



Minnesota Statewide Freight Bottlenecks

Transportation Performance Measures Reporting for MAP21 Compliance

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Freight Industry in Minnesota

The transportation system in Minnesota plays an important role in ensuring goods are able to get from production to market. The roadway network, railway system, ports and waterways and airways are all key components of the transportation system and play a critical role in the transportation of goods and services. It is estimated that in Minnesota more than \$574 billion of goods are transported by the highway and roadway system each year alone.

The freight industry is reliant on the ability to efficiently move materials, goods and products. Competition for the use of the existing transportation system leads to traffic congestion. As a result, freight bottlenecks exist at key locations across the state that impact the fluid movement of freight. These freight bottlenecks are predominantly on the highway system, which MnDOT has jurisdiction over. This report will assist stakeholders to coordinate on how to develop solutions to freight movement recognizing that limited resources may preclude the ability to address the universe of needs that exist.



Freight Bottlenecks Reporting

Each state is required to identify a list of state freight bottlenecks based on requirements identified in MAP21, a federal law that identifies specific transportation performance measure reporting requirements. This document provides a summary narrative of the most severe statewide freight bottlenecks on the National Highway System and the Interstate System in the state of Minnesota. This document aligns with the strategic goals of the 2018 Minnesota Statewide Freight System and Investment Plan.

Analysis Methodology

MnDOT developed a bottleneck analysis to identify the locations of statewide freight bottlenecks. The primary intent of the analysis was to develop a list that would be helpful in future planning and freight coordination as it relates to MnDOT coordination with local governments and the Federal Highways Administration. While it is recognized that there are many more freight bottlenecks at the regional and local levels this list primarily focuses on the most severe and acute locations.

MnDOT recognized a need for the use of a quantitative method for identification of truck freight bottlenecks during the planning for the Minnesota Freight Investment Plan. A research project titled [*Measure of Truck Delay and Reliability at the Corridor Level*](#) was developed with the University of Minnesota's Center for Transportation Studies in 2018 to identify a possible methodology that would identify truck delay at congested locations across the Twin Cities. Along with this research was the ability to identify congested freight bottlenecks. For that reason, it provided the basis for the quantitative analysis for the analysis in this report.

In-house researchers within the Office of Transportation System Management in MnDOT adopted and modified the approach identified in the University research project. The methodology utilized a national set of data published by the Federal Highways Administration called the National Performance Measurement Research Data set (NPMRDS). The most updated data from the previous year in 2017 was used to calculate hours of truck delay on the roadway segments on the National Highway System (NHS) across Minnesota. This approach was generalized to analyze non-freeway as well as freeway segments within the NHS. The use of NPMRDS data aligned with the system performance-related MAP-21 performance measures regarding travel time and freight reliability. It allowed the segment-level travel time measurements associated with these measures to be used as the basis for the delay calculations. Accordingly, the periods chosen for analysis of bottlenecks coincide with the definitions adopted for the MAP-21 Truck Travel Time Reliability measure. Locations were then identified based on an adopted truck freight bottleneck definition identified in the following section.

A multi-disciplinary MnDOT Freight Performance Measures committee provided expert review, coordination and recommended the enclosed bottleneck list.

Truck Freight Bottleneck Definition

Definition: A truck freight bottleneck reported to the FHWA for MAP21 compliance is a roadway segment that experiences five hours or more of daily truck delay per mile for at least one of three time periods: the morning peak period, midday peak period or the evening peak period.

Within the identified segments that met the bottleneck definition, the segments must also have been contiguous with at least one other segment in the same travel direction that meets the above delay criterion. This was done to emphasize bottleneck locations where capacity restrictions result in significant upstream queuing and delay

and to prevent individual, short segments that occur at signalized intersections where vehicles are regularly stopped from being identified as bottlenecks.¹

MnDOT recognizes that there is a wide array of other regional and local freight bottlenecks throughout the state. These may be identified in transportation plans, studies or other documents. The designation and identification of bottlenecks in this document does not commit MnDOT to specifically fund or select any project or select any location noted in this document for improvement. MnDOT identified a need to have utilize a consistent, repeatable methodology across the entire state and for that reason only bottlenecks identified within the analysis for this report were adopted at this time.

¹ It should be noted that the intensity of congestion at some locations may be influenced by highway construction projects and the results may change significantly from one reporting period to the next.

