE MILES*	NUMBER OF BRIDGES (INCLUDING BRIDGE CULVERTS)
1	1,886	560
2	1,500	356
3	1,572	428
4	1,548	333
6	1,421	855
7	1,260	469
8	1,416	353
Metro	1,089	1,424
Total	11,692	4,778

* 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

- Using the Bridge Replacement and Improvement Management system, identify improvements that minimize life cycle costs, meet performance targets and address the highest-risk bridges
- Strategic preventive maintenance for bridges to keep assets in good condition longer
- Defer some long-term fixes and impose occasional weight restrictions to avoid hazardous conditions, as needed

OUTCOMES

Bridge condition on the NHS is projected to deteriorate from 5.2% poor in 2019 to 12% by 2031. NHS bridges in good condition will rise from 33.1% to 38.9% by 2031. Non-NHS bridges will also worsen going from 3.8% to 10.9% poor. Non-NHS bridges in good condition will remain steady and are predicted to be 32.8% by 2031. Both bridge systems will miss their targets in 2031 (**Figure 6**).

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.

JURISDICTIONAL TRANSFER INVESTMENT STRATEGIES

- Leverage other dedicated funding
- Pursue turnbacks of Non-NHS roadways by working closely with local jurisdictions and optimizing funding sources
- Balance investment between the Twin Cities area and Greater Minnesota
- Identify projects in the CHIP where investments could facilitate the transfer of ownership

OUTCOMES

The Jurisdictional Transfer investment level in the CHIP in combination with the $50 million annually allocated to jurisdictional transfers through the Highway Flex Fund, investment would facilitate more transfers identified in the 2014 Minnesota Jurisdictional Realignment Project report.

The following turnbacks are programmed:

- MN 222 from MN Highway 92 to Red Lake County Road 53 in Oklee in 2022
- MN 96 from MN Highway 244 to MN Highway 95 in Washington County in 2023
- MN 3 (Robert Street) from Mississippi River Bridge to E 11th St in St. Paul in 2025

FACILITIES INVESTMENT STRATEGIES

- Prioritize health- and safety-related repairs to rest areas unless replacement is warranted
- Focus investments on weigh scale mechanics and existing weigh station buildings

OUTCOMES

At the level of investment included in MnSHIP, MnDOT expects the percentage of facilities needing significant renovation or replacement to increase. Investments in rest areas and weigh stations will be reactive, increasing maintenance costs and limiting MnDOT's ability to keep many facilities in a state of good repair.

TRAVELER SAFETY INVESTMENT STRATEGIES

- Prioritize crash locations based on existing problems and the effectiveness of specific, cost effective solutions in addressing the problem
- Support local Safe Routes to School (SRTS) planning efforts
- Coordinate safety investments, as appropriate, with other preservation projects and local jurisdictions to minimize disruption to travelers

OUTCOMES

After declining for many decades, fatalities on Minnesota roads have plateaued in the last ten years. After falling below 400 in 2011, traffic fatalities have fluctuated near that level since, with 2020 seeing a rise to 397 (**Figure 6**). Traffic fatalities in 2021 are expected to exceed 400. 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.

GREATER MINNESOTA HIGHWAY MOBILITY INVESTMENT STRATEGIES

- 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

MnDOT will select projects based on the results of the recently completed Greater Minnesota Mobility Study, which identified locations with reliability or mobility issues on the NHS. MnDOT will invest $15 million through the STIP years (2022-2025) to complete several operational and low-cost capital improvements on the NHS.

TWIN CITIES 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

OUTCOMES

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

- Several additional and expanded spot mobility improvements
- Completion of one to two managed lane projects

While these projects will help improve travel time reliability, it is still anticipated to worsen through 2031 relative to today due to anticipated regional growth and the related increase in mobility needs across the system. However, the effects of the work from home trend following the COVID-19 pandemic make predictions on future congestion unreliable.

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

MnDOT will invest Freight funding in the above areas on both critical urban and critical rural freight corridors. Fifteen projects have been identified in fiscal years 2022-2025, 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 anticipate to address mobility issues at several locations identified in the 2020 Minnesota Statewide Freight Bottlenecks Report. These locations include:

- The 2023 I-494/I-35W Corridors of Commerce project is anticipated to address the freight bottlenecks at the following locations:
    - I-494, eastbound from TH169 to Nicollet Ave. in Bloomington
    - I-494, westbound from MN 77 to Penn Ave in Richfield/Bloomington
- The 2023 I-94 resurfacing project from Woodbury to Lakeland includes traffic management improvements which may assist with the freight bottleneck.
- The 2023 I-94 resurfacing project from Oakdale to the St. Croix River includes traffic management improvements which may assist with the freight bottleneck.

