TRANSPORTATION ADVISORY BOARD

Metropolitan Council, 390 Robert Street North, Saint Paul, Minnesota 55101

NOTICE OF A MEETING
of the
PLANNING COMMITTEE
Thursday, March 14th, 2019
1:00 PM – Metropolitan Council, Room LLA
390 Robert Street N, Saint Paul, MN

AGENDA

1) Call to Order
2) Adoption of Agenda
3) Approval of the Minutes from the Jan 2019 Meeting
4) Action items
   a) 2019-22: TPP Administrative Modification: Performance Measures (Dave Burns)
   b) 2019-23: TIP Amendment: Performance Measures (Joe Barbeau)
5) Info Items
   a) Regional Climate Vulnerability Assessment – Transportation Tools & Resources (Eric Wojchik)
   b) Congestion Management Process Update (Mark Filipi)
6) Other Business
7) Adjournment

TRANSPORTATION ADVISORY BOARD
Metropolitan Council
390 N. Robert St., St. Paul, Minnesota 55101-1805

Notes of a Meeting of the
TAC-PLANNING COMMITTEE
Thursday January 10th, 2019

MEMBERS PRESENT Holly Anderson, Paul Czech, Bill Dermody, Innocent Eyoh, Mark Filipi, Jack Forslund, Jarrett Hubbard, Anne Kane, Elaine Koutsoukos, Jan Lucke, Steve Mahowald, Paul Mogush, Kevin Roggenbuck, Rachel Wiken

OTHERS PRESENT: Chris Beckwith, Tony Fischer, Steve Peterson, Michael Corbett, Dave Burns, Lyn Bly, Cole Hinicker, Amy Vennewitz, Nicole Sullivan, Sara Maaske, Nick Thompson, April Crockett, Mehjabeen Rahman, Jonathan Ehrlich, Sheila Holbrook-White, Paul Morris, Jerome Adams

1. Call to Order

The Meeting was called to order by Chair Lucke

2. Adoption of the Agenda

3. Approval of the Minutes from the Nov 2018 meetings

4. Action Items

1. **2019-08: TPP Amendment for Gold Line and I-94 lane addition**
   The TPP amendment brought to the committee involved two parts – a highway project on I94 in Hennepin County and a change to the eastern terminus of the Gold Line BRT project. The information was presented to the committee in three presentations.

   First, Christine Beckwith, Gold Line Project Office Manager, presented the details of the Gold Line change. She started with a quick overview of the project and status. The change to the eastern end of the line will move the last stop from the Woodbury Theater Park and Ride to a park and ride at 494 and Guider Drive. The Woodbury Theater stop would still exist but would be reduced in parking size. The change would remove a one decked parking facility at the Theater site, and replace it with a surface lot at both the Guider Drive site and the Woodbury Theater site. These two locations are about two blocks apart. Because of the expense of decked parking facilities, the cost difference is not significant.

   The City of Woodbury requested the change. The City hopes to redevelop the Theater site and does not want the decked parking facility there.

   Jan Lucke asked about property acquisition for the new site near 494. This property can not be secured until the amendment is passed. Lucke expressed concern about having to re-amend this project if that site could not be purchased. Cole Hinicker answered her question, noting that it would depend where the project was in development, that it would not necessarily trigger another amendment. Beckwith's full presentation can be seen here: https://metrocouncil.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2019/TAC-Planning-01-10-19/4-1-1-gold-line-presentation_.aspx

   Jerome Adams presented the details of the I94 project for MnDOT. There will be three projects happening on I94 from Maple Grove to Clearwater in the next two years. For this TPP amendment, MnDOT is asking to add lanes between the new Dayton Parkway Interchange and Hwy 101. This would be the 4th project on this section of I94. All through lanes will remain open during these planned projects.

Bill Dermody asked why MnPASS is not being added during this project. Adams pointed out that right-of-way in this section and the bridge clearances still allow for MnPASS to be added in the future. This project is not limiting future MnPASS. Paul Czech clarified that this section is MnPASS tier 3 area, and is not a priority to add to the system at this time.

Adam's full presentation can be seen here: https://metrocouncil.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2019/TAC-Planning-01-10-19/4-1-2-mndot-presentation.aspx

Steve Peterson gave the last presentation, highlighting the TPP amendment process and why these two project changes require an amendment. https://metrocouncil.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2019/TAC-Planning-01-10-19/4-1-3-overview-of-amendment.aspx

Innocent Eyoh commented that the MPCA will issue conformity letters for both projects.

Mark Filipi moved, Eyoh seconded, the motion passes as written.

2. 2019-12: ITS Infrastructure (Dave Burns)

Dave Burns and Andrew Emanuele from FHWA presented the ITS infrastructure resolution. Full text here: https://metrocouncil.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2019/TAC-Planning-01-10-19/4-b-2019-12-w-Architecture.aspx

Bill Dermody commented that he welcomes this action and wishes there was something similar to be used at the city / county level. Currently they have to hire out this work to consultants and some kind of standard for locals would be helpful.

Kevin Roggenbuck moved, Mark Filipi second, motion passes as written.

5. Info Items

1. Regional Employment and Transportation Flows (Nicole Sullivan and Jonathan Ehrlich)
https://metrocouncil.org/transportationflows

2. Freeway System Interchange Study (Tony Fischer and Michael Corbett, MnDOT)
https://metrocouncil.org/Council-Meetings/Committees/Transportation-Advisory-Board-TAB/TAB-Technical-Advisory-Committee/TAC-Planning-Committee/2019/TAC-Planning-01-10-19/5-b-FSIS-atTAC-P-20190110-(1).aspx

6. Other Business

7. Adjournment

Adjourn at 2:25

ACTION TRANSMITTAL No. 2019-22

DATE:	March 7, 2019
TO:	TAC Planning Committee
PREPARED BY:	David Burns, Senior Highway Planner (651-602-1887)
SUBJECT:	Transportation Policy Plan Administrative Modification to Chapter 13: Performance Outcomes
REQUESTED ACTION:	Federal law requires an administrative modification to the Transportation Policy Plan to add the federally required performance measures and the associated targets into Chapter 13: Performance Outcomes.
RECOMMENDED MOTION:	That the TAC Planning Committee recommend to the Technical Advisory Committee an administrative modification to the Performance Outcomes chapter of the TPP to include the federally required performance measure targets and an associated analysis.

BACKGROUND AND PURPOSE OF ACTION:

Pursuant to 23 CFR 490.29, all State DOTs and Metropolitan Planning Organizations (MPOs) must adopt a program to measure system performance and set performance targets in order to monitor progress. These performance measures are divided into the following five categories:

- Safety Performance Measures (PM1);
- Pavement/Bridge Performance Measures (PM2);
- System Performance Measures and CMAQ (PM3); and
- Transit Asset Management (TAM)

The existing chapter of the Transportation Policy Plan includes the adopted 2018 safety (PM1) performance measure targets. The remaining measures were not officially adopted by the Council until November of 2018, just after the adoption of the TPP. As such, they are not included in the adopted plan. This administrative modification rectifies this by updating Chapter 13: Performance Outcomes to include all federally required performance measure targets. Additionally, and pursuant to federal requirements, an analysis of how the system has performed, including the identification of performance trends (as applicable) and their implications. This administrative modification must be adopted prior to May 20, 2019 to fulfill federal requirements.

RELATIONSHIP TO REGIONAL POLICY: The 2040 Transportation Policy Plan includes a list of performance measures used to monitor and assess system performance. These performance measures support the six over-arching transportation system goals of the TPP. The inclusion of the adopted federal performance measure targets fulfills federal requirements of an MPO to include performance measure targets in the region's Transportation Policy Plan.

STAFF ANALYSIS: The inclusion of the adopted federal performance measure targets brings the 2040 Transportation Policy Plan into compliance with federal performance measure law by

serving to report upon the adopted performance measure targets, trends, and the potential implications of these trends.

ROUTING

TO	ACTION REQUESTED	DATE COMPLETED
TAC Planning Committee	Review & Recommend	
TAC Funding & Programming Committee	Information	
Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review & Adopt	
Metropolitan Council Transportation Committee	Concur	
Metropolitan Council	Concur	

Chapter 13

Performance Outcomes

Overview

As discussed in Chapter 1, this document incorporates a performance-based planning approach that includes a strategic vision and direction and a process to evaluate the effectiveness of the plan's implementation. This chapter provides detail on the process and outcomes of performance measures used to evaluate the plan.

The performance measures outlined in this chapter are organized by the six overarching goals of the Transportation Policy Plan, detailed in Chapter 1, which are:

- Transportation System Stewardship
- Safety and Security
- Access to Destinations
- Competitive Economy
- Healthy and Equitable Communities
- Leveraging Transportation Investments to Guide Land Use

These six goals are supported by 20 regional objectives listed in Chapter 1. Objectives are more specific and achievable in the short term than goals and give direction to how the goals may ultimately be achieved. Objectives are also used to inform the specific Strategies and Actions the Metropolitan Council and its partners will employ to achieve the Transportation Policy Plan Goals and Objectives. The strategies are listed in Chapter 2. Performance measures are intended to be clear, quantifiable metrics that convey whether the region is achieving its goals, and which goals are not being fully met, and therefore need additional emphasis and resources.

The performance measures included in this chapter can be broadly characterized as fitting into one of the following two categories:

- *Required federal performance measures that are tracked and must be reported upon on a regular basis*. The Metropolitan Council is required to set short-term performance targets for these performance measures. The results of these measures are primarily concerned with the overall trend and whether this trend is meeting the desired expectations. These performance measures are important in that if a measure is not trending towards achieving the target, federal funds may need to be re-directed to address the problem.
- *Regional performance measures that directly support the Transportation Policy Plan's goals and objectives*. These measures are tracked regularly to ensure they are consistent with the desired outcomes as defined by the goals and objectives. Additionally, many of

these performance measures are modeled for 2040 conditions and provide a tool to guide the actions the region could take to achieve the desired system vision. The establishment of specific, quantifiable targets for these measures is included as a future work program item for the Metropolitan Council.

The specifics of both the federally required performance measures and the regional performance measures are outlined in the following sections.

Federally Required Performance Measures

Federal law (23 CFP 490.29) requires all state Departments of Transportation and Metropolitan Planning Organizations (MPOs) adopt a performance-based program to measure system performance and set performance targets that monitor progress toward achieving the plan's goals. The federally required performance measures are divided into the following four categories:

- Safety Performance Measures (PM1)
- Pavement/Bridge Performance Measures (PM2)
- System Performance Measures and Congestion Mitigation and Air Quality ~~(CMAQ)~~ (PM3); and~~)~~
- Transit Asset Management (TAM).

For each of the non-transit performance measures, the state (through the Minnesota Department of Transportation) has a required deadline to set a statewide target. After the state sets a performance target, the MPO has 180 days to either concur with the DOT's statewide target or set a different target that is specific for its region. Targets for the safety performance measures and transit asset management are set annually, while all other targets are set on a four-year basis with the option to adjust after two years. ~~As of this plan, the Metropolitan Council has only adopted targets related to the PM1 (safety) performance measures. As additional targets are set, future updates to the Transportation Policy Plan will incorporate the targets and include an evaluation of the how the system has performed with respect to the adopted targets.~~ Table 13-1 details the regional, federal ~~safety~~ targets adopted by the Metropolitan Council~~. for calendar year 2018~~.