Statewide Truck Freight Bottleneck Locations

Table 1. Truck Freight Bottleneck Locations

Bottleneck	AM		PM
	Peak	Midday	Peak
I-494 (TH 77 to W Bush Lake Rd.)	x	x	x
I-694 (Snelling Ave. to Victoria St.)	x	x	x
I-694 (Jct. I-94/494) East Junction		x	
I-94 (Lowry Tunnel to TH 280)	x	x	x
I-94 (I-35E South to TH 52)		x	x
I-35W (Burnsville Pkwy. to Minnesota River)	x	x	x
I-35W (90th St. to 76th St.)	x	x	
I-35W (36th St. to Mississippi River)	x	x	x
I-35W (County Road E2 to CSAH 96)		x	x
I-35E (Pennsylvania Ave. to I-94)	x	x	x
I-394 (Penn Ave. to I-394)	x	x	x
TH 36 (Fairview Ave. to Hamline Ave.)			x
TH 52 (NB from Lafayette Bridge to I-94)	x	x	x
TH 13 (Lynn Ave. to Nicollet Ave.)		x	x
TH 62 (Portland Ave. to I-35W South)			x
TH 62 (Tracy Ave. to Xerxes Ave.)			x
TH 101 (141st Ave. N to I-94)	x	x	
TH 169 (Minnetonka Blvd. to Excelsior Blvd.)		x	
TH 24 (Jct. I-94)		x	x
TH 15 (2nd St. S to 8th St. N)	x	x	x
TH 23 (10th Ave. S to Mississippi River)	x	x	x

