2030 TRANSPORTATION *Policy Plan*

Final November 2010

Metropolitan Council

Chapter 1: Overview

The region's mobility – so fundamental to its economic vitality and quality of life – is challenged by mounting congestion, rising costs, and tight fiscal constraints.

Traffic on the region's freeways and expressways is heavy and expected to worsen. By 2030, the Twin Cities area will be home to nearly a million more people than in 2000, who will make more trips and travel more miles. The result: commuters and others will endure more hours of delay on more miles of congested highway.

In the past, the answer to meeting travel demand was to build additional highway lanes to meet projected 20-year needs. This was the vision that built the Interstate freeway system and guided subsequent highway development. But experience has shown that there are never enough highway lanes to meet the growing demand for peak-hour urban travel. Instead of preserving future capacity for decades, new highway lanes can fill up in a matter of months.

Compounding the situation is the issue of funding. Even if current and future funding levels were commensurate with those of decades past, there would still not be enough money to "fix" congestion throughout the region's highway system. Adding enough highway capacity to meet forecasted 2030 demand over the next 20 years would cost some $40 billion dollars, an amount that, if funded by the state gas tax alone, would add more than two dollars per gallon to the cost of fuel.

The lack of adequate funding to support highway and transit programs has been a problem in past years and remains so, despite recent changes in state transportation financing. By FY 2012, 100 percent of revenues from the state motor vehicle sales tax (MVST) will be dedicated to transportation. But total MVST revenues have been declining since 2002, and although an upturn is forecasted beginning in FY 2010, predictions of a turnaround have been off the mark since 2003.

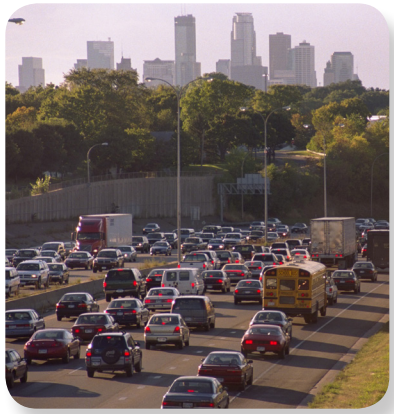


Figure 2-1: Road congestion is expected to continue to grow

A 2008 state law will channel significant levels of new revenue to highways and transitways in coming years. However, growing preservation costs and legislatively mandated bridge repair/replacement investments will absorb a very large portion of those new revenues destined to the state highway fund.

The law permits funding of transitway development by revenues from a quarter-cent sales tax allocated by a joint-powers board led by metropolitan area counties that enacted the tax. Each of the seven counties has authority to enact the sales tax; five counties enacted the tax in 2008. This revenue will provide a significant infusion of money into transitway development, but the funds, by law, may not be spent on general bus operations.

Considering the projected state financial situation, securing significant additional transportation funds from the state in the near term will be a challenge. At the federal level, the six-year transportation funding bill was scheduled for reauthorization in 2009, offering some potential for higher levels of federal highway and transit funds but as of the adoption of this plan no new bill has been enacted by Congress.

However, infrastructure investments were part of the federal funding package (ARRA) passed in 2009 to stimulate the nation's economy.

In recent years the cost of fuel and construction materials – concrete, asphalt, steel – has soared, and the declining value of the U.S. dollar further eroded purchasing power. Although these trends have moderated, they signal the uncertain future and the challenges this region faces as it grapples with the task of preserving its aging transportation infrastructure.

A number of recent and long-term trends, whose impacts on transportation needs are as yet unclear, add uncertainty to the future of transportation:

- Having climbed to record levels in 2008, fuel prices have fallen, but continue to fluctuate, making the future direction uncertain.
- In a reversal of past trends, the number of vehicles miles traveled (VMT) per capita in the region edged downward from 2005–2008 but rebounded slightly as fuel costs dropped; however, total VMT continued to grow.
- The region will see continued job growth, a prime generator of peak-period highway travel, but more slowly than in previous years.
- Retired baby-boomers will likely keep driving into their later years but may not contribute to rush-hour travel.
- In previous decades, women surged into the workforce and onto commuting routes, but the effect of this increase on commuter travel has now leveled off.
- Growing concerns about the impact of fuel-burning on climate change could lead to some cut back in travel and to higher carbon taxes not dedicated to transportation, but to what extent these outcomes might happen remains uncertain.

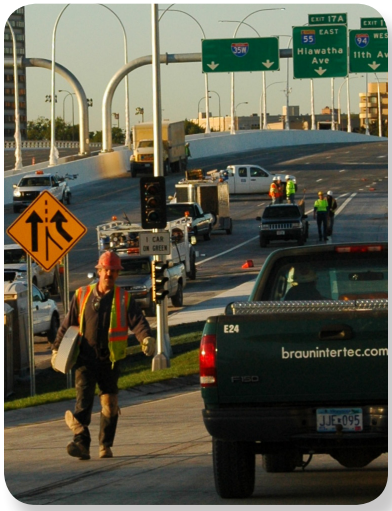


Figure 2-2: The increased cost of construction materials is just one challenge in maintaining transportation infrastructure.

The Regional Transportation Strategy

The region faces hard choices in addressing mobility, safety and preservation needs. To respond effectively, the region needs a transportation strategy that is realistic, innovative and focused on leveraging available dollars for the most benefit while coordinating those investments with land use decisions. The transportation system must optimize all available transportation modes – highways, transit and others – and be coordinated with land use decisions for maximum effect.

The Highway Vision

Adequate resources must be committed to the preservation and maintenance of the extensive highway system built over the last 50 years, including the bridge repair/replacement program mandated by the 2008 Legislature. It is also important, however, to improve the performance of the highway system in order to preserve essential regional mobility levels for the region's economic vitality and quality of life.

Mn/DOT's 2009 Statewide Transportation Plan estimates that statewide trunk highway investment needs exceed $65 billion over the next 20 years, while projected revenues total only about $15 billion – resulting in a gap of about $50 billion statewide. About $40 billion of this funding gap is for mobility needs in the metro area and on interregional corridors in Greater Minnesota. As the Mn/DOT plan acknowledges, it is unrealistic to expect that future transportation funding will increase to meet the $50 billion "unmet need." In fact, that plan estimates that meeting just 5 percent of this $50 billion gap – or $2.5 billion – over the next 10 years would require the equivalent of a 12.5-cent per gallon increase in the motor vehicle fuel tax.

The statewide transportation plan's policies and strategies, therefore, emphasize a new approach to meeting system improvement needs. This is especially evident in the plan's vision for mobility in the metro area, which calls for "a more comprehensive and fiscally realistic approach to congestion mitigation."

While traffic congestion impacts can and should be mitigated, physical, social and environmental constraints as well as the limited funds available for capacity expansion must be recognized.

Five major objectives to mitigate congestion on the region's roadway system and enhance its performance should be pursued:

- Increase the people-moving throughput
- Manage and optimize the existing system, to the greatest extent possible
- Manage future demand
- Increase trip reliability, and
- Minimize travel time

In order to achieve the above objectives, this plan recommends emphasizing a system-wide management approach with the following strategies:

- Implement an Active Traffic Management (ATM) program on a system-wide basis.
- Construct lower-cost/high-benefit highway improvements on a system-wide basis to improve traffic flow by removing bottlenecks, improving geometric design and minimizing safety hazards on the Regional Highway System.
- Develop a system of managed lanes to move more people, more reliably and provide more capacity within existing right-of-way, while providing greater speed and reliability for transit which also benefits freight and people movement in the adjacent general purpose lanes.
- Implement strategic capacity expansion in the form of general purpose lanes.
- Implement non-freeway trunk highway improvements consistent with the investments above.
- Support other strategies including Travel Demand Management (TDM), transit investments and land use changes, to reduce future demand on the Metropolitan Highway System.

Fully funding these investment strategies is beyond the fiscal constraint of this plan. As additional funds are sought and become available, they should be used to more fully implement the highway investment vision articulated in this plan.

The system-wide management approach and associated strategies, together with the transit investment approach described in Chapter 7: Transit, constitute the policy basis for the federally required Congested Management Process (CMP). A more detailed discussion of the CMP is included in Chapter 5: Regional Mobility.

In 2009 and early 2010, Mn/DOT and the Metropolitan Council conducted a Metropolitan Highway System Investment Study (MHSIS), a MnPASS Part 2 Study, and other studies to refine in greater detail the managed lane highway vision, identify lower-cost/high-benefit projects along congested highway corridors, reassess major expansion projects and identify key investments on the Metropolitan Highway System by 2030 and beyond. The results of these studies are incorporated into this Transportation Policy Plan.

Additional needs in the developing portions of the region, including for new principal and "A" minor arterials, are also acknowledged in spite of current financial constraints.

This new highway vision is discussed in greater detail in Chapter 6: Highways.

The Transit Contribution

Transit is already a major contributor to regional mobility. Ridership has grown steadily since 2003 to 91 million rides in 2008. The numbers are on track for reaching the goal of doubling 2003 ridership (73 million rides) by 2030 (147 million rides). Key factors driving this growth include opening of the region's first modern rail transit line in 2004, increased park-and-rides and express service, higher fuel and parking prices, strong employment concentrations in the core cities and increasing congestion.

Transit is currently moving people through the most heavily traveled, typically congested highway segments during the morning peak hour. On some stretches, express buses carry as many as 30 to 40 percent of the people moving inbound during that peak 60-minute period.

In the future, transit will take on an even bigger role in moving people in the region. A network of transitways will allow travel that avoids congested lanes, connects regional employment centers, improves the reliability of riders' trips and boosts the potential for transit-oriented development.

Transitways can be commuter rail, light rail transit, express buses using corridors with transit advantages, and bus rapid transit (which can use dedicated busways, managed or priced lanes, bus-only shoulders and arterial street bus lanes).

Most of the corridors labeled as Tier 1 in the Council's 2004 plan are well underway. The Northstar Commuter Rail Line started operations between downtown Minneapolis and Big Lake in November 2009. Construction has begun on Central Corridor Light Rail, to connect the St. Paul and Minneapolis downtowns and the University of Minnesota, and it is expected to open in 2014. The Hiawatha Light Rail

Figure 2-3: Hiawatha LRT

Figure 2-4: Metro Transit Bus

Figure 2-5: Northstar Commuter Rail

Figure 2-6: BRT - U of M Campus Connector on Transitway

line, already operating between downtown Minneapolis and the Mall of America, has been extended to meet the Northstar Commuter Rail line at the Target Field Station and will need to shift from two- to three-car trains to expand its capacity. Also two Bus Rapid Transit (BRT) lines are under construction on highways south of downtown Minneapolis:

- I-35W, including a combination of a high-occupancy toll lane and a priced dynamic shoulder, from Lakeville to downtown Minneapolis, and
- Cedar Avenue, from Lakeville north to the Mall of America with express bus to downtown Minneapolis.

BRT uses buses incorporating a number of the premium characteristics of light rail or commuter rail to provide fast and reliable service.

Nine other potential transitway corridors are under consideration in this plan. According to the Council's Transit Master Study, two of them show good potential for light rail or a dedicated busway– Southwest, between Eden Prairie and Minneapolis, and Bottineau Boulevard, connecting the northwest suburbs with downtown Minneapolis. LRT was selected as the locally preferred alternative (LPA) for the Southwest Corridor by Hennepin County Regional Railroad Authority in early 2010 and amended into the Transportation Policy Plan by the Council in May, 2010. Bottineau Boulevard is under study, as is the Rush Line, the proposed link between Forest Lake and St. Paul. An alternatives analysis for Red Rock was completed, and bus improvements are currently being planned. An alternatives analysis will begin for the Gateway corridor (I-94 east) in fall 2010.

Four other promising transitway corridors - I-35W North, Highway 36/NE Corridor, Highway 65/Central Avenue/BNSF (Bethel/Cambridge), and Midtown should also be analyzed in the next few years to determine the most appropriate mode and alignment for implementation.

This plan assumes that one of these nine corridors will be implemented as a light rail line by 2020 and work begun on another LRT line to be completed shortly after 2020. It also anticipates that a third LRT line will be built by 2030. Based on current data, no corridor is projected to have enough ridership to justify investment in another commuter rail line. However, with Northstar now operational, it will be possible, after the regional Travel Behavior Inventory is completed, to reexamine current projections compared with actual ridership and determine whether or not ridership projections for other commuter rail corridors should be higher. Also the possible implementation of high speed rail lines to Chicago and Duluth may significantly reduce the capital costs of commuter rail in the Red Rock and Bethel/Cambridge corridors. Because these corridors may become viable under those changed assumptions, this plan also assumes implementation of a second commuter rail line between 2020 and 2030 in its cost estimates. The plan also calls for the implementation of four highway BRT corridors, in addition to 35W South and Cedar Avenue.

The implementation of the above transitway corridors converging in the two downtowns will require the development of two intermodal transit passenger facilities at the St. Paul Union Depot and the Minneapolis Interchange.

The **regular-route bus system** will evolve and expand as population, congestion and travel costs increase, as the region implements rail transit and as customer needs change. *Local routes* will benefit from expanded coverage and frequency. Arterial routes, on high-traffic arterial streets, will receive the highest level of local bus service with highly visible passenger facilities at major stops. *Express routes* will be enhanced and expanded in congested highway corridors. Some arterial and express routes will develop into bus rapid transit corridors. The plan identifies nine arterial streets which are good candidates.

Figure 2-7: Bike commuting is a growing mode choice in the region

Dial-a-ride services, including Metro Mobility, will be expanded as both the general population and the number of people with disabilities increases. Metro Mobility will continue to meet the requirements of the Americans with Disabilities Act by providing transit service to people with disabilities who cannot use the regular-route transit system. The Council will partner with local units of government to provide general-public dial-a-ride services in suburban and rural areas.

Other Transportation Modes

Walking and **bicycling** are part of the total transportation picture and work well for shorter, non-recreational trips. The Council provides planning guidance on land use issues related to bikeways and walkways, and with its Transportation Advisory Board, allocates federal funds to bicycle and pedestrian projects. The Council will continue to support and coordinate efforts to strengthen these modes.

Figure 2-8: Pedestrian facilities are an important component of multimodal transportation

The **freight movement system** and the **region's airports** connect the region to the rest the nation and the world. The Council will continue to work with Mn/DOT and monitor the issues confronting the freight industry. This plan contains the first major update of the aviation plan since 1996, and the Council will work with the Metropolitan Airports Commission to ensure adequate facilities for aviation users.

The region is able to draw on proven as well as innovative tools to achieve a transportation system that best meets current and future needs. No single solution will accomplish that goal, but taken together, coordinated and refined, they will keep the region moving and vital.

Chapter 2: Policies and Strategies

The purpose of this *Transportation Policy Plan* is to guide development of the region's transportation system to the year 2030 and to provide for an integrated multimodal transportation system that advances regional land use and growth management goals. This section contains policies and strategies to help achieve the regional vision as defined by the *Regional Development Framework*.

The Council develops broad action policies so regional issues are effectively addressed. Accompanying strategies provide specific methods for implementing those policies. The Council and other partners will implement the policies and strategies to bring about the transportation facilities and services called for in this plan. This chapter contains all of the policies and strategies. Particular policies and strategies are also repeated and if necessary expanded upon in the corresponding chapters of this plan, for instance the highway policies and strategies are contained in Chapter 6: Highways.

Transportation System Investment Policies

Policy 1: Ensure Adequate Resources for Transportation System Investments

The Metropolitan Council will identify and pursue an adequate level of resources for regional transportation investments. The first priority is to ensure that adequate resources are available to preserve, operate and maintain the existing systems and the second is to seek resources to address identified but unmet needs and demands.

Strategy 1a. Resources Available and Needed: The Metropolitan Council will identify (1) transportation resources currently available and reasonably expected to be available in the future, (2) the level of resources needed for transportation investments in preservation, operations and maintenance of existing systems and (3) resources required to meet unmet needs and demands.

Strategy 1b. Adequate Resources: The Metropolitan Council, working with the Governor, Legislature, local governments and others will pursue an adequate level of transportation resources to preserve, operate and maintain existing systems and to meet identified unmet needs.

Policy 2: Prioritizing for Regional Transportation Investments

The priorities for regional transportation investments are to adequately preserve, operate and maintain existing transportation systems and to make additional transportation investments on the basis of need and demand consistent with the policies, strategies and priorities of this policy plan and the *Regional Development Framework.*

Strategy 2a. System Preservation: The first priority for transportation investments for all modes is the preservation, operation and maintenance of existing systems and facilities.

Figure 2-1: Transit ridership is increasing, with investments being made to the system to meet the goal of doubling ridership by 2030.

Strategy 2b. Highway System Investments: After preservation, operations and maintenance, the second priority for highway system investments is to effectively manage the system and third is expansion that optimizes the performance of the system.

Strategy 2c. Transit Capital and Operating Investments: After preservation, operations and maintenance of the existing transit system, regional transit capital and operating investments will be made to expand the local and express bus system and develop a network of rail and bus transitways to meet the 2030 goal of doubling transit ridership and 2020 goal of a 50% ridership increase.

Strategy 2d. Bicycle and Pedestrian Investments: The Council will encourage roadway and transit investments to include provisions for bicycle and pedestrian travel. Funding priority for separate bicycle and pedestrian improvements will be based on their ability to accomplish regional transportation objectives for bicycling and walking.

Strategy 2e. Multimodal Investments: Criteria used by the region to prioritize projects for federal funding will encourage multimodal investments. Examples of such investments include bus-only shoulders, high-occupancy vehicle and high-occupancy toll (HOV/HOT) lanes, priced dynamic shoulder lanes, HOV bypasses at highway interchanges, bicycle and pedestrian connections to transit stations and corridors and rail/truck intermodal terminals.

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 Transportation Policy Plan as the Congestion Management Process (CMP) 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.

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.

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.

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).

Figure 2-2: Monitoring and mitigating congestion will continue to be a priority

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.

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.

Policy 4: Coordination of Transportation Investments and Land Use

Regional transportation investments will be coordinated with land use objectives to help implement the *Regional Development Framework's* growth strategy and support the region's economic vitality and quality of life.

Strategy 4a. Accessibility: The Council will promote land use planning and development practices that maximize accessibility to jobs, housing and services.

Strategy 4b. Alternative Modes: Transportation investments and land development will be coordinated to create an environment supportive of travel by modes other than the automobile including travel by transit, walking and bicycling.

Strategy 4c. Increased Jobs and Housing Concentrations: Transportation investments and land development along major transportation corridors will be coordinated to intensify job centers, increase transportation links between job centers and medium-to-high density residential developments and improve the jobs/housing connections.

Strategy 4d. Transit as Catalyst for Development: 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. Local units of government are encouraged to develop and implement local comprehensive plans and zoning and community development strategies, including parking policies, that ensure more intensified development along transitways and arterial bus routes.

Strategy 4e. Local Comprehensive Plans: Local comprehensive plans must conform to the *Transportation Policy Plan* and should recognize the special transportation opportunities and problems that various *Development Framework* planning areas present with regard to transportation and land uses.

Strategy 4f. Local Transportation Planning: Local governments should plan for and implement a system of interconnected arterial and local streets, pathways and bikeways to meet local travel needs without using the Regional Highway System. These interconnections will reduce congestion, provide access to jobs, services and retail, and support transit.

Strategy 4g. Metropolitan Urban Service Area (MUSA): Local governments within the MUSA should plan for a prospective 20 years and stage their transportation infrastructure to meet the needs of forecast growth. Outside the Metropolitan Urban Service Area transportation plans and facilities and land use patterns must be compatible with the region's need for future sewered development and protection of agriculture.

Policy 5: Investments in Regional, National and Global Connections

The Metropolitan Council, Mn/DOT and other agencies will pursue transportation investments that will strengthen the Twin Cities connections with other regions, the nation and other countries and contribute to the economic development and competitiveness of the Twin Cities region.

Strategy 5a. Interregional and National Highway Connections: Mn/DOT, the Council and other agencies will pursue a strong and efficient highway system that connects travelers and freight with other regions in Minnesota and other states.

Strategy 5b. Intercity Passenger Rail and Bus Connections: Mn/DOT, the Metropolitan Council and other agencies will pursue improved regional and national connections using alternative transportation modes such as intercity passenger rail (including high-speed rail) and bus service.

Figure 2-3: Work will be done to maintain Minneapolis-St. Paul airport as a major passenger hub.

Strategy 5c. Freight Connections: Mn/DOT, the Metropolitan Council and other agencies will pursue improved freight connections between the Twin Cities and other regions through improved state highways, interregional rail service, a strong air freight system and the Mississippi River system.

Strategy 5d. Connections by Air: The Metropolitan Airports Commission (MAC), the Metropolitan Council, Mn/DOT and other agencies will work to maintain a strong airport system, including maintaining the Minneapolis-St. Paul airport as a major passenger hub.

Policy 6: Public Participation in Transportation Planning and Investment Decisions

The Council and its regional partners will promote public participation in formulating transportation policy, developing transportation plans and making transportation investment decisions.

Strategy 6a. Public Participation: The Metropolitan Council, the Transportation Advisory Board and Mn/DOT will foster a variety of public participation activities and methods to communicate with the public to solicit broad participation, comment, review and debate on proposed plans and implementation proposals.

Strategy 6b. Interjurisdictional Coordination and Participation: The Council will coordinate with cities, counties and government agencies in planning and implementing regional investment and policy through the Transportation Advisory Board and its Technical Advisory Committee and subcommittees, as well as by participating in some local planning initiatives and providing technical assistance.

Strategy 6c. Participation of Underrepresented Populations: The Council will recruit representatives of groups traditionally underrepresented in regional policymaking and provide enhanced participation opportunities to encourage people who belong to underrepresented groups to share their unique perspectives, comments and suggestions.

Strategy 6d. Public Awareness of Transportation Issues: The Council will utilize a variety of media and technologies to actively engage and inform the public regarding important transportation issues.

Strategy 6e. Transit Customer Involvement: The Council will continue to solicit community, municipal and customer involvement in transit planning and service restructuring to ensure that transit is tailored to meet community needs and markets for travel.

Policy 7: Investments in Preserving of Right-of-Way

Rights-of-way for future transportation infrastructure are difficult to obtain, and as they become available should be preserved as corridors for public use. The Council will facilitate and promote cooperation among the implementing agencies regarding funding priorities, ownership, maintenance and near- and long-term use of linear rights-of-way.

Figure 2-4: Transportation options are an important design consideration for all investments

Strategy 7a: Preservation of Railroad Rights-of-Way: The Council will support an interagency approach to preserving abandoned railroad rights-of-way which can accommodate a variety of public uses for transportation, recreation and habitat preservation.

Strategy 7b: Right-of-Way Acquisition Loan Fund (RALF): The Council's Right-of-Way Acquisition Loan Fund will be used to preserve right-of-way for the highway projects consistent with this policy plan.

Strategy 7c. Identification of Right-of-Way in Local Plans: Local transportation plans should identify future right-of-way needs for roads, transit, bikeways and walkways and describe procedures to preserve them, including official mapping.

Policy 8: Energy and Environmental Considerations in Transportation Investments

Transportation planning and investment decisions will consider and seek to minimize impacts on the environment.

Figure 2-5: Parks represent a long standing value of Twin Cities residents

Strategy 8a. Reduction of Transportation Emissions: The Council will promote strategies to reduce transportation emissions of pollutants identified in the federal Clean Air Act and its amendments.

Strategy 8b. Compliance with Federal Standards: Projects that help the region maintain compliance with federal air quality standards will have funding priority over projects that do not.

Strategy 8c. Preservation of Cultural and Natural Resources: Regional transportation projects should give special consideration to the preservation and enhancement of the region's cultural and natural resources, and should be consistent with regional plans and policies for parks and open space to the extent feasible.

Strategy 8d. Protection of Surface Water: The Council will work to ensure that surface water management programs and policies are implemented in the metropolitan area when transportation facilities are planned and implemented.

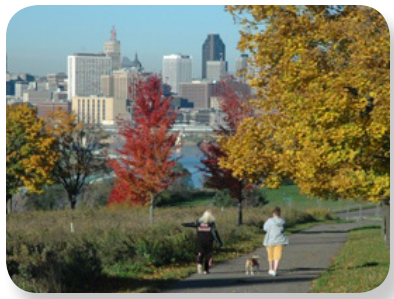


Figure 2-6: Transportation projects must adhere to federal standards, such as air quality

Strategy 8e. Reduction of Greenhouse Gas Emissions: The Council will support and implement initiatives to reduce greenhouse gas emissions including programs that reduce the impact of transit on energy usage and the environment such as Metro Transit's "Go Greener" initiative.

Strategy 8f. Transit Priority for Fuel: In times of limited resources, the Council will advocate that transit be given priority for available fuel.

Figure 2-7: New fuel options are already being implemented

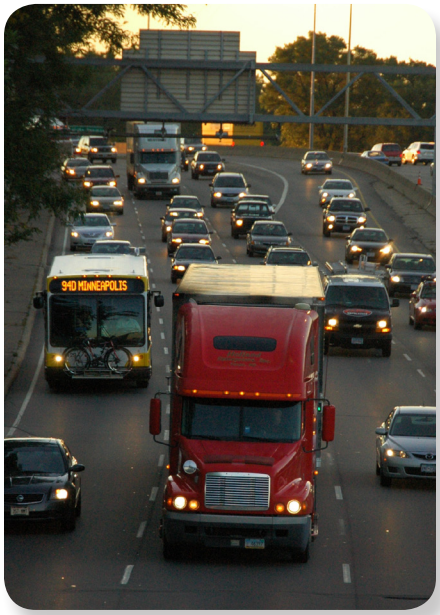


Figure 2-8: A highway is a multimodal facility capable of carrying cars, buses and trucks.

Figure 2-9: HOT lanes represent a method to add market forces to manage congestion.

Highway System Policies

Policy 9: Highway Planning

The Council, Mn/DOT, and local governments will plan the Metropolitan and Regional Highway Systems and local roads to provide a cost-effective, multimodal and safe roadway system that reflects the needs of a growing population and economy.

Strategy 9a. Planning in the Context of Congestion: The Council, Mn/DOT and local units of government will plan for the Metropolitan Highway System with the understanding that congestion will not be eliminated or significantly reduced. However, congestion should and can be mitigated if travel alternatives are provided, travel demand patterns are changed and appropriate land use configurations are implemented.

Strategy 9b. Multimodal System: The Council, Mn/DOT, local governments and transit providers will plan for and implement a multimodal roadway system. Highway planning and corridor studies will give priority to alternatives that include high-occupancy vehicle (HOV) and managed lanes (high-occupancy toll (HOT) lanes, bus-only shoulders, priced dynamic shoulder lanes) and other transit advantages that help mitigate congestion.

Strategy 9c. Optimize Metropolitan Trunk Highways: The Council, working with Mn/DOT, will define the most cost-effective techniques and types of projects to optimize the performance of the highway system as measured by person, rather than vehicle, throughput. Optimization techniques and projects will maximize utilization of existing system capacity, pavement and right-of-way and may include, but are not limited to, managed lanes such as high-occupancy vehicle and toll (HOV/HOT) lanes, bus-only shoulders and priced dynamic shoulder lanes.

Strategy 9d. Congestion Management Process: A Congestion Management Process (CMP) that meets federal requirements is included in this plan (Chapter 5 Regional Mobility). The CMP incorporates and coordinates the various activities of 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.

Strategy 9e. Interconnected Roadway Network: Local and county governments shall plan a system of multimodal interconnected collector roads and minor arterials to serve short and medium-length trips.

Strategy 9f. Roadway Jurisdiction: The agency with jurisdiction over, and responsibility for a roadway should be matched to the role the roadway plays in the regional roadway system. For example, Mn/DOT should be responsible for principal arterials.

Strategy 9g. Corridor Studies: Any corridor study or sub-area study focused on a trunk highway and conducted by a local government or interagency task force must be accepted by Mn/DOT and

Figure 2-10: Road maintenance will continue to be a high priority in the region

adopted by the Metropolitan Council as consistent with this policy plan prior to implementing the study recommendations or making regional highway investments.

Strategy 9h. Context-Sensitive Design: All new and reconstructed roads will be planned and designed in a way that protects and enhances the environment and is sensitive to community attributes and objectives.

Strategy 9i. Coordination with Adjacent Counties: The Council will work cooperatively with Mn/DOT, adjacent area transportation partnerships and local units of government to support connections between the Metropolitan Highway System and the counties surrounding the seven-county metropolitan area.

Policy 10: Preserve, Operate and Maintain the Metropolitan Highway System

A high priority for the region is to continue focusing highway investments toward the safe operation, preservation and maintenance of the Metropolitan Highway System.

Strategy 10a. Budget for Preservation: Mn/DOT should regularly budget adequate resources for existing facilities preservation, operations and maintenance to fully utilize the design life and minimize the investment required over the life-cycle of facilities.

Strategy 10b. Diversified Investments: Mn/DOT should strive to meet its preservation performance targets while also recognizing the need for a diversified investment plan that allows for safety and congestion mitigation so as to optimize system performance.

Strategy 10c. Integrate Preservation with Congestion Mitigation and Safety: Mn/DOT should regularly review planned preservation and maintenance projects to determine if there are opportunities to include lower-cost congestion mitigation and safety improvements.

The existing process to identify opportunities to integrate preservation projects with congestion mitigation and safety projects is more important than ever. A similar approach should be used by cities and counties as they undertake local highway projects.

Policy 11: Highway System Management and Improvements

The Metropolitan Highway System and “A” minor arterial system will be managed and improved to provide for maximum person throughput, safety and mobility using existing facility capacity, pavement and right-of-way where feasible.

Strategy 11a. Investments in Managing the Highway System: After preservation, operations and maintenance, investments to manage and optimize performance of the highway system and improve safety are the region’s next highest priority.

Strategy 11b. Embracing Technology: The Council and Mn/DOT will use and implement cost-effective technology solutions to manage and optimize the performance of the existing highway system as measured by person throughput.

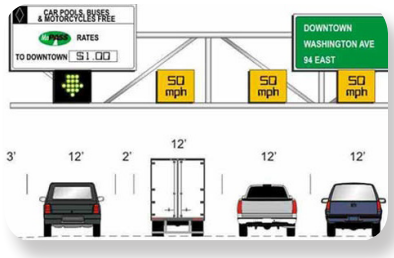


Figure 2-11: Technology represents one method to mitigate congestion

Strategy 11c. Affect Travel Patterns: The Metropolitan Highway System should be managed with the understanding that congestion may be mitigated with greater efficiencies in the highway system performance and changes in travel patterns.

Strategy 11d. Optimize Highway System Performance: Mn/DOT and the Council will implement techniques to optimize performance of metropolitan highway facilities as measured by person throughput. These optimization projects will maximize use of existing facility capacity, pavement and right-of-way and may include, but are not limited to, implementation of HOV and HOT lanes, priced dynamic shoulders and other roadway pricing initiatives, freeway ramp meters with HOV bypasses, and bus-only shoulders.

Strategy 11e. Access Management: State, county and local governments will manage access to the Regional Highway System. The capacity, safety, and utility of principal and "A" minor arterials are dictated in large part by how access to these roadways is provided and managed. Managing the location and design and new or reconstructed street and driveway connections to these arterials is a key strategy to preserve the existing capacity and enhance the safety of these roadways. Managing access consistently throughout the system will require a cooperative effort among Mn/DOT, counties, cities and townships. (See Appendix D and E)

Strategy 11f. Pricing: The Council supports roadway pricing, including HOT lanes and priced dynamic shoulder lanes, to provide an alternative to congestion and will consider implementing pricing on any expansion project.

Strategy 11g. Highway Expansion: Strategic capacity expansion projects can mitigate congestion in the region. Because of financial constraints, however, highway expansion projects should not be implemented at the expense of system preservation and management.

Transit System Policies

Policy 12: Transit System Planning

Regional transit providers should plan, develop and operate their transit service so that it is cost-effective, reliable and attractive, providing mobility that reflects the region's diverse land use, socioeconomic conditions and travel patterns and mitigating roadway congestion with the goal of doubling regional transit ridership by 2030 and a 50% increase in ridership by 2020.

Figure 2-12: In areas of lower population and employment density, express bus service from park-and-ride locations provides transit options for commuters.

Strategy 12a. Transit Services Tailored to Diverse Markets: Diverse transit markets need different transit service strategies, service hours, operating frequencies, and capital improvements. To tailor transit service to these diverse market needs, regional transit providers will follow the standards and service delivery strategies as outlined in Appendix G: Transit Market Areas and Service Standards.

Strategy 12b. Transit Service Options: Transit providers will pursue a broad range of transit service options and modes to match transit services to demand.

Figure 2-13: Hiawatha LRT is integrated with the bus system to provide easy transfers to other modes.

Strategy 12c. Transit Centers and Stations: Regional providers will plan and design a transit network that utilizes Transit Centers and Stations to connect various types of transit service options. Transit Centers and Stations will also link transit to local land use and enable the network to provide efficient service to a wider geographic area through timed transfers.

Strategy 12d. Park-and-Rides: Transit providers will work with cities to expand regional park-and-ride facilities to support service expansion as expected growth occurs within express corridor areas and along dedicated transitways.

Strategy 12e. Underrepresented Populations: Regional transit providers will continue to ensure their transit planning fairly considers the transit needs of all populations and is compliant with the environmental justice directives outlined in various federal legislation, including Title VI of the Civil Rights Act of 1964 and the National Environmental Policy Act.

Policy 13: A Cost-Effective and Attractive Regional Transit Network

Regional transit providers will preserve, operate, maintain and expand the transit system in a cost-effective manner that optimizes existing and future investments. The Council will continue to improve transit service coordination, travel speed, passenger safety, financial incentives and customer amenities to make the system more attractive, visible, travel time competitive and user-friendly.

Strategy 13a. Coordination Among Services: The Council will promote coordination among the different transit services provided by various authorities throughout the region to ensure that the overall regional transit system functions as a seamless and user-friendly regional network, and to avoid inefficiencies and duplication.

Strategy 13b. Transit Fare Structure: The Council will support a regional transit fare structure that balances ridership and fare revenue, relates the fare to the cost of providing service and to other transportation costs, is easy to understand and administrate, and convenient to use.

Strategy 13c. Marketing Transit: The Council will increase the value, benefits and usage of transit services through a variety of advertising and promotional programs. Annual transit marketing plans will be developed by the Council based on input from stakeholders.

Strategy 13d. Transit Technologies: The Council and regional providers will implement new technologies to improve customer information, service reliability and the delivery of transit service.

Strategy 13e. Transit Safety and Security: Working with transit operators and communities, the Council will continue striving to provide a secure and safe environment for passengers and employees on vehicles and at transit facilities through provision of transit police services, employee awareness, public education, security partnerships and security investments.

Strategy 13f. Ridesharing: The Council will promote programs that encourage shared vehicle usage including carpooling, vanpooling and car sharing.

Policy 14: Transit System Operations and Management

The regional transit providers will promote innovation, efficiency, flexibility and greater diversity of options in operating and managing transit services.

Figure 2-14: The Hiawatha LRT facilities have spawned new development in the adjacent neighborhoods

Strategy 14a. Competitively Procured Services: Some transit services within the region will be competitively procured to increase flexibility, potentially reduce costs, maximize efficiencies and enhance service effectiveness.

Strategy 14b. Jointly Procured Services and Products: The Council will promote and facilitate the joint procurement of goods and services among providers to improve the coordination of transit service and increase cost-effectiveness.

Strategy 14c. Service Improvement Plan: Every two years, regional transit providers in consultation with customers and stakeholders, will prepare a short-term Service Improvement Plan that identifies their priorities for transit service expansion over the following two to four years. The plans will be submitted to the Council, which will prepare a Regional Service Improvement Plan.

Strategy 14d. Review Service Performance: All providers will review their transit service annually based on the performance standards outlined in Appendix G to ensure operational efficiency and consistency. Providers will annually submit their performance reviews to the Council for inclusion in a regional service performance review.

Strategy 14e. Fleet and Facilities Policy: The Council will develop and maintain policies, in consultation with regional providers, CTIB and other partners, to guide investments in regional fleet and facilities.

Policy 15: Transitway Development and Implementation

As one element of an overall transit network, the Metropolitan Council will strongly pursue, in coordination with CTIB, county regional railroad authorities and transit providers, the cost-effective implementation of 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.

Strategy 15a. Transitway Modes: Transitway modes will include commuter rail, light rail, bus rapid transit, and express buses with transit advantages. Other transitway technologies may be considered as they become proven, reliable and cost-effective. Intercity passenger rail services could develop rail improvements that could also be used by commuter rail transitways within the region.

Strategy 15b. Criteria for Transitway Selection: Transitway investment decisions will be based on factors such as ridership, mobility improvements, operating efficiency and effectiveness, environmental impacts, regional balance, economic development impacts and cost-effectiveness. Readiness, priority and timing will be considered when making transitway investments, as will local commitment to transitway implementation and land use.

Strategy 15c. Process for Transitway Selection: Every transitway corridor will be studied in-depth before investments are made. Every potential commuter rail and light rail project will undergo an alternatives analysis and develop an environmental impact statement before seeking funding for implementation. All bus rapid transit corridors will be studied and a range of implementation alternatives developed.

Strategy 15d. Transitway Coordination: Transitway implementation will be coordinated with other transit, highway, bicycle and pedestrian projects, facilities, and investments.

Strategy 15e. Enhanced Transit Service Along Transitways: 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.

Strategy 15f. Transitway Coordination with Other Units of Government: The Council will coordinate transitway planning and implementation with other jurisdictions including Mn/DOT, CTIB, regional railroad authorities, local units of government and transit providers.

Strategy 15g. Transitways and Development: The Council will work with local units of government to ensure that transitways promote efficient development and redevelopment.

Strategy 15h. Transitway Operations: Transitway infrastructure investments will not occur unless operating funds have been identified.

Policy 16: Transit for People with Disabilities

The Council will provide transit services for persons with disabilities in full compliance with the 1990 Americans with Disabilities Act including the accessible regular-route transit system, comparable ADA, and other dial-a-ride programs.

Figure 2-15: Metro Mobility satisfies federal ADA requirements

Strategy 16a. Accessible Vehicles: The Council will ensure that all new transit vehicles and facilities will be accessible to persons with disabilities.

Strategy 16b. Provide Comparable Service: Paratransit service comparable to the region's local regular-route transit system will be provided to individuals who are certified by the Council under the Americans with Disability Act (ADA).

Figure 2-16: Metro Mobility provides over 1.2 million regional trips a year

Strategy 16c. Access to Transit Stops and Stations: Local communities and transit providers shall coordinate their efforts to assure that all fixed-route transit stops are accessible year-round, including snow removal.

Strategy 16d. Transfers Between Fixed-Route and ADA Services: The Council will encourage transfers between regular-route services, dial-a-ride and ADA paratransit services utilizing transit centers and rail stations as transfer points.

Other Surface Transportation Policies

Policy 17: Providing for Regional Freight Transportation

The region will maintain an effective and efficient regional freight transportation system to support the region's economy.

Strategy 17a. Freight Terminal Access: The Council will work with its partners to analyze needs for freight terminal access.

Strategy 17b. Congestion Impacts on Freight Movement: The Council will work to reduce the impacts of highway congestion on freight movement.

Policy 18: Providing Pedestrian and Bicycle Travel Systems

The Council, state, and local units of government will support efforts to increase the share of trips made by bicycling and walking and develop and maintain efficient, safe and appealing pedestrian and bicycle transportation systems.

Strategy 18a. Bicycle and Pedestrian Regional Investment Priorities: The Council will prioritize federal funding for bicycle and pedestrian improvements based on their ability to accomplish regional transportation objectives for bicycling or walking in a cost-effective manner and improving access to major destinations.

Figure 2-17: The Council will prioritize federal funding allocated for bike and pedestrian improvements
Bike lockers at regional park-and-ride

Strategy 18b. Connectivity to Transit: Recognizing the importance of walking and bicycling to a multimodal transportation system, the Council will strongly encourage local units of government to develop a safe and attractive pedestrian environment near major transit corridors and stations with linkages for pedestrians and bicyclists from origins and destinations to buses and trains.

Strategy 18c. Local Planning for Bicycling and Walking: The Metropolitan Council encourages local planning for bicycle and pedestrian mobility by requiring that a local bicycle or pedestrian project must be consistent with an adopted plan to be considered eligible for federal transportation funding.

Strategy 18d. Interjurisdictional Coordination: The Metropolitan Council, along with local and state agencies, will coordinate planning efforts to develop efficient and continuous bikeway systems and pedestrian paths, eliminate barriers and critical gaps and ensure adequate interjurisdictional connections and signage.

Strategy 18e. Complete Streets: Local and state agencies should implement a multimodal roadway system and should explicitly consider providing facilities for pedestrians and bicyclists in the design and planning stage of principal or minor arterial road construction and reconstruction projects with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians in the travel corridor.

Strategy 18f. Education and Promotion: The Council encourages educational and promotional programs to increase awareness of and respect for the rights of pedestrians and bicyclists by motorists and to educate bicyclists on the proper and safe use of public roadways.

Aviation Policies

Policy 19: Aviation and the Region's Economy

Availability of adequate air transportation is critical to national and local economies in addressing globalization issues and airline alliances that have increased competition and the need for improved international market connectivity.

Strategy 19a. MSP as a Major Hub: Public and private sector efforts in the region should focus on continued development of MSP as a major international hub.

Strategy 19b. Region as Aviation Industry Center: State and regional agencies, in cooperation with the business community, should define efforts to be a major aviation-industry center in terms of employment and investment, including the ability to compete for corporate headquarters and specialized functions.

Strategy 19c. Air Passenger Service: The MAC should continue to pursue provision of a mix of service by several airlines with frequent passenger flights at competitive prices to all regionally-preferred North American markets and major foreign destinations.

Strategy 19d. Air Cargo Service: The MAC should pursue provision of air cargo infrastructure and air service for the region with direct air freight connections to import/export markets providing trade opportunities for the region's economy.

Strategy 19e. Provide State-of-the-Art Facilities: State-of-the-art facilities should be made available by airport sponsors at the region's airports, commensurate with their system role, to induce additional aviation services and provide additional jobs, thereby enhancing the region's economy.

Strategy 19f. Competition and Marketing: Decisions by aviation partners on provision of facilities and services to improve regional economic capabilities, should be based upon periodic updating and refinement of airport economic impact studies and surveys, a MAC commercial air-service competition plan and on-going airport marketing efforts.

Policy 20: Air and Surface Access to Region's Airports

Provision of adequate local access by air service providers and system users to the region's airports is essential to realizing the advantages of air transportation to the region's businesses and citizens.

Strategy 20a. Use of Technology: Airport sponsors should provide facilities that are safe and secure, affordable and technologically current for all facets of the aviation industry.

Strategy 20b. User Friendly: Airport sponsors and service providers should make flying convenient and comfortable for everyone using regional aviation facilities.

Strategy 20c. Airport Service Area Access: The Council will work with Mn/DOT, counties and airport sponsors to achieve high-quality multimodal ground accessibility, appropriate to the airport's role and function, to all portions of each airports service area within regionally defined travel times.

Policy 21: Consistency with Federal and State Plans/Programs

The planning, development, operation, maintenance and implementation of the regional aviation system should be consistent with applicable Federal and State aviation plans and programs.

Strategy 21a. Project Eligibility: Project sponsors, to improve chances of successful outcomes, should meet funding eligibility requirements, design standards and operational considerations.

Strategy 21b. Consider Alternatives: Project sponsors need to consider impacts of alternatives, such as telecommunications and other travel modes, in regional aviation planning and development.

Strategy 21c. Responding to National Initiatives: Project sponsors need to include the following in their planning and operational activities;

- Environmental sustainability efforts.
- Security needs as identified by National Homeland Security through the Transportation Security Administration.

Policy 22: Airport Development Plans

Long-term comprehensive plans (LTCPs) should be prepared by the airport sponsor for each system airport according to an established timetable and with required contents as defined in this policy plan.

Strategy 22a. Preparing LTCPs: Regional aviation facilities are under different types of public and private ownership. Therefore, the scope, application and content, for preparation of a LTCP is defined for different sponsors in this TPP.

Strategy 22b. Updating/Amending LTCPs: The LTCP should be periodically updated according to the timetable established in this TPP. If a substantial change to the approved plan is recommended and cannot be addressed as part of the periodic update it should be amended.

Strategy 22c. Transitioning the Airport: The development of system airports must be carried out in a way that allows for continued growth in operations and uninterrupted services for an overall smooth transition to new, expanded or enhanced facilities. Airport LTCPs should describe how this will be accomplished.

Strategy 22d. Providing Metro Services: Airports straddling the boundary between the rural service area and the MUSA should be included in the MUSA so metropolitan facilities and services can be provided when they are available.

Policy 23: Agency and Public Coordination

The regional aviation planning partners will promote public participation and awareness of aviation issues including involvement of non-traditional populations, system users and individuals.

Strategy 23a. Enhance Public Awareness: The region's aviation partners will utilize a variety of media and technologies to bring aviation planning into the mainstream of public decision-making so all interested persons have an opportunity to participate in the process and become acquainted with major development proposals.

Strategy 23b. Governmental Roles Defined: The region's aviation partners will have a regional aviation management system that clearly defines government roles and responsibilities for planning, development, operations, environmental mitigation and oversight.

Policy 24: Protecting Airspace and Operational Safety

Safety is the number one priority in the planning and provision of aviation facilities and services. Local ordinances should control all proposed structures 200 feet or more above ground level at the site to minimize potential general airspace hazards.

Strategy 24a. Notification to FAA: The local governmental unit is required to notify the Federal Aviation Administration (FAA) prior to approving local permits for proposed tall structures.

Strategy 24b. Locating Tall Structures: Structures over 500 feet tall should be clustered, and no new structures over 1,000 feet tall should be built in the region unless they are replacements or provide for a function that cannot otherwise be accommodated.

Strategy 24c. Airport/Community Zoning: Joint Airport/Community Zoning Boards should be established at each of the region's system airports to develop and adopt an airport safety zoning ordinance.

Policy 25: Airports and Land Use Compatibility

In areas around an airport, or other system facilities, land uses should be compatible with the role and function of the facility . The planning, development and operation of the region's aviation facilities must be conducted to minimize impacts upon the cultural and natural environment, regional systems and airport communities.

Strategy 25a. Surface-Water Management: Airport LTCPs should include a plan for surface-water management that contains provisions to protect surface and groundwater. The LTCP must be consistent with plans of watershed management organizations and the state wetland regulations. The water management plan should also include provisions to mitigate impacts from construction and include the pretreatment of runoff prior to being discharged to surface waters.

Strategy 25b. Protecting Groundwater Quality: Airport LTCPs should include a management strategy to protect groundwater quality that indicates proposed policies, criteria and procedures for preventing, detecting and responding to the spill or release of contaminants on the site. The plans should identify the location, design and age of individual/group/central sewer systems on-site and all well location sites, and evaluate system deficiencies and pollution problems.

Strategy 25c. Providing Sanitary Sewer: Airport LTCPs should include detailed proposals for providing sanitary sewer services. Reliever airports should be connected to the sewer system when service is available near the airport. Whenever connecting is not practical, the airport owner and the local governmental units must adopt and implement ordinances and administrative and enforcement procedures that will adequately meet the need for trouble-free on-site sewage disposal in accordance with the Council's guidelines in its water resources management policy plan.

Strategy 25d. Monitoring Air Quality: The MAC should periodically evaluate the air quality impacts of MSP operations and report to the Council on air quality problems or issues through the MAC annual environmental review of the capital improvement program.

Strategy 25e. Aircraft Noise Abatement and Mitigation: Communities and aviation interests should work together on noise abatement and mitigation. Local comprehensive plans and

ordinances for communities affected by aircraft noise should incorporate the Land Use Compatibility Guidelines for Aircraft Noise.

Policy 26: Adequate Aviation Resources

Public investments in air transportation facilities should respond to forecast needs and to the region's ability to support the investments over time.

Strategy 26a. Maximize Existing Investments: Airport sponsors should maintain and enhance existing facilities to their maximum capability, consistent with the *Development Framework*, prior to investing in new facilities.

Strategy 26b. Quality, Affordable Services: Airport sponsors and air-service providers should establish airport business plans and agreements in order to deliver high-quality services at affordable prices to users.

Strategy 26c. Long-Term Financial Plan: Airport sponsors should operate within a long-term financial plan that stresses maximizing non-regional funding sources, avoiding or minimizing financial impacts on regional taxpayers and maintaining a high bond rating for aviation improvements.

Chapter 3: Regional Transportation Finance

This chapter examines the sources of funding for transportation investments in the coming years. It describes recent legislative actions that have changed the transportation revenue outlook, identifies funding issues that continue to face the region, includes policies and strategies that will guide regional transportation investments over the next two decades and assesses the level of revenues that will be available for highway and transit purposes. Chapter 6: Highways and Chapter 7: Transit provide a broad plan for expending these revenues to 2030.

The lack of adequate funding was identified in the Council's *2030 Transportation Policy Plan* adopted in 2004 as the most significant transportation problem facing the region and, despite the 2008 changes in state financing for highways and transit, it remains a significant issue.

Recent Funding Developments

A constitutional amendment passed in 2006 and an omnibus transportation funding bill, Chapter 152, passed by the Legislature in 2008 will result in new revenues for transportation purposes in the coming decades. The constitutional amendment dedicated state Motor Vehicle Sales Tax (MVST) revenues for transportation investment purposes, and Chapter 152 increased the state gas tax and vehicle registration tax and established a quarter cent sales tax for transit. Given this recent state legislation, large additional increases in state funds for transportation are unlikely in the next few years.

At the federal level, the six-year transportation funding bill was scheduled for reauthorization in 2009, but as of 2010, no bill had yet been passed by Congress. The new bill offers some potential for higher levels of federal highway and transit funds; however, it is not predicted that the new revenues will be sufficient to alter the policy direction of this plan.

The lack of a federal reauthorization bill with increased transportation funding has in part been off-set by the establishment of new one-time federal funding programs that emphasize specified outcomes. In 2009, a federal bill known as the American Reinvestment and Recovery Act (ARRA) provided a substantial one-time influx of funds for both highways and transit with the primary emphasis being on job creation to stimulate the nation's economy. The bill provided approximately $250 million for the region's state and local highways and $70 million for metropolitan transit purposes. Other one-time federal funding opportunities have also been available in 2009 and 2010 including the TIGER I (Transportation Investments Generating Economic Recovery), and TIGER II discretionary grant programs, and the HUD Sustainable Communities grants which all have an emphasis on economic development opportunities, livability and sustainability. The region was successful in obtaining a $35 million TIGER grant for the Union Depot project. It is anticipated that if a federal bill is not passed in the near future these one-time grant opportunities will continue to offer a potential source of increased transportation funding. The region should seek to obtain these competitive funds for projects consistent with the priorities and policy direction of this plan.

Figure 3-1: MVST will be phased in from FY 2008 to FY 2012

MVST Revenue Dedication

Motor vehicle sales tax revenues (MVST) are the revenues derived from the state's current 6.5 percent tax on the sale of new and used motor vehicles. Prior to fiscal year 2008, 54.75 percent of the total MVST revenues were statutorily dedicated to transportation purposes. The remaining MVST revenues were deposited in the state's general fund.

The constitutional amendment established a five-year phased-in dedication of MVST revenues so that by fiscal year 2012, 100 percent of the revenues would be dedicated with at least 40 percent to transit and not more than 60 percent to highway purposes. Subsequent to passage of the amendment, the Legislature statutorily specified how the revenues would phase-in and how the revenues would be allocated – 40 percent to transit (36 percent to metropolitan area transit and four percent to Greater Minnesota transit) and 60 percent to the highway user fund in 2012.

A schedule of the phased-in dedication is shown in Table 3-2. Beginning in fiscal year 2008 (July 1, 2007 - June 30, 2008), the phase-in of the MVST dedication began and the revenues will be 100 percent dedicated to transportation by July 1, 2011 (FY 2012).

At the time the dedication was adopted (November 2006), statewide MVST revenues for 2006 were forecast to be $540 million. They had been on a decline for several years, dropping approximately 10 percent between FY 2002 (when a portion of the revenues became statutorily dedicated to transportation) and FY 2005, but the state forecast at the time predicted a recovery in MVST revenue collection beginning in 2007, with revenues increasing on the order of two percent to four percent annually.

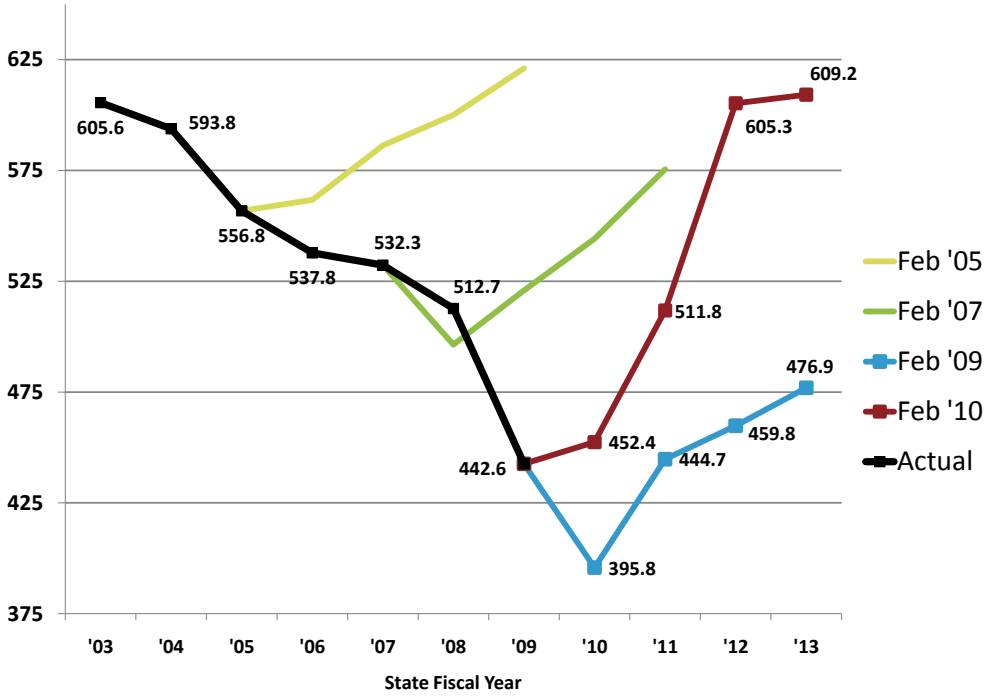
The actual experience since the adoption of the constitutional dedication has been a continual annual decline in MVST revenue collections. This trend is shown in Figure 3-3, which shows the biannual state MVST forecasts along with actual MVST collections. The most recent state forecast done in February 2010 predicts the MVST revenues will recover beginning in FY 2010. Under this forecast, total statewide MVST revenues would have declined more than 28 percent, from revenue collections totaling $614 million in FY 2002 to a FY 2009 total of $ 442 million, but are predicted to begin increasing with 2010 statewide MVST collections at $452 million and reaching $609 million by FY2013 .

Therefore, while the phase-in of the constitutional dedication of MVST will bring new revenues to transportation, the falling total collections has not resulted in nearly the level of new transportation revenues originally expected. The MVST revenue volatility and a downward trend in collections have been particularly troublesome for metropolitan area transit, which depends on MVST revenues to fund approximately 36 percent of its total transit

Table 3-2: MVST Phase-In Distribution FY 2008 - FY 2012

	FY-08	FY-09	FY-10	FY-11	FY-12
Highway User Fund	38.25%	44.25%	47.50%	54.50%	60.00%
Metropolitan Area Transit	24.00%	27.75%	31.50%	35.25%	36.00%
Greater Minnesota Transit	1.50%	1.75%	4.75%	4.0%	4.00%
Transportation Subtotal	**63.75%**	**73.75%**	**83.75%**	**93.75%**	**100%**
State General Fund	**36.25%**	**26.25%**	**16.25%**	**6.25%**	**0%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Figure 3-3: Forecasted Statewide MVST Revenues



operating costs. Once the MVST revenues are fully phased in, collections will need to increase by at least three percent to five percent annually just to enable the transit system to maintain its existing levels of service. In the transit chapter, this plan makes the assumption that MVST revenues will recover and grow at a rate of three percent to five percent annually to allow for maintaining existing transit service operating levels. Given the past volatility of the MVST revenues, this assumption does have a level of risk and may not prove to be true.

2008 Omnibus Transportation Funding Bill

The major omnibus transportation funding bill (Chapter 152) passed in the 2008 session contained a number of transportation revenue increases. The law contained an increase in the motor fuels tax (gas tax), a debt service surcharge on the gas tax, an increase in the vehicle registration tax and allowed for implementation of a new quarter cent sales tax for transitway development and operating purposes by the seven metropolitan counties. The major provisions of the 2008 bill are described in the following sections.

Highway Funding Provisions

One of the major highway funding provisions in the bill was an increase in the gas tax from the existing 20 cents per gallon to 22 cents per gallon on April 1, 2008, and to 25 cents per gallon on October 1, 2008.

A half cent debt service surcharge was also added to the total gas tax beginning August 1, 2008, and an additional amount is added for debt service each July 1st until July 1, 2012. The surcharge revenues are dedicated to paying the debt service necessary for the trunk highway bonds authorized in the bill. The surcharge is assessed according to the schedule in Table 3-4. After fiscal year 2012, the total statewide gas tax including the debt service surcharge will be 28.5 cents per gallon, an increase of 8.5 cents per gallon over the rate in effect prior to 2008.

The debt surcharge will partially finance $1.7 billion in trunk highway bonds for state road construction and program delivery purposes over a 10-year period (FY 2009 - FY 2018), including $40 million for interchange construction and at least $50 million for transit facility improvements on trunk highways. The bond funds must be used primarily to fund a Bridge Improvement Program established to accelerate repair and replacement of trunk highway bridges. The Mn/DOT commissioner is required to classify all state bridges into Tier 1, 2 and 3. Tier 1 consists of all bridges that have average daily traffic above 1,000

Table 3-4: Gas Tax and Debt Service Surcharge

Year	Debt Surcharge (cents)	Total Gas Tax (cents)
FY 07	-	20.0
FY 08	-	22.0
FY 09	0.5	25.5
FY 10	2.1	27.1
FY 11	2.5	27.5
FY 12	3.0	28.0
FY 13 & on	3.5*	28.5

** Maximum or actual amount needed for debt service.*

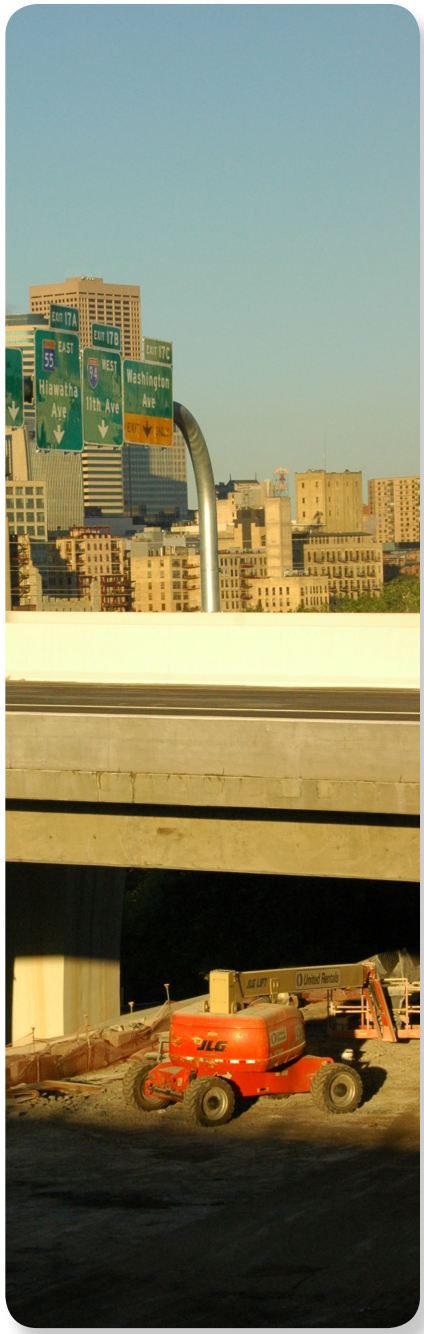


Figure 3-5: Bridge construction work is an investment priority mandated by the Legislature

and a sufficiency rating below 50 or that have been identified by the commissioner as a high-priority project. Tier 2 bridges consist of any bridge that is not a Tier 1 and is fracture-critical and has a sufficiency rating below 80. Tier 3 bridges include all other bridges in the program. All Tier 1 and 2 bridges are required to be under contract for repair or replacement by June 30, 2018. A specific bridge may continue in service if the reasons are documented in a required report.

During the 2010 legislative session an additional $100 M in state bonds was authorized bringing the total trunk highway bonding for road construction to $1.8 billion. The time frame for bond authorization was also shortened to be an 8-year period (FY 2009-FY2016) rather than ten.

In addition, the 2008 legislation changed the vehicle registration tax to eliminate the caps on the tax put in-place in 2003, and adjusted the depreciation schedule for vehicles to slow the reduction in vehicle value. The registration tax increase applied only to vehicles first registered after August 1, 2008- previously registered vehicles were grandfathered in at the current tax amount or less.

Transit Funding Provisions

Chapter 152 dramatically changed the outlook for metropolitan transit revenues by authorizing a quarter-cent sales tax for transitway development and operating purposes. The law authorized the seven metropolitan area counties to participate, if they so chose, in a Joint Powers Agreement, and to impose a quarter cent sales tax and $20 motor vehicle excise tax (in lieu of the quarter cent sales tax increase on vehicles) for transitway development purposes.

In April 2008, five of the metropolitan counties (Anoka, Dakota, Hennepin, Ramsey and Washington) voted to impose the tax. The five counties proceeded to enter into a joint power agreement and form the Counties Transit Improvement Board (CTIB), which is responsible for allocating the sales tax revenues. In CY2009, the first full year of implementation, the new sales raised approximately $88 million.

The metropolitan sales tax legislation also specified the following:

- Expenditure of the sales tax proceeds are limited to the following purposes:
  - capital improvements to transitways including the purchase of buses and rail vehicles,
  - transitway studies, design, property acquisition and construction,
  - operating assistance for transitways,
  - capital costs for park-and-ride facilities, and
  - up to 1.25 percent of the proceeds for pedestrian and bicycle programs and pathways
  - assistance for general bus operations is not eligible for funding.
- The sales tax proceeds are to be allocated by the Joint Powers Board through a grant application process.
- Projects selected for funding must be consistent with the Council's *Transportation Policy Plan* (TPP), as determined by the Council.