The federally required performance measures have been woven into the TPP's goals, objectives, and strategies framework and are incorporated into the performance measures included within this chapter. Each measure directly supports one or more of the goals and objectives of the plan, and the recent trends corresponding with the specific measure have been included in the tables of this chapter. The following table details the performance measures required for the four federal performance monitoring programs and the applicable targets. ~~and the timeline for state and MPO target adoption.~~

Table 13-1 – Federal Performance Measures and Adopted Targets ~~Setting Timeline~~

Final Rule		Measures	Adopted Targets
PM1	**Safety Performance Measure/HSIP**	Annual reporting and target setting for: 1. Number of fatalities 2. Rate of fatalities (per 100 million VMT) 3. Number of serious injuries 4. Rate of serious injuries (per 100 million VMT) 5. Number of non-motorized fatalities and serious injuries	2019~~8~~ Metro Area Targets: 1. Number of fatalities: ~~89~~108 2. Fatality rate: 0.3~~41~~ per 100 million VMT 3. Number of serious injuries: 748~~642~~ 4. Serious injury rate: 2.3~~75~~ per 100 million VMT 5. Non-motorized fatalities/serious injuries: ~~112~~190
PM2	**Pavement/ Bridge Performance Measures (PM2)**	2- and 4-year targets for: Bridges: 1. % NHS bridges by deck area in good condition 2. % NHS bridges by deck area in poor condition Pavement: 1. % of interstate pavement in good condition 2. % of interstate pavement in poor condition 3. % of non-interstate NHS pavement in good condition 4. % of non-interstate NHS pavement in poor condition	Bridges: 1. 2020: >50%; 2022 >50% 2. 2020: <4%; 2022: <4% Pavement: 1. 2020: no target; 2022: >55% 2. 2020: no target; 2022 <2% 3. 2020: >50%; 2022: >50% 4. 2020: <4%; 2022: <4%

PM3	**System Performance Measures (Non-CMAQ)**	1. % of reliable person-miles traveled on the interstate 2. % of reliable person-miles traveled on non-interstate NHS 3. % of interstate system mileage providing for reliable truck travel time ~~4. Greenhouse Gas Emissions Measure (subject to repeal)~~ 2 and 4 year targets for interstate; 4-year targets for non-interstate	1. 2020: >70%; 2022: >70% 2. 2020: >75%; 2022: >75% 3. 2020: <2.20; 2022: <2.20 ~~No target adopted at the time of this writing.~~
PM3	**CMAQ - only applicable to Metro Area**	2- and 4- year targets while designated nonattainment/maintenance. Only 4- year if in attainment. (Attainment anticipated in November of 2019.) ~~Staff is working with MnDOT to establish all targets.~~ 1. On-road Mobile Source Emissions measure. Sum of emissions reductions of pollutants, in kilograms per day, for all projects funded with CMAQ funds. 2. Non-Single Occupancy Vehicle measure. Percent of regional travel by non-SOV modes. 3. Peak Hour Excessive Delay. Measured by annual hours of delay per capita. Delay is travel at less than 20 MPH or 60% of posted speed.	1. 2020: >6,800; 2022: >6,800 2. 2020: >25%; 2022: >25% 3. 2020: no target; 2022: <8.5 ~~No target adopted at the time of this writing.~~

TAM	**Transit Asset Management**	Annual Reporting and Target Setting for: Rolling Stock (revenue vehicles): % exceeding useful life, by vehicle type Equipment (non-revenue): % exceeding useful life, by vehicle type Facility: % rated below a 3 on condition scale, by facility type Infrastructure: % of track with performance restrictions	Rolling Stock: % Exceeding Useful Life 1. Articulated bus: 8% 2. Bus: 2.4% 3. Cutaway: 14% 4. Light Rail Vehicle: 0% Equipment: % Exceeding Useful Life 1. Automobiles: 42% 2. Trucks/other rubber tire vehicles: 38% Facility: % Rated Below 3 on Condition Scale 1. Passenger/parking facilities: 0% 2. Administrative/maintenance facilities: 0% Infrastructure: % of Track with Performance Restrictions 1. Light Rail: 1%~~No target adopted at the time of this writing.~~

Per federal requirements, the TPP should include an evaluation of how the system has performed, including the identification of performance trends and the implications. The following sections discuss the current metro area performance for each of the performance measure categories and, as applicable, how performance is trending.

Safety Performance Measures

The region has implemented a number of strategies to improve safety for all users of all modes within the metro area. The strategies include a commitment to aggressively reduce the number of fatal and serious injury crashes annually, with an aspirational goal of achieving zero fatal and serious injury crashes sometime in the future.

Pursuant to federal requirements, the Council must adopt short-range annual highway safety performance targets that are both reasonable and achievable. The Council thus adopted 2019 targets that reflect an annual reduction from the base-year data for fatal and serious injury crashes, as shown in Table 13-1. While the methodology used to determine the targets is the same as that employed by MnDOT for the state as a whole, it is applied to the metro area in order to produce a target that is specific and meaningful for the region.

Overall, there are significantly fewer fatal and serious injury crashes per capita and a lower crash rate in the metro than in Greater Minnesota. The fatal crash rate in the metro area is approximately half of that of Greater Minnesota, while the serious injury rate is approximately 35% lower.

From 2018 to 2019, the total number of fatal crashes, serious injuries, and non-motorized fatalities and serious injuries increased within the metro area. Similarly, the rate of fatal and serious injury crashes, which accounts for vehicle miles travelled, also increased. The Council will continue to monitor and report upon these safety measures on an annual basis, which should assist in determining whether the increase was an outlier or part of a larger trend.

Pavement and Bridge Performance Measures

The Council chose to concur with MnDOT and apply the statewide bridge and pavement targets in the metro area. The targets were adopted for the first time in 2018 and coordinated closely with MnDOT. Overall, performance for the bridge and pavement measures was similar in the metro area to Greater Minnesota as a whole.

Currently, the percent of NHS bridges whose deck area is in good condition is lower in the metro area than the adopted 2020 and 2022 targets. This is offset, however, by the state-wide condition, which is on track to meet the established targets. Bridge deck condition can fluctuate significantly from year to year, and one major bridge project has the potential to skew the overall performance. While this is likely the case within the metro area, the existing performance will be closely monitored and may indicate a need to place a greater emphasis on bridge deck condition within the region over the coming years.

Regarding pavement, while Interstate pavement condition within the metro area is performing at a level greater than the targets, non-Interstate NHS pavement is not performing at the same level. This may indicate a need to focus more explicitly on non-Interstate NHS facilities in the future in an effort to ensure the region continues to be on track to meet the 2020 and 2022 targets.

System Performance Measures

Due to the more urbanized nature of the metro area as opposed to the more rural character of Greater Minnesota, the Council adopted system performance measures for system reliability that are specific to the region. The existing metro area performance for the percent of reliable person-miles traveled on the interstate system is approximately 69%. MnDOT established a state-wide target of greater than 80%, which would likely be unattainable for the near-term future within the metro area. Instead, the Council has adopted a 2020 and 2022 target of greater than 70%. This target is appropriate in that it still aspires to be better than current conditions, but is more attainable than the statewide target of 80%.

In addition to the interstate reliable person-miles target, the Council has also elected to adopt targets that are different than MnDOT for the truck travel time reliability index measure. This is

due to the fact that the reliability of truck travel is lower in the metro area than in Greater Minnesota as a whole. The adopted MnDOT target of less than 1.5 would be very difficult to attain given the traffic levels in the metro area as compared to Greater Minnesota.

All of the adopted reliability targets aim for improvement over the existing conditions, and as such may be considered aspirational given recent trends. There is, however, no consequence to the region for not meeting these targets, and the State of Minnesota as a whole is likely to meet the statewide adopted targets. The Council has chosen these targets as a mechanism to work towards improvement in both the near- and long- term future.

Congestion Mitigation and Air Quality (CMAQ) Performance Measures

CMAQ measures are unique in that they only apply to areas which are not in full air quality attainment and the targets must be jointly agreed to by both the Council and MnDOT. As such, the Council worked closely with MnDOT staff to set the 2020 and 2022 CMAQ measures shown in Table 13-1.

On-road mobile source emissions reductions can vary considerably from year to year, as they reflect the result of projects programmed in the Transportation Improvement Plan. Given this, MnDOT and the Council set a target that is similar to the most current year's performance.

The percent of regional travel by non-single occupancy vehicles has been gradually increasing over the past several years, with more residents choosing to carpool, walk, bike, or take transit to and from work. A 2020 and 2022 target of greater than 25 percent will be difficult for the region to attain, but reflects the TPP's vision of travel via multiple modes and decreased single-occupancy vehicle use.

Peak-hour excessive delay measures "excessive delay," or delay in which vehicles are travelling at either less than 20 miles per hour or less than 60% of the posted speed limit. Excessive delay is a significant mobility concern within the metro area and affects the Access to Destinations goal of the TPP, among others. The most recent metro area performance showed that there was an average of 8.65 annual hours of excessive delay for each resident of the metro area. The adopted target was set to improve upon this number, with no more than 8.5 hours of peak hour excessive delay per capita in both 2020 and 2022.

Transit Asset Management Performance Measures

Transit asset management (TAM), a best practice and a requirement under federal law, is a business model that prioritizes funding decisions based on the condition of transit assets. Transit providers are required to assess, track, and report on their assets to FTA, and develop annual targets for asset management to ensure a state of good repair. Transit providers also develop transit asset management plans that document implementation actions for asset management within their transit systems. TAM must be coordinated with the Council, which is

the region's MPO. The four FTA-required performance measures for transit asset management are:

- Rolling stock (buses and train used for serving customers): The percentage of revenue vehicles (by type) that exceed the useful life benchmark.
- Equipment (vehicles used in a support role): The percentage of non-revenue service vehicles (by type) that exceed the useful life benchmark.
- Facilities: The percentage of facilities (by group) that are rated less than 3.0 on the *Transit Economic Requirements Model (TERM) Scale*.
- Infrastructure: The percentage of rail track segments (by mode) that have performance restrictions. Track segments are measured to the nearest one-hundredth of a mile.

The region's transit operators officially established 2018 performance targets on April 1 of 2018, which are shown in Table 13-1. These targets were consequently adopted by the Council in October of 2018.

The TPP outlines the goals, objectives, and strategies that are used to set transit investment priorities for the region. These factors, in turn, directly guide the investment plan and transit projects programmed and ultimately built. The TPP guides transit investments through the following objectives and strategies:

- Efficiently preserve and maintain the regional transit system in a state of good repair;
- Manage the regional transit network and respond to demand as deemed appropriate based on the Transit Market Area;
- Provide transit police services and coordinate with other public safety agencies to ensure the safety and security of the transit system;
- Promote alternatives to single occupant vehicles and ensure transit services reach major job and commercial activity centers;
- Expand and modernize transit service, facilities, systems, and technology to meet demand, improve customer experience, and increase transit access to destinations.

Regional Performance Measures

As noted, in addition to the federally required measures, the performance measures within this chapter also include several measures to evaluate the desired outcomes of this Transportation Policy Plan. These performance measures reflect the long-term vision for the region and serve as indicators to track the region's progress towards achieving the goals and objectives of this Plan. Some of the performance measures can be evaluated using horizon year 2040 model outputs for the revenue scenarios outlined in this Transportation Policy Plan, while others are intended to reflect and track current conditions and assess whether the region is making progress towards meeting the 2040 system vision.