**Note locations are not shown in any priority order or ranking*

Figure 1. Statewide Truck Freight Bottlenecks Map

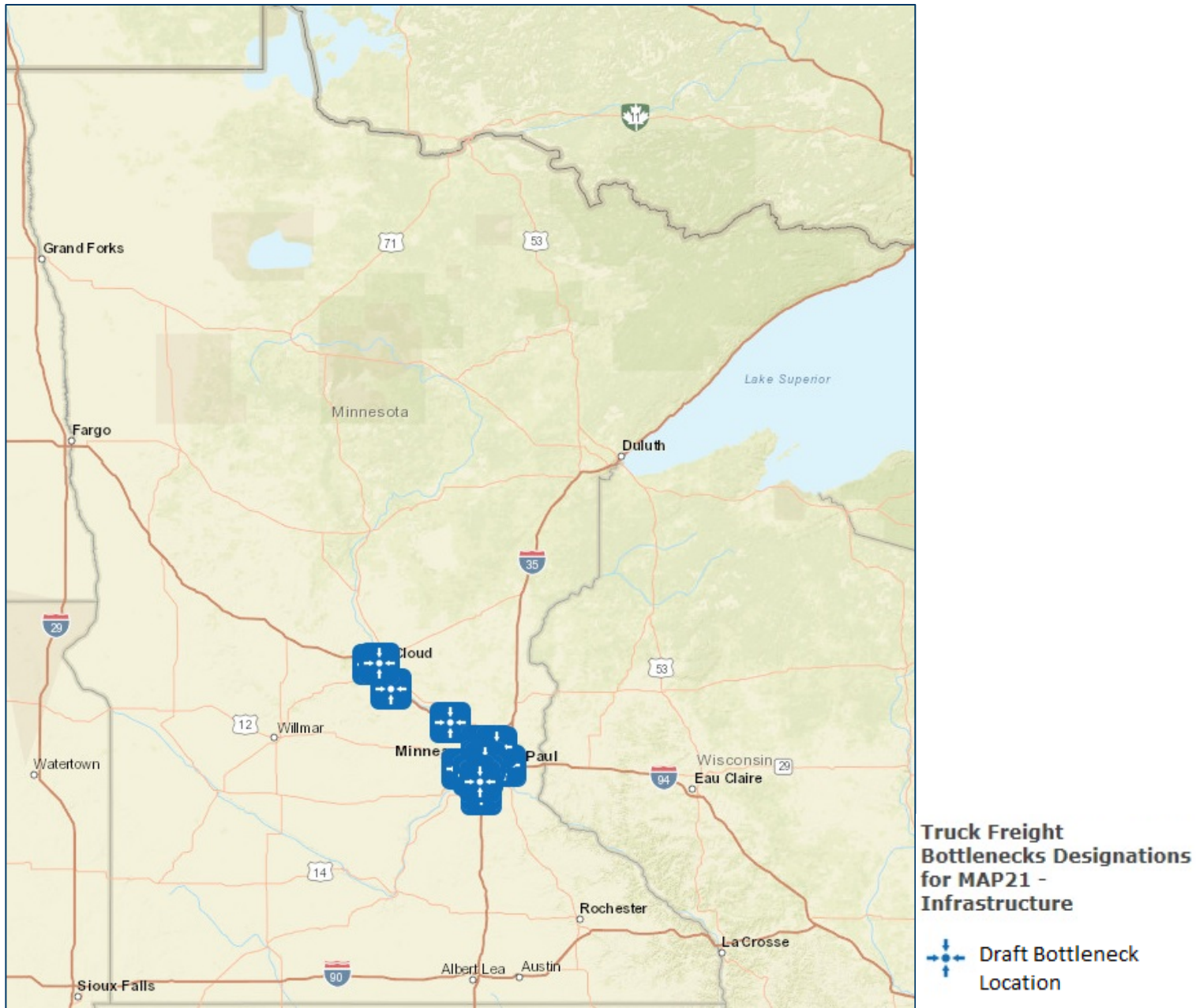
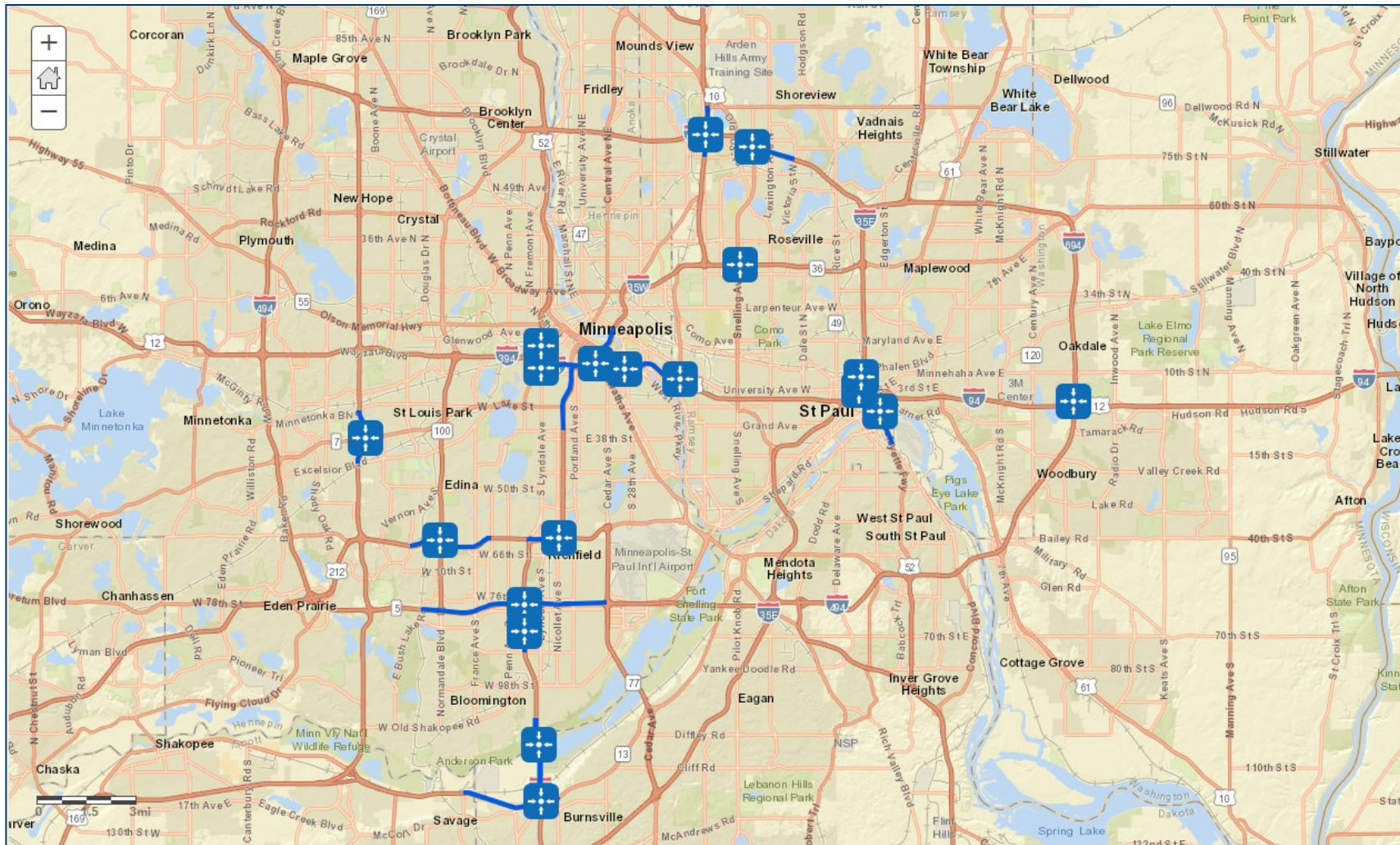