BICYCLE INFRASTRUCTURE INVESTMENT STRATEGIES

- Continue the Local Partnership Program to strategically improve the bicycle network by partnering with local units of government where possible
- Focus investments on priority network routes as identified in the District Bicycle Plans
- Support the implementation of the Statewide Bicycle System Plan

OUTCOMES

MnDOT will continue to invest its limited bicycle infrastructure funds. Minimal funds curtail the ability to make new bicycle improvements and to maintain existing bicycle infrastructure as a part of pavement and bridge projects. Existing bicycle infrastructure will deteriorate and negatively affect the goal of promoting and increasing bicycling in Minnesota.

ACCESSIBLE PEDESTRIAN INFRASTRUCTURE INVESTMENT STRATEGIES

- Focus more investment in sidewalks, curb ramps and accessible pedestrian signals
- Implement strategies and priorities in the Statewide Pedestrian System Plan
- Make other pedestrian improvements, including creating a more complete pedestrian network, via complete streets investments
- Continue addressing identified ADA needs in communities through standalone and preservation projects

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.

REGIONAL AND COMMUNITY IMPROVEMENT PRIORITIES INVESTMENT STRATEGIES

- Maintain the Tranportation Economic Development (TED) program
- The selected TED projects in the STIP are estimated to support 1,500 to 4,600 jobs
- Expand partnerships with local agencies/communities that leverage funds to complete larger projects

OUTCOMES

MnDOT plans to invest $300 million in RCIPs through 2031. Most investments will be completed through Local Partnership Program and design add-ons to existing projects. Stand-alone RCIP projects will be limited. The vast majority of improvements will be made through Corridors of Commerce projects, the TED program and the Local Partnership Program. With the addition of Corridors of Commerce projects, actual RCIP investment in the CHIP is higher than MnSHIP levels.

PROJECT DELIVERY INVESTMENT STRATEGIES

- Increase planning and prioritization at the District level
- Anticipate and provide funding for supplemental agreements, cost overruns, incentives, right-of-way, and consultants to support and deliver the district program

OUTCOMES

MnDOT assumes that it will continue to spend approximately 16 percent of its funds in this category. This is consistent with recent averages due to the similarity in improvement types scheduled through 2031.

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.

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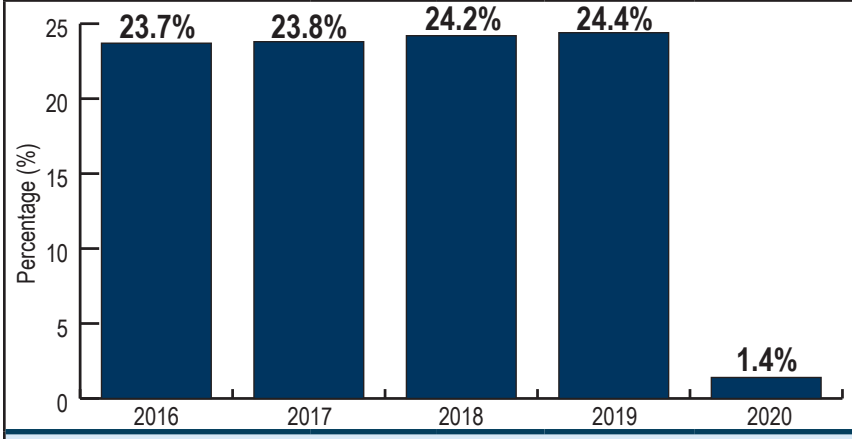
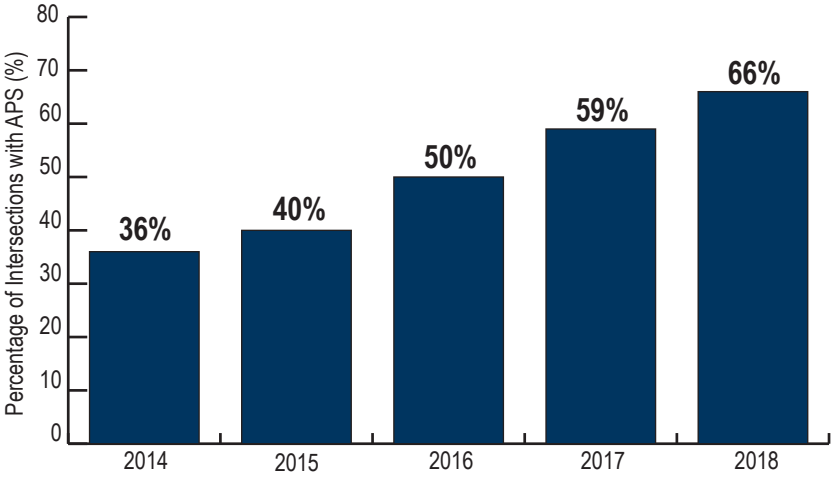
Figure 6: Investment Plan Performance Summary