The regional performance measures were chosen after meetings and input from Metropolitan Council stakeholders and the public. The previous *2040 Transportation Policy Plan*, adopted in 2015, included a work item with the task of refining the planning and programming performance measures. Comments received from the public outreach process for that plan indicated that the plan goals, objectives and strategies, their inter-relationship, and the related performance measures needed further review.

This work item was implemented through the formation of five modal work groups: highway, transit, freight, aviation, and bicycle/pedestrian. Membership in these work groups included representatives from cities, counties, MnDOT, transit providers, the University of Minnesota, the Minnesota Department of Health, the Metropolitan Airports Commission, and Metropolitan Council staff. The work groups also included representatives of advocacy groups such as Saint Paul Smart Trips, Minneapolis Bicycle Coalition, Transportation Accessibility Advisory Committee (TAAC), the American Trucking Association, and Transit for Livable Communities.

These modal work groups met throughout 2015 to develop recommendations for the performance measures to be used in the *2040 Transportation Policy Plan*. Their task was to develop additional or replacement plan performance measures. In recommending performance measures, the work groups considered the availability of data and other factors. The groups developed a list of measures, which were prioritized based on their relationship to the plan's goals and objectives. Those performance measures with strong relationships are used in this plan and outlined in this chapter.

Modeling Process

Where possible, and for those performance measures where a long-term result was desired, the process utilized the regional travel demand model to provide estimates for the expected 2040 results under two different investment scenarios, as well as a "no build" scenario. The scenarios are described below.

- Current Revenue Scenario. This scenario accounts for the assumption that all revenues that the region can reasonably expect to be available will continue to be available at the same level (accounting for inflation) until the horizon year of 2040. It is a fiscally constrained scenario that is based on historical funding levels, current laws, and current allocation formulas. The estimated revenues available under this scenario total approximately $92.1 billion dollars.
- Increased Revenue Scenario. This scenario is premised on the region adopting policy changes, laws, or decisions that increase local, state, or federal funding levels. It is a scenario based on plausible reason and illustrates what may be achieved with additional revenues. While the projects are not considered part of the approved plan, this scenario provides context for the level of transportation revenues and investments needed to move the region closer to achieving the transportation goals and objectives of this plan.
- "No Build" Scenario. This scenario presents the modeled conditions of the region under the assumption that no projects are built after the 2015 base-year condition. This

represents the expected conditions should no transportation improvement be made from 2015 to 2040.

All future scenarios assume the same assumptions for demographic growth in the region, with population in the region increasing from 2,973,000 in 2015 to 3,640,000 in 2040 and total employment increasing from 1,620,000 to 2,070,000. This represents a total increase of 22% and 28% increase in population and employment, respectively. Note that the demographic forecasts used for the travel demand modeling process differ slightly from the Metropolitan Council's regional forecast for 2040. The demographic projections used for the travel demand model are based upon the local forecasts and summed for all traffic analysis zones (TAZs) in the metro area.

Performance Measure Outcomes

The following tables, which are categorized by the overall goals of this Transportation Policy Plan, list each performance measure chosen for this plan and, if applicable, their modeled outcomes based upon the three scenarios. The tables include the following information:

- The performance measure
- A description of the performance measure
- The applicable geography or transportation network that is being measured
- The existing performance
- The 2040 outcomes for each model scenario, if applicable

Note that not all performance measures have associated model outputs. In these cases, the table includes an outcomes column that provides additional information pertaining to the desired long-term outcomes.

Transportation System Stewardship

Transportation System Stewardship – *Sustainable investments in the transportation system are protected by strategically preserving, maintaining, and operating system assets.*

The transportation system that exists at any given time needs to be maintained and operated. The priority is to keep the system in working order and maximize its potential in terms of effectively and efficiently moving people and freight. Keeping up a well-maintained, functional transportation system is at the core of transportation investment.

Table 13-2: Transportation System Stewardship Performance Measures

Performance Measure	Description		Existing Performance	Outcomes
	Percentage of pavement with a	Interstate System - Good	63%	Federally-required short term targets.
		Interstate System - Poor	1.4%	

Performance Measure	Description		Existing Performance	Outcomes
Roadway Pavement Condition	ride quality in good and poor condition	Non-Interstate NHS - Good	51%	Council has work program item to develop long-term outcomes with MnDOT.
		Non-Interstate NHS - Poor	3.2%	
Bridge Condition	Percentage of bridges (expressed in deck area) in good and poor condition	Interstate and NHS - Good	46%	
		Interstate and NHS - Poor	1.3%	
MnPASS Reliability	Percent of time MnPASS lanes are operating at 45 mph or greater		95.2%	Will be managed to be as close to 100% as possible
Transit State of Good Repair	Percent of assets in good repair	Rolling Stock: Revenue Vehicles	Annual targets set in accordance with adopted asset replacement policies	Federally required annual targets. Long-term outcomes will not be developed for this measure
		Equipment: Service Vehicles		
		Facilities: Customer and Maintenance/Administrative		
		Infrastructure: Rail Track		

Transportation System Stewardship Outcomes Summary

Three of the four performance measures included under this goal are federally mandated, with the Council required to set performance targets (or concur with the MnDOT or transit provider targets) and report upon the trends toward that target on a regular basis. These performance measures and their applicable targets will be included in the next update to the Transportation Policy Plan, per the schedule for federal requirements.

The Federal Highway Administration has set minimum performance requirements for both pavement and bridge condition at the state level. For roadway pavement condition, this minimum standard is that no greater than 5% of the total state-wide interstate system should be in poor condition. There is no performance threshold for the non-Interstate portion of the National Highway System (NHS). The minimum standard for bridge condition (including both Interstate and non-Interstate NHS) is no greater than 10% should be in poor condition.

Overall, the State of Minnesota's Interstate pavement condition is currently about 60% good and 1% poor. The state's non-Interstate NHS condition, meanwhile, is approximately 53% good and 2.5% poor. When compared to the state as a whole, the metro area has less non-Interstate

pavement in good condition, and more non-interstate pavement in poor condition. In contrast, the state-wide interstate pavement condition is slightly worse than the metro area's.

The metro area's bridge condition performance, which is defined as the total deck area of bridges along Interstate and NHS systems in good and poor condition, closely mirrors the overall state performance since approximately 75% of the total bridge deck area in Minnesota is located within the metro area. The metro area's overall bridge condition is 46% in good condition and 1.3% in poor condition. The state, by contrast, is approximately 47% in good condition and 1.5% in poor condition.

The MnPASS system continues to operate efficiently, with the system speed historically averaging greater than 45 miles per hour over 95% of the time. This is a key metric to continue to track in the future, given the reality of limited resources for roadway expansion and the importance of the MnPASS system to providing a reliable alternative to congestion. MnPASS lanes are anticipated to continue to operate reliably, as the region can set prices in order to control volume and ensure the lanes operate at a consistent speed.

Transit asset management targets are set on an annual basis by regional transit providers and must be officially adopted by the MPO 180 days after these targets are set. These targets reflect the expected conditions of transit assets by the conclusion of the year when they are set. For example, the 2018 targets are based on a reasonable expectation of the state of the system at the end of 2018.

Safety and Security

Safety and Security – *The regional transportation system is safe and secure for all users.*

In order for the transportation system to function well, it needs to be safe and secure. Safety and security are not only essential to protect life, but also to instill confidence in users of the system. Every investment in the transportation system should strive to make it safer and more secure for the user.

Table 13-3: Safety and Security Performance Measures

Performance Measure	Description		Existing Conditions	Outcomes
Crashes with Fatal or Serious Injuries		Fatal Crashes	98	Federally required 2018 targets shown in Table 13-1.

	Number of Fatal or Serious Injury Crashes	Serious Injury Crashes	749	Long-term outcomes cannot be reasonably developed for these measures.
Fatal and Serious Injury Crash Rate	Rate of Crashes per 100 million vehicle miles traveled	Fatal Crash Rate	0.35	
		Serious Injury Crash Rate	2.67	
Bicycle/Pedestrian Fatal or Serious Injury Crashes	Number of Fatal or Serious Injury Crashes		131	

Safety and Security Outcomes Summary

The measures in Table 13-3 outline the federally required measures and the current performance for the metro area.

The metro area's rate of fatal and serious injury crashes is significantly lower than that of the state as a whole. In 2015, the metro area's rate of fatal crashes was 0.35 crashes per 100 million vehicle miles travelled. The State of Minnesota's rate (including the metro area) was 0.62 per 100 million vehicle miles travelled, nearly double that of the region. Serious injury crash rates were similarly disproportional, with the metro area rate significantly lower than the state as a whole.

Recent serious injury and fatal accident rates have been notably lower than in past decades. This can likely be attributed to safety improvements to automobiles as well as continued safety engineering improvements to the roadway system.

Unlike overall fatal and serious crashes, non-motorized crash trends have been fairly stable over the past few decades, with some fluctuations from year-to-year. Crashes involving pedestrians represent the majority of non-motorized crashes, both within the metro area and nationally. Although recent trends indicate increased travel by pedestrians and bicyclists, the lack of a significant reduction in fatal or serious injury crashes involving these travelers is a cause for concern, given the reductions seen for overall fatal and serious injury crashes. The region will need to continue to improve bicycle and pedestrian safety as these modes continue to grow in use.

Given the many uncertainties surrounding future technologies (e.g. the potential introduction of automated vehicles), it's not plausible to accurately forecast 2040 conditions for these

measures. Research strongly suggests that that safety conditions will continue to improve by 2040 due to technological improvements, roadway geometry improvements, and other factors.

Access to Destinations

Access to Destinations – *A reliable, affordable, and efficient multimodal transportation system supports the prosperity of people and businesses by connecting them to destinations throughout the region and beyond.*

Transportation is fundamentally about providing access to destinations, the places where people and goods need to go. People choose destinations based on the ease of access, whether that relates to cost, their trust that the system will work reliably, or the transportation mode that might be able to get them there. When access is possible, other factors will also affect how people choose to get to destinations, such as the travel time, reliability, comfort, and safety of the trip. Travel preferences can vary widely across people and transportation modes.

Table 13-4: Access to Destinations Performance Measures

Performance Measure	Description		Existing Performance	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Access to Jobs	Number of jobs accessible within 30 minutes and percent increase compared to "2040 No Build"	Driving	1,038,957	1,229,954	1,261,075	1,283,115
		Percent Increase	N/A	N/A	2.5%	4.2%
		Transit	24,574	29,121	31,950	32,733
		Percent Increase	N/A	N/A	9.7%	12.4%
MnPASS Usage	Average daily number of people in MnPASS lanes		93,000	99,000	288,000	614,000
Percent Non-Single-Occupant Vehicle Travel	Percent of all trips using modes other than non-single occupancy vehicles		23%	TBD A methodology for calculating this measure will continue to be developed and these outcomes will be included in future plans.		
Transit Ridership	Increase in daily transit ridership		315,000	+74,000	+145,000	+185,000

Performance Measure	Description		Existing Performance	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Modal Participation Rate	Percent of people who use transit, bicycle, or walk at least once on a typical day	Transit	6.2%	TBD A methodology for calculating this measure will continue to be developed and the outcome will be included in future plans.		
		Bicycle	3.6%	Will be tracked on an ongoing basis by the Travel Behavior Inventory		
		Walk	11.2%			
Travel time Reliability	Ratio of longer travel times to normal travel times, in percent of total person-miles travelled	Interstate	68.8%	Will be tracked and reported upon on an ongoing basis		
		Non-Interstate NHS	76.5%			
Peak Hour Excessive Delay	Number of hours of excessive delay (travel at less than 20 MPH or 60% of posted speed limit) per capita		8.65	Federally required short term target. Will be tracked and reported upon on an ongoing basis.		
Aviation Performance	Average aircraft delay per operation at MSP International Airport (minutes)		4.3	Will be tracked and reported upon on an ongoing basis		
Regional Bicycle Transportation Network (RBTN) Implementation	Percent of RBTN with fully constructed facilities		47%	Will be tracked and reported upon on an ongoing basis		

Access to Destinations Outcomes Summary

The Access to Destinations goal features a number of performance measures, all of which are important indicators for the overall effectiveness of the transportation network in helping to provide reliable, affordable, and efficient travel options for a diverse range of metro area residents. This goal also contains many performance measures in which 2040 outcomes for the three investment scenarios have been developed. This allows the region to better understand the tangible impacts investment decisions may have on the regional transportation network.