Figure 2. Metro District Inset Truck Freight Bottlenecks Map



Truck Freight Bottlenecks Designations for MAP21 - Infrastructure

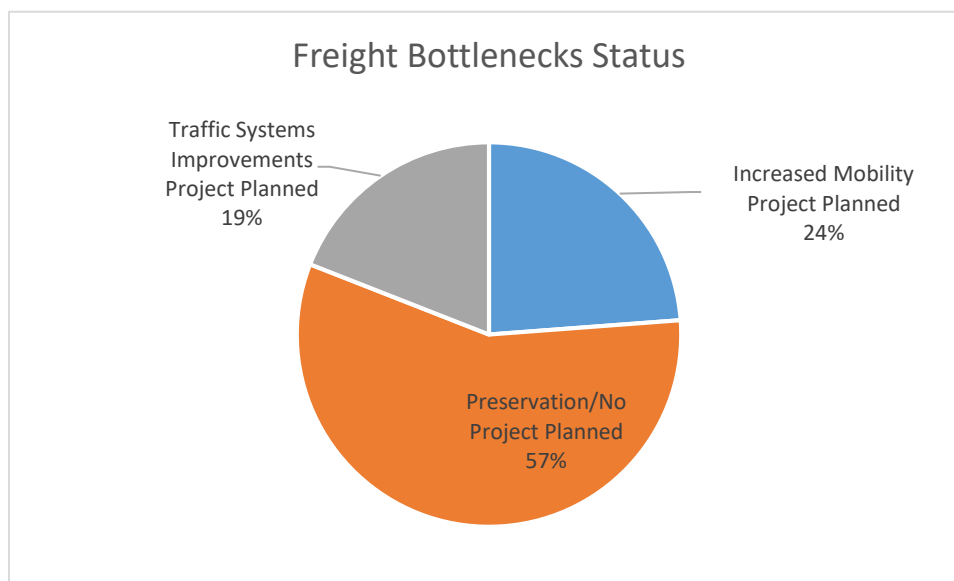
 Draft Bottleneck Location

Summary Narrative of Capital Improvements

This section provides a brief narrative of any efforts to address the truck freight bottleneck locations identified in the previous section. It is important to note that MnDOT plans and programs projects based off the agency wide guidance in the Minnesota State Highway Investment Plan or MnSHIP. MnSHIP identified that MnDOT would move forward over the next 20 years with limited mobility improvements so that the quality of existing roads will be maintained at a higher level as a tradeoff.

In addition, a lack of increased funding prevents MnDOT from addressing more mobility projects. Only a limited number freight bottlenecks are currently planned to have mobility improvements that would help address the capacity limitations at the sites identified in this document. Figure 3 displays a summary of all projects programmed in the draft 2019-2022 Statewide Transportation Improvement Program (STIP) or planned in the 2023-2027 Capital Highway Investment Plan (CHIP) at freight bottleneck locations. This figure shows the simple share of projects for each type of improvement based on the project's effectiveness of resolving the bottleneck.

Figure 3. Freight Bottleneck Status



In general, MnDOT uses strategies such as active traffic management, spot mobility projects and MnPASS lanes to address congestion across all roadway modes and users. MnDOT works with general congestion and traffic concerns across other modes to ensure the safety of the traveling public.

Below are a listing of all construction projects that improve the maintenance or functionality of the truck freight bottlenecks identified in this document identified in the in the draft 2019-2022 Statewide Transportation Improvement Program (STIP) or the 2023-2027 Capital Highway Investment Plan (CHIP). In general, all construction projects on the roadway segment are listed. As shown in Figure 3 above a majority of the projects identified are preservation projects that will not improve mobility or significantly resolve the capacity limitations at the site. This illustrates alignment with MnSHIP's Strategic Investment Direction focusing on preservation.

Projects may ultimately change as they move into scoping and become more detailed in the STIP. Locations described do not commit MnDOT to specifically fund or select any project or location noted in this document.