Additional 2008 legislation related to transitway spending prohibits the individual counties from contributing more than 10 percent of the capital costs of a light rail or commuter rail project, and limits the state share of light rail or commuter rail capital costs to 10 percent. The assumption for future rail transitway projects is that the county sales tax revenues will be used to pay 30 percent of the capital costs, federal funds will contribute 50 percent, and the counties and state will each contribute 10% of the capital cost. Similarly, another section of 2008 law prohibits county Regional Rail Authorities from contributing any funds toward the operation of a light rail or commuter rail line. A new law also specified that the state will pay 50 percent of rail transitway operating costs, with the assumption that the remaining 50 percent will be paid by the CTIB using the county sales tax revenues.

Transportation Finance Issues and Trends

Volatility and Decrease of MVST Revenues

While the constitutional dedication of MVST revenues brings additional resources to transportation, the decline and volatility of these revenues renders it a very unstable funding source, making it very difficult to know what revenues will be available to maintain existing or expand transit operations. Recent revenue trends indicate that it is highly unlikely this revenue source will provide adequate revenues to grow the bus system. This plan assumes MVST will grow at a rate of three percent to five percent annually to allow existing transit service levels to be maintained.

Revenue Source Lacking to Grow Bus Operations

Two major transit funding sources that were previously eyed to fund expansion of the bus system have been passed into law – the dedication of MVST and a regional sales tax. But in the foreseeable future, MVST revenues will not allow for funding of bus system expansion. A regional sales tax is now available but its expenditure purposes are limited to the implementation and operation of transitways and construction of park-and-rides and it cannot be used for general bus operations. While this policy plan calls for the doubling of transit ridership by 2030 (see Chapter 7: Transit), of which over 28 percent is anticipated to come from growth in the bus system, it is very uncertain that a funding source to provide for this growth can be identified.

Increasing Gas Prices and Leveling off of Gas Tax Revenues

During the first half of 2008 gas price increases to levels nearing $4.00 a gallon, caused both a reduction in vehicle miles of travel and increased use of transit and more fuel efficient vehicles, both of which cause a reduction in the amount of motor fuel taxes collected While gas prices dropped during later 2008 and 2009, the economic recession and loss of jobs continued to dampen vehicle travel in the region. While a reduction in travel may ease congestion in the short term, there is no indication that it will have a significant impact on the level of highway expenditure required in the region.

In addition, since 2006, state motor fuel collections per penny of tax have been falling from approximately $32.5 million per penny of tax in 2006 to an estimated $30.4 million per penny of tax in 2010. While the

recently enacted state gas tax increases will provide an initial influx of revenues, on a per gallon tax basis, gas tax revenues are not expected to grow over time and most likely will continue to decrease.

Uncertain Future of Federal Revenues

The six-year federal highway and transit funding bill was set to be reauthorized in fiscal year 2009. Congress failed to pass a reauthorization bill in both 2009 and 2010, instead passing continuing resolutions which provide approximately the same amount of funding as provided in the final year of SAFETEA-LU. In addition, the federal highway trust fund has been dangerously close to insolvency, requiring transfers from the federal general fund to maintain the current spending levels. While there are indications that Congress will act to preserve and most likely increase spending levels in the reauthorization bill, it is very uncertain what level of funding states should plan for into the future. The lack of increased transportation funding through a federal reauthorization bill has somewhat been offset by the establishment of one-time federal programs that emphasize specified outcomes such as the ARRA program for job creation and the TIGER I and TIGER II programs which have emphasized economic development , livability and sustainability. These one-time programs can offer significant amounts of funding but are difficult to plan for or include in future revenue estimates.

Lack of Funding for Highway Expansion

Despite the passage of Chapter 152 and the increased revenues it made available for highway programs, it is clear that there continues to be inadequate funding available for highway expansion projects over the next twenty years, even if previously identified expansion projects are rescoped so that they can be constructed at a lower cost. Additional revenue will be needed for the rescoped highway expansion projects and to make other strategic highway capacity investments.

Transportation Finance Policies and Strategies

The following policies and strategies will guide the region's transportation investments over the next two decades.

Policy 1: Ensure Adequate Resources for Transportation System Investments

The Metropolitan Council will identify and pursue an adequate level of resources for regional transportation investments. The first priority is to ensure that adequate resources are available to preserve, operate and maintain the existing systems and the second is to seek resources to address identified but unmet needs and demands.

> **Strategy 1a. Resources Available and Needed:** The Metropolitan Council will identify (1) transportation resources currently available and reasonably expected to be available in the future, (2) the level of resources needed for transportation investments in preservation, operations and maintenance of existing systems and (3) resources required to meet unmet needs and demands.

Strategy 1b. Adequate Resources: The Metropolitan Council, working with the Governor, Legislature, local governments and others will pursue an adequate level of transportation resources to preserve, operate and maintain existing systems and to meet identified unmet needs.

Policy 2: Prioritizing for Regional Transportation Investments

The priorities for regional transportation investments are to adequately preserve, operate and maintain existing transportation systems and to make additional transportation investments on the basis of need and demand consistent with the policies, strategies and priorities of this policy plan and the *Regional Development Framework.*

Strategy 2a. System Preservation: The first priority for transportation investments for all modes is the preservation, operation and maintenance of existing systems and facilities.

Strategy 2b. Highway System Investments: After preservation, operations and maintenance, the second priority for highway system investments is to effectively manage the system and third is expansion that optimizes the performance of the system.

Strategy 2c. Transit Capital and Operating Investments: After preservation, operations and maintenance of the existing transit system, regional transit capital and operating investments will be made to expand the local and express bus system and develop a network of rail and bus transitways to meet the 2030 goal of doubling transit ridership and 2020 goal of a 50% ridership increase.

Figure 3-6: A system of regional trails provide transportation options for bicycles and pedestrians

Strategy 2d. Bicycle and Pedestrian Investments: The Council will encourage roadway and transit investments to include provisions for bicycle and pedestrian travel. Funding priority for separate bicycle and pedestrian improvements will be based on their ability to accomplish regional transportation objectives for bicycling and walking.

Strategy 2e. Multimodal Investments: Criteria used by the region to prioritize projects for federal funding will encourage multimodal investments. Examples of such investments include bus-only shoulders, high-occupancy vehicle and high-occupancy toll (HOV/HOT) lanes, priced dynamic shoulder lanes, HOV bypasses at highway interchanges, bicycle and pedestrian connections to transit stations and corridors and rail/truck intermodal terminals.

Highway and Transit Revenues

Under federal law, the region is required to develop a fiscally constrained long-range plan. This requires developing an estimate of the highway and transit revenues that will be available to the region over the next 20 years. All revenue estimates are uncertain and in the end will prove to be off by some degree. This plan uses estimates of revenue based on known state and federal allocation formulas, current state revenue forecasts and also based upon past experience with receiving federal, state and other competitive or discretionary revenues.

Chapter 6: Highways, estimates that $3.6 - $4.1 B will be available to Mn/DOT for state road construction from 2015-2030. The majority of these funds are estimated to be generated through existing formula allocations, with a small amount estimated to be obtained through discretionary appropriations or competitive grants, including the Regional Solicitation. Transit funding estimates are much more heavily dependent upon the assumption that the region will be successful in obtaining competitive revenues. For example in Chapter 7: Transit, the estimated revenues to expand the transit system include revenues from the federal New Starts program, CTIB, and state bond appropriations. All of these sources of funding are competitive and the future amounts assumed to be available in this plan contain a higher level of risk and uncertainty than do the formula driven highway revenues.

Highway Revenues

The state highways are funded through four primary funding sources, the state gas tax, vehicle registration tax, a portion of the motor vehicle sales tax (MVST) and federal allocations funded through the federal gas tax. All three state highway revenues are constitutionally dedicated to highway purposes and must be deposited in the state highway user fund.

While local property taxes play a very important role in funding county and city roads, they typically are not used to fund the metropolitan highways covered by this policy plan (principal arterials and “A” minors arterials). The Metropolitan Highway System is funded primarily through state and federal highway taxes. Each of these funding sources is briefly described below.

Prior to the 2008 Legislative session, the state gas tax was 20 cents per gallon and in FY 2007 total revenues were approximately $650 million, or about $32.5 million per penny of tax. Under the new legislation, the gas tax will increase to 28.5 cents per gallon by 2013, however due to reductions in travel and increases in vehicle fuel efficiency, the tax is expected to become less productive generating only about $30.4 million per penny of tax or approximately $870 million annually by 2013 when the tax is fully phased-in.

Passenger vehicles pay a registration tax assessed on the basis of the value and age of the vehicle and as discussed previously, under the 2008 legislation an increase to these tax revenues will be phased in over the next decade or so. In FY 2007 the vehicle registration tax generated approximately $484 million and it is expected that this amount will grow to about $590 million annually by 2013.

Prior to the adoption of the 2006 constitutional amendment to dedicate the MVST revenues to transportation, highways received 32 percent of the total MVST revenues or about $160 million in FY 2007. Under the new constitutional dedication, this amount will grow to 60 percent of total MVST revenues by 2013 or about $365 million annually.

Figure 3-7 shows the actual and forecast total revenues to the highway user fund generated by the three state funding sources (gas tax, registration tax and highway share of MVST). Under the Minnesota constitution, Mn/DOT receives about 59 percent of the revenues in the highway user fund for the state trunk highway system. The remaining funds are allocated about 28 percent to the state's 87 counties for county state aid highways, eight percent to municipalities with a population over 5,000 for municipal state–aid streets and five percent is distributed to the various highway systems under a formula determined by the Legislature every six years.

In FY 2009 the highway user fund revenues totaled over $1.4 billion statewide, about $835 million of which was transferred to the trunk highway fund for Mn/DOT, with the remainder allocated to county and municipal state-aid roads. The Mn/DOT funds were further allocated about $ 495 million for operations and maintenance purposes, about $280 million for state road construction and $60 million for debt service. In addition to the state highway user funds, Minnesota receives approximately $450 million annually in federal highway aid for construction purposes and about $40 million in federal aid for Mn/DOT operations each year. This figure can vary considerably depending upon special appropriations and grant programs such as in FY 2009 and 2010 when the state received approximately $500 million in federal ARRA funds. Statewide the federal funds are typically allocated 70-75 percent or about $340 million annually to Mn/DOT for the trunk highways and 25-30 percent for local roads.(In the metro area the share of federal funds allocated to local road projects has tended to be higher than the statewide average with typically about 45% of the federal funds available for the regional solicitation process). Between the state ($280 million) and federal funds ($340 million), Mn/DOT's state road construction program would have typically totaled approximately $620 million. However, because the Legislature authorized the bridge replacement program and the spending of over $1.8 billion in trunk highway bonds, Mn/DOT's construction program will be substantially larger between 2008 and 2018. This construction increase will be off-set by an increase in the debt service necessary to repay the bonds which is estimated to reach about $140 million by 2013.

Figure 3-7: Minnesota Highway User Tax Revenue Historical and Forecast

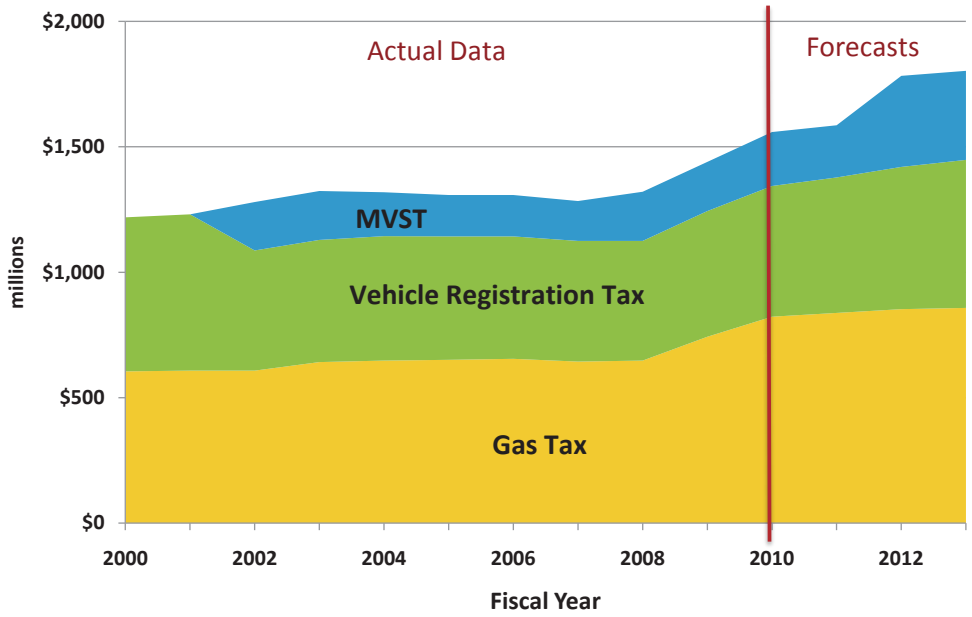


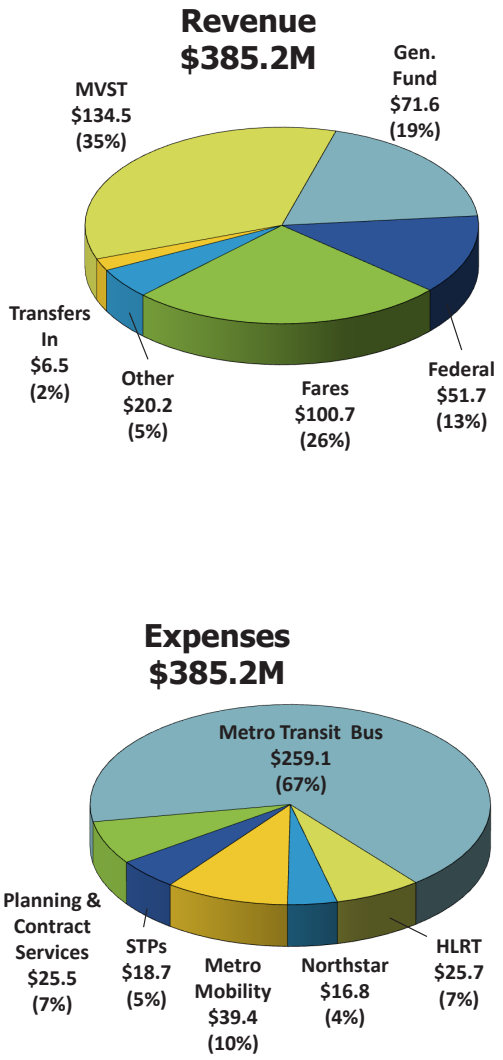
Figure 3-8: Highways are funded by state gas taxes, MVST, vehicle registrations and federal gas taxes

In federal fiscal year 2009, Congress was scheduled to enact a reauthorization of the six-year federal transportation funding bill. As of mid-2010 no new legislation had passed - Congress has enacted two continuing resolutions in 2009 and 2010 keeping the level of highway funding approximately where it had been in the last year of the previous bill SAFETEA-LU. At this point in time it is very uncertain what level of federal funding to expect in the future, though most transportation professionals expect at least a modest increase in highway funding when the new bill is passed. This plan projects that Mn/DOT's federal revenues will remain at a flat level of federal highway funding through 2016, followed by an increase in federal revenues averaging 1.6% per year.

This policy plan is primarily concerned with the estimated funding available for trunk highway construction (preservation and expansion) in the metropolitan area under the jurisdiction of Mn/DOT's Metro District. Mn/DOT has established a formula for distributing the available highway construction funds to the individual eight Mn/DOT construction districts throughout the state. This formula, referred to as the "target formula", uses factors such as vehicle miles traveled, number of fatal and injury crashes, pavement needs, bridge needs and the amount of heavy commercial traffic in each district to distribute the construction funds. Under Mn/DOT's target funding formula, the Metro District typically receives about 43 percent of the total state and federal revenues available for distribution. Mn/DOT is responsible for forecasting the state highway construction revenues that will be available to the Metro District in this plan. The available target revenues for the metro area (Mn/DOT projects and local road projects funded through the Regional Solicitation) shown in Table 6-19 of Chapter 6: Highways total $5.6 billion and average approximately $300 million per year from 2015-2020, increasing to an average of $370 million per year from 2021-2030. These target funds are exclusive of the funding that will be available from the passage of Chapter 152. The Chapter 152 funds are used for Mn/DOT's operating budget and to fund the repayment of authorized trunk highway bonds, which are primarily used for the Tier 1 and Tier 2 bridge program.

Because the 2008 legislation authorized Mn/DOT to issue trunk highway bonds financed by the new Chapter 152 tax revenues, the actual level of highway construction spending in a given year will vary significantly up or down from the available revenues. The total amount estimated to be available to the Metro District for state highway construction in the 2015-2030 time frame from the existing state and federal taxes and from the 2008 transportation funding bill is approximately $3.6 - $4.1 billion and is discussed in more detail in Chapter 6: Highways (see Table 6-24). Of this amount approximately $900 million is estimated to be available for allocation in this plan for safety and congestion mitigation/mobility improvements.

Figure 3-9: Metropolitan Council 2010 Transit Operating Budget



Transit Revenues

Operating Revenues

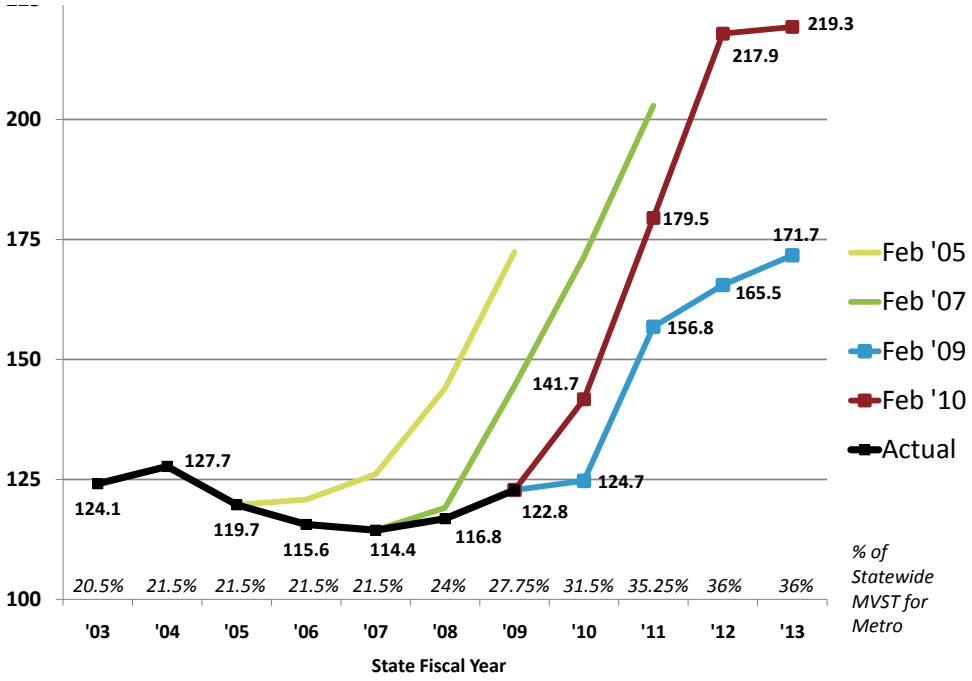
Transit relies on five primary sources of revenue for operations - transit fares, Motor Vehicle Sales Tax (MVST), the state general fund, the federal government and other sources. The breakdown of revenue sources, as well as expenditures, for transit operations, is shown in Figure 3-9. In calendar year 2010, the Council's adopted transit operating budget was about $385 million (including MVST revenues passed-through to Suburban Transit Providers) in revenues and expenses. MVST revenues are the biggest funding source for transit operations at approximately 35 percent of the transit budget, the state general fund provided 19 percent, passenger fares 26 percent, federal 13% other revenues 5 percent of total revenues and a transfer from reserves provided the remaining 2%.

As the MVST constitutional dedication phases in, it is anticipated that the MVST share of the total operating budget may increase to 40 percent or more, however this will be dependent on the performance of the MVST revenue collections. On the expenditure side, Metro Transit bus operations are the largest expenditure category in the Council's budget at approximately 67% of total expenses; Hiawatha LRT expenses are approximately 7%; Northstar commuter rail 4%; Metro Mobility is 10%; planning and contracted services are 7%; and the Suburban Transit Providers (STP) are 5% of expenditures. Figure 3-9 includes only regional transit expenditures that are included in the Metropolitan Council budget. For example fare revenues collected directly by the suburban providers and county transit expenses are not included.

Heading into CY 2009, the Council was anticipating a significant shortfall in the revenues available to maintain the existing transit system. In addition the state was facing a large budget deficit and during both 2009 and 2010 the general fund revenues appropriated to transit were cut by approximately $10 million annually. A combination of events and actions taken during 2009 and 2010 including an increased state MVST forecast, a late 2008 fare increase, a shifting of federal transit capital funds into the operating budget, a use of existing reserves and legislative actions that authorized the Council to access non-transit funds for transit purposes, allowed the region to maintain existing levels of transit service. A short range outlook indicates that under the current MVST forecast the region will be able to continue to maintain existing transit service levels through 2013. Making financial predictions beyond 2013 is difficult, however, at this point the MVST constitutional dedication will be fully phased-in and the revenues allocated to transit will begin to level off. Figure 3-10 shows the actual MVST revenues received and the biannual forecast for the metropolitan area share of MVST revenues from FY 2003-FY 2013. While statewide MVST collections fell significantly from FY04 – FY09, the constitutional dedication and increased share of MVST revenues for transit helped off-set what would have otherwise been a significant decline in transit revenues. The most recent state MVST forecast (Feb. 2010) predicts a recovery in the MVST revenues beginning in FY 2010.

This policy plan assumes that after 2012, the existing transit operating revenues will grow at a rate to maintain existing levels of service. It is assumed the growth to cover inflationary cost increases will occur primarily through growth in the MVST revenues and will require a growth rate of three percent to five percent annually. If the MVST revenue growth does not occur, it is assumed the state appropriations will grow at a level to maintain existing operations. It is not expected that the current transit operating funding sources will grow at a level to allow for service expansion.

Figure 3-10: Forecasted MVST Revenues for Metropolitan Area Transit



Under 2008 legislation, it was expected that new rail transitway operating expenses would be paid 50 percent from the county transit sales tax and 50 percent from additional state appropriations. CTIB has provided 50% of the funding for Northstar commuter rail operations which began in late 2009. However, during the 2009 legislative session no new state funding was received for Northstar operations and the Council's general fund appropriations for bus operations were reduced. The financial actions mentioned previously allowed the Council to avoid service reductions and also allowed for the funding of the state share of Northstar operations.

Bus transitway operations are also eligible for sales tax funding and to date CTIB has provided funding for expanded bus transitway operations related to the implementation of the Urban Partnership (UPA) on Cedar Avenue BRT and I-35W BRT.

The regional goal of doubling transit ridership by 2030 cannot be met without both the development and operation of new Transitways and an expansion of the bus system. At this point, it is not clear what funding source will provide for the bus expansion or if the state commitments to operating new Transitways will materialize. The estimated unfunded costs are discussed in Chapter 7: Transit. In addition Chapter 12: Work Program includes a new study which will conduct a long term financial analysis of the bus and Transitway system, identify issues of concern and potentially make recommendations for future financial actions.

Transit Capital Revenue

The primary funding sources traditionally used for transit capital expenditures include: property tax supported regional transit capital (RTC) bonds; federal funds including federal formula earnings, Congestion Mitigation/Air Quality (CMAQ) funds, discretionary appropriations and New Starts funding for transitways; and state funds including general obligation bonds, general funds and trunk highway bonds where allowable. In addition, the new county sales tax offers a new source of funding for transitway capital and operating costs and park-and-ride construction.

Each year the Council must receive specific authorizations from the state Legislature to issue regional bonds for necessary transit capital projects. Regional Transit Capital or RTC is the term commonly used to refer to these bond funds. The debt service on the bonds is paid with property tax receipts collected from within the Transit Taxing District (TTD). In recent years, RTC funding has totaled $33-34 million annually. RTC is the funding source most often used to provide for fleet replacement, fare collection and other technology needs, park-and-ride construction, facility repair and maintenance and to provide the 20 percent local match required for federal funding.

The Council currently operates under a policy whereby the RTC expenditure level is not allowed to increase at a rate greater than one percent per year (plus increases due to new communities agreeing to pay the levy, such as Lakeville which will begin paying in 2009). This growth rate allows the Council to meet the goal of no growth in the impact of regional property taxes on typical taxpayers. There have been instances in recent years where the Legislature has not passed additional regional transit bonding authorization. This causes a shortage of funds to accomplish the Council's planned capital improvement program (CIP) and results in delayed or cancelled capital projects.

The Council and other regional transit providers earn federal formula funds distributed to the metropolitan region based upon a number of demographic and transit service statistics the Council reports annually. Typically the Twin Cities region receives around $45 million in federal formula funds annually. This federal funding must be matched with 20 percent local funds, usually the RTC funding.

The region receives federal Congestion Mitigation/Air Quality (CMAQ) funding totaling approximately $25 million annually. These funds are distributed through the Council's and Transportation Advisory Board's (TAB) regional solicitation process on a biannual basis. Typically at least 80 percent or more of the CMAQ funds are awarded to transit projects. The funds must be used for service expansion and mainly are used for new bus purchases or park-and-ride construction. A portion of the CMAQ funding also supports the travel demand mitigation activities of Metro Transit and the Transportation Management Organizations (TMOs) in the region. CMAQ funding available for transit projects is usually matched using RTC funding. If the project is outside of the TTD, other local funds provide the match.

Federal New Starts funding is the source used to fund major rail and dedicated busway projects. New Starts funding is awarded nationally on a competitive basis through the Federal Transit Administration. Projects must apply and receive approval to enter preliminary engineering and must also apply again to enter final design and construction.

New Starts projects are currently evaluated by the FTA based upon "Project Justification" and "Financial" ratings; both of these ratings, and the overall project rating for a project, must be medium or better to receive FTA New Starts funding. FTA considers six project justification factors: Economic Development Benefits; Transit-Supportive Land Use; Mobility Improvements; Cost-Effectiveness; and Environmental Benefits. The financial rating is based upon the project sponsor's ability to support the operations and maintenance of the transit system, the amount and proportion of the local funding match commitment, and the stability and dependability of that match. Historically, those projects that have been competitive

for federal funds commit at least a 50 percent local match (beyond the required 20 percent minimum).

In this region, the assumed formula for the remainder of the capital costs would be: 10 percent from the local entities where the project is located (usually the county regional rail authorities), 30 percent using sales tax funds awarded from the CTIB and 10 percent from the state, most likely using state bonds. The revenue estimates in Chapter 7: Transit, assume that this region will continue to receive federal New Starts funding to construct the major transitway projects, but it is likely that only one project would be receiving federal New Starts construction funding in any given year. The region should pursue funding for multiple transitways if changes in federal guidance and available funding levels indicate that this assumption can be modified.

In addition to matching New Starts funding, state bond fund requests are considered to be a major source of funding for transit capital investments including transitway studies, park-and-ride construction, transit stations, bus garages and investments in Bus Rapid Transit. Over the past decade state bond fund appropriations for transit have averaged about $40 million per year, though this amount can vary significantly depending on the project needs. This plan assumes that in the future state bond funds will continue to be allocated for transit capital projects at least at the same level as previous bond funding.

The new county sales tax will provide a significant amount of funding for transitway investments. The funds will be distributed by the Counties Transit Improvement Board or CTIB as described previously. The funds are available for transitway capital and operating expenses, park-and-ride facilities, and a small amount for bike and pedestrian programs. The current revenue estimate is $88million annually from the quarter cent sales tax. This plan assumes that at a minimum the CTIB funds will be used to provide 30 percent of the capital funding for engineering and construction of any future New Starts transitway project and 50 percent of the on-going operating costs of the projects. Under the CTIB investment guidelines funds would also be available for 30% of the Highway BRT transitway capital investments and could provide 50% of the funding for new bus service in a BRT corridor.

Figure 3-11: Early construction on the Central Corridor Light Rail, which is partially being funded using Federal New Starts

Chapter 4: Transportation and Land Use

Transportation and land use work together to provide access to the wide range of destinations and opportunities in the region. The transportation system provides access and mobility to the traveling public, while land use imposes demands on the transportation system. Land use patterns and development mixes directly affect the levels of travel between origins and destinations by determining the feasibility of transportation options, which ultimately influence travel mode choice.

Transportation system investment also affects how the land use and development process will unfold. In an auto-oriented society the presence of high volume roads and/or highway interchanges directly affects accessibility to potentially developable land parcels. For the past 50 years this has been the key factor in determining whether and how a particular site is developed. Recently, the addition of high-quality transit corridors has once again become a factor influencing development and redevelopment of land parcels. These concepts underscore the need to coordinate transportation and land use planning decisions so they are complementary and to acknowledge and plan for these linkages as the region continues to grow.

Land development can best support transit service when sufficient density with a variety of uses is provided, including a balance of housing and jobs of compatible income levels. This would allow people to live and work in closer proximity, thereby indirectly limiting growth in congestion.

Figure 4-1: Recent development has brought more housing and mixed use
Downtown Minneapolis - looking north from E 15th Street at the Grant Street / 11th Street exit

In addition, effective planning for a well-connected, local and collector roadway network may reduce local travel on highways by making walking and bicycling more attractive options for local trips. A supportive road network, in tandem with transit and non-motorized mode investments, will facilitate more travel-efficient land development leading to increased opportunities for using transit, biking and walking for everyday trips. An increase in the use of transit and non-motorized modes may slow the growth in SOV trips and total VMT, particularly in the morning and afternoon peak travel periods, potentially reducing transportation-related impacts on local communities and the global environment. These environmental benefits include reducing vehicle emissions, decreasing the rate of fossil fuel consumption, and curbing the release of greenhouse gases. The remainder of this chapter describes land use/transportation coordination mechanisms and how local comprehensive plans will be coordinated from the regional perspective and establishes policies and strategies that encourage higher-density development along designated transitways. Key land use strategies adopted in the Regional Development Framework and reiterated in this chapter make up one component of the region's federally-prescribed Congestion Management Process, detailed in Chapter 5: Regional Mobility.

Mechanisms for Coordination

The coordination of planning for regional growth and planning for the region's transportation systems is accomplished through the Council's Regional *Development Framework* and this *Transportation Policy Plan*. The forecasts developed by the Council as part of the *Development Framework* provide the basis for forecasting regional infrastructure needs for roads and highways, transit service, wastewater infrastructure, and parks. The forecasts and *Development Framework* policies also serve as the springboard for planning by each community for its roads, wastewater and parks. The local comprehensive plans must coordinate among key elements: forecast growth, planned land use, residential and employment densities and infrastructure plans. The region's land use plans have attempted to guide development for many years through designation of a Metropolitan Urban Service Area; the current Development Framework also encourages more dense development within the MUSA through infill and redevelopment of the already developed area, especially at nodes along transit corridors

Decisions about how communities grow and the facilities to support them affect one another. Regional transportation and sewer investments help shape growth patterns. The types and locations of housing influence mobility options and travel patterns. Transportation investments, particularly transit, need to be integrated with land use and development patterns so the region's residents and businesses have a high level of accessibility.

Because it is not possible to build enough new highway capacity to eliminate congestion or to completely meet future mobility needs of the region, an integrated, multimodal transportation system is necessary to support balanced job and household growth. By the same token, increasing job concentrations and increasing integrated, mixed-use developments in the region can help maximize the effectiveness of the transportation network and transportation investments in highways, transit and other modes.

Land Use Approaches Supportive of Transportation Network

The *Framework* emphasizes the need for intensified development in centers with access to transportation corridors and in rural centers that want to grow and that lie along major highways. Regional investments can create a transportation system that includes transit solutions that support attractive, walkable neighborhoods with homes, green space, public places and other amenities.

Over the longer term, the region can improve accessibility by encouraging development and reinvestment in centers that combine transit, housing, offices, retail, services, open space and connected streets that support walking and bicycle use. Such development enables those who wish to reduce their automobile use to meet their daily needs and makes it possible for those who are unable to drive to live more independently.

Transportation Policies and Strategies Related to Land Use

Policy 4: Coordination of Transportation Investments and Land Use

Regional transportation investments will be coordinated with land use objectives to help implement the *Regional Development Framework's* growth strategy and support the region's economic vitality and quality of life.

Strategy 4a. Accessibility: The Council will promote land use planning and development practices that maximize accessibility to jobs, housing and services.

Strategy 4b. Alternative Modes: Transportation investments and land development will be coordinated to create an environment supportive of travel by modes other than the automobile including travel by transit, walking and bicycling.

Strategy 4c. Increased Jobs and Housing Concentrations: Transportation investments and land development along major transportation corridors will be coordinated to intensify job centers, increase transportation links between job centers and medium-to-high density residential developments and improve the jobs/housing connections.

Strategy 4d. Transit as Catalyst for Development: 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. Local units of government are encouraged to develop and implement local comprehensive plans and zoning and community development strategies, including parking policies, that ensure more intensified development along transitways and arterial bus routes.

Strategy 4e. Local Comprehensive Plans: Local comprehensive plans must conform to the *Transportation Policy Plan* and should recognize the special transportation opportunities and problems that various *Development Framework* planning areas present with regard to transportation and land uses.

Strategy 4f. Local Transportation Planning: Local governments should plan for and implement a system of interconnected arterial and local streets, pathways and bikeways to meet local travel needs without using the Regional Highway System. These interconnections will reduce congestion, provide access to jobs, services and retail, and support transit.

Strategy 4g. Metropolitan Urban Service Area (MUSA): Local governments within the MUSA should plan for a prospective 20 years and stage their transportation infrastructure to meet the needs of forecast growth. Outside the Metropolitan Urban Service Area transportation plans and facilities and land use patterns must be compatible with the region's need for future sewered development and protection of agriculture.

Figure 4-2: Development density impacts the types of efficient transit service available to communities
Condo development along Lake Street in Minneapolis

Figure 4-3: Local improvements can enhance the regional transportation system
Martin Olav Sabo Bridge over Hiawatha Avenue

Associated Transportation Policies and Strategies

Policy 2: Prioritizing for Regional Transportation Investments

- Strategy 2d. Bicycle and Pedestrian Investments
- Strategy 2e. Multimodal Investments

Policy 3: Investments in Regional Mobility

- Strategy 3d. Travel Demand Management Initiatives
- Strategy 3e. Parking Pricing and Availability

Policy 6: Public Participation in Transportation Planning and Investment Decisions

- Strategy 6b. Interjurisdictional Coordination and Participation
- Strategy 6e. Transit Customer Involvement

Policy 7: Investments in Preserving of Right-of-Way

- Strategy 7a. Preservation of Railroad Rights-of-Way
- Strategy 7b. Right-of-Way Acquisition Loan Fund (RALF)
- Strategy 7c. Identification of Right-of-Way in Local Plans

Policy 8: Energy and Environmental Considerations in Transportation Investments

- Strategy 8c. Preservation of Cultural and Natural Resources
- Strategy 8d. Protection of Surface Water

Policy 9: Highway Planning

- Strategy 9a. Planning in the Context of Congestion
- Strategy 9b. Multimodal System
- Strategy 9e. Interconnected Roadway Network
- Strategy 9f. Roadway Jurisdiction
- Strategy 9g. Corridor Studies
- Strategy 9h. Context Sensitive Design

Policy 11: Highway System Management and Improvements

- Strategy 11e. Access Management

Policy 12: Transit System Planning

- Strategy 12b. Transit Service Options
- Strategy 12c. Transit Centers and Stations
- Strategy 12d. Park-and-Rides

Policy 13: A Cost-Effective and Attractive Regional Transit Network

- Strategy 13e. Transit Safety and Security

Policy 15: Transitway Development and Implementation

- Strategy 15c. Process for Transitway Selection
- Strategy 15d. Transitway Coordination
- Strategy 15f. Transitway Coordination with Other Units of Government
- Strategy 15g. Transitways and Development

Policy 16: Transit for People with Disabilities

- Strategy 16c. Access to Transit Stops and Stations

Policy 17: Providing for Regional Freight Transportation

- Strategy 17a. Freight Terminal Access

Policy 18: Providing Pedestrian and Bicycle Travel Systems

- Strategy 18b. Connectivity to Transit
- Strategy 18c. Local Planning for Bicycling and Walking
- Strategy 18d. Interjurisdictional Coordination
- Strategy 18e. Multimodal Roadway Design

Policy 24: Protecting Airspace and Operational Safety

- Strategy 24a. Notification to FAA
- Strategy 24b. Locating Tall Structures
- Strategy 24c. Airport/Community Zoning

Policy 25: Airports and Land Use Compatibility

- Strategy 25c. Providing Sanitary Sewer
- Strategy 25e. Aircraft Noise Abatement and Mitigation

Figure 4-4: Transportation investments and planning decisions are integrated

Coordination of Local Comprehensive Plans

Under the Metropolitan Land Planning Act (MLPA), local communities are required to adopt comprehensive plans that are consistent with the Council's *Development Framework* and its four metropolitan system plans – for transportation, aviation, wastewater treatment and regional parks (Minn. Stat. 473.858-.859; 473.864).

Local communities are the key partner for the Council in implementing its plans and policies. The local comprehensive plan is not only a tool used by communities to guide their development; it is used by the region as a key element in local and regional local partnership to accommodate growth across the seven-county region. Local plans ensure that adequate regional systems are planned and developed to serve growth in an efficient and cost-effective manner.

Local comprehensive plans are reviewed by the Council for conformance with metropolitan system plans, consistency with Council policies and compatibility with adjacent and affected governmental units (see statutory provisions below). Forecasts play an important role in the regional/local partnership to accommodate growth and to see that adequate infrastructure is planned and provided.

Comprehensive Plan Review

Minn. Stat. sections 473.851 to 473.871

Conformance: A local comprehensive plan will conform with the metropolitan system plans if the local plan does not have a substantial impact on or contain a substantial departure from a system plan:

1. Accurately incorporates and integrates the components of the metropolitan system plans as required by Minn. Stat. sections 473.851 to 473.871:

- Transportation components for a multimodal system including accurate road functional classification, transitways and transit facilities and corridors, park-and-ride facilities, traffic forecasts, right-of-way preservation for future roads, transitways and bike/pedestrian facilities.
- Identification of traffic volumes (current Average Daily Traffic), number of lanes on roadways (principal and minor arterials), allocation of 2030 forecasts to Traffic Assignment Zones (TAZs) and 2030 traffic forecasts for principal and minor arterials.
- Airports, aviation facilities, noise and safety zones and appropriate land uses surrounding these features.

2. Integrates public facilities plan components described in Minn. Stat. sec. 473.859, subd 3.

Integrates development policies, compatible land uses, forecasted growth allocated to TAZs at appropriate densities specified in 2030 Regional Development Framework Allocation of 2030 forecasts to TAZs for transit system development and operation and to maximize the efficiency and effectiveness of the regional system.

Consistency: A local comprehensive plan will be consistent with Council policies and statutory requirements if the local plan: • 1. Addresses community role strategies for Geographic Planning Areas contained in the Framework including the planning and development of an interconnected local transportation system that is integrated with the regional system. • 2. Addresses the linkage of local land uses to local and regional transportation systems including increasing housing and employment numbers and densities in centers along transitways and the arterial bus network. • 3. Incorporates Council approved highway or transitway corridor plans for transportation facilities and land use patterns.
• 4. Includes an implementation plan that describes public programs, fiscal devices and other specific actions for sequencing and staging to implement the comprehensive plan and ensure conformance with regional system plans, described in Minn. Stat. sec. 473.859, subd. 4). • 5. Addresses official controls: Includes a Capital Improvement Program (sewers, parks, transportation, water supply and open space) that accommodates planned growth and development.
Compatibility: A local comprehensive plan is compatible with adjacent and affected governmental units including appropriate interconnection of the county and local transportation network, based on comments or concerns, or lack thereof, from these entities. A community should adequately document that it has acknowledged the concern(s) of all adjacent and affected governmental units.

Planning and Implementation to Enhance Transitway Corridor Potential

Local Land use and Related Factors

Transit, particularly transitways, can improve regional mobility. The benefits that transit offers can be enhanced if land use patterns and development decisions support transit investment. Local communities play several important roles. First, through their comprehensive planning they set groundwork for a transit-supportive land use pattern, including large, walkable concentrations of employment. Second, they approve and permit the projects that implement that pattern. Third, they can work with adjoining communities to coordinate the development of interconnected activity nodes along corridors that can be served by and become destinations for transit service. The following factors strongly influence how successful and effective transitway investments can be. They are an interrelated and interdependent.

Population numbers. High levels of transit ridership depend on a large number of people living within a corridor. Without a critical number of people, ridership will not be high enough to justify rail and bus transitway investments.

Population density. Population density is also related to transit success. If population is scattered, it's not possible to generate enough potential transit customers justify intensive investments.

Number of jobs. Most transit trips take people to or from work. If there are insufficient job concentrations along a corridor, transit ridership will not support transitway investment. Studies show that employment destination densities are a more important influence on transit mode choice than population densities at commute trip origins.

Clustering of jobs. In addition to providing a sufficient number of jobs, specific employment centers should be clustered and served by pedestrian/bicycle facilities so it is possible to walk or bike to a large number of jobs at each node along a transitway.

Employment center commuter sheds. Some corridors serve a single transit market, such as downtown Minneapolis or downtown St. Paul. But some corridors split their market share between two or more destinations. Despite the total number of potential transit users, the split market cannot be served as effectively by a single transit investment.

Economic incentives to use transit. Downtown Minneapolis, the University of Minnesota and downtown St. Paul are robust transit markets in part because people have to pay for parking in addition to the cost of operating their automobile. This provides an increased economic incentive to use transit. However, this incentive does not exist throughout the rest of the region.

Fine-grain land use patterns. In a downtown, large office towers are clustered within a small number of blocks. Walking between buildings and to transit is easy. Jobs locations are also convenient and walkable from housing, retail, personal services, and cultural and entertainment venues. In suburban locations, there are large office towers but they

Figure 4-5: Employment density is one of the seven indicators which strongly impact the effectiveness of transitways
Riverfront development in downtown Minneapolis

are often surrounded by large surface parking lots, low-density retail, landscaping and large open spaces. The result is that the buildings with high concentrations of employment are located long distances from one another, from bus stops and from potential transit stations. This makes serving suburban job concentrations with transit more of a challenge.

Strategies for Strengthening Transitway Corridor Potential

Considering the factors that influence the success of transit, communities can employ a variety of strategies to help strengthen the potential of transportation corridors for major transit investments. A few key strategies are summarized below. For a detailed discussion, refer to the Council's *Guide to Transit Oriented Development*, found on the Council's website www.metrocouncil.org

Figure 4-6: Large clusters of employment are necessary for the long term success of transit
IDS Center - downtown Minneapolis

Intensify population density where it makes sense. Communities have different opportunities, needs and aspirations. Population intensification makes sense in nodes along transportation corridors, especially along existing and potential transit corridors. Proven approaches in the Twin Cites include:

- Promoting housing choices with a range of prices. Cities can choose to promote and plan for land uses and building types with a variety of housing and transportation choices.
- Adopting land development policies that encourage more density. These can include density bonuses, lot-size reductions, setback reductions and allowing accessory units.
- Providing incentives for structured and underground parking, (e.g., setting maximum parking standards and/or lowering minimum parking standards), which support higher-density housing development.

Intensify employment clusters with transit and pedestrian infrastructure. The success of transit, over the long term, depends on increasing the job intensity (numbers and concentration) in job centers throughout the region, and designing pedestrian-oriented transit connections. This region has eight major job centers but few have integrated, walkable environments clustered around transit. The following recommendations can shape infill and redevelopment to improve transit feasibility, and are generally most appropriate for local units of government. To improve transit corridor potential, cities may adopt land use policies that:

- Encourage clustering of large employment centers into nodal concentrations, rather than dispersing them several blocks apart.

- Create connected streets, sidewalks and bicycle paths both within employment nodes and from employment nodes to surrounding residential areas.
- Encourage structured parking to reduce walking distances between buildings and parking policies that limit the amount of surface land area devoted to parking. This structured parking needs to enhance, rather than distract from, the pedestrian experience.
- Provide a vertical or horizontal mix of uses within developments that can support transit by clustering a variety of uses within convenient walking distance for employees.

Cities can promote this kind of development through transit overlay zones, density bonuses, and policies and actions to design streets that are safe, accessible and convenient for all users. Cities can support transitway station area development with financial tools such as tax increment financing.

Study land use now to realize transit-supportive development through 2030. Historically, it takes at least seven to 10 years to plan and implement a major transit investment. During these intervening years, cities can implement land use policies to encourage development that supports future transit investments.

Land use corridor studies can inform land use policy actions. These studies should be corridor-wide and can include factors described above. As communities plan for these investments, community planning and involvement is critical. Mixed-use and redevelopment projects take time and are facilitated by partnerships and a shared vision. Public participation efforts can include a corridor-wide visioning effort, design charrettes, task forces, and neighborhood and individual meetings. The aim is to develop goals, objectives and a vision for the area, which guide corridor development and its evolution.

Figure 4-7: Walkable environments, such as this one in St. Paul, make transit a more desirable and effective alternative

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.)

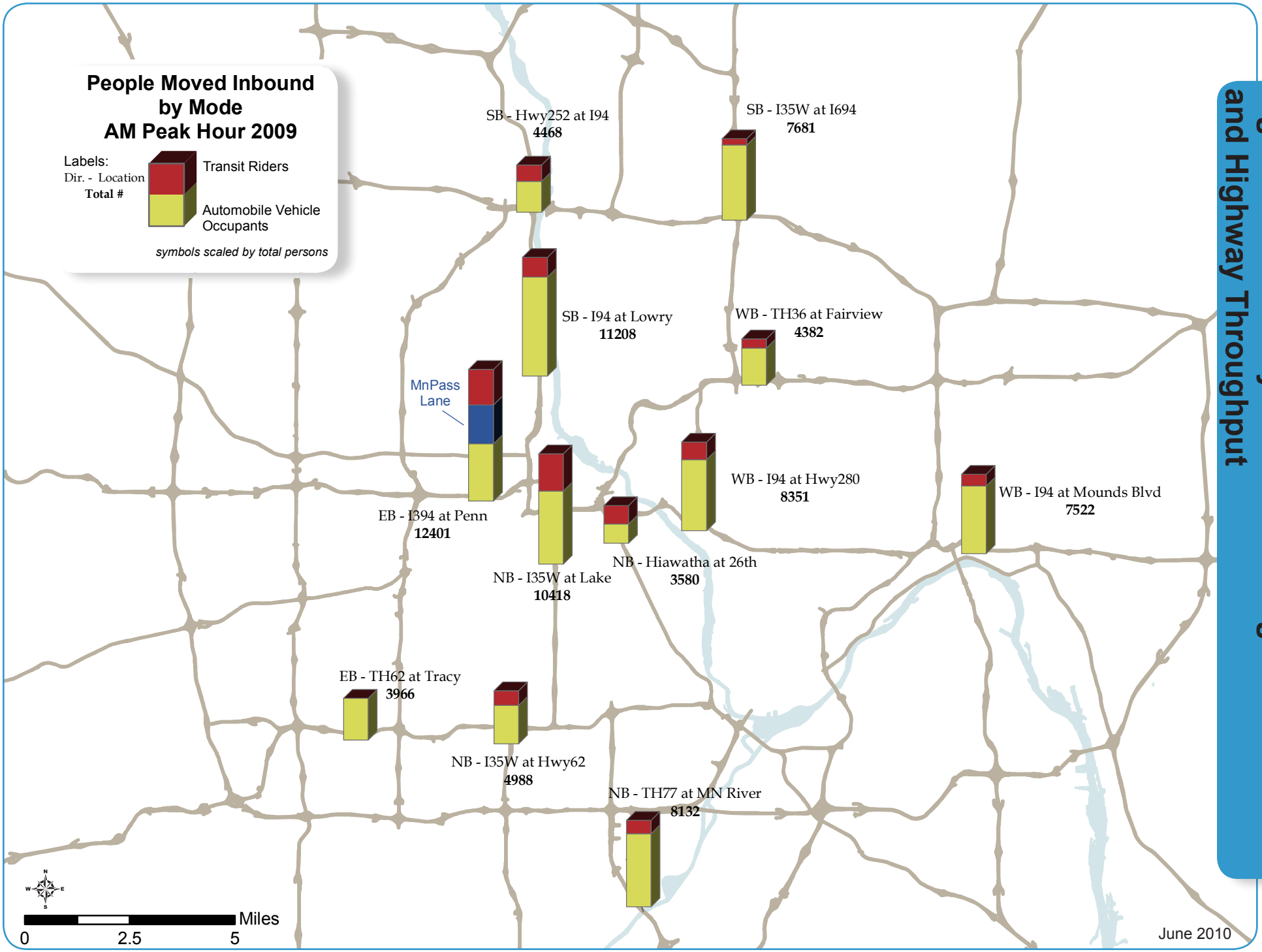


Figure 5-3: Freeway Transit Passengers and Highway Throughput

Figure 5-4: Transit stations, like this one near the Midtown Global Market, can impact densities for transit

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.

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 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.

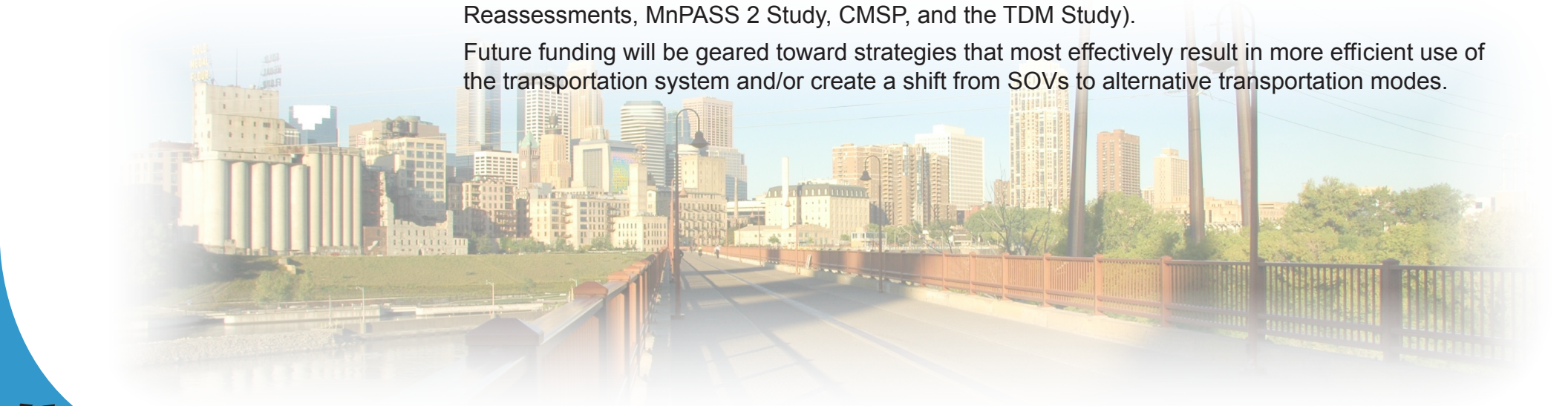
Strategy 3g. Alleviate Highway Construction Impacts: The Council, regional transit providers, and TMOs will work with Mn/DOT and local units of government to determine where and when transit service improvements and TDM actions may be appropriate to alleviate traffic delays and impacts related to highway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



Chapter 6: Highways

The region's roadways provide connections that are essential to the metro area's economic vitality and quality of life. But the demand for travel is enormous – and growing – posing difficult choices as the region attempts to sustain mobility in the face of mounting congestion.

Existing System

Roadways

Automobiles and trucks in the region travel on a network of different types of roadways that serve different functions. Arterials, such as freeways or major highways, are designed to carry longer trips at higher speeds, with limited access to adjacent land. At the other end of the spectrum, local roadways provide land use access and lower speeds.

In the Twin Cities region, roadways are classified into four primary categories based on their respective roles:

- Principal Arterials, consist primarily of Interstate highways and other "freeways" or expressways that provide mobility but very limited land access. Most of them are owned and operated by the Minnesota Department of Transportation (Mn/DOT), with six under the jurisdiction of counties or cities;
- Minor Arterials, divided into "A" and "B" groups, are under the jurisdiction of Mn/DOT, the counties and some cities. The "A" Minor arterials supplement the mobility function of the principal arterials while also providing more land access than freeways or expressways;
- Collectors, under the jurisdiction of counties and cities, provide a balance of mobility and land use access;
- Local Roads, including most city streets and township roads, primarily provide access to the adjacent land parcels.

The Metropolitan Council focuses its planning efforts on the highest-level roadways – the principal arterials and "A" minor arterials – because these are the most heavily used, carrying the majority of vehicular trips in the region. The principal arterials account for about four percent of all the region's roadways, but carry 52 percent of the total vehicle miles traveled in the region. These principal arterials constitute the Metropolitan Highway System (See Figure 6-1).

The "A" minor arterials account for nearly 1,900 miles of the region's roadways, about 11% of the total road mileage. The Regional Highway System consists of both the "A" minor arterials and principal arterials (See Figure 6-2).

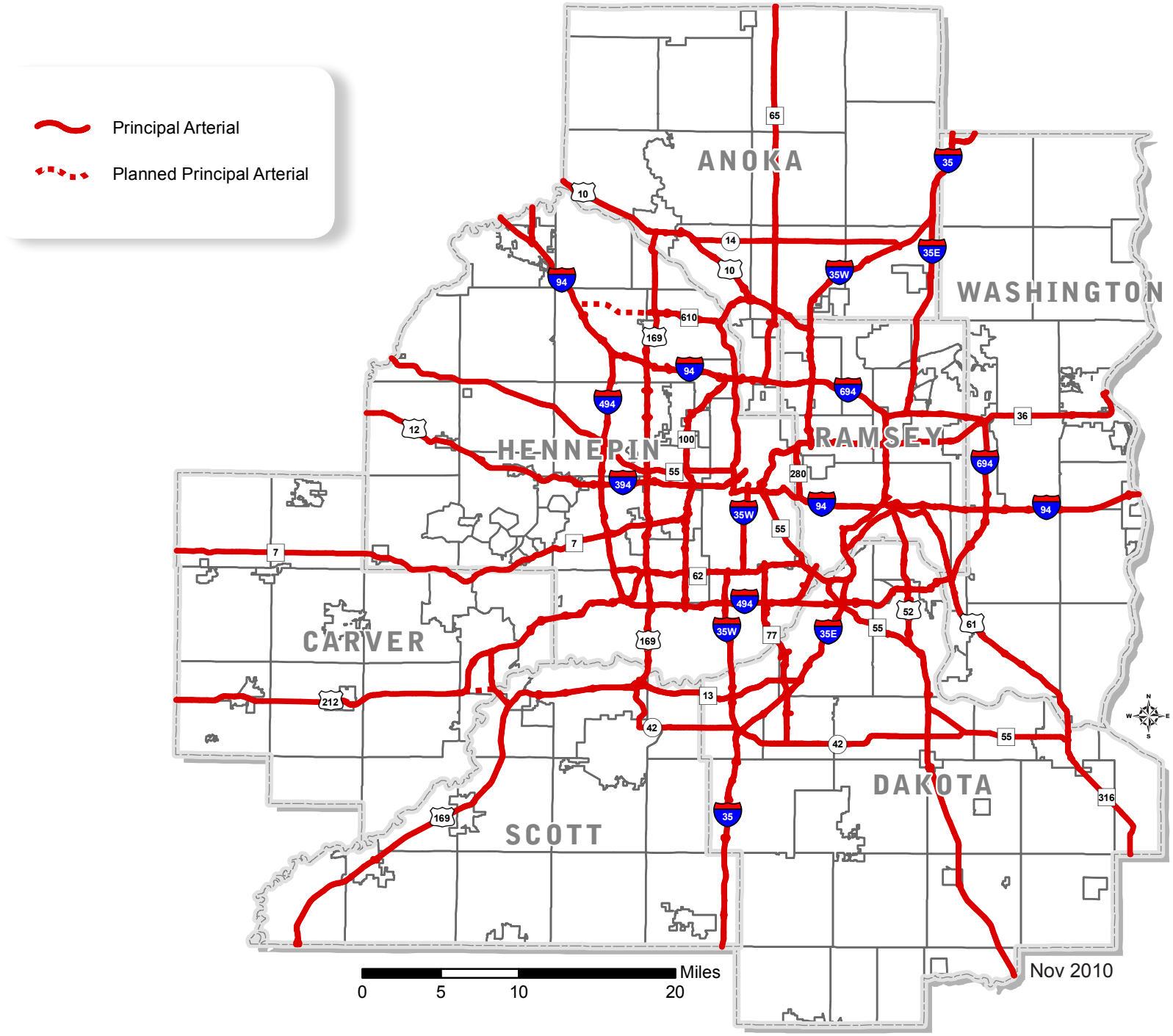


Figure 6-1: Metropolitan Highway System

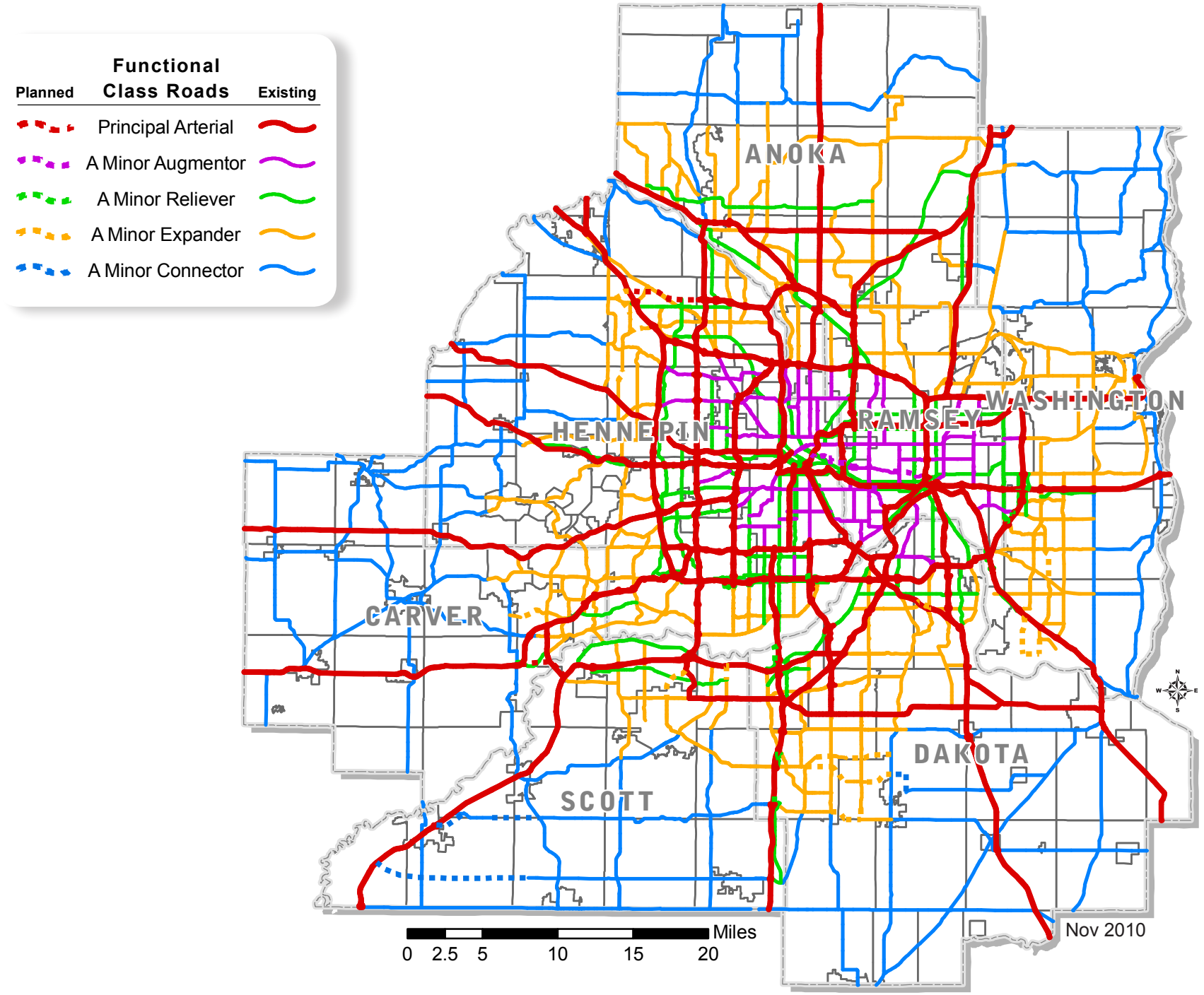


Figure 6-2: Regional Highway System

Table 6-3: Freeway Management System Investments *

Count	Investment
400	Miles of fiber optic cable
470	Cameras
146	Dynamic Message Signs
174	Intelligent lane controls (there are also 19 older model lane controls in operation)
4500	Loop detectors
424	Ramp meters
101	Ramp meter bypasses for transit and HOV use
257	Miles of bus-only shoulders (there are 320 miles if other highways are included)
220	Miles of FIRST coverage (Freeway Incident Response Safety Team)
10	Miles of I-394 MnPASS lanes (13,600 transponders sold – as of 5/2010)
15	Miles of I-35W MnPASS lanes ** (4,500 transponders sold – as of 5/2010)
	511 Traveler Information Call Number

** Generally, the investments recorded here are made on Metropolitan Highway System freeways*

*** When project is completed through the Crosstown*

The approximately 14,400 miles of "B" minors, collectors and local streets, whose primary function is land access, make up almost 85% of the road mileage in the region, and are the responsibility of local units of government. (The details of the roadway classification system and its characteristics are described in Appendix D.)

Road Management System

About 90 percent of the freeway system in the urbanized portion of the region is equipped with electronic surveillance (i.e. fiber cable, loop detectors, ramp meters and cameras). This equipment is used to monitor and manage the system from Mn/DOT's state-of-art Regional Transportation Management Center (RTMC). Key goals of the RTMC are to reduce congestion and crashes, increase freeway capacity and speeds during peak periods, provide quick response to crashes and incidents and provide travelers accurate, real-time information via changeable message signs on the freeway system and local traffic radio and TV stations.

Since May 2005, the RTMC also manages operations on the MnPASS I-394 high-occupancy toll (HOT) lanes. The MnPASS lane system was expanded to the I-35W corridor south of downtown Minneapolis in September 2009. Freeway speeds limits on the 25 miles of MnPASS lanes are maintained by dynamically changing the toll according to the demand and use of the lanes which is observed through road scanners and loop detectors.

The existing freeway management system investments are summarized in Table 6-3.