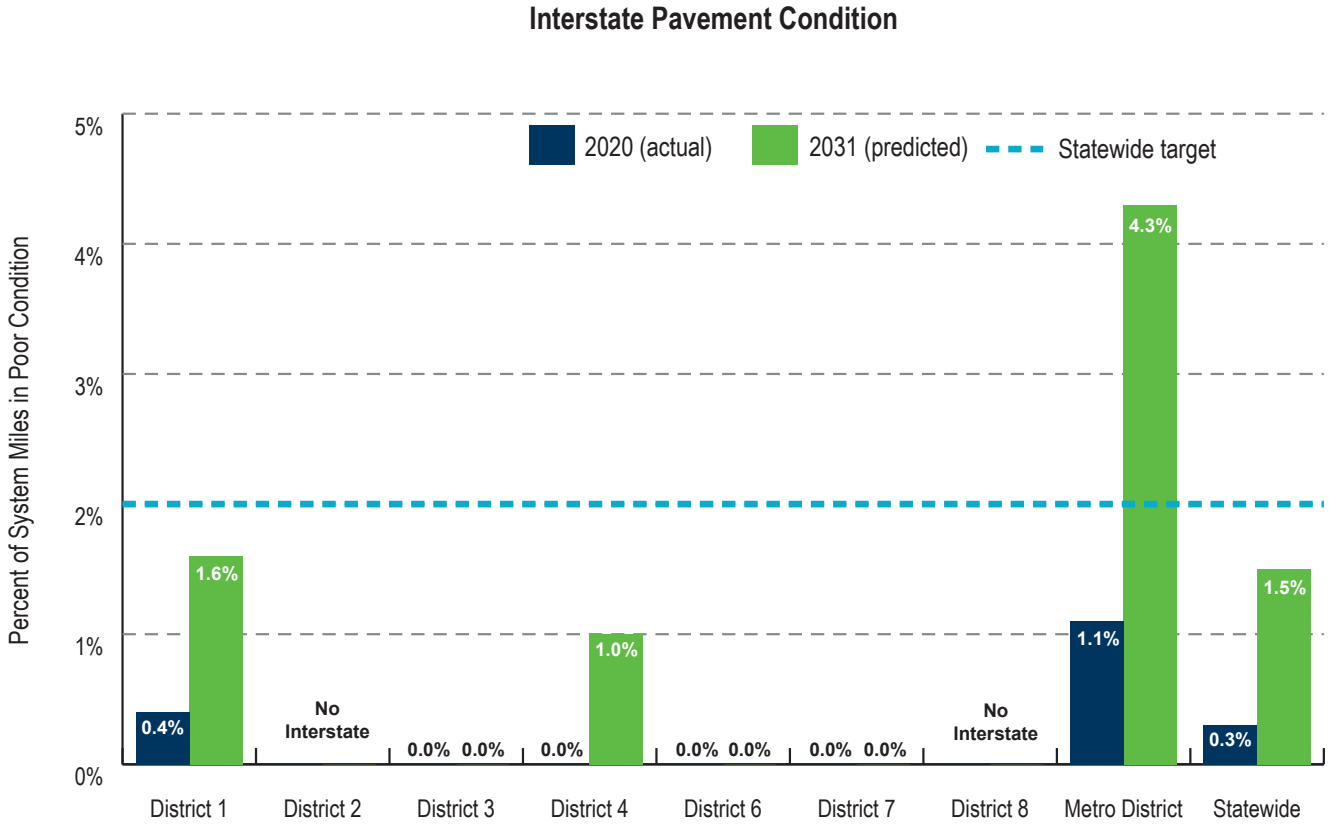
	2020 Condition	State Target	Projected Result 2025	Projected Result 2031	10-Year Trend
System Stewardship					
Pavement Condition Interstate, % poor	0.3%	2%	1.4%	1.5%	Better ↔ Condition expected to increase slightly but then remain stable through the full 10 years
Pavement Condition Non-Interstate NHS, % poor	0.6%	4%	1.1%	3.0%	Better ↗ Condition expected to worsen through the full 10 years but still be meeting targets by 2031
Pavement Condition Non-NHS, % poor	2.6%	10%	4.0%	6.9%	
Pavement % poor Interstate Other NHS Non-NHS System 2016: 1.5, 2.0, 5.5, 3.5 2017: 1.1, 1.7, 4.4, 2.9 2018: 1.2, 1.7, 5.7, 3.5 2019: 1.3, 1.4, 6.2, 3.6 2020: 0.3, 0.6, 2.6, 1.1 Better					The percentage of pavements in poor condition decreased significantly on each system in the state in 2020. The statewide system's condition as a whole as a result has improved as well, with only 1.5% of all pavements in poor condition in 2020.
Bridge Condition: NHS, % poor	3.1%	2%	5.2%	12.0%	Better ↗ Non-NHS condition is currently meeting the target but is projected to decline significantly over the next ten years. NHS Bridges do not meet the target currently and are projected to worsen over the next ten years.
Bridge Condition: Non-NHS,% poor	3.4%	8%	3.8%	10.9%	
Bridge % poor NHS Non-NHS System 2016: 1.5, 1.7, 1.5 2017: 1.4, 3.3, 1.7 2018: 1.6, 3.6, 2.3 2019: 3.1, 3.4, 3.2 2020: 5.2, 3.8, 4.5 Better					The percentage of poor bridge deck area on the NHS and non-NHS has increased since 2015. The overall system poor condition was 3.2 percent in 2019.
Traveler Safety					
Minnesota Traffic Fatalities: All state and local roads	397	225 by 2025	N/A	N/A	Better ↘ Performance expected to improve, but at a slower rate
Number of Fatalities 2016: 392 2017: 358 2018: 381 2019: 364 2020: 397					Fatalities resulting from vehicle crashes have remained stable over the previous five years. In that time span, 2017 experienced the lowest number of fatalities at 358. Fatalities increased in 2020 due to a variety of factors and are anticipated to continue to increase in 2021. Fatalities are anticipated to reduce in the future, but at an undetermined rate.