Locations

Each location identified in the analysis as shown in Table 1, with a short narrative as well as any projects located on or near that site that would impact traffic flow.

Sample: **Freight Bottleneck Location**

Narrative summary

- Project 1
 - Project 2
-

Table 2. Locations Narrative Table

A. **I-494, from TH77 to W Bush Lake Road in Richfield/Bloomington**

A targeted mobility project has been identified for this site that will help to address the bottleneck at this location.

- 2021 Corridors of Commerce Project (COC) – Major mobility improvement turbine interchange, northbound to westbound directional ramp.

B. **I-694, from Snelling Ave. to Victoria Street in Shoreview**

There are currently no specific projects planned or programmed to address the current bottleneck. A major mobility project was completed in 2017 that added additional lanes at the end of the data period. An increase in capacity at this location may have already addressed or shifted this freight bottleneck location.

C. **I-694 at the East Junction of I-94/I-494 in Oakdale/Woodbury**

A preservation project with mobility improvements has been identified for this site that will help to address the bottleneck at this location.

- 2019 Programmed Project (STIP) – I694, 10th Street/CSAH 10 to Junction I694/I94/I494 and Tamarack Road to Junction I694/I94/I494 – Concrete overlay, auxiliary lane, replace and widen bridges and reconstruct loop
- 2024 Planned Project (CHIP) – Concrete Pavement Repair– from US61 to CSAH10
- 2023 Planned Project (CHIP) – Unbonded concrete overlay eastbound lanes on I94 from MN120 to Wisconsin border
- 2024 Planned Project (CHIP) – Unbonded concrete overlay westbound lanes on I94 from MN120 to Wisconsin border

D. **I-94 from the Lowry Tunnel to TH280 in Minneapolis**

A series of maintenance, preservation and traffic management system improvement projects have been identified for this location that will help to resolve the bottleneck at this location.

- 2019 Programmed Project (STIP) – Mill and overlay from TH280 to Western Ave in St. Paul
- 2020 Programmed Project (STIP) – I-94 from Nicollet Ave in Minneapolis to TH280 in St Paul, mill and overlay, Traffic Management System improvements and striping
- 2022 Programmed Project (STIP) – TH55 bridge replacements over 7th St, and 8th St., signing, lighting, drainage and structural repairs

- 2026 Planned Project (CHIP) – Medium concrete overlay, pavement repairs from Portland Avenue to Washington Avenue
- 2027 Planned Project (CHIP) – Medium mill and overlay from Nicollet Ave to TH 280

E. I-94, I-35E to TH52 in Saint Paul

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2022 Programmed Project (STIP) – I-94, from 0.2 miles west of Western Avenue to 0.1 east of Mound Blvd in Saint Paul and I-35E from 0.3 miles North of 10th Street Bridge to University Ave – Concrete pavement rehabilitation, bituminous mill and overlay, rehab bridges (I35E southbound to I94 westbound), signing and striping
- 2025 Planned Project (CHIP) – Repair 6 bridges over the mainline in the I94/I35E commons

F. I-35W, Burnsville Parkway to Minnesota River in Burnsville/Bloomington

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2018 Programmed Project (STIP) – Replace the Minnesota River Bridge, which includes an northbound truck climbing lane (auxiliary lane), mainline bridges over 106th St in Bloomington, and other infrastructure improvements including lighting and traffic management system updates
- 2019 Programmed Project (STIP) – I35W, from Burnsville Parkway to northbound – Construct high occupancy vehicle bypass, concrete pavement rehabilitation

G. I-35W, from 90th Street to 76th Street in Richfield/Bloomington

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2023 Planned Project (CHIP) – I35W, from Bridge over 106th Street to 76th Street – Medium mill and overlay
- 2025 Planned Project (CHIP) – I494, from 24th Avenue to France Avenue – Medium mill and overlay

H. I-35W, from 36th St. to Mississippi River in Minneapolis

This location has a transportation systems management project that will help to ensure traffic flow in the future, but will not address the current bottleneck long term.

- 2019 Programmed Project (STIP) – I35W, from Portland Ave to Washington in Minneapolis – Bituminous mill and overlay, concrete pavement rehabilitation, repair drainage, ADA and transportation management system upgrades
- 2026 Planned Project (CHIP) – Medium concrete overlay, pavement repairs from Portland Avenue to Washington Avenue

I. I-35W, from County Road E2 to CSAH 96 in New Brighton/Arden Hills

A targeted mobility project has been identified for this site that will help to address the bottleneck at this location.