Progress Since Adoption of the 2004 Transportation Policy Plan

Highway Construction

Mn/DOT has pursued a very aggressive construction program since 2004. Table 6-4 lists the projects included in the *Transportation Policy Plan* adopted in 2004 that have opened to traffic since December 2004, as well as those currently under construction. In addition, an important project not included in that plan is the recently completed rebuilding of the I-35W Bridge across the Mississippi River, which collapsed in August 2007. The collapse, and the subsequent review of bridge conditions and investments throughout the state, played a key role in the content and passage of Minnesota Laws 2008 Chapter 152.

The state used a number of funding techniques to build expansion projects in the 2004-2010 timeframe. Advance construction was first used in 2000 to allow large projects to be undertaken. This program allows states to "borrow" future federal funds for a current project. The second program, passed by the Legislature in 2003, is known as the Pawlenty/Molnau Transportation Financing Package or BAP (Bond Advance Program). This added $550 million in Trunk Highway bonds to the region's highway

construction budget. These bonds are being repaid by reducing Mn/DOT's operating budget and delaying other investments.

Many of the projects undertaken had been in the region's transportation plan for decades and are finally being completed with these funding approaches. However, this one-time level of funding is not sustainable long term.

Table 6-4: Highway Projects Implemented or Advancing Since 2004

I-94, I-494 to Humboldt Avenue. Reconstruct and widen to six through lanes and auxiliary lane.
TH 100, Glenwood to CSAH 152. Reconstruct, eliminate intersection and widen to six through lanes.
TH 55, Hiawatha Avenue. Reconstruct, widen, add turn lanes and build interchanges with TH 62 and Lake Street.
I-35E, Mississippi River Bridge. Replace four-lane bridge, add auxiliary lanes, and pedestrian/bike trail
I-494 Wakota Bridge over the Mississippi River. Replace westbound bridge. Reconstruct interchange with TH 61 and TH 61 through Newport. The eastbound bridge was completed in 2010.
TH 169 south of CSAH 81 to north of CSAH 109 (Devil's Triangle). Construct interchange, bridges.
UPA / I-35W / Cedar Avenue. A series of projects that received special federal and state funding. Provides transit and priced alternatives to congestion. Convert existing I-35W HOV lane to HOT/managed lane; add priced dynamic shoulder lane northbound from 42nd Street to Minneapolis; install lane control signals, cameras, dynamic signs and tolling infrastructure – (Crosstown/I-35W construction to be open by end of 2010).
TH 62/I-35W. Rebuild interchange and add HOT lane from 66th Street to 42nd Street. (See UPA project above)
I-494, I-394 to TH 100. Rebuild to six through lanes, includes a continuous auxiliary lane.
TH 36, from McKnight St to Margaret Street. Remove signals, grade separate three intersections.
I-694, I-35E "Unweave the Weave". Rebuild this area to provide six through lanes in all directions.
New TH 212 from CSAH 4 to CR 11. Build four-lane freeway.
Lower-cost / high-benefit projects: • Add I-394 auxiliary lane, westbound between TH 100 and TH 169 • Add TH 100 lane, from 36th Street to Cedar Lake Road • Add I-94 lane, from Century Avenue to McKnight Road • Add NB lane on Snelling Avenue (TH 51) from Roselawn Avenue to TH 36 • Modify TH 212 /I-494 Interchange, add auxiliary lanes • Modify I-35E/I-494 Interchange, widen ramps
TH 65 and TH 242/CSAH 14 intersection reconstruction to an interchange with additional overpasses and frontage roads.
TH 12, Wayzata Boulevard to CR 6. Build two-lane freeway.
TH 169, Pioneer Trail and Anderson Lakes Parkway. Intersections rebuilt as interchanges.
I-494 Lake Drive to I-94. Connect two auxiliary lanes
I-35W Bridge over Mississippi River. Replacement.

Figure 6-5: Other modes will be used to reduce the impacts of congestion
Bloomington Central
Hiawatha LRT Station

Figure 6-6: HOV and HOT lanes are two ways to address mobility needs efficiently

Figure 6-7: Changing new construction priorities is another.

Issues and Trends

A number of issues and trends, discussed in more detail in Chapter 3: Regional Transportation Finance, may influence travel patterns and highway investments in unexpected ways and need to be monitored on an ongoing basis:

- Fuel prices and supply
- Growing costs of maintaining the existing system
- Gas tax receipts not keeping up with inflation
- Uncertainties associated with the 6-year federal transportation funding bill reauthorization

Highway System Policies and Strategies

Policy 9: Highway Planning

The Council, Mn/DOT, and local governments will plan the Metropolitan and Regional Highway Systems and local roads to provide a cost-effective, multimodal and safe roadway system that reflects the needs of a growing population and economy.

Strategy 9a. Planning in the Context of Congestion: The Council, Mn/DOT and local units of government will plan for the Metropolitan Highway System with the understanding that congestion will not be eliminated or significantly reduced. However, congestion should and can be mitigated if travel alternatives are provided, travel demand patterns are changed and appropriate land use configurations are implemented.

Land use and development planning, as well as investments in the arterial systems, should take this into account.

Strategy 9b. Multimodal System: The Council, Mn/DOT, local governments and transit providers will plan for and implement a multimodal roadway system. Highway planning and corridor studies will give priority to alternatives that include high-occupancy vehicle (HOV) and managed lanes (high-occupancy toll (HOT) lanes, bus-only shoulders, priced dynamic shoulder lanes) and other transit advantages that help mitigate congestion.

Corridor planning and design must incorporate the mobility and safety needs of all users including freight vehicles, transit vehicles, pedestrians and bicycles. Mn/DOT and counties must provide advantages for transit where needed, including bus-only shoulders, park-and-ride lots and ramp meter bypasses. The inclusion of facilities for pedestrians and bicyclists, as discussed in the Complete Streets section of Chapter 9, is appropriate for most streets and highways with the exception of freeways and expressways. When bridges are built or rebuilt, the needs of bicyclists and pedestrians must be addressed.

Traffic calming measures on collector and local roads can reduce vehicular speeds to improve bicycle and pedestrian safety. A well-connected collector roadway network is important to support these non-motorized modes. Improvements for bicycle and pedestrian safety and mobility should be made on “B” minor arterials if there are no other options and on “A” minor arterials so long as they do not diminish the capability for multimodal function and capacity.

Strategy 9c. Optimize Metropolitan Trunk Highways: The Council, working with Mn/DOT, will define the most cost-effective techniques and types of projects to optimize the performance of the highway system as measured by person, rather than vehicle, throughput. Optimization techniques and projects will maximize utilization of existing system capacity, pavement and right-of-way and may include, but are not limited to, managed lanes such as high-occupancy vehicle and toll (HOV/HOT) lanes, bus-only shoulders and priced dynamic shoulder lanes.

Strategy 9d. Congestion Management Process: A Congestion Management Process (CMP) that meets federal requirements is included in this plan (Chapter 5, Regional Mobility). The CMP incorporates and coordinates the various activities of Mn/DOT, transit providers, counties, cities and Transportation Management Organizations (TMOs) in increasing the efficiency of the multi-modal transportation system, reducing vehicle use and providing lower-cost safety and mobility projects where feasible.

Strategy 9e. Interconnected Roadway Network: Local and county governments shall plan a system of multimodal interconnected collector roads and minor arterials to serve short and medium-length trips.

Unless cities and counties plan an interconnected system of local streets, collectors and minor arterials, motor vehicles have to use streets that do not match the appropriate function. Traffic can be forced to use local streets to move from one neighborhood to another or to commercial nodes, increasing safety problems. At the other end of the spectrum, the principal arterials are used to make short trips from one neighborhood to another because there is no good collector connection. This too produces conflicts and uses valuable roadway capacity.

Strategy 9f. Roadway Jurisdiction: The agency with jurisdiction over, and responsibility for a roadway should be matched to the role the roadway plays in the regional roadway system. For example, Mn/DOT should be responsible for principal arterials.

Given the role of the cities and counties in land use and transportation, and limited financial resources, a partnership is needed between all levels of government if new principal arterials are to be provided in the region. Cities should help plan access to county and state highways to protect their traffic-carrying capacity. Cities and counties may be able to protect right-of-way to widen existing highways or to build new ones. In all cases, land use planning and development should also be closely related to the existing and future transportation system.

Figure 6-9: Cost-effective technology investments will be used in the management process.

Strategy 9g. Corridor Studies: Any corridor study or sub-area study focused on a trunk highway and conducted by a local government or interagency task force must be accepted by Mn/DOT and adopted by the Metropolitan Council as consistent with this policy plan prior to implementing the study recommendations or making regional highway investments.

Strategy 9h. Context-Sensitive Design: All new and reconstructed roads will be planned and designed in a way that protects and enhances the environment and is sensitive to community attributes and objectives.

Figure 6-8: Transportation management decisions will be geared toward optimizing person throughput

All highway projects should be designed in coordination with local jurisdictions and should be sensitive to local attributes by balancing economic, social, aesthetic and environmental objectives in addition to the mobility objective. Highway projects can often provide opportunities to incorporate many community objectives for livability and enhanced environmental quality.

Strategy 9i. Coordination with Adjacent Counties: The Council will work cooperatively with Mn/DOT, adjacent area transportation partnerships and local units of government to support connections between the Metropolitan Highway System and the counties surrounding the seven-county metropolitan area.

Policy 10: Preserve, Operate and Maintain the Metropolitan Highway System

A high priority for the region is to continue focusing highway investments toward the safe operation, preservation and maintenance of the Metropolitan Highway System.

Strategy 10a. Budget for Preservation: Mn/DOT should regularly budget adequate resources for existing facilities preservation, operations and maintenance to fully utilize the design life and minimize the investment required over the life-cycle of facilities.

Strategy 10b. Diversified Investments: Mn/DOT should strive to meet its preservation performance targets while also recognizing the need for a diversified investment plan that allows for safety and congestion mitigation so as to optimize system performance.

Strategy 10c. Integrate Preservation with Congestion Mitigation and Safety: Mn/DOT should regularly review planned preservation and maintenance projects to determine if there are opportunities to include lower-cost congestion mitigation and safety improvements.

The existing process to identify opportunities to integrate preservation projects with congestion mitigation and safety projects is more important than ever. A similar approach should be used by cities and counties as they undertake local highway projects.

Policy 11: Highway System Management and Improvements

The Metropolitan Highway System and "A" minor arterial system will be managed and improved to provide for maximum person throughput, safety and mobility using existing facility capacity, pavement and right-of-way where feasible.

Figure 6-10: Congestion management will take on renewed importance.

Strategy 11a. Investments in Managing the Highway System: After preservation, operations and maintenance, investments to manage and optimize performance of the highway system and improve safety are the region's next highest priority.

The region and state have been pioneers in highway system management to increase multimodal efficiency. These efforts must be continued and expanded in the future.

Strategy 11b. Embracing Technology: The Council and Mn/DOT will use and implement cost-effective technology solutions to manage and optimize the performance of the existing highway system as measured by person throughput.

Technology is an important component of system operations and management. Given the limited resources, the investments in new technology must be carefully made to meet the overall policy direction of this plan and be cost effective.

Figure 6-11: Traffic control facilities will be an important tool to manage congestion
Mn/DOT Traffic Control Center - Waters Edge - Roseville

Strategy 11c. Affect Travel Patterns: The Metropolitan Highway System should be managed with the understanding that congestion may be mitigated with greater efficiencies in the highway system performance and changes in travel patterns.

Given that travel demand will continue to grow, incentives to change travel patterns are necessary and can prove beneficial to everyone, not just those making travel changes. The use of transit by some individuals frees up highway capacity for drivers. Bicycling and walking save on energy and other transportation costs for short- and medium-length trips, do not contribute to pollution or congestion, and allow travelers to incorporate exercise into their routines. Bicyclists and pedestrians can be significant elements of the transportation solution within and near congested activity centers because they accommodate short-distance travel and require less space and infrastructure than automobiles.

Strategy 11d. Optimize Highway System Performance: Mn/DOT and the Council will implement techniques to optimize performance of metropolitan highway facilities as measured by person throughput. These optimization projects will maximize use of existing facility capacity, pavement and right-of-way and may include, but are not limited to, implementation of HOV and HOT lanes, priced dynamic shoulders and other roadway pricing initiatives, freeway ramp meters with HOV bypasses, and bus-only shoulders.

Figure 6-12: Access management requires interjurisdictional cooperation.

Strategy 11e. Access Management: State, county and local governments will manage access to the Regional Highway System. The capacity, safety, and utility of principal and "A" minor arterials are dictated in large part by how access to these roadways is provided and managed. Managing the location and design and new or reconstructed street and driveway connections to these arterials is a key strategy to preserve the existing capacity and enhance the safety of these roadways. Managing access consistently throughout the system will require a cooperative effort among Mn/DOT, counties, cities and townships. (See Appendix D and E)

Mn/DOT and the counties control access on freeways and some expressways through the outright purchase of the access rights of abutting land owners. However, access to other principal and "A" minor arterials is most effectively managed through local land use planning and development regulation. If considered early in the process of land development or redevelopment, the appropriate location and design of access and the supporting road network can be worked into the plans. If access is not considered until late in the design of development, it may be difficult to accommodate properly without added expense and potential disruption to the community. Therefore, cities, counties and townships exercising land use authority along principal arterials and "A" minor arterials will be expected to incorporate access standards in their subdivision and zoning ordinances and apply them during their development review process. Local access standards should be consistent with standards established in Mn/DOT's Access Management Manual or the appropriate county's access guidelines. Cities and townships should also consult with Mn/DOT or the county whenever reviewing development plans adjacent to principal arterials and "A" minor arterials. For those arterials where the existing access does not conform to the standards, cities should work with Mn/DOT and/or the County to develop a long term corridor plan to adjust and improve the access arrangements as opportunities arise through development or redevelopment of the adjacent property. Mn/DOT has developed a model access management ordinance to serve as a guide for local partners in updating their land use regulations to fully address access considerations.

Figure 6-13: Construction and related improvements should not negatively affect safe operation of the main roadway

Strategy 11f. Pricing: The Council supports roadway pricing, including HOT lanes and priced dynamic shoulder lanes, to provide an alternative to congestion and will consider implementing pricing on any expansion project.

Pricing of highway facilities offers a very effective tool to manage traffic, provide choices, and raise some revenues. Priced alternatives are one of the few highway "designs" that can provide long-term congestion relief. The Council and Mn/DOT have supported a spectrum of pricing techniques in the region for the past decade. The I-394 MnPASS lane is the first regional demonstration of variable-rate pricing. Single-occupant vehicles and some commercial vehicles are able to buy their way into the high-occupancy toll lane as long as the level of service does not deteriorate for transit and carpoolers.

Mn/DOT has worked with the Council and numerous partners to implement priced dynamic shoulders on I-35W as part of the Urban Partnership Agreement (UPA). The UPA project and I-35W / Crosstown reconstruction will be fully implemented by the fall of 2010 and subsequently evaluated.

Strategy 11g. Highway Expansion: Strategic capacity expansion projects can mitigate congestion in the region. Because of financial constraints, however, highway expansion projects should not be implemented at the expense of system preservation and management.

Associated Policies and Strategies

Policy 2: Prioritizing Regional Transportation Investments

Strategy 2a. System Preservation

Strategy 2b. Highway System Investments

Strategy 2d. Bicycle and Pedestrian Investments

Strategy 2e. Multimodal Investments

Policy 3: Investments in Regional Mobility

Strategy 3a. Congestion Management Process

Strategy 3b. Person Throughput as Measure

Strategy 3c. Alternatives to Congestion

Strategy 3g. Alleviate Highway Construction Impacts

Strategy 3h. Monitor Congestion Mitigation

Figure 6-14: Pricing will be an important tool for the region.

Policy 4: Coordination of Transportation Investments and Land Use

Strategy 4f. Local Transportation Planning

Policy 5: Investments in Regional, National and Global Connections

Strategy 5a. Interregional and National Highway Connections

Strategy 5c. Freight Connections

Policy 6: Public Participation in Transportation Planning and Investment Decisions

Strategy 6a. Public Participation

Strategy 6b. Interjurisdictional Coordination and Participation

Strategy 6c. Participation of Underrepresented Populations

Strategy 6d. Public Awareness of Transportation Issues

Strategy 6e. Transit Customer Involvement

Policy 7: Investments in Preserving Right-of-Way

Strategy 7b. Right-of-Way Acquisition Loan Fund (RALF)

Strategy 7c. Identification of Right-of-Way in Local Plans

Policy 8: Energy and Environmental Considerations in Transportation Investments

Strategy 8c. Preservation of Cultural and Natural Resources

Strategy 8d. Protection of Surface Water

Policy 12: Transit System Planning

Strategy 12d. Park-and-Rides

Policy 15: Transitway Development and Implementation

Strategy 15a. Transitway Modes

Strategy 15d. Transitway Coordination

Strategy 15f. Transitway Coordination with Other Units of Government

Policy 17: Providing for Regional Freight Transportation

Strategy 17a. Freight Terminal Access

Strategy 17b. Congestion Impacts on Freight Movement

Policy 18: Providing Pedestrian and Bicycle Travel Systems

Strategy 18a. Bicycle and Pedestrian Regional Investment Priorities

Strategy 18e. Complete Streets

A Vision for Metropolitan Highway Investments

As the region continues to grow, increased travel demand on an aging Metropolitan Highway System will create additional challenges in terms of preservation, safety and traffic congestion (Table 6-15). The very extensive highway system developed over the last 50 years will require the commitment of a growing amount of resources to basic system maintenance and preservation. In particular, a great deal of funds will be absorbed in the next 10 years by the bridge repair/replacement program mandated by the Legislature during the 2008 session. Basic preservation and bridge projects are expected to absorb about 75 percent of the state road construction funds anticipated in the 2015-2030 time period, leaving only 25 percent for safety and capacity investments.

It is important, however, to continue to improve the performance of the highway system to main-

Table 6-15: Metro Vehicle Trips and Miles Traveled, 2005 and 2030

	2005	2030	Change	Percent
Daily Vehicle Trips	7.0 M	10.7 M	+3.7 M	+53%
Daily Vehicle Miles Traveled	66.5 M	90.3 M	+23.8 M	+36%

tain mobility levels that promote economic growth and preserve the quality of life of residents. Anticipated population and job growth is expected to push highway traffic in the region to even higher levels by the year 2030 even though the 2008-2010 economic recession, volatile fuel costs, climate change concerns and greater emphasis on alternative modes may moderate this trend. The result will be more intense and more extensive congestion on the region's trunk highways, county highways and city streets. The principal arterials projected to be congested in 2030 are illustrated in Figure 6-16.

A Principal Arterial Study conducted by Mn/DOT and the Council in 2007 concluded that $40 billion (2005 dollars) in highway investments would be needed by 2030 to "fix" congestion in the region. This is more than five times the total highway revenues expected to be available to Mn/DOT's Metro District between now and 2030. In addition, the amount of funds available for expansion of the Metropolitan Highway System is severely limited by the bridge repair/replacement investments required by the Legislature in 2008 and growing preservation needs identified in a 2008 Legislative Auditor's report.

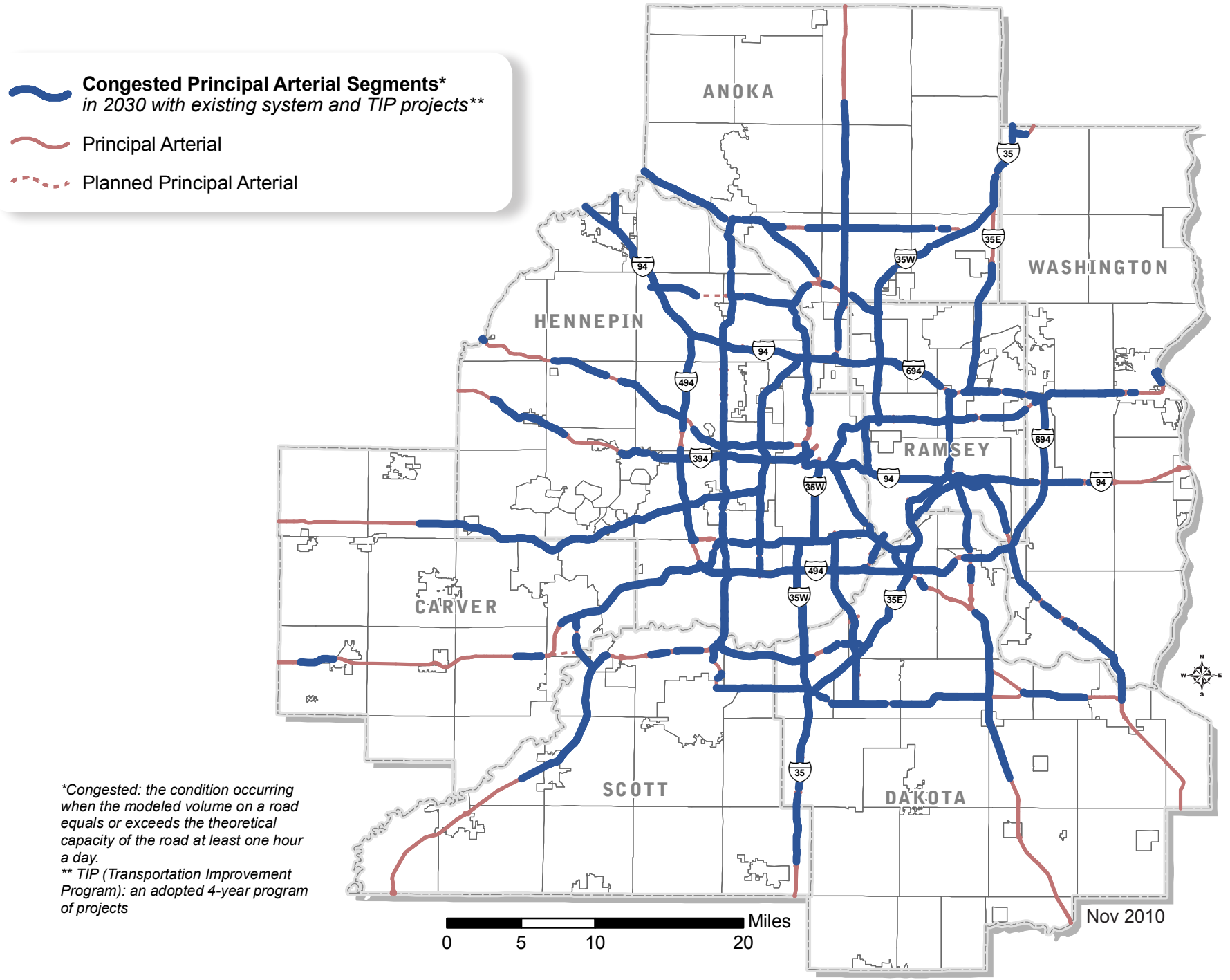
In previous plans, a common response to growing traffic congestion was to propose a number of major capacity expansion projects adding general purpose lanes. Even though some of those major projects have been built over time, the reality is that many of them have been carried over from plan to plan without being implemented because of insufficient funds.

The *Transportation Policy Plan* adopted in January 2009 left out 12 major expansion projects previously proposed and funded in the 2004 plan because the updated project cost estimates of $2.9 billion exceeded the available funds. It also recommended that Mn/DOT reassess those 12 projects in an attempt to reduce their scope and cost, while still achieving substantial preservation, congestion mitigation, capacity expansion and safety benefits. Some of these projects, at a reduced scope and cost, could be easier to implement within projected highway revenues. Improvements on those 12 major corridors, however, may require leveraging limited congestion mitigation funds with preservation and Chapter 152 Bridge funds to make them financially possible. Coordination of different types of improvements, taking advantage of needed pavement and bridge replacement, and combining them into a single larger project may be the key to Mn/DOT's ability to achieve substantial mobility benefits in those corridors.

The specific recommendations from the major project reassessment process are further discussed in this chapter in the expansion section of the Fiscally Constrained Highway Investment Plan.

Potential capacity expansion of the Metropolitan Highway System is also limited by physical, social and environmental constraints. As the region continues to grow, increased urbanization creates severe physical constraints that lead to more complex and costly solutions for major highway expansion projects. In many cases, the cost of expansion is much higher than the original cost of building the freeway, as roadway construction costs skyrocket due to growing global demand for raw materials, including steel and petroleum. Additional right-of-way in urban areas is also more costly, making it critical to search for improvement solutions that can be implemented within the existing corridor right-of-way.

Figure 6-16: 2030 Congested Principal Arterial Segments



*Congested: the condition occurring when the modeled volume on a road equals or exceeds the theoretical capacity of the road at least one hour a day.
** TIP (Transportation Improvement Program): an adopted 4-year program of projects

In essence, it is not realistic to assume that congestion will be eliminated and individual projects should not be designed under the assumption that a congestion-free system will exist sometime in the future. While congestion will not be solved because of financial realities and other constraints, congestion impacts can and must be mitigated to the fullest extent possible in order to preserve mobility levels essential to the region's economic vitality and quality of life. In order to achieve those objectives, a more realistic and innovative approach, that allocates limited available resources for the most system-wide benefit, is needed. The strategy articulated in this plan will:

- Address a large number of problem areas region-wide rather than focusing the majority of the limited available resources on a few major expansion projects and leaving the rest of the system's congestion problems unaddressed;
- Rely on innovation, technology, multimodal solutions, and strategic capacity expansions; and
- Use available funds for more effective, lower-cost solutions.
- Provide policy direction for the use of additional or unanticipated funds.

As discussed in Chapter 5: Regional Mobility, the Council and Mn/DOT embarked on a series of planning efforts in preparation of this 2010 update of the Transportation Policy Plan. Key objectives of this effort were to:

- Refine the investment vision contained in the 2009 update of the *Transportation Policy Plan* and establish overarching principles that govern Metropolitan Highway System investments; and
- Conduct a comprehensive analysis of problem areas on the Metropolitan Highway System.

These objectives have been primarily addressed in a Metropolitan Highway System Investment Study (MHSIS) which examined the role of new managed lanes, strategic capacity expansion and Active Traffic Management (ATM) strategies in mitigating congestion on the Metropolitan Highway System. The MHSIS study was complemented with other planning efforts including:

- MnPASS System Study Phase 2 to establish short-term priorities (2-10 years) for additional MnPASS lanes
- Congestion Management and Safety Plan (CMSP) to identify problem areas and define a process to identify new lower-cost / high-benefit solutions on a system-wide basis
- Travel Demand Management Study (TDMS)
- Major Project Reassessment Process

The planning framework, cost estimates, project evaluations and recommendations of the above planning efforts constitute the technical basis for the highway vision and highway investment strategy in this plan.

A New Highway Investment Strategy

This plan identifies five key objectives to mitigate congestion, improve the performance of the Metropolitan Highway System and preserve high levels of regional mobility:

- Increase the people-moving throughput of the system;
- Manage and optimize the existing system to the greatest extent possible;
- Manage future demand;
- Increase trip reliability; and
- Minimize travel time

In order to achieve the above objectives, this plan recommends emphasizing a system-wide management approach. This new approach, applicable not only to the Metropolitan Highway System but also to the Regional Highway System, which includes the "A" minor arterials because of their important role in carrying regional trips, includes the following strategies for mobility improvements:

1. Implement Active Traffic Management (ATM) System-Wide

Active Traffic Management (ATM) applications smooth the effects of congestion and reduce the number of incidents. Benefits of ATM include increases in average vehicle throughput, overall capacity and travel time reliability as well as decreases in primary and secondary incidents (accidents) and overall travel time.

Examples of ATM applications include traveler information systems, incident response programs, dynamic signing and re-routing, dynamic shoulder lanes, hard shoulder running, speed harmonization, and queue warning.

Full ATM implementation can be more effective when done in conjunction with other corridor-wide improvements such as the construction of a new managed lane. In some cases, however, more limited ATM strategies can be implemented in an effective manner, on a case by case basis to improve freeway and non-freeway highways.

An annual budget has been allocated to ATM investments of $5 M. The needs of the principal and "A" minor arterials greatly exceed this level.

2. Construct Lower-Cost / High-Benefit Highway Improvements

Lower-cost / high-benefit projects improve traffic flow by providing bottleneck relief, improving geometric design and addressing safety hazards. In some instances, these types of improvements require use of flexible design principles to maximize the use of available pavement and right-of-way. Recently, Mn/DOT has implemented with great success some lower-cost / high-benefit projects such as the widening of TH 100 at Excelsior Boulevard and the addition of a third lane on I-94 between Century and McKnight avenues. In addition, other lower-cost / high-benefit projects have been completed or are under development by Mn/DOT for implementation. Some of these projects entail capacity enhancement and short auxiliary

lanes additions while others focus on system management. Many more projects of this nature will be identified in the future, through the CMSP process, along congested corridors on a system-wide basis for construction.

In an early phase of the CMSP analysis 184 projects were identified with a cost estimate of over $1.5 billion. This greatly exceeds the $320 million allocated ($20 million annually) for lower-cost / high-benefit projects in this plan.

3. Develop a System of Managed Lanes

Priced managed lanes provide a congestion-free travel option at posted speeds for those who are willing to pay or ride transit. Private vehicles and some commercial vehicles can buy their way into the managed lanes as long as the level of service does not deteriorate for transit and carpoolers. Over time, the percentage of managed lanes as part of the Metropolitan Highway System will increase.

Priced managed lanes can move more people, more reliably, produce changes in travel patterns that reduce peak demand, provide increased capacity within existing right-of-way, improve the flow of traffic on adjacent general purpose lanes, provide greater speed and reliability for transit and encourage greater transit use. As previously discussed, the effectiveness of managed lanes can be enhanced when ATM strategies are implemented concurrently.

The Managed Lane Vision (Figure 6-34) is estimated to cost up to $1.5 billion. This assumes most projects can be built with little or no new right-of-way. The 16-year estimate of funds available for managed lane implementation is less than $500 million.

4. Implement Strategic Capacity Expansion

In some cases, strategic capacity enhancements in the form of general purpose lanes, rather than managed lanes, may be needed in order to provide lane continuity for short segments of an existing facility or to complete an unfinished segment of the Metropolitan Highway System. These capacity enhancement projects should be scoped and designed using the lower-cost / high-benefit philosophy.

5. Non-Freeway Trunk Highway Improvements

Non-freeway trunk highways are an important element of the overall Regional Highway System in carrying regional trips in a safe and efficient manner. Many of these non-freeway trunk highways are “A” minor arterials which play a critical role in supplementing the capacity of the Metropolitan Highway System. This plan supports cost-effective improvements on those roadways using limited federal, state and regional funds wisely. Special emphasis should be placed on investments that focus on preservation, safety and ATM applications such as fiber optic cable to allow traffic signal interconnection and coordination.

Requests for Congestion Management /Air Quality (CMAQ) funds through the regional solicitation process for ATM investments and other system management projects on non-freeway trunk highways are encouraged. Highway Safety Improvement Program projects are also encouraged on these roadways.

Funds allocated through the Congestion Management and Safety Process (CMSP) are another type of resource available for non-freeway trunk highway improvements. Cooperative agreements between Mn/DOT and local governments can also be used to fund those types of improvements.

Conversion of at-grade intersections to grade-separated interchanges and other mobility and safety/capacity projects on non-freeway trunk highways should only occur after a Mn/DOT and Council assessment to determine if the proposed project is consistent with existing plans and policies. The main purpose of the assessment will be to identify cost-effective projects that can be supported by the Council and Mn/DOT for local and regional funding. Completion of this assessment and explicit support from Mn/DOT will continue to be necessary to obtain Surface Transportation Program (STP) funds through the Regional Solicitation process for non-freeway trunk highway improvements.

Appendices D and E reinforce the effectiveness of improvements on non-freeway trunk highways in providing benefits for regional travel. As local units of government work with Mn/DOT to improve and convert non-freeway trunk highways to freeways, the following requirements are particularly important to achieve regional objectives:

- The appropriate local units of government exercising land use authority along the trunk highways will be expected to incorporate access standards into their subdivision and zoning ordinances and apply the standards during their development review process;
- Conversion of an at-grade intersection to an interchange should only occur in the urbanized area or in the planned MUSA (Figure E-1 in Appendix E);
- Conversion of an at-grade intersection to an interchange must provide safety and mobility improvements to both the mainline and cross-street. The new interchange should be adjacent to an existing interchange unless Mn/DOT and the Council determine through an assessment that the intermediate access points can be modified or managed to address safety concerns;
- Principal Arterials should only have interchanges with other principal or “A” minor arterials. Exceptions to this criteria will be allowed only under extraordinary circumstances and with the approval of Mn/DOT, the Council and the local road authorities; and
- Interchange spacing outside the I-494 / I-694 ring should be 2 miles or more unless physical constraints or density of existing or planned development require closer spacing.

6. Supporting Strategies

In addition to the five types of actions described above, three supporting strategies, which are key elements of the Congestion Management Process, should also be strongly pursued to further help reduce automobile use, particularly during the most congested times of the day:

- Travel Demand Management (TDM) strategies (e.g. carpools, vanpools, staggered work hours, telework, compressed work weeks)

Figure 6-17: Gas tax revenues have not kept up with inflation.

- Transit Investments (e.g. new transitways, expanded and enhanced transit service, and park-and-rides)
- Land use changes (e.g. increased job and housing concentrations)

All three of these supporting strategies combined can help mitigate congestion by either reducing overall travel demand or by increasing the share of travel on the highway system accommodated by modes other than the single-occupant automobile.

Fiscally Constrained Highway Investment Plan

Since the 1990's, the metropolitan area has been required by federal law to prepare a fiscally constrained long-range transportation plan and a four-year Transportation Improvement Program (TIP) in which projected revenues and proposed investments are balanced.

2011-2030 Highway Funding Resources

Highway revenue estimates for this plan include all state and federal fund categories that have historically gone to Mn/DOT. The detailed discussion of these revenues is found in Chapter 3, Regional Transportation Finance. The highway revenue estimates also include the federal funds allocated through the TAB Regional Solicitation process, such as STP Urban Guarantee funds. Mn/DOT typically receives a portion of the regional funds for non-freeway principal arterial and "A" minor arterial projects, with the balance allocated to local government projects.

The actions of the 2008 Legislature increased revenues for the state trunk highway system by an estimated $2.6 billion (from 2009-2018) and for the cities and counties by $1.8 billion (2009-2018). Chapter 152 provides a 3.5 cent gas tax primarily to pay for bonds to repair or replace bridges and some smaller allocations, such as for transit advantages and interchanges.

Table 6-18:
2011-2030 Regional Highway Investments

TIP (2011-2014)	
Local & Mn/DOT Highway	$1.3 B
Chapter 152 Bridge	$1.1 B
Est. 2015-2030 Metro Area Funds	
Mn/DOT State Road Construction	$3.6 - $4.2 B
Ch. 152 Bridge (2015-2018)	$0.3 B
Regional Solicitation	$1.7 - $1.8 B
TOTAL Investment 2011-2030	$8.0 - $8.7 B

The total highway resources available for the region in the 2011-2030 period, is estimated at $8.0 to $8.7 Billion, is shown in Table 6-18. Those funds can be categorized as follows:

- The 2011-2014 TIP, with $2.4 billion in highway investments in the region, is to be funded by a combination of federal, state and local funds. In addition to Mn/DOT projects, the TIP includes a large number of local projects which are partially funded with federal funds
- The 2015-2030 Metro Area Funds which include the revenues assumed in the Chapter 152 Bridge Program beyond the 2011-2014 TIP, the 2015-2030 revenues estimated for the Mn/DOT State Road Construction program and the Regional Solicitation funds. These first two funding categories constitute the target funds for Mn/DOT's Metro District.

Table 6-19: Total Metro Area Target Funds Available

*(in millions)**

	Federal Target Funds	State Target Funds	Total
2015-2020	$ 1,000	$ 900	$ 1,900
2021- 2030	$ 2,150	$ 1,550	$ 3,700
TOTAL	$ 3,150	$ 2,450	$ 5,600

**These funds are exclusive of Chapter 152 Tier 1 & 2 bridge repair or replacement and other bridge preservation.*

Table 6-20: Portion of Federal Funds Available for Regional Solicitation

(in millions)

2015 - 2020	$ 570
2021 - 2030	$ 1,200
TOTAL	**$ 1,770**

Table 6-21: State Road Construction Funds, Metro District

(in millions)

	Federal *	State	Total
2015 - 2020	$ 430	$ 900	$ 1,330
2021 - 2030	$ 950	$ 1,550	$ 2,500
TOTAL	**$ 1,380**	**$ 2,450**	**$ 3,830**

Mn/DOT Metro receives an average 45% of the federal funds that come to the region.

Target Funds

Mn/DOT has established a process for distributing state and federal highway funds among eight areas throughout the state known as Area Transportation Partnerships (ATPs). The amount of money estimated to be available to each ATP is often referred to as the "target funds." Target funds estimates include both federal and state funds for the Mn/DOT district and federal funds available for local areas. These funds are forecast by Mn/DOT Central Office and represent the best estimate of future funds at this time. The target funds available to the Metro ATP are shown in Table 6-19, Table 6-20 and Table 6-21. These tables only include a small portion, $130 million, of funds for the Chapter 152 Tier 1 and 2 bridge needs which are primarily to be funded with bonds and are discussed separately from the target funds.

Table 6-19 shows the total federal and state funds estimated for the region for two time frames between 2015 and 2030. (2011 – 2014 funds have already been programmed and are shown in the 2011 – 2014 TIP is in Appendix B.) The federal target funds are forecasted to be constant for the next six years. After that, the estimates are increased by 1.6 percent per year. After 2018, the estimates of state funding sources are also increased by 1.5 percent per year.

Approximately 55 percent of the traditional federal highway formula funds that come to the region are allocated by TAB and the Council through the regional solicitation process. These federal funds are shown in Table 6-20. Table 6-21 shows the remaining 45 percent of federal formula funds as well as the state dollars that will be available for Mn/DOT's state road construction program.

Table 6-24 provides a breakdown of state highway construction investments for the 2015-2030 time period, excluding a large portion of the bridge investments. These funding levels reflect the region's priorities for preservation, safety, and congestion mitigation.

In the recent past, the state and region have secured additional federal and state funds for highway construction. The total ranges shown at the bottom of Table 6-24 reflect the uncertainty of predicting future funding levels and the possibility of additional funds coming to the region, but do not assume a significant increase in the base level of state or federal funds. Additional funds for state trunk highway projects may also become available through public-public and public-private partnerships.

Figure 6-22: Preservation is the first investment priority

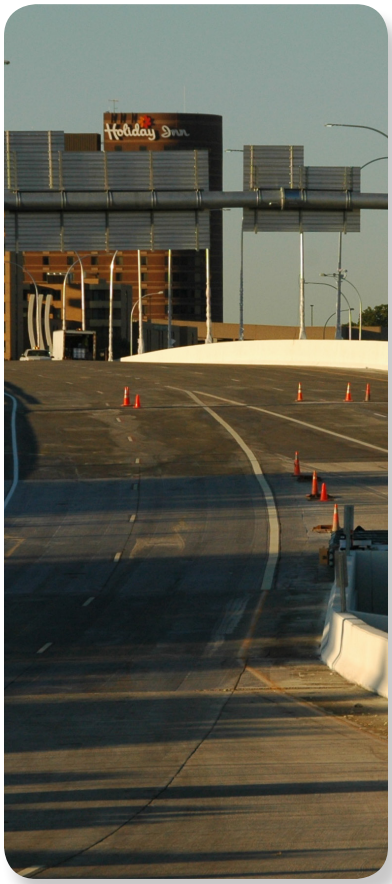


Figure 6-23: Preservation of bridges is a priority for the region

Table 6-24: TSP Metro District Highway Investment Plan: State Road Construction 2015-2030

(in millions)

Fund Category	2015-2020	2021-2030	Total
Metro Share of Tier 1 and 2 Bridges	$130	$0	$130
Preservation			
Pavement	$300	$800	$1,100
Other Bridge	$400	$1000	$1,400
BARC[1]	$25	$30	$55
Other Infrastructure	$80	$140	$220
Safety			
Safety Capacity	$100	$120	$220
Safety- HSIP[2]	$20	$30	$50
Cooperative Agreements	$30	$30	$60
Congestion Mitigation			
Congestion Mitigation	$220	$300	$520
Team Transit	$10	$20	$30
Community Improvements	$15	$30	$45
TOTAL	**$1330**	**$2500**	**$3830**
Total Estimated Range[3]	**$ 1250 - $1450**	**$2350 - $2700**	**$3600 - $4150**

1. BARC – Bridge and Road Construction 2. HSIP – Highway Safety Improvement Program 3. The ranges reflect the uncertainty of forecasting revenues over time.

2030 Highway Investment Plan

2011-2014 Transportation Improvement Program (TIP)

The 2011-2014 TIP assumes that $2.4 billion will be available to the region for highway investments in this 4-year period. This amount includes Federal Title 1 funds as well as state and local highway funds. The entire program is shown in Appendix B and Table 6-25 depicts some of the major highway projects. The higher than normal level of investment is largely due to about $1.13 billion in one time Chapter 152 Tier 1 Bridge Program and additional Federal ARRA Funds.

Table 6-25: Major Highway Projects Included in 2011-2014 Transportation Improvement Program (TIP)

Highway and Bridge Project	Cost Estimates	Project Description	Status and Other Comments
I-494 and TH 169	$172 M	Major Interchange reconstruction and local access improvements	Design/build project scheduled to let in fall 2010
TH 610 from TH 169 to CR 81	$42 M	Complete four-lane freeway on new alignment	Majority of funds included in the TIP for TH 610 will be spent on this section. ARRA funds
TH 52 Lafayette Bridge over Mississippi River in Saint Paul	$290 M	Reconstruct bridge, auxiliary lane and full shoulders	Chapter 152 funds
TH 61 Hastings bridge over Mississippi River	$265 M	Reconstruct bridge and TH 61 approaches	Chapter 152 funds
I-35E, I-94 to Maryland Avenue	$200 M	Reconstruct Cayuga Street bridges	Chapter 152 bridge funds; MnPASS lane possible addition
TH 36 bridge over St. Croix River	$ 425 M (MN Share)	Construct new four lane bridge	Chapter 152 funds
I-694/TH 51/TH 10 Interchange	$42 M	Add an eastbound through lane on I-694 to reduce congestion	Lower-cost / high-benefit project
TH 36 and Rice Street	$ 20 M	Reconstruct interchange	Contract awarded in 2010
TOTAL	**$1,414 M**		

2015-2030 Highway Investment Plan

Preservation - the Cornerstone of Safety

The first investment priority must be to preserve the existing Regional Highway System, a significant regional asset that includes 657 miles of metropolitan highways and an additional 450 miles of minor arterial trunk highways, most of which are “A” minors. These investments are essential in achieving safety for the traveling public. A legislative auditor’s report in 2008 found the level of preservation funding had been decreasing in recent years and needed to be increased. If funding becomes limited, preserving the Metropolitan Highway System should take precedence over other trunk highways.

Primary preservation activities include preventive maintenance, pavement repair and rehabilitation, and bridge repair and rehabilitation to achieve pavement and bridge performance measures. Additional preservation is needed for components beyond pavement and bridges, such as stormwater management, signs, lighting, signals and intelligent transportation systems (ITS). Preservation investments are shown in Table 6-24 under four broad categories: Pavement, Other Bridges, Bridge

Figure 6-26: Preserving the existing highway system is a priority and essential to public safety

and Road Construction (BARC) and Other. These investments will absorb a very large share of the funds estimated to come to Mn/DOT. In the 20-year planning period, the Metro District preservation performance target will not be met, given the anticipated revenues. Should additional funds become available, they will be allocated to both preservation and congestion mitigation to achieve a balanced investment program.

The 2008 funding legislation also directed Mn/DOT to repair or replace a large number of trunk highway bridges and associated approaches throughout the state. Under the legislation, the Tier 1 and 2 bridge improvements must be completed or under contract by 2018. This represents the vast majority of the new funding available to Mn/DOT, with more than $1.5 billion of the bond funds estimated to go to Tier 1 and 2 bridges in the metro area. In addition, Mn/DOT will spend more than $300 million of federal money from its Statewide Bridge Preservation Fund on these bridges.

Thirty Tier 1 and 2 bridges in Mn/DOT's Metro District will be repaired, replaced or prioritized for rehabilitation under the bond program. Figure 6-28 shows the location of the 30 metro area bridges, including four major metro Tier 1 bridges which must be repaired or replaced to meet the 2018 deadline. The current cost estimate for these four bridges (included in Table 6-25), with approaches, is approximately $1.2 billion, although more detailed scoping reports and cost estimates will be prepared. The remaining Tier 1 bridges and the Tier 2 bridges which require additional investment before 2018 in the metro area are listed in Table 6-27. The specific treatment and scope of work required for the bridge projects is still being analyzed. While the bridge projects are included in the preservation investment category, many of the projects will include capacity improvements.

Table 6-27: Tier 1 and Tier 2 Bridges Requiring Investment before 2018

Bridge	Tier	Program Year	Cost Estimate *(in millions)*
TH 5 over recreation trail	Other Tier 1	2013	4
I-35W SB over TH 65 NB	Other Tier 1	2018	53
W 94TH St over I-35W	Other Tier 1	2013	14
US 61 over BNSF RR	Other Tier 1	2010	7
TH 243 (Osceola) over St Croix River *	Tier 2	2010	1
TH 77 SB Coll Rd over Killebrew Dr	Tier 2	2018	1
I-94 SB off ramp over Lyndale Avenue N & RR	Tier 2	2018	0.6
I-94 SB on ramp over Glenwood Avenue & RRs	Tier 2	2018	1.2
I-94 WB on ramp over I-94 & TH 65	Tier 2	2018	60
I-94 WB off ramp over CP RAIL & city street	Tier 2	2011	1
TH 7 (CSAH 25) over TH 100	Tier 2	2016	157
TH 100 - Minnetonka Blvd over TH 100	Tier 2	2016	
TH 55 over Bassett Creek	Tier 2	2018	2
TH 77 NB over Minnesota River & Black Dog	Tier 2	2015	14
TH 77 SB over Minnesota River & Black Dog	Tier 2	2015	
TH 36 over Lexington Avenue	Tier 2	2015	30
US 52 (Lafayette) over UP RR & Eaton Street	Tier 2	2015	9
TH 149 (Smith Avenue) over Mississippi River & RR redeck	Tier 2	2018	19
I-35W - Co Rd E2 (CSAH 73) over I-35W	Tier 2	1028	23
US 10 (Prescott) over St Croix River	Tier 2	2018	1

** Project in Chisago County (part of Mn/DOT Metro District) - not shown on map of Required Bridge Investments (Figure 6-28)*

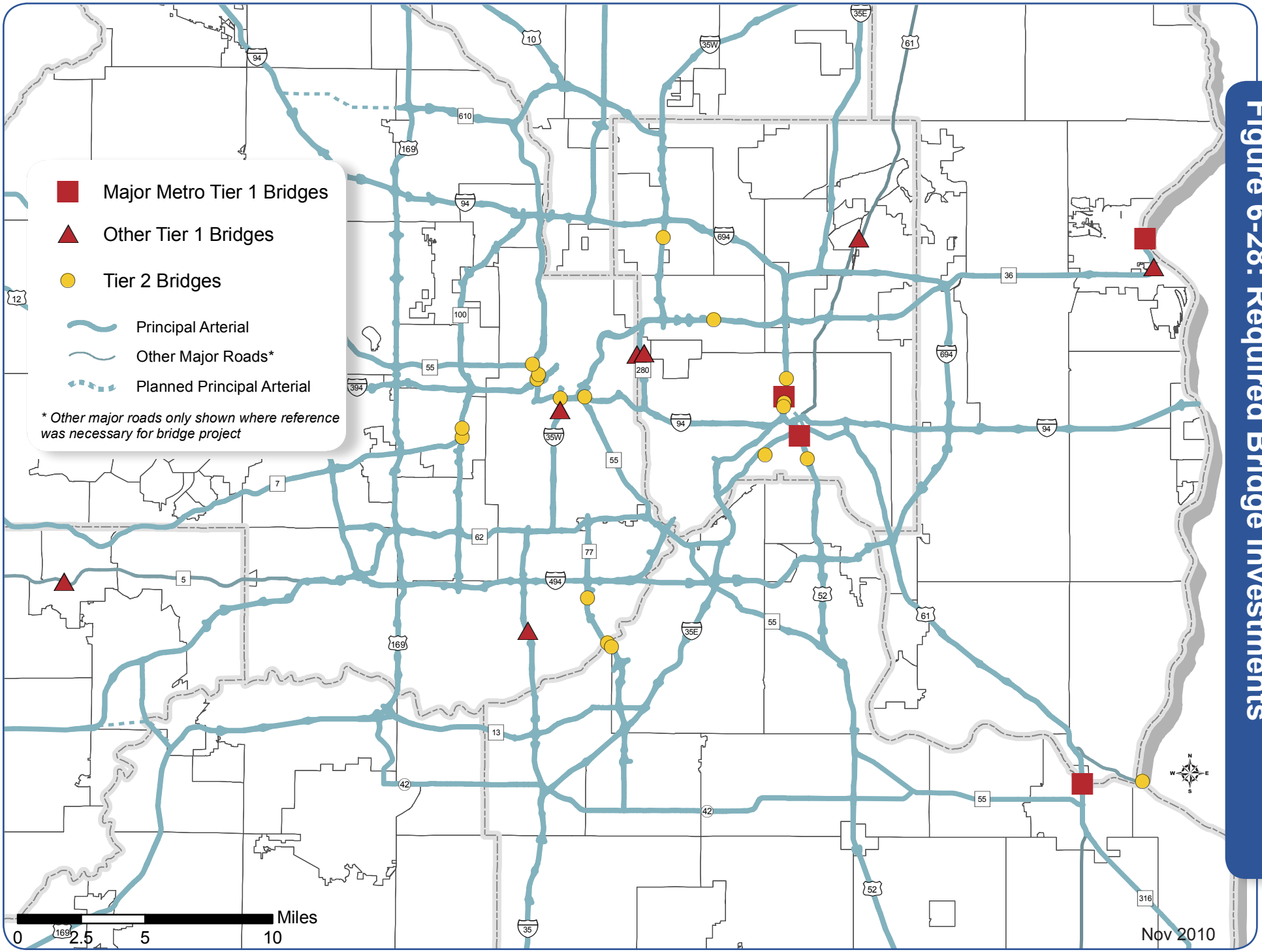


Figure 6-28: Required Bridge Investments

Safety

The federal SAFETEA-LU law elevated safety to a high priority and a "core" funding program. Federal guidance establishes funding levels each state must meet. In the Twin Cities region, these funds are supplemented with state funds to address this critical need. Because of this added emphasis, safety considerations must become an essential element in the development of all projects.

The safety category consists of three parts; Capacity, Highway Safety Improvement Program (HSIP), and Cooperative Agreements (See Table 6-24, Safety Section.) Highway Safety Improvement Program (HSIP) are funds allocated through a competitive process by Mn/DOT and the TAB. Other safety projects are selected by Mn/DOT to address known and anticipated safety problems.

Community Improvements

Although there are significant local land access interchange needs in the Twin Cities area, the Metro District will focus its Regional Community Improvement Projects (RCIP) investments on much needed noise walls and its highly effective cooperation agreements program. The construction of new, and maintenance of existing, noise walls will continue to be an important investment strategy for Metro District. Because the Twin Cities is the State's hub of economic activity and access to the region's highway system is critical, Metro District will work with local partners on potential investment strategies for interchanges should resources become available in the future. Metro District recognizes that RCIP interchanges are important for supporting economic development in the region.

Congestion Mitigation / Mobility Enhancements

This plan supports the implementation of ATM improvements, lower-cost / high-benefit projects and new managed lane and affordable strategic capacity expansion to mitigate congestion and improve mobility. However, only about $900 million is forecasted to be available for these types of projects in the 2015-2030 period. This makes it critical that limited resources available for congestion mitigation and mobility be used, whenever possible, to augment preservation and safety funds and funds from the Chapter 152 bridge program to implement projects that meet multiple objectives. Table 6-29 shows a sub-allocation of the estimated $900 million by investment type. This allocation reflects the policy direction in this plan and will be used in project programming decisions. These funds represent the level of effort that will be made to mitigate congestion, provide increased safety and improve regional mobility.

Table 6-29: 2015-2030 Congestion Mitigation and Safety Investment Plan

(in millions)

	2015-2020	2021-2030	2015-2030
Active Traffic Management (ATM)	$ 30	$ 50	$ 80
Lower-Cost / High-Benefit (CMSP Projects)	$ 120	$ 200	$ 320
Managed Lane / Strategic Capacity Enhancements	$ 170	$ 330	$ 500
TOTALS	**$ 320**	**$ 580**	**$ 900***

** The $900M funding level assumes the Metro District will receive supplemental funds in addition to its formula funding through competitive funding programs*

Figure 6-30: Congestion mitigation efforts will also include implementing priced lanes

ATM funds will be used not only on the freeway system but also on non-freeway principal arterials and "A" minor arterials. Mn/DOT may obtain some of these funds from federal funds allocated through the Regional Solicitation process.

Lower-cost / high-benefit funds will also be used for both principal and "A" minor arterial projects. These projects may be initiated by Mn/DOT or local governmental units and will use a variety of funding sources. Some of these projects may rank well in the regional solicitation process because of their emphasis on addressing an existing problem in a cost-effective manner. Other lower-cost / high-benefit projects may take advantage of cooperative agreements between Mn/DOT and local partners.

The third category of congestion mitigation will primarily be used to implement priced managed lanes, generally built within the existing right-of-way and using the existing pavement to the greatest extent possible. The funds will also be used for new strategic capacity enhancements that: help mitigate congestion or relieve a bottleneck, cannot be addressed by managed lanes, and are approached and scoped under the lower-cost / high-benefit philosophy.

ATM Improvements

Currently, Mn/DOT allocates funds annually to basic Freeway Management System (FMS) investments that typically include fiber optic cable, surveillance cameras and changeable message signs. On non-freeway highways, traffic signals are upgraded to allow for signal coordination, cameras for surveillance and electronic signs for travel information. These types of improvements are expected to continue in the future, on non-freeway principal arterials (i.e. TH61 TH36 TH65 TH10 TH55 TH12 TH7 TH169 TH 52) and "A" minor arterials. Figure 6-31 depicts Mn/DOT's Active Traffic Management System on the trunk highway system with additional planned investments.

In many cases, ATM improvements will become a reality in conjunction with a broader corridor improvement project (i.e. new managed lanes including priced MnPASS lanes) to enhance the effectiveness of those improvements and mitigate potential negative impacts. In the short term, ATM improvements are also expected to be implemented in the I-94 corridor between the two downtowns in conjunction with major preservation improvements already programmed in the current TIP.

In the 2015-2020 time period $30 million is estimated to be available for ATM applications. In the 2021-2030 time period an additional $50 million is estimated to be available for these activities.

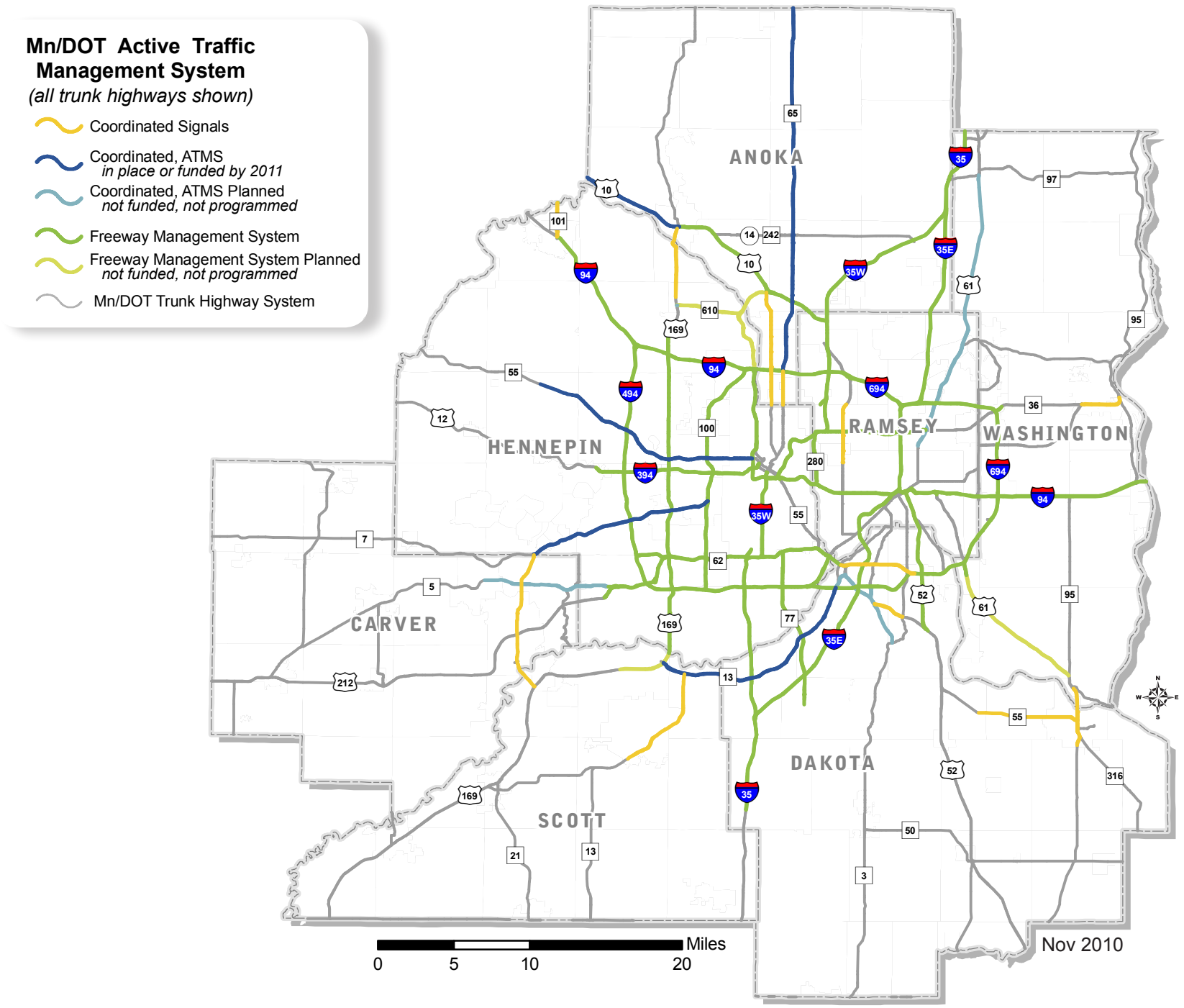


Figure 6-31: Active Traffic Management System

Lower-Cost / High-Benefit Projects

The Congestion Management and Safety Plan (CMSP) defines a process and evaluation criteria to select lower-cost / high-benefit projects to address mobility constraints throughout the entire metropolitan area. During the 2009 planning effort, approximately 180 problem areas were identified and evaluated. A number of those projects are included in the 2011-2014 TIP, and others are part of the major corridor reassessment recommendations which are included in Table 6-36. Table 6-32 and Figure 6-33 show lower-cost / high-benefit projects which have been completed or are under development by Mn/DOT. Some of these projects include capacity enhancements, such as short auxiliary lanes, and ATM projects, such as installing additional ramp meters. $120 million is available to implement these and other lower-cost / high-benefit projects in the 2015-2020 period. An additional $200 million is projected for the 2021-2030 period to be allocated in accordance with the process and evaluation criteria defined in the CMSP. Additional funds may be generated in the 2015-2030 time period for lower-cost / high-benefit projects through the Regional Solicitation process.

Managed Lanes Vision

A number of corridors were evaluated in the MHSIS and MnPASS 2 planning efforts as potential candidates for managed lanes. The MHSIS evaluated projects that may be viable in the long-term future, while MnPASS 2 had a shorter term investment window. The key performance measures used to evaluate potential managed lane projects, in both studies, included:

- Person and vehicle throughput
- Travel time savings, peak period delay (in managed lane) and VMT reductions
- Transit suitability, transit/carpool attractiveness
- Cost-effectiveness
- Opportunity for implementation

MnPASS 2 Study Recommendations

Mn/DOT, working with the Council, during 2010 completed the MnPASS 2 Study. The objective of that work was to analyze and make recommendations for the next generation of MnPASS managed lane projects for implementation in the Twin Cities metropolitan region. In the study, Mn/DOT assessed its priorities for short term (2 to 10 years) MnPASS lane implementation in light of evolving policies, actual experience with two operating MnPASS lanes, and in close coordination with the Managed Lane Vision developed as part of the MHSIS. An important aspect of identifying shorter term MnPASS 2 projects for implementation was the desire to avoid costly road widening and right-of-way takings. The study compared different managed lane options, but did not analyze other types of transportation investments.

The recommendations of the MnPASS 2 study for short term priority investments are as follows:

Tier 1 Investments: I-35E (I-94 to Little Canada Road, Little Canada Road to Co. Rd. E)

A great opportunity exists to build this lane coincident with the replacement of the Cayuga Bridges, a Chapter 152 funded project which is moving forward now. This corridor has moderately high transit service, directly serves downtown St. Paul, can be built in two phases without major challenges, and extends MnPASS to the northeastern sector of the metro region. The benefits to users will increase with a direct connection provided to downtown St. Paul via the 10th Street/ Wacouta Avenue exit.

Tier 2 Investments: TH 36 Eastbound from I-35W to I-35E, I-35W from downtown Minneapolis to TH 36, I-35W from TH 36 to Blaine, and I-94 between the downtowns.

TH 36 is also an opportunistic project in that it can be relatively easy and inexpensive to build coincident with the replacement of the Lexington Avenue bridge at TH 36. Combined with the I-35W project serving downtown Minneapolis it will ultimately become part of a viable northern and eastern metro MnPASS system. I-94 can provide direct connections to both Minneapolis and St. Paul and eventually connect to the existing MnPASS system. All of these corridors provide direct service to the downtown cores have high transit service levels and should be studied further. As financing and approvals are obtained, engineering challenges resolved, and opportunities arise to combine implementation of the MnPASS lane with other preservation projects these projects should be built.

All MnPASS 2, Tier 3 recommended project investments are contained in the Managed Lane Vision shown in Figure 6-34 along with other longer term implementation opportunities.

Based on the analysis performed in the MHSIS and MnPASS 2 studies, a managed lane system long-term vision was developed. This vision, shown in Figure 6-34 and in Table 6-35, includes the highest ranking corridors from the evaluation process. The I-94 corridor east of downtown St Paul is also included in the vision, even though it was not one of the highest ranking managed lane corridors, because it is currently undergoing an Alternatives Analysis which will include managed lanes as one of the options under consideration.

