Chapter 5: Regional Mobility / Congestion Management Process

Regional Mobility

In an uncertain future, the region will need a flexible, resilient transportation system that offers transportation choices and includes a more efficient, and optimized, highway network and an improved transit system.

During the last several decades of the 20th century, the region added hundreds of miles of highway to accommodate a growing population and economy. Most of the Regional Highway System was built during the 1960s, '70s and '80s, following the1956 passage of the federal Interstate Highway Act, which along with state sources, provided funding for road construction.

The addition of new roadways to the system satisfied increased travel demand for a time, but demand has outpaced the ability to expand the system. Today, congestion persists, despite the fact that the Twin Cities region has built more miles of highway per capita than most regions of similar size according to the Texas Transportation Institute's Urban Mobility Study. The highway system is also aging and a large portion of available funds will be needed to repair and replace these facilities in the future.

Figure 5-1: Congested roads are costly and hurt the competitiveness of the region

A number of factors have coalesced to guide the vision of the regional transportation system:

- Increasing congestion that makes vehicle travel more costly in dollars and time
- Aging roadway infrastructure
- Increasing costs of construction due to global demand, high commodity costs and a weak U.S. dollar
- Volatile gasoline prices
- New policy pressures to address climate change

In previous long-range plans for the highway system, the emphasis was to meet forecasted demand based on past trends. However, the current situation suggests that the transportation system will experience new resource, policy, and local and global economic conditions that may differ from those of the past.

The region has a highly developed highway system that must be maintained and optimized to perform in this uncertain future. This policy plan recognizes that system-wide congestion will not be eliminated or

significantly reduced within this context. As a result, it emphasizes better management and more efficient use of existing transportation system capacity, pavement, and right-of-way, along with strategic capacity expansion, and it envisions a region better served by alternatives to driving alone.

The metropolitan transit system serves the urban core and other activity centers with bus, light rail, and commuter rail service. In 2008 improved service and high gasoline prices brought ridership on the transit system to the highest levels since the 1920s. The Twin Cities area also has a relatively high amount of bicycle commuting that has experienced rapid growth in recent years. New transit and non-motorized travel investments are important to help accommodate the increased travel this region will see over the next few decades.

Although congestion on regional highways signals that the Twin Cities region has experienced healthy growth, it is frustrating for travelers and costly in both time and money. Moreover, traffic and resulting congestion are growing faster than the ability of the region to increase roadway capacity. Travel demand forecasts indicate that this trend is expected to continue into the future, given assumed funding levels for road and transit improvements, making continued congestion a certainty.

Figure 5-2: Bike trails, such as this facility, can provide for mobility options and help reduce the growth of congestion.

The Principal Arterial Study conducted by the Council and Mn/DOT in 2007 indicated that it would cost more than $40 billion (in 2005 dollars) to successfully solve congestion in 2030 by simply expanding highway capacity to meet travel demand. This amount is almost 5 times larger than the 2011-2030 total anticipated highway revenues for the entire Mn/DOT Metro District.

No region in the country has successfully "solved" congestion, but its impact can be mitigated by increasing the people-moving capacity of the highway system while minimizing future demand on the system. Travel Demand Management (TDM) strategies include giving priority to high-occupancy vehicles (HOVs) and transit to reduce the growth in the number of vehicles that need to use the highway system while still carrying an increasing number of travelers.

Express bus service on bus-only shoulders, managed lanes and other transit advantages that allow the Metropolitan Highway System to move more buses faster and more reliably, also help to mitigate congestion by expanding the number of people served by transit in a corridor. (See Figure 5-3 for an existing snapshot of person throughput on regional corridors by transit and automobile.)