The ability for residents to access jobs in a timely manner is a key for a healthy and competitive economic environment. Currently, just over 1 million jobs are located within a 30-minute drive for the typical resident. Without any additional investments, this number will increase to approximately 1.2 million by 2040 based on the addition and location of forecasted job growth. Job access within a 30-minute drive in 2040 would increase by 2.5% for the current revenue scenario and 4.2% for the increased revenue scenario compared to the no build scenario. The number of jobs accessible within 30 minutes by transit is anticipated to increase by a higher percentage, 9.7% for the current revenue scenario and 12.4% for the increased revenue scenario, though the overall number of jobs accessible within a 30-minute transit trip is still far less than driving. The increase in access to jobs can be attributed not only to a more robust transportation network, but also due to changes in the distribution of people and jobs over the next few decades.

The results of modeled MnPASS use vary considerably depending on the investment scenario. The current revenue scenario forecasts a significant increase in MnPASS usage as compared to the no-build scenario, with daily person through-put nearly doubling. Under the increased revenue scenario, MnPASS usage increases greatly over 900% from the no-build scenario. This suggests that the construction of additional MnPASS lanes dramatically affects usage within the region.

Transit ridership is anticipated to rise under both the current and increased revenue scenarios. Under the current revenue scenario, transit ridership would increase by 71,000 over the no build scenario. The increased revenue scenario would show an even more dramatic rise, with approximately 185,000 additional daily trips representing 250% growth from current conditions.

The remaining performance measures shown in Table 13-4 do not have calculated model outputs because most of these measures are dependent on economic or other variables that cannot be predicted at this time by the travel demand model. As indicated, these performance measures will be tracked on a regular basis to ensure the region's investment and transportation priorities are having their intended effect.

Competitive Economy

Competitive Economy – *The regional transportation system supports the economic competitiveness, vitality, and prosperity of the region and state.*

A well-developed and functioning transportation system is a significant attractant to worldwide business and talent. It also helps the region retain existing businesses and residents, allowing them to thrive in current and future work environments by supporting efficient movement.

Table 13-5: Competitive Economy Performance Measures

Performance Measure	Description		Existing Conditions (2015)	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Air Travel	Fee per passenger that airlines pay MAC to use MSP		$6.17	Will be tracked and reported upon on an ongoing basis.		
Access to Transit	Population that lives within 1/2 mile to high-frequency transit corridor	Population within 1/2 mile	569,000	658,000	904,000	1,107,000
		Percent of total population	17%	18%	25%	30%
Freight Reliability	Truck travel time reliability on the Interstate System		2.23	Federally required short term target. This measure will be tracked and reported upon on an ongoing basis.		

Competitive Economy Outcomes Summary

The fee per passenger at MSP International Airport is an important indicator to track to ensure the metro area remains competitive with peer regions. It has been relatively consistent over time and compares favorably to other U.S.-based airports of a similar size.

Access to transit is a way of assessing how the region is improving opportunity for residents and providing a transit system that can attract and retain businesses and residents. A more robust transit system allows the metro area to compete with other regions across the nation. High-frequency transit is a very attractive option that is convenient for potential users of the system, particularly users who believe transit to be integral to their economic prosperity. Currently, about 17% of people live near the high-frequency transit network of buses and light rail. By 2040, the no build scenario would see additional individuals living near high-frequency transit service. This is due to people moving closer to current high-frequency transit service lines. In both the current and increased revenue scenarios, more people are served due to not only the clustering of people near existing lines, but also the construction of new lines serving areas of the region not currently supported by high-frequency transit service.

Freight reliability, the percent of the Interstate system that provides for reliable truck travel time, is both a federally required measure and a key indicator for ensuring the metro area's transportation network is sufficiently accommodating the movement of freight. This measure is calculated by comparing the ratio of longer travel times to "normal" travel times for 5 different time periods over 24 hours. The existing conditions have been relatively stable over time, though freight reliability is worse in the metro area than in greater Minnesota.

Healthy and Equitable Communities

Healthy and Equitable Communities – *The regional transportation system advances equity and contributes to communities' livability and sustainability while protecting the natural, cultural, and developed environments.*

The transportation system can be the catalyst for improving communities, but it can also contribute negatively to communities. The transportation system needs to contribute to the health and vitality of all communities, including protecting and enhancing existing communities and their cultures as well as future communities and cultures.

Table 13-6: Healthy and Equitable Communities Performance Measures

Performance Measure	Description		Existing Conditions	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Bike and Pedestrian Miles Travelled	Total miles travelled	Bicycle	384,250	Not currently forecastable		
		Pedestrian	239,236	Not currently forecastable		
Vehicle Miles Travelled Per Capita	Daily average vehicle miles travelled for a metro area resident		23.9	23.3	23.3	23.5
On-Road Mobile Source Emissions	Amount of CO2, nitrogen, sulfur dioxide, VOCs, and CO emissions	CO (pounds)	718,000	293,000	288,000	304,000
		Nitrogen Oxides (pounds)	85,000	16,700	16,500	17,400
		Sulfur Dioxide (pounds)	474	354	340	355
		VOCs (pounds)	19,410	6,100	5,800	6,100
		CO2 Equivalent (pounds)	68,930,000	51,100,000	49,000,000	51,200,000

Healthy and Equitable Communities Outcomes Summary

The total bicycle and pedestrian miles travelled are an important indicator for the overall livability and sustainability of the region as well as contributing to the health of the region's residents. The data also sheds light on the accessibility of the region's bicycle and pedestrian network to individuals within the region. The data in Table 13-5 is from 2010 and trend data for the region is not yet available, but it will be updated with more current data once available. This measure is important to track on a regular basis but cannot be forecasted for 2040.

Analysis on vehicle miles travelled (VMT) per capita is a way of understanding how the region's investments and development patterns are impacting overall livability. When people are driving further, there are implications for the environment (beyond just air quality), the economic viability of travel and related equity of access, the potential for fatal and serious crashes, and wear and tear on the region's transportation infrastructure.. For these reasons, VMT per capita can be a proxy for measures in other goals that cannot be forecasted through the regional travel demand model.

VMT per capita decreases slightly from current conditions under all three modeled scenarios, with the increased revenue scenario showing the region with the highest VMT levels. However, due to the increase in population and assuming similar single-occupancy vehicle rates, this would likely lead to more vehicles on the roadways. This would have an effect on congestion and reliability in the no build scenario, as the possible lack of capacity expansion to handle the increased number of vehicles could potentially overwhelm the existing roadway system.

The increased revenue scenario has a higher overall VMT per capita due in part to the investment in MnPASS lanes. The efficiency provided by the MnPASS system leads to greater usage of the system, consequently increasing the region's VMT per capita. However, the substantial investment in MnPASS lanes increases system capacity and efficiency, likely leading to reduced congestion and greater mobility than in the no build and current revenue scenarios.

Federal law requires regions in non-attainment or maintenance for air quality report upon on-road mobile source emissions. The monitoring and reporting of air quality is essential in ensuring the air quality within the region is not adversely affecting residents. Total emissions have declined in recent decades, in part due to improved vehicle and bus efficiency and technological improvements to newer vehicles that result in greatly reduced emissions. By 2040, the air quality within the region is anticipated to improve. This is in large part due to a rollover of older vehicles to these newer vehicles with reduced emissions.

Leveraging Transportation Investments to Guide Land Use

Leveraging Transportation Investments to Guide Land Use – *The region leverages transportation investments to guide land use and development patterns that advance the regional vision of stewardship, prosperity, livability, equity, and sustainability.*

The effective use of land by people and businesses requires a transportation system to access it. Similarly, land use drives the need for the transportation system. The two systems must work together to be effective, and the transportation system can be a catalyst for land use change that will contribute toward achieving the other five goals.

Table 13-7: Leveraging Transportation Investments to Guide Land Use Performance Measures

Performance Measure	Description		Existing Conditions	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Freight Land Use	Total acreage of land zoned as industrial and located on riverfront or with rail access		11,839	Will be tracked and reported upon on an ongoing basis.		
Population and Job Growth Near High-Frequency Transit Service Areas	Percent of forecasted growth projected to occur within 1/2 mile of high-frequency transit corridors	Percent Population Increase	N/A	13%	19%	23%
		Percent Job Increase	N/A	24%	34%	44%
Transit-Supportive Policies in Local Comprehensive Plans	Number of communities with comprehensive plans that include transit supportive policies or strategies		Will develop evaluation process as 2018 comprehensive plan update process concludes	Will be tracked and reported upon on an ongoing basis.		

Leveraging Transportation Investments to Guide Land Use Outcomes Summary

The freight land use measure is important to track in order to ensure that the region is preserving sufficient land for freight-focused development adjacent to freight infrastructure. Increasingly, land which has historically been zoned as industrial and vital to the region's freight activities has been converted to residential and commercial uses. This has caused a need for

trucks to travel longer distances from distribution centers and freight yards, leading to increased congestion, less efficiency, and greater amounts of on-road mobile source emissions.

As discussed under the competitive economy outcomes summary, high-frequency transit provides a unique option for residents and businesses to access opportunity and talent. In this context, the region is investing in an expanded transit system to provide for more options for residents and businesses, both existing and future. Measuring the growth of jobs and population near high-frequency transit is a way of assessing how much the future will be supported by multimodal options. Current forecasts indicate that 13% of new people and 24% of new jobs would be located near the existing high-frequency transit system by 2040. Building the current revenue scenario would increase this to 19% of new people and 34% of new jobs by 2040, and the increased revenue scenario would increase this to 23% and 44%, respectively.

There are several factors that can affect where growth by 2040 is distributed in the region. The region's local forecasts were developed based on historical data and previous comprehensive plans. The forecasts are also a product of discussions with local communities. It is a challenge for any forecast to capture shifting market trends. For example, from 2010-2015 the region observed 53% of added housing units and 57% of the permit value for commercial and industrial development on previously developed land. When communities were assessing their initial 2040 forecasts, this market trend for redevelopment was unforeseen in some communities. The region will be assessing and updating forecasts as more recent data becomes available. Local governments are also in the process of updating their 2040 comprehensive plans to reflect *Thrive MSP 2040* and its policy plans, which often results to changes in the location and intensity of growth in a community. These factors affect the existing and future conditions and thus, it is important to track how this measure changes over time for both existing conditions and forecasted plan outcomes.