The intent is to implement managed lane corridors either within the existing right-of-way, or with minimal additional right-of-way. It is also the intent to implement these projects in accordance with existing design standards, to the greatest extent possible. In some instances, however, some design flexibility may be necessary to reduce costs and make it possible to implement the project within existing funding constraints. In all cases, the safety of the public will be maintained or even improved with the implementation of managed lanes.

The majority of the managed corridors will have a left hand or median location for the managed lanes. In all cases an array of ATM applications will be implemented to ensure safe and effective use of the managed lanes and to mitigate any potential negative impact.

Table 6-32: Lower-Cost / High-Benefit Projects Recently Completed/Under Development

ID	Hwy	Beginning	End	Location	Dir.	Project Description	Year
1	I-394	----	----	I-494	----	Modify Interchanges at I-494 to add exiting capacity	2013
2	I-394	----	----	Xenia Ave	EB	Separate exit to CD to add capacity	2010
3	I-94	TH 101	95th Ave	Maple Grove/Rogers	----	Install ramp meters	
4	I-94	TH 101	----	Rogers	----	New ramp that bypasses first signal	2010
5	I-94	I-394	----	Minneapolis	----	Convert exit, striping and signing	2010
6	I-94	----	----	Maplewood/St. Paul/ Woodbury	----	Install ramp meters at White Bear Avenue, McKnight Road, Radio Drive	2011
7	I-94	TH 61	White Bear Avenue	St. Paul	EB	Install auxiliary lane	2011
8	I-494	I-35E	----	Mendota Heights	SB	Modify interchange by separating merged ramps	2009
9	I-694	I-35W	----	New Brighton	EB	Modify interchange to I-35W. Create auxiliary lane/safety lane.	2010
10	TH 100	----	----	Brooklyn Center/ Golden Valley/ Robbinsdale	----	Install ramp meters at TH 55, Duluth Street, 36th Avenue, CR 8, France Avenue	2008
11	TH 10	Hanson	Egret Blvd	Coon Rapids	----	Add lanes in both directions	2009
12	I-35			I-35W, I-35E Merge	NB	Add auxiliary lane in Columbus	2009
13	I-35W	Burnsville Pkwy.	CR 42	Burnsville	SB	Auxiliary lane	2007
14	I-35W	TH 13	106th Street	Burnsville	SB	Auxiliary lane	2009
15	I-94	I-694		Brooklyn Center	NB	Add extended parallel exit	2007 TR
16	I-94	TH 280	I-35W	St. Paul / Lauderdale		Add lanes in both directions by re-striping	2007 TR
17	I-35E	I-494		Mendota Heights	NB	Expand CD exit to 2 lanes	2008
18	I-694	TH 47	TH 65	Fridley	EB	Add auxiliary lane	2007 TR
19	TH 100	Duluth Street	TH 55	Golden Valley	SB	Add auxiliary lane	2007 TR
20	TH 100	I-694		Brooklyn Center	EB	Expand to 2-lane on ramp	2007 TR
21	I-35E	CR 11	TH 77	Apple Valley, Burnsville	SB	Add auxiliary lane	

** Not all projects under development are funded in the fiscally constrained plan or included in the Regional Air Quality Conformity Analysis.*
TR = Traffic Restoration projects implemented in response to I-35W bridge collapse

Table 6-32: Lower-Cost / High-Benefit Projects Recently Completed/Under Development

ID	Hwy	Beginning	End	Location	Dir.	Project Description	Year
22	TH 212	I-494	Prairie Center Drive	Eden Prairie	WB	Add auxiliary lane	2009
23	TH 280	Broadway	I-35W	Roseville	--	Convert to Freeway	2007 TR
24	TH 252	85th Ave		Brooklyn Park	NB	Add 3rd Lane	2010
25	TH 36	Hilton Trail		Pine Spring	--	Convert intersection to low cost interchange	2013
26	I-35E	I-694		Little Canada		Widen north to west ramp so queue of traffic removed from I-35E	2010
27	US 169	Medicine Lk Rd		Plymouth		Extend deceleration lane for south exit	2009
28	TH 51	Roselawn	TH 36	Roseville	NB	Add 3rd lane	2008
29	I-35W	Lake Dr	US 10	Blaine	SB	Add auxiliary lane	2010

** Not all projects under development are funded in the fiscally constrained plan or included in the Regional Air Quality Conformity Analysis.*
TR = Traffic Restoration projects implemented in response to I-35W bridge collapse

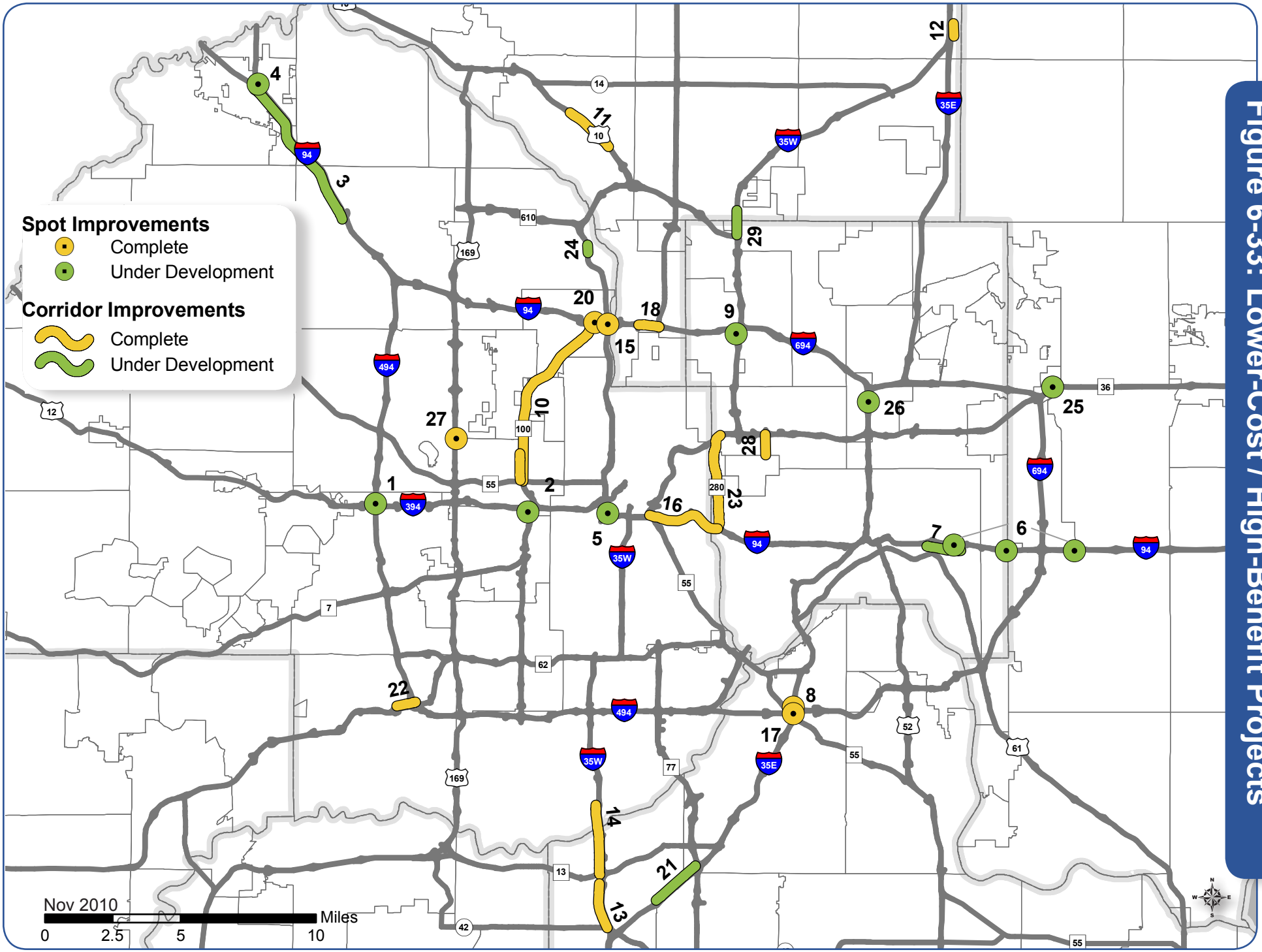


Figure 6-33: Lower-Cost / High-Benefit Projects

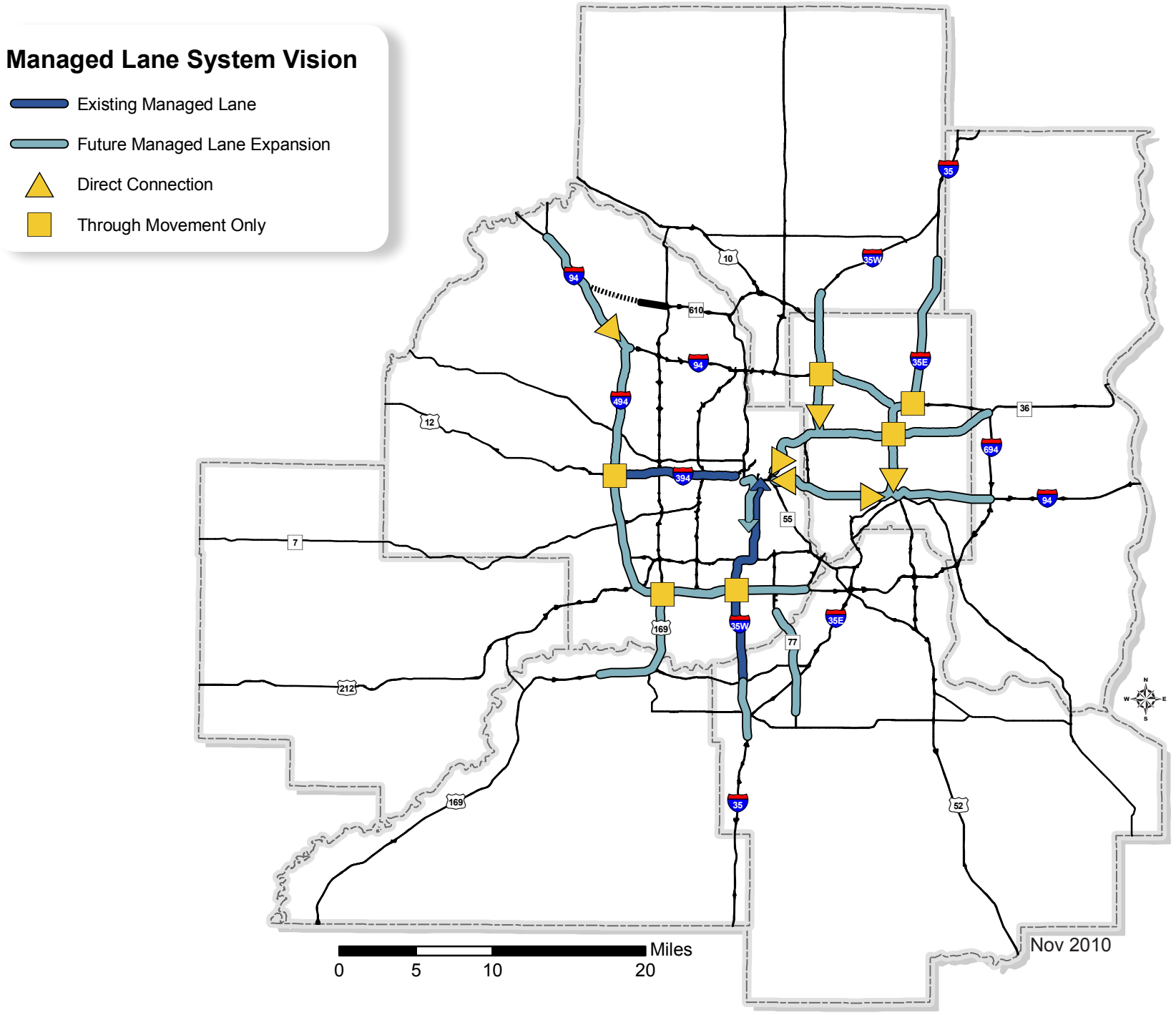


Figure 6-34: Managed Lane System Vision

Table 6-35: Managed Lane Vision Projects

Corridor	Termini		Miles	Type of Treatment	Direct Connections	Move through System to System Interchange	Cost in Millions		Comments
							Low	High	
I-35E N/S A	I94/ Downtown Streets St. Paul	Little Canada Rd.	3.9	Add left MnPASS lane	St. Paul 10th Street and Wacouta	TH 36	$35	$90	Some reduced shoulders
I-35E N/S B	Little Canada Rd.	TH 96		Add left MnPASS lane	----	I-694 TH 96	----	----	Extension to I-35E Segment A
I-35W A	DT Mpls	TH 36	5.3	Add left MnPASS lane	CR 122/Mpls S 4th Street	TH 280	$47	$115	Some reduced shoulders
I-35W B	TH 36	95th St Blaine	10.8	Add left MnPASS lane	I-35W A	I-694	$140	$190	Some reduced shoulders
TH 36 EB	I-35W	I-35E	5	Add left MnPASS lane			$35	$60	----
TH 36 WB	I-35W	I-35E	5	Add left MnPASS lane	I-35W SB	I-35E	----		Direct Connection at I-35W $ 50-70M
TH 36	I-35E	I-694	5	Add left MnPASS	----	----	----	----	----
I-94 A	Downtown Mpls	TH 280	3	Add left MnPASS lane	Mpls S 11th Ave	TH 280	$41	$41	Right bus shoulder eliminated. Some reduced shoulders
I-94 B	TH 280	Downtown St. Paul	5.1	Add left MnPASS lane	St. Paul Street Peter Street	TH 280	$62	$62	Right bus shoulder eliminated. Some reduced shoulders
I-94 C	Rogers/TH 101	I-494/split	9	Add left MnPASS lane	SB to I-494 MnPASS lane	TH 101	$68	$95	Direct connection $ 35-50 M
I-494 A	I-94	I-394	8.5	Add left MnPASS lane	----	I-394	$61	$61	----
I-494 B	I-394	TH 212	7.6	PDSL	----	TH 212	$70	$150	Note PDSL
I-494 C	TH 212	Airport	10.6	Add left MnPASS lane	----	TH 169 I-35W	$130	$185	Some reduced shoulders
TH 77	141st	I-494	6.9	Add left MnPASS lane	----	----	$41	$41	Some reduced shoulders
TH 169	CR 17	I-494	10	Add left MnPASS lane	----	I-494	$93	$115	Reduced width of shoulder and lane over Mn. River
I-694	I-35W	I-35E	6	Add WB DSL	----	----	----	----	Evaluate as a peak period only GP lane or truck only lane

Under current funding projections, it is not possible to build all the managed lane projects included in this long-term vision by 2030. Their aggregate construction cost of about $1.25 to $1.5 billion greatly exceeds the $500 million estimated to be available. For that reason, they cannot all be included in the fiscally constrained regional transportation plan. Implementation of this vision, however, should be a key regional policy objective to be pursued through competitive federal funding, public/private partnerships and other funding opportunities.

Early implementation opportunities for new managed lanes will be sought with the objective to grow a system that builds upon and connects to managed corridors already in place and serves the two downtowns and other major traffic generators. In identifying early implementation opportunities, it will be essential to ensure that such a system of managed lanes is developed rather than a number of individual corridors with little system continuity. Where possible and affordable, direct connections between managed lane corridors and employment centers' local street systems will be included as this vision is implemented.

Corridors where major preservation and bridge rehabilitation/replacement projects are already planned or programmed are a good possibility for early implementation. In those cases, the incremental congestion mitigation/mobility funds needed to add the managed lanes can be significantly reduced.

A good example of leveraging multiple resources to implement managed lanes is the I-35E corridor between downtown St Paul and Little Canada Road. Mn/DOT has already programmed the Tier 1 Cayuga Bridge project in 2010/2013 which will replace 3 bridges south of Maryland Avenue in this congested corridor. The intent is to add any new capacity as MnPASS lanes using anticipated funding for this project. The goal is also to include a direct connection of these MnPASS lanes into downtown St. Paul if the cost is reasonable and there are sufficient funds available. Eventually, these managed lanes could be extended to TH 96 through the recently improved I-35E/I-694 section increasing the benefits and use of the new lanes.

The region will monitor and evaluate, through the Congestion Management Process, the development of this system of managed lanes and the number of lane-miles implemented, on an ongoing basis.

Strategic Capacity Expansion

Completing the unfinished segment of TH 610 and its connection to I-94 is a strategic capacity expansion project with new general purpose lanes to close a significant gap in the Metropolitan Highway System. Some strategic capacity enhancements may also be achieved by implementing interchange consolidation/closure initiatives and adding short general purpose lane additions, such as the TH 252 improvement discussed under the Major Project Reassessment section.

Major Project Reassessment

Because of the aforementioned financial constraints many of the expansion projects proposed in the past have been reassessed to bring them more in line with projected revenues and Mn/DOT's ability to implement them. This reassessment was performed with the recognition that it is not realistic to assume

that congestion will be eliminated and that each individual project can be designed as if a congestion-free system can be achieved.

Particular emphasis was placed in the reassessment process to identify lower-cost / high-benefit improvements. Major preservation and bridge replacement projects, already planned and/or programmed in those corridors, have been used to leverage limited mobility funds to implement improvements that provide substantial mobility benefits to the travelling public.

Table 6-36 describes the initial recommended improvements in those corridors based upon the findings and conclusions of the MHSIS, CMSP, MnPASS 2 and Major Project Reassessment Effort.

The projects included in the 2011-2014 TIP are fully funded and the projects in the 2015-2020 period are anticipated with projected funding. Projects included in the 2021-2030 period must be consistent with the projected revenue allocation levels shown in Table 6-29.

As previously discussed, the region will select other ATM, lower-cost / high-benefit, and managed lanes projects, in addition to the projects included in Table 6-36, through the CMSP and CMP processes based on funding availability.

The following recommendations for right-of-way preservation for post-2030 projects have been made with respect to the two major river crossings:

- Future right-of-way preservation by local governments for a minor arterial instead of a principal arterial connecting the cities of Dayton and Ramsey. The designation of TH 101 as a principal arterial in replaced the Dayton/Ramsey bridge as a principal arterial in this area.
- Mn/DOT should assess the TH 41 river crossing to identify short-term lower-cost / high-benefit solutions and longer-term future right-of-way needs.

Table 6-36: Major Project Reassessment, MnPASS 2 and Managed Lane Vision Recommendations

Corridor	TIP (2011-2014)	2015-2020	2021-2030
I-494/TH 169 Interchange	Remove signals and rebuild interchange	----	----
TH 100	----	TH 7, Minnetonka Blvd and RR bridges over TH 100 replacement and shoulder widening, Chapter 152 Funds	----
I-694; I-35@ to I-35E	Rebuild bridges, add frontage road, add one new general purpose lane in each direction (TH 10 to Lexington Avenue)		* Lexington to I-35E, Managed Lane Vision
TH 610	Ongoing work west of TH 169	Advance the connection to I-94	----

** These investments are not included in the Fiscally Constrained Plan Allocations*

Table 6-36: Major Project Reassessment, MnPASS 2 and Managed Lane Vision Recommendations

Corridor	TIP (2011-2014)	2015-2020	2021-2030
I-35E; I-94 to Maryland	Chapter 152 funding for the Tier 1 bridges and add MnPASS lane (MnPASS 2, Tier 1 Recommendation)	---	---
I-494; TH 100 to 34th Avenue	Build managed auxiliary lane from I-35W to TH 100 WB (MnPASS 2, Tier 3 Recommendation)	----	I-35W northbound/I-494 westbound flyover ramp. Coordinated with Xerxes bridge over I-494 and interchange consolidation at 12th Ave/Portland and elimination of Nicollet Ave interchange
I-35W; SB I-94 to 46th Street	----	----	* Managed Lane Vision, southbound from I-94 to 42nd Street
I-494: I-94 to South of I-394	-----	----	* Managed Lane Vision, from I-94 through I-394 interchange (MnPASS 2, Tier 3 Recommendation)
TH 252	Northbound lane addition for 2/3 of a mile on either side of 81st Ave	----	----
TH 36: I-35W to I-35E	----	* EB Managed Lane Vision (MnPASS 2, Tier 2 Recommendation)	* WB Managed Lane Vision
I-694; I-35E to TH 36	----	----	Bridge work needed, no expansion planned
I-35E; TH 5 to TH 110	----	----	*SB, general purpose lane, lower cost/ high benefit project

** These investments are not included in the Fiscally Constrained Plan Allocations*

Fiscally Constrained Mobility / Congestion Mitigation Priorities

This plan provides a highway vision and identifies an investment need that greatly exceeds the revenues reasonably expected to be received over the next 20 years. The cost of implementing the Managed Lane System Vision shown in Figure 6-34 is estimated to cost up to $1.5 billion. An early stage of the Congestion Mitigation Safety Plan (CMSP) led by Mn/DOT identified more than 184 potential lower cost /high benefit CMSP projects totaling over $1.5 billion. Mn/DOT continues to work on identifying these potential projects and anticipates the list and cost to grow. The cost to provide Active Traffic Management (ATM) technology improvements on all principal and "A" minor arterials as called for in this plan will require an investment in the range of hundreds of millions of dollars, while the fiscally constrained plan is able to fund only $5 million in ATM investments annu-

ally. The plan's highway vision also supports implementation of strategic capacity enhancements such as the completion of TH 610 or other capacity additions in strategic locations that are scoped and designed under the lower cost/high benefit philosophy. Fully funding the highway mobility and congestion mitigation investments supported by the policy direction of this plan will require funding in the range of $3.0 - $4.0 billion.

As demonstrated earlier, the fiscally constrained state road construction budget is estimated to provide $3.8 billion through 2030 (see Table 6-21 and Table 6-24), with only $900 million (23%) available for mobility and congestion mitigation in the 2015-2030 time period. This plan calls for the $900 million to be sub-allocated into three categories: ATM investments, lower cost/high benefit projects managed lanes/strategic capacity projects as shown in Table 6-37. The allocation of these funds assumes the implementation of projects that meet multiple objectives, such as preservation and congestion mitigation within one project. Should any project increase in cost above that shown in Table 6-37, adjustments will be needed within the investment category or other projects will be delayed. The region, working with Mn/DOT, will continue to seek additional revenues to ensure that these projects and possibly more can be advanced to actual implementation. As additional revenues are secured through increased funding levels or competitive grants the funds should be used to increase the spending levels for the investment categories shown in Table 6-37 and bring the region closer to fully funding the investment needs identified in this plan.

Table 6-37 allocates only a portion of the 2015-2020 funds to specific projects. The rest of the funds have been set aside for broad project categories pending further analysis of costs and benefits. The intent is to continue to monitor, as part of the Congestion Management Process, the performance of the MnPASS lanes on I-394 and I-35W, the I-94 ATM project and the new projects proposed in Table 6-37 and to verify their costs and impacts on the system. This analysis will be used in the 2014 update of this plan, or sooner if warranted, to adjust investment priorities and include new investments that are deemed to be most beneficial to the region. Also based on this analysis, some of the 2021-2030 funds may be committed to advance MnPASS and CMSP projects through an amendment to this plan.

Additional Highway Needs

There are now, and will continue to be, highway needs in the region that are not addressed in this plan. While the region does not support attempts at building general purpose capacity to eliminate congestion, there are other needs that should be recognized.

New Principal or "A" Minor Arterials to Support Expanding Urban Development

The need for new principal or "A" minor arterials in developing areas where the arterial grid is not adequate to serve future growth is well documented. Principal arterials are the most efficient and safe way to accommodate longer and faster regional vehicle trips. Identified needs for future principal arterials are found in Anoka County (east-west), Dakota County (east-west and north-south) Washington

County (north-south), and Scott County (east-west and north-south). Anoka County has determined that CSAH 22/Viking Boulevard from Sherburne Co. on the west to Chisago and Washington counties on the east is the preferred location for the potential future principal arterial. Scott County has determined that the future potential north-south principal arterial should be CSAH 17 and TH 13 from TH 169 to TH 19, and the future east-west principal arterial should be Scott Co. Rd. 8 / Dakota Co. Rd. 70 from I-35 to TH 169. Since principal arterials should end with a connection to another principal arterial, actual endpoints can be determined in the future. These proposed principal arterials will be considered further in the 2014 update of the TPP when new regional forecasts based on the 2010 census have been developed.

Non-Mn/DOT Principal Arterials

At present, there are six principal arterials in the metropolitan area that are not under Mn/DOT jurisdiction: Dakota/Scott CSAH 42, Dakota CSAH 23 (138th St. to CR 42), Dakota CSAH 32 (TH 13 to I-35E), Anoka CSAH 14, Scott CR 18 (CSAH 42 to TH 169), and Shepard Road. Given their regional importance, these metropolitan highways should be under Mn/DOT jurisdiction.

Table 6-37: 2015-2020 Fiscally Constrained Congestion Mitigation/Mobility Investments

Active Traffic Management (ATM)	Add and enhance electronic infrastructure to Trunk Highways throughout region	$ 23 M
Estimated 6-year Budget $30 M	ATM required for I-494 Managed Auxiliary Lane, Westbound I-35W to TH 100	$ 7 M
Lower-Cost / High-Benefit	Set aside to be programmed through CMSP process (under development)	$ 60 M
Estimated 6-year Budget $120M	Available for lower-cost / high-benefit projects in Table 6-32 and others	$ 57 M
	TH 252, add general purpose lane north and south of 81st Avenue Intersection to complete 3 general purpose lanes northbound	$ 3 M
Managed Lane/Strategic Capacity Enhancements	Advance the connection of TH 610 to I-94 with lower-cost investment	$ 85 M
Estimated 6-year Budget $170M	Help fund I-35E/Cayuga managed lane, MnPASS 2, Tier I recommendation with direct connection to CBD and/or extension beyond little Canada Rd.	$ 15-50 M
	Set aside for MnPASS 2, Tier 2 recommendations. (This allocation will be reduced if TH 610 or I-35E project costs increase)	$ 35-70 M

Chapter 7: Transit

Transit provides essential mobility in the region – taking commuters to jobs and school, providing an alternative to driving on congested highways and enabling people without a car to meet their travel needs.

Existing System

The region's transit system, which consists of a variety of services, programs and related infrastructure, will play a greater role in meeting the region's mobility needs in the future. To do so, it will need continued investment to preserve the existing system and meet growing demand for transit services.

Types of Services

There are currently five types of public transit service in the Twin Cities area: regular-route bus service, light rail, commuter rail, dial-a-ride service and vanpools. The region also has ridesharing programs.

- Regular-route bus service is provided on a fixed, published schedule along specific routes, with riders boarding and alighting at designated bus stops. Regular-route buses operate local service, limited-stop service, and express service. A variety of vehicles are used to provide these services, ranging from small buses to coach buses.
  - Local services stop frequently on fixed routes to provide mobility to a variety of markets.
  - Limited stop routes provide a faster option than local service in high-demand corridors.
  - Express services are typically longer routes designed for commuter travel; these routes provide additional capacity on highway corridors.
- Light rail transit (LRT) service is provided by electrically powered trains operating primarily in an exclusive right-of-way, with stops approximately one mile apart.
- Commuter rail lines operate on traditional railroad track, powered by a diesel locomotive or diesel multiple unit (DMU), with stops approximately five miles apart. These trains typically operate only in morning and evening commute periods.

Figure 7-1: Buses carry the majority of transit riders in the region

Figure 7-2: Hiawatha LRT is a popular transitway

Figure 7-3: The Northstar Commuter Rail opened in late 2009

- There are two types of dial-a-ride service in the region: general public dial-a-ride and service mandated by the Americans with Disabilities Act (ADA). ADA service is for certified riders who want to travel where regular-route transit service is available but are unable to use the regular-route system due to a disability as defined in the Code of Federal Regulations, Title 49 Part 37, Section 37.123. This service must, at a minimum, match the span and service area of local bus service. Because of local policy, current service levels exceed this in some locations. Other dial-a-ride services provide mobility to the general public. General public dial-a-ride is available for trips that cannot be accommodated by regular-route transit service. General public dial-a-ride coordinates with and transfers customers to regular-route service whenever feasible to deliver rides in the most efficient manner possible. Trips are scheduled in advance and available on a first come, first served basis.
- Public vanpools are made up of five to fifteen people commuting to and from work at destinations throughout the region on a regular basis in a subsidized van. Each van has a volunteer driver. Vanpools typically serve origins and destinations not served by regular-route bus service.

Figure 7-5: Vanpools provide transit options for areas not served by regular-route bus service.

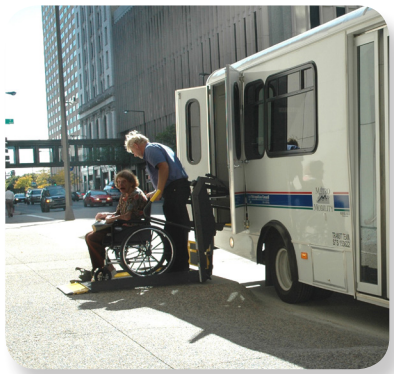


Figure 7-4: Metro Mobility provides transit service to people with disabilities

The Metropolitan Council partners with cities and Transportation Management Organizations to promote alternative modes of travel. These activities include organizing carpools, subsidizing vanpools, and offering discounted parking in the region to carpools and vanpools. These programs assist the formation of carpools to promote trips with two or more people in the same vehicle. These services are also discussed in Chapter 5: Regional Mobility.

Transitways

Transitways include bus and rail transit that enable fast, reliable travel times and an improved passenger experience on high-demand corridors in the region. Transitways help travelers avoid congestion by providing a dedicated right-of-way or other transit advantages such as ramp meter bypasses, signal priority or bus-only shoulders. Transitways link major employment centers and destinations in the region and promote transit-oriented development patterns. The existing transit system includes a number of transitways:

- The Hiawatha light rail line between Bloomington and Minneapolis opened in 2004 as the first modern rail transit line in the region.
- On I-394, a high-occupancy toll (HOT) lane provides congestion-free travel for buses between Wayzata and downtown Minneapolis.

- The Northstar commuter rail line between Big Lake and downtown Minneapolis opened in 2009 as the first modern commuter rail line in the region.
- On I-35W, HOT lanes and a northbound priced dynamic shoulder lane (PDSL) opened in October 2010 and provide congestionfree travel for buses between Burnsville and downtown Minneapolis.
- The University of Minnesota busway is a dedicated busway that provides an exclusive right-of-way to connect the Minneapolis and St. Paul campuses.
- Express buses with transit advantages, such as bus-only shoulders and managed lanes, allow buses to bypass congested conditions on highways and downtown streets throughout the region.

Transit Service Providers

Multiple providers operate transit service within the Twin Cities. The size, geographic service area and mission of these providers vary greatly, but the Council works with each provider to ensure delivery of an integrated, cohesive transit system to meet and enhance the region's mobility needs. Providers in the region include:

→ Metropolitan Council

- Metro Transit
  - Metro Transit Bus: Largest regular-route bus system in the region
  - Metro Transit Light Rail: The Hiawatha Light Rail line between Bloomington and Minneapolis and the Central Corridor Light Rail line currently under construction between Minneapolis and St. Paul
  - Metro Transit Commuter Rail: The Northstar Commuter Rail line between Big Lake and Minneapolis
- Metropolitan Transportation Services
  - Metro Mobility: Specialized demand response service for persons with disabilities, delivered using private contractors and provided in compliance with the ADA.
  - Contracted Regular Routes: Contracted regular-route service using private providers in the Metro Transit service area
  - Transit Link Dial-A-Ride: General public dial-a-ride covering the entire seven county area for trips that cannot be accommodated using regular-route bus service.
  - Public Vanpools: Approximately 70 vanpools provide transit in areas not served by regular routes.

→ Suburban Transit Providers: Provide regular-route and dial-a-ride service in twelve suburban communities. These providers are: Minnesota Valley Transit Authority, Southwest Transit Authority, and the Cities of Maple Grove, Plymouth, Shakopee, and Prior Lake. Minnetonka has also opted-out but has chosen to leave its service with the Metropolitan Council.

Figure 7-6: Logos of Providers

→ Ramsey Star Service: Regular-route coach bus service from the City of Ramsey to Minneapolis, operated by a private provider under contract to the City of Ramsey and managed by Anoka County.

→ Rush Line Service: Regular-route coach bus demonstration service between the City of Columbus and downtown St. Paul with stops in Forest Lake, White Bear Township, and at the Union Depot. The line will be operated by a private provider under contract to the Metropolitan Council. The Metropolitan Council is holding the contract on behalf of the Rush Line Task Force.

→ University of Minnesota: Regular-route bus service around and between the University of Minnesota campuses.

Transit Service Areas

Regular-route service provided by the Metropolitan Council and the Suburban Transit Providers operates within the Transit Capital Levy Communities, the communities within the seven-county region that levy a property tax to pay for capital improvements to the transit system. The Ramsey Star travels outside of this boundary. The Transit Capital Levy Communities grew in 2009 and 2010 when the cities of Columbus, Forest Lake, and Lakeville joined. Maple Plain will join effective in 2011. Figure 7-7 shows the extent of regular-route service in the region as of mid 2010.

Dial-a-ride service is provided throughout Anoka, Carver, Dakota, Scott, Washington, Ramsey and Hennepin counties for rides that cannot be served on regular-route services.

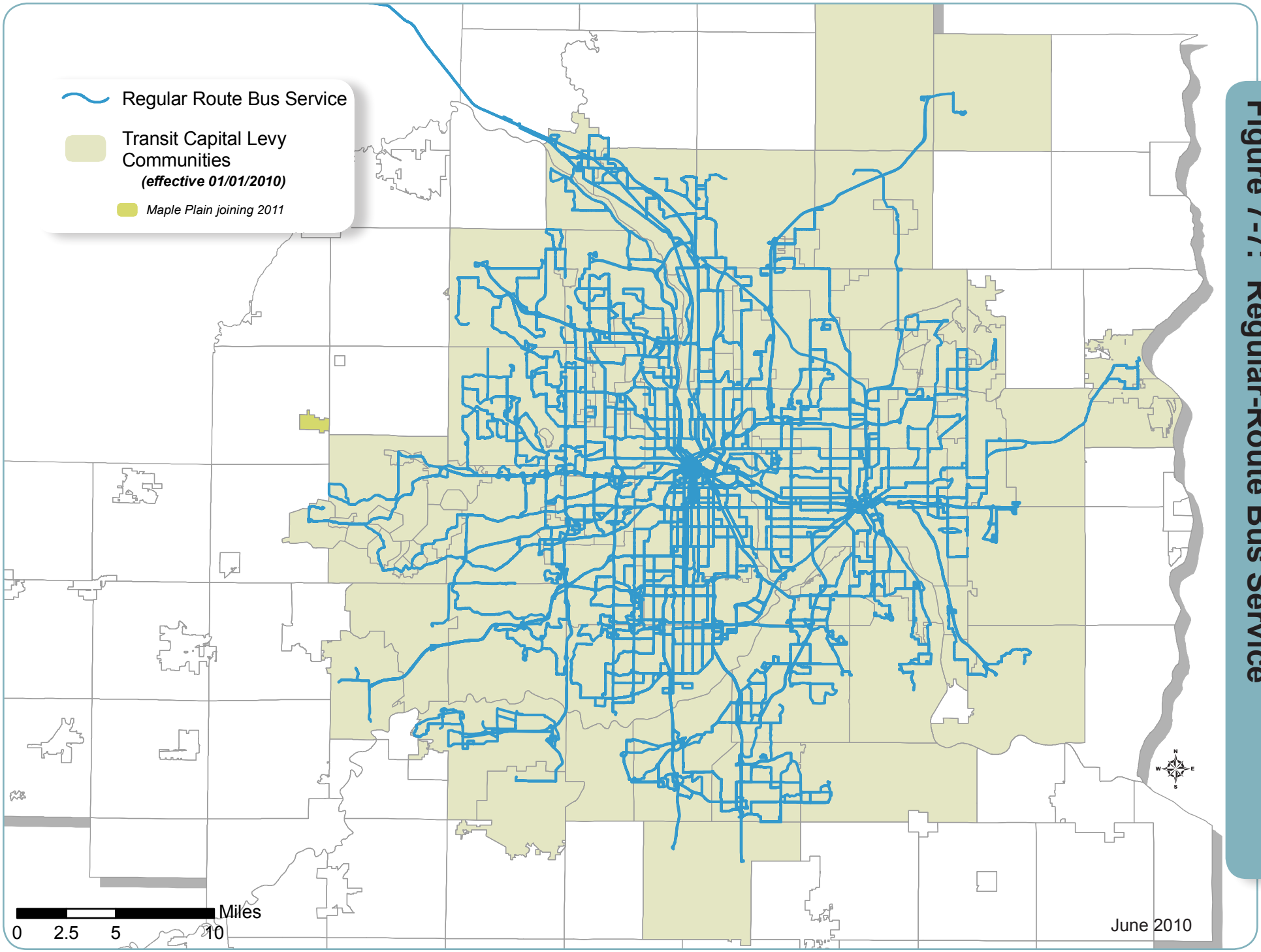


Figure 7-7: Regular-Route Bus Service

Transit Capital and Infrastructure

Providing transit service in the Twin Cities region requires a substantial amount of infrastructure.

The Twin Cities transit system has about 218 regular routes and a dial-a-ride system that covers the seven counties. This system requires 1,264 regular-route buses, 27 light rail vehicles, 18 commuter rail vehicles, six commuter rail locomotives and 425 dial-a-ride buses.

Figure 7-9: Bus-only shoulders are an important feature for transit

In 2009, the region had 108 park-and-rides (with almost 26,000 spaces) with bus or rail service. These park-and-rides concentrate trip origins in lower-density areas to create efficient express and LRT service. Thirty-nine transit centers and stations have been built to improve waiting conditions and some facilitate transfers among buses and trains. Riders access the light rail system at 18 stations and the commuter rail at five stations.

In some locations, transit advantages have been created to improve transit travel times, improve reliability of transit service, and allow transit to avoid congested streets and highways. These advantages include approximately 300 miles of bus-only shoulders, 33 miles of bus-only lanes on city streets, 89 ramp meter bypasses, 44 miles of managed lanes, and seven miles of exclusive busway. Bus-only lanes on city streets include the double bus lanes opened on Marquette and 2nd Avenues in downtown Minneapolis in 2009 as part of the Urban Partnership Agreement with the federal government. Managed lanes include the I-394 HOT lanes and the I35W HOT lanes east and south of downtown Minneapolis.

Figure 7-10 shows existing transit passenger infrastructure in the region.

Figure 7-8: Park-and-rides concentrate trip origins in lower-density areas to create efficient express and LRT service

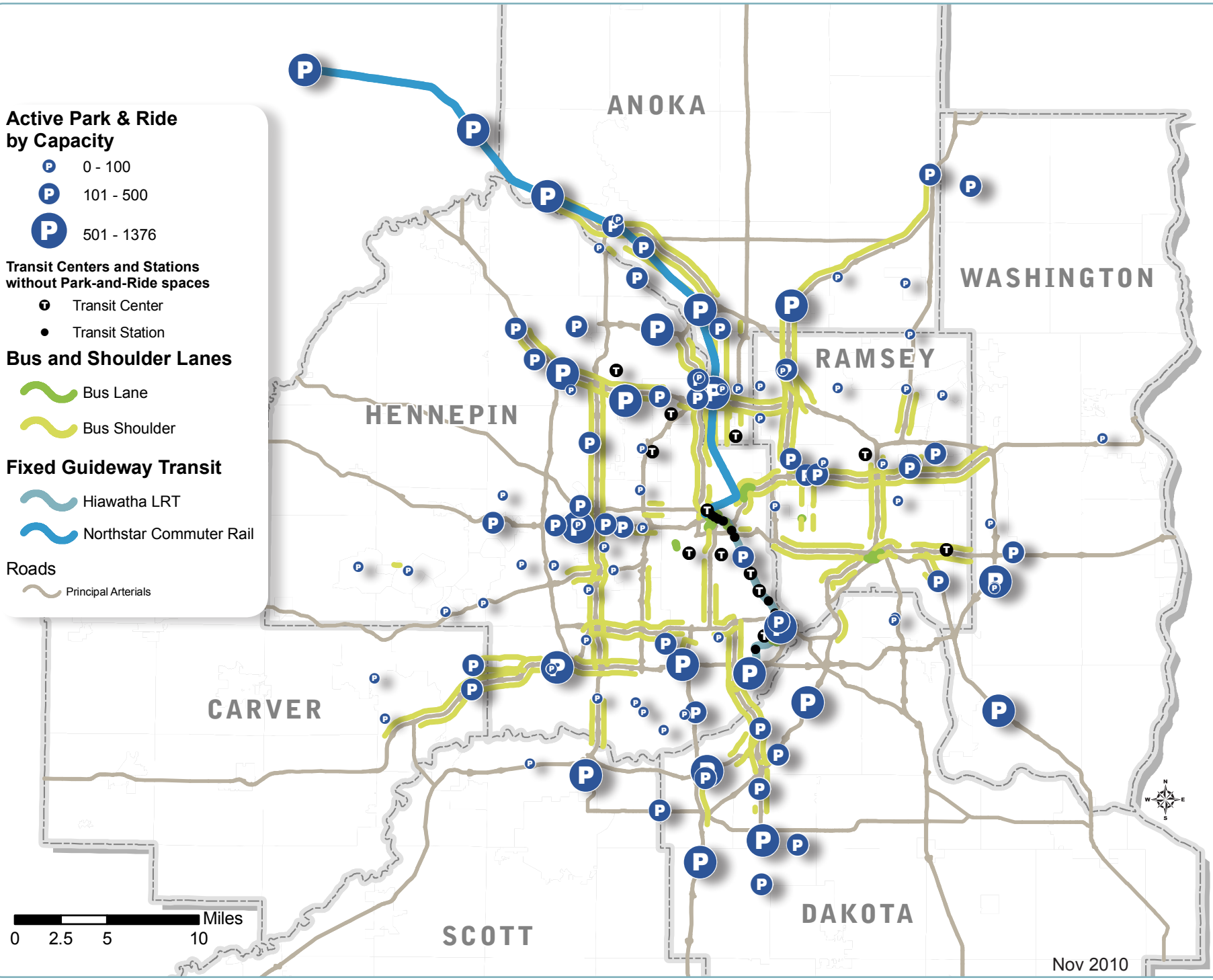


Figure 7-10: Current Transit Passenger Infrastructure

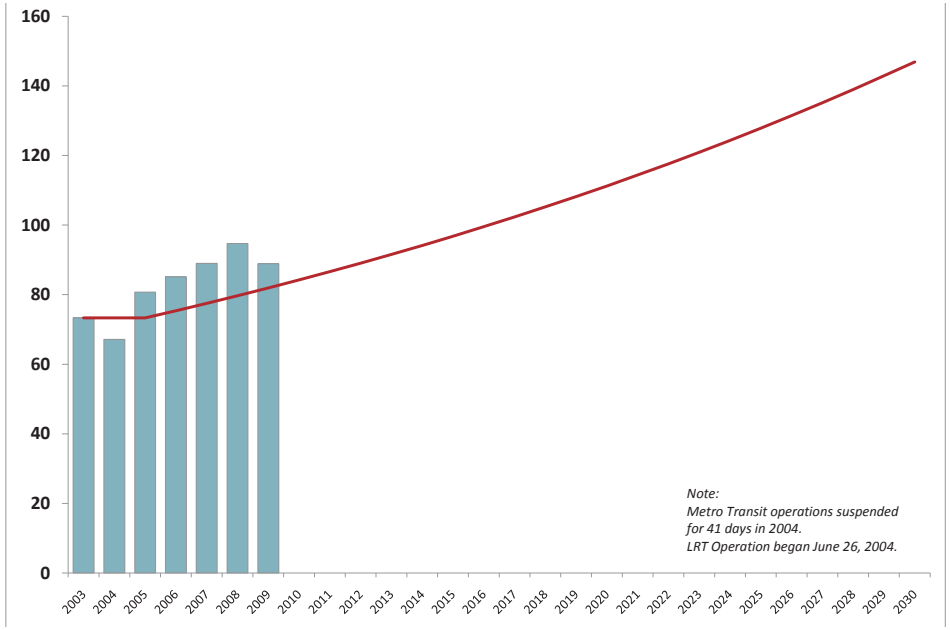
Progress Since 2004 Policy Plan

Growing Ridership

The Metropolitan Council set a goal of doubling transit ridership in the *Transportation Policy Plan* (which was adopted in 2004) to about 147 million rides by 2030. Since setting that goal, transit ridership has grown steadily. Through 2009, ridership remains on target for reaching this 2030 goal, as shown in Figure 7-11.

Figure 7-11: Regional Transit Rides and Goal

in millions of riders



Factors driving this growth include the opening of the region's first modern rail transit line in 2004, higher fuel and parking prices, changes in employment in the core cities, and increasing congestion. Unlimited ride college pass programs have helped college students on limited budgets afford transit passes, substantially increasing the number of students using transit. Metropass ridership, a program where employers provide discounted transit passes to employees, has increased 65 percent from 2004 to 2007. The region has implemented a new fare collection system based on a "Go-To" electronic fare card, which speeds boarding times. Also, the University of Minnesota began general public transit service.

Figure 7-12: Ridership is anticipated to double by 2030

Existing regular-route programs have also shown ridership increases. Metro Transit restructured service in two sectors: Central-South in 2004 and Northwest Metro in 2007, which included opening new transit centers in Brooklyn Center and at the Midtown Exchange (Chicago Avenue and Lake Street) in south Minneapolis. Since 2004 more than 7,000 park-and-ride spaces have been added to accommodate the growing demand on express routes and LRT. Almost all of the region's transit vehicles have bike racks, which has expanded the number of people able to use transit for at least part of a trip. These improvements and growing demand have increased Metro Transit bus ridership by 4.8 million rides in the past five years. Suburban transit providers added nearly 1 million rides over the last five years. Other programs also showed substantial ridership growth. Detailed growth in ridership is shown in Table 7-13.

Table 7-13: Twin Cities Transit Ridership

	2003	2004*	2005	2006	2007	2008	2009
Metro Transit Bus	66,000,000	53,200,000	60,900,000	63,500,000	67,300,000	70,900,000	65,700,000
Metro Transit Rail**	0	2,940,000	7,900,000	8,960,000	9,100,000	10,200,000	9,900,000
Suburban Providers	3,430,000	3,570,000	3,950,000	4,380,000	4,790,000	5,210,000	4,760,000
University of Minnesota***	0	3,580,000	3,800,000	3,690,000	3,280,000	3,550,000	3,860,000
Contracted Routes	1,910,000	1,720,000	2,050,000	2,440,000	2,370,000	2,550,000	2,420,000
Metro Mobility/ADA	1,290,000	1,330,000	1,280,000	1,290,000	1,370,000	1,430,000	1,440,000
Dial-a-Ride	502,000	493,000	499,000	496,000	490,000	420,000	391,000
Northstar/Ramsey Star**	144,000	174,000	180,000	182,000	188,000	225,000	196,000
VanGo Vanpools	103,000	131,000	131,000	158,000	176,000	210,000	192,000
Regional Total	**73,300,000**	**67,200,000**	**80,700,000**	**85,100,000**	**89,064,000**	**94,695,000**	**88,859,000**

** Metro Transit operations suspended for 41 days in 2004. LRT Operation began June 26, 2004.*

*** Ramsey Star operations began in 2007.* Northstar Commuter Rail operations started in November 2009 at which time Northstar bus service was discontinued.

**** The University of Minnesota began reporting its regional ridership in 2004 but had been providing service prior to this date.*

Transitway Development

The region made substantial progress in developing transitways in the past several years:

- Northstar Commuter Rail opened in November 2009. The Northstar corridor links Big Lake with downtown Minneapolis.
- Hiawatha LRT station platforms were extended to accommodate three-car trains between the Mall of America and downtown Minneapolis.
- Two Bus Rapid Transit (BRT) lines started construction. The region secured funding for parts of the I-35W BRT and Cedar Avenue BRT corridors through an Urban Partnership Agreement (UPA) with the federal government. The lines provide service south of downtown Minneapolis and, along with many other buses, use the double bus lanes on Marquette and 2nd Avenues in downtown Minneapolis. The Minneapolis double bus lanes were also funded through the UPA.
- Central Corridor LRT advanced to the Final Engineering design and construction phase. All funding has been committed including the federal full funding grant agreement and local funds from the CTIB and Hennepin and Ramsey County Regional Railroad Authorities. The line is scheduled to begin transit operations in 2014. The corridor connects St. Paul, the University of Minnesota, and downtown Minneapolis.

- The Southwest Transitway completed alternatives analysis and selected the Kenilworth-Opus-Golden Triangle alignment (Alternative 3A) as the Locally Preferred Alternative in May 2010, progressed in environmental documentation with the DEIS issued in fall 2010, advanced station area land use planning, and requested permission from the FTA to enter the Preliminary Engineering design phase. The corridor connects Eden Prairie, Minnetonka, Hopkins, St. Louis Park, and Minneapolis.
- The Bottineau Transitway, linking downtown Minneapolis to communities in northwestern Hennepin County, began an alternatives analysis and environmental documentation.
- The Red Rock Corridor, connecting Hastings to St. Paul and Minneapolis, prepared an alternatives analysis in 2007 and initiated station area planning in 2009.
- Rush Line, linking St. Paul, with Forest Lake, Columbus, and beyond, initiated commuter bus demonstration service in 2010 and an alternatives analysis is underway.
- The Gateway Corridor (I-94 East), linking Minneapolis, St. Paul and Western Wisconsin initiated an alternatives analysis in summer 2010.
- Metro Transit initiated an Arterial Transit Study in an effort to better understand the scope of potential improvements for bus rapid transit on the nine arterial street routes and identify the most feasible corridors for implementation.

Figure 7-14: Hiawatha was the first LRT corridor built in the region

Regional Transitway Guidelines

As the region has made progress in developing transitways, the need for uniform transitway guidelines has become apparent.

In early 2010, the Metropolitan Council invited its local partners to join in an effort to develop Regional Transitway Guidelines for the development of corridors where intensive transit investment is planned, as identified in the region's 2030 Transportation Policy Plan (TPP) adopted in January 2009, and subsequent policy plans. The guidelines will provide guidance for developing transitways in corridors that will be served by commuter rail, light rail and bus rapid transit. Guidelines will establish technical best practices in the region for ten transitway elements. Among the elements are vehicles, fare collection systems, and stations and public facilities for example. The guidelines are not intended to be design standards or specifications. Rather, they will establish consistent, general practices that ensure the transit corridors are developed in a consistent and equitable manner as the region's transit network continues to grow and expand, and provide a foundation on which project partners can build. The guidelines will be flexible enough so that each transitway can boast its unique characteristics and opportunities, and planners can address its unique challenges. The guidelines will also be a living document, evolving over time as the region's experience with transitways continues to grow. In 2010, an Advisory Committee and 10 technical committees were established to develop the Regional Transitway Guidelines.

Issues and Trends

Demand for Service

Increasing fuel costs, growing congestion and the popularity of incentives such as unlimited ride programs and new fare tools are increasing demand for transit. In 2008, transit ridership was at its highest level in 25 years, but the economic recession and rising unemployment dropped 2009 transit ridership levels back to 2007 levels. While ridership may fluctuate from year-to-year, ridership growth is expected to continue over the long-term as gasoline prices and congestion are forecast to increase. There is growing pressure for expanded transit service beyond the Transit Capital Levy Communities (shown in Figure 7-7), which has been the traditional boundary of regular-route service. Also, the population of the region and the percentage of elderly persons will grow, increasing demand for dial-a-ride/ADA services.

Volatility and Lack of Growth in Major Revenue Source

The Motor Vehicle Sales Tax (MVST) is the region's largest source of operating funding for transit. Transit operating funding was shifted from the property tax to this revenue source in 2002, with metropolitan area transit receiving 20.5% of statewide MVST collections. In 2007, the constitutional dedication of MVST to transportation purposes increased the metropolitan transit share of MVST from 20.5% to 36%, phased-in over a five year period from 2007 to 2012. Despite receiving this increased share of MVST, in FY2009 the MVST revenues received for metropolitan area transit ($122M at 28% of MVST) were slightly lower than the amount received in FY2003 ($124M at 20.5% of MVST). If metropolitan area transit operations are to grow over time, this major revenue source will need to be relied upon to provide increased revenues. The full phase-in of the constitutional dedication with 36 percent of the MVST revenues dedicated to metropolitan transit by FY2012, along with a forecast recovery in the MVST revenues overall may result in some growth of this revenue source. However, the revenue volatility and risk of this revenue source make planning for the ability to preserve existing service and for service expansion difficult.

Rising Costs of Providing Transit

Several cost components critical to transit have been increasing in price. The price of fuel, health care insurance, land and construction materials have all been increasing faster than inflation and transit revenues. Transit providers are exploring technologies to help mitigate some of these costs, including hybrid electric buses and the use of bio-fuels, but these efforts cannot fully mitigate these increasing costs.

Land Use Not Supportive of Transit

Transit works best with destinations that have large numbers of jobs clustered together, a walkable environment and connected streets. In the urban core the cities have focused on directing growth and density to corridors well served by transit. In suburban areas however, jobs, retail and services are often scattered in low-density developments without sidewalks or crossings for major streets or highways. As a result, it can be difficult for transit to efficiently serve many suburban destinations. Still, some changes have occurred over the last 10 years that may support expanded transit services. Higher percentages of

residential units are built as multifamily developments, more single family units are built on smaller lots and more walkable commercial areas are being developed. Making auto-oriented locations more transit-friendly will require a continued collaborative effort at municipal and regional levels and between the public and private sectors.

Congestion Hindering Fast, Reliable Transit

Transit operating in mixed traffic is being increasingly affected by congestion both on highways and on city streets. Transit trips are taking longer and trip times are more variable as buses are caught in congestion. Maintaining and expanding transit advantages such as managed lanes and bus-only shoulders become even more important as congestion continues to increase.

Downtown Capacity Constraints

A number of locations in the region are key to transit, yet have capacity limitations. While the Marquette and 2nd double bus lanes project opened in 2009 has significantly increased transit capacity in downtown Minneapolis, ultimately there is a limit to how many buses can operate in the downtown. Fifth Street in downtown Minneapolis can accommodate Hiawatha and Central Corridor LRT without significant problems. A maximum of two additional LRT lines can be accommodated on 5th Street if they are through-routed as planned with Central and Hiawatha trains. Additional rail lines beyond these four will require a new alignment through downtown Minneapolis. The Target Field Station area near downtown Minneapolis (where station expansion is called The Interchange) now accommodates the intermodal connection between Northstar commuter rail and Hiawatha LRT. Additional commuter and passenger rail may require new or expanded stations and storage areas. In downtown St. Paul, there may be capacity constraints if additional light rail lines are constructed after Central Corridor LRT. Renovation of the Union Depot in downtown St. Paul is needed to accommodate commuter rail, intercity passenger rail (Amtrak), high speed rail, bus service, and other services envisioned for the site.

New Funding Source for Transit/Continuing Funding Needs

In the 2008 legislative session, the metropolitan counties were given the authority to levy a quarter-cent (¼ percent) sales tax. Five of the counties voted to implement the tax and form a joint powers board known as the Counties Transit Improvement Board (CTIB).

The new sales tax revenues will have a very positive impact on the region's ability to develop a strong transitway system by 2030. However, this revenue cannot be used to supplant existing funding, to operate or expand the base bus system or for operating projects that did not receive capital funds from this source. If the regional goal of doubling transit ridership is going to be met, additional funding above the new sales tax and MVST revenue from the constitutional dedication will need to be identified.

Changing Federal Policies

Over the last two years the federal government has begun to focus more funding resources on projects that support livability and sustainability, and to coordinate the investment policies of US DOT with that of

HUD and EPA. This emphasis has led to money becoming available for projects like streetcars that were not typically funded by FTA in the past. The coordination of investments strategy also means that more HUD money for affordable housing will be spent on projects located in areas with good transit service, benefiting the residents with better travel options, the transit system with more potential ridership, and improving air quality through fewer vehicle miles traveled in private cars.

Increasing Complexity in Transit Governance

Over the last 30 years, the number of entities planning and providing transit service has been increasing. In the 1980s, state law allowed 12 communities to provide their own transit service, resulting in six suburban transit authorities. In the 1980s, county-based regional railroad authorities began the purchase of abandoned rail right-of-way and planning transit projects. In the 2008 legislative session, counties were given the authority to form a joint-powers board to allocate sales tax funds to transitway projects. Greater involvement of cities and counties has generated increasing support for transit, and can result in more inclusiveness and better results; however, it also requires strong ongoing communication and coordination amount all parties involved.

Transit System Security

Maintaining and improving the safety and security of the transit system, both actual and perceived, will continue to be vital to providing the mobility needed to meet riders' needs and increasing ridership.

Transit System Policies

The following regional policies and strategies, outlined in Chapter 2, will guide the development and operation of the transit system in the region.

Policy 12: Transit System Planning

Regional transit providers should plan, develop and operate their transit service so that it is cost-effective, reliable and attractive, providing mobility that reflects the region's diverse land use, socioeconomic conditions and travel patterns and mitigating roadway congestion with the goal of doubling regional transit ridership by 2030 and a 50% increase in ridership by 2020.

Strategy 12a. Transit Services Tailored to Diverse Markets: Diverse transit markets need different transit service strategies, service hours, operating frequencies, and capital improvements. To tailor transit service to these diverse market needs, regional transit providers will follow the standards and service delivery strategies as outlined in Appendix G: Transit Market Areas and Service Standards.

Strategy 12b. Transit Service Options: Transit providers will pursue a broad range of transit service options and modes to match transit services to demand.

Strategy 12c. Transit Centers and Stations: Regional providers will plan and design a transit network that utilizes Transit Centers and Stations to connect various types of transit service

options. Transit Centers and Stations will also link transit to local land use and enable the network to provide efficient service to a wider geographic area through timed transfers.

The opportunity to accommodate strategically located and appropriately sized transit centers and stations must be an active part of all regional and local planning and development processes.

Strategy 12d. Park-and-Rides: Transit providers will work with cities to expand regional park-and-ride facilities to support service expansion as expected growth occurs within express corridor areas and along dedicated transitways.

Strategy 12e. Underrepresented Populations: Regional transit providers will continue to ensure their transit planning fairly considers the transit needs of all populations and is compliant with the environmental justice directives outlined in various federal legislation, including Title VI of the Civil Rights Act of 1964 and the National Environmental Policy Act.

Policy 13: A Cost-Effective and Attractive Regional Transit Network

Regional transit providers will preserve, operate, maintain and expand the transit system in a cost-effective manner that optimizes existing and future investments. The Council will continue to improve transit service coordination, travel speed, passenger safety, financial incentives and customer amenities to make the system more attractive, visible, travel time competitive and user-friendly.

Strategy 13a. Coordination Among Services: The Council will promote coordination among the different transit services provided by various authorities throughout the region to ensure that the overall regional transit system functions as a seamless and user-friendly regional network, and to avoid inefficiencies and duplication.

Figure 7-15: Transit police are part of providing a safe and secure transit system

Strategy 13b. Transit Fare Structure: The Council will support a regional transit fare structure that balances ridership and fare revenue, relates the fare to the cost of providing service and to other transportation costs, is easy to understand and administrate, and convenient to use.

Strategy 13c. Marketing Transit: The Council will increase the value, benefits and usage of transit services through a variety of advertising and promotional programs. Annual transit marketing plans will be developed by the Council based on input from stakeholders.

Strategy 13d. Transit Technologies: The Council and regional providers will implement new technologies to improve customer information, service reliability and the delivery of transit service.

Strategy 13e. Transit Safety and Security: Working with transit operators and communities, the Council will continue striving to provide a secure and safe environment for passengers and employees on vehicles and at transit facilities through provision of transit police services, employee awareness, public education, security partnerships and security investments.

Strategy 13f. Ridesharing: The Council will promote programs that encourage shared vehicle usage including carpooling, vanpooling and car sharing.

Policy 14: Transit System Operations and Management

The regional transit providers will promote innovation, efficiency, flexibility and greater diversity of options in operating and managing transit services.

Strategy 14a. Competitively Procured Services: Some transit services within the region will be competitively procured to increase flexibility, potentially reduce costs, maximize efficiencies and enhance service effectiveness.

Strategy 14b. Jointly Procured Services and Products: The Council will promote and facilitate the joint procurement of goods and services among providers to improve the coordination of transit service and increase cost-effectiveness.

Strategy 14c. Service Improvement Plan: Every two years, regional transit providers in consultation with customers and stakeholders, will prepare a short-term Service Improvement Plan that identifies their priorities for transit service expansion over the following two to four years. The plans will be submitted to the Council, which will prepare a Regional Service Improvement Plan.

Strategy 14d. Review Service Performance: All providers will review their transit service annually based on the performance standards outlined in Appendix G to ensure operational efficiency and consistency. Providers will annually submit their performance reviews to the Council for inclusion in a regional service performance review.

Strategy 14e. Fleet and Facilities Policy: The Council will develop and maintain policies, in consultation with regional providers, CTIB and other partners, to guide investments in regional fleet and facilities.

Policy 15: Transitway Development and Implementation

As one element of an overall transit network, the Metropolitan Council will strongly pursue, in coordination with CTIB, county regional railroad authorities and transit providers, the cost-effective implementation of 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.

Strategy 15a. Transitway Modes: Transitway modes will include commuter rail, light rail, bus rapid transit, and express buses with transit advantages. Other transitway technologies may be considered as they become proven, reliable and cost-effective. Intercity passenger rail services could develop rail improvements that could also be used by commuter rail transitways within the region.

Strategy 15b. Criteria for Transitway Selection: Transitway investment decisions will be based on factors such as ridership, mobility improvements, operating efficiency and effectiveness, environmental impacts, regional balance, economic development impacts and cost-effectiveness. Readiness, priority and timing will be considered when making transitway investments, as will local commitment to transitway implementation and land use.

Strategy 15c. Process for Transitway Selection: Every transitway corridor will be studied in-depth before investments are made. Every potential commuter rail and light rail project will undergo an alternatives analysis and develop an environmental impact statement before seeking funding for implementation. All bus rapid transit corridors will be studied and a range of implementation alternatives developed.

Alternatives analyses will examine potential alignments and modes, including enhanced bus service. All alternative analyses must include both bus and rail options. Bus options must include improvements to highways and roads that would provide transit advantages, such as bus-only shoulders, signal priority or preemption, dynamic shoulder lanes, dynamic parking lanes, ramp meter bypass lanes, managed lanes, or other advantages. Land use and zoning needs must also be evaluated. The Council must adopt alternatives analyses results and a locally preferred alternative before funding can be sought for implementation for rail projects, for New Starts applications or for Small Starts applications. BRT corridors seeking federal New Starts or Small Starts funding may require alternatives analyses and environmental documentation which should be adopted by the Council before federal funding is sought. The project development process and corresponding technical assumptions must be consistent with the Regional Transitway Guidelines to be adopted by the Council in 2011.