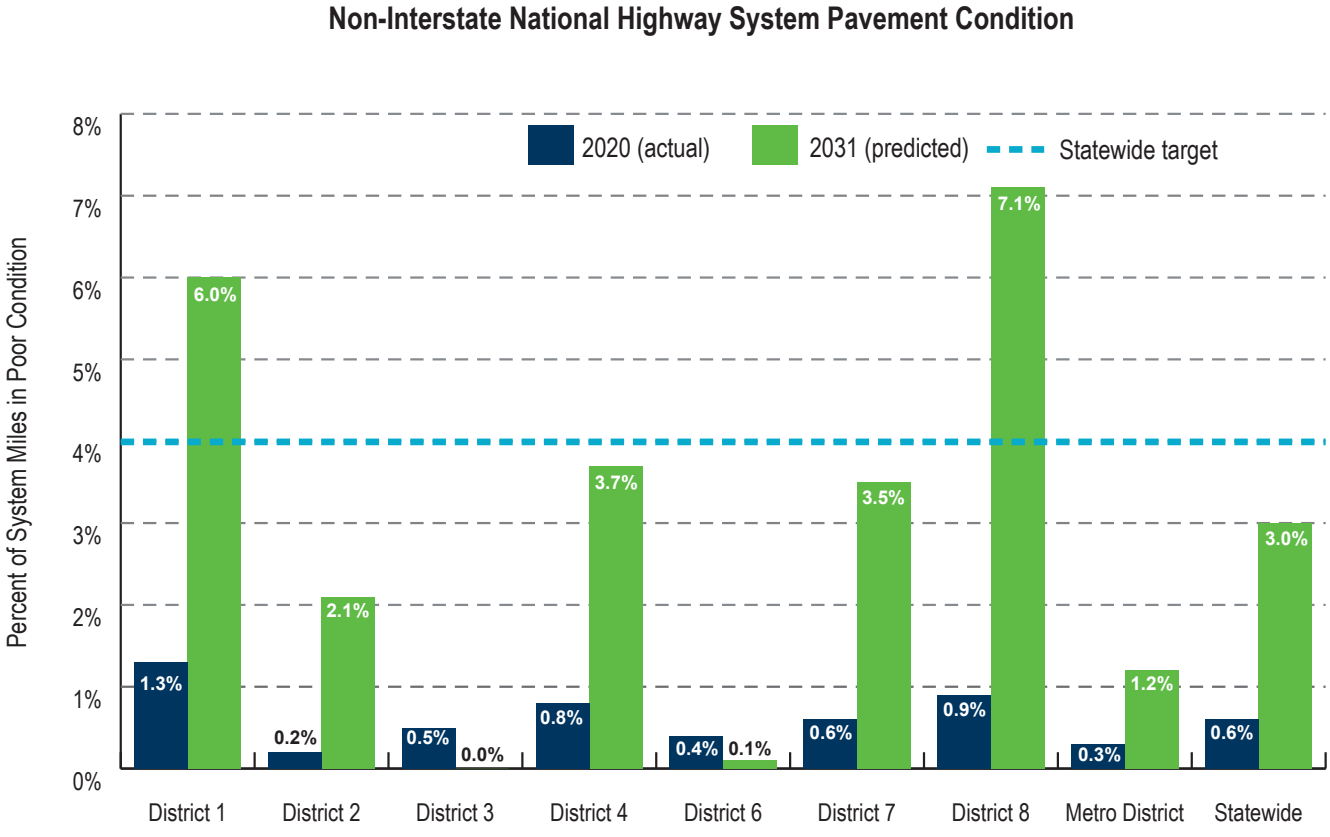
	2020 Condition	MnSHIP Target	Projected Result 2025	Projected Result 2031	10-Year Trend
Critical Connections					
Twin Cities Mobility: % of metro freeway miles below 45 mph in AM or PM peak	1.4%	Tracking Indicator	N/A	N/A	Better ↔ Performance expected to continue at current levels
					Congestion is affected by economic conditions, population growth, fuel prices and other factors that increase travel demand. Since 2014, freeway congestion has increased moderately. Since COVID-19 hit Minnesota and the stay-at-home orders were issued, congestion declined significantly. However, the long-term travel impacts resulting from COVID-19 are unknown.
Pedestrians & ADA					
% of state owned sidewalks miles in substantially compliant to ADA standards	56% (2018)	100%	N/A	N/A	Better ↗ Target expected to be achieved by 2037
% of curb ramp compliant with ADA requirements	39% (2018)	100%	N/A	N/A	Better ↗ Target expected to be achieved by 2037
% of state highway intersections with accessible pedestrian signals	66% (2018)	100%	▲ 70-80%	● 100%	Better ↗ Target expected to be achieved by 2030
					Accessible pedestrian infrastructure is typically addressed as part of highway reconstruction projects. As a result, the percentage of sidewalks in poor condition is likely to improve as mill and overlay projects still address ADA compliance. Accessible pedestrian signals (APS) will continue to be installed at state highway intersections as existing signals reach the end of their useful life. MnDOT anticipates achieving system-wide APS compliance by 2030.