The Council has made a commitment to monitor the incorporation of transit-supportive development policies and strategies in comprehensive plans throughout the metro area. To accomplish this, the Council will evaluate comprehensive plans submitted during the 2018 planning cycle for transit-supportive elements and track how this evolves over time through amendments and future planning cycles.

Summary of Major Outcomes of Three Scenarios

No build

The no-build scenario presents the outcomes of the region's transportation conditions should no improvements be made to the system between 2015 conditions to 2040. In this scenario, while the region continues to experience population and job growth, the lack of investment in system mobility has clear effects on the level of congestion, access to jobs, transit usage, and system reliability in general. The system is unable to keep pace with the increased level of demand and threatens to affect freight reliability and residents' access to destinations; commute times; and overall quality of life.

Under the no build scenario, transit ridership and the ability to access jobs within 30 minutes do increase, but this is due to increased population density and a predicted development pattern where more individuals settle closer to the urban core of the metro than in existing conditions. The modeled results of MnPASS usage under the no build scenario indicates that the capacity of the existing system is limited in its ability to handle the increased volume of traffic expected by 2040. This would likely cause a policy discussion to increase the maximum MnPASS fee for single-occupancy vehicles. The lack of MnPASS expansion, coupled with per capita VMT figures consistent with current levels, points to a roadway system with rising levels of congestion, lower travel time reliability, and overall reduced mobility for residents of the region.

Current Revenue

Under the current revenue scenario, the region experiences investments in the transit system and the development of MnPASS lanes, leading to an increase in the number of people utilizing these facilities. As a result, system congestion and reliability are predicted to be better than in the no-build scenario, and overall access to the transit system leads to a greater percentage of the population living near high-frequency transit corridors and increased accessibility to jobs. The results of the current revenue scenario indicate that investments to the transportation system make a difference and improve the quality of life for residents living within the metro area.

Compared to the no-build scenario, the current revenue scenario experiences nearly double the transit ridership increase, approximately 10 percent more jobs are accessible within 30 minutes, and over 250,000 more people are located close to a high-frequency transit corridor. Forecasted population and job growth within high-frequency transit corridors consequently increases by six and 10 percent over the no build scenario, respectively.

The investment in the MnPASS system under the current revenue scenario, from 71 to 121 miles, leads to an increase of nearly 200,000 users over the present conditions. The effect of this investment is likely to lead to greater reliability and reduced travel times for these users. Overall the investments made in the current revenue scenario improve upon the conditions presented in the no build scenario and depict a transportation network that better addresses the increased demand.

Increased Revenue

The increased revenue scenario shows greater positive trends than those illustrated in the current revenue scenario, with increased transit accessibility and a substantial increase in the number of MnPASS lane users. All the trends summarized in the current revenue scenario are further increased, showing that more investment on the transportation network equates to a greater overall impact.

MnPASS lanes receive substantial investment in the increased revenue scenario, with a total of 295 miles of MnPASS lanes in the region. This leads to usage patterns over six times greater

than present conditions and double those of the current revenue scenario. This results in slightly higher VMT in the metro area, but also an increase in accessibility to jobs. Daily transit ridership is anticipated to increase by 40,000 over the current revenue scenario and the number of individuals within a half mile of a high-frequency transit route increases over 200,000.

The overall results of the increased revenue scenario reveal a region with reduced congestion, greater accessibility and reliability, and a more efficient transportation network than in the no build and current revenue scenarios. Again, the outcomes show that investments impact many facets of the transportation network, and the more investment the region puts into the network, the greater the impact will be.

ACTION TRANSMITTAL No. 2019-23

DATE:	March 7, 2019
TO:	TAC Planning Committee
PREPARED BY:	Joe Barbeau, Senior Planner (651-602-1705) David Burns, Senior Planner (651-602-1887)
SUBJECT:	2019-2022 TIP Amendment: Performance Measures and Targets
REQUESTED ACTION:	The Metropolitan Council requests an amendment to the 2019-2022 Transportation Improvement Program (TIP) to incorporate pavement / bridge and system performance / CMAQ performance measures.
RECOMMENDED MOTION:	That the TAC Planning Committee recommend to the Technical Advisory Committee approval of an amendment to the 2019-2022 Transportation Improvement Program (TIP) to incorporate pavement / bridge and system performance / CMAQ performance measures.

BACKGROUND AND PURPOSE OF ACTION: This TIP amendment is needed to add text related to performance measures.

Title 23, Section 450.326(d) of the CFR states: *The TIP shall include, to the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets identified in the metropolitan transportation plan, linking investment priorities to those performance targets*.

The initial incorporation of performance measures into the TIP included performance measure (PM) 1 – Safety with a deadline of May 27, 2018. This was amended into the 2018-2021 TIP in the spring of 2018 and is included in the current 2019-2022 TIP.

Two additional performance measures are due to be included in the TIP by the deadline of May 20, 2019. They are:

- Pavement and Bridge Performance Measure (PM2)
- Congestion Management and Air Quality (CMAQ) (PM3)

While it is not necessarily required to incorporate language on these performance measure into the current (2019-2022) TIP, the ability to amend projects into or within the TIP could be jeopardized if this language is not included. Similar language will be included in the 2020-2023 TIP current in development.

RELATIONSHIP TO REGIONAL POLICY: Federal law requires that all transportation projects that will be funded with federal funds must be in an approved TIP. Further, federal law requires performance-based planning related to for safety, pavement, bridge, reliability, freight, Congestion Management/Air Quality (CMAQ), and transit asset and safety. The Pavement & Bridge Performance (PM2) and System Performance and Congestion Management and Air Quality (PM3) measures are to be incorporated into the TIP by May 20, 2019.

STAFF ANALYSIS: This is a text change and does not impact any individual project in the TIP. This change enables the TIP to be compliant with federal regulations and to remain flexible if an amendment is needed to an individual project. This amendment is consistent with the Metropolitan Council Transportation Policy Plan, adopted by the Metropolitan Council on October 24, 2018, with FHWA/FTA conformity determination established on December 13, 2018.

ROUTING

TO	ACTION REQUESTED	DATE COMPLETED
TAC Planning Committee	Review & Recommend	
TAC Funding & Programming Committee	Information	
Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review & Adopt	
Metropolitan Council Transportation Committee	Concur	
Metropolitan Council	Concur	

Pavement/Bridge Performance Measures (PM2)

Council Activities and Progress

The Council adopted the 2020 and 2022 PM2 target for the first time over the course of 2018. Given the close coordination with MnDOT and similar performance for both the metro area and greater Minnesota, the Council chose to concur with the adopted MnDOT pavement/bridge performance measure targets. Table 3 depicts the existing metro area performance as well as the adopted statewide and regional targets for both 2020 and 2022.

Table 3: Existing Conditions and Adopted Bridge and Pavement Condition Targets for 2020 and 2022

Measure	Existing Performance	2020 Target	2022 Target
Bridges			
1. % of bridges by deck area in good condition	46.3%	>50%	>50%
2. % of bridges by deck area in poor condition	1.3%	<4%	<4%
Pavement			
1. % of interstate pavement in good condition	62.7%	*	>55%
2. % of interstate pavement in poor condition	0.8%	*	<2%
3. % of non-interstate NHS pavement in good condition	50.7%	>50%	>50%
4. % of non-interstate NHS pavement in poor condition	3.2%	<4%	<4%

*No target set for this measure/year

Anticipated Effect of the Pavement/Bridge Performance Measures

The 2019-2022 TIP is anticipated to have a positive effect on the pavement and bridge performance measures, as there are projects programmed specifically for the purpose of improving bridge and pavement conditions. While interstate pavement condition within the metro area is performing at a level greater than the targets, non-interstate NHS pavement is not performing at the same level. This may indicate a need to focus more explicitly on non-interstate NHS facilities in the future in an effort to ensure the region continues to be on track to meet the 2020 and 2022 targets.

Currently, the metro area is not meeting the adopted target for the percent of bridges by deck area in good condition. This is offset, however, by the performance of the state a whole, which is on track to meet the established targets. Moving forward, the Council will continue to monitor bridge deck condition and explore mechanisms to ensure the future targets are met.

System Performance Measures and Congestion CMAQ (PM3)

Council Activities and Progress

The Council adopted both the initial system reliability (shown on Table 4) and congestion mitigation and air quality (CMAQ) (Table 5) targets for the region during the fall of 2018. All of the targets associated with these measures are specific to the metro area.

Because almost all congestion within the State of Minnesota occurs within the Metro Area, the Council adopted targets specific to the region that differed from the state-wide targets. The existing metro area performance for the percent of reliable person-miles traveled on the interstate system is approximately 69%. MnDOT established a state-wide target of greater than 80%, which would likely be unattainable for the near-term future within the metro area. Instead, the Council has adopted a 2020 and 2022 target of greater than 70%. This target is appropriate in that it still aspires to be better than current conditions, but better fits the urban context than does the statewide target of 80%.

In addition to the interstate person-miles target, the Council has also elected to adopt targets that are different than MnDOT's for the truck travel time reliability index measure. This is because truck travel reliability is less in the metro area than in Greater Minnesota as a whole. The adopted MnDOT target truck travel time reliability of less than 1.5 would be very hard to attain given the increased traffic in the metro area as compared to greater Minnesota.

All of the adopted reliability targets aim for improvement over the existing conditions, and as such may be considered aspirational given recent trends. There is, however, no consequence to the Council for not meeting these targets, and the State of Minnesota as a whole is likely to meet their adopted targets. The Council has chosen these targets as a mechanism to aim for improvement in reliability in the immediate future and prioritize highway projects integrated within the TIP thusly.

Table 4: Existing Conditions and Adopted System Reliability Targets for 2020 and 2022

Measure	Existing Performance	2020 Target	2022 Target
% of reliable person-miles traveled on the Interstate	68.8%	>70%	>70%
% of reliable person-miles traveled on the non-Interstate NHS	76.5%	>75%	>75%
Truck travel time reliability index	2.23	<2.20	<2.20

Table 5: Existing Conditions and Adopted CMAQ Targets for 2020 and 2022

Measure	Existing Performance	2020 Target	2022 Target
On-road mobile source emissions – sum of emissions reductions of pollutants, in kilograms per day, for all projects funded with CMAQ funds	6,800	>6,800	>6,800
% of non-single occupancy vehicles	23.2%	>25%	>25%
Peak hour excessive delay – annual hours of delay per capita (delay is travel at less than 20 MPH or 60% of the posted speed	8.65	<8.5	<8.5

Anticipated Effect of the System Reliability and Congestion Reduction Performance Measures

In total, there is over $117 million in CMAQ projects programmed in the 2019-2022 TIP. The net benefit of these projects, as shown in table 5, is a reduction of approximately 6,800 kg/day of mobile source pollution. The CMAQ projects include the purchase of a number of transit vehicles; activities to market and incentive the use of carpools, vanpools, and ride matching programs; and projects aimed at retiming and optimizing traffic signal coordination.

The 2019-2022 TIP also includes projects which are anticipated to have a positive effect on mobility and system reliability. This includes a number of spot mobility enhancements as well as a large set-aside for future mobility projects (fiscal year 2022).