Strategy 15d. Transitway Coordination: Transitway implementation will be coordinated with other transit, highway, bicycle and pedestrian projects, facilities, and investments.

Transitway implementation will be coordinated with:

- transit facilities (park-and-ride lots, transit centers, transit stations)
- transit advantages (signal priority or preemption, automatic vehicle location and other intelligent transportation system applications)
- pedestrian and bicycle facilities and regional trails
- highway improvements such as high-occupancy toll lanes, high-occupancy vehicle lanes, dynamic shoulder lanes, priced lanes, and other investments
- street improvements such as queue jump lanes, traffic signal priority, dynamic parking lanes, and other investments

Strategy 15e. Enhanced Transit Service Along Transitways: 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.

Strategy 15f. Transitway Coordination with Other Units of Government: The Council will coordinate transitway planning and implementation with other jurisdictions including Mn/DOT, CTIB, regional railroad authorities, local units of government and transit providers.

Strategy 15g. Transitways and Development: The Council will work with local units of government to ensure that transitways promote efficient development and redevelopment.

Local units of government are expected to develop local comprehensive plans, zoning, and community development strategies that ensure more intensified development along transitways. This development should be effectively linked to the transitway through compact, walkable environments.

Strategy 15h. Transitway Operations: Transitway infrastructure investments will not occur unless operating funds have been identified.

Policy 16: Transit for People with Disabilities

The Council will provide transit services for persons with disabilities in full compliance with the 1990 Americans with Disabilities Act including the accessible regular-route transit system, comparable ADA, and other dial-a-ride programs.

Figure 7-16: Metro Mobility provides paratransit service to the region

Strategy 16a. Accessible Vehicles: The Council will ensure that all new transit vehicles and facilities will be accessible to persons with disabilities.

Strategy 16b. Provide Comparable Service: Paratransit service comparable to the region's local regular-route transit system will be provided to individuals who are certified by the Council under the Americans with Disability Act (ADA).

Strategy 16c. Access to Transit Stops and Stations: Local communities and transit providers shall coordinate their efforts to assure that all fixed-route transit stops are accessible year-round, including snow removal.

Strategy 16d. Transfers Between Fixed-Route and ADA Services: The Council will encourage transfers between regular-route services, dial-a-ride and ADA paratransit services utilizing transit centers and rail stations as transfer points.

Associated Policies and Strategies

A number of policies and strategies are not narrowly focused on transit but address issues beyond transit. Yet these policies directly impact transit. Because of this, they have been identified below.

Policy 2: Prioritizing Regional Transportation Investments

Strategy 2c. Transit Capital and Operating Investments

Strategy 2e. Multimodal Investments

Policy 3: Investments in Regional Mobility

Strategy 3g. Alleviate Highway Construction Impacts

Policy 4: Coordination of Transportation Investments and Land Use

- Strategy 4a. Accessibility
- Strategy 4b. Alternative Modes
- Strategy 4c. Increased Jobs and Housing Concentrations
- Strategy 4d. Transit as Catalyst for Development
- Strategy 4e. Local Comprehensive Plans
- Strategy 4f. Local Transportation Planning
- Strategy 4g. Metropolitan Urban Service Area (MUSA)

Policy 5: Investments in Regional, National and Global Connections

- Strategy 5a. Interregional and National Highway Connections
- Strategy 5b. Intercity Passenger Rail and Bus Connections
- Strategy 5c. Freight Connections
- Strategy 5d. Connections by Air

Policy 6: Public Participation in Transportation Planning and Investment Decisions

- Strategy 6a. Public Participation
- Strategy 6b. Interjurisdictional Coordination and Participation
- Strategy 6c. Participation of Underrepresented Populations
- Strategy 6d. Public Awareness of Transportation Issues
- Strategy 6e. Transit Customer Involvement

Policy 7: Investments in Preserving of Right-of-Way

- Strategy 7a. Preservation of Railroad Rights-of-Way

Policy 8: Energy and Environmental Considerations in Transportation Investments

- Strategy 8a. Reduction of Transportation Emissions
- Strategy 8b. Compliance with Federal Standards
- Strategy 8e. Reduction of Greenhouse Gas Emissions
- Strategy 8f. Transit Priority for Fuel

Policy 9: Highway Planning

- Strategy 9b. Multimodal System

Policy 11: Highway System Management and Improvements

Strategy 11d. Optimize Highway System Performance

Policy 18: Providing Pedestrian and Bicycle Travel Systems

Strategy 18b. Connectivity to Transit

2030 Transit Plan

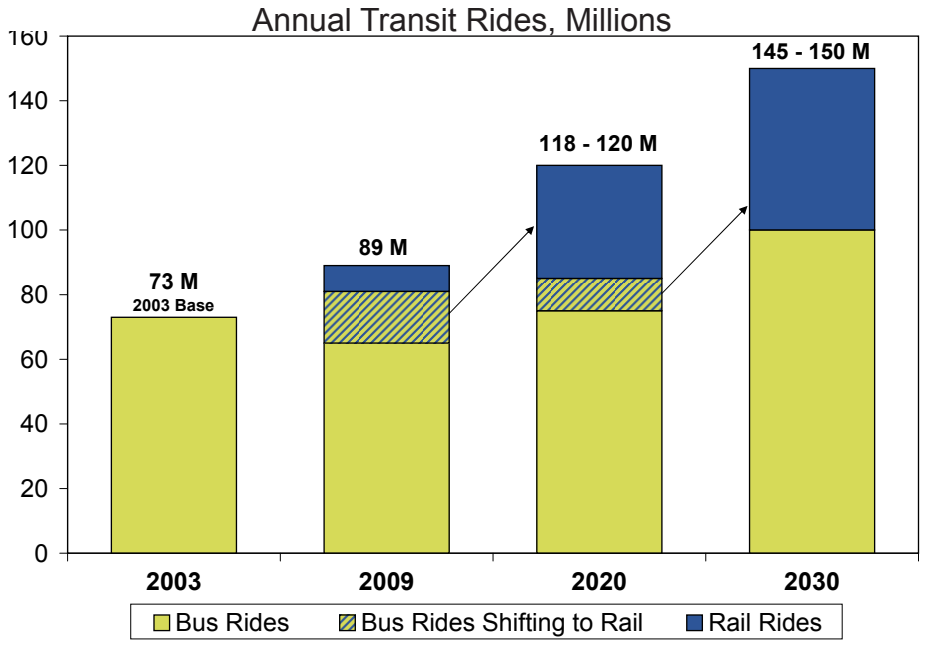
Transit ridership is an important measurement of the transit system's performance. Steadily increasing transit ridership reflects a transportation system that provides enhanced regional mobility, offers an alternative to congestion, and benefits the environment. The 2030 Transit Plan envisions two approaches to increasing transit ridership and helping meet the mobility needs of the Twin Cities:

- Maintain and grow bus ridership and
- Develop a network of bus and rail transitways.

In 2004, the Council set a goal of doubling ridership by 2030, from a 2003 base of 73 million rides to approximately 145-150 million rides in 2030.

It is projected that by 2030, the transit system will carry an additional 60 million rides over 2007 ridership levels.

Figure 7-17: Ridership by Mode 2003 - 2030 (Including rides changing modes)



Rail transitways will carry an additional 40 million rides per year, including about 20 million new rides and about 20 million rides that will shift from bus to rail as new lines open. Additional rail ridership will come from implementing new rail transit lines between 2009 and 2030 and increased ridership on Hiawatha LRT.

In 2030, bus transitways will carry 20 million additional rides per year on arterial street and highway BRT lines and express buses with transit advantages. To reach regional ridership goals, the base bus system will also need 20 million new rides to replace current bus rides shifting to future transitways. Because lower-subsidy riders will shift to rail service, bus ridership growth will require increased investments above current subsidy levels. These investments will support transitway services, meet demand for local service, and expand service to serve the region's growing population. This is addressed further in Chapter 3: Finance.

Maintain and Grow Bus Ridership

Transit Market Areas

The transit system will respond to five distinct transit market areas identified by the Council, defined by population and employment density and the number of people who depend on transit (see Appendix G for detailed definitions). Transit market areas are shown on Figure 7-19.

The downtowns of Minneapolis and St. Paul, the University of Minnesota, and the Minneapolis-St. Paul International Airport/Airport South/Mall of America areas are the primary destinations for transit trips in the region. They also have the largest concentrated employment and surrounding roadways have the highest levels of congestion in the region. Measures to strengthen the role of transit in serving these major activity centers are crucial to the health of the entire transportation network and the region's economy.

Figure 7-18: The Hi-Frequency Route Signage
High frequency routes are marked with the "hi-frequency" brand sign and listed in red

Regular-Route Bus System

The regular-route bus system will change and expand as population, congestion and the cost of travel increase, as the region implements rail transit and as customer needs change.

Local routes will benefit from expanded coverage and frequency improving transit connections between workplaces, residences, retail services and entertainment activities. Routes that may be added or improved by 2030 are included in Figure 7-20. In 2008 local bus routes carried 63 million rides – 66% of the total regional transit ridership.

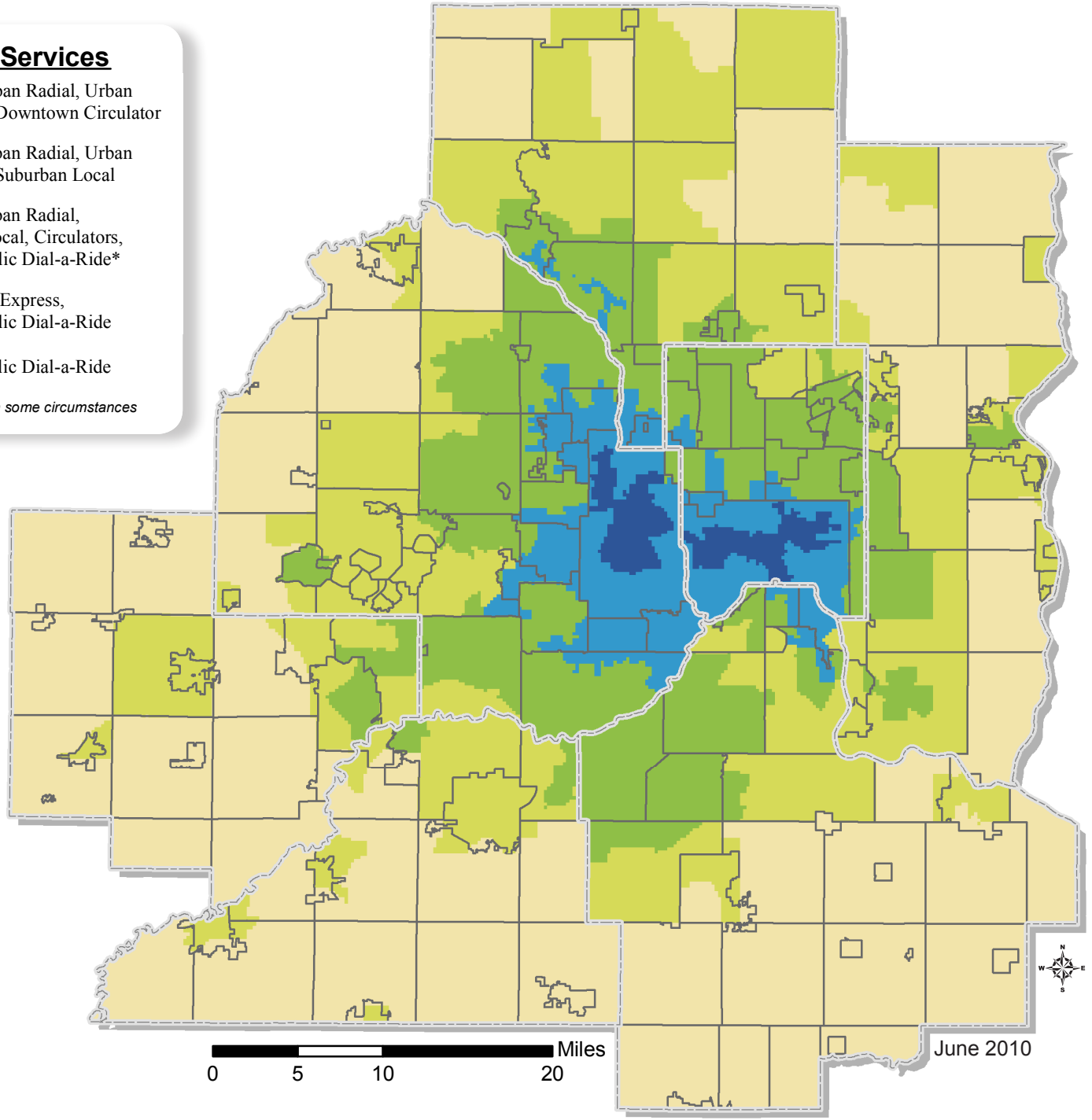
Arterial routes are high-demand local bus routes with a high level of service. Arterial routes will receive the highest level of local bus service – 15 minutes or better frequency during peak periods, seven-day, up-to-24-hour service, with highly visible passenger facilities at major stops. A subset of arterial routes has a very high level of service branded as the "Hi-Frequency Network", offering 15-minute or better frequency from 6am to 7pm on weekdays and 9am to 6pm on Saturdays. (See http://metrotransit.org/hi-frequency-network.aspx for info). Arterial routes that may be added or improved by 2030 are included in Figure 7-21. The high frequency network will also expand and improve. Some of these arterial routes also have potential to be upgraded to arterial bus rapid transit service as described in the transitway section.

Express routes will be enhanced and expanded in congested highway corridors. Park-and-ride facilities will be developed to support these routes and other improvements will be made within these corridors. Potential routes are shown in Figure 7-22. A minimum level of express service (three trips per peak hour) from any one location within a corridor should be provided.

Long-distance express routes may be introduced outside of the seven-county area where appropriate to provide transit service between exurban areas and downtown Minneapolis or St. Paul. The Council has been working with some adjacent counties to identify feasible corridors. A connection between the Big Lake Northstar commuter rail station and St. Cloud is currently being operated by St. Cloud Metro Bus.

Market Area	Typical Services
Area 1	Express, Urban Radial, Urban Crosstown, Downtown Circulator
Area 2	Express, Urban Radial, Urban Crosstown, Suburban Local
Area 3	Express, Urban Radial, Suburban Local, Circulators, General Public Dial-a-Ride*
Area 4	Peak Period Express, General Public Dial-a-Ride
Area 5	General Public Dial-a-Ride

** Market Area 3 Dial-a-Ride is appropriate in some circumstances*



- ADA paratransit service follows federal and state regulations in the regular route service area

- Additional details on market areas and service standards are available in **Appendix G**

- Market area geography was calculated at the census block group level.

Figure 7-19: Transit Market Areas

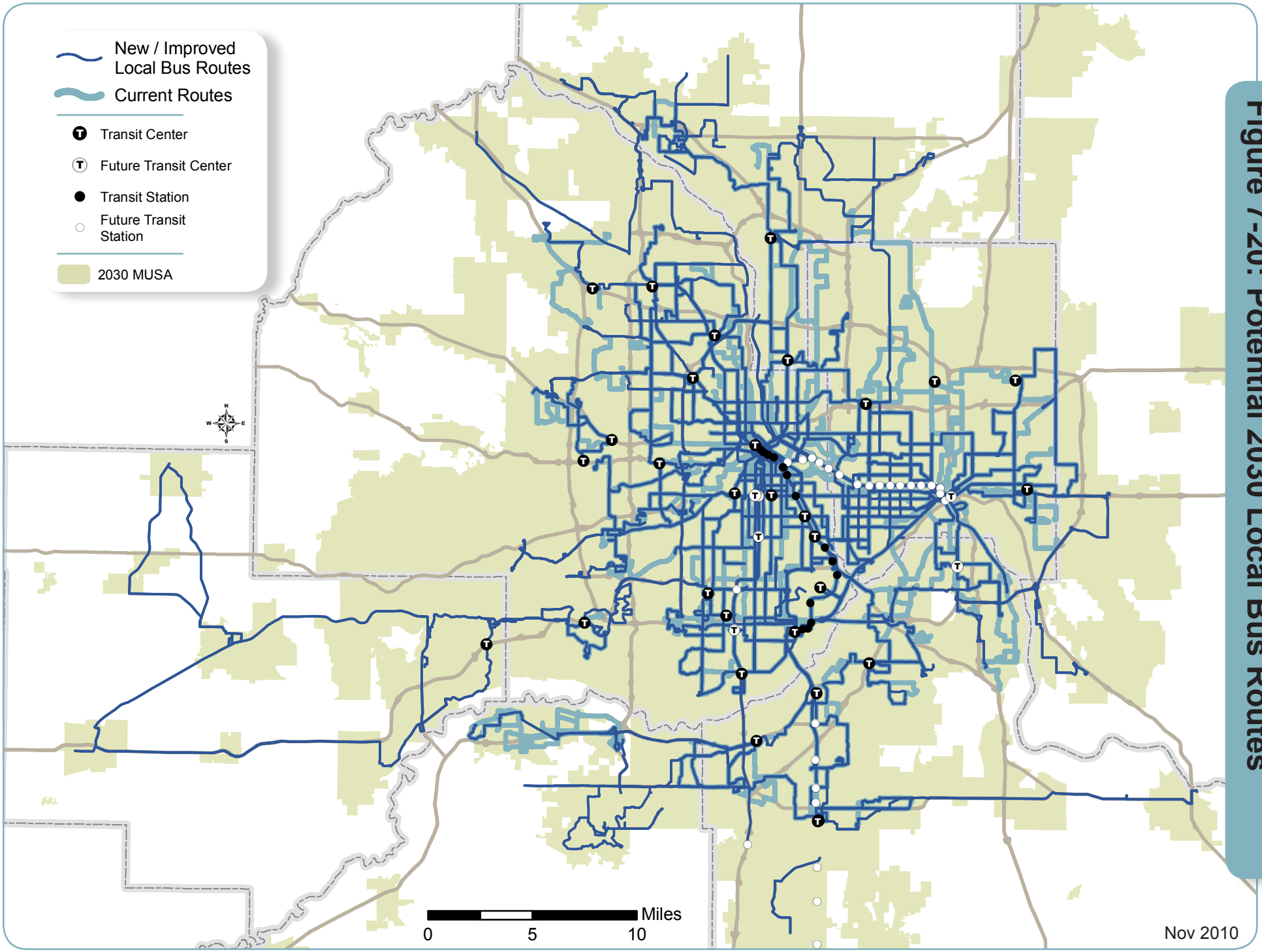


Figure 7-20: Potential 2030 Local Bus Routes

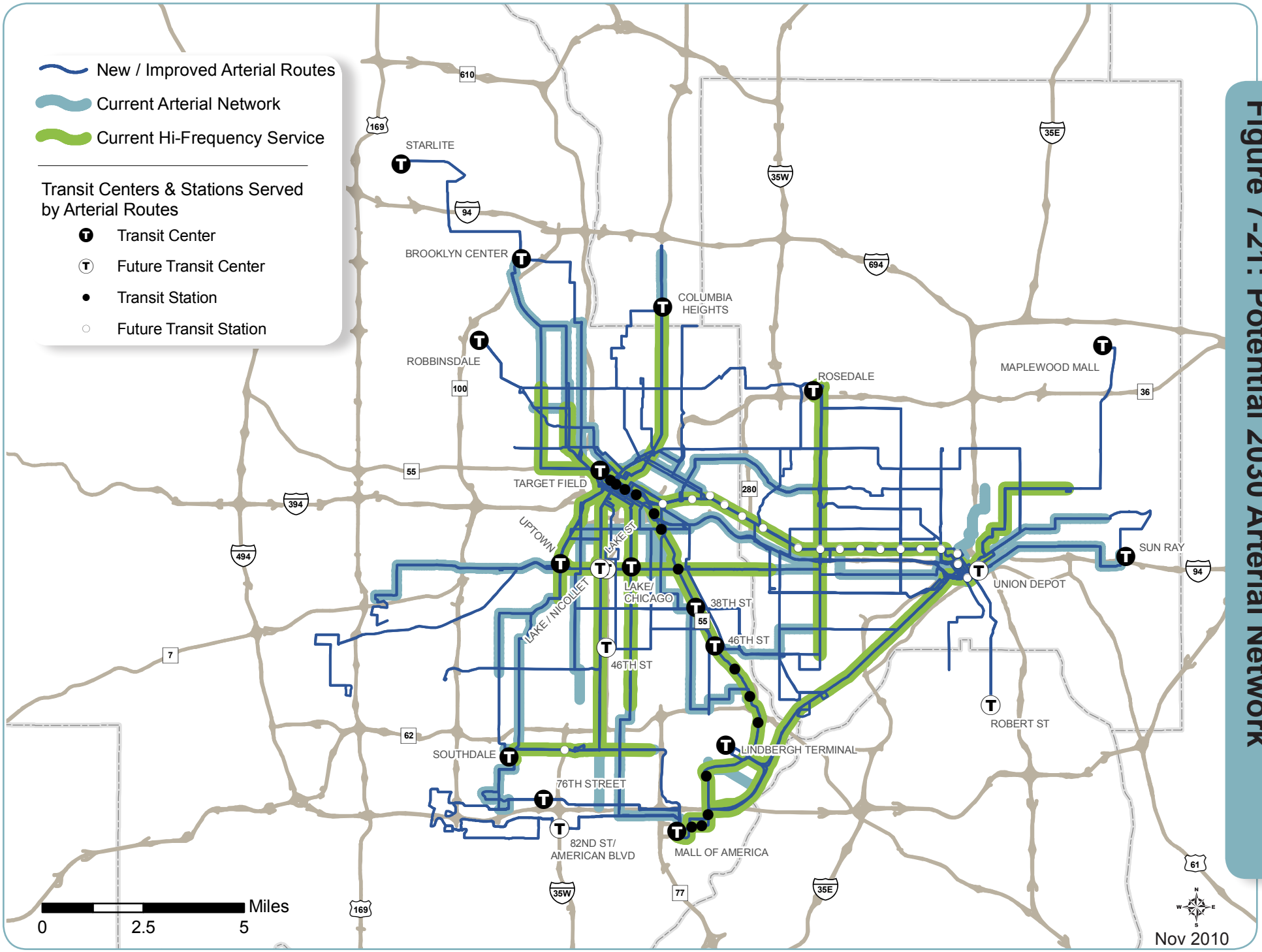


Figure 7-21: Potential 2030 Arterial Network

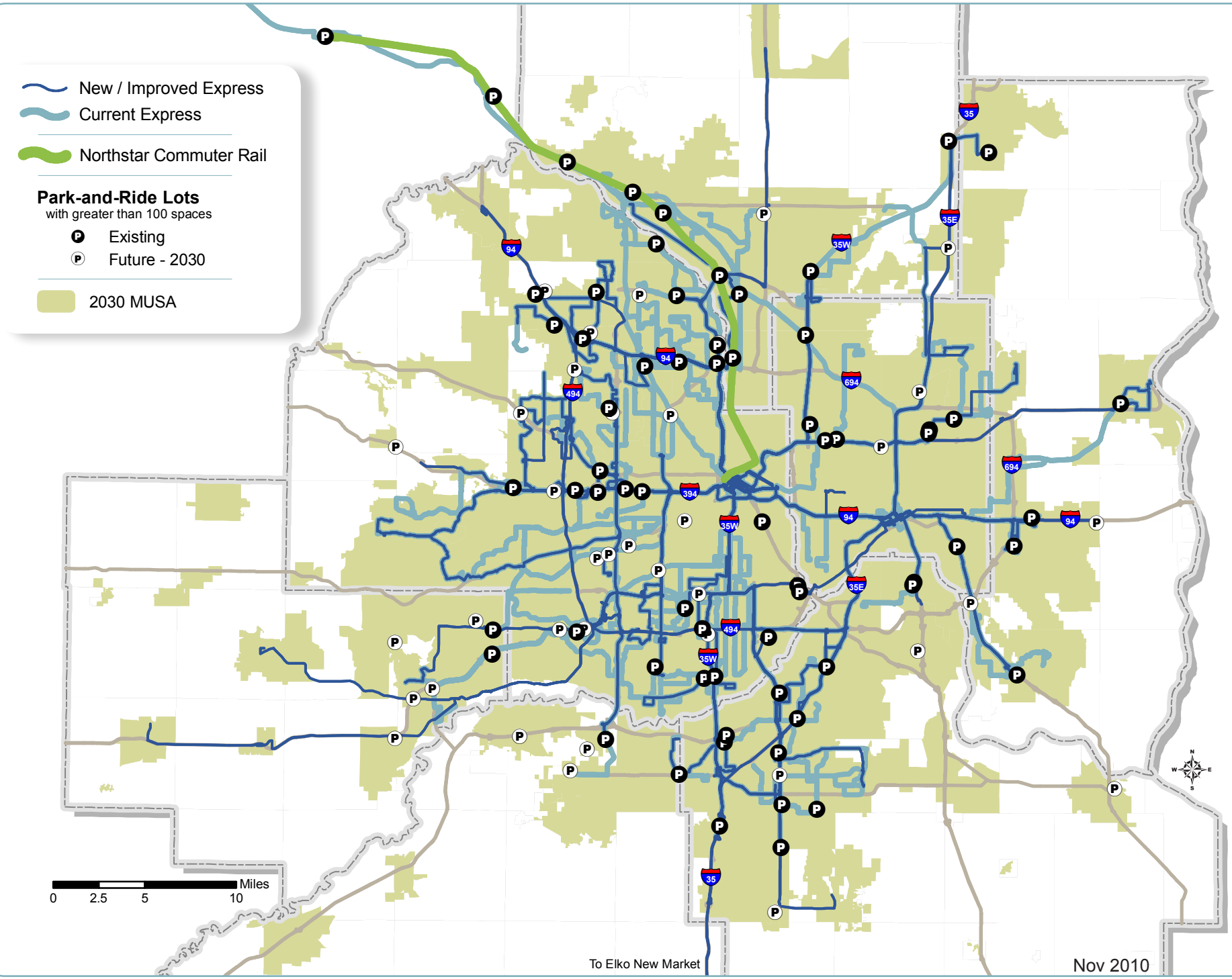


Figure 7-22: Potential 2030 Express Bus

Dial-a-Ride Services

Between 2005 and 2030, the demand for services for people who cannot use the regular-route transit system is projected to grow substantially. This demand will be fueled by the increase in the number of people above the age of 75, projected to grow by 150 percent by 2030, and the increased population in the region.

- Metro Mobility will meet the requirements of the Americans with Disabilities Act (ADA) by providing transit service to people with disabilities certified as not able to use the regular-route transit system. Under the ADA, the region is required to provide ADA services within 3/4 of a mile of local transit service during the same times that local regular-route transit service operates. It also may provide service beyond the requirements of the ADA to provide mobility to people with disabilities. Based on recent ridership trends and demographic projections, Metro Mobility ridership is estimated to grow by more than 40 percent between 2008 and 2030.
- Dial-a-ride programs provide a "safety net" of transportation to people who would not otherwise have transportation. Typical users are the elderly, persons with disabilities who do not qualify for service under the ADA, people too young to drive, and people who do not own a car. The Metropolitan Council will partner with local units of government to provide general public dial-a-ride services in suburban and rural areas. These programs are not projected to grow, as growth in demand is expected to be met through the expansion of the regular-route system.

Transit Facilities

Passenger Facilities

Transit passenger facilities are essential to provide convenient and attractive transit service. They range from basic bus stop signs to large and complex multimodal transit centers and park-and-rides. Such facilities will be provided to support the regular-route bus and rail system and provide transfer points for the dial-a-ride system.

Park-and-ride facilities (for example, surface lots and structured ramps) are primary tools for creating the critical mass necessary for cost-effective transit service from suburban and rural areas. Future facilities should be surface lots rather than structured ramps where feasible, given the higher cost of structured parking. However, structured ramps are appropriate where land is expensive, or where a joint-use venture or transit-oriented development is possible.

Additional park-and-ride capacity expansion will be needed to support anticipated ridership growth in express commuter bus with transit advantages corridors and for transitways. The *2030 Park-and-Ride Plan* in Appendix H and Figure 7-23 shows park-and-ride facilities that are currently projected to be constructed between now and 2030 although specific locations may be refined. Park-and-ride facilities along proposed transitway corridors will be defined as the individual corridors are planned.

An efficient, properly utilized park-and-ride system that meets riders' needs is enhanced by coordination among entities involved in planning and operating park-and-ride facilities. Park-and-ride planning and implementation will adhere to regional guidelines for planning, developing, designing and managing the park-and-ride system.

Transit stations (major stops along transitways) and transit centers (facilities where multiple routes meet to transfer passengers) are necessary tools to efficiently transfer passengers between travel modes and routes. The location of transit stations along transitway corridors will be defined as individual corridors are planned. A network of transit centers and stations will be maintained throughout the metropolitan area to anchor local transit and facilitate convenient passenger connections. Many suburban transit centers will have park-and-ride facilities, while urban transit centers serving primarily local routes will not usually have parking facilities.

Amenities at transit stations, transit centers and park-and-ride facilities should be consistent with growing transit ridership through travel-time savings, cost savings, and convenience for the customer. Passenger shelters and transit stops are essential tools for providing convenience and accessibility to customers throughout the transit system. At high-demand bus stops, particularly in the downtown areas, adequately-sized passenger shelters and sidewalk space need to be provided. By 2030, all bus stops should be ADA-accessible.

Customer information systems (CIS), which include both static and dynamic (real time) systems, are important tools for providing basic route information and directions to transfer points and real-time service information. Technology will affect all aspects of a passenger's trip, such as updated information about the availability of parking at park-and-rides, next-bus arrival information, estimated travel times, web-based trip planning tools, real-time transit information, and rechargeable fare cards. The web-based transit information system for the Twin Cities has already been particularly successful. A new web feature provides web-based real-time bus arrival information on most routes in the region. A network of passenger information systems will be deployed using proven and cost-efficient technology at key locations, such as transit stations and centers, and through electronic media, such as the Internet and telecommunications.

The provision of additional transit passenger facilities in the downtowns will be necessary to accommodate the expected ridership growth in those areas. Specialized facilities, such as the Union Depot in downtown St. Paul and the Target Field Station/Interchange near downtown Minneapolis will be needed to serve as terminal points and connect the various transitways converging downtown.

The downtowns will remain a focus of the transit system into the future. A number of improvements are necessary in the downtowns to accommodate the increasing level of transit service to these important centers. In Minneapolis, double-width bus lanes were added in 2009 on Marquette and Second Avenues. The bus contra-flow lane on 4th Street should be maintained. In St. Paul, these needs include retaining bus lanes on 5th and 6th Streets.

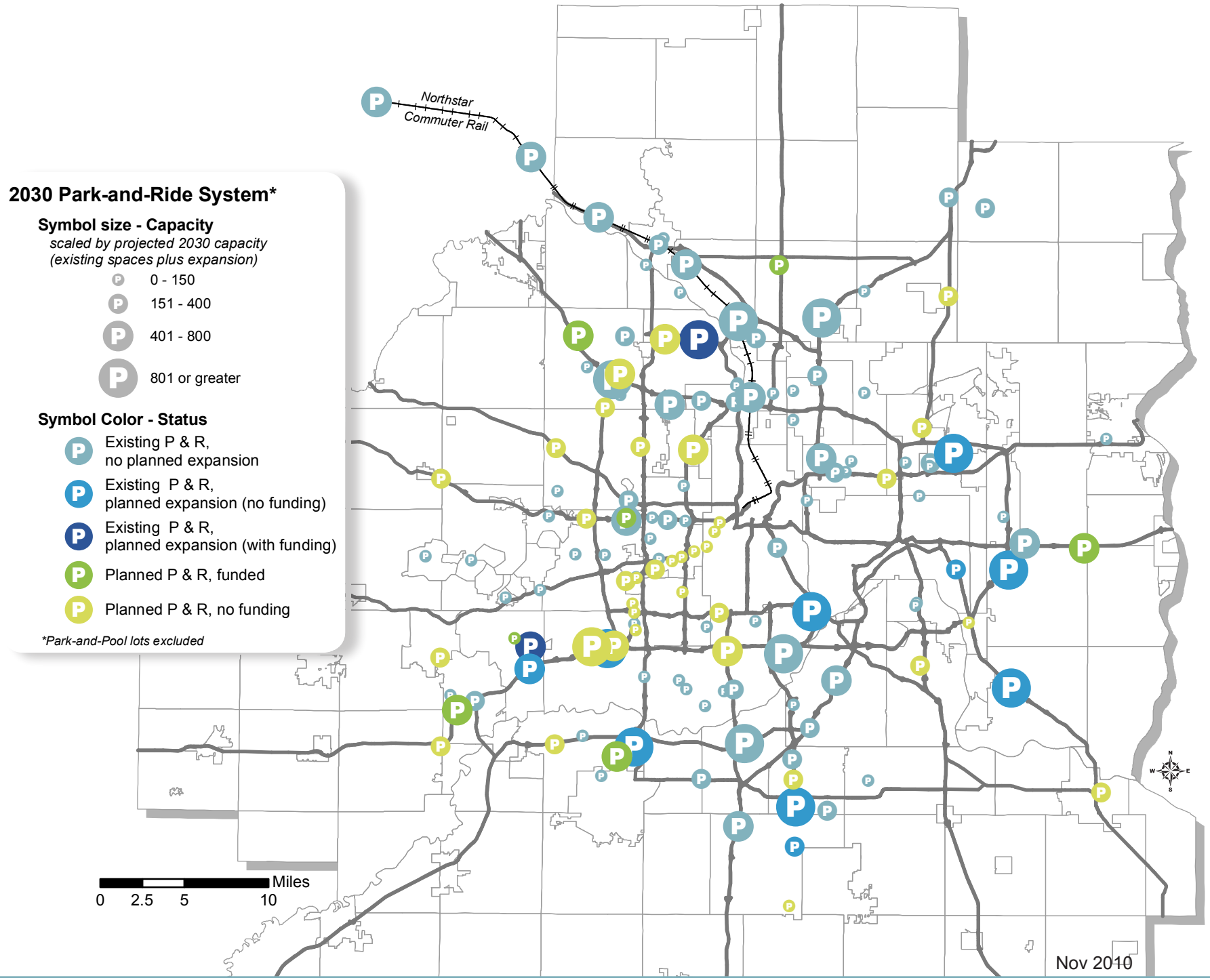


Figure 7-23: Planned 2030 Park-and-Rides

Support Facilities

The regional transit system must have sufficient facilities to support efficient and cost-effective transit services. For buses, these support facilities include garages and bus maintenance facilities, bus layover facilities at the route terminal point, and dispatching and control centers. For rail, these support facilities include maintenance facilities, train storage facilities, layover facilities, and logistics facilities such as control centers.

As the bus fleet expands to meet anticipated ridership growth, bus garages, bus layovers and vehicle storage will need to be increased. This will be accomplished by expanding existing facilities and construction of new facilities. Maximum use of existing garage facilities should be made but bus garage expansion should precede fleet expansion. Bus layover facilities provide a physical space for transit vehicles to stage, an opportunity for route recovery time and driver break rooms and restrooms. These facilities enable the system to operate cost-effectively and on time. Additional layover facilities will be needed in both downtowns and some suburban locations.

Figure 7-24: Garage and maintenance facilities are critical components of the transit system
Metro Transit East Metro Garage

Light rail maintenance and storage facilities will be expanded as rail lines are added and expanded. The Rail Operations and Maintenance Facility on Franklin Avenue will require expansion to accommodate the expansion of Hiawatha LRT to three-car trains. Central Corridor LRT will have a storage and maintenance facility constructed near the Union Depot in downtown St. Paul. Subsequent rail lines will need maintenance facilities, to be determined and constructed through the implementation of those lines.

For Northstar Commuter Rail, a maintenance facility was constructed in Big Lake and a layover track completed in the downtown Minneapolis area. For any future addition or expansion of commuter rail service in the metropolitan area, the need for additional track work and maintenance facility capacity must be evaluated and added where needed.

Transit control centers (TCC) are an essential communications, safety, security and service operational link for regional transit service. Metro Transit operates a TCC, which monitors schedule adherence and coordinates the daily activities of Metro Transit buses, service vehicles, training vehicles and other mobile units. The Metro Transit TCC also dispatches vehicles to respond to on-street incidents and service disruptions and to support Transit Police in their response to security and emergency response. Metro Transit also operates a TCC for rail operations. Other transit providers have similar functions. As the bus and rail system expand, the TCCs will also need to expand.

Figure 7-26 shows the locations of existing major transit support facilities. Additional facilities will be required as service expands to meet growing demand for transit.

Figure 7-25: Skilled workers improve reliability of the entire system

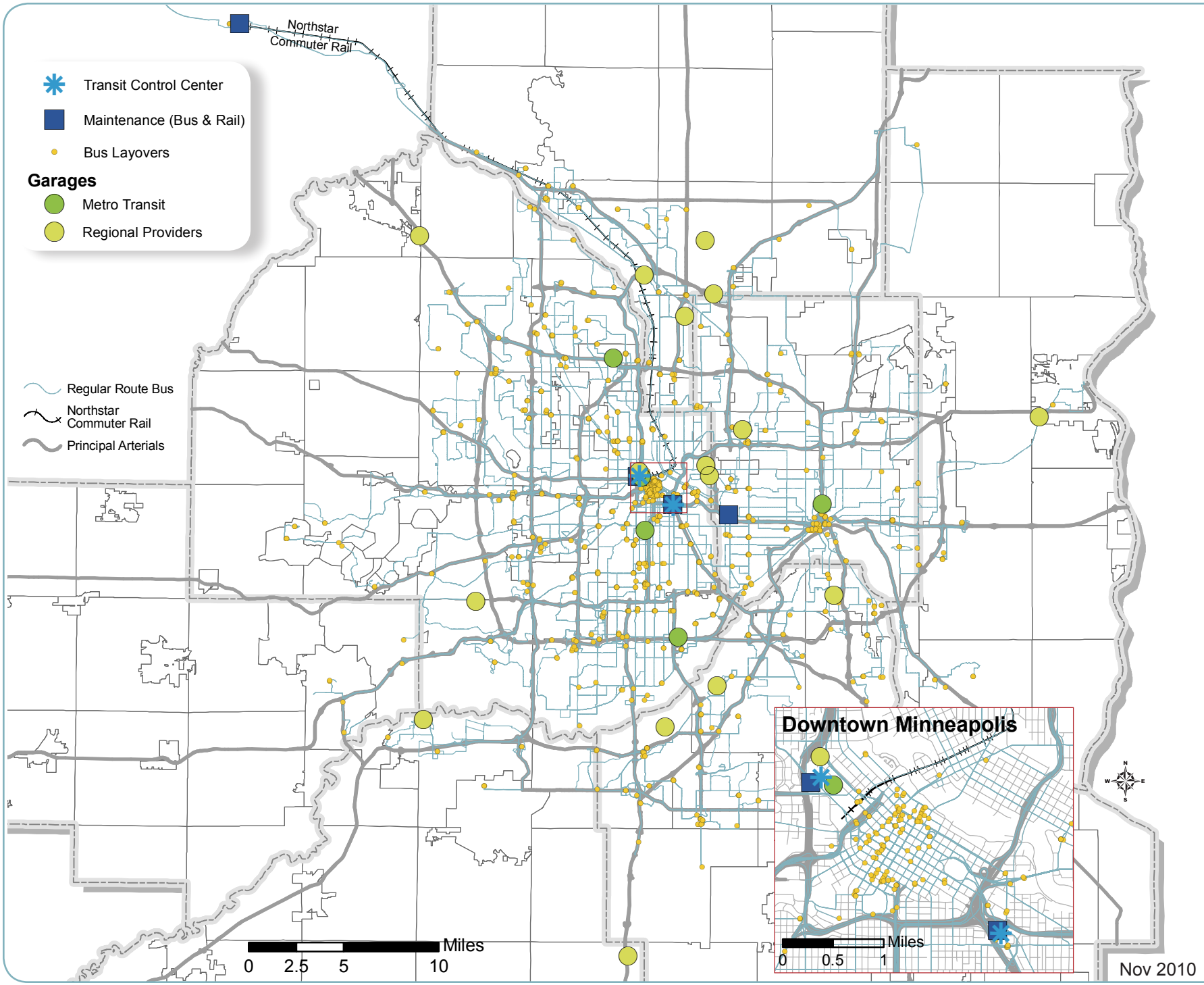


Figure 7-26: Existing Transit Support Facilities

Figure 7-27: Ramp meter bypasses are transit advantages that encourage ridership by improving transit time.

Roadway Improvements to Support the Transit System

Congestion will make it increasingly difficult for buses to move around the region. Right-of-way for rail transit and dedicated busways is limited. As a result, roadway improvements will be critical to maintain transit travel times and reliability. Highway improvements include bus-only shoulders, managed or priced lanes, and ramp meter bypasses as well as newer active traffic management strategies as described in Chapter 6: Highways. On city streets, dedicated bus lanes, dynamic parking lanes, transit priority traffic signals and queue jump lanes can provide transit with substantial advantages. Figure 7-29 shows existing transit advantages.

Some express and local transit corridors are currently well served with transit advantages while others need improvements to maintain or improve transit travel times. Additional bus-only shoulders are needed in strategic locations where they do not exist and more are necessary as the region expands beyond existing boundaries. Both additional ramp meter bypasses and additional ramp meters will be needed. Figure 7-30 shows existing and future bus-only shoulder needs in the region.

Priced lanes are highway lanes shared by transit, high-occupant vehicles and single-occupant vehicles paying a toll. Usage by the single-occupant vehicles is metered through varying the toll based on real time traffic conditions. During times with little or no congestion, a minimal fee is assessed, while during peak commute hours or congested periods pricing is set to maintain a consistent flow of traffic. Priced lanes, like those already operating along I-394 and I-35W, have provided a great advantage for transit by allowing buses to travel at freeway speeds during the most congested periods and hours of highest transit demand. This congestion pricing strategy provides a congestion-free alternative for those willing to pay or ride transit. A system of managed lanes is envisioned for the region and described in Chapter 6: Highways.

Figure 7-28: HOT lanes on 394 are another transit advantage

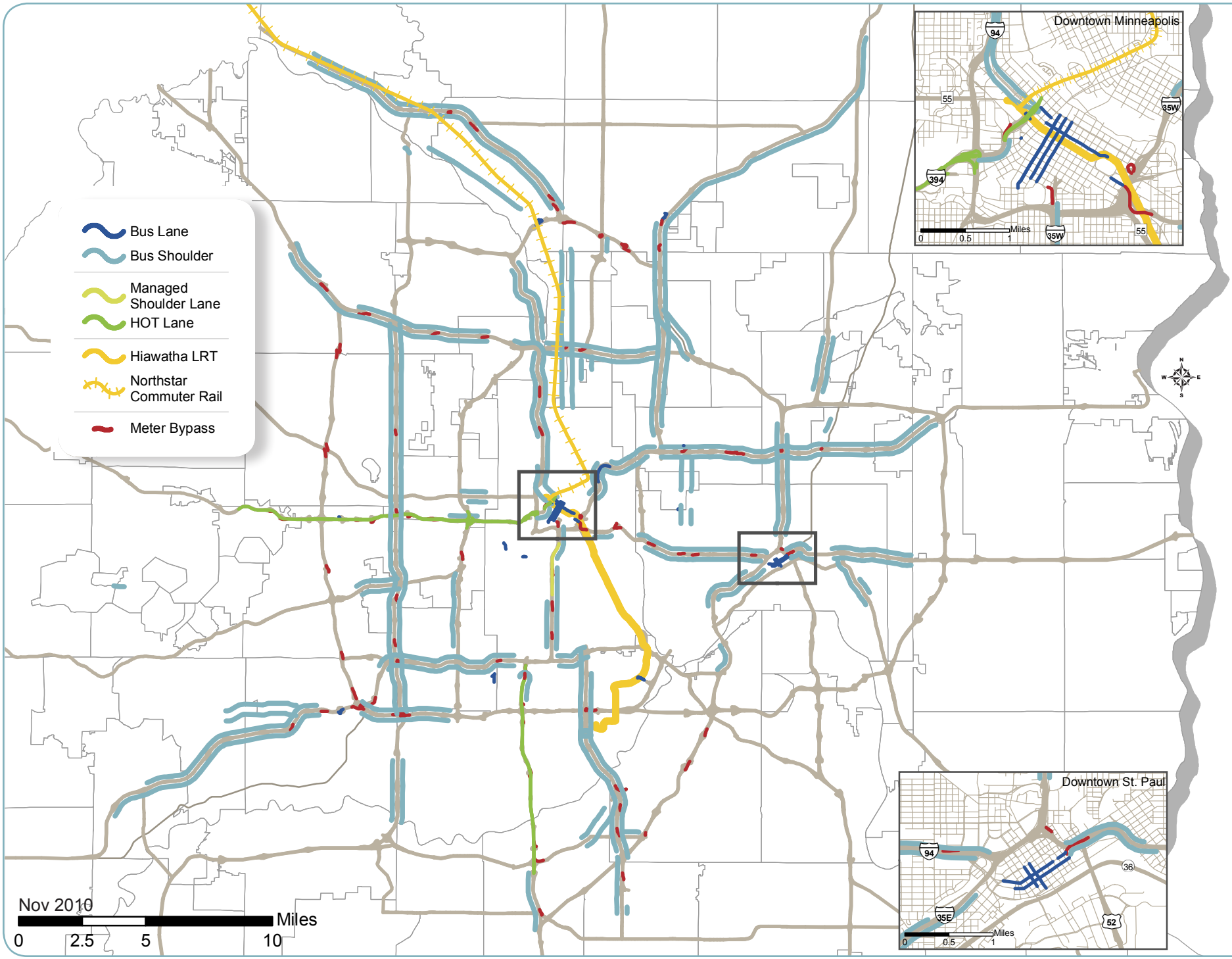


Figure 7-29: Existing Transit Advantages

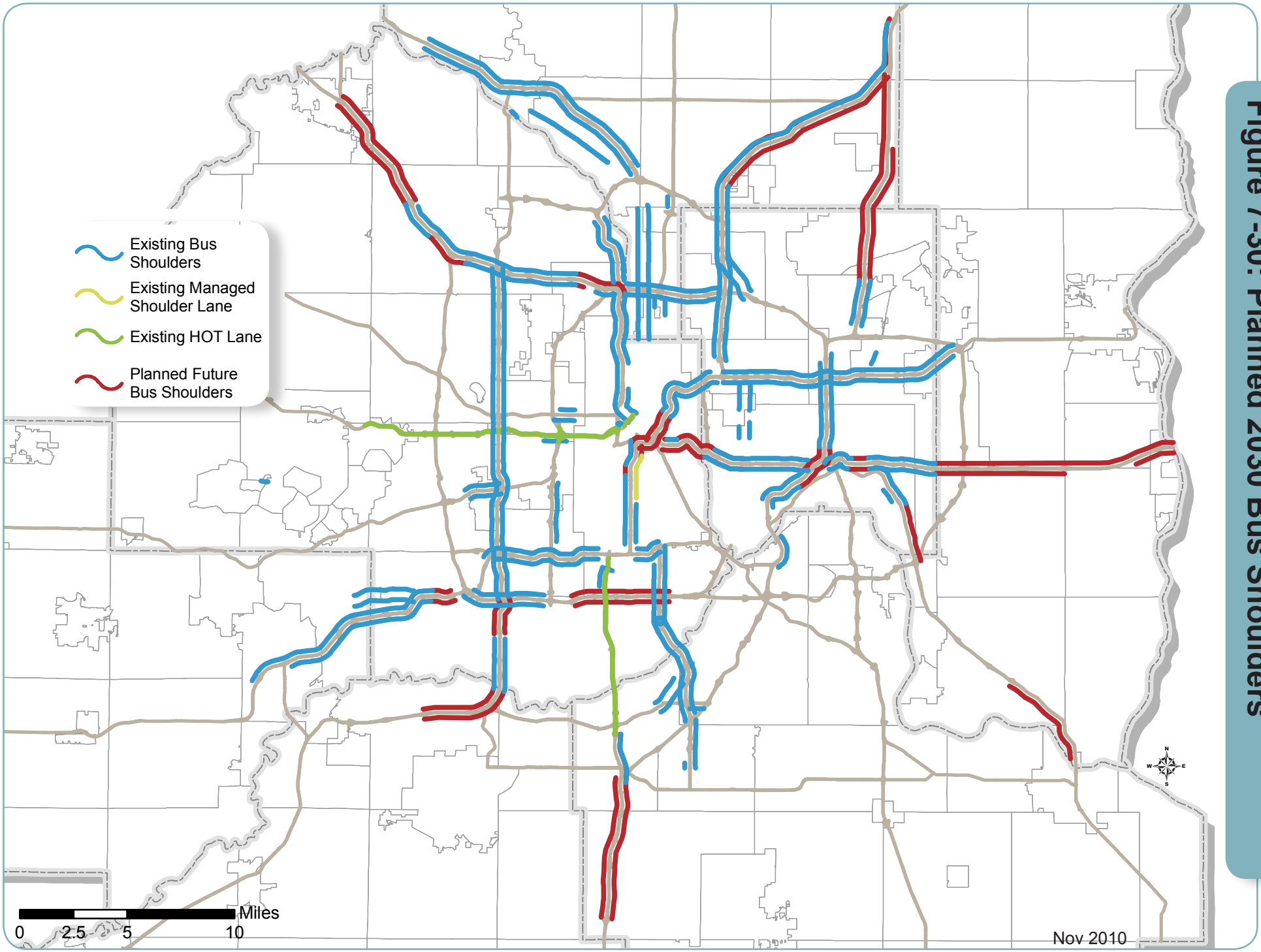


Figure 7-30: Planned 2030 Bus Shoulders

Improvements to the Management and Attractiveness of Transit Services

The Council will promote coordination among the different transit services. Regional transit providers will promote innovation, efficiency, flexibility and greater diversity of options while operating and managing cost effective transit services.

Contracting Services

Contracting the operation of a transit route can be appropriate to meet new service demand, demonstrate new routes or service types, provide efficiencies on certain routes, properly align service expertise with providers, provide more flexibility, or to maintain service in response to fiscal pressures. Service contracts will be structured in a manner that promotes healthy competition. Metro Transit will continue to be the primary provider of regular-route transit services in its service area. The Council will review the amount of contracted service every two years. Twenty percent of regular-route bus service, measured in NTD revenue hours, is the target for private contract operations.

Fleet and Facilities Policies

The Council's fleet policy guides fleet acquisition, use, maintenance, and disposal. All regional providers will adhere to the policies guiding the ownership, maintenance, replacement, and transfer and disposal of buses and trains funded by the region. The fleet policy outlines standards regarding vehicle types and configurations, standard features, farebox equipment, procurement and graphics. The policy also reflects alternative fuels such as low-sulfur diesel, bio-diesel and ethanol, and alternative vehicles such as hybrid electric. A facilities policy will assure regional standards and equity in the design and provision of transit facilities while also providing flexibility to meet local needs.

Service Improvement Plans

To improve short- and medium-range planning efforts and prioritize transit service growth, every two years regional transit providers will prepare a Service Improvement Plan that identifies operating priorities for service expansion for the next two to four years. Each item in the plan should include a project description, resources needed for implementation, projected year of implementation, project readiness, and ridership estimate. The plans will be submitted to the Council who will prepare a Regional Service Improvement Plan.

In addition to a Regional Service Improvement Plan, the Council will prepare an annual regional performance review of all transit services to ensure operational efficiency. Regional transit providers will evaluate their existing services annually against the performance measures outlined in Appendix G.

Figure 7-31: The Transit Control Center ensures efficient and safe operations

New Technologies

Technological innovations have improved transit services, making it a more attractive option. Technology has affected all aspects of a passenger's trip, such as updated information about the availability of parking at park- and-rides, next-bus arrival information, estimated travel times, Web-based trip planning tools, real-time transit information, and rechargeable fare cards. Technology has also helped improve transit operations, such as better fuel efficiencies produced by hybrid-electric buses, the real time GPS tracking data, and the collection of running time conditions for planning purposes and on-street monitoring. The Council will continue to pursue technologies to improve the management and attractiveness of transit services as they mature into proven solutions.

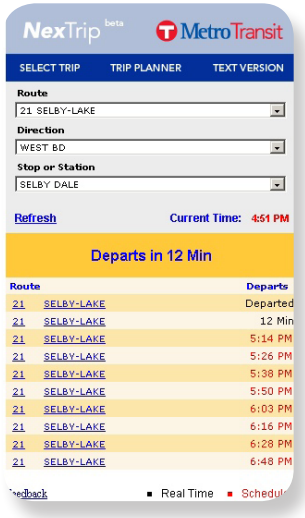


Figure 7-32: New technology, like NexTrip, allows customers to use the transit system effectively

Develop a Network of Bus and Rail Transitways

A network of transitways will allow movement that avoids congested highways, connects regional employment centers and boosts the potential for transit-oriented development. The region will have four types of transitway modes: commuter rail, light rail, bus rapid transit, and express buses with transit advantages.

Corridors Under Study or Development

Previous plans and studies inform the transitway recommendations described in this section. Corridors currently in some stage of study or development include:

- I-35W and Cedar Avenue BRTs – Many elements of these projects are completed and both are scheduled to open station-to-station service in 2012.
- Central Corridor Light Rail Transit – Engineering, design, and construction work continues toward a projected opening in 2014.
- Bottineau Transitway – Alternatives analysis and environmental documentation is in progress.
- Southwest Transitway – LRT on the Kenilworth-Opus-Golden Triangle alignment (Alternative 3A) was selected in May 2010 as the Locally Preferred Alternative. The LPA selection completes the New Starts Alternatives Analysis transportation planning process. Consistent with federal guidance to integrates the NEPA process with the transportation planning process, the Draft Environmental Impact Statement (DEIS) study process will continue with the DEIS anticipated to be complete in late 2010.
- Rush Line Corridor – Work on an alternatives analysis continues and the Task Force initiated commuter bus demonstration service in 2010.
- Red Rock Corridor – An alternative analysis completed in 2007 identified express bus service with transit advantages as an interim strategy toward a possible long-term commuter rail investment. Station area planning was initiated in the corridor in 2009.

Figure 7-33: 35W BRT animation

- Gateway Corridor (I-94 East) – Work on an alternatives analysis for the Gateway Corridor began in fall 2010.
- Arterial Transitways – Metro Transit initiated an Arterial Transitway Corridor Study (ATCS) in an effort to better understand the scope of potential improvements for bus rapid transit on the nine arterial routes and identify the most feasible corridors for implementation.

Determining Potential New Transitway Corridors

To determine which additional transitways may need to be constructed, a screening process for potential transitways was undertaken in 2007 as part of the *2030 Transit Master Study*. That study solicited ideas for corridors from the counties, regional railroad authorities, and transit providers and then evaluated 29 corridors based on ridership, cost estimates, and other factors such as right-of-way availability. The work completed through that study process informed the recommendations in this plan.

This plan acknowledges that detailed studies are required to determine the appropriate mode and alignment for a given corridor. Some corridors have had detailed study while others need to be studied in detail to identify a mode and alignment. The most appropriate and cost-effective technologies will need to be determined on a corridor-by-corridor basis. Criteria to determine the preferred alternative should include, among others: ridership, mobility improvements, operating efficiency and effectiveness, environmental impacts, regional balance, economic development impacts and cost-effectiveness. Readiness, priority and timing will be considered as will local commitment to transitway implementation and land use.

Transitway Recommendations

Commuter Rail

Figure 7-34: Northstar Commuter Rail train began operations in 2009

Commuter Rail operates on freight railroad tracks. Commuter rail vehicles may use diesel multiple unit (DMU) vehicles or conventional diesel locomotives pulling passenger coaches. In many cases, commuter rail operates on existing freight railroad tracks that may also carry intercity passenger rail traffic operated by Amtrak, potentially using common stations. Lines are typically 20 or more miles long, with stations spaced much farther apart than light rail, typically five miles apart. This spacing results in fewer stations than LRT to keep travel times fast. Station areas are primarily oriented to park-and-ride uses. Commuter rail services operate at 20- to 30-minute frequencies during peak periods, with limited or no midday or reverse-direction service.

Commuter Rail Recommendations

The Northstar Commuter Rail Line is operating on the Burlington Northern Santa Fe railroad line from downtown Minneapolis to Big Lake. The line opened in November 2009 and is the first modern commuter rail line in the Twin Cities.

Ridership projections calculated for the *2030 Transit Master Study* indicated that under the current model and regional forecasts, no commuter rail corridor other than Northstar would have enough ridership to justify intensive investments. (It should be noted that the potential commuter rail line connecting Minneapolis and Northfield commonly known as the Dan Patch line was not included in the *2030 Transit Master Study* due to a statutory prohibition against studying this line.) However, commuter rail ridership forecasts have been hampered by a lack of data about travel patterns of commuter rail customers because the region did not have operating commuter rail. With the 2009 opening of the Northstar Commuter Rail Line, observed ridership data can now provide information on actual usage. The 2010 Travel Behavior Inventory Transit On-Board Survey will gather further data and use it to develop new input parameters for the region's travel demand forecast model, which, when updated, will be used to re-evaluate commuter rail corridors included in the *2030 Transit Master Study*, along with any other corridors identified. If there are corridors that appear to be viable with this updated modeling information, they should undergo an alternatives analysis and then move into development if they prove to be cost-effective. In anticipation of this possibility, an additional commuter rail line is planned for in this plan's cost estimates between 2020 and 2030.

It is also possible that improvements made to the rail system could change the viability of certain corridors for commuter rail. For example, if high-speed intercity passenger rail were to be constructed from the Twin Cities to Chicago, improvements would be made in the Red Rock Corridor that could substantially reduce the cost of developing commuter rail in that corridor. Likewise, if intercity passenger service were developed from Duluth, it could lower costs of the Bethel-Cambridge corridor for commuter rail. If either of these triggering events occurs, those corridors should be re-studied for potential commuter rail investments.

Light Rail Transit and Dedicated Busways

Light Rail Transit (LRT) operates on rails primarily in exclusive rights-of-way. Vehicles are powered by overhead electrical wires. Stations are typically spaced about one-half to one mile apart. Typical LRT lines are 10 to 15 miles long because they primarily serve densely developed areas and because trip times become too long if they are longer. LRT trains operate all day, with bidirectional service at frequencies of 10 minutes or better during peak periods. Hiawatha light rail is the one operating line currently in the Twin Cities.

Figure 7-35: Central Corridor LRT animation

Play Animation of Central Corridor

Dedicated Busways are special roadways and lanes of roadways dedicated to the exclusive use of buses. Busways can operate service similar to LRT, with station spacing and other characteristics that mimic light rail transit, except they use vehicles on rubber tires instead of electric trains on rails. Examples of this service in the United States include Los Angeles' Orange Line and Boston's Silver Line. A local example is the University of Minnesota busway which is the one operating dedicated busway in the region. Dedicated busways also offer an additional flexibility that allows many different bus routes to use busway facilities, including local all-day service, limited-stop routes, and express bus routes. This results in all-day service with very high frequencies during peak and off-peak periods on core sections.

Figure 7-36: The U of M transitway is dedicated right-of-way for campus transit vehicles

Light rail transit and dedicated busways function in similar ways. One operates on rails and is powered by electricity while the other operates on rubber tires and is powered by diesel engines. But most of the characteristics of busways and LRT– dedicated right-of-way, specialized stations and vehicles, off-board fare collection, signal priority and preemption – are the same. Trip times and passenger experience can be similar. For this reason, recommendations on these transitways are combined below.

Light Rail Transit and Dedicated Busway Recommendations

Currently the Twin Cities has one operational light rail line, Hiawatha LRT, which runs from downtown Minneapolis to the Minneapolis-St. Paul International Airport to the Mall of America. Because ridership on Hiawatha LRT has significantly exceeded projections, it is necessary to expand Hiawatha's capacity from two-car trains to three-car trains. This will require capital investments between 2008 and 2020.

The Central Corridor is the primary east-west transportation route between downtown Minneapolis, the University of Minnesota and downtown St. Paul. The Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) was finalized in April 2006 and LRT was selected as the locally preferred alternative. Preliminary engineering was completed in 2010 with final design and securing federal funding also to be complete in 2010. Construction is began in 2010 and the projected opening date is 2014.

The Council's *2030 Transit Master Study* showed two other corridors with high potential for light rail or a dedicated busway. The Southwest Transitway extends between Eden Prairie and Minneapolis, including the cities of Minnetonka, Hopkins, and Saint Louis Park. An alternatives analysis has been completed for this corridor and a draft environmental impact statement (DEIS) is anticipated in 2010. LRT on the Kenilworth-Opus-Golden Triangle alignment (Alternative 3A) was selected as the Locally Preferred Alternative. Bottineau Corridor extends from Minneapolis to potential destinations in Maple Grove or Brooklyn Park. Alternatives analysis and environmental work is on-going for this corridor and both LRT and BRT alternatives continue to be studied.

In addition six other corridors (Gateway, TH36 /NE, I-35W North, Central Avenue / TH 65 / BNSF, Midtown and Rush Line) are recommended for mode and alignment studies, and may be determined to have potential for LRT, BRT, or another mode. The Rush Line Task Force has initiated an alternatives analysis and initial results have narrowed results to one BRT and one LRT corridor alternative. An alternatives analysis was begun for Gateway in 2010. Based on results from the *2030 Transit Master Study*, the Midtown corridor also shows promise as a transitway connecting Hiawatha LRT and Southwest Transitway. With LRT on the Kenilworth-Opus-Golden Triangle alignment (Alternative 3A) selected as the Locally Preferred Alternative for Southwest, the Midtown Corridor should be examined further to see if a connector between Hiawatha and Southwest is warranted. Although many factors determine the viability and timing of implementation, this plan assumes that in addition to Central Corridor, one other light rail or dedicated busway should be implemented by 2020 and work begun on a second. This plan anticipates the completion of the second LRT line shortly after 2020 and that a third will be completed by 2030.

Bus Rapid Transit

Figure 7-37: The newly constructed Apple Valley Transit station on the Cedar Avenue BRT corridor

Bus rapid transit (BRT) is a transitway mode that uses bus vehicles while incorporating many of the premium characteristics of light rail or commuter rail.