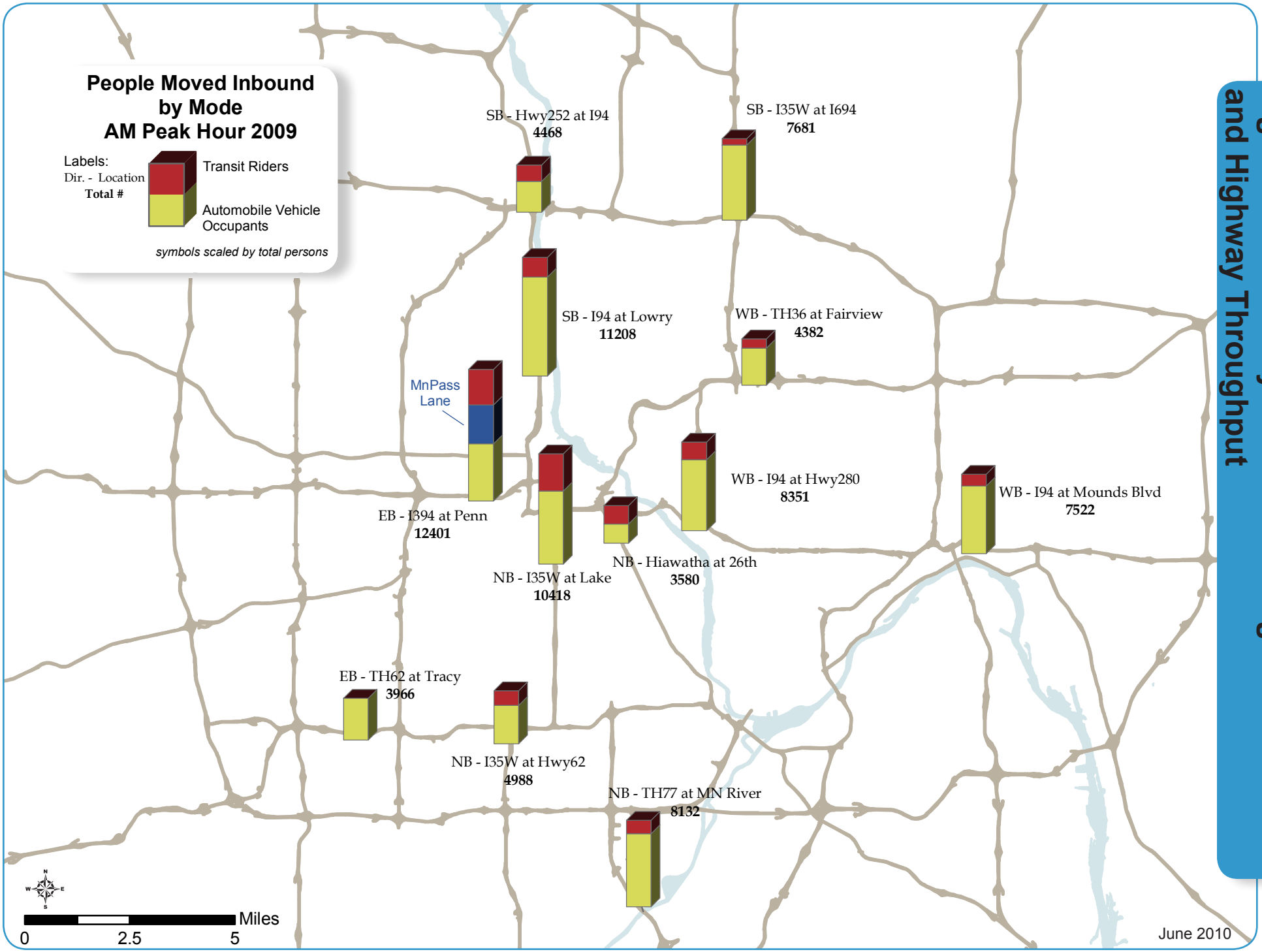

Figure 5-3: Freeway Transit Passengers and Highway Throughput

Figure 5-4: Chicago Lake Transit Center near Midtown Global Market
Transit centers provide indoor waiting areas and frequent connections

Figure 5-6: Providing transit investments helps enable the region to lessen its dependence on automobile travel.
Government Center LRT Station in Downtown Minneapolis

The Council, working with Mn/DOT and other stakeholders in 2009 and 2010, has developed a Congestion Management Process (CMP) that meets federal requirements. While this chapter specifically defines the CMP according to federal guidelines, the overall Transportation Policy Plan addresses federal CMP guidelines by:

- the multimodal nature of the plan framework;
- acknowledging we cannot expand the system to solve congestion due to fiscal, social and environmental constraints; and
- minimizing congestion to the extent possible by providing congestion-free alternatives such as managed lanes to expedite transit trips along congested corridors.