Congestion Management Process Plan

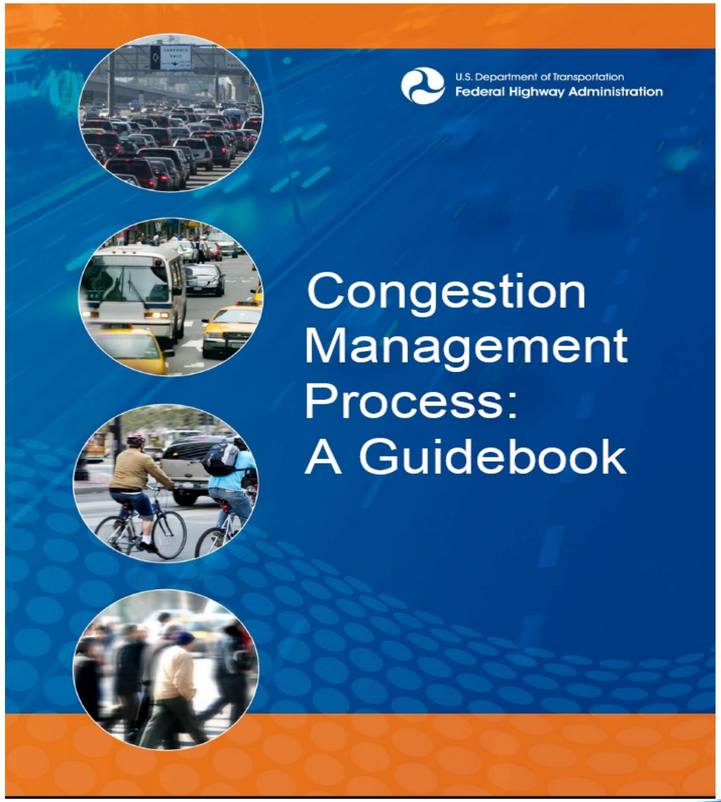
Congestion Management Process

- Advisory Committee
  - Counties
  - Cities
  - FHWA
  - MnDOT
  - Metropolitan Council

Congestion Management Process

Following 8 steps defined by FHWA:

1. Develop Regional Objectives
2. Define CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness



METROPOLITAN COUNCIL

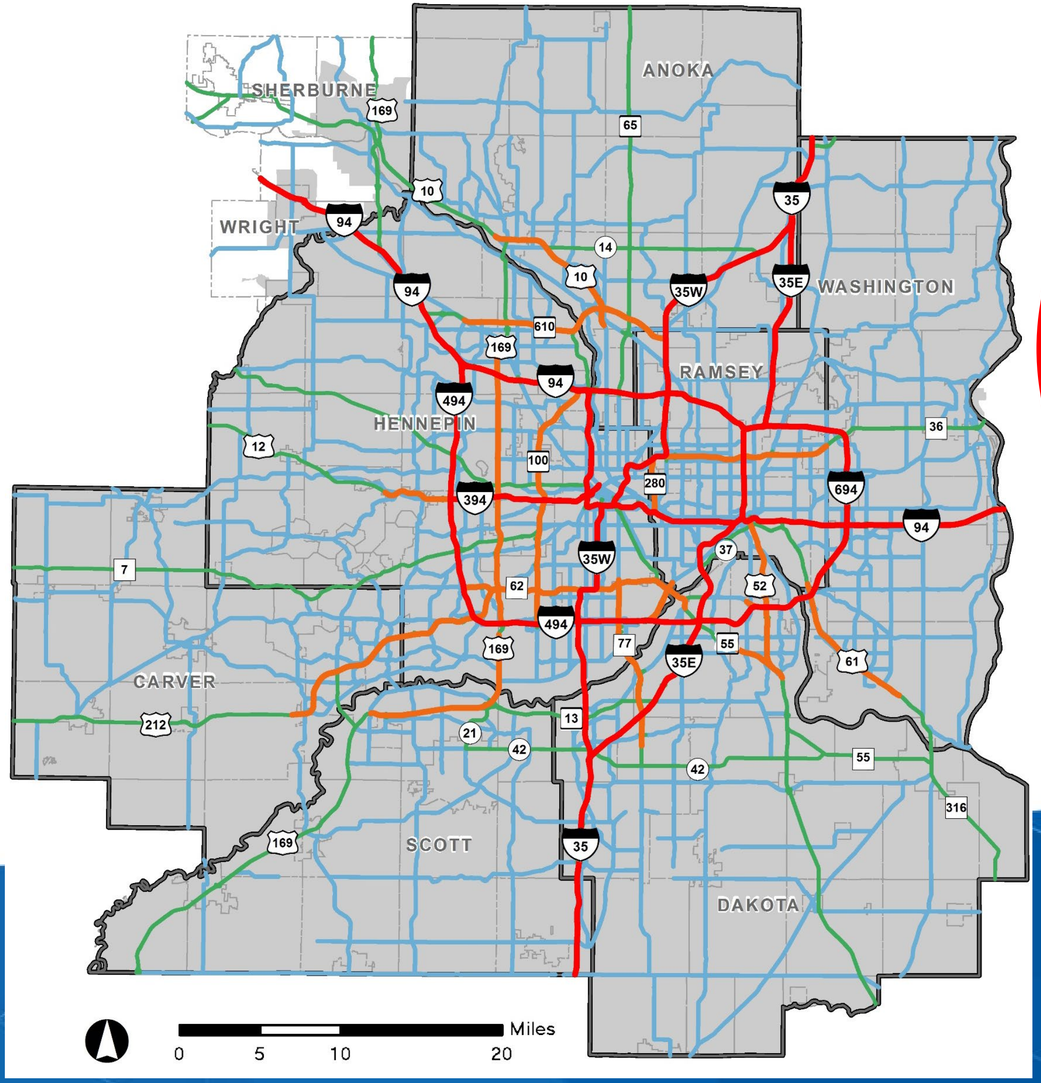
Congestion Management Process Regional Goals

- Goal 1: Increase Access to Destinations
- Goal 2: Support a Competitive Economy
- Goal 3: Promote Safety and Security

- Area Covered
  - Seven Counties
  - Urbanized Area of Sherburne and Wright Counties

- Network
  - Interstate Freeways
  - Non-Interstate Freeways
  - Non-Freeway Principal Arterials
  - A-Minor Arterials and Sherburne/Wright Minor Arterials
  - Corridors of Concern

Congestion Management Process Network



Congestion Management Process Performance Measures

- Performance Measures
  - Defined Targets
  - Example: Annual Number of Fatalities
- Key Performance Indicators
  - Example: Rate of Fatalities

Congestion Management Process Performance Measures

	Summary	Objectives	Performance Measures *Other Key Performance Indicators*	Performance Target	CMP Goals		
					Increase Access to Destinations	Support a Competitive Economy	Promote Safety and Security
Safety	Reduce Annual Number of Fatalities	Reduce annual number of fatalities to 65 by 2030	Annual number of fatalities	65 fatalities or fewer by 2030			✓
	Reduce Annual Number of Serious Injuries	Reduce annual number of serious injuries to 450 by 2030	Annual number of serious injuries	450 serious injuries or fewer by 2030			✓
			Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)				✓
			Rate of Serious Injuries per 100 million VMT				✓
			Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries				✓
Travel Time Reliability	Increase Travel Time Reliability	Increase the percentage of reliable person-miles traveled on the NHS system greater than 65 percent by 2030	Percent of reliable person-miles traveled on the NHS system	65 percent reliable person-miles or more by 2030	✓		

METROPOLITAN COUNCIL

Congestion Management Process Performance Measures (Continued)

	Summary	Objectives	Performance Measures *Other Key Performance Indicators*	Performance Target	CMP Goals		
					Increase Access to Destinations	Support a Competitive Economy	Promote Safety and Security
Travel Time Reliability Cont.	Limit Annual Hours of Excessive Delay	Limit the annual hours of excessive delay per capita to less than 9.5 by 2030	Annual hours of excessive delay per capita	9.5 hours per capita or fewer by 2030	✓		
	Reduce Delay Associated with Traffic Incidents	Reduce person-hours of total delay associated with traffic incidents by X percent by 2030	Person-hours of total delay associated with traffic incidents	X percent reduction or more by 2030			✓
	Reduce Peak Period Congestion	Reduce the percentage of facility miles on the instrumented system (highways and minor arterials) experiencing recurring congestion during the peak period to less than 25 percent by 2030	Percentage of facility miles on the instrumented system (highways and minor arterials) experiencing recurring congestion during the peak period	25 percent of facility miles or fewer by 2030	✓		
	Reduce Recurring Congestion	Reduce the daily hours of recurring congestion on the principal arterial freeway system X percent (or from X to Y) by 2030	Daily hours of recurring congestion on the principal arterial freeway system	X percent reduction or more by 2030	✓		

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Congestion Management Process Performance Measures (Continued)

	Summary	Objectives	Performance Measures *Other Key Performance Indicators*	Performance Target	CMP Goals: Increase Access to Destinations	CMP Goals: Support a Competitive Economy	CMP Goals: Promote Safety and Security
Travel Time Reliability Cont.	Maintain a Signal Retiming Program	Maintain a program of evaluating X signals for retiming every 5 years on congested segments of Tiers 3 and 4	Number of signals evaluated for retiming every 5 years	X signals evaluated every 5 years	✓		
			Modal share: The Percent of Non-Single Occupancy Vehicle Travel			✓	
			Percent of Congested Roadway Centerline Miles with MnPASS			✓	
Goods Movement	Increase Truck Travel Time Reliability	Limit growth of truck travel time reliability index on the interstate system to 2.5 by 2030	Truck travel time reliability index	2.5 or less by 2030		✓	
	Reduce Over-Capacity Roadway Miles on Truck Routes	Reduce over-capacity roadway miles on major truck routes by X percent by 2030	Over-capacity roadway miles on major truck routes	X percent reduction or more by 2030		✓	

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Congestion Management Process Performance Measures (Continued)

	Summary	Objectives	Performance Measures *Other Key Performance Indicators*	Performance Target	CMP Goals		
					Increase Access to Destinations	Support a Competitive Economy	Promote Safety and Security
Goods Movement Cont.	Reduce Freight Bottlenecks	Reduce freight bottlenecks by X percent by 2030	Number of freight bottlenecks	X percent reduction by 2030		✓	
Roadway Capacity	Limit Congested Roadway Miles	Limit miles of the instrumented system experiencing more than 2 hours of congestion per day to 150 in 2030	Miles of the instrumented system experiencing more than 2 hours of congestion per day	150 miles or fewer in 2030	✓		
	Increase Access to Jobs	50% of the region's jobs shall be accessible within 30 minutes by auto and 1.5% of the region's jobs by transit in 2030	Percent of regional jobs accessible by auto and transit	50% of jobs accessible by auto and 1.5% of jobs by transit within 30 minutes in 2030	✓		
			Average Daily Number of People in MnPASS Lanes		✓		
			Number of Registered Carpools of Vanpools		✓		

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Congestion Management Process Performance Measures (Continued)

	Summary	Objectives	Performance Measures *Other Key Performance Indicators*	Performance Target	CMP Goals		
					Increase Access to Destinations	Support a Competitive Economy	Promote Safety and Security
Public Transit	**Increase Route-Miles of BRT**	**Increase route-miles of BRT X percent by 2030**	**Route-miles of BRT**	**X percent increase by 2030**	✓		
			Passengers per In-Service Hour		✓		
			Transit On-Time Performance		✓		
			Transit Ridership		✓		
Transportation Demand Management			*Total Emissions Reductions*			✓	
			Total Emissions			✓	

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Congestion Management Process Data and Needs Analysis