The federal government has identified seven characteristics that separate BRT from regular bus service:

- **Service Operations:** High frequency, all day service, typically 15 minutes or better on the main portions of the route provides a high level of service to customers. In addition, routes typically have limited stops except in downtowns and have express service.
- **Running way:** These include dedicated busway, bus lanes, managed lanes, dynamic shoulder lanes, dynamic parking lanes, bus-only shoulders, or mixed traffic where other options do not exist. Dedicated running ways allow buses to avoid congestion and move more quickly and reliably than in mixed traffic.
- **Technology:** Signal priority and driver technology allow buses to move more quickly and reliably. Customer information displays and other technology can improve the customer experience.
- **Identity/Brand:** Unique branding of the BRT helps distinguish the line from regular-route services.
- **Stations:** Uniquely branded stops with more amenities than a standard local bus stop also differentiates the service from other bus routes and makes it easier for customers to know where the route runs.
- **Vehicles:** Vehicles can range from typical 40-foot transit buses to specialized vehicles with a unique look, low floors and additional doors for quicker boarding, automated docking, on-board arrival information, and other specialized features.
- **Fare Collection:** Off-board fare collection or fast fare collection where possible to speed boarding times.

BRT facilities are scalable can be added or expanded as needed over time. For example, an express corridor could add a priced lane, and then improve stations and park-and-rides as demand increases. Queue jump lanes or ramp meter bypasses (lanes that allow buses to bypass congestion) can be added as congestion increases. If demand warrants, on-board fare collection can be upgraded to off-board fare collection to speed travel. Because of this, BRT corridors may continuously add new features as population growth and congestion increase demand in a corridor.

Figure 7-38: Dedicated running ways allow BRT vehicles to avoid congestion and move more quickly and reliably than in mixed traffic.

Bus Rapid Transit Recommendations

In the Twin Cities, there are two variations of BRT proposed: Arterial BRT and Highway BRT.

1. Arterial Bus Rapid Transit

The *2030 Transit Master Study* and other studies screened high ridership arterial transit corridors for their potential for light rail or dedicated busways. These studies showed that substantial ridership growth could be achieved through faster and higher frequency service. These corridors are all in highly developed areas with very limited right-of-way available, meaning that light rail or dedicated busways are most likely not feasible. These areas also have existing high density and mixed-use development characteristics that foster strong existing and potential transit ridership. Furthermore, local communities have focused growth on these corridors through infill and redevelopment opportunities.

Bus Rapid Transit service on arterial streets could provide limited-stop service and use technology improvements to provide a fast trip in these corridors and use branding to differentiate the service from regular bus routes.

Candidate corridors are shown in Figure 7-39. This plan recommends a comprehensive study of corridors for this service, and assumes six arterial bus rapid transitways will be implemented between 2008 and 2020 and three additional by 2030. The proposed corridors include:

Central Avenue	Nicollet Avenue	Robert Street
Snelling Avenue/Ford Pkwy	Chicago Avenue	West 7th Street
West Broadway	East 7th Street	American Boulevard

In addition, the Arterial Transitway Corridor Study will include an analysis of the Lake Street Corridor and the Hennepin Avenue corridor between West Lake Street and downtown Minneapolis. Some of the corridors have been studied and recommended for modes in addition to bus rapid transit. The results of these studies will be incorporated into the Arterial Transitway Corridors Study and considered in selecting appropriate modes, alignments, and prioritization of corridor investments. Detailed corridor analyses following the Study will determine if rail improvements are viable in the near or long term. In some corridors, BRT improvements could provide improved transit service in the interim before rail improvements further supplement or replace BRT.

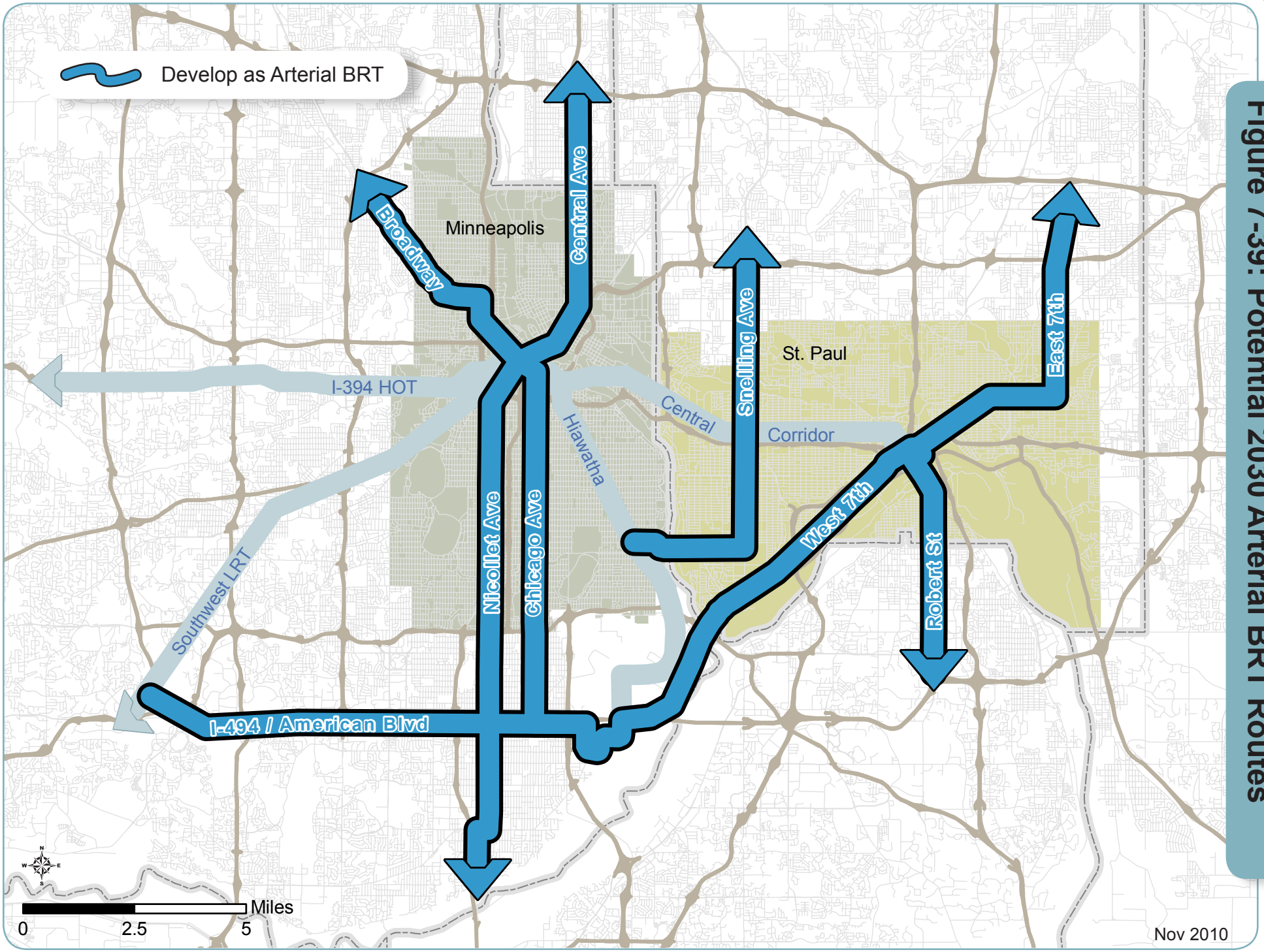


Figure 7-39: Potential 2030 Arterial BRT Routes

2. Highway Bus Rapid Transit

Bus Rapid Transit (BRT) also operates on limited access roadways. It can use bus-only shoulders, managed lanes, ramp meter bypasses, priced dynamic shoulder lanes and other running-way advantages. In addition to peak express service, highway BRT also incorporates high frequency, all-day service, branded vehicles, and improved stations, including park-and-ride facilities and online stations. Bus Rapid Transit improvements can also be used by other types of bus service like regular express buses, limited stop service or routes that are partially local service and partially express. Some of these facilities will have on-line stations, allowing boarding of buses in the highway right-of-way.

The I-35W BRT line will run from Lakeville to downtown Minneapolis. A number of park-and-rides and stations exist or are being constructed along the corridor. The Cedar Avenue BRT is a 16-mile corridor that runs between Lakeville and Bloomington, with express service continuing to downtown Minneapolis using TH 62 and transit advantages in the I-35W BRT corridor. Improved transit service will be provided to Eagan, Apple Valley and Lakeville along Cedar Avenue/TH 77. Park-and-rides and transit stations will be constructed and bus lanes added south of 138th Street. These elements are expected to be in place by 2012.

The Twin Cities received an Urban Partnership Agreement grant from the federal government, which advanced both the I-35W and Cedar Avenue BRTs. The agreement called for the establishment of a priced dynamic shoulder lane (PDSL) on I-35W from northbound 42nd Street to downtown Minneapolis, construction of a new HOT lane between 42nd and 66th Streets, and conversion of the HOV lanes to HOT lanes between 66th Street and Burnsville Parkway. The result is a 15-mile, dynamically priced managed lane opened in October 2010 that allows buses to avoid congestion and operate at 50+ mph rather than the current bus-only shoulder speeds of 35 mph or less. In addition, the single contra-flow bus lanes in downtown Minneapolis on Marquette and Second Avenues were converted to dual lanes, reducing travel time through downtown by as much as 10 minutes. Additional transit vehicles were purchased, park-and-ride spaces were created, new BRT stations were built, a bus bypass lane at TH 62 and TH 77 was added, priority for transit vehicles at signalized intersections was implemented, and electronic signs at stations now project bus arrival times based upon real-time data will be installed. These improvements were completed in 2009.

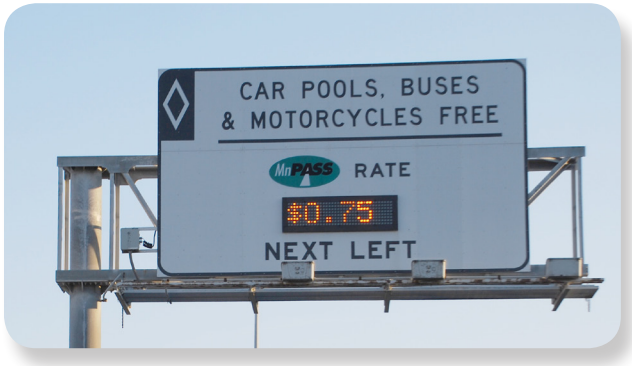


Figure 7-40: HOT lanes are an example of a regional transit advantage

This plan calls for two additional highway bus rapid transitways beyond Cedar and I-35W to be implemented between 2008 and 2020 and two additional highway BRTs between 2020 and 2030. Currently five corridors are recommended for study for their appropriate mode and alignment. Some express bus corridors with transit advantages, described below, could also become highway BRT corridors in the future if demand is high enough.

Express Bus Corridors with Transit Advantages

Express corridors with transit advantages provide express bus service with an alternative to congestion. These advantages could be bus-only shoulders, managed lanes, ramp meter bypasses or other

Figure 7-41: The UPA is one example of a person throughput focused project

advantages for transit. These services primarily connect commuters from suburban markets to employment in the central business districts, University of Minnesota and other major employment centers. Services in these corridors typically operate non-stop between a park-and-ride and the destination. One example of this type of service is on I-394, where buses originating from park-and-rides use the managed lanes to avoid congestion. Many other routes use bus-only shoulders to avoid congestion. Highway improvements such as bus-only shoulders and managed lanes benefit all the express bus service operating within the corridor. Improvements at specific intersections, like queue jump lanes, timed signals, and signal priority also provide transit with important advantages that can benefit specific service. Express service also benefits from highway and street improvements at the terminus of corridors such as bus-only and contraflow transit lanes, which allow express service to avoid congested local streets.

Express Bus Corridors with Transit Advantages Recommendations

Express bus service will need to double for the region to remain on track to increase transit ridership by 100% by 2030. Each express bus corridor will have sufficiently sized and conveniently located park-and-ride facilities. In some corridors, community and circulator networks will support service to these park-and-rides. Additional garage bus capacity will need to be constructed to house this expanded bus fleet.

Between 2010 and 2030, the region's urbanized area will grow, necessitating the expansion of highway transit advantages. In addition, there are gaps within the existing network of transit advantages that should be closed for the system to function optimally. As a result, it will be necessary to expand the bus-only shoulder network by up to 135 miles, depending on the reconstruction schedule for the highway system.

The I-394 managed lane will continue to provide a substantial advantage to express buses on the western end of the region as will the new lanes added on I-35W south of downtown Minneapolis. As discussed in the Highway chapter, expanded highway pricing may be used as a tool to manage congestion as well as providing an advantage for transit. Decisions about any proposed priced lanes or high-occupancy lanes should consider and prioritize benefits to transit services.

Existing and proposed express bus corridors with transit advantages are shown in Figure 7-42.

Transitway Corridors to Study for Mode and Alignment

Modes and alignments have not been determined for a number of corridors. Promising corridors have been identified as needing more intensive study. All modes should be considered including LRT, Busway, BRT and Commuter Rail. The studies should include an initial screening to determine corridor potential, an alternatives analysis, a draft and then final environmental impact statement, and preliminary engineering. Four corridors were identified in the *2030 Transit Master Study* for initial screening and possibly alternatives analysis studies. These corridors are:

- I-35W north of downtown Minneapolis
- Trunk Highway 36 / NE Corridor
- Trunk Highway 65/Central Avenue/BNSF
- Gateway Corridor (I-94 East) linking Minneapolis, St. Paul, and Western Wisconsin

Based on results from the *2030 Transit Master Study*, the Midtown corridor also showed promise as a transitway connecting Hiawatha LRT and Southwest Transitway and is recommended for further study to determine the appropriate mode and alignment.

As was noted earlier, the Rush Line and Bottineau corridors are currently undergoing an alternatives analysis and should continue in study to determine the appropriate mode and alignment.

The Metropolitan Council will work with Mn/DOT and other jurisdictions to develop alternative analyses for these corridors in the next three years to determine the most appropriate transit investments. The most cost-effective alternatives should then move toward implementation. Implementation may mean a rail-based solution, an exclusive busway, or other bus-based solution, including a mixed-traffic solution such as managed or priced lanes, dynamic shoulder lanes or express buses with transit advantages.

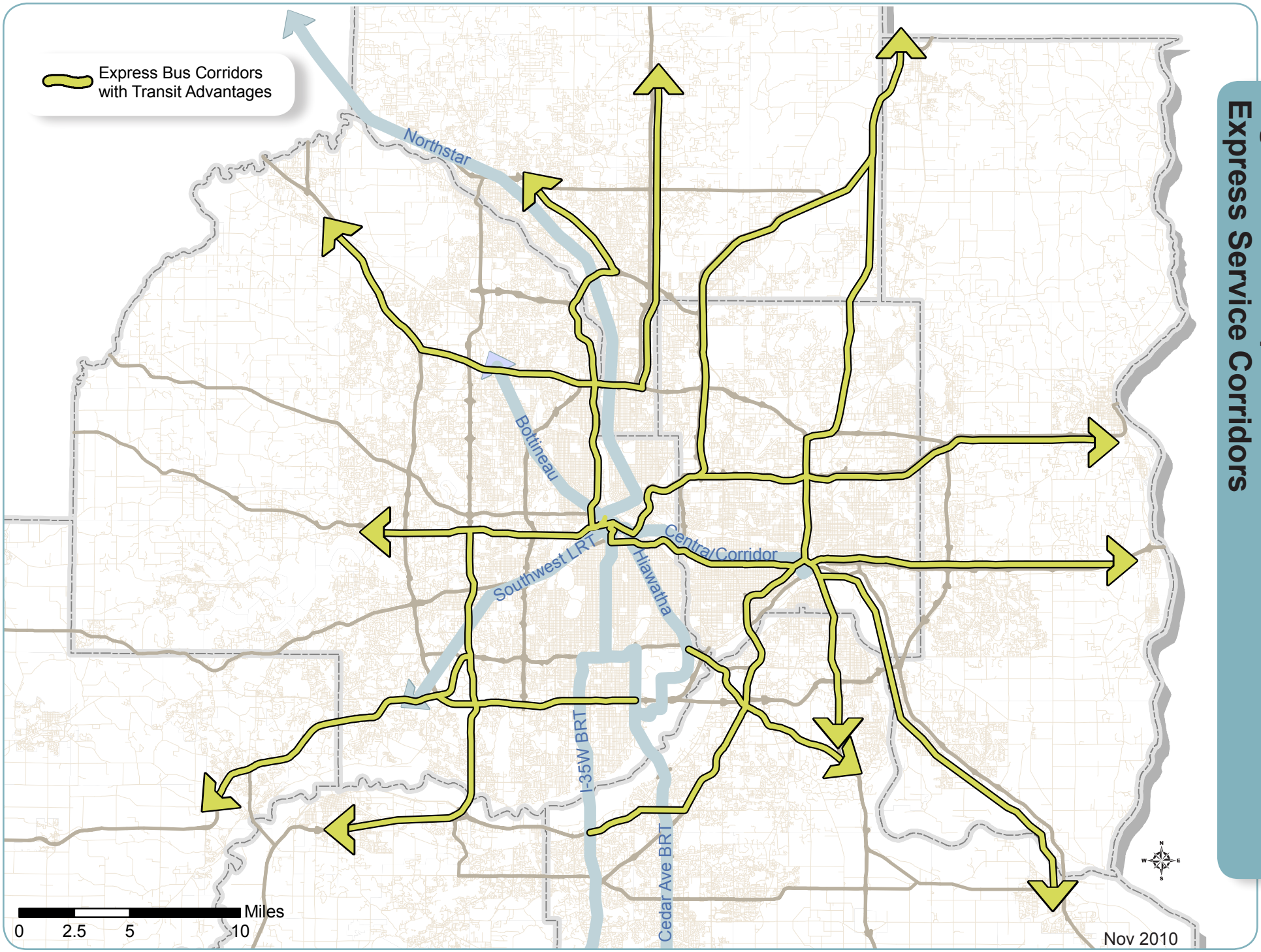


Figure 7-42: Proposed 2030 Express Service Corridors

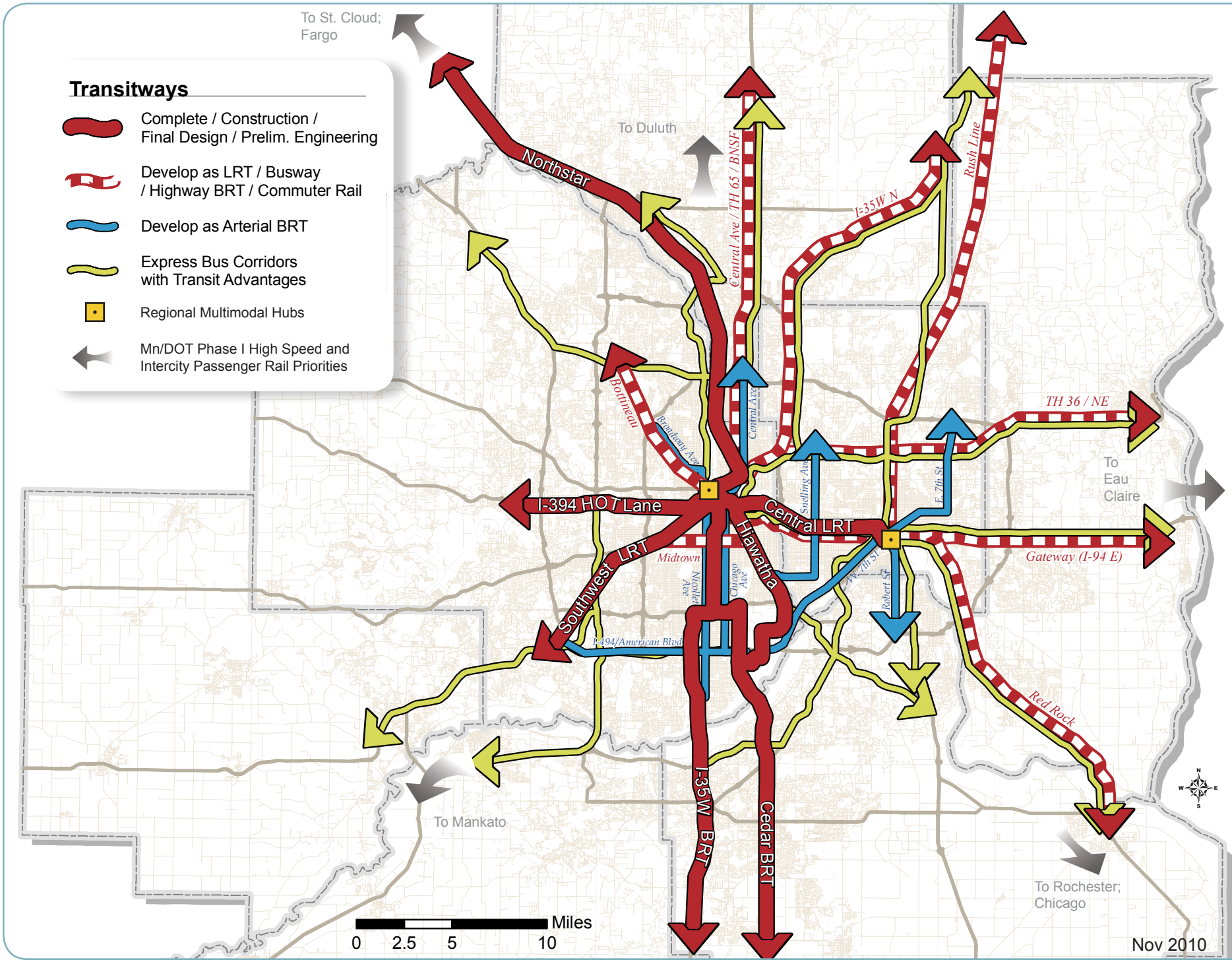


Figure 7-43: 2030 Transitway System

Summary of Transitway Recommendations

Complete, In Construction, Final Design or Preliminary Engineering

Seven transitway corridors, Hiawatha LRT, I-35W BRT, Cedar Avenue BRT, I-394 managed Lane, Northstar Commuter Rail and Central LRT are complete, in construction, final design or preliminary engineering while Southwest LRT is anticipated to enter preliminary engineering in 2010.

Develop as LRT/Busway/BRT/Commuter Rail

Eight corridors, Bottineau, I-35W North, Central Ave/TH65/BNSF, Rush Line, TH36/NE, Gateway, Midtown and Red Rock corridors should continue in development and are recommended as potential transitways by 2030.

Planning and development studies, conducted and funded in cooperation with county regional railroad authorities and Mn/DOT, will determine the specific alignment, mode and schedule for each corridor. Corridor Status:

- Bottineau Boulevard: Alternatives analysis and environmental documentation underway.
- Rush Line: Initiated commuter bus demonstration service in 2010 with alternatives analysis underway.
- Gateway: Alternatives analysis underway.
- I-35W N, Central Ave/TH65/BNSF, and TH36/NE: Preferred mode and alignment to be determined through alternatives analyses over the next three years.
- Midtown: Preferred mode and alignment to be determined through further study.
- Red Rock: Alternatives analysis prepared recommending a phased approach with commuter rail implemented if high speed rail is developed in the corridor.

As corridors move toward implementation, the revenue estimates in this plan would allow for the following transitways to be implemented:

- Three corridors could be built as LRT or dedicated busways, one to be completed by 2020, one possibly begun before 2020 and completed soon after, and a third possibly completed by 2030;
- Four BRT corridors could be built on highway alignments, two by 2020 and two additional BRT corridors on highway alignment by 2030; and
- One additional commuter rail corridor could be built by 2030.

However it should be noted that based on current data, no commuter rail line other than the Northstar corridor appears to generate enough ridership to justify this kind of large capital investment. This assumption was validated in 2010 by comparing actual Northstar ridership data to commuter rail ridership projections previously prepared for that corridor to evaluate the accuracy of the ridership model. However, progress in potential high speed or intercity passenger rail connections to Chicago and Duluth

could significantly reduce the capital cost of the Red Rock and Bethel-Cambridge commuter rail lines and improve their cost/effectiveness. Because other commuter rail corridors may become viable in the future, this plan assumes implementation of a second commuter rail line in its cost estimates between 2020 and 2030.

Develop as Arterial BRT Corridors

Nine corridors are recommended as potential Arterial BRT facilities. In some of those corridors, BRT implementation could be a precursor to future rail improvements. This plan's cost estimates assume that six corridors are to be implemented by 2020 and three additional corridors by 2030:

Central Avenue	Nicollet Avenue	Robert Street
Snelling Avenue/Ford Pkwy	Chicago Avenue	West 7th Street
West Broadway	East 7th Street	American Boulevard

Express Bus Corridors with Transit Advantages

Various corridors

Intermodal Hubs

The implementation of a network of transitways converging on the two downtowns will require the development of intermodal facilities where passengers can make connections between lines. This plan identifies the Union Depot in downtown St. Paul and the Target Field Station/Interchange near downtown Minneapolis as those two intermodal hubs.

Figure 7-44: Amtrak provides intercity passenger rail service to the Metro Area

Other Modes

Intercity passenger rail service is important to the economy of the Twin Cities. Passenger rail can enhance connectivity and provide transportation alternatives between the Twin Cities and other regions. Because of this, the Metropolitan Council supports the development of this alternative. However, planning for intercity passenger rail extends beyond the jurisdiction of an individual metropolitan planning organization and thus is usually planned at the state and federal levels. In Minnesota passenger rail is under the jurisdiction of Mn/DOT and is not directly included in this plan.

In February 2010 Mn/DOT completed the *Minnesota Comprehensive Statewide Freight and Passenger Rail Plan*. The priority program elements and Phase I investments identified in the plan for intercity passenger rail include:

- Continue to participate in the Midwest Regional Rail Initiative (MWRRI) and support the development of sustained 110 mph service for connections from the Twin Cities to Wisconsin and the Chicago Hub Network.
- Develop an intrastate intercity passenger rail network connecting the Twin Cities with viable service to major outlying regional centers.

- Connect all services eventually to both the new Minneapolis downtown terminal and St. Paul Union Depot.
- Advance corridors incrementally and simultaneously with Mn/DOT's support; sequencing depending on financing, ROW acquisition and agreements with freight railroads.
- High-Speed Rail passenger service from the Twin Cities to Madison/Milwaukee/Chicago, to Duluth, and to Rochester (sustained speeds of 110 mph), with connections in Chicago to numerous other Midwestern cities also via high speed service;
- Enhanced conventional passenger rail service (sustained speeds of 79 to 90 mph) from the Twin Cities to St. Cloud; Mankato; Fargo, North Dakota; Eau Claire, Wisconsin; and between Minneapolis and St. Paul;

New intercity passenger rail services could develop rail improvements such as stations, signals, or improved track that could also be used by commuter rail transitways within the region. The Council supports and will continue to work closely with Mn/DOT in efforts to plan and develop intercity rail. The 2030 Transitway system shown in Figure 7-43 includes the Mn/DOT Phase I intercity passenger rail priorities.

Streetcars are a type of rail transit that can be operated with vintage, replica or modern cars. Streetcars typically operate in mixed traffic and are subject to traffic congestion, although they may be given priority at intersections. They typically stop every few blocks and operate shorter distances than LRT with an emphasis on high frequency service with high accessibility. Typical streetcar lines are less than three miles long while light rail lines are typically around ten miles long. They travel more slowly than light rail transit because light rail operates primarily in its own dedicated right-of-way and stops approximately every mile while streetcars operate in mixed traffic and stop more frequently. Streetcars attract new transit riders and may offer some travel time advantages over local buses, such as faster boarding, faster fare collection, and intersection signal priority, though BRT can offer these benefits at lower cost and with greater flexibility. Streetcar service is particularly suitable for high density areas with short average passenger trip lengths and to attract infrequent transit users like shoppers or visitors. Streetcars may also be appropriate as a development tool for local units of government.

The Council will collaborate with local units of government to determine where and when streetcars may be appropriate. If it is determined that streetcars provide positive, significant, and cost-effective transportation benefits beyond alternative bus, BRT, or LRT investments, capital costs for streetcars might be funded by a combination of local and regional funds and may compete for federal transportation funding. If streetcars do not provide an optimal transportation solution and are pursued primarily for development outcomes they should be funded locally and should not compete with other regional priorities for federal and state transportation funding sources. Regardless of funding source, streetcar service would be expected to integrate seamlessly with the regional transit system.

Other modes of transit were not considered for this plan. Subways and monorails are typically used in areas with densities much higher than the Twin Cities. Personal Rapid Transit (PRT) has not had a full-scale implementation to provide its operating characteristics to allow for analysis. Other modes are typically for specialized applications like trolley buses for hilly areas or aerial trams for gorges.

Transit Plan Implementation Costs

The first goal of this plan is to maintain the existing transit system. This includes operating the existing transit programs at 2008 service levels and making capital investments that maintain current transit infrastructure. This plan also calls for doubling transit ridership by 2030. There are two components to reaching this doubling goal: expand the bus system and develop a network of transitways. Because the region has experienced many recent transit funding changes with the implementation of the MVST constitutional amendment and CTIB sales tax, it is an opportune time to invest in a more detailed long-term financial analysis of both the costs to maintain and grow the bus system and implement a system of transitways. As noted in Chapter 12: Work Plan, the Council will hire a financial consultant to undertake such an analysis during 2011. The high-level estimate of costs to maintain and grow the transit system and double ridership which will be further refined in the financial analysis are shown in the following sections.

Capital Costs to Maintain the Transit System

The Council's 2011-2013 capital improvement program projects approximately $70 million a year is needed to maintain the existing transit system (in 2010 dollars). Based on this, approximately $700 million is needed to maintain the transit system between 2011 and 2020 and $700 million between 2021 and 2030, in 2010 dollars. It is projected that these revenues will primarily come from federal formula funds and regional transit capital bonds.

Table 7-45: Estimated Capital Costs and Revenues to Maintain the Transit System

	Capital Cost 2011 to 2020	Capital Cost 2021 to 2030
Projected Costs	$700 M	$700 M
Projected Revenues		
Federal	$400 M	$400 M
Regional Transit Capital	$275 M	$275 M
Other	$25 M	$25 M

2010 Dollars

Capital Costs to Expand the Transit System

It is projected that the following projects may be completed between 2011 and 2020:

- Expansion of Hiawatha LRT fleet to three-car trains;
- Completion of Central Corridor Light Rail;
- Southwest LRT completed and a fourth LRT possibly begun by 2020;
- Additional investments in the Cedar BRT;
- Additional investments in the I-35W BRT;
- Possible investments in two additional Highway BRTs by 2020;
- New facilities and increased express bus service in corridors with transit advantages;
- Possible investments in six Arterial BRT lines;
- Expanded local bus service.

It is projected that, from 2021 to 2030, the following projects could possibly be completed:

- A fourth and fifth LRT line could be possibly be completed by 2030 if viable projects are identified;
- One additional commuter rail line may be completed by 2030 if a viable project with reasonable operating subsidies can achieved;
- Three additional Arterial BRT lines;
- Two additional Highway BRT lines.

If improvements, such as passenger rail, high-speed rail, dynamic shoulder lanes, or managed lanes are added, these priorities could change. Also, local and express bus service will continue to be expanded. If two or more projects to receive federal funding concurrently, this timeline may be accelerated.

Table 7-46: Estimated Capital Costs to Expand the Transit System

Expansion Costs	2011-2020		2021-2030	
	Low	High	Low	High
Rail Transitways	$2,000 M	$2,300 M	$1,750 M	$1,875 M
BRT and Express Bus	$365 M	$505 M	$435 M	$640 M
Local Bus System	$20 M	$30 M	$100 M	$120 M
ADA/Dial-a-ride System	$15 M	$15 M	$15 M	$15 M
Total Expenses	$2,400 M	$2,850 M	$2,300 M	$2,650 M

2010 Dollars

In addition, it is projected that federally mandated ADA service will grow by more than 40 percent 2008 to 2030. This increase is driven by the increasing population in the region and the growing percentage of persons above age 65.

Table 7-46 shows estimated costs and sources of revenues for these capital expenses. Final costs will vary depending on the year of implementation, the final alignment, the mode selected, inflation costs, the final length of the transitway and exactly when projects are constructed. Because of this, ranges of costs are shown. Also, highway improvements such as managed lanes, which provide substantial advantages for transit, are not included here, but are assumed to be funded using highway revenues.

It is projected that these costs will be paid by a number of revenue sources. It is assumed that for rail projects, the region will secure federal New Starts funds for 50% of the cost. The remainder of rail transitway costs is projected to be funded 30% with CTIB sales tax revenues, 10% from the state and 10% from benefiting counties. It is also assumed that only one New Starts project is under construction at a time. If it is possible to receive New Starts funding for more than one transitway at a time the Council will pursue this funding. In addition, transitways which are not relying on New Starts funding may move forward concurrently.

Capital costs for bus-based program expansion is projected to be funded from existing federal programs (including federal formula funds, congestion mitigation/air quality grants, discretionary funds or small starts grants) state revenues and regional transit capital funds. Bus transitways are also eligible for CTIB funding. It is assumed that these revenue sources will be received at approximately the same rate as current funding levels as shown in Table 7-47 and inflation in revenues will match inflation in expenses.

Table 7-47: Estimated Revenues to Expand the Transit System

Expansion Revenues	2011-2020		2021-2030	
	Low	High	Low	High
Federal New Starts	$970 M	$1,120 M	$850 M	$950 M
Other Federal[1]	$210 M	$260 M	$270 M	$290 M
State[2]	$290 M	$320 M	$290 M	$295 M
CTIB Sales Tax	$660 M	$840 M	$570 M	$775 M
County Property Taxes	$200 M	$230 M	$170 M	$190 M
Regional Transit Capital	$70 M	$80 M	$150 M	$150 M
Total Revenues	$2,400 M	$2,850 M	$2,250 M	$2,650 M

2010 Dollars

1. Other federal revenues include federal formula, congestion mitigation / air quality and discretionary funds.

2. State revenues include general obligation bonds, trunk highway bonds and general funds.

It is possible that actual funding will differ from these projections. Many of these funds are distributed competitively, such as federal funds like New Starts and Congestion Mitigation/Air Quality (CMAQ) grants and state funds like state general obligation bonds. Completion of projects depends on successfully competing for funding. Other funding sources are formula based or property tax based, such as the federal formula funds and regional transit capital. These funds are dependent on the performance of their underlying taxes. Changes in consumer purchasing patterns could change the availability of these funds.

Also, the Counties Transit Improvement Board (CTIB) controls the use of the ¼ cent sales tax. Coordination is needed between CTIB and the Council to continue to move capital-intensive transit projects forward. Last, the federal transportation bill needs to be reauthorized and the timing of it is uncertain. Future Federal programs and funding levels are uncertain at this time.

Operating Costs to Maintain and Expand the Transit System

Transit operating costs include labor, fuel, vehicle maintenance, facilities operating costs (including routine facilities maintenance, cleaning, snowplowing, and utility costs), overhead costs and other operating costs to deliver transit services. The 2010 regional transit operating expenditures are over $400 million, with $385 million included in the Metropolitan Council budget. The estimated net subsidy (when fares are deducted) is $280 million in 2010. The estimated net costs for operating all services outlined previously are shown in Table 7-48.

Table 7-48: Estimated Annual Operating Costs to Maintain and Expand the Transit System

	2020 Net Annual Subsidy		2030 Net Annual Subsidy	
	Low	High	Low	High
Maintain System	$280 M	$280 M	$280 M	$280 M
Expand System	$75 M	$105 M	$195 M	$235 M
Rail Transitways	$30 M	$35 M	$60 M	$75 M
BRT and Express Bus	$20 M	$35 M	$50 M	$60 M
Local Bus System	$15 M	$20 M	$60 M	$70 M
ADA/Dial-a-Ride	$10 M	$15 M	$25 M	$30 M
Total Maintain and Expand	$355 M	$385M	$475 M	$515 M

2010 Dollars

The primary sources of funds to subsidize the operation of the existing transit system are the motor vehicle sales tax (MVST), the state general fund and federal formula funds. Although there has been a short-term decline in the MVST, it is assumed the phase-in of the MVST constitutional dedication along with a forecast recovery in revenue collections will provide adequate funding to maintain the existing system. If MVST revenues do not recover and provide adequate funding to maintain the existing system, it is assumed that state revenues will be obtained to maintain existing service levels.

It is projected that the net costs (after fares) of rail system or dedicated busway operations and expanded service for highway bus rapid transit would be funded 50% from CTIB sales tax grants and 50% from state revenues. Availability of CTIB funds is dependent on the growth of sales tax receipts and allocation decisions of the CTIB. The Legislature and Governor did not provide 50% of the operating funds for the Northstar commuter rail when it opened in 2009. This plan continues to assume that the state will pay 50% of the net operating costs for other rail lines as they open, though it is clear that this assumption may not prove to be true .Operating funding sources for arterial BRT and expanded express bus, local bus and dial-a-ride services have not yet been determined, though bus transitway operating costs are eligible for CTIB funding. This plan projects that increased operating funding of $45 - $70 million annually will be needed by 2020 and $135 - $160 million annually by 2030 for the expanded bus system.

Potential funds include additional sales taxes, additional state revenues, new local sources and other revenues.

Table 7-49: Estimated Sources of Revenues to Maintain and Grow the Transit System

	2020 Net Annual Operating Subsidy		2030 Net Annual Operating Subsidy	
	Low	High	Low	High
Maintain System	$280 M	$280 M	$280 M	$280 M
Motor Vehicle Sales Tax	$150 M	$150 M	$150 M	$150 M
State General Fund	$68 M	$68 M	$68 M	$68 M
Federal	$32 M	$32 M	$32 M	$32 M
Other	$30 M	$30 M	$30 M	$30 M
Expand System	$75 M	$105 M	$195 M	$235 M
CTIB Sales Tax	$20 M	$25	$40 M	$45 M
State Revenues	$20 M	$25	$40 M	$45 M
Unfunded: To Be Determined	$35 M	$55 M	$115 M	$145 M

2010 dollars. 2020 and 2030 Numbers represent the total costs in 2020 or 2030, not the incremental costs.

Summary of Costs for the Transit Plan

Table 7-50 summarizes the range of costs to maintain and expand the transit system from 2011 - 2030.

Table 7-50: Summary of Estimated Capital and Operating Costs

Incremental Costs	Maintain Existing System	Expand System	Total
Capital Needs 2011 – 2020	$700 M	$2,400 - $2,850 M	$3,100 - $3,550 M
Capital Needs 2021 – 2030	$700 M	$2,300 - $2,650 M	$3,000 - $3,350 M
2020 Annual Operating Subsidy	$280 M	$75 - $105 M	$355 - $385 M
2030 Annual Operating Subsidy	$280 M	$195 M - $235 M	$475 - $515 M

2010 dollars in millions

Chapter 8: Freight and Goods Movement

A safe, efficient, high-capacity freight transportation system is essential to the economic well being of the region and the state. Producers and consumers alike rely on an effective and efficient freight system to prosper.

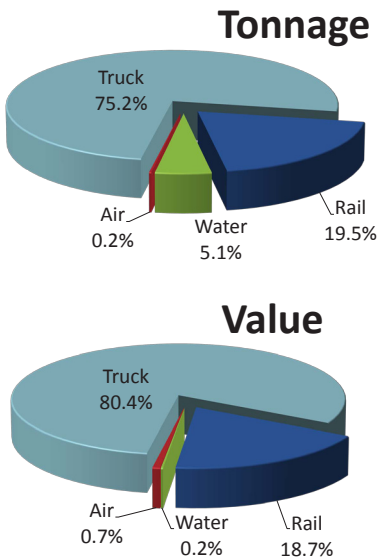
Figure 8-2: Trucks are an essential freight element

Existing System

Many freight-related improvements are the responsibility of private entities that own and operate the transportation modes and freight terminal facilities. Public freight-related improvements are limited to those components of the transportation system operated and maintained by the public sector, such as highways and connecting roadways, navigable waterways, river ports, and airports. The existing freight system includes several modes of freight travel and intermodal facilities. The relative share of freight tonnage and value in Minnesota is shown in Figure 8-1. A map of freight infrastructure in the region is shown in Figure 8-4.

Figure 8-3: Rail traffic comprises a large portion of the regional tonnage total

Figure 8-1: Twin Cities Freight Movement by Tonnage and Value



Source: TRANSEARCH, 2007

Roads

Within the region, freight moves primarily by trucks. Many freight shippers and commercial/industrial land uses are located adjacent to National Highway System (NHS) routes, or are connected to the NHS on routes eligible for federally funded improvements, if needed, through the Surface Transportation Program. NHS routes in the Twin Cities region include all Interstates and specific connector roadways to designated regional intermodal terminals. The Interstate System in particular, is vital to the movement of freight and goods through and within the region.

Water

Portions of the Mississippi and Minnesota Rivers in the region are navigable by barge via channels and locks maintained by the U.S. Army Corps of Engineers. Barges carry bulk commodities to domestic and international markets. The region's river port terminals are concentrated in Saint Paul, Minneapolis and Savage.

Rail

Four Class I railroads and three regional or short line railroads serve the region's freight rail customers. Class I railroads link the region with major national markets and short lines predominantly operate local service, generally within 100 miles of the region. The railroad industry has continuously grown since the 1980s, and rail lines continue as an increasingly important component of the region's freight system. The

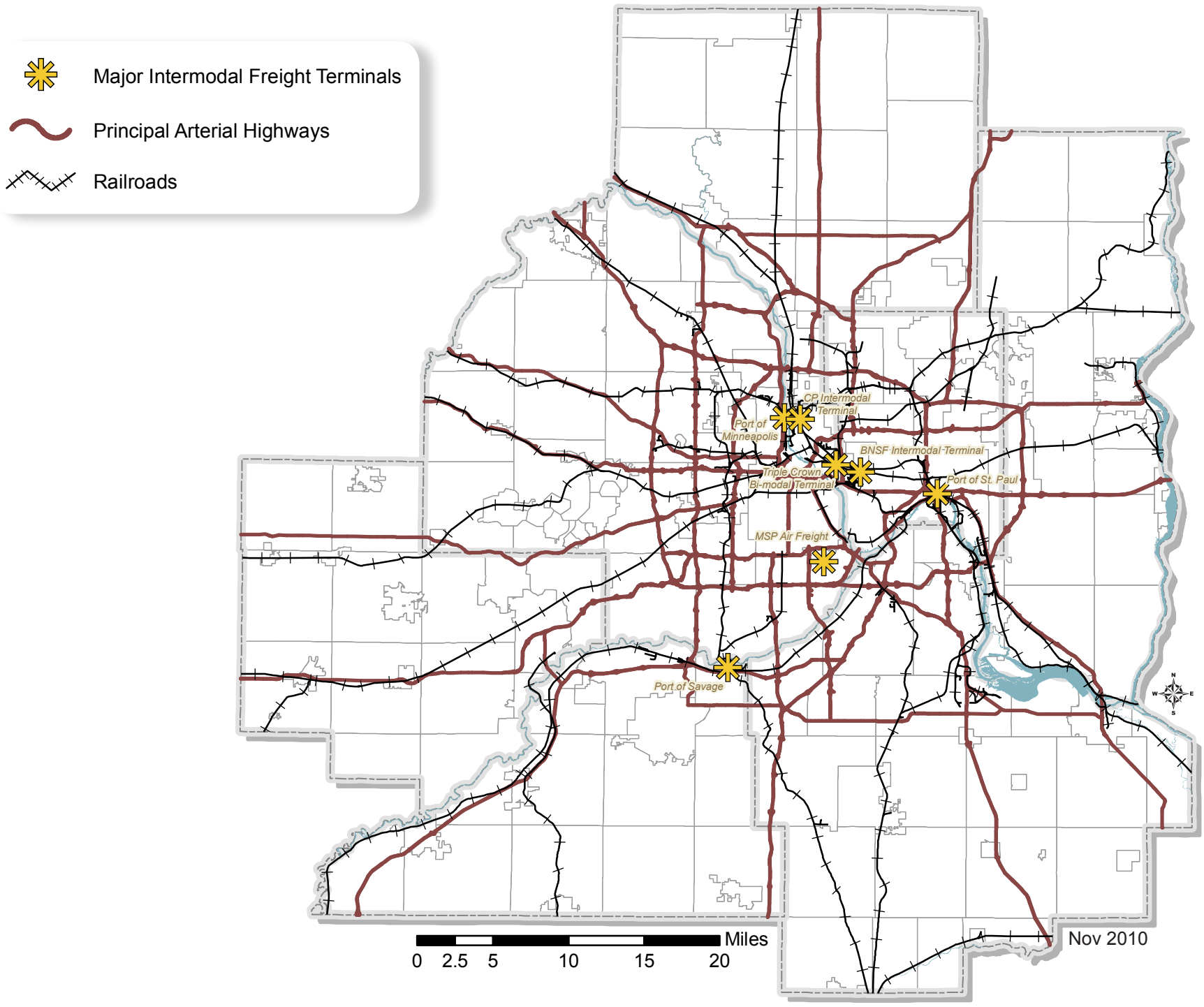


Figure 8-4: Regional Freight System

Figure 8-6: Barge facilities

Figure 8-7: Freight aircraft facilities

Figure 8-8: Intermodal railroad yard

Figure 8-9: Freight warehouse facilities

seven-county region has over 550 miles of class I railroads, and over 700 total miles of commercial freight railroad.

Air

Air freight service providers ship goods through Minneapolis-Saint Paul International Airport. High-tech and biomedical companies in the region are major air freight customers that rely on expedited delivery of high-value, time-sensitive products via air freight service.

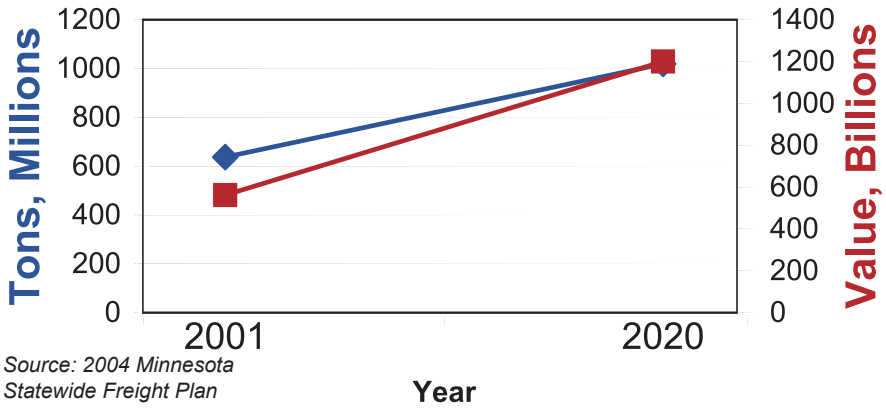
Intermodal

Container-based shipping has substantially increased the efficiency of goods movement. Containers can be moved between modes without the need to repack goods. The region has two primary rail-truck intermodal terminals. These include the Canadian Pacific Shoreham Yard in Minneapolis and the Burlington Northern Santa Fe Midway Yard in Saint Paul .

Freight Movement

Hundreds of millions of tons of goods enter the region every year, supplying goods to residents and supporting business and commerce in the state and region. Freight moves into, through, out of, and within the region. Much of the region's freight movement serves local movement of freight inside the seven-county metro area and the state of Minnesota.

Figure 8-5: Forecast Increase in Minnesota Freight Movement to 2020



Source: 2004 Minnesota Statewide Freight Plan

Continued population and employment growth will further expand the regional and state economy, creating new demand for freight movement. Figure 8-5 shows forecast growth in the value and tonnage of freight movements in the state of Minnesota from 2001 to 2020. Because the Twin Cities region is a freight hub for the state, and the region includes a substantial share of the state's economy, much of the forecast increase in state freight movement will travel through the region.

As shown in Figure 8-10, the region does not carry a major share of national freight movement when compared to major shipping ports such as Los Angeles or rail hubs such as Chicago. Still, the Twin Cities region is a major freight hub for Minnesota and the upper Midwest. Due to strong economic growth in the state and region, freight movements by truck and rail are becoming constrained due to congestion of our highways and rail lines.

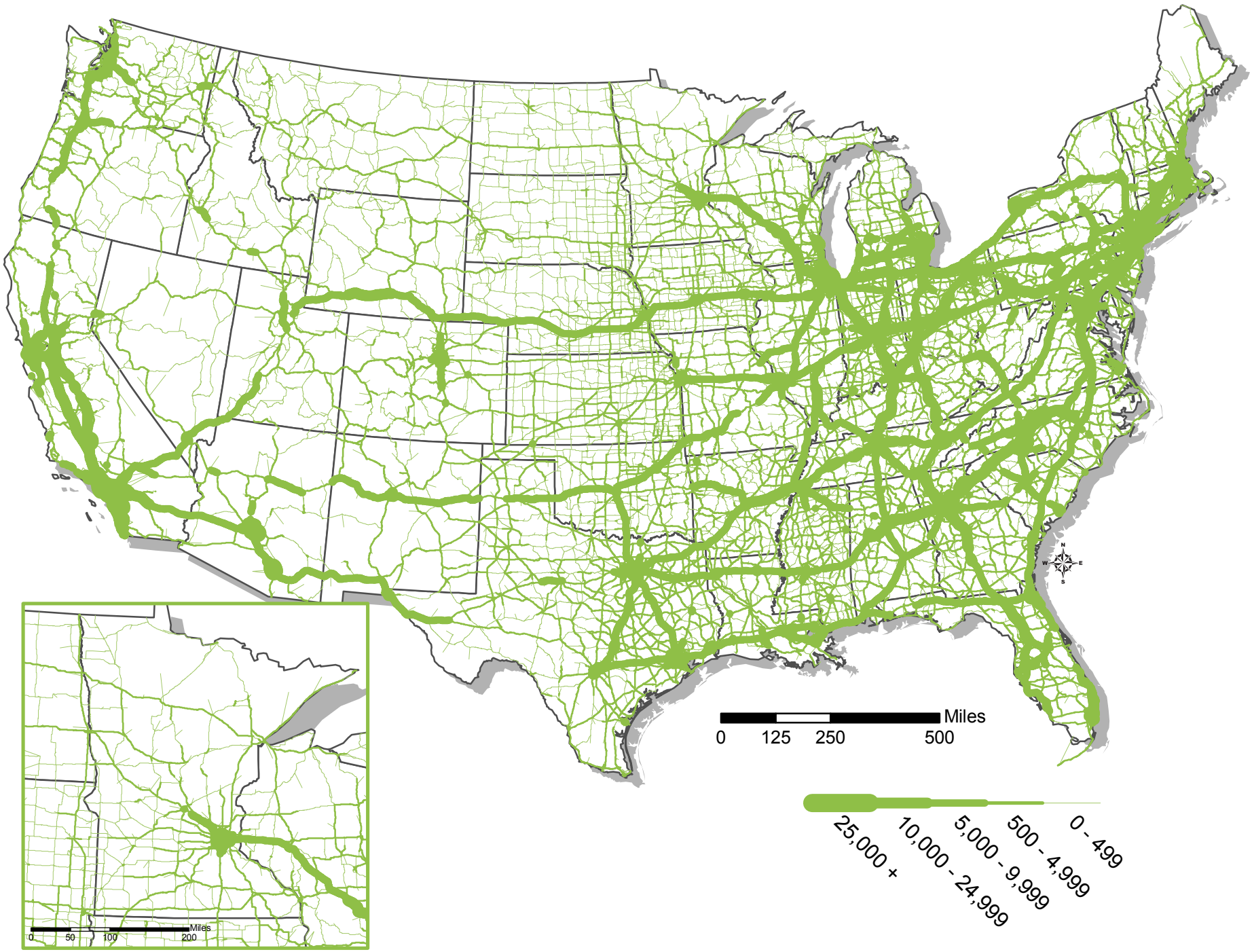


Figure 8-10: Average Daily Truck Traffic 1998

June 2010

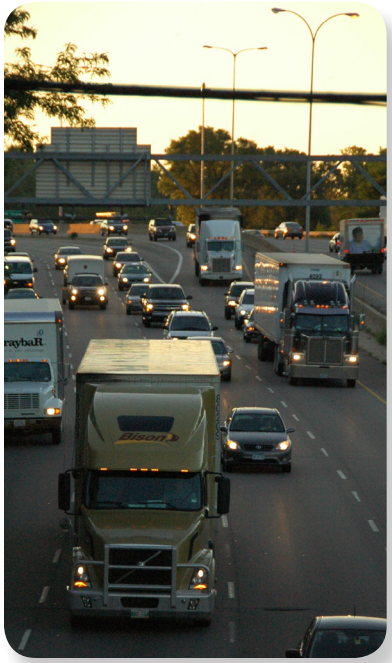


Figure 8-11: Road congestion impacts truck traffic and the freight system

Trends and Issues

Freight Capacity and Congestion

Economic and population growth in the seven-county metropolitan area has significantly increased the amount of freight movement in the region. Deregulation of motor carriers and railroads have added to the total through increased competition and lowered shipping costs. Together, these forces increased the efficiency of the freight transportation system.

Still, all goods movement relies on a high-capacity freight transportation system. Freight shippers, carriers, and other users have expressed concern that the freight system is not adding capacity to meet growing freight needs in the region. Some freight modes are already hampered by an existing lack of capacity. In particular, truck movement in the region is impacted by highway congestion. Freight carriers have taken steps to avoid driving in peak-congestion periods when possible, but the growing duration and extent of congested highways and local roads reduces the efficiency and competitiveness of the region's freight system.

Global Competition

Today's freight system is increasingly affected by global competitive forces. Shippers, freight forwarders, and carriers respond to this competition through technological advancements such as integrated logistics and complex supply-chain management systems. The supply chain consists of the logistics system beyond the physical infrastructure, including competitive carriers, dispatch, support facilities and warehousing, local distributors, inventory tracking and order systems.

Figure 8-12: International freight movements are essential to regional vitality

High Fuel Costs

The cost of fuels used in freight movement, including diesel and jet fuel, has varied but generally has increased in recent years. Some goods movement may shift from trucks to (comparatively fuel-efficient) rail, but limited rail coverage to national markets and few intermodal terminal connections may dampen any modal shift. Class I railroads in the region are also operating near capacity on some corridors.

Demand for ethanol as a passenger automobile fuel has also grown as gasoline prices spiked in recent years. Since Minnesota is a leading producer of ethanol, significant quantities of ethanol must be transported through the state. Ethanol is a caustic fuel that cannot be transported by pipeline, so shipment of ethanol places further demand on limited rail and highway capacity in the state and the metro region.

Figure 8-13: Diesel fuel price increase may cause changes to freight mode selections

Connectivity

Freight connectivity is another issue in the region. Some major freight truck and intermodal terminals within the region have poor connections to major highways. Also, the seven-county region includes many rural areas with an underdeveloped 10-ton road network. These roads are important for freight connections from farms and other businesses in rural areas in the region.

Freight Safety

Increased concern over safety affects the freight system. Trucking is a regulated industry with strict operating rules that improve safety for freight movement and motorists, but continued enforcement and inspection of vehicles is critical to ensuring safe roads, bridges, and highways. Trucking companies develop and implement driver training and performance measures to improve safety and guarantee compliance with regulations.

For railroads, safety is also a primary consideration. While rail freight movement enjoys lower accident and fatality rates than trucks, rail accidents are high-profile events with serious liability concerns for the railroad and safety concerns for the public and railroad employees. To improve rail safety, the Federal Railroad Administration has developed a *National Rail Safety Action Plan*. The plan identifies a number of safety improvements for the nation's freight and passenger railroads to improve safety, ranging from grade-crossing improvements to in-vehicle safety devices to strengthened railcars used for hazardous material transport. New technologies and careful routing will allow railroads to identify potential risk factors and make routing decisions to maximize rail safety.

Freight Security

Security is a major concern in freight transportation. Security includes the protection of goods and commodities as well as safeguards against threats. Nationwide, initiatives to improve freight security have included electronic tracking of shipments, sealed freight containers, vehicle-tracking technologies, and inspection of vehicles at some security-sensitive facilities and destinations.

Rail trespassing is a safety concern as well as a security concern. Rail bridges and corridors are sometimes attractive (though illegal) shortcuts for pedestrians and cyclists, with sometimes fatal results. Nationally, over 500 people die each year in railroad trespass-related incidents.

Trains are also the mode of choice for many hazardous materials, including dangerous chemicals and nuclear material, but rail trespassers pose a security threat to these shipments. Finally, right-of-way adjacent to rail tracks is an important safety feature to provide a clear space in the event of a derailment or material spill. Encroachment on rail property by adjacent properties or other interests increases the risk of accident and injury.

Impacts of Freight Terminals on Adjacent Land Uses

Trucking terminals can be located in a wide variety of locations as long as they have roadway connections, and are often specifically located in industrial areas to be near potential shippers and away

from housing and other incompatible land uses. However, terminals for other freight modes are limited to locations which are adjacent to a navigable river or railroad. Over the last few decades there has been increasing competition for land adjacent to the Mississippi River. Many industrial uses have been redeveloped into residential or park land as demand for industry adjacent to the river has declined. The Council will continue to work with local units of government and park agencies to balance these various uses, as there remains some need for freight activities adjacent to the rivers to handle commodities that are most efficiently carried by water.

For the purposes of addressing congestion, environmental impacts, and the state's competitiveness, railroads remain a positive solution to many of our transportation needs. One train can take over 400 trucks off the highway system, at a fifth of the fuel use and a third of the ton-mile cost. However, the growth of intermodal rail/truck movement over the past three decades has also increased conflicts between the rail intermodal terminals and adjacent residential neighborhoods, especially in the Shoreham area of Northeast Minneapolis and the Midway area of Saint Paul. The Council will continue to work with Mn/DOT to study ways to minimize the external impact of these essential freight activities, although railroad operations are unique in that they are controlled by the federal government as interstate common carriers, and not state and local governments.

Freight and Goods Movement Policies and Strategies

Policy 17: Providing for Regional Freight Transportation

The region will maintain an effective and efficient regional freight transportation system to support the region's economy.

Strategy 17a. Freight Terminal Access: The Council will work with its partners to analyze needs for freight terminal access.

Strategy 17b. Congestion Impacts on Freight Movement: The Council will work to reduce the impacts of highway congestion on freight movement.

Related Policies and Strategies:

Policy 2: Prioritizing Regional Transportation Investments

Strategy 2a. System Preservation

Strategy 2e. Multimodal Investments

Policy 4: Coordination of Transportation Investments and Land Use

Strategy 4f. Local Transportation Planning

Policy 6: Public Participation in Transportation Planning and Investment Decisions

Strategy 6b. Interjurisdictional Coordination and Participation

Strategy 6d. Public Awareness of Transportation Issues

Policy 7: Investments in Preserving of Right-of-Way

Strategy 7a: Preservation of Railroad Rights-of-Way

Policy 8: Energy and Environmental Considerations in Transportation Investments

Strategy 8a. Reduction of Transportation Emissions

Strategy 8e. Reduction of Greenhouse Gas Emission

Policy 9: Highway Planning

Strategy 9b. Multimodal System

Strategy 9e. Interconnected Roadway Network

2030 Freight and Goods Movement Plan

The region's challenge is to establish a common vision to coordinate public and private investments to support the region's economy by improving freight mobility. This requires effective and continuous partnership between public agencies, local government, and private industry with respect to infrastructure design and investment. The Minnesota Freight Advisory Committee, described at right, is an example of this partnership.

The private sector will seek to make the most efficient use of the supply chain. Given the competitive business climate in which freight services must operate, changes in freight service strategies should be anticipated. These continuously evolving business strategies could affect freight modes and industries located in the region. While remaining mindful of these changes, the public sector can work with the private sector to identify, program and fund specific infrastructure projects to leverage investment in a high-capacity regional freight system. The plan components described below build on existing partnerships to address freight mobility issues in the region.

Freight Connectors

Within the Twin Cities region, several roads are officially designated as "Intermodal Connectors" to the National Highway System (NHS), as designated by the Federal Highway Administration (FHWA). Freight-related NHS Intermodal Connectors include Post Road near the Minneapolis-St. Paul International Airport and a recently designated Intermodal Connector in Minneapolis, connecting Canadian Pacific Railway's Shoreham Yard (an intermodal truck/rail terminal) with I-94, crossing the Mississippi River at Lowry Avenue. This designation may give these routes special consideration for freight-related investment. The Metropolitan Council will work with its partners, including the Mn/DOT Freight Planning Office, to identify other important intermodal freight connectors and pursue designation of appropriate routes to connect these sites to the National Highway System.

The Minnesota Freight Advisory Committee (MFAC) provides a forum for the exchange of ideas and addressing of issues between Mn/DOT and the private sector to develop and promote a safe, reliable, efficient and environmentally responsible freight transportation system for the state. The objectives are to:

- → Ensure freight transportation needs addressed in planning, investment and operation of Minnesota's transportation system.
- → Establish guidelines to measure and manage the state's freight transportation needs.
- → Provide input and direction to Mn/DOT's freight investment committee on freight transportation policies, needs and issues.
- → Recommend program and research areas for Mn/DOT follow-up and direction.
- → Represent the needs and requirements of freight transportation to the public, elected officials and other public agencies and organizations.

For more information on MFAC, visit: http://www.dot.state.mn.us/ofrw/mfac.html

Freight terminals in the region are not intermodal, but these truck terminals do serve much freight movement in the region. The Metropolitan Council and its partners will work to identify these sites and adequate connections to the Metropolitan Highway System, where appropriate. Many roads currently used to connect freight terminals with the Metropolitan Highway System are located on "A" minor arterials, which qualify for improvement funding under existing Surface Transportation Program. Further designation of major freight corridors may qualify some routes for freight-specific or additional state or federal funding sources.

Truck Parking

The Minnesota Department of Transportation recently completed the Minnesota Interstate Parking Study- Phase I, a study of issues regarding truck parking on Interstate highways in Minnesota. Recommendations from the study did not specifically address the seven-county region, though some corridors in the study entered the region. Mn/DOT will continue work on Phase II of the study. Phase II work will include identification of the State's role in the provision of truck parking; determining which provisions of long term truck parking will provide the greatest support to the State's economy; and, identifying which actions will provide the greatest impact on traffic safety, while taking maximum advantage of effective technology and available federal programs. Though this study does not directly analyze the seven-county region, the Metropolitan Council will continue work with Mn/DOT and MFAC to identify appropriate opportunities to apply the study findings in the region.

Managed Highway System

As described in Chapter 6: Highways, this TPP calls for the development of a system of managed lanes similar to the MnPASS / High-Occupancy Toll (HOT) lanes already developed along I-394 and I-35W and the application of Active Traffic Management (ATM) strategies. While the planned network of managed lanes for the Metropolitan Highway System is not based directly on specific freight-related congestion points, implementing managed lanes will have multiple benefits to local and regional freight moved by trucks. MnPASS / HOT lanes will directly benefit shipments by single-unit commercial vehicles by allowing those vehicles to "buy in" to the lane to receive the benefit of an uncongested trip. Specifically, dual-axle trucks less than 26,000 pounds are allowed to use the MnPASS network with an on-board transponder and valid MnPASS account. These vehicles are already using the I-394 and I-35W MnPASS lanes and this practice will likely continue for future MnPASS corridors. This is especially beneficial to air freight companies like Federal Express and UPS which transport freight for the biomedical, high-tech and other industries that rely on expedited deliveries of high-value, time-sensitive products.