Figure 5-5: The region's first commuter rail, Northstar, opened in late 2009

Congestion Management Process (CMP)

The CMP incorporates and coordinates the various activities of the Council, Mn/DOT, transit providers, counties, cities and Transportation Management Organizations (TMOs) in increasing the efficiency of the multimodal transportation system, reducing vehicle use, and providing lower-cost safety and mobility projects where feasible. It relies on the policy guidance included in this chapter, as well as in the modal chapters contained in this TPP. The CMP will ensure that the key objective of mitigating congestion impacts is achieved and that congestion mitigation investments are properly monitored and evaluated.

The CMP ensures coordination of activities under the umbrella of the well-established and federally-required metropolitan transportation planning process in which all the above stakeholders participate. The Council and its Transportation Advisory Board and Technical Advisory Committee provide the necessary forums to coordinate the CMP activities.

The CMP assumes, as previously discussed, that it will not be possible to eliminate congestion on the Metropolitan Highway System or even to significantly reduce it through expansion because of financial, physical, social and environmental constraints. However, the CMP recognizes that congestion should and can be mitigated if travel alternatives are provided, travel demand patterns are changed and appropriate land use policies are pursued. It recognizes that a new and innovative investment approach is needed that focuses limited resources for the most system-wide benefit, as further discussed in Chapter 6: Highways.

In essence, the CMP emphasizes four main components to address congestion in the region:

- Highway System Management
- Travel Demand Management (TDM)

- Transit Opportunities
- Land Use Policy

1. Highway System Management

Highway system management is the umbrella of infrastructure strategies to improve traffic operations from the supply side of capacity. The approach for this region, as recommended through the Metropolitan Highway System Investment Study (MHSIS) and other studies discussed later, includes a number of existing or innovative strategies such as:

- Implementing traffic operational improvements using Active Traffic Management (ATM) and Intelligent Transportation Systems (ITS) applications
- Developing lower-cost/high-benefit projects to improve existing traffic flow, geometric design and eliminate safety hazards
- Implementing a new system of managed lanes with congestion pricing to provide a congestion-free option for those who are willing to pay or ride transit
- Building strategic capacity enhancement projects

The Twin Cities region is particularly well positioned to mitigate congestion and preserve a high level of regional mobility because the strategies proposed can build upon improvements already in place. These include an actively managed system equipped with electronic surveillance (i.e. fiber cable, loop detectors and cameras) on about 90-percent of the urban freeways. In addition, the region has the advantage of a sophisticated Regional Traffic Management Center (RTMC) that can be expanded to handle new traffic management applications. Other existing elements include an extensive bus-only shoulder system and two corridors with dynamically-priced managed lanes.

In addition, several recently implemented lower-cost/high-benefit projects have been publicly praised and have provided Mn/DOT with additional experience in flexible design applications. Examples include traffic restoration projects done in conjunction with the reconstruction of the I-35W bridge over the Mississippi River, shoulder conversions to through lanes on TH 100, and adding through lanes and modifying interchange ramps on I-94 east of Saint Paul.

Nearly 300 miles of existing bus-only shoulders provide an opportunity to implement dynamically-priced managed shoulder lanes without acquiring new right-of-way. The new managed lanes can encourage greater transit use because of increased speed (bus use of shoulders is limited to a 35 miles per hour maximum), reliability, and safety. The existing dynamically-priced, high-occupancy toll (HOT) lanes on I-394 and I-35W (MnPASS lanes) have received a high level of public acceptance. They provide Mn/DOT with invaluable experience in managing demand through pricing strategies and demonstrate the benefits of a congestion-free alternative, not only for transit users and those willing to pay to use the managed lanes, but also to general purpose lane users.

Expanding the people-moving capacity of the highway system is most effectively accomplished by adding managed lanes, which can move more people, more reliably. Select strategic capacity enhancements, including additional general purpose lanes on existing freeways, can also be an effective option. The level of congestion mitigation achieved by these improvements can be enhanced by better managing the highway system with tools that include active traffic management (ATM) strategies such as freeway ramp metering, variable sign messaging, and speed harmonization, as well as access management on non-freeway principal and minor arterials. Many of these strategies also help improve safety conditions. In addition, person throughput has been identified as a key element of monitoring highway system performance rather than vehicle throughput.