- Volume/Capacity Analysis
  - Volume - MnDOT AADT data
  - Capacity - Regional Travel Demand Model
- Screening Thresholds
  - V/C of 0.91 to 1.00 shows corridor approaching congestion
  - V/C of 1.01 to 1.15 shows potentially congested corridor
  - V/C > 1.15 shows potentially heavily congested corridor

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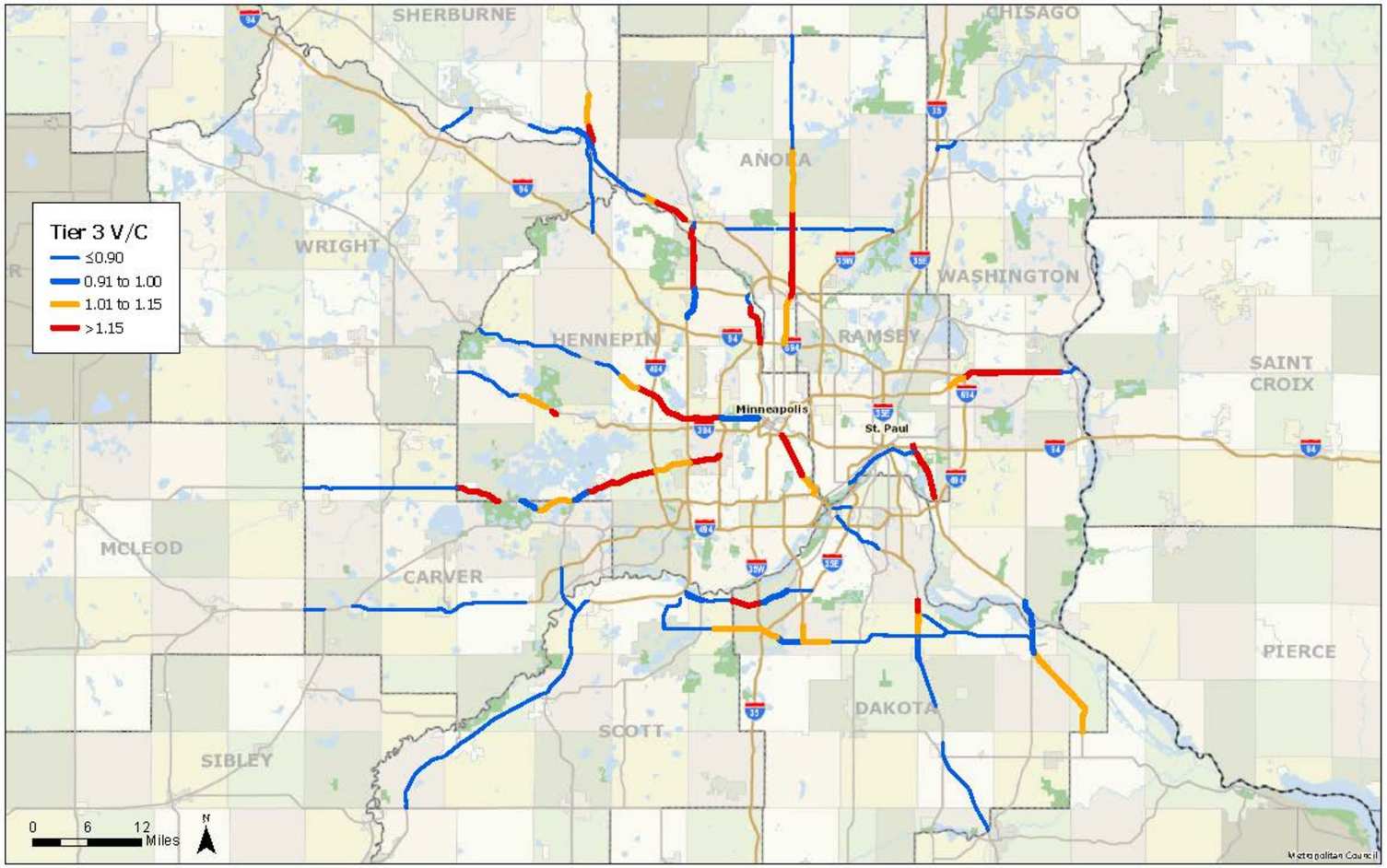
Congestion Management Process Volume/Capacity Analysis: Group 3



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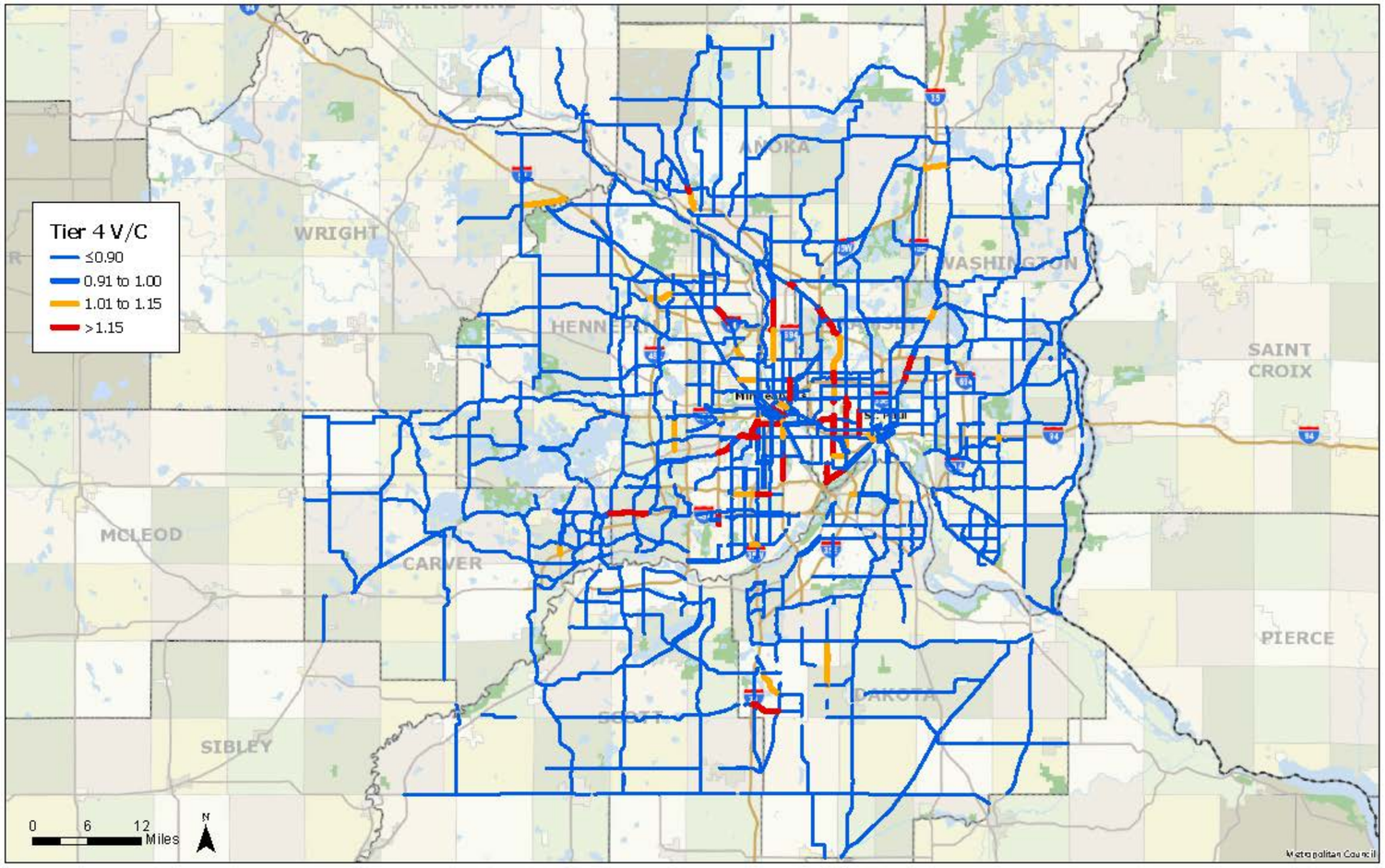
Congestion Management Process Volume/Capacity Analysis: Group 4



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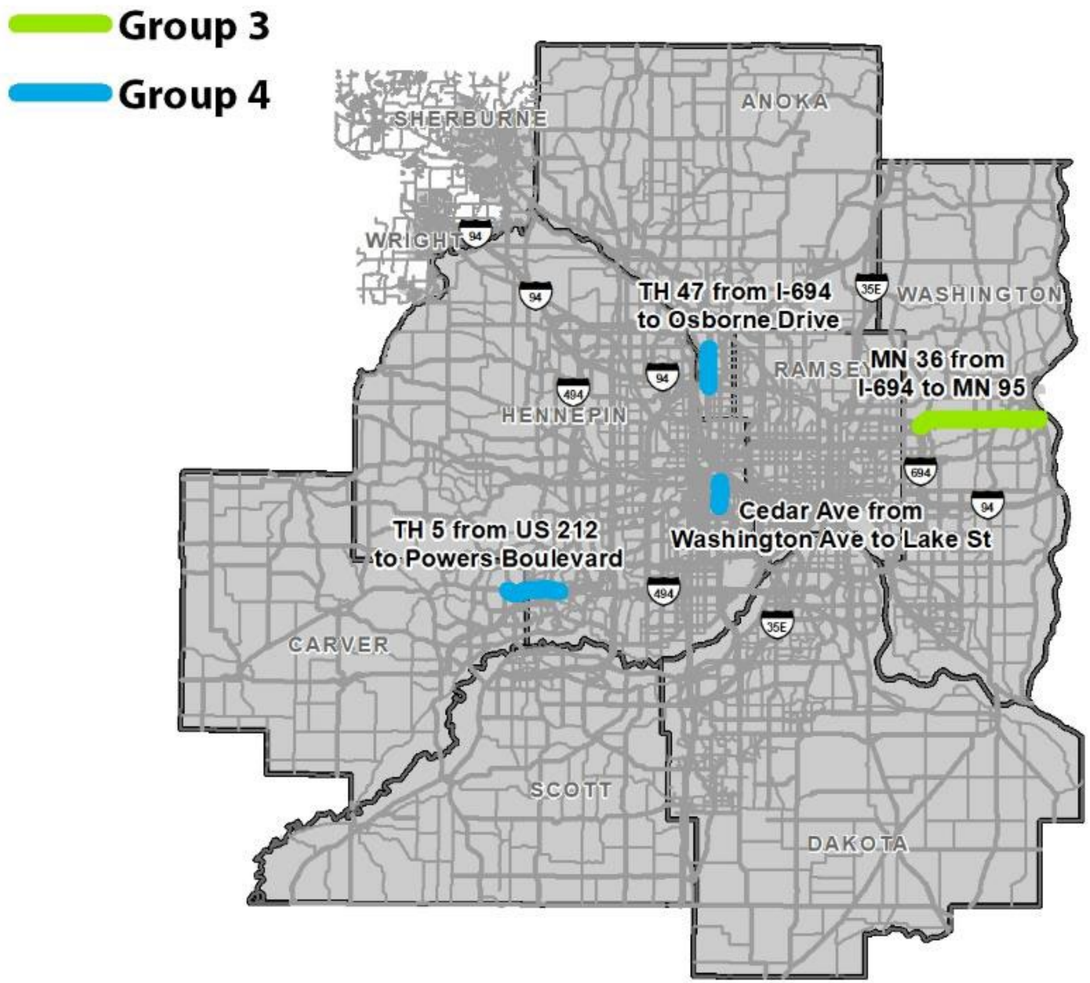
Congestion Management Process
Selected Corridors