The development of a managed lane network may also benefit traditional freight movements by large trucks. Based on findings from other metropolitan areas around the country, converting shoulders to HOT lanes provides added operational capacity to specific corridors thereby freeing up capacity and congested traffic flows in general purpose lanes. By delaying the frequency and duration of breakdowns in traffic flow in general purpose lanes, the total hours of corridor congestion can be minimized, thereby improving conditions for moving freight. In addition, the implementation of active traffic management

strategies, such as speed harmonization, variable sign messaging, and dynamic rerouting along congested corridors, as recommended in the Metropolitan Highway Investment Study completed in 2010, may further reduce breakdowns in traffic flow and improve safety for trucks and other vehicles using the general purpose lanes.

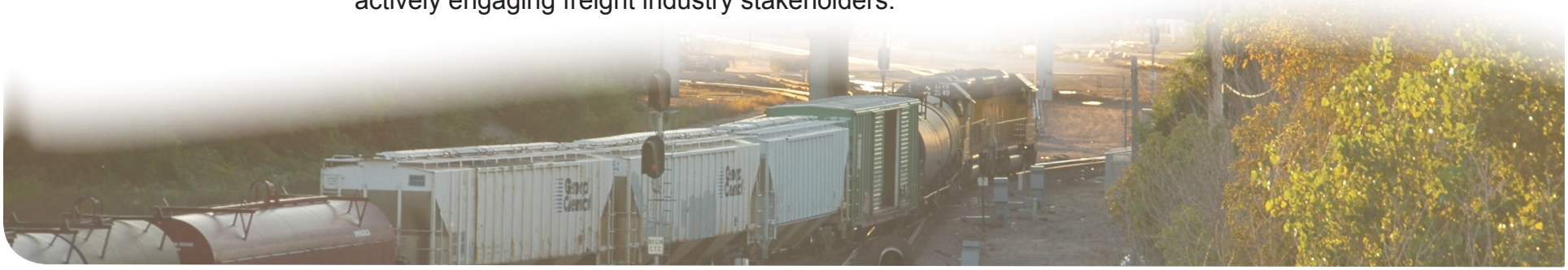
Freight Railroads

Increasing roadway congestion and high fuel costs have prompted new interest in freight rail for movement of goods. Freight rail offers fuel-efficiency benefits, as rail is about three times more fuel-efficient than truck freight per ton-mile. In the context of rising fuel costs, rail could gain a competitive edge in shippers' choice of freight mode. National, regional and short-line freight carriers could see increased business through a shift to freight rail, and may upgrade capacity in the region to accommodate this growth, potentially adding new intermodal truck/rail facilities. Given the potential growth in freight rail commerce, communities with freight rail corridors should expect continued operation of railroads in their communities. The Metropolitan Council will work with its partners to preserve linear rights-of-way in the event any rail line is abandoned, if appropriate to do so, but communities should expect few additional railroad abandonments.

Additional investment in railroad capacity in the region could shift freight inflow, outflow and through-traffic to intermodal rail containers. Containerized intermodal movement of freight traffic could improve regional freight mobility by shifting the growing demand on the region's highways to more-efficient rail corridors.

Metropolitan Freight Study

Mn/DOT completed the Minnesota Statewide Freight Plan in 2005 and has completed several district-specific implementation plans for freight. In addition, Mn/DOT adopted the Statewide Passenger and Freight Rail Plan in early 2010. A metropolitan area data collection, analysis and policy review will be made through the Twin Cities Metropolitan Area Regional Freight Study, a coordinated effort jointly led and funded by the Mn/DOT Office of Freight and the Metropolitan Council. The project will study the Metro District and seven-county metropolitan region to determine freight and economic trends and issues; develop a vision statement, strategic goals, and performance targets for metropolitan area freight movements; and to generate, evaluate and select among alternative future freight scenarios through actively engaging freight industry stakeholders.



Chapter 9: Pedestrians and Bicyclists

Walking and bicycling are essential modes of transportation. These modes allow people to travel without contributing to congestion and air pollution, to access other means of travel, such as transit, and to contribute to healthy and active lifestyles.

Existing System

Figure 9-1: Bike commuters

Safe and comfortable walkways are important to access destinations and other forms of transportation, such as transit, particularly for people with physical disabilities. Bicycling and walking offer a variety of transportation benefits. They save on energy and other transportation costs for short- and medium-length trips, do not contribute to pollution or congestion, and allow travelers to incorporate exercise into their daily routine.

Walkways and bikeways in the region consist of a collection of facilities typically constructed and funded by local governments and supplemented by recreational trails developed by counties, park districts and, in some cases, municipalities. In addition to street-level sidewalks, downtown Minneapolis and Saint Paul have a network of skyways that provide essential connectivity between blocks in these highly concentrated employment centers.

Local governments are in the best position to conduct the detailed planning and design of bicycle and pedestrian systems. They have decision-making authority over community land use and local streets and are most familiar with local conditions. Walking and bicycling trips are typically short – averaging about one-quarter to one-half mile for walking and between two and three miles for bicycling, so facilities for such trips are best addressed at the local, rather than regional, level. In addition, the Metropolitan Council does not operate or maintain bikeways and walkways but only facilitates in their planning, development and funding.

Figure 9-2: New bike facilities
Midtown Greeway

To help promote a shift from auto travel to walking and bicycling, Minneapolis and its surrounding cities received a federal pilot grant of nearly $21 million to implement infrastructure and operational improvements as well as education and promotion programs until 2010. This grant was extended with additional funding with the extension of SAFETEA-LU through 2011. This program is administered by Transit For Livable Communities, which has distributed a portion of this funding to eligible jurisdictions and will continue to do so through 2011. After that date, projects and programs implemented by Bike Walk Twin Cities, as well as by the three other pilot communities in the country, will undergo an evaluation for effectiveness. Bicycling and walking has received even more attention at the federal level since the award of the Non-Motorized Pilot Program. Transportation Secretary Ray LaHood released a Policy Statement in 2010 encouraging all local agencies to provide safe and

convenient facilities for bicycling and walking. Among the recommended actions described in the policy statement are to integrate bicycles and pedestrians on all bridges, collecting data on non-motorized travel, setting mode share targets for walking and bicycling, and going beyond minimum design standards for bicycle and pedestrian facilities.

At the regional level, the Metropolitan Council provides planning guidance on land use issues related to bikeways and walkways, and, with its Transportation Advisory Board, administers a competitive process for allocating federal transportation funds to bicycle and pedestrian projects. Since 1991, this program has awarded approximately $112 million in federal funds for freestanding bicycle and pedestrian projects and has supported the inclusion of bicycle and pedestrian components in regionally funded highway projects.

Figure 9-3: Transit-supportive pedestrian environment
Pedestrians exit a Metro Transit bus at a wide sidewalk on Nicollet Avenue in Minneapolis.

The Metropolitan Council is participating in a regional effort to map and inventory both on-road and off-road bicycle facilities using common criteria (Figure 9-6). This map has been made available on the Council's website for the purpose of coordinating planning for bikeways in the region. The Metropolitan Council is currently in the process of developing an extension of the bicycle trip planning resource called Cyclopath, a creation of a University of Minnesota research group, which will aid in planning and maintenance of bicycle routes and help to build the inventory of bicycle facilities. In addition, bicycle lockers, many at transit centers or in downtown areas, are currently available for rent, and bike racks have been installed on all buses. The Council has provided funding for many bike and multi-use paths and on-road bicycle facilities such as bike lanes.

Figure 9-4: Mixed traffic
A bicyclist and a bus with a bike on its front rack share the road on the Lake Street Bridge between Minneapolis and St. Paul

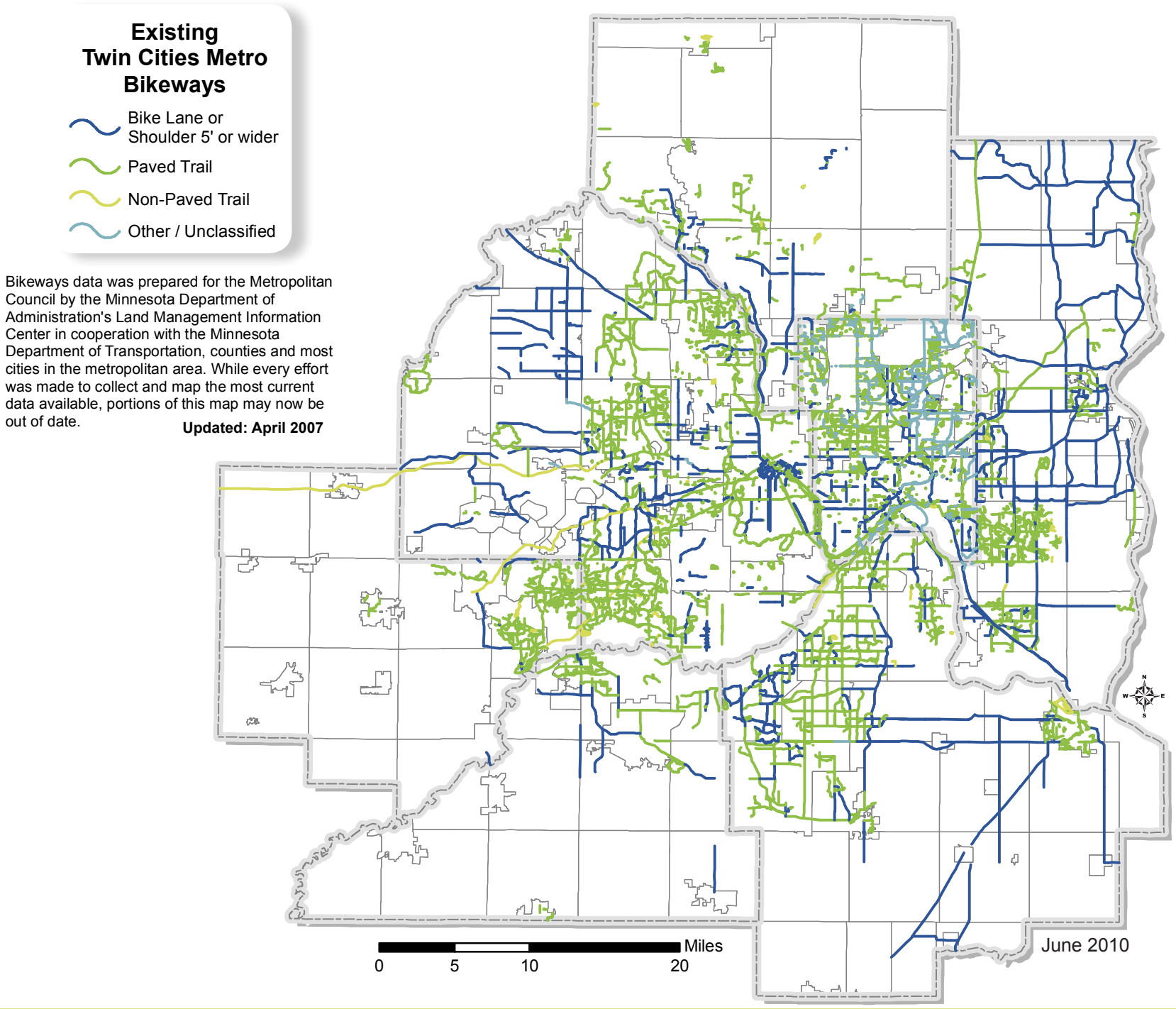
Figure 9-5: New transit amenities on Marquette Avenue include attractive waiting areas and NexTrip online signage

Issues and Trends

In urban parts of the region developed prior to World War II, sidewalks typically were built on most streets. Since then, provision of sidewalks has varied greatly from one jurisdiction to another, often depending on the level of traffic on the adjoining street. In addition, many stops along transit routes are not accessible by sidewalk, a situation not supportive of increased transit use generally or of people with physical challenges who want to use regular-route transit.

In recent years, characteristics of community design have gained attention for the way that they can encourage or discourage physical activity. Public health policy discussions have increasingly identified opportunities for bicycling and walking as one element in the fight against obesity and other health problems related to the lack of physical activity. As a result, some counties in the Twin Cities metropolitan area have made active living a focus of community planning.

Figure 9-6: Existing Metro Bike Trails



Usable pathways are particularly important to people with disabilities, and the Americans with Disabilities Act (ADA) requires local governments to construct accessible rights-of-way to meet their needs. Since passage of the ADA, communities have had differing levels of success in working toward the goal of universal accessibility. There has recently been a greater emphasis on providing accessible routes and federal law requires that all agencies with over 50 employees develop an ADA Transition Plan that will detail the steps to take to make the community accessible to all. The Minnesota Department of Transportation adopted an ADA Transition Plan in 2010.

Providing a more comfortable and safe walking environment could increase the amount of travel made by walking and likely increase transit use, since most transit trips begin and end with walking. For bicyclists, physical barriers such as major highways, railroad right-of-way and rivers can interrupt travel. In addition, many roads have also not been designed with bicycling in mind and are either uncomfortable or unsafe to use. Pedestrians encounter many of the same barriers as bicyclists. Pedestrians may be particularly disadvantaged by the presence of access-controlled county and state highways that have few crossing opportunities. For these reasons, the Metropolitan Council supports the Complete Streets concept for roadway planning and design. In 2010, a Complete Streets law was passed that requires Mn/DOT to adopt a Complete Streets policy on its trunk highway system and that provides greater flexibility to local governments in roadway design on State Aid routes for the purpose of implementing Complete Streets. Mn/DOT has stated that Complete Streets does not mean “all modes on all roads”; rather, the goal of Complete Streets should be to 1) develop a balanced transportation system that integrates all modes via planning inclusive of each mode of transportation (i.e., transit, freight, automobile, bicycle and pedestrian) and 2) include transportation users of all types, ages and abilities.

Despite obstacles, bicycling in the Twin Cities region is gaining popularity as a means of transportation. The region is known nationwide for its bicycle facilities and high levels of bicycling. The City of Minneapolis ranked second in the nation for bicycle commuting with 4.3 percent of all commute trips made via bicycle in 2008. The City of Minneapolis conducted counts in 2007 in and around downtown Minneapolis and found that bicycling had almost doubled since the last time counts were taken in 2003. In addition, daily traffic on the newly completed Minneapolis portion of the Midtown Greenway has reached levels over 5,000 on busy days. The increasing use of bicycle facilities demonstrates that people are looking for travel alternatives to the automobile for many of their trips.

The potential for bicycle transportation is great. According to U.S. Census Longitudinal Employer Household Dynamics data, approximately 20 percent of all employees who work in one of the major employment clusters in the Twin Cities live less than three miles from their workplace. Nearly 14 percent of all trips in the region are less than one mile long and close to 40 percent are less than three miles, according to the Council’s 2000 Travel Behavior Inventory. It’s possible that removing these travel barriers could result in a significantly higher proportion of trips made via walking or bicycling. Bicycles and pedestrians can be a significant element of the transportation solution within and near congested activity centers because they accommodate this short-distance travel and require less space and infrastructure than automobiles.

Policy and Strategies

Policy 18: Providing Pedestrian and Bicycle Travel Systems

The Council, state, and local units of government will support efforts to increase the share of trips made by bicycling and walking and develop and maintain efficient, safe and appealing pedestrian and bicycle transportation systems.

Strategy 18a. Bicycle and Pedestrian Regional Investment Priorities: The Council will prioritize federal funding for bicycle and pedestrian improvements based on their ability to accomplish regional transportation objectives for bicycling or walking in a cost-effective manner and improving access to major destinations.

Strategy 18b. Connectivity to Transit: Recognizing the importance of walking and bicycling to a multimodal transportation system, the Council will strongly encourage local units of government to develop a safe and attractive pedestrian environment near major transit corridors and stations with linkages for pedestrians and bicyclists from origins and destinations to buses and trains.

Strategy 18c. Local Planning for Bicycling and Walking: The Metropolitan Council encourages local planning for bicycle and pedestrian mobility by requiring that a local bicycle or pedestrian project must be consistent with an adopted plan to be considered eligible for federal transportation funding.

Strategy 18d. Interjurisdictional Coordination: The Metropolitan Council, along with local and state agencies, will coordinate planning efforts to develop efficient and continuous bikeway systems and pedestrian paths, eliminate barriers and critical gaps and ensure adequate interjurisdictional connections and signage.

Strategy 18e. Complete Streets: Local and state agencies should implement a multimodal roadway system and should explicitly consider providing facilities for pedestrians and bicyclists in the design and planning stage of principal or minor arterial road construction and reconstruction projects with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians in the travel corridor.

Strategy 18f. Education and Promotion: The Council encourages educational and promotional programs to increase awareness of and respect for the rights of pedestrians and bicyclists by motorists and to educate bicyclists on the proper and safe use of public roadways.

Associated Policies and Strategies

Policy 2: Prioritizing Regional Transportation Investments

Strategy 2a. System Preservation

Strategy 2d. Bicycle and Pedestrian Investments

Strategy 2e. Multimodal Investments

Policy 3: Investments in Regional Mobility

Strategy 3a. Congestion Management Process

Strategy 3d. Travel Demand Management Initiatives

Strategy 3f. Promoting Alternatives

Policy 4: Coordination of Transportation Investments and Land Use

Strategy 4b. Alternative Modes

Strategy 4c. Increased Jobs and Housing Concentrations

Strategy 4f. Local Transportation Planning

Policy 6: Public Participation in Transportation Planning and Investment Decisions

Strategy 6b. Interjurisdictional Coordination and Participation

Strategy 6c. Participation of Underrepresented Populations

Policy 7: Investments in Preserving of Right-of-Way

Strategy 7a. Preservation of Railroad Rights-of-Way

Strategy 7c. Identification of Right-of-Way in Local Plans

Policy 8: Energy and Environmental Considerations in Transportation Investments

Strategy 8a. Reduction of Transportation Emissions

Strategy 8e. Reduction of Greenhouse Gas Emissions

Policy 9: Highway Planning

Strategy 9b. Multimodal System

Strategy 9e. Interconnected Roadway Network

Strategy 9h. Context Sensitive Design

Policy 12: Transit System Planning

Strategy 12c. Transit Centers and Stations

Policy 15: Transitway Development and Implementation

Strategy 15d. Transitway Coordination

Strategy 15g. Transitways and Development

Policy 16: Transit for People with Disabilities

Strategy 16c. Access to Transit Stops and Stations

2030 Pedestrian and Bicycle Plan

Investment Priorities and Requirements

The Council, through its Transportation Advisory Board's regional solicitation process, makes specific categories of federal funds available to local governments on a competitive basis for pedestrian and bicycle facilities and pedestrian and bicycle safety and promotion programs.

The Council recognizes that, as with other modes, there are significantly more needs for bicycle and pedestrian infrastructure and operations improvements than there is available funding. The Transportation Advisory Board provides federal funding for these improvements from the Transportation Enhancements and Surface Transportation Program and may provide it from the Congestion Mitigation Air Quality program.

Consistency with Policies and Plans. As a condition of receiving federal funds, both freestanding bicycle and pedestrian projects must be included in or be consistent with:

- A comprehensive plan or, in the case of pedestrian projects, a comprehensive plan or a transition plan developed under the federal Americans with Disabilities Act, or
- An adopted capital improvement program consistent with a comprehensive plan.

Cooperative Projects. Evaluation criteria will favor bicycle and pedestrian projects that were developed under the cooperation of more than one jurisdiction. These jurisdictions could be a state, county, city, park or transit agency.

Cost Effectiveness. Bicycle and pedestrian projects should be cost-effective to construct and to maintain. When determining the right solution for a safety or connectivity problem, local agencies should first consider methods that use existing right-of-way and infrastructure to improve the desirability of bicycling or walking before considering the construction of entirely new facilities.

Safety. Evaluation criteria will favor infrastructure and operations projects that significantly improve safety for bicyclists and pedestrians while maintaining or enhancing the ease of bicycling or walking. Funding can also be provided to projects that do not improve network connectivity but significantly improve the safety of bicycling or walking or that address an identified safety problem. An example of this type of project would be improvements to intersections that receive a high amount of bicycle travel but which were not originally designed with bicyclist safety in mind.

Multimodal Projects. Roadway projects submitted for federal funding should include features that benefit all users of the transportation system including pedestrians and bicyclists. The evaluation criteria for roadway and transit categories favor those projects that address more than one travel mode. Evaluation criteria will favor highway projects that accommodate pedestrians and bicyclists with an emphasis on safety and barrier removal. In addition, evaluation criteria for stand-alone bicycle and pedestrian projects will favor those that support compact mixed-use transit-oriented development and within employment centers and to projects that provide a direct connection to a high-service transit facility.

Reconstruction of Existing Facilities. In addition to building new facilities for bicyclists and pedestrians, local jurisdictions are encouraged to apply for regional funding for reconstruction of existing facilities so long as the proposal enhances the bikeway or pedestrian path to a quality level superior to that of the original facility.

Transportation Purpose. Federal transportation funds will be used on bicycle projects that serve primarily a transportation function in addition to recreation. Bikeway facilities should be located where potential use is highest and where they can most significantly enhance transportation choices. The magnitude of a proposed project's improvement to connectivity or safety should be considered in addition to the degree of land use accessibility and density in the area, and amount of individuals without access to a motorized vehicle.

Bicycle Connections. Evaluation criteria will favor projects that are able to most significantly improve connectivity by overcoming a major barrier or filling in a large gap in the network.

Signage and Maintenance. Bicycle projects funded with regionally selected federal transportation funds should include signage to help users navigate the system and identify bicycle routes once the project is completed. The Council may provide guidance on sign content and placement following the development of a regional signage plan. Projects considered for federal funding should also have an approved plan for maintenance or a maintenance agreement to ensure that the facility remains in good repair and is passable.

Opportunities for Pedestrian Improvements. Funding priority will be geared toward stand-alone pedestrian projects that are connected to transit service. These include:

- Along high-frequency service bus routes in the urban core and first-ring suburbs.
- Transit-oriented developments around existing or programmed fixed-guideway transit stations.
- Existing transit stations, high-service park-and-ride locations that are within a reasonable walking distance to residential development or activity centers, and high transit destinations like the downtowns and the University of Minnesota.
- Projects that are included as part of a community's ADA transition plan and/or demonstrations of best practices in design for the use of persons with different physical abilities.

Education and Promotion Programs. In addition to operations and infrastructure, the Transportation Advisory Board will continue to make programs designed to promote and to increase the safety and ease of bicycling and to educate bicyclists on the proper and safe use of roadways eligible for receiving federal transportation funds.

Comprehensive Plan Requirements

Pedestrian and bicycle elements of local comprehensive plans shall:

- Promote safety of pedestrians and bicyclists;
- Provide connections to adjacent (local and county) jurisdictions and their walkway and bikeway systems;
- Fill gaps and remove barriers in the existing local, county or regional walkway/bikeway systems;
- Design and locate walkways and bikeways to serve both travel and leisure purposes;
- Provide pedestrian and bicycle facilities to and within high activity nodes, especially commercial and transit centers; and
- Include programs for educating motorists, pedestrians and bicyclists to increase awareness of and respect for the rights and responsibilities of all three types of travelers.

Figure 9-7: Bus passengers wait on the sidewalk to board a Metro Transit bus at the Midtown Exchange

Pedestrian and Bikeway Connectivity

Connections with Transit

Improving multimodal connections with transit is important to:

- Increase opportunities for people to take advantage of transit
- Improve safety of transit passengers
- Improve accessibility and mobility for people with disabilities
- Support transit-oriented compact development
- The regional goal of improving the multimodal transportation system can be well served by investing in pedestrian improvements in areas with a strong transit presence. As with pedestrian improvements, connectivity to transit should be a prime consideration in strategies for improving bike-transit commuting. Good sidewalk access and on-street bike lanes between destinations and bus stops and transitway stations can encourage travelers to use transit, thereby reducing auto trips while supporting mixed-use transit-oriented developments.

Figure 9-8: Bicycle racks and lockers at a station on the Hiawatha LRT line

Figure 9-9: A bicyclist accesses the Hiawatha LRT

Further support for combined bicycle and transit trips can include crosswalks, bike racks and lockers, and other facilities for pedestrians and bicyclists at park-and-ride lots, transit stations and at major destination centers throughout the region, including the downtowns.

To encourage a strong intermodal link, the policy for all transit modes, including light rail transit and commuter rail, will be to allow bicycles on board. Bike-and-transit travel has become much easier since bike racks were installed on the regional bus fleet. However, the high popularity of bike-and-transit travel since rack installation results in many bicyclists being turned away because the on-board racks are often full. The Council will pursue bike rack technology that can accommodate the greatest number of bikes as reasonably possible. Recognizing that some bikes may not be able to travel with the transit vehicle, bicycle racks and lockers will be located at transitway stations. The Council shall pursue ways to provide covered bike parking at bus stops, park-and-ride lots and transit stations whenever practical. The Council will monitor bicycling potential to park-and-ride lots and other transit stops and provide bicycle parking to encourage such travel.

Figure 9-10: A bicyclist uses the marked shoulder on the Lake Street Bridge between Minneapolis and St. Paul

In 2009, the Metropolitan Council released a study that detailed bicycle and pedestrian safety deficiencies along the major bus routes in the communities that surround Minneapolis. This study included recommendations for cost-effective solutions to these deficiencies. The Metropolitan Council will seek ways to implement some of the recommendations included within the study.

Overcoming Barriers

There are many gaps and barriers to bicycle travel in the region. Freeways, railroads and rivers without bridges that are safe for bicycle and pedestrian travel effectively wall off much of the region to those wishing to make the choice to bicycle for transportation or recreation. For this reason, bicycle-accessible bridges are an important element for a region to be friendly to non-motorized transportation.

In other situations local bike networks can be interrupted by high-traffic arterials that are difficult to cross or to ride on. In order to overcome many of these physical barriers to bicycling in the region, interjurisdictional coordination is absolutely necessary since many rivers, freeways and other barriers are also between two cities or two counties, and county and state highways sometimes interrupt city bicycle networks. The Council supports interjurisdictional coordination to resolve conflicts and to create connections across boundaries.

Improving network connectivity and bicycle safety are primary ways that transportation investment can encourage bicycling. Other factors such as land use mix and density, and household vehicle ownership patterns will also affect existing and latent demand for bicycling but fall within other policy realms. However, planning for bicycling should consider these factors in determining the degree to which improving the network connectivity will influence overall travel behavior.

Figure 9-11: "Trail Oriented Development"
New residential construction at the Bryant Street entrance to the Greenway

Figure 9-13: A bicyclist turning left from the Greenway to Bryant Avenue bikeway

Mixed-Use Developments

As the Council works with communities to promote centers of development and redevelopment along transit corridors, walking and bicycling are increasingly important as effective means of travel within and between compact, mixed-use neighborhoods. Systems of safe, continuous, barrier-free bicycling and pedestrian facilities are integral to the success of these developments.

Pathway Maintenance

Year-round maintenance of pedestrian paths, sidewalks, crosswalks and bikeways should be a priority for local governments, particularly during the winter snow season. Maintenance is particularly important for persons with disabilities for whom a blocked path can require travel into the street or on a highly circuitous route. Maintenance should be reliable and predictable.

Designing Complete Streets

Roadways should be designed in ways that are appropriate to the multimodal roles they play and meet the safety and mobility needs of users of all of those modes. Complete Streets is an approach to transportation planning that considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings.

Figure 9-12: Bike Route Signage

Roadway Elements

When a principal or minor arterial road is constructed or reconstructed, off-road walkway designs and both on- and off-road bikeway designs should be considered at the planning and scoping stage of the project, with special emphasis placed on safety and barrier removal with the goal that the street meets the needs of all users. In the case that bicycle or pedestrian facilities on the roadway right-of-way itself are deemed impractical during the planning and scoping stages of the project, such travel should be facilitated and improved along the general corridor such as on adjacent streets or trails to the greatest extent feasible.

Complete Streets does not mean “all modes on all roads” but that the accessibility and safety of all users of the transportation system be incorporated at the beginning of any roadway project’s planning and scoping process. In addition to mandating a Complete Streets approach on all trunk highways, the state law on Complete Streets has given local units of government more flexibility in designing roads to accommodate all users. Design for roads and bikeways and combined bicycle/pedestrian facilities that have federal or state funding must meet the requirements of the Mn/DOT State Aid process. However,

Figure 9-14: Marshall Avenue in St. Paul is a “complete street” with bike lanes, sidewalks, multi-use lanes and bus shelters.

local governments may receive a variance from State Aid standards. They may use the AASHTO Policy on Geometric Design of Highways and Streets and in urban areas can use the Institute of Transportation Engineers (ITE) Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities as alternatives when designing for Complete Streets. When designing bicycle facilities, guidelines from the Mn/DOT Bikeway Facility Design Manual should also be considered.

Pedestrian facilities should be provided along roads unless demonstrated to be impractical, considering that many roads in the region currently do not have adjacent sidewalks or separated pedestrian paths. Designs for major complex multi-lane intersections on minor arterials and collectors should also pay particular attention to the safety of bicyclists and for pedestrians.

Pedestrian comfort warrants as much attention as simple functionality of pedestrian paths. Pedestrian elements of roadways should include amenities that foster a welcoming environment for walking.

Bicycle facilities should be provided within existing rights-of-way whenever feasible instead of acquiring exclusive new rights-of-way. Improvements could include the addition of wide marked shoulders or bike lanes, sidewalks or multi-use paths, as well as intersection treatments that are sensitive to the safety of non-motorized users of the roadway. Improvements for bicycle and pedestrian safety and mobility should be made on minor arterials so long as they do not diminish the capability for multimodal function and capacity.

While more facilities are being built to give the bicycle its own right-of-way, such as on the Midtown Greenway, most bicycling occurs on roadways. The Council supports improvements such as on-street bike lanes or wide shoulders on roads that can accommodate them or off-road separated bike paths, as long as they provide safe bicycle travel conditions.

Some communities with grid street systems have introduced "bicycle boulevards" on which bicycle travel is prioritized on local residential streets with pavement markings, traffic calming techniques and careful intersection crossing treatments so that cyclists may travel unimpeded parallel to a major arterial where bike lanes are impractical. Converting these types of streets is an innovative way to improve the environment for bicycling by retrofitting underutilized infrastructure. However, they do not replace the need to provide bicycle accommodation on collector or minor arterial roadways.

Figure 9-15: Lake Street in Minneapolis includes "bump outs" at crosswalks that shorten the distance pedestrians must be in the crosswalk.

Trail plans should be integrated with the local street network, which can be enhanced for bicycle travel by providing bike lanes or wide shoulders where room exists on the roadway or by converting low-traffic volume residential streets into priority routes for bicyclists.

Bridges

Every bridge that is newly constructed or reconstructed with federal or state funding and that removes or crosses a barrier for pedestrians and bicyclists must safely accommodate bicycle and pedestrian travel unless a reasonable alternative exists within one-half mile for bicyclists and one-quarter mile for pedestrians. However, bicyclists and pedestrians must be explicitly considered in project planning and scoping for all new or reconstructed bridges.

Figure 9-17: A pedestrian scale street.
Nicollet Avenue has wide sidewalks and trees that create a comfortable environment for walking and sitting at one of the many sidewalk cafes.

Potential Conflicts Between Modes

When there is potential for trail user conflict, bicycle facilities should be separate from pedestrian facilities. All new or reconstructed roadways, with the exception of freeways, should be designed with the assumption that bicycles and pedestrians may use them and so designed to minimize conflict with motorized vehicles. Particular attention to bicycle and pedestrian safety should be paid at intersections where vehicle movement is most complex and conflict points increase.

Figure 9-16: Pedestrian amenities, such as trees and a buffer between the road and the walkway, increase walkability.

Planning to Better Accommodate Pedestrians

Pedestrian paths can take the form of sidewalks, pedestrian plazas, sky-ways, and multi-use trails. Healthy communities include safe and attractive spaces for pedestrians including on local streets in residential neighbor-hoods,

In its *Regional Development Framework*, the Council encourages local governments to implement a system of interconnected arterial and local streets, pathways and bikeways. Land use characteristics and site designs – responsibilities of local units of government – determine how pleasant and safe the walking experience is and therefore are critical factors in promoting walking as a means of travel.

Local governments shall consider safe and convenient access when planning neighborhoods and places with the potential to draw significant numbers of pedestrians, such as schools, civic gathering sites and employment and commercial centers. In addition, cities, counties and Mn/DOT shall consider pedestrians when planning, designing and constructing all roadways and bridges.

Pedestrian Amenities

Figure 9-18: Children ride bikes for fun and transportation

Pedestrian amenities usually can be incorporated into all transportation projects, such as sidewalks, landscaping, and crossing treatments in roadway construction projects. While providing basic pathways is necessary where they do not currently exist, communities should strive to become truly walkable by including features such as trees, plantings and other landscaping, benches for resting, and attractive pedestrian-scale lighting in pedestrian projects. The degree to which people choose to walk is often the result of these elements, which can alter the perception of distance, create a welcoming environment and make walking routes understandable to the traveler. Traffic calming measures on local streets also improve the environment for pedestrian travel.

Examples of good pedestrian improvements can be found in the Metropolitan Council's *Guide for Transit Oriented Development*. Where a complete TOD-style development program is impractical, local communities may be able to find innovative ways to improve the pedestrian environment through other means.

Accessibility for People of Differing Ability

Local governments shall be committed to the goal of providing universal accessibility on the transportation system by utilizing best practices in designing pedestrian facilities. Such facilities need to be accessible to people of all levels of functional ability so that they meet and exceed the requirements of the Americans with Disabilities Act (ADA).

Designers of roadways and walkways should consult the Access Board's Public Rights-of-Way guidelines at the board's website for guidance on developing an accessible pedestrian system. Mn/DOT has adopted these guidelines as their standards. In addition, federal law requires that all public agencies with over 50 employees must develop an ADA transition plan that utilizes the advice of persons with disabilities. Mn/DOT updated its Transition Plan in 2010.

The Metropolitan Council's Transportation Accessibility Advisory Committee (TAAC) provides advice to the Council on Metro Mobility and fixed-route transit service and facilities. The TAAC will also be informed of all regionally-funded roadway projects and may be used as a resource for local governments in their planning and design of these projects. The Council encourages local communities to set up ad-hoc or standing disability advisory committees to advise them on planning for universal accessibility in pedestrian systems.

Figure 9-19: The Americans with Disabilities Act (ADA) requires local governments to construct accessible rights-of-way for persons with disabilities

Education and Promotion

Along with improvements to facilities, education and promotion are important fundamentals in increasing the amount of bicycling and walking while also improving its safety.

The Council supports building upon the existing education and promotion activities of community and county bicycle/pedestrian advisory boards, Metro Transit Rideshare, local Transportation Management Organizations and local community initiatives in support of bicycling and walking, including helping to improve the knowledge and ease of bicycle commuting by interested residents and employees in congested activity centers. The Council also supports local "Safe Routes to School" programs that address bicycling and walking safety for elementary and secondary school students and programs aimed at teaching children to walk and bike safely, including the use of proper equipment and helmets while bicycling.

Local and state agencies are encouraged to establish safety programs oriented toward educating the public in the proper use of sidewalks and crosswalks by pedestrians and of shared lanes, bicycle lanes and paths by bicyclists. Programs will also provide training in proper bicycling procedures such as making turns, and stopping at stop signs and signals. In addition, programs will educate motorists regarding pedestrian roadway crossing laws, how to safely interact with bicyclists riding legally in the roadway, and generally to be aware of pedestrians and bicyclists.

Interjurisdictional Coordination

Interjurisdictional coordination is necessary to improve network connectivity and to remove barriers to travel since many of these barriers are between two cities or two counties. All partners in bikeway and walkway development should work collaboratively as much as possible to improve connectivity.

Metropolitan Council

The Metropolitan Council's main role in promoting bicycling is to coordinate planning among local jurisdictions. The Council will coordinate with Mn/DOT's Bicycle and Pedestrian section and city and county planners to improve interjurisdictional coordination and provide technical assistance to communities.

The **regional bikeways mapping project** is an example of this effort. This effort was initiated originally by Mn/DOT, with participation from regional partners, to evaluate the need to plan a regional bikeway system focused on the highest priority bicycling transportation corridors and destinations and to remove barriers in the bicycle transportation system. A regional bikeways map published by the Council is a starting point for cities and counties to use in developing integrated metro-wide bikeway systems. The Council will update the dataset with information from local comprehensive plans which should provide the most current inventory of what local governments are planning and what exists today.

Efforts are needed to **integrate the trail systems within the region's bicycle network** as well as connections between on-road bikeways and off-road trails. Recreational bicycling and walking are popular activities among the region's residents and bicycling for recreation is usually the first introduction that potential bicycle commuters have to bicycling.

Regional recreational trail plans are detailed in the Council's 2030 Regional Parks Policy Plan, and the Council publishes a regional parks map showing the state and regional off-road trails in the metropolitan area. The 10 regional park agencies that own and manage portions of the Regional Park System have about 170 miles of regional trails open for use at this time. Another 700 miles are proposed in the future. These trails offer great potential to expand bicycling opportunities in the region; however some of them lie along right-of-way purchased explicitly for transit use and may or may not be available to bicycles by the year 2030.

The region's bikeway system would be easier to navigate with a **metro-wide system of signage with wayfinding information** on the region's trail and bikeways. A University of Minnesota report evaluating the impact of new trails and on-road bike facilities on bicycle commuting concluded that publicizing the existence of a new bike route through signage or other means may have a significant favorable impact on levels of use.

The Metropolitan Council will work with local trail implementing agencies, Mn/DOT, the DNR, counties and cities to develop and implement a signage plan, including guidelines for sign content and placement to help bicyclists navigate the network within and between jurisdictions. The Council, Metro Transit and Transportation Management Organizations can be resources to help publicize new routes and the destinations they serve.

Local Government

Most detailed bicycle planning, design and construction occurs at the city or park agency level. Local governments shall consider the needs of all bicyclists – experienced, commuter, and recreational – when planning and designing bicycle facilities and programs.

When planning for bicycle transportation, local governments should seek the knowledge of local bicyclists to understand the local conditions for bicycling and to identify barriers to travel and safety problems. Many jurisdictions have created bicycle advisory committees that provide advice to cities and counties on bicycle issues in transportation.

County governments are also important in providing facilities, since county highways can be significant elements of the bicycle system as they provide cross-community service. Special attention shall be paid to county road improvements in developing areas, where right-of-way is still available and yet imminent development makes it likely that destinations will be within a reasonable distance for bicycling. In addition, counties shall help to coordinate the connections between cities within their boundaries and between adjacent counties.

As implementing agencies for the regional park system in many cases, counties are in the best position to coordinate the recreational and destination trip-making facilities, and to help integrate local trail and bikeway plans with county plans. The Council encourages all seven counties to establish bicyclist advisory committees to help develop an interconnected and safe bicycle network.

Chapter 10: Air Transportation

Air transportation provides a national and global reach for the fast movement of people and time-sensitive freight, offering significant advantages for long-distance travel and transport. Therefore it is somewhat different from other metro systems since its users are primarily going to, or coming from, destinations outside the metropolitan area. Each mode of transportation best serves a specific trip distance and air transportation provides its own unique characteristics and values for interstate and international mobility.

Airspace is the key resource for aviation. To use global airspace air transportation requires three basic types of infrastructure: airports, an air-traffic control system, and ground access system. Airports are locally sponsored but must meet federal development and operational certification. Air traffic control is a federally operated service provided in federally-controlled airspace. Aviation user funds are used to support both of these functions. To connect air transportation users with the air passenger and air cargo terminals requires overall connectivity with the multi-modal transportation system. These connections are accomplished through shared funding efforts.

Existing Conditions

The Twin Cities region is served by one commercial airport and ten general aviation airports for various business and recreational users, as depicted in Figure 10-1. Airports are classified according to their system role as a Major, Intermediate, Minor or Special Purpose facility. Most of these facilities are owned and operated by the Metropolitan Airports Commission (MAC). The system focus until 2010 has been to complete a $3.1B expansion of Minneapolis-St. Paul International Airport (MSP), and to make improvements to several of the reliever airports for business jet flying. Most of the system airports are part of the National Plan of Integrated Airports (NPIAS), eligible for federal and state funding. In 2009 MSP airport, as a hub serving the Upper Midwest, handled over 32 million passengers, 432,000 aircraft operations and 190,000 metric tons of cargo. The general aviation airports handled approximately 440,000 aircraft operations. In 2008 the value of air transportation to the metro region was estimated at over $10B, supporting 150,000 jobs. The regional airports are working reasonably well; however, substantial changes are occurring at all levels of the aviation industry, including federal government actions, that are likely to have major effects on the system and traveling public.

Economic and security issues since the year 2000 have caused turmoil in both the national and local airline industry. Threats of terrorism, rising fuel costs and other problems have led to deep operational losses, airline bankruptcies, mergers and the disappearance of some locally based carriers.

The impacts are far-reaching; less aircraft activity, an increase in the cost of tickets, a reduction in air passenger and cargo traffic, a hold on terminal expansion at MSP, continued aircraft maintenance outsourcing, a new airline agreement at MSP, return of aviation bond refinancing proceeds to tenant airlines,

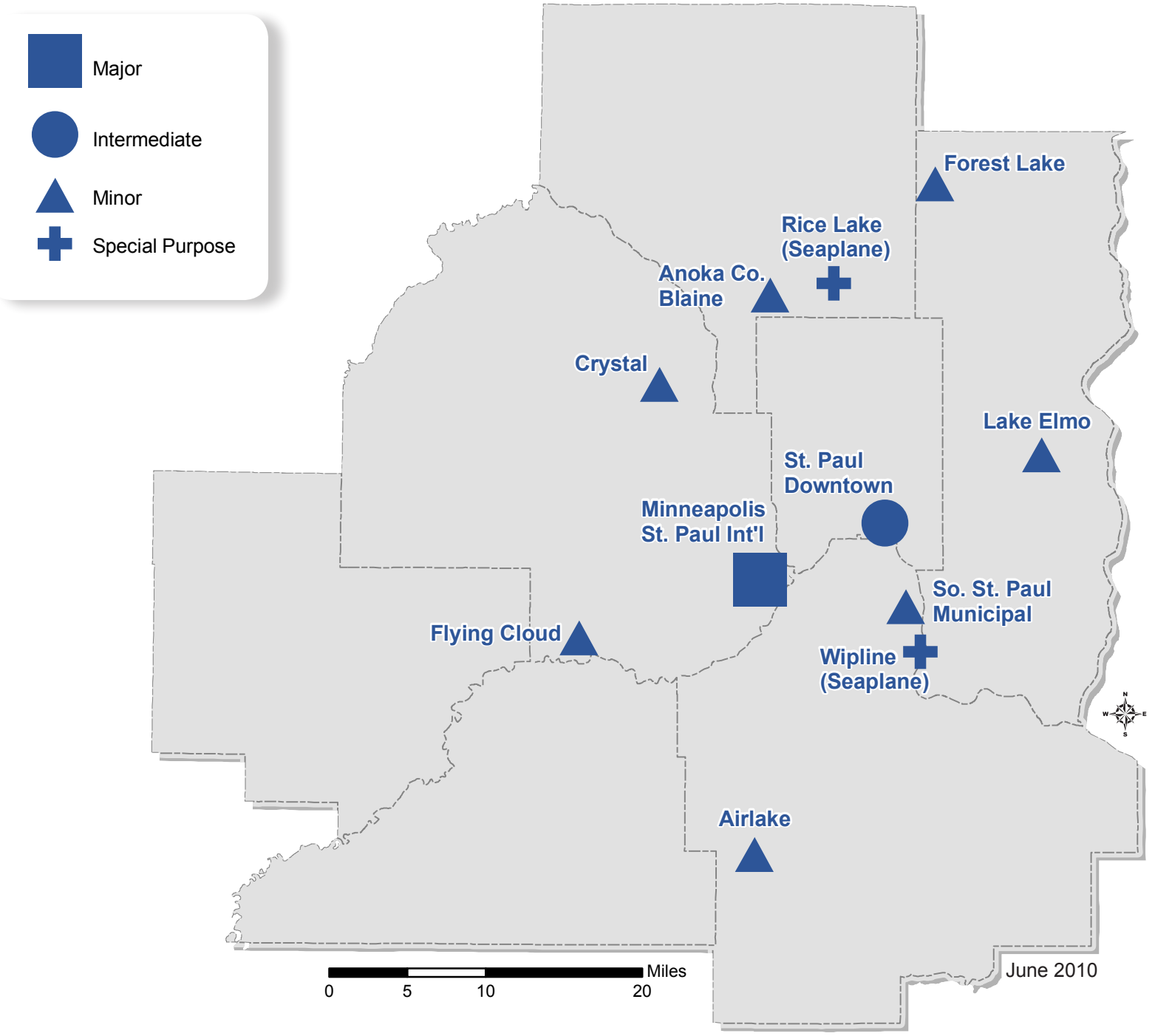


Figure 10-1: Regional Aviation System

Figure 10-2: Air service provider at MSP

a sharing of concession revenues with the airlines, and a revision to the MAC operating philosophy for managing its reliever airports. Maintaining air service and the airport system infrastructure will be a continuing challenge for the community. Impacts and opportunities at individual airports have been assessed in recent updates of each airport's long-term comprehensive plan (LTCP) that extends their planning horizons. The system is basically performing well operationally, but faces financial and air-service uncertainties. Growth in flight activity for both commercial and general aviation is essentially flat as depicted in Table 10-3.

Table 10-3: Summary of Regional System Based Aircraft and Forecasted 2030 Activity

Activity	2008	2015	2020	2030	Average Annual Growth
Total G.A. Based Aircraft	1,913	2,046	2,007	1,993	0.2%
Total G.A. Operations	641,550	612,680	639,540	663,940	0.1%
MSP Enplaned Passengers (Base Case Forecast)	25,936,600	31,229,600	35,998,600	47,896,300	2.8%
MSP Aircraft Operations	450,000	507,000	546,900	630,800	1.5%

Airside capacity of the regional system has recently been improved with a new runway at MSP Airport, a runway extension at Anoka County-Blaine Airport, flood protection of the St. Paul Downtown Airport airfield, and extension of the parallel runways at Flying Cloud Airport. Landside capacity is somewhat constrained at all the reliever airports and new hangar areas are being developed as public and private funding becomes available. Improvements contained in the MSP 2010 development plan are completed, except for noise mitigation, which extends to 2014. Table 10-5 provides an overview on the status of each airport, including planning activities at the system airports, information on individual characteristics of each facility, number of current users and the annual level of aircraft operational activity. A Glossary of aviation terms is included in Appendix O.

Table 10-4: Summary of Key System Accomplishments

Planning Activities/Actions:
Completion of MSP 2030 LTCP.
Initiated joint Airport/Community zoning boards at St. Paul Downtown and Flying Cloud Airports.
Completion of 2025 LTCP Updates for all MAC reliever airports.
Development/Operations
Implemented flood protection at St. Paul Downtown Airport.
Completed parallel runway extensions at FCM; and initiated development of new south building area.
Completed MSP parallel runway pavement improvements
Completed additions to parking ramps, and initiated LRT passenger-bridge to Terminal 2-Humphrey .
Environmental:
Continued noise mitigation projects in the DNL 60 to 64 noise zones at MSP
Continued upgrades to MSP Airport Noise and Operations Monitoring System (ANOMS)

Progress Since 2008 Adoption of the *Transportation Policy Plan*

Several airport planning, environmental, operational, and development projects and actions have been, or are nearing completion since the last update of the system plan. A few key activities/actions are listed in Table 10-4.

Table 10-5: Airport Facility Status

Airport Name and Identifier	Long Term Comprehensive Plan	Airport Size (Acres)	Total No. And Type Runway's	Primary Runway Length	Crosswind Runway Length	Air Traffic Control	Primary Runway Landing Aids	Based Aircraft 2009	Total Annual Aircraft Operations 2009
Minneapolis-St. Paul International (MSP)	2010 Plan adopted by MAC in 1996. 2030 Plan Update prepared 2010	3,400	Four Paved	Rwy 30L-12R 10,000'	Rwy 4-22 11,003' Rwy 17-35 8,000'	24 Hr. FAA ATCT Customs Service	Precision Instrument, High Intensity Runway Lights	24	432,395
St. Paul Downtown (STP)	2025 Plan Update approved 2010.	540	Three Paved	Rwy 14 -32 6,491'	Rwy 13/31 4115' Rwy 9-27 3,657'	16 Hr. FAA ATCT Customs on-call	Precision Instrument, High Intensity Runway Lights	124	110,846
Anoka Co.-Blaine (ANE)	2025 Plan Update approved 2010.	1,900	Two Paved	Rwy 9–27 5,000'	Rwy 18-36 4,855'	15 Hr. Contract ATCT	Precision Instrument, High Intensity Runway Lights	439	69,406
Flying Cloud (FCM)	2025 Plan Update approved 2010.	760	Three Paved	Rwy 10R-28L 5,000'	Rwy 18-36 2,691'	16 Hr. FAA ATCT	Precision Instrument, High Intensity Runway Lights	413	119,139
Crystal (MIC)	2025 Plan Update approved 2008	436	Three-Paved, one turf	Rwy 14R-32L 3,267'	Rwy 6L-24R 2,500'	16 Hr. FAA ATCT	Non-Precision Instrument, Medium Intensity Runway Lights	238	48,877
So. St. Paul (SGS)	1993 Plan adopted by city 1976; Airport Layout Plan updated 2002; CPU approved 2010	270	One Paved	Rwy 16-34 4,000'	None	Unicom	Non-Precision Instrument, Medium Intensity Runway Lights	217	40,800
Airlake (LVN)	2025 Plan Update approved 2008	425	One Paved	Rwy 12-30 4,098'	None	Unicom	Precision Instrument, High Intensity Runway Lights	158	39,021
Lake Elmo (21D)	2025 Plan Update adopted by MAC in approved 2008	640	Two Paved	Rwy 14-32 2,850'	Rwy 4-22 2,497'	Unicom	Non-Precision Med. Intensity Runway Lights	229	37,600
Forest Lake (25D)	City Feasibility study 1996, Airport Area AUAR in 2000; CPU approved 2009.	330	One Turf	Rwy 13-31 2,575'	None	Unicom	Visual Low Intensity Runway Lights	26	8,000
Rice Lake SPB (8Y4) Private, Public-Use	City of Lino Lakes CPU approved 2009.	20 Land area only	Two Water Lanes	NE/SW 6,500'	N/S 5,500'	Unicom	Visual No Lighting	45	4,100

Source: Airport LTCP's, Airport Master Record, FAA ATCT data.

Issues and Trends

GLOBAL DEVELOPMENTS:

World Air Traffic

Globalization of the airline industry continues in the form of alliances between airlines. This trend is expected to accelerate as economic conditions force consolidation in all parts of the world. Asia recently surpassed North America in total numbers of annual airline passengers, a trend which is expected to continue. U.S. air carriers are expanding international service connections, often through airline alliances involving code-sharing agreements to gain or maintain access to these and other markets. Air service resources are increasingly focused on areas of world-class cities and mega-regions. Historically the Twin Cities region has had strong air connections to Asia (evidenced by the previous airline name, Northwest Orient) and more recently to a limited number of European cities. It is not clear where Minneapolis-St. Paul fits in this changing global context, and how that may impact levels of air service connectivity for the MSP service area. Future state and regional socio-economic and aviation forecasts should further define these evolving economic and geographic connections and conditions in future plan updates.

Open Skies Agreements

Air service has been continually stymied by regulations of various countries and the early practice of support for national flag carriers. The U.S. de-regulated its airlines and has entered into open-sky agreements with other countries to relax regulations and enhance service competition. The overall effect has been an opening up of air access between many countries and continued development of airline alliances. Currently there are three major alliances (One-World, Star, SkyTeam) and a group of non-aligned airlines. At MSP over eighty percent of all air service is provided by the SkyTeam alliance, with Delta Air lines as the main U.S. partner, although MSP is currently served by all three global alliances and some non-aligned carriers.

As U.S. dominance of markets is subsumed into alliance networks it will become important to regional economies which networks serve their airports; maintaining service balance is critical to financial sustainability of the region's major airport.

This new reality is reflected in the 2030 Plan for MSP which proposes to physically separate airlines, with the SkyTeam Alliance located at the Lindbergh Terminal (Terminal 1), and all other airlines located at the Humphrey Terminal (Terminal 2). Southwest Airlines is a non-aligned, low cost carrier that has recently entered the MSP market; since Southwests entry to the MSP market average domestic fares fell 31.9% in the 3rd quarter of 2009 in a year-over-year comparison It is not yet clear how the competitive aspects of the alliances will affect domestic and international air service at MSP. It will be important to constantly reassess how the 2030 MSP Phased Development Plan relates to the air service competition plans for the metro and multi-state region.

Figure 10-6: Fuel farm at MSP

Environmental Issues Emerging in a Global Forum

Reducing aircraft pollution is becoming increasing important at the international and national levels. "Going green" is being incorporated in a programmatic way for everyday airport operations around the country. At MSP the MAC has implemented its STAR program (Stewards of Tomorrow's Airport Resources), the environmental part of their strategic planning for sustainability. Improvements in noise and air pollution are also being realized at the local level from old aircraft being retired and new aircraft entering the fleets. The current MSP Part 150 noise mitigation/residential insulation program for MSP neighborhoods is nearing completion in the next few years. Aviation forecasts for the MSP Plan indicate the noise impact area is likely to expand with increasing operations through 2030 and remain an issue.

Energy Costs and Alternative Fuels

A major cost of airline operations is aircraft fuel. Recent volatility in the international petroleum fuels market has significantly affected cost and availability. U.S. airlines are particularly affected due to imported supplies and changes in currency exchange. Overall energy supply costs also affect the economy, dampening demand for air service and further reducing revenue for U.S. airlines. Domestic airlines, without funds to replace aging aircraft with more fuel efficient planes, are becoming less competitive with other world airlines. The airline industry (including the U.S. military) is experimenting with mixed bio-fuels, but the ability of these new fuels to be produced in sufficient quantity, and to be environmentally friendly, has not been determined. The cost of fuel has been included as a key scenario in forecasting the 2030 MSP operations and economic dampening effect on discretionary income of potential air passengers.

U.S. DEVELOPMENTS:

Economy Affecting Viability of Domestic Air Transportation

Since 2001 spending for air travel has fallen as a percent of the U.S. economy. Foreign country ownership of America's airlines, and provision of air service in the U.S. is still very high on the list for discussion between the European Union and the U.S. in their recent Open Skies Agreement. At the local level, Northwest Airlines merged with Delta, another U.S. legacy airline. A new airline agreement at MSP provides for increased revenue-sharing of airport concessions with the airlines. Older aircraft are being removed from the fleet, and uneconomical service is being dropped. Many fees and charges are being added by the airlines and some calls for re-regulation or curtailing oil speculation are being sought from Congress by the airline community.

Figure 10-7: Airport security at MSP Lindbergh Terminal

Deteriorating Performance of the National Air Transportation System

The national system of airports has been increasingly congestion prone, with proposals by FAA to limit air traffic levels at constrained hub airports. Problems with runway incursions are improving,

Figure 10-8: Aircraft landing aids

but are still a problem at many commercial and general aviation airports. Implementation of the Next-Gen air navigation and air traffic control systems is years behind schedule and over budget; funding is being included in 2010 Congressional reauthorization legislation. Funding of FAA operations and recommended imposition of a new fee structure has pitted airlines and general aviation against each other. Lack of reauthorization and funding of the Airport Improvement Program (AIP) is delaying needed capacity and safety projects.

Airlines have turned in better on-time records recently with fewer people flying. Safety has been good over the years, but there are increased inspections being required by FAA due to age of aircraft, and runway incursions.

Funding of Airport Projects

Commercial and general aviation airports are under revenue stress due to the poor economy and its effect on system users. In addition, they are under pressure, along with the airlines, to address continuing facility and passenger security costs and operational issues. Security screening of air cargo is an ongoing issue. Projects are being delayed or dropped at many airports due to airline revenue reductions. Locally, the state airport trust fund was used to address state general fund shortfalls, so availability of state matching funds for federal AIP monies will affect immediate and future year capital projects. A new financial model for reliever airports has been put into effect at MAC airports, to improve self-sufficiency. Additional non-aviation revenue opportunities are also being explored at the MAC-owned relievers.

Shortfall in Airport Landside Capacity, Need for Airside Technology Upgrades

While the annual airside capacity at the region's airports is generally adequate, landside issues involve the need for more hangar building areas and services. New passenger gate development at MSP is proposed to be implemented in four phases to 2030 pending airline demand and funding. Continued application of new technology for air-side development is needed to improve capacity and maintain safety/security levels. Funding is a concern for both airside and landside projects. A public/private partnership has assisted in making recent projects at the Anoka County-Blaine airport a reality.

Figure 10-9: Airport and community compatibly
Community athletic fields at Flying Cloud Airport

Airport Compatibility a Continuing Long-Term Effort

Airport safety zoning is underway, and airport development/mitigation plans are being updated. Updated community plans are expected to help address continued safety, land use, environmental, infrastructure and services issues posed by airport and community development. Urban development and development pressures have fully engaged the system airports and it is anticipated that on- and- off airport redevelopment issues will become increasingly noticeable in the future.

Increasing Difficulty in Forecasting Air Travel

Opposing trends in aviation are increasing the difficulties in aviation forecasting. For example, the previously discussed "constraint" issues are offset by continued general optimism expressed in government and industry economic and aviation forecasts of passenger and

Figure 10-10: Passenger terminal improvements at MSP

air-cargo demand. Reductions in congestion, provision of improved air traffic control, additional runway and airport terminal capabilities appear to still be needed, while air travel, as a portion of gross national product (GNP) is down significantly from historical norms. The U.S. is still the largest single air market and foreign competition for an increased share is escalating. Impacts of a new generation of fuel efficient aircraft and associated technology are only beginning to be realized. Questions remain as to the future growth of the very light jet and recreational flying segments of the general aviation fleet. Improved capabilities to survey and monitor specific types and levels of activity at the region's airports are needed.

Policies and Strategies

The following regional policies and strategies will guide the development and operation of the aviation system in the region.

Policy 19: Aviation and the Region's Economy

Availability of adequate air transportation is critical to national and local economies in addressing globalization issues and airline alliances that have increased competition and the need for improved international market connectivity.

Figure 10-11: Air cargo at MSP

Strategy 19a. MSP as a Major Hub: Public and private sector efforts in the region should focus on continued development of MSP as a major international hub.

Strategy 19b. Region as Aviation Industry Center: State and regional agencies, in cooperation with the business community, should define efforts to be a major aviation-industry center in terms of employment and investment, including the ability to compete for corporate headquarters and specialized functions.

Strategy 19c. Air Passenger Service: The MAC should continue to pursue provision of a mix of service by several airlines with frequent passenger flights at competitive prices to all regionally-preferred North American markets and major foreign destinations.

Strategy 19d. Air Cargo Service: The MAC should pursue provision of air cargo infrastructure and air service for the region with direct air freight connections to import/export markets providing trade opportunities for the region's economy.

Figure 10-12: Ground access and parking at MSP

Strategy 19e. Provide State-of-the-Art Facilities: State-of-the-art facilities should be made available by airport sponsors at the region's airports, commensurate with their system role, to induce additional aviation services and provide additional jobs, thereby enhancing the region's economy.

Strategy 19f. Competition and Marketing: Decisions by aviation partners on provision of facilities and services to improve regional economic capabilities, should be based upon periodic updating and refinement of airport economic impact studies and surveys, a MAC commercial air-service competition plan and on-going airport marketing efforts.

Policy 20: Air and Surface Access to Region's Airports

Provision of adequate local access by air service providers and system users to the region's airports is essential to realizing the advantages of air transportation to the region's businesses and citizens.

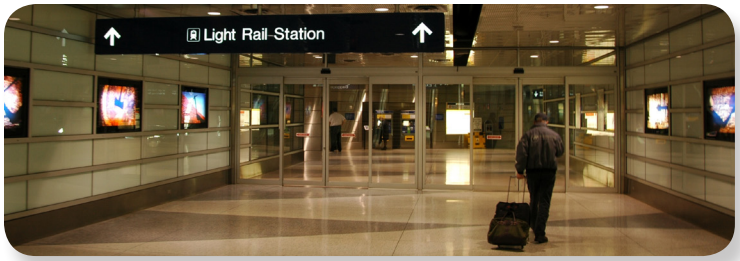


Figure 10-13: Multimodal access at MSP
Signage to LRT station at Lindbergh Terminal

Strategy 20a. Use of Technology: Airport sponsors should provide facilities that are safe and secure, affordable and technologically current for all facets of the aviation industry.

Strategy 20b. User Friendly: Airport sponsors and service providers should make flying convenient and comfortable for everyone using regional aviation facilities.

Strategy 20c. Airport Service Area Access: The Council will work with Mn/DOT, counties and airport sponsors to achieve high-quality multimodal ground accessibility, appropriate to the airport's role and function, to all portions of each airports service area within regionally defined travel times.

Policy 21: Consistency with Federal and State Plans/Programs

The planning, development, operation, maintenance and implementation of the regional aviation system should be consistent with applicable Federal and State aviation plans and programs.

Strategy 21a. Project Eligibility: Project sponsors, to improve chances of successful outcomes, should meet funding eligibility requirements, design standards and operational considerations.

Strategy 21b. Consider Alternatives: Project sponsors need to consider impacts of alternatives, such as telecommunications and other travel modes, in regional aviation planning and development.

Strategy 21c. Responding to National Initiatives: Project sponsors need to include the following in their planning and operational activities;

- Environmental sustainability efforts.
- Security needs as identified by National Homeland Security through the Transportation Security Administration.

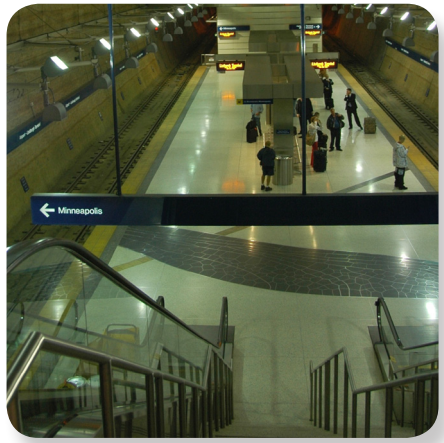


Figure 10-14: Passengers waiting on Lindbergh Terminal LRT station platform

Policy 22: Airport Development Plans

Long-term comprehensive plans (LTCPs) should be prepared by the airport sponsor for each system airport according to an established timetable and with required contents as defined in this policy plan.