A more detailed description of proposed highway investments and priorities can be found in Chapter 6: Highways.

2. Travel Demand Management

Travel demand management (TDM) consists of programmatic strategies to reduce drive-alone vehicle trips and vehicle miles traveled during peak congestion times, special events, and for construction project areas. TDM strategies provide incentives for people to more effectively use existing transportation resources and infrastructure. The desired outcome of these strategies is to promote mobility and reduce congestion by reducing trips and miles of travel by single-occupant vehicles (SOV). TDM includes the most effective strategies to facilitate the movement of people by modes such as carpooling, vanpooling, transit, bicycling, and walking. TDM also supports flexible employment arrangements that do not require peak-period travel (flexible schedules) or would allow employees to avoid the commute altogether by working from home (telecommuting). Reducing SOV trips and miles traveled, particularly in the morning and afternoon peak travel periods, should also produce health and environmental benefits (lower levels of air pollution and reduced energy use). Linking TDM with supportive land use patterns and development decisions can also reduce SOV trips.

The region's objectives for travel demand management are to:

- Increase the use of alternative transportation modes such as walking, bicycling, public transit, carpooling, vanpooling and flexible work arrangements, such as telecommuting, to reduce vehicle miles traveled.
- Ease congestion during the peak periods, special events and construction.
- Reduce air pollution and energy consumption related to transportation.
- Make more efficient use of transportation infrastructure and services.
- Reduce the necessity of car ownership when other travel choices exist.
- Promote transportation-efficient land development.
- Provide "reverse commuting" assistance for urban commuters to employment locations not served by transit.

The Council will work to implement these TDM objectives where appropriate through a combination of efforts with Metro Transit and transportation management organizations (TMOs). TMOs are public or private partnerships in highly-congested locations comprising employers, building owners, businesses and local government interests that are established to mitigate peak traffic congestion and promote travel by modes other than single-occupant vehicles.

The Council will provide TDM technical assistance and financial incentives to TMOs, especially those located in areas with high levels of congestion. The Council and its TDM partners will also provide assistance to local units of government to implement TDM strategies and to employers and property owners/managers wishing to develop their own TDM plans.

Where appropriate, the Council will work with local governments to explore how modifying parking policies could encourage park-and-ride usage, vanpooling and carpooling. The Council will also support its partners in local government to encourage parking spaces to be unbundled from building leases in order to make the cost of providing space for parking more transparent in congested areas.

A recently completed TDM Study (discussed later in this chapter) provided the following key recommendation that will strengthen the link between TDM and congestion management:

- Focus local and regional TDM efforts on employment centers and corridors with significant investments in multimodal options.

These significant multimodal investments include expanded transit service, managed lanes like high-occupancy toll (HOT) lanes, bus-only shoulders, and biking/walking facilities. These investments will typically be applied in the most congested corridors where ATM and managed lanes may be implemented via recommendations from the Metropolitan Highway Strategic Investment Study described below. This recommendation is linked to the highway investment strategies further described in Chapter 6: Highways.

3. Transit Opportunities

The TDM and highway investment strategies to manage congestion are also supported through the provision of transit opportunities. A better-managed transportation system will facilitate a greater share of travel accommodated by modes other than SOVs. Expanding the transit system and accommodating more non-motorized travel will give area travelers more mobility options. This *Transportation Policy Plan* includes an aggressive expansion of the transit system, including an expanded local and arterial bus network. It also provides for a system of transitways served by light rail, commuter rail, bus rapid transit and express buses in corridors with transit advantages. Providing this transit network, along with investments in bicycle and pedestrian infrastructure, will enable the region to lessen its dependence on automobile travel.

Policy 15 from Chapter 7: Transit most directly affects the provision of transit alternatives that complement and bolster congestion management efforts:

- As one element of an overall transit network, the Council will strongly pursue a regional network of transitways to provide a travel-time advantage for transit vehicles, improve transit service reliability, and increase the convenience and attractiveness of transit service.
  - Transitway implementation will be coordinated with other transit, highway, bicycle and pedestrian projects, facilities, and investments.
  - The Council will support enhanced transit service along transitways and the integration of existing routes along transitway corridors as appropriate to take full advantage of transitway improvements.
  - The Council will work with local units of government to ensure that transitways promote efficient development and redevelopment.