● Meets or exceeds target ▲ Moderately below target ⬢ Significantly below target

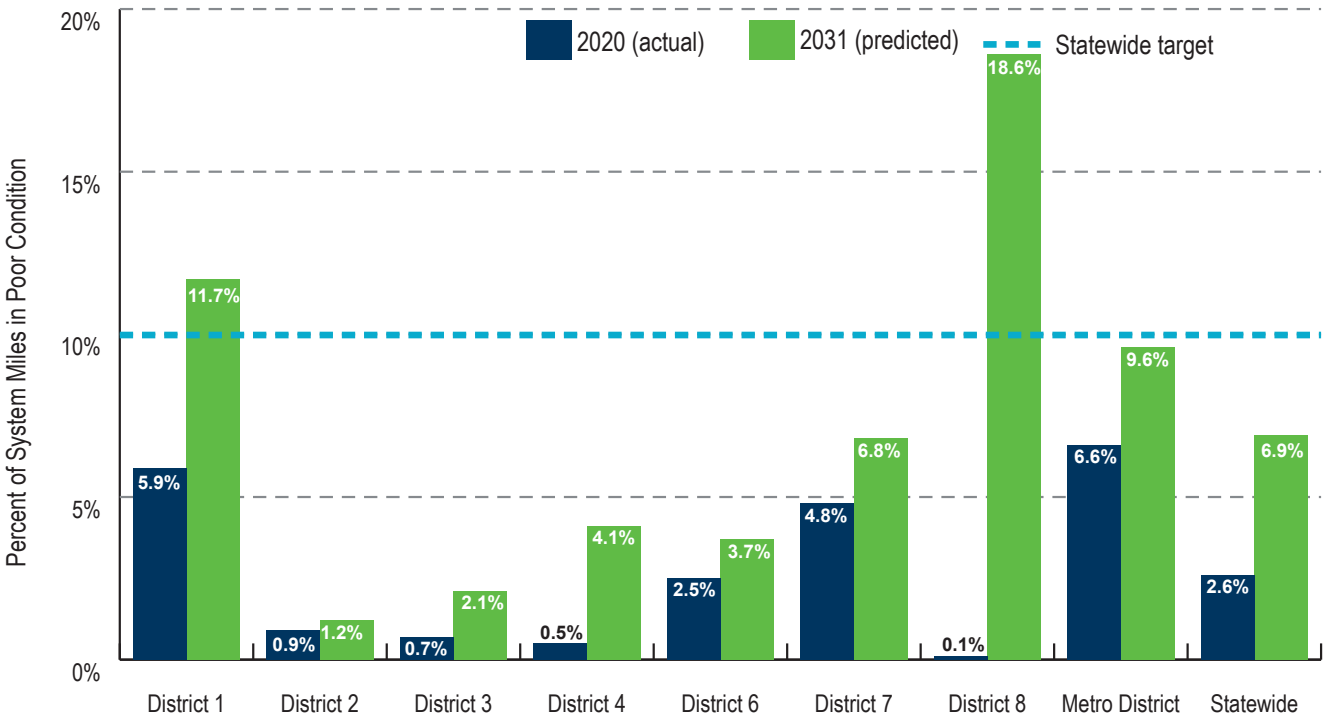
DISTRICT PERFORMANCE OUTCOMES

Figure 7: District Performance Outcomes by 2031 (Percent Poor)