MN 36
TH 5
TH 47
Cedar Avenue



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Congestion Management Process Additional Analysis

- Volumes
- Volume/Capacity
- Land Use
- Trails
- Freight
- Transit/Transit Operations
- Trip Distribution
- Capacity and Access
- Intersection Types
- Frontage Road Presence
- Speed Limit
- Crash Data
- Operational Conditions

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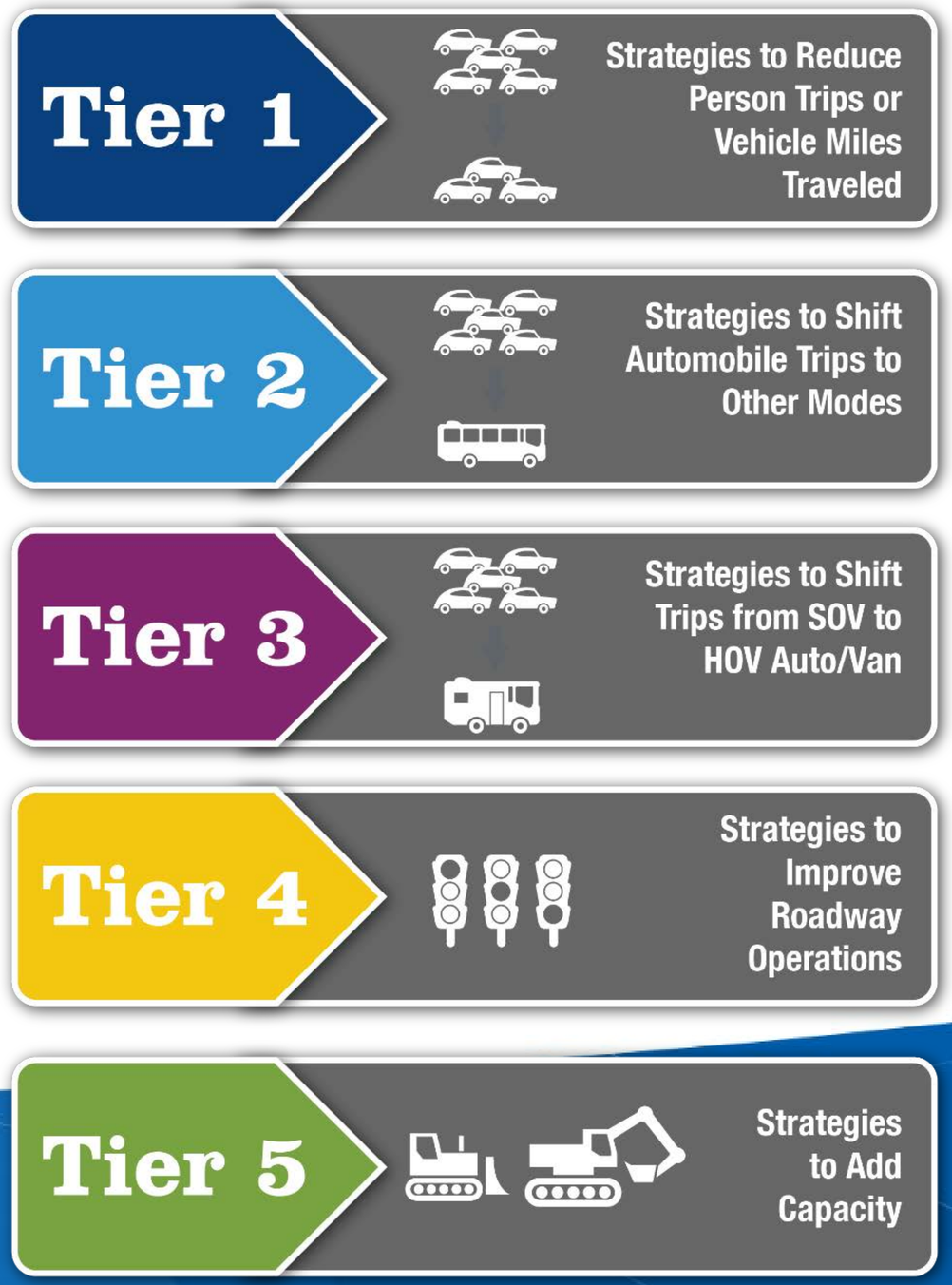
Congestion Management Process Strategies Toolbox



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Congestion Management Process
Tier 1 (Trip Reduction) Strategies

Congestion Pricing (MnPASS)	Negotiated Demand Management Agreements
Alternative Work Hours	Trip Reduction Ordinance
Telecommuting	Infill Developments
Guaranteed Ride Home Program	Transit Oriented Developments
Alternative Mode Marketing and Education	Design Guidelines for Pedestrian-Oriented Development
Safe Routes to Schools Program	Mixed-Use Development
Preferential or Free Parking for HOVs	Long-Range Comprehensive Land Use Planning
Event Transportation Management Plans	

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Congestion Management Process
Tier 2 (Mode Shift) Strategies

Transit Capacity Expansion	New Sidewalk Connections
Increasing Bus Route Coverage and/or Frequencies	Enhanced Pedestrian Crossings
Implementing Regional Transitways	Designated Bicycle Facilities on Local Streets
Providing Real-Time Information on Transit Routes	Improved Bicycle Facilities
Reducing Transit Fares	Improved Safety of Existing Bike/Ped Facilities
Provide Transit Advantages	Exclusive Non-Motorized Right-of-Way
Provide Transit Signal Priority	Complete Streets
Encourage Off-Board Fare Collection	Preservation Projects with Multimodal Improvements
Monitor Shifting Freight Numbers	Park-and-Ride Lots

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Congestion Management Process
Tier 3 (HOV Shift) Strategies

Ridesharing (Carpools and Vanpools)	Parking Management
Employer-Landlord Parking Agreements	

Congestion Management Process
Tier 4 (Operational Improvements) Strategies

Dynamic Messaging	Vehicle Use Limitations and Restrictions
Advanced Traveler Information Systems (ATIS)	Improved Signage
Integrated Corridor Management (ICM)	Geometric Improvements for Transit
Automated and Connected Vehicles	Intermodal Enhancements
Advanced Traffic Management System (ATMS)	Goods Movement Management
Traffic Signal Coordination	Towing Improvements
Bottleneck Relief	Shared Mobility
Changeable Lane Assignment/Dynamic Lane Control	Ramp Metering

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Congestion Management Process
Tier 4 Strategies (Continued)

Freeway Auxiliary Lanes (Shorter than one mile)	Alternative Intersection Design
Ramp Modifications	Snow Removal
Interchange Removal	Pavement and Bridge Deicing
Signal Timing	Incident Detection and Management Systems
Parking Restrictions	Dynamic Access Changes
One-Way Conversions	Access Management Policies
Network Management	Coordinated Preservation Projects
Superstreet Corridors	Safety Mitigation

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Congestion Management Process
Tier 5 (Capacity Expansion) Strategies

Corridor Preservation	Managed Lanes
Turn Lanes	Interchange Configuration Modification
Increase the Capacity of the System Through Reallocation of Current Right-of-Way Space	Increase the Capacity of the System Through New Roadway Facilities
Intersection Improvements	Additional General Purpose Lanes
High Occupancy Vehicle Lanes	

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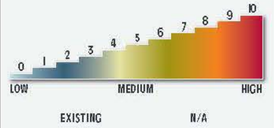
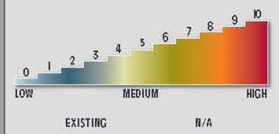
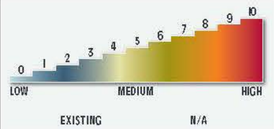
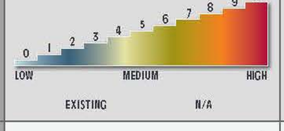
Congestion Management Process
Corridor Strategy Assessment

Corridor _____ From _____ To _____ Analyst _____ Date _____

Tier	Implementation Timing	Congestion Mitigation Strategy	Distribution of Trip Types: Regional Traffic	Regional Access	Local Access	Local Circulation	Potential Effectiveness	Recommendations/ Comments
TIER 1: Strategies to Reduce Person Trips or Vehicle Miles Traveled	Long	**1.01 Congestion Pricing (MnPASS):** Congestion pricing can be implemented statically or dynamically. Static congestion pricing requires that tolls are higher during traditional peak periods. Dynamic congestion pricing allows toll rates to vary depending upon actual traffic conditions. The more congested the road, the higher the cost to travel on the road. Dynamic congestion pricing works best when coupled with real-time information on the availability of other routes.						
	Short	**1.02 Alternative Work Hours:** There are three main variations: staggered hours, flex-time, and compressed work weeks. Staggered hours require employees in different work groups to start at different times to spread out their arrival/departure times. Flex-time allows employees to arrive and leave outside of the traditional commute period. Compressed work weeks involve reducing the number of days per week worked while increasing the number of hours worked per day.						
	Short	**1.03 Telecommuting:** Telecommuting policies allow employees to work at home or a regional telecommute center instead of going into the office, all the time or only one or more days per week.						
	Short	**1.04 Guaranteed Ride Home Programs:** These programs provide a safety net to those people who carpool or use transit to work so that they can get to their destination if unexpected work demands or an emergency arises.						
	Short	**1.05 Alternative Mode Marketing and Education:** Providing education on alternative modes of transportation can be an effective way of increasing demand for alternative modes. This strategy can include mapping Websites that compute directions and travel times for multiple modes of travel.						

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Congestion Management Process Corridor Strategy Selection Results MN 36 Example

Strategy	Effectiveness	Time Frame	Responsibility
Consider transit and other ways to reduce number of vehicles making regional trips on this corridor	Low	Medium	MnDOT, Metropolitan Council/Metro Transit, Cities of Stillwater, Oak Park Heights, and Lake Elmo
Super Streets	High	Short	MnDOT
Frontage roads on western portions	Low	Medium	MnDOT
Increase capacity through parallel roadways (e.g. TH-5, Hilton	Low	Medium	MnDOT, Metropolitan Council, Cities of Stillwater, Oak Park Heights, and Lake Elmo
Increase awareness and frequency of trips at park-and-ride lots, highlight possibility of ridesharing	Low	Short	MnDOT, Metropolitan Council, Cities of Stillwater, Oak Park Heights, and Lake Elmo
Alternative intersection design	High	Long	MnDOT, Metropolitan Council, Cities of Stillwater, Oak Park Heights, and Lake Elmo
Intersection improvements	Medium	Short	MnDOT, Metropolitan Council, Cities of Stillwater, Oak Park Heights, and Lake Elmo

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Congestion Management Process
End Products

- Policies and Procedures Handbook (updated in conjunction with TPP)
  - Documents Development of Process
  - Goals and Objectives
  - Definition of Geographic Coverage
  - Definition of Network
  - Performance Measures
  - Strategies
  - Assessment Process

Congestion Management Process End Products (continued)

- Traffic Trends Report (updated annually)
  - Performance Measures Data
  - On-going Tabulation of Corridor Assessments
  - Evaluation of Effectiveness of Implementation of Strategies

Congestion Management Process

- Next Steps – Implementation
  - On-going Corridor Analysis
  - Integration into Project Development and Programming Process
    - MnDOT
    - Regional Solicitation