A more detailed description of proposed transit and transitway investments and priorities can be found in Chapter 7: Transit.

4. Land Use Policy

Connecting land use decisions to transportation investments with the purpose of reducing per capita vehicle miles traveled will help minimize the growth in congestion. Land use with sufficient activity and density, including walkable streets and a local transportation network, can best support transit options. A well-connected local and collector roadway network will also support regional highways by keeping local travel off of highways and making walking and bicycling more attractive options for local travel. This supportive road network, in addition to investments in alternatives to the automobile, will support more travel-efficient land development that allows people to live and work within a reasonable commute time and to avoid congestion.

Figure 5-7: The redesign of Marquette and 2nd Avenues in Minneapolis improves transit efficiency in Downtown Minneapolis

Land use strategies derived from the Regional Development Framework that serve to bolster transit ridership and thereby contribute to congestion management include:

- Coordinate transportation investments and land development to create an environment supportive of travel by modes other than the automobile including travel by transit, walking and bicycling.
- Coordinate transportation investments and land development along major transportation corridors to intensify job centers, increase transportation links between job centers and medium-to-high density residential developments and improve jobs/housing connections.
- Transitways and the arterial bus system should be catalysts for the development and growth of major employment centers and residential nodes to form an interconnected network of higher density nodes along transit corridors.
- Intensify population density in nodes along transportation corridors, especially along existing and potential transit corridors.
- Intensify employment clusters with transit and pedestrian infrastructure.

Supporting Transportation Planning Efforts

The CMP is guided by the technical analysis and direction provided by five major planning efforts conducted by the Council and Mn/DOT in 2009 and 2010. Their findings and recommendations are the basis for the investment priorities contained in the fiscally-constrained 2030 highway plan. They also are the basis for the development of a long range list of potential investments from which additional projects could be drawn should funds materialize beyond the highway revenues projected in this plan (see Chapter 6: Highways). These five planning efforts described below provide the underlying problem identification, solution development and analysis to support the specific strategies in the CMP.

1. Metropolitan Highway System Investment Study (MHSIS)

This study had a planning horizon beyond the fiscally-constrained 2030 plan and carried out a comprehensive evaluation of Active Traffic Management (ATM) strategies, managed lanes, and strategic capacity enhancements to address congestion problems on principal arterials throughout the Metropolitan Highway System. It also included a specific project evaluation and prioritization process as the basis for the fiscally-constrained plan discussed in Chapter 6: Highways.

The study used five performance goals and associated performance measures for evaluating managed lanes and targeted capacity expansion projects:

GOAL	PERFORMANCE MEASURE
Increase people-moving capacity	Person throughput
Provide alternatives to traveling in congested conditions	Travel time savings
Implement strategic and affordable investments to manage existing facilities	Cost effectiveness
Increase trip reliability for corridor users	Reductions in trip delays in managed lanes
Encourage increased transit use	Transit suitability assessment

This evaluation scheme was discussed with various stakeholders at ten workshops throughout the region. The purpose of this exercise was to develop a better understanding of the relative ranking of these five performance goals and their performance measures.

Based on those performance measures, potential improvements have been prioritized and the results of this analysis are reflected in Chapter 6: Highways. Those same performance measures will be used, through the CMP, to evaluate the effectiveness of implemented investments and to reassess priorities, if necessary.

2. Major Corridor Reassessments

Mn/DOT has also conducted, in conjunction with the MHSIS, the reassessment of 12 major capacity projects in the Metropolitan Highway System which had been included in the TPP in 2004, but excluded from the 2009 version because they exceeded the financial constraints of the plan.

Based on this analysis, Mn/DOT is recommending that alternative options for managing congestion in these corridors be considered. Common themes of this reassessment include proposing lower-cost options that can accomplish a large portion of the benefits expected from the larger projects, the use of managed lanes options and strategic capacity investments and the coordination of different types of improvements (preservation, bridge replacement, safety, ATM) to maximize synergy.

Specific recommendations of this reassessment are further discussed in Chapter 6: Highways.

3. MnPASS System Study Part 2 (MnPASS 2)

The purpose of this study was to develop a prioritized list of potential candidate corridors for additional MnPASS lanes (i.e. HOT lanes with variable-rate pricing) that can be implemented in the short term (2-10 years). A total of 13 candidate corridors were considered and submitted to an initial screening. This step was followed by traffic and revenue analysis as well as conceptual engineering analysis and cost estimation of the most promising projects.