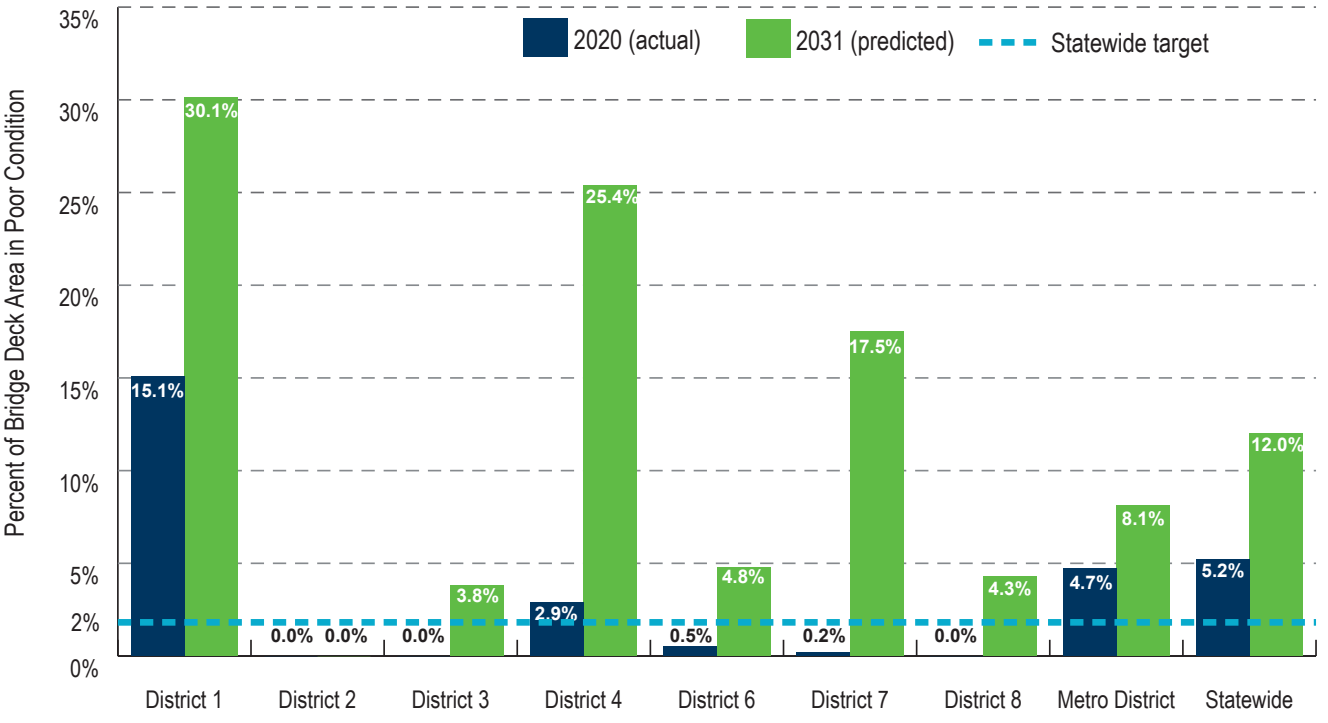




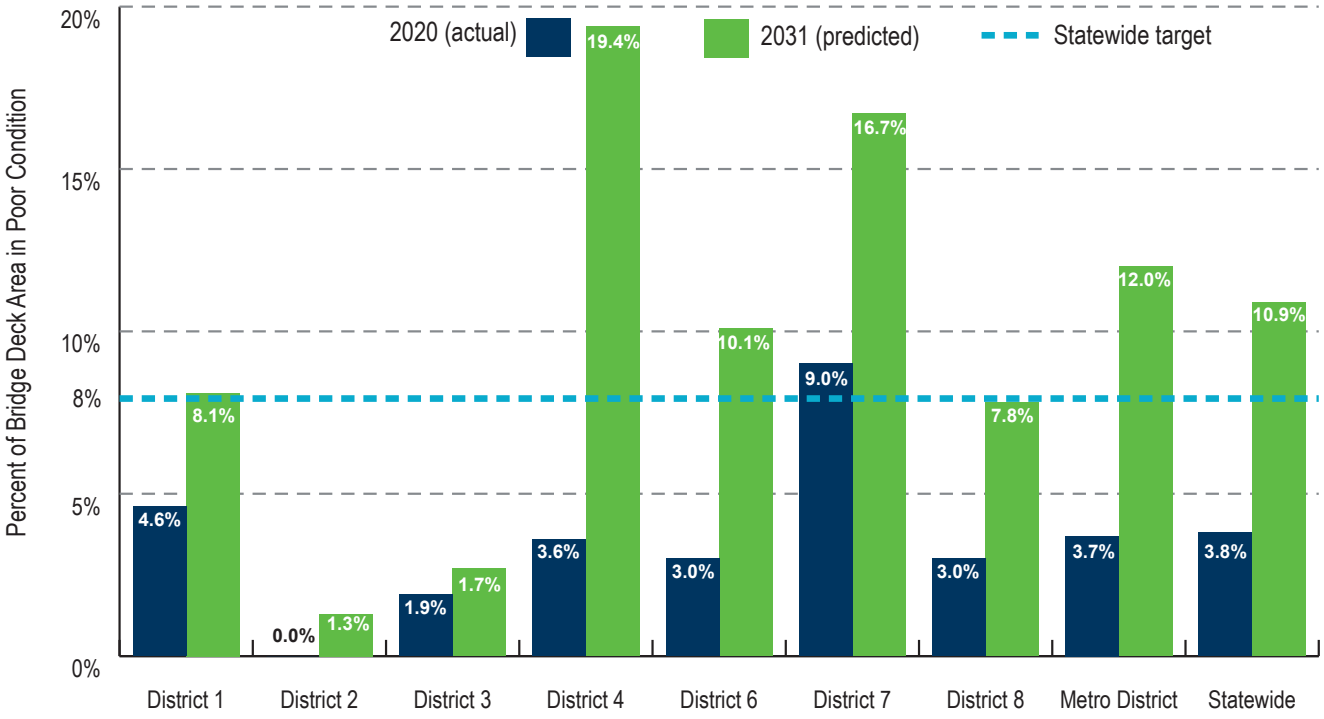
Non-National Highway System Pavement Condition