- 2019 Programmed Project (STIP) – I35W, from CR82 in Roseville to 0.1 Mile North of Sunset Ave/CR53 in Lino Lakes – Construct MnPASS Lane from Ramsey County Road C to Lexington Ave, concrete overlay, pavement reconstruction, bituminous mill and overlay, *project of division interest*

J. I-35E, from Pennsylvania Ave. to I-94 in Saint Paul

There are currently no specific projects planned or programmed to address the current bottleneck.

- No projects currently planned or programmed

I-394, from Penn Ave. to I-394 in Minneapolis

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2019 Programmed Project (STIP) – I394, 4 bridge repairs near Dunwoody Blvd and on ramps
- 2025 Planned Project (CHIP) – I394, Dunwoody Bridge repairs, multiyear project

K. TH36, from Fairview Ave. to Hamline Ave. in Arden Hills

This location has a transportation systems management project that will help to ensure traffic flow in the future, but will not address the current bottleneck long term.

- 2020 Programmed Project (STIP) – TH51 at Roselawn Ave in Falcon Heights and Ramsey CR C In Roseville – Replace signals and timing
- 2025 Planned Project (CHIP) – TH51, Medium mill and overlay from TH36 to Grey Fox Road

L. TH52, Northbound from Lafayette Bridge to I-94 in Saint Paul

A major project designed to preserve the pavement quality and maintain traffic flow is programmed for this site that will help address future congestion at this bottleneck.

- 2021 Programmed Project (STIP) – US52, from 0.1 mile north of US52/I494 Interchange in Inver Grove Heights to Plato Ave in South Saint Paul – mill and overlay, concrete pavement rehabilitation, enforcement pull off, WIM sensors, ADA improvements and signing

M. TH13, from Lynn Ave. to Nicollet Ave. in Burnsville/Savage

A series of maintenance, preservation and traffic management system improvement projects have been identified for this location, but will not address the current bottleneck long term.

- 2019 Programmed Project (STIP) – I35W, from 150 Street West/Crystal Lake Road in Burnsville to 42nd Street in Minneapolis – Replace Static MnPASS Message Signs
- 2022 Programmed Project (STIP) – TH13, from Old TH101 in Savage to Nicollet Ave in Burnsville – Reconstruct shoulder, signing, drainage
- 2020 Programmed Project (STIP) – TH13, from Silver Bell Road in Eagan to 0.4 miles east of Washburn Avenue in Burnsville – Signing and panel replacements
- 2025 Planned Project (CHIP)– I35W, from south junction of I35W and I35E to Cliff Road – Medium mill and overlay
- 2025 Planned Project – I35W, replace TH13 bridge over I35W, replace Cliff Road/River Ridge Bridge over I35W

N. TH62, from Portland Ave. to I-35W South in Richfield

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2028 Planned Project (CHIP) – TH62, from 66th to 42nd Street Bridge – Medium mill and overlay

O. TH62, from Tracy Ave. to Xerxes Ave. in Edina

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2028 Planned Project (CHIP) – TH62, from Tracy Ave Bridge to Penn Ave Bridge – Medium mill and overlay

P. TH101, from 141st Ave. N to I-94 in Rogers

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2025 Planned Project (CHIP) – TH101, from I94 to Mississippi River Bridge – Medium Mill and Overlay

Q. TH169, Minnetonka Blvd. to Excelsior Blvd in Hopkins

There are currently no specific projects planned or programmed to address the current bottleneck.

- 2026 Planned Project (CHIP) – US169, redeck and repair bridges on TH7 over US169

R. TH24 at junction with I-94 in Monticello

A major project designed to preserve the pavement quality and maintain traffic flow is programmed for this site that will help address future congestion at this bottleneck.

- 2020 Programmed Project (STIP) – I94, from Clearwater to Monticello – Reconstruct mainline highway, bridge repairs and targeted improvements

S. TH15, from 2nd Street South to 8th Street North in Saint Cloud

There are currently no specific projects planned or programmed to address the current bottleneck.

- No projects currently planned or programmed

T. TH23, 10th Avenue South to Mississippi River in Saint Cloud

A major project designed to preserve the pavement quality and maintain traffic flow is programmed for this site that will help address future congestion at this bottleneck.

- 2022 Programmed Project (STIP) – TH23, interchange reconstruction at US10, replace bridges and pavement