Capital cost estimate assumptions were consistent with those used in the MHSIS. In modeling the use of the managed lanes and estimating toll revenues, it was assumed that SOVs and HOVs would pay to use the new managed lanes, but that HOVs would be allowed to use the two existing MnPASS lanes on I-394 and I-35W south without incurring a toll. This assumption was made only to simplify the modeling process and should not be construed to represent a shift in current policy. Managed lane implementation issues will be reviewed in more detail in an upcoming joint Met Council / Mn/DOT study. The study will examine the question of whether HOVs should be required to pay to use the new managed lanes.

A subsequent detailed performance evaluation was performed to establish implementation priorities. Measures included travel time reliability, person trip throughput, travel time reduction, average trip time, change in congested vehicle miles travelled, transit suitability, mainline bus volumes, bus volumes at intermediate exit/entry ramps and miles of bus-only shoulder lanes plus managed lanes. This MnPASS 2 performance evaluation scheme is consistent with the methodology used in the MHSIS.

Preliminary results from the MnPASS 2 study were used to establish managed lane priorities in the Fiscally Constrained 2030 Plan in Chapter 6: Highways. Managed lane projects implemented in the short term will be re-evaluated through the CMP using the same performance measures described above to determine longer term managed lane investment priorities.

4. Congestion Management and Safety Plan (CMSP)

The CMSP defines a process and criteria to identify and prioritize lower-cost/high-benefit highway construction projects that provide mobility, safety and efficiency benefits. It also defines a project-specific

framework for before and after studies to help evaluate those projects once implemented to better understand the potential effectiveness of different tools in mitigating congestion and safety projects. Typical lower-cost/high-benefit projects remove bottlenecks and safety hazards with flexible design solutions that can be accommodated within the existing right-of-way.

Initially, the CMSP identified problem locations on the existing Metropolitan Highway System both for a.m. peak hours and p.m. peak hours. Typical problem locations include areas where existing freeway traffic volumes make it difficult to accommodate new merging traffic from other roads and where mainline freeway traffic back-ups occur because of not enough capacity on the exit ramps. Other problem areas include excessive freeway mainline weaving and freeway ramp to ramp weaving as well as locations where a mainline lane is dropped. As traffic volumes increase over time, congestion and safety problems are magnified at those locations and their impacts propagate to increasingly longer segments of the system.

The evaluation measures for these lower-cost / high-benefit projects include increased traffic flow rate (i.e. vehicles per day and per peak period), peak period miles of congestion, peak period travel speed, crash reduction by severity and benefit/cost ratio. The before and after studies will also help make better decisions in future project selection iterations. Chapter 6: Highways include an initial set of projects from the CMSP.

5. Travel Demand Management Evaluation and Implementation Study (TDM Study).

The purpose of this study was to outline a clear process for selecting, funding and implementing travel demand management (TDM) strategies and also structuring and evaluating the Twin Cities TDM program. The local TDM partners were engaged during the study through a formal advisory committee, including state, regional and local organizations.

The TDM Study builds upon a very successful venture in promoting and implementing TDM strategies in this region over more than three decades. It includes eight broad TDM goals for the region and a detailed list of recommended strategies for each of those goals.

Key TDM goals from the study include:

- Allocating future Congestion Mitigation and Air Quality (CMAQ) funding for TDM based on monitored performance and sound estimates of impacts
- Developing additional funding sources to expand the regional TDM program
- Evaluating regional program performance over time by annually tracking vehicle miles reduced due to TDM efforts, and
- Focusing local and regional TDM efforts on employment centers and corridors with significant investments in multimodal options.

Data Collection and System Performance Monitoring and Evaluation

The CMP must include clear steps for monitoring and evaluating the performance of the multimodal transportation system in order to quantify congestion levels on the Metropolitan Highway System, identify and evaluate alternative strategies, and assess the effectiveness of implemented improvements. Those efforts are further discussed in this section.

The ongoing data collection and system performance evaluation will be primarily the responsibility of Mn/DOT for the highway system with important contributions from the Council for transit and TDM-related data.