National Highway System Bridge Condition



Non-National Highway System Bridge Condition



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
Reconstruct Hwy 61 from 0.2 miles SW County Road 61 to just east of 5th St in Two Harbors	MN 61	1	2025
Reconstruct NB and SB Hwy 194 (Central Entrance) from Hwy 53 (Trinity Rd) to 200 feet north of Mesaba Ave in Duluth	MN 194	1	2026
Resurface Hwy 71 and intersection improvements between Hwy 197 Beltrami CR 59	US 2	2	2022
Resurface and pedestrian improvements on Hwy 75 and Hwy 175 in Hallock	MN 175 / US 45	2	2023
Resurface Hwy 11 and improve pedestrian accessibility and signals in Warroad	MN 11	2	2024
Reconstruct MN 23 from .1 mile west of Lincoln Ave to .1 mile west of CR 1. Reconstruct US 10 from .2 mile west of St. Germain to .1 mile north of 15th Ave Southeast, Replace Bridges over US 10, Br# 9021 with Br# 05019 and Br#9022 with Br# 05018, includes multi-modal improvements. Construct 4th St Bridge over US 10	US 10 / MN 23	3	2023
Resurface and upgrade urban section of MN 210 (Washington Street) from Baxter Drive to end of 4-lane east of Brainerd including sidewalks and redecking of br# 5060 over Mississippi River	MN 210	3	2025
Complete streets reconstruction in Frazee from CR 29 to Otter Tail River bridge	MN 87	4	2025
Reconstruct Hwy 75 from north of 24th Ave S to Hwy10/Main Ave, and Hwy 10 from the Red River to east of Hwy 75	US 10 / US 75	4	2026
Resurface Hwy 250 from Hwy 16 to Hwy 30 in Lanesboro	MN 250	6	2026
Resurface Hwy 22 from Mankato to St. Peter; replace 1 bridge and repair 3 bridges	MN 22	7	2024
Reconstruction of Hwy 19 through Marshall	MN 19	8	2025
Resurface road, traffic management system, drainage, signing, lighting, Hudson frontage Rd resurfacing, median barrier and ADA improvements on I-94 from Hwy 120 in Oakdale to St Croix River in Lakeland	I-94	Metro	2023

Bridge	Route	District	Year
Replace 4 bridges and 3.2 miles of pavement on I-35 from 1.0 Mile South to 2.2 miles North State Highway 48 in Hinckley	I-35	1	2024
Replace 5 bridges along I-90 (over Cedar River and at Mower County Road 45, Hwy 105 and Hwy 218) and Repair I-90 bridges over 6th St in Austin	I-90	6	2023
I90/US 52 Bridge Replacements and Interchange Improvements	I-90 / US 52	6	2024
Rehab bridge decks of 9 bridges that cross Dunwoody Ave. on I-394	I-394	Metro	2026

Safety	Route	District	Year
Construct a roundabout in Glencoe at the intersection of Hwy 212 and Morningside Dr.	US 12	8	2024

Mobility/Expansion	Route	District	Year
Reconstruct US 169 in Elk River, TH 101 to 197th Ave. Convert to freeway design. Replace Br 71002 with new BR 71020 NB over US 10	US 169	3	2022
Reconstruct Highway 10/75 Moorhead 11th Street underpass	US 10	4	2024
Reconstruct Hwy 14 from 2-lane to 4-lane from Hwy 15 at New Ulm to east of Nicollet (481st Ave); construct 2 new interchanges and replace 3 bridges	US 14	7	2022
Construct a 4-lane roadways on MN 23 from New London to Paynesville (South Gap)	MN 23	8	2023
Convert MN 252 to a freeway and improve mobility in both direction from MN 610 to Dawling Ave. on I-94 in the cities of Minneapolis, 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 1 bridge	MN 93	7	2023