Mn/DOT has been formally collecting and processing congestion data since 1993. The data is collected through surveillance detectors in roadways, cameras and field observations. About 90 percent of the urban freeway system is equipped with electronic surveillance systems. Mn/DOT's Regional Transportation Management Center (RTMC) collects and analyzes the data from about 3,000 detectors embedded in mainline lanes and an additional 2,200 detectors on freeway ramps. The data collected by Mn/DOT and law enforcement agencies permit the estimation of daily and peak period traffic volumes, vehicle miles traveled, speeds, lane density, levels of service, delays, travel times, and vehicle occupancy, as well as safety data such as number of fatalities and type A injuries, crash rates and severity rates.

On an annual basis, Mn/DOT publishes a Metropolitan Freeway System Congestion Report that evaluates the 758 directional miles of the Twin Cities urban freeway system to develop the a.m. and p.m. percentages of directional miles of congestion (i.e. speeds below 45 mph). Speed data are based on the median value of data collected at detectors locations, at 5 minutes intervals for the 5:00 a.m. to 10:00 a.m. and the 2:00 p.m. to 7:00 p.m. time periods. Median values, rather than averages, are used to mitigate the effects of temporary lane closures, significant traffic incidents and other one-time traffic events not related to daily commuting traffic patterns.

Mn/DOT currently conducts field observations on freeway segments where no surveillance detectors are available. However, Mn/DOT has programmed additional surveillance detectors in the current Transportation Improvement Program (2011-2014) which should result in nearly 100 percent coverage of the metropolitan freeway system.

The evaluation of the I-35W Corridor Urban Partnership Agreement (UPA) project may be used as a template for the evaluation of ATM/managed lane/corridor-level projects recommended in the MHSIS and MNPASS 2 studies. In particular, it will be used as a model for the evaluation of the I-94 ATM Implementation project.

This increased effort in the evaluation of congestion mitigation projects will require Mn/DOT to develop evaluation guidelines to ensure consistency. Expanded efforts in the area of traffic management with the increased emphasis on ATM strategies will require Mn/DOT management to ensure that adequate staff and resources for the operation of the RTMC are available. There may also be additional resource needs for Mn/DOT maintenance.

Metro Transit, the Metropolitan Transportation Services (MTS) division of the Council and other transit providers collect transit data on all bus and rail routes in the region. This data set includes ridership numbers that can be aggregated at the corridor level to identify reductions in automobile traffic, transit levels of service (vehicle miles and vehicle hours), operating cost, fare revenues and subsidy levels. This transit data, updated annually by MTS, is used to produce a Transit System Audit every two years.

Metro Transit also collects TDM data, including records of registration of carpools and vanpools as well as participation in special programs. These include events such as the Commuter Challenge in which over 15,000 commuters pledged to try transit, bike, walk, or rideshare over a three month period in 2008 and the 2009 Bike2Benefits program in which 2,900 members logged an estimated 375,000 bike and bike-plus-transit miles.

Metro Transit also manages data for the four Transportation Management Organizations (TMOs), updating the RidePro database which includes, among other data, information on the Guaranteed Ride Home program, carpool and vanpool parking registration, employer outreach contacts,

Policy/Strategies

Policy 3: Investments in Regional Mobility

The Council recognizes that congestion will not be eliminated or significantly reduced in the Metropolitan Area. Therefore, to maximize regional mobility, congestion and demand must be managed to the extent possible and alternatives to congestion provided where feasible.

Strategy 3a. Congestion Management Process: The Council, working with Mn/DOT, has developed the TPP as the Congestion Management Process to meet federal requirements. The CMP incorporates and coordinates the various activities of Mn/DOT, transit providers, counties, cities and TMOs to increase the efficiency of the multimodal transportation system, reduce SOV use, and provide lower-cost/ high-benefit safety and mobility projects, where feasible.

The development of the CMP has been guided by the policy direction provided in the MHSIS, CMSP, MnPASS 2, the TDM Study, and major project reassessments. These planning efforts define a set of measurable strategies that the region will use to implement the CMP and recommend changes in highway operations to increase the people-moving capacity, safety, and efficiency of the existing highway system and to provide travelers with alternatives to congestion. The CMSP establishes a process and criteria to define and prioritize lower-cost/high-benefit highway construction projects that provide localized mobility, safety, and efficiency benefits. The TDM Study establishes a process and criteria to define strategies to reduce SOV trips. The MHSIS, MnPASS 2, and major project reassessment efforts identify a range of managed lane and strategic capacity enhancement projects to be implemented commensurate with future available highway revenues and other federal funding sources.

These planning efforts include methods to monitor and evaluate the performance of these strategies on an ongoing basis.

Strategy 3b. Apply Person Throughput as a Performance Measure: The region's highway system will be operated, managed, and improved to maximize usage of existing facility capacity, pavement, and right-of-way and to increase people-moving capacity as measured by person throughput.

The goal for the Regional Highway System is to maximize the use of existing highway capacity, pavement and right-of-way. Performance of the system in this regard will be measured by person throughput instead of other traditional measures such as levels of service (LOS). Person throughput is a relatively simple concept. This measurement tracks the number of people that are accommodated by a highway or highway lane rather than tracking only the number of vehicles. Person throughput is preferable because it takes into account the use of transit and HOVs on the system and the role they play in increasing operational efficiency (see Figure 5-3). The role of "A" minor arterials to supplement and relieve principal arterials will also be included in determining the performance of transportation service in a corridor. Minimal data has been collected for the practical application of this performance measure and more targeted data collection will be required prior to implementation.

Strategy 3c. Provide Alternatives to Congestion: The region will continue to develop and implement a system of bus-only shoulders and managed lanes (i.e., high-occupancy toll (HOT) lanes and priced or non-priced dynamic shoulder lanes) to achieve travel time savings by providing alternatives to traveling in congested highway conditions.

The use of bus-only shoulders, in combination with express bus service, has enabled the region to expand the person throughput capacity on much of the highway system (see Figure 5-3). In certain corridors, prioritizing express bus service would not only provide alternatives to congestion, but would expand the use of existing highway right-of-way and pavement. The region will continue to identify highway corridors where transit can increase person throughput capacity and mitigate congestion.

The implementation of MnPASS lanes has provided an alternative to congestion for those who are willing to pay or ride transit. The MnPASS lanes also result in travel time savings for both the users of those lanes and the general purpose lanes.

Strategy 3d. Travel Demand Management Initiatives: The region will promote a wide range of Travel Demand Management (TDM) initiatives that help to avoid and manage congestion. The initiatives will be responsive to changing attitudes and the economy to help reduce automobile use, especially during the most congested times of the day. Local and regional TDM efforts will focus on employment centers and corridors with significant investments in multimodal options (e.g., managed lanes).

Strategy 3e. Parking Pricing and Availability: The Council will continue to work with its TDM partners to help define the relationship of parking supply (including minimum/maximum requirements), demand, location, and cost relative to the use of SOVs versus transit and other modes.

Strategy 3f. Promoting Alternatives: The Council and its regional partners will promote and market transportation choices that allow travelers to avoid and help manage growth in congestion by riding transit, bicycling, walking, vanpooling and carpooling, or using managed lanes.

The Council will promote the use of alternative transportation modes to improve air quality (including limiting greenhouse gas emissions), reduce contributors to congestion, and reduce personal consumption of non-renewable fuels.

Strategy 3g. Alleviate Highway Construction Impacts: The Council, regional transit providers, and TMOs will work with Mn/DOT and local units of government to determine where and when transit service improvements and TDM actions may be appropriate to alleviate traffic delays and impacts related to highway construction.

Strategy 3h. Monitor Congestion Mitigation: Mn/DOT, working with the Council and other partners, will monitor and evaluate, through the CMP, the spectrum of congestion mitigation and avoidance actions put in place in the region and modify future investments accordingly.

The Congestion Management Process includes a methodology for monitoring and evaluating specific strategies and projects. Mn/DOT is the lead agency in monitoring activities regarding the Metropolitan Highway System and the Council is the lead agency for monitoring the transit system.

Congestion mitigation investments will be evaluated according to the performance measures framework developed in the five planning efforts previously mentioned (i.e. MHSIS, Major Corridor Reassessments, MnPASS 2 Study, CMSP, and the TDM Study).

Future funding will be geared toward strategies that most effectively result in more efficient use of the transportation system and/or create a shift from SOVs to alternative transportation modes.