COMPARISON TO MNSHIP

Each year the 10-Year Capital Highway Investment Plan compares planned and programmed investments to the guidance established in MnSHIP. **Figure 8** shows the comparison between the 10-Year CHIP investment and the investment in corresponding years of MnSHIP (2022-2031). With the additional highway funding from the 2017 Legislative Session, MnDOT revised the MnSHIP investment direction to account of the impact of additional revenue. There are some differences between the revised MnSHIP guidance and the planned investment in the CHIP. Some of the differences to note include:

- Corridors of Commerce projects selected in 2017 and 2018 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.
- Pavement Condition investment is lower by over $469 million compared to guidance due to several factors including growing bridge and roadside infrastructure project needs.
- Most of the increase in Traveler Safety investment is related to safety improvements on a few larger projects in the STIP.
- Twin Cities Highway Mobility investment increased due to additional mobility projects funded through the Corridors of Commerce program.
- Freight investment is under programmed in the STIP, because some of the projects funded by the Minnesota Highway Freight Program are on local roads. MnSHIP assumed 100% of the program would go to projects on the state highway system.
- RCIP investment increased due to inclusion of the Corridors of Commerce projects in greater Minnesota and increased investment in the Local Partnership Program.
- Project Delivery investment is higher than guidance by $196 million but remains around 16% of the overall program as was the goal in MnSHIP.

Figure 8: Investment Plan Investment Comparison

INVESTMENT CATEGORY	10-YEAR CHIP	REVISED MNSHIP GUIDANCE	DIFFERENCE FROM MNSHIP	DIFFERENCE FROM MNSHIP ($ IN MILLIONS)
Pavement Condition	42.7%	49.5%	-6.8%	-$469
Bridge Condition	11.2%	9.3%	2.0%	$265
Roadside Infrastructure Condition	8.3%	7.2%	1.0%	$153
Jurisdictional Transfer	0.5%	0.5%	0.0%	-$1
Facilities	0.5%	0.4%	0.1%	$10
Traveler Safety	3.9%	3.1%	0.8%	$109
Greater MN Highway Mobility	0.1%	0.2%	-0.1%	-$10
Twin Cities Highway Mobility	6.4%	4.4%	1.9%	$231
Freight	1.8%	2.8%	-1.0%	-$91
Bicycle Infrastructure	0.6%	0.6%	0.0%	$13
Accessible Pedestrian Infrastructure	2.7%	2.5%	0.2%	$37
RCIPs	2.8%	1.1%	1.7%	$187
Project Delivery	16.7%	15.7%	1.0%	$196
Small Programs	1.7%	2.6%	-0.9%	-$82
TOTAL ($ IN MILLIONS)	$10,848	$10,299		$550

DISTRICT INVESTMENT COMPARISON

Figure 9 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 9: District Investment Comparison

INVESTMENT CATEGORY	1	2	3	4	6	7	8	METRO	CO	TOTAL INVESTMENT ($ IN MILLIONS)
Pavement Condition	35%	53%	58%	53%	49%	50%	55%	38%	0%	$4,633
Bridge Condition	31%	7%	9%	4%	11%	11%	5%	11%	0%	$1,219
Roadside Infrastructure Condition	8%	14%	8%	10%	13%	14%	8%	7%	0%	$897
Jurisdictional Transfer	0%	0%	0%	0%	0%	0%	0%	0%	4%	$52
Facilities	0%	0%	0%	1%	0%	0%	0%	0%	5%	$56
Traveler Safety	4%	4%	4%	4%	5%	6%	5%	3%	4%	$428
Greater Minnesota Highway Mobility	0%	1%	0%	0%	1%	0%	0%	0%	0%	$15
Twin Cities Highway Mobility	0%	0%	0%	0%	0%	0%	0%	19%	0%	$689
Freight	0%	0%	0%	0%	0%	0%	1%	0%	24%	$199
Bicycle Infrastructure	1%	1%	1%	2%	1%	1%	1%	0%	0%	$69
Accessible Pedestrian Infrastructure	2%	5%	2%	4%	3%	2%	2%	3%	0%	$295
RCIPs	2%	2%	4%	10%	1%	1%	3%	1%	8%	$300
Project Delivery	18%	13%	14%	12%	16%	16%	19%	16%	34%	$1,814
Small Programs	0%	0%	0%	0%	0%	0%	0%	0%	21%	$181
TOTAL INVESTMENT ($ IN MILLIONS)	**$1,129**	**$592**	**$1,450**	**$763**	**$880**	**$973**	**$554**	**$3,760**	**$748**	**$10,848**

REMAINING 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.
- **Non-National Highway System Needs**: The National Highway System is the prioritized network for state highway investment. More investment is being spent on improving the NHS routes leaving less funding available to maintain and improve non-NHS routes.
- **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.

CONTACT INFORMATION

Josh Pearson
Planning Program Coordinator
Office of Transportation System Management
Joshua.Pearson@state.mn.us
651-366-3773