Strategy 22a. Preparing LTCPs: Regional aviation facilities are under different types of public and private ownership. Therefore,

Figure 10-15: FAA building

the scope, application and content, for preparation of a LTCP is defined for different sponsors in this Transportation Policy Plan.

Strategy 22b. Updating/Amending LTCPs: The LTCP should be periodically updated according to the timetable established in this TPP. If a substantial change to the approved plan is recommended and cannot be addressed as part of the periodic update it should be amended.

Strategy 22c. Transitioning the Airport: The development of system airports must be carried out in a way that allows for continued growth in operations and uninterrupted services for an overall smooth transition to new, expanded or enhanced facilities. Airport LTCPs should describe how this will be accomplished.

Strategy 22d. Providing Metro Services: Airports straddling the boundary between the rural service area and the MUSA should be included in the MUSA so metropolitan facilities and services can be provided when they are available.

Policy 23: Agency and Public Coordination

The regional aviation planning partners will promote public participation and awareness of aviation issues including involvement of non-traditional populations, system users and individuals.

Strategy 23a. Enhance Public Awareness: The region's aviation partners will utilize a variety of media and technologies to bring aviation planning into the mainstream of public decision-making so all interested persons have an opportunity to participate in the process and become acquainted with major development proposals.

Strategy 23b. Governmental Roles Defined: The region's aviation partners will have a regional aviation management system that clearly defines government roles and responsibilities for planning, development, operations, environmental mitigation and oversight.

Figure 10-16: Shoreview tall tower antenna farm

Policy 24: Protecting Airspace and Operational Safety

Safety is the number one priority in the planning and provision of aviation facilities and services. Local ordinances should control all proposed structures 200 feet or more above ground level at the site to minimize potential general airspace hazards.

Strategy 24a. Notification to FAA: The local governmental unit is required to notify the Federal Aviation Administration (FAA) prior to approving local permits for proposed tall structures.

Strategy 24b. Locating Tall Structures: Structures over 500 feet tall should be clustered, and no new structures over 1,000 feet tall should be built in the region unless they are replacements or provide for a function that cannot otherwise be accommodated.

Strategy 24c. Airport/Community Zoning: Joint Airport/Community Zoning Boards should be established at each of the region's system airports to develop and adopt an airport safety zoning ordinance.

Policy 25: Airports and Land Use Compatibility

Figure 10-17: Environmental compatibility around MSP

In areas around an airport, or other system facilities, land uses should be compatible with the role and function of the facility . The planning, development and operation of the region's aviation facilities must be conducted to minimize impacts upon the cultural and natural environment, regional systems and airport communities.

Strategy 25a. Surface-Water Management: Airport LTCPs should include a plan for surface-water management that contains provisions to protect surface and groundwater. The LTCP must be consistent with plans of watershed management organizations and the state wetland regulations. The water management plan should also include provisions to mitigate impacts from construction and include the pretreatment of runoff prior to being discharged to surface waters.

Strategy 25b. Protecting Groundwater Quality: Airport LTCPs should include a management strategy to protect groundwater quality that indicates proposed policies, criteria and procedures for preventing, detecting and responding to the spill or release of contaminants on the site. The plans should identify the location, design and age of individual/group/central sewer systems on-site and all well location sites, and evaluate system deficiencies and pollution problems.

Strategy 25c. Providing Sanitary Sewer: Airport LTCPs should include detailed proposals for providing sanitary sewer services. Reliever airports should be connected to the sewer system when service is available near the airport. Whenever connecting is not practical, the airport owner and the local governmental units must adopt and implement ordinances and administrative and enforcement procedures that will adequately meet the need for trouble-free on-site sewage disposal in accordance with the Council's guidelines in its water resources management policy plan.

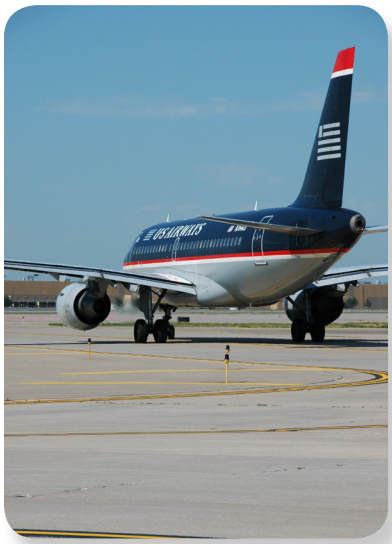


Figure 10-18: Plane on taxiway at MSP

Strategy 25d. Monitoring Air Quality: The MAC should periodically evaluate the air quality impacts of MSP operations and report to the Council on air quality problems or issues through the MAC annual environmental review of the capital improvement program.

Strategy 25e. Aircraft Noise Abatement and Mitigation: Communities and aviation interests should work together on noise abatement and mitigation. Local comprehensive plans and ordinances for communities affected by aircraft noise should incorporate the Land Use Compatibility Guidelines for Aircraft Noise.

Policy 26: Adequate Aviation Resources

Public investments in air transportation facilities should respond to forecast needs and to the region's ability to support the investments over time.

Strategy 26a. Maximize Existing Investments: Airport sponsors should maintain and enhance existing facilities to their maximum capability, consistent with the *Development Framework*, prior to investing in new facilities.

Strategy 26b. Quality, Affordable Services: Airport sponsors and air-service providers should establish airport business plans and agreements in order to deliver high-quality services at affordable prices to users.

Strategy 26c. Long-Term Financial Plan: Airport sponsors should operate within a long-term financial plan that stresses maximizing non-regional funding sources, avoiding or minimizing financial impacts on regional taxpayers and maintaining a high bond rating for aviation improvements.

2030 System Plan

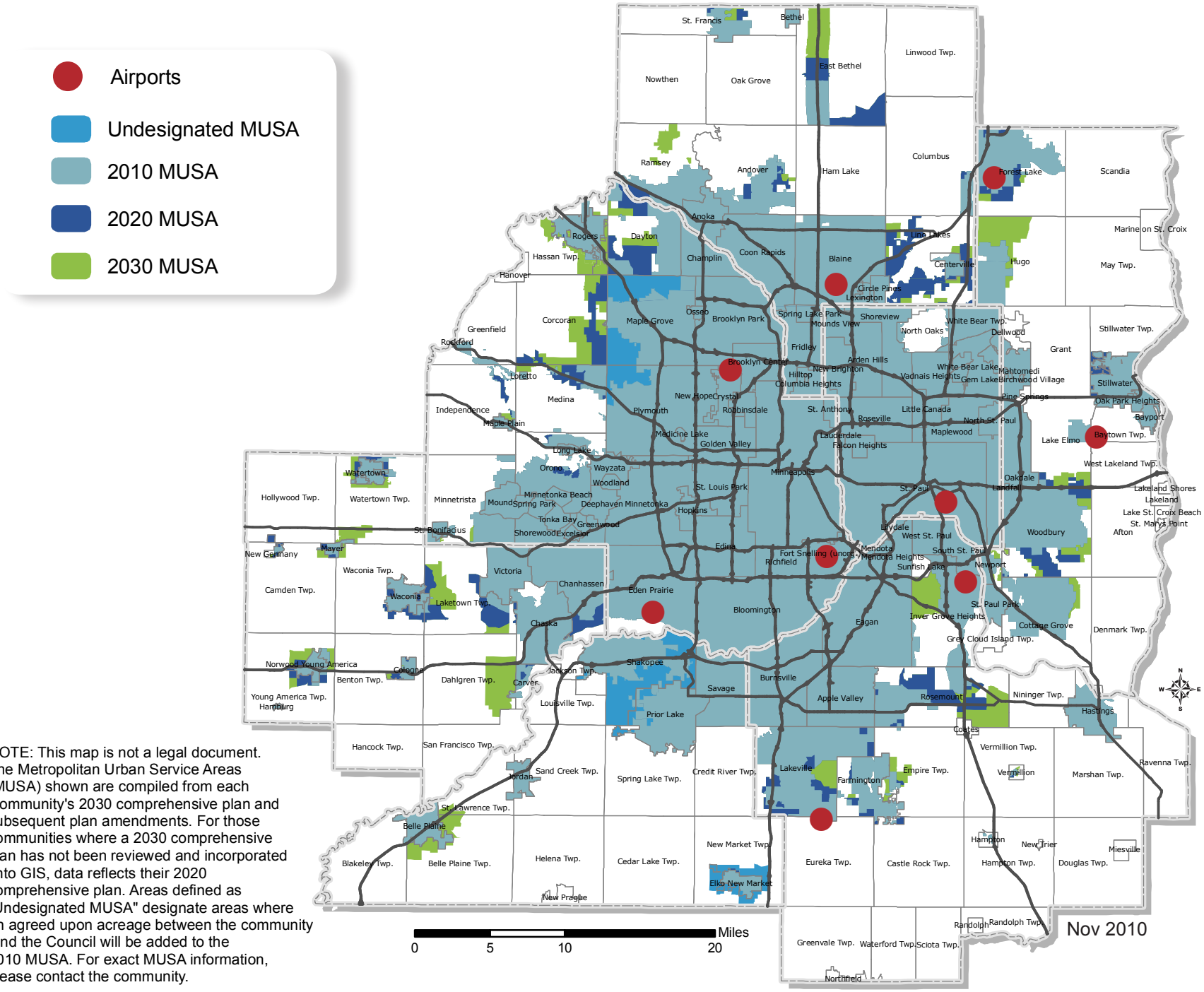
The 2030 system plan as discussed here reflects new information developed through the 2030 System Plan Update Technical Report prepared in 2009, updates of the individual airports' long-term comprehensive plans (shown in Appendix I) , 2008 updates of community comprehensive plans, MAC reports, various FAA documents, and review actions by the Council.

Goals and principles

The key goal of the Twin Cities air transportation system is the efficient and safe movement of people and goods to and from regional, national and international markets, for benefit of the region's citizens; providing services that enhance the economy and provide a sustainable environment.

The Council's *Regional Development Framework* provides policy direction and strategies for coordinating and implementing the orderly and economic development of the seven-county metropolitan area containing many local governmental units and 3 million people. The 2030 metropolitan urban service area, and location of the aviation system in relation to future urban development areas, is depicted in Figure 10-19.

Figure 10-19: Metropolitan Urban Service Area



NOTE: This map is not a legal document. The Metropolitan Urban Service Areas (MUSA) shown are compiled from each community's 2030 comprehensive plan and subsequent plan amendments. For those communities where a 2030 comprehensive plan has not been reviewed and incorporated into GIS, data reflects their 2020 comprehensive plan. Areas defined as "Undesignated MUSA" designate areas where an agreed upon acreage between the community and the Council will be added to the 2010 MUSA. For exact MUSA information, please contact the community.

Regional Development Framework goals have the following meanings for aviation:

- Maximizing the operational effectiveness and value of aviation services, airport infrastructure public and private investments and user incentives,
- Working collaboratively with regional airport and user partners to accommodate aviation growth within the metropolitan service area,
- Enhancing intermodal and multimodal transportation choices and improving the ability of Minnesotans to travel safely and efficiently throughout the region, and
- Preserving and mitigating vital natural areas and resources from adverse aviation operations and development for future generations.

The region's airport system provides the physical access for aircraft connections to other local, state, national and international airports. A major goal of the regional airport system is to reflect the following general principles guiding federal involvement in the *National Plan of Integrated Airports Systems* (NPIAS):

- **Permanent** - with assurance facilities will remain open for aeronautical use over the long-term.
- **Extensive** - with facilities located at optimum sites, and providing as many people as possible with convenient access to air transportation.
- **Flexible and expandable** - able to meet increased demand and accommodate new aircraft types.
- **Safe and efficient** - developed, operated, and maintained to appropriate standards, and developed in concert with improvements to the air traffic control system.
- **Compatible** - with other regional systems and surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents of neighboring areas.
- **Affordable** - to both users and government relying primarily on user fees and placing minimal burden on the general revenues of local, state and federal government.
- **Cost beneficial** - in aviation infrastructure investments.
- **Supportive** - of national objectives for defense, emergency readiness and postal delivery.
- **Contributing** - to a productive national economy and international competitiveness

Partner Roles and Responsibilities

Numerous public and private interests are partners in the aviation planning process Roles of the various partners include:

User Groups

- **Pilots:** Operate and hangar aircraft at system facilities, tenant participation in airport development, maintenance, operations activities and pay various aviation fees.

- **Air Passengers:** Purchase various types of air transportation services, utilize terminals and support concessions, pay ground transportation or parking fees, create business and recreational air travel demands, and pay for support of airport development, operations and environmental mitigation.
- **Businesses:** Purchase air passenger and freight services, support air freight forwarders and consolidators, own/operate corporate aircraft, use the system facilities, and participate in chambers of commerce on air service.
- **Airlines:** Provides various air services to passengers and air cargo users, generates access to travel and business opportunities, pays taxes and fees to develop and support user and airline support facility needs, purchases services, and enter into agreements on use, development projects and operation leaseholds, participates in airport planning, development, operational and funding activities.
- **Aviation Firms:** Provide general services to user groups, provides specialty services and products to users, provides fees for on-airport operations, and participates in airport planning and operation.

Airport Sponsors

Own and operate airports on a daily basis. Responsible for airport certification and security. Provide airside, landside and support facilities and services to meet user needs. Responsible for airport financing, management, and environmental protection. Responsible for airport plans and development. Participates in promotion of aviation, respond to legislation/rules affecting airports. The MAC, City of South Saint Paul, and the City of Forest Lake are system sponsors in the seven county region for public airports.

Regional Systems Planning

The Metropolitan Council prepares regional system plans including air transportation. Responsible for review of community comprehensive plans, MAC airport plans, environmental evaluations, and aviation capital program. Responsible for oversight, coordination, and planning/implementation assistance of airport/community land use compatibility, airspace protection, ground access, environmental mitigation and local infrastructure support. Conducts and participates in aviation planning, coordination, and implementation activities.

Mn/DOT

Agency responsible for statewide promotion and over-sight of airports and aviation. Provides safety, financial, technical and regulatory services for airports in Minnesota. Prepares statewide aviation system plan and provides input to the NPIAS on state needs.

FAA

Prepares the national airports and airspace plan operates navigational aids and air traffic control, manages aviation development funds for airport improvement program (AIP), develops/enforces airport design standards, provides planning assistance, coordinates within U.S. DOT, and participates in local planning, environmental and implementation activities that are federally funded or under federal purview.

Figure 10-20: Minor reliever airport - South St. Paul

Partner Jurisdictional Areas

The partners not only have different aviation roles and responsibilities but also different geographic areas of jurisdiction. Figure 10-22 shows the main jurisdictional areas between MN and WI state airports system plan areas, the Metropolitan Council and MAC areas, and those communities involved in joint airport/city zoning efforts. Areas of county and township permitting of private airports are also identified.

Planning Process

The federal government controls the national airspace for both civil and military use, therefore preempting and proscribing many operational, development, design, funding and planning parameters for airports. Airport systems of the states and metropolitan areas make up the National Plan of Integrated Airports (NPIAS). In Minnesota there is a state airport system plan (SASP), a Twin Cities regional aviation system plan (RASP) defined in the TPP, and individual airport long-term comprehensive plans (LTCPs) that provide the basis for defining airport roles, development, funding and environmental mitigation. Figure 10-21 shows the feedback nature of the process. The metropolitan portion is highlighted. The review process for the capital improvement plan is defined in Appendix P.

This continuous planning process ensures that the system plans provide guidance appropriate to expected needs and implementation priorities. The regional system plan is based upon a 20 year planning horizon and updated every four years; each LTCP is based upon a 20 year planning horizon and periodically updated as defined in Appendix I. Interim updates or special studies are conducted if warranted. State and metro systems plans include aviation facilities of local importance. Entry criteria are established for inclusion in the NPIAS, a prime requisite for federal funding.

Figure 10-21: Aviation Planning Process

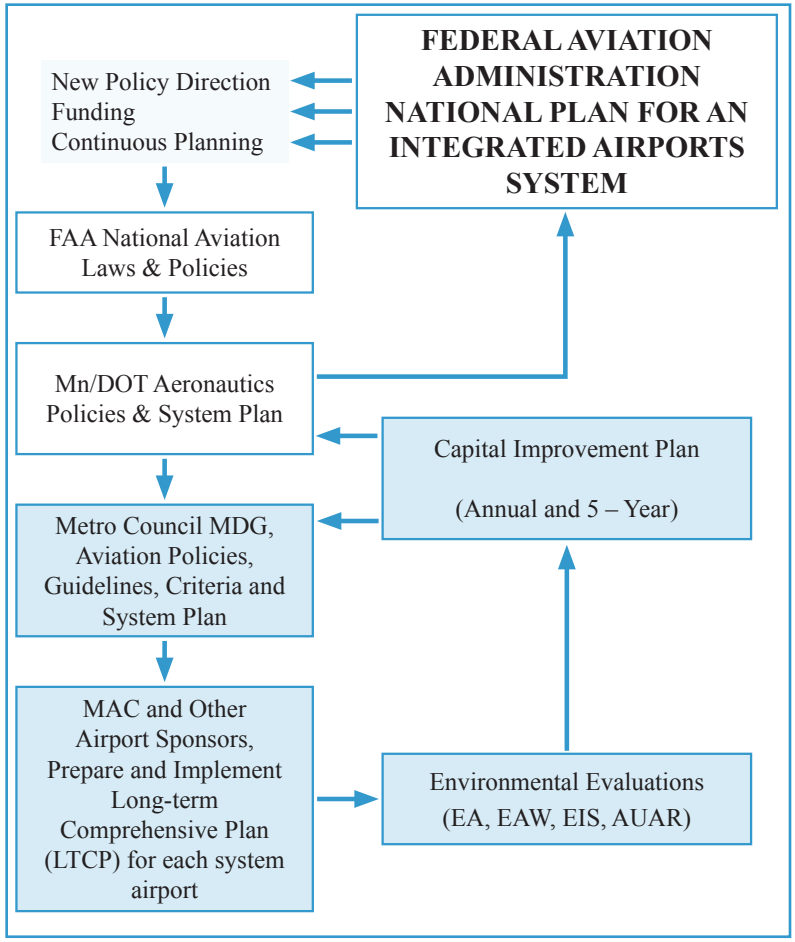
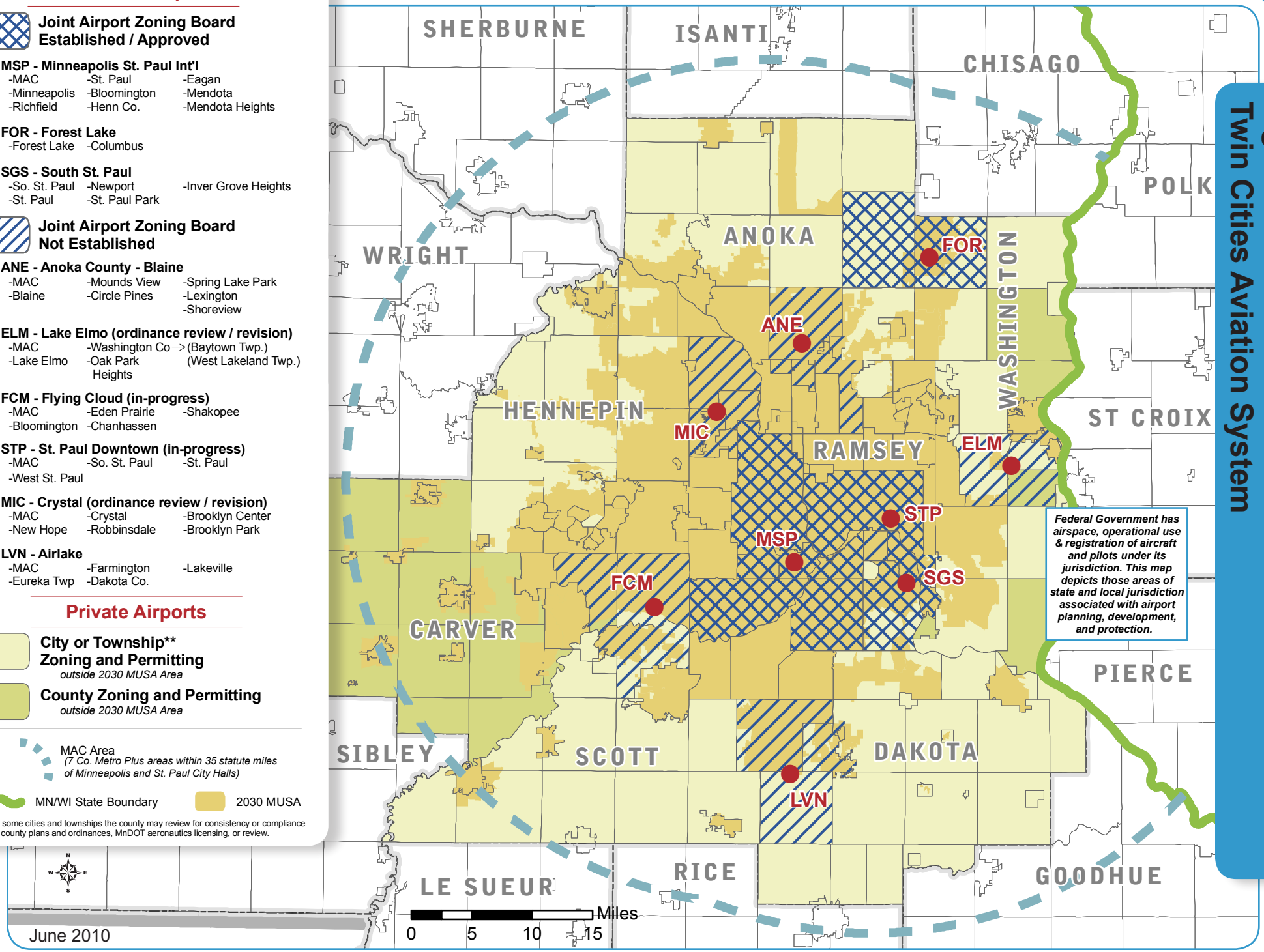


Figure 10-22: Jurisdictional Areas
Twin Cities Aviation System



Public Airports

Joint Airport Zoning Board Established / Approved

MSP - Minneapolis St. Paul Int'l
-MAC -St. Paul -Eagan
-Minneapolis -Bloomington -Mendota
-Richfield -Henn Co. -Mendota Heights

FOR - Forest Lake
-Forest Lake -Columbus

SGS - South St. Paul
-So. St. Paul -Newport -Inver Grove Heights
-St. Paul -St. Paul Park

Joint Airport Zoning Board Not Established

ANE - Anoka County - Blaine
-MAC -Mounds View -Spring Lake Park
-Blaine -Circle Pines -Lexington
-Shoreview

ELM - Lake Elmo (ordinance review / revision)
-MAC -Washington Co→(Baytown Twp.)
-Lake Elmo -Oak Park Heights (West Lakeland Twp.)

FCM - Flying Cloud (in-progress)
-MAC -Eden Prairie -Shakopee
-Bloomington -Chanhassen

STP - St. Paul Downtown (in-progress)
-MAC -So. St. Paul -St. Paul
-West St. Paul

MIC - Crystal (ordinance review / revision)
-MAC -Crystal -Brooklyn Center
-New Hope -Robbinsdale -Brooklyn Park

LVN - Airlake
-MAC -Farmington -Lakeville
-Eureka Twp -Dakota Co.

Private Airports

City or Township Zoning and Permitting**
outside 2030 MUSA Area

County Zoning and Permitting
outside 2030 MUSA Area

MAC Area
(7 Co. Metro Plus areas within 35 statute miles of Minneapolis and St. Paul City Halls)

MN/WI State Boundary

2030 MUSA

** In some cities and townships the county may review for consistency or compliance with county plans and ordinances, MnDOT aeronautics licensing, or review.

Aviation *Systems Statements* are prepared by the Council after adoption of each aviation system plan. The statements describe what specific system elements are to be included and considered in updating or amending a local plan. Three types of aviation statements are given to communities:

- Communities with only general airspace protection and notification to FAA for proposed tall structures.
- Communities with general airspace protection considerations, but also directly affected by aircraft and adjacent airport facility operations.
- Communities with general airspace protection, but also an aviation facility located within its corporate limits.

The planning process and local plan requirements are further defined in the *Local Planning Handbook*. Figure 10-24 depicts the regional aviation system and identifies those communities and geographical areas affected by one or more types of air transportation planning and development considerations. The *Airport Compatibility Area* identifies where aviation planning considerations are likely to apply, and is a tool used by the Council in its initial assessment of whether public and private projects referred for review are going to require additional coordination or information.

Table 10-23: Airport Classifications

Airport	Federal NPIAS	State	Regional
MSP International	Commercial Service - Primary	Key	Major
(None in metro system)	Commercial Service - Other	Key	N/A
(e.g. St. Cloud)	Commercial Service - Reliever	Key	N/A
St. Paul Downtown	Reliever	Key	Intermediate
Flying Cloud	Reliever	Key	Minor
Anoka County-Blaine	Reliever	Key	Minor
Crystal	Reliever	Intermediate	Minor
Lake Elmo	Reliever	Intermediate	Minor
Airlake	Reliever	Intermediate	Minor
South St. Paul	Reliever	Intermediate	Minor
(e.g. Red Wing)	General Aviation (G.A.)	Key	N/A
Forest Lake	N/A	Landing Strip	Minor

System Plan Elements

Classification of Airports

All airports are subject to the rules of airspace sovereignty and national governmental controls. Most airports in the metropolitan and state system are part of the national plan of integrated airport systems. These systems classify airports as to their role and function in the particular system. Each level of system planning categorizes the airports in different ways to address the agency purpose and goals for their particular system. Policy, design, operations, facility use, and funding are tied to these facility designations. A comparison of the federal, state and regional nomenclature and classification is depicted in Table 10-23.

Table 10-25 gives a summary overview of airport functional and operational characteristics and regional airport facility classification, including application of the airport influence area. The existing regional airport system plan for the metropolitan area (RASP) depicted in Appendix J includes a figure identifying the metro airports system including the hub airport, reliever airports, and special purpose facilities. No publicly-owned airports exist in either Scott or Carver Counties. Also included in this appendix are figures depicting the NPIAS airports and the state airport system plan (SASP) airports.

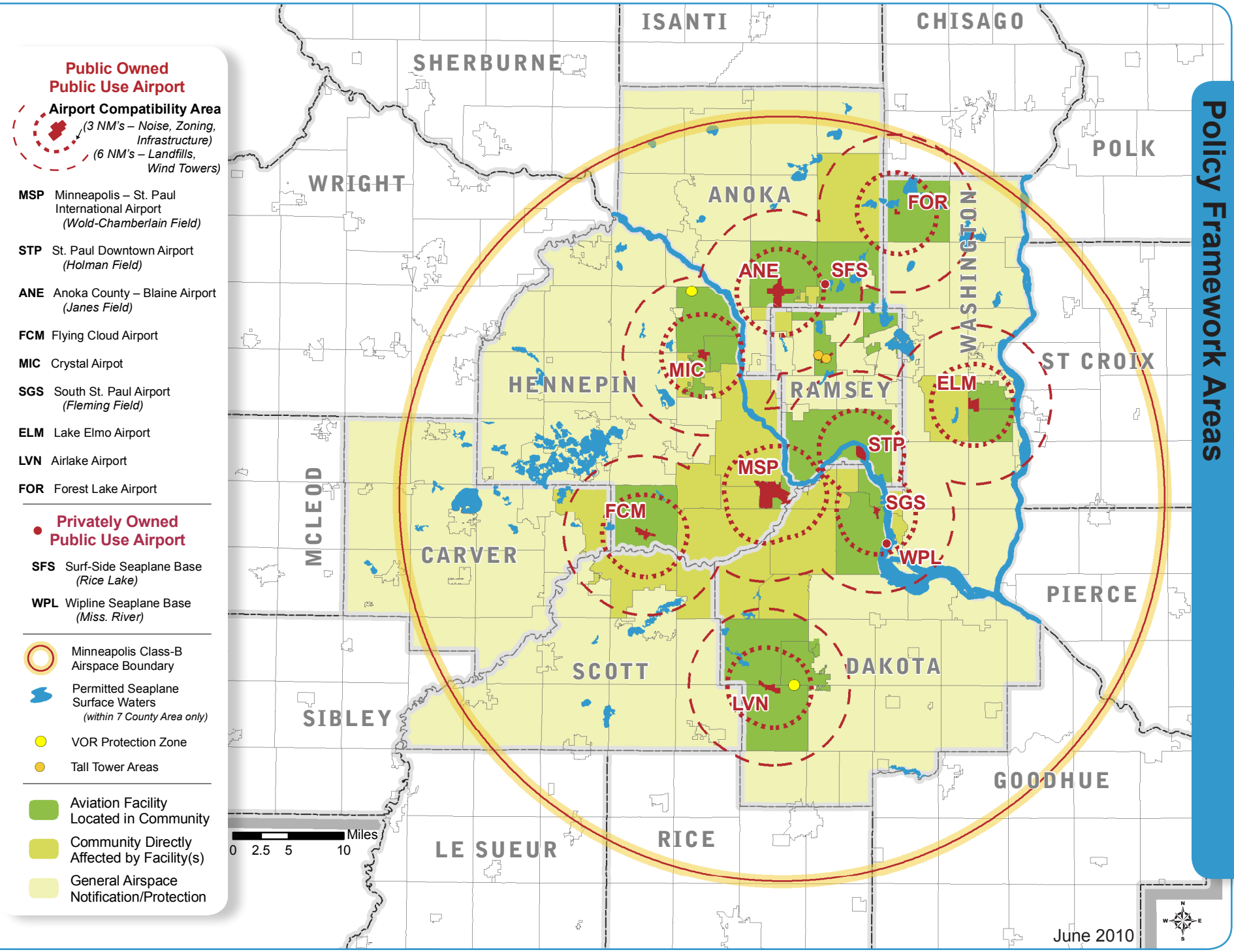


Figure 10-24: 7 Co. Regional Aviation System Policy Framework Areas

Table 10-25: Airport Functional and Operational Characteristics / Classification of Metro Region Airport System Facilities

Facility Classification	Functional Characteristics			Operational Characteristics		Airport Compatibility Area *
	System Role	Users Accommodated	Air - Service Access Provided	Primary Runway Length	Instrumentation Capability	Compatibility Considerations
Major Airport						Airport Compatibility Area requirements for airport system functioning: • Regional Airspace Protection • Airport Airspace and land use safety zoning • Land Use Guidelines for Aircraft Noise • Local Infrastructure and Services ▫ Sewer Service ▫ Water Service ▫ Storm Water ▫ Road Access ▫ Police-Fire ▫ Non-Aviation Uses
MSP International	Commercial Air Service Hub	Scheduled Passenger & Cargo, Charter, Air Taxi, Corporate G.A., Military	International, National, Multi-State, Regional	8,001 - 12,000 ft, Paved	Precision	
Tier 2 Airport (SASP) ** St.Cloud	Commercial Hub Reliever	Scheduled Passenger & Cargo, Charter, Air Taxi, Corporate G.A., Military	International, National, Multi-State, Regional	8,001 - 10,000 ft, Paved	Precision	
Intermediate Airport						
St. Paul Downtown	Corporate Jet Reliever	Air Charter, Air Taxi, Corporate Jet, Military, G.A.	International, National, Multi-State, Regional	5,001 - 8,000 ft, Paved	Precision	
Minor Airport						
Anoka Co. -Blaine	Business Jet Reliever	Air Taxi, Business Jet	Nat'l./Multi-State	5,000 ft, Paved	Precision	
Flying Cloud	Business Jet Reliever	Air Taxi, Business Jet	Nat'l./Multi-State	5,000 ft, Paved	Precision	
Airlake	G.A. Reliever	Rec./Training/Business	Multi-State/State	4,098 ft, Paved	Precision	
So. St. Paul	G.A. Reliever	Rec./Training/Business	Multi-State/State	4,001 ft, Paved	Non-Precision	
Crystal	G.A. Reliever	Rec./Training/Business	Multi-State/State	3,263 ft, Paved	Non-Precision	
Lake Elmo	G.A. Reliever	Rec./Training/Business	Multi-State/State	2,850 ft, Paved	Non-Precision	
Special Purpose						Variable by Facility
Forest Lake Airport	Recreational/Business	Recreation/Training	State, Region	2,650 ft Turf	Visual	
Surfside Seaplane Base	Recreational/Business	Rec./Training/Per. Bus.	Multi-State/State	6,500 ft Water	Visual	
Wipline Seaplane Base	Recreational/Business	Training/Business	Nat'l/Multi-State	8,000 ft Water	Visual	
Public Heliports	General Aviation	Business/Air Taxi	State, Regional	Variable by facility	Visual	
Private Heliports	Business	Bus./Training	State, Regional	Variable by facility	Variable by facility	
Hospital Heliports	Emergency Services	Business	State, Regional	Variable by facility	Variable by facility	

*Airport Compatibility Area is defined as a radius area 3 nm and 6 nm off the ends of the existing and planned runways of the nearest system airport; within 3 nm it addresses general land use compatibility issues, and out to 6nm it also addresses sanitary landfills, and wind-generation facilities.
compatibility issues and out to 6 nm it also addresses sanitary landfills, and wind-generation facilities.

** The St. Cloud Airport is not part of the metro airports, but is included here for comparison purposes since it is designated in the 2006 State Airport System Plan (SASP) and airport master plan as a commercial service reliever to MSP International Airport.

System Role and Function

Defining an airport's function and role in the overall system is an important policy and technical step in the aviation planning process. Periodic re-evaluation is necessary to see if the system has the right type of airports, in locations providing the right type and level of services, in a cost-effective and compatible manner. The need for potential changes in designations or terminology were examined in the *2030 System Plan Update Technical Report,* and no changes in airport classification were recommended**.** The technical report also examined the following considerations:

SASP Air-Service Initiative

Mn/DOT Aeronautics, in cooperation with the affected agencies and airports recommended an inter-regional approach as a strategic method to meet future air-service needs in its *Tier 2 Air Service Study, June 2003* . MSP was defined as the Tier 1 airport in the state system and the Tier 2 group of airports consists of Rochester, St. Cloud and Duluth. A number of roles were identified for these facilities [such as] being gateways to mainline carrier networks and reliever airports to MSP. The St. Cloud airport was designated as a future Commercial Reliever since it is the closest Tier 2 airport to MSP and the metro area, although St Cloud does not currently have scheduled commercial air service. An update to the SASP is being initiated in 2010.

Light Sport Aircraft

The FAA has implemented a new category of general aviation aircraft, *Light Sport Aircraft* (LSA), and an associated *Sport Pilot certificate* that necessitated looking at the existing airport classification scheme. Initial expectations were that these aircraft would be based and operated at the reliever airports. A special study on sport aviation was conducted by the Council to assess potential effects on the system. The study survey indicated that this new user group is likely not to use reliever airports due to costs and apparent preference for uncontrolled airports with turf runways. Therefore the regional system

Figure 10-26: Special purpose airport - Forest Lake

classification accommodates this aircraft group in the Special Purpose airport role until proven otherwise. Growth and development of this aircraft category should be closely monitored.

Small Business Jets

The FAA has encouraged general aviation airports to be business-jet ready. The advent of the very light business jet (VLJ), the growth of the larger-scale corporate business aircraft fleet, and increasing fractional ownership of planes are expected to be the growth segments for general aviation. Recognizing this demand, the Council has approved airport plans for St. Paul Downtown, Anoka County-Blaine, and Flying Cloud airports that upgrade capabilities for the business users. Continued emphasis on business jet aircraft at these three Minor airports is recognized in each airport's designated role.

Airport Financial Sustainability

Reliever rates and charges have been reassessed by the MAC in response to an airline lawsuit that maintained the rates were too low in relation to comparable facilities, that the reliever airports should become more self-sufficient, and that they not be "subsidized" from revenues generated at MSP. FAA policy is that there cannot be revenue diversion from MSP, and all airports should enhance their revenue streams and be as self-sufficient as feasible. The Commission has implemented a new fee structure and options that cover all or part of airport costs of maintenance, operation, depreciation and capital investment *MAC Reliever Task Force Report July 2006* The end result is that rates-and-charges increased over previous levels and a financial model was implemented to monitor longer term financial performance. During the recent LTCP updates for the minor airports, non-aviation land use development was identified as a new revenue source to be implemented at each airport to the extent feasible. The process for review of non-aviation land use changes is included in Appendix I.

Service Areas and Access

Accessibility, both by air and ground access to the airport, is important to efficient use of air-transportation. While the region has only one major commercial airport, development of the regional system of minor airports reflects the geographic trends in urban development, population and employment patterns to maximize economic benefits. The relationship of the various airport service areas to the MUSA and economic development is shown in Appendix K.

Figure 10-27: Corporate business aircraft

There are two types of criteria used in this plan to define airport service areas. One reflects air access to local destinations from the particular airport for itinerant aircraft users, and the other reflects local ground access by based-aircraft users from their home or work locations to airports where their plane is based. The service areas are defined by travel times on the 2030 highway system. Airport service areas for MSP and other metro reliever airports, metro collar county airport service areas, and special purpose airport service areas are discussed and depicted in Appendix K. Figure K-1 depicts airport service areas for the metro area system. Figure K-2 depicts service areas for the collar county public airports. Figure K-3 depicts selected metro and collar county turf and seaplane facilities.

Figure 10-28 depicts the general accessibility provided by different types of aircraft based upon an estimated one-hour of flight in one direction from the metro area. Most of the aircraft types listed have a much further total range capability. For example, the new category of very- light- jets (VLJs) have an average range of about 1,100 miles allowing access to a large part of the domestic airport system from the Twin Cities. The larger corporate business jets can fly to all portions of the continental U.S. and non-stop to Europe.

The region is well served by a geographically dispersed pattern of minor airports. No new general aviation airports are proposed in this plan. General aviation search area (A), defined in previous regional plans is no longer needed and has been eliminated from the plan. The plan envisions that public airports in the collar counties would provide future capacity for growing areas on the edge of the seven county region. For example, no new airports are envisioned in Carver or Scott Counties since they are provided with service from Flying Cloud, Airlake, Le Sueur, Glencoe and Winsted airports.

Airspace and Airport Safety Protection

Protection of the region's airspace and airport safety is accomplished by focusing on four areas that need to be addressed in land use planning:

- Notification (concerning proposals for potential obstructions)
- General airspace
- Airport airspace and land use zoning
- Aviation facilities located off-airport

Notification

All metro area communities are required to include a "Notification" element (using FAA form 7460) in their comprehensive plans as defined in the *Local Planning Handbook*. (www.metrocouncil.org/planning/LPH/handbook.htm)

This notification is for structures over 200 feet above ground level at the site. It is used by the FAA for review of structure height and structure transmitting frequency and power, in coordination with the FCC. Notification is also used by Mn/DOT Aeronautics for permits for height of non-transmitting structures, including wind generators as defined in their *Tall Towers web section*, and to coordinate with the Minnesota Pollution Control Agency. The metro area is one of the less productive wind resource locations in the state; however, due to energy costs and promotion of renewable energy sources, a number of communities and institutions in the metro area are establishing wind generators and related local zoning ordinances. The Airport Compatibility Area, along with the other policy framework areas, is used for review and monitoring of proposals affecting the region's airspace.

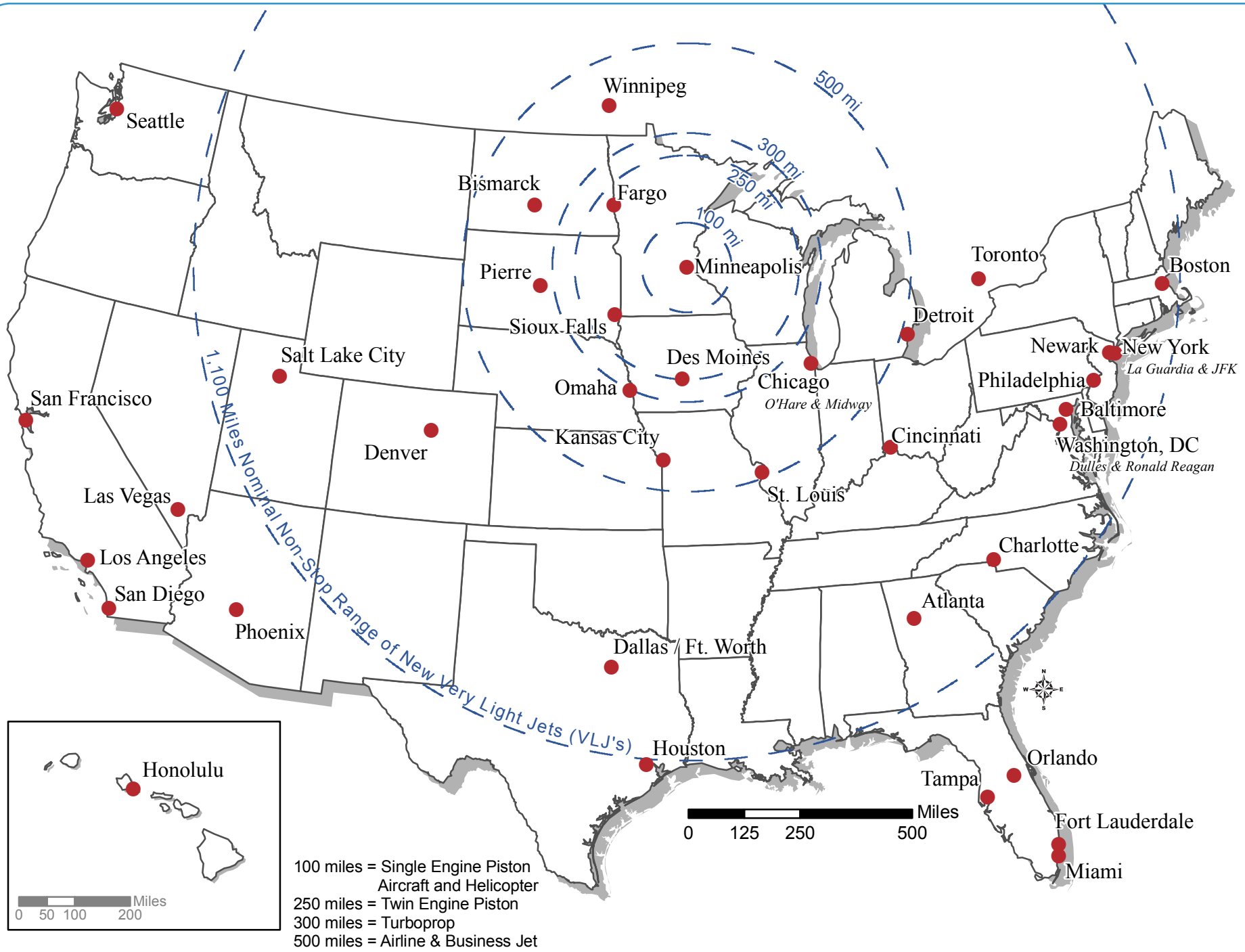


Figure 10-28: Typical Aircraft One-Hour Flight Access

June 2010

Figure 10-30: FAA air traffic control tower - MSP

Airport Airspace

This airspace is defined as including the FAA FAR Part 77 imaginary surfaces, state law Chapter 360, state Rules 8800, and Mn/DOT land use safety zones as defined in their *Land Use Compatibility Manual*. It is the airport zoning district and ordinance as adopted by a Joint Airport/Community Zoning Board. The airport airspace basically covers all potential obstructions from ground level to about 200 foot above ground level.

Facilities Off-Airport

Airspace for off-airport aviation facilities are to be reflected in local community plans and protected from physical or electronic interference (receiving or transmitting) from near ground surface at the site and within certain distances and heights. This includes navigation aids, landing aids, and radar facilities.

General Airspace

All airspace in the seven-county area that is not within an airport airspace zoning ordinance area is considered to be "general airspace" as concerns potential and existing hazards to air navigation. Protection of this airspace is concerned primarily with potential airspace structures that could cause channeling or compression of low altitude operations occurring under the MSP Class B airspace, affect existing or potential extended approach surfaces for ILS runways, affect airport published approach procedures, or generally increase the complexity of the airspace structure or inter–airport flight operations. Structures 500 feet or more in height should be clustered in a way to take advantage of shadowing effects of existing structures where feasible; structures over 1,000 feet above ground level should either be co-located with similar existing structures or located outside the of Class B airspace as depicted in Figure K-2 .

Airport Capacity and Delay

Capacity of the regional aviation system is usually determined by several interrelated components: the airspace itself and related facilities, airport airside facilities, airport landside facilities and aircraft mix.

Figure 10-29: Aircraft at the gates - MSP

Airspace Capacity

At MSP the FAA has in place a Class - B airspace that expands outward 30 nautical miles from MSP and includes airspace in the collar counties of Minnesota and Wisconsin, as depicted in Appendix L. The region's Class - B airspace was expanded in February 2006 (minor adjustments by FAA in 2010-2011) and has adequate capability to handle air traffic generated by the MSP hub airport.

Airport Airside Capacity

Airside facilities include runways, taxiways, and aprons for the movement and parking of aircraft. Airside capacity is determined by various factors including orientation of runways to prevailing winds and to each other if multiple runways, number and type of taxiways, mix of aircraft using the air-

port, operational characteristics of the based aircraft, and weather conditions. The FAA has established a definition of general airport capacity called the annual service volume (ASV) that takes these variables into account for each particular airport. The ASV for a given airport is the annual level of aircraft operations that can be accommodated with minimal delay. For airports with operations below the ASV delay is minimal, usually less than four minutes per operation. Delay levels above four minutes can result in rapidly increased congestion, operating costs and operational complexities.

When an airport is projected to reach 60% of ASV the FAA recommends that planning for improvements begin; when an airport's operations reach about 80% of ASV project programming and implementation should be initiated. These criteria are usually applied at facilities where physical expansion is feasible, for consideration of constrained airports further discussion on capacity thresholds is included in Appendix Q. In addition, these thresholds assume continuing growth in airport operations.

However, at MSP the new north/south runway and downturn in traffic has substantially reduced pressure on runway capacity needs in the short-term; the mid-to-long term effects are further discussed under the 2030 system plan section. This decline was recognized by the Council in its review of the 2030 LTCP which stated that MAC should begin a capacity study when operations approach 540,000.

Recent updates of the reliever airport LTCPs indicate airside capacity is adequate, and at Crystal airport two runways are approved for closure . Airside development capacity additions are likely to come from a combination of runway, air-traffic management procedures/equipment and aircraft on-board technology improvements under the FAA NextGen airport capacity program.

Delay

A four minute average annual delay per aircraft operation is a threshold used by FAA to define an acceptable level of delay. The Metro Development Framework benchmark for the aviation system adopted a 2030 target of 7.1 minutes of delay for the Major airport, using a 2002 baseline of 6.9 minutes average delay, at a time when MSP was near its historical high operating level. This delay level appeared to be an economically acceptable level for MSP operating within the large hub airport category. After the new north/south runway 17/35 opened the average delay dropped to 5.5 minutes. Based upon new 2030 aviation demand forecasts, the delay level is expected to rise to an average annual delay of approximately ten minutes per operation at approximately 640,000 annual operations.

Airport Landside Capacity

The capacity of the airport's landside facilities usually relates to the number of gates and parking aprons at the Major and Intermediate airports, and the number of hangar spaces and transient apron/tie-down spaces at the other Minor airports.

Gate and apron needs for passenger-handling at MSP appear inadequate according to 2030 forecasts. Additional passenger gates, terminal expansion and parking are needed. The changes in aircraft fleet mix due to operating costs, along with a likely shift in fleet mix resulting from the NWA/Delta merger, also impact needs and are addressed in the MSP 2030 LTCP Update. Current MAC policy limits additional GA

hanger development at MSP for general aviation based-aircraft users. General Aviation is encouraged to use the reliever airports, and improvements are aimed to attract these users away from MSP.

Hangar storage at the system's general aviation airports is necessary because of security concerns, aircraft ownership/operational requirements, and effects of the Minnesota weather seasons. Existing hangar spaces are generally adequate and additional space is currently available, especially in T-hangars. New areas for building hangars have been prepared at Anoka Co.-Blaine, Airlake, Flying Cloud, and So.St. Paul Airports. Provision for additional building area development has been included in the LTCP update for Lake Elmo airport, and there is some possibility of building area redevelopment at Crystal airport. The most current estimates of existing hangar spaces and percent of capacity utilized are presented in Table 10-31.

Land Use and Environmental Compatibility

Most of the land surrounding the system airports now consists of built-up areas or land zoned for urban uses. Only Lake Elmo and Airlake airports have adjacent rural land use areas. Anoka County-Blaine and Forest Lake are in rapid transition to being enveloped by urban development.

The Council has implemented land use compatibility guidelines for aircraft noise as a *preventative* measure to help communities control expanded development of sensitive land uses around airports. The airport sponsors use *corrective* land use measures to help mitigate noise in areas with existing development that is incompatible with designated noise levels. The definition and application of the guidelines is found in Appendix M, along with revised noise contours for each airport.

Table 10-31: Estimated Landside Capacity Utilization

Airport	Hangar Spaces	Based Aircraft*	Percent of Capacity
MSP International	no estimate	24**	(policy-limited)
Anoka Co.-Blaine	510	459	90
Crystal	382	251	66
Flying Cloud	450	450	100***
Lake Elmo	256	227	89
So. St. Paul	N/A	241	N/A
Forest Lake	22	26	100+
St. Paul Downtown	159	124	78
Airlake	160	175	100+

** Includes military aircraft at some airports.*

*** G.A. only*

**** Indicates that some aircraft are accommodated using outside storage.*

In addition, the Council reviews the long-term comprehensive plans for each airport to determine whether the airport plan is compatible with land use and environmental evaluation requirements concerning metro systems, and for consistency with regional policies. The Council also reviews community comprehensive plan updates and plan amendments for airport/community compatibility in the areas of height and safety zoning, ground access, sewer and water service, and safety/security services.

A preliminary assessment for year 2010 status of each airport is included in Appendix N and will be used to help identify issues and areas that may need to be further addressed in the future. The compatibility estimate for future years will be predicated on implementation of updated airport long-term comprehensive plans (LTCPs) to meet forecasted demand for short, medium and long-term planning horizons out to 2030.

Air Service

There are generally five different categories of public and private air service providers and users in the Twin Cities. Table 10-32 identifies these providers/users and the type of metro area airports they typically use. Demand for aviation service is primarily a reflection of population and employment in a particular catchment area. The histori-

cal and projected levels of metro area population and employment, in comparison to commercial aviation activity at MSP, are depicted in Table 10-33.

Table 10-32: Air Service Available at Region's Airports*

Types of Air Transportation Services Provided - Primary Function (P) - Secondary Function (S)	MSP Major Commercial Service Airport	St. Paul Downtown Intermediate Service Airport	Minor Airports (relievers)	Special Purpose Airports
Scheduled Air-Carrier and Regional Carrier air services.	P			
Scheduled and non-scheduled air charter services.	P	S		
Scheduled and non-scheduled air-taxi air services	P	P	S	
Corporate/business and emergency medical services	S	P	P	
Personal use business and recreational activities.		S	P	P
**Does not mean pilots cannot legally use a particular airport*				

Table 10-33: Comparison of Metro Growth and Commercial Aviation Activity

Year	Population	Employment	MSP Total Annual Passengers	Personal Income*	MSP Total Annual Aircraft Operations	Total Originating Passengers
1990	2,288,721	1,273,000	20,381,314	----------	383,922	4,284,240
2000	2,642,062	1,606,263	36,614,671	$109,183,000	523,170	7,225,020
2007	2,850,000	----------	35,157,322	----------	452,972	7,857,050
2009	----------	----------	32,378,599	----------	432,395	----------
Forecast 2010	3,071,982	1,819,710	41,700,000	$128,830,000	----------	----------
2015	----------	----------	----------	----------	507,700	10,654,300
2020	3,446,863	2,003,920	43,000,000	$164,591,000	546,900	12,333,800
2030	3,716,430	----------	56,863,000	$210,465,000	630,800	16,624,900

*(in millions of 2004 dollars) Woods & Poole Economics, Inc. Oct. 2008

2030 Aviation Forecasts

Forecasts of commercial and general aviation activity estimate the level of activity expected at airports in the seven-county Twin Cities area, and the surrounding fourteen "collar counties". The projections assist in verifying the roles of individual airports and bracket future levels of activity to determine whether there are any outstanding capacity issues that the regional plan should address. The general aviation forecasts include twenty-four airports, and the commercial forecasts are for MSP International Airport. The forecasts were prepared in 2009 with a base-year of 2008 and extend to 2030.

The recent recession of U.S. and world economies has interjected a high level of uncertainty into all public and private business planning. Recent history confirms a high risk environment that might lead to outcomes beyond a traditional forecasting range. For Minnesota, the most critical variables for aviation forecasting are the following:

- The timing and pace of economic recovery from the current recession,
- The price of jet and 100LL fuel,
- The availability of credit, and the degree to which general business and aviation in particular can maintain and/or expand activity,
- Recovery in corporate aviation after recent disinvestment in that sector,
- The expansion of Southwest Airlines service (introduced March, 2009) at MSP, and
- The integration of Northwest's hub at MSP (due to October, 2008 merger) into the Delta Air Lines system.

The high level of uncertainty for these variables is addressed in the commercial forecasts through use of forecast scenarios, examining the impact of Southwest service, and comparison with peer airports. Forecasts for MSP reflect the types of activity that occurs at the airport, including international passengers, domestic passengers, all-cargo, general aviation and military.

Commercial Aviation Forecasts

During the past five years passenger and operational activity at MSP and 20 other large domestic airports has been on a downward trend. To address this loss of demand, airlines have parked older fuel inefficient aircraft, dropped poorly performing routes, reduced seat capacity and increased on-board load factors. Total scheduled seats, in and out of MSP, at the end of 2007 numbered about 11 million; by end of 2008 seat numbers were down to 9.9 million and continuing downward.

Passenger Forecasts

Forecasting passengers and operations at MSP is complicated by the Delta/NWA merger and the entry of Southwest Airlines in MSP market. In addition to these significant airline changes the local market has been affected by the deep recession beginning in the fall of 2008, high volatility in fuel prices, and a global credit crisis. To address this uncertainty the forecasts examined the passenger activity in three groups:

domestic enplaned passengers, international enplaned passengers, and domestic passenger originations. For each group of passengers identified above a base-case and four forecast scenarios were developed, as depicted in Table 10-34.

Table 10-34: Forecast Scenarios

Originations	2008	2015	2020	2030	Average Annual Growth 2008-2030	Difference in Scenarios By 2030	
Base Case	8,287,800	10,654,300	12,333,800	16,624,900	3.2%		
High Fuel Cost	8,287,800	9,904,000	11,280,800	14,707,500	2.6		
Low Fuel Cost	8,287,800	11,114,200	13,054,900	18,256,800	3.7		
High Economic Growth	8,287,800	11,378,000	13,217,200	17,979,100	3.6		
Declining Connections	8,287,800	10,654,300	12,333,800	16,624,900	3.2		
2030 High/Low Difference						3,549,300	24%
Total Enplanements	2008	2015	2020	2030	Average Annual Growth 2008-2030	Difference in Scenarios By 2030	
Base Case	16,384,300	19,102,800	21,818,200	28,431,900	2.5%		
High Fuel Cost	16,384,300	16,651,500	18,068,000	21,401,100	1.2		
Low Fuel Cost	16,384,300	19,921,300	23,063,000	31,111,200	3.0		
High Economic growth	16,384,300	20,421,200	23,378,500	30,656,300	2.9		
Declining Connections	16,384,300	17,869,000	19,601,300	23,708,100	1.7		
2030 High/Low Difference						9,710,000	45%
International [only]	2008	2015	2020	2030	Average Annual Growth 2008-2030	Difference in Scenarios By 2030	
Base Case	1,264,500	1,472,500	1,836,600	2,839,500	3.7%		
High Fuel Cost	1,264,500	1,305,000	1,465,200	1,847,200	1.7		
Low Fuel Cost	1,264,500	1,520,000	1,938,800	3,134,900	4.2		
High Economic Growth	1,264,500	1,536,500	1,974,700	3,241,600	4.4		
Declining Connections	1,264,500	1,423,500	1,699,400	2,422,100	3.0		
2030 High/Low Difference						1,287,700	75%

A number of observations are apparent in reviewing the passenger forecasts:

- Total enplanements will grow over the forecast period at an annual rate of between 1.2 and 3.0 percent.
- High fuel costs results in the lowest number of enplanements and significantly constrains international traffic.
- Low fuel prices and high economic growth are the greatest stimulants of traffic.
- Declining connections is the second most important contributor to lower enplanements.
- Degree of uncertainty is very high and forecasts project a wide band of possible futures. For total enplanements, by 2030, the difference between a prolonged period of high fuel cost or low fuel cost is almost 10 million passengers or a 45 percent difference.
- There is a 75 percent difference or 1.3 million passengers between highest and lowest international passenger forecast.
- The originating passenger forecast exhibits the smallest range of possible outcomes. This scenario effectively sizes the market as a local origin and destination market (no hubbing). In 2030 the local MSP market is forecast to be between 14.2 and 18 million originations.

The existing terminals at MSP are not capable of handling the passenger numbers forecasted. Implementation of the MSP 2030 LTCP will move all non-SkyTeam airlines to Terminal 2 Humphrey and all Delta SkyTeam Alliance member hubbing airlines remain at Terminal 1 Lindbergh. Existing total passenger gate capacity would be increased from 127 gates to a total of 155 gates by 2030. Additional parking is proposed along with the new gates to meet demand and balance airside and landside capacities. No airside improvements, other than some taxiway development, are envisioned in the 2030 concept plan. Most of the large projects are demand-driven and will not be built unless needs warrant implementation.

Figure 10-35: Maintenance and Improvements at MSP, Summer 2010

The MAC is actively involved in attracting new and additional air service to MSP by both incumbent and potential new entrant airlines. The MAC maintains on file with the FAA an approved Airline Competition Plan and completed an update to the Competition Plan in 2008 in accordance with changes to the MAC's Airline Operating Agreement in 2007.

Passenger Operations Forecasts

MSP peak aircraft operations of 541,093 occurred in 2004.

Table 10-36: Traffic Growth

Type of Operation	2008	2015	2020	2030	Average Annual Growth 2008-2030
Domestic Air Carriers	378,300	426,900	461,100	529,600	1.5%
International Air Carriers	24,100	28,800	32,500	47,100	3.1
Charter	500	400	400	200	-4.1
All-Cargo Carriers	14,400	16,100	17,500	18,800	1.2
General Aviation/Air-Taxi	30,700	33,400	33,300	33,000	0.3
Military	2,100	2,100	2,100	2,100	0.0
Total	**450,000**	**507,700**	**546,900**	**630,800**	**1.5**

Scenarios	2008	2015	2020	2030	
Base Case	450,000	507,700	546,900	630,800	1.5%
High Fuel Cost	450,000	449,400	469,500	514,000	0.6
Low Fuel Cost	450,000	543,000	583,900	697,800	2.0
High Economic Growth	450,000	546,600	591,600	688,400	2.0
Declining Connections	450,000	484,700	512,000	571,900	1.1

The aircraft fleet mix is changing at MSP with more operations being performed by regional airlines. In 2009 total operations were 432,395 with 49 percent being main line aircraft and about 42 percent regional carrier type aircraft. Table 10-36 indicates the average annual growth to 2030 ranges between 0.6 percent and 2.0 percent. This "growth" is from a traffic level of 450,044 in 2008 that was the lowest since 1993.

Air Cargo Activity

MSP ranks 22nd in tonnage of air cargo moved in the U.S. The MSP 2030 LTCP Concept Plan has designated space available for additional air cargo operations; but, existing logistics systems usage patterns, and lack of sufficient back-haul cargo, currently hampers growth opportunities. Most freight forwarders/consolidators currently use trucks to move local airfreight , primarily to Chicago. Security requirements for air cargo are still being implemented but involve increased costs for the airlines. The reduction in average size of aircraft in the MSP fleet also reduces (belly-hold) cargo lift capacity in the local market. An initiative to develop a regional [air cargo] distribution center in Rosemount was studied several years ago, but implementation was not supported with commitments from local shippers.

MSP has cargo facility infrastructure available to accommodate additional cargo operations in the near term and land available for development of future cargo operations on a long-term basis.

General Aviation (G.A.) Forecasts

The volatility that has buffeted commercial aviation and the rest of the economy is certainly also visible in the general aviation sectors, as reflected in Figure 10-37.

A weakened economy has dampened business and personal flying demand. The recent economic conditions are recognized in FAA forecast assumptions that incorporate a decline in general aviation activity until 2013 before activity returns to previous levels, similar to what was done concerning airline

Figure 10-37: Total Annual Operations at MAC G.A. Airports

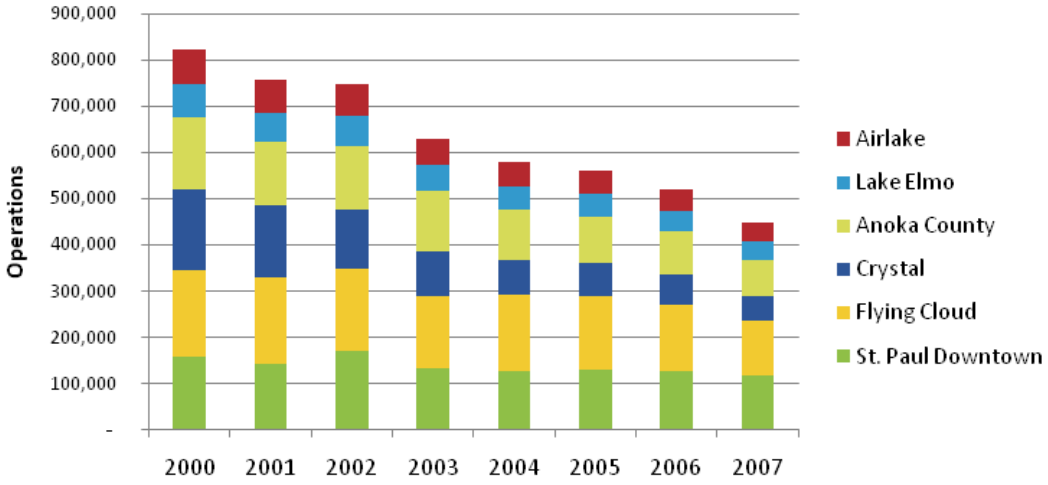


Table 10-38: Based Aircraft Fleet Mix

Region	Single Engine	Multi-Engine	Jet	Helicopter	Sport Aircraft	Total
Metropolitan Region	1,593	145	137	34	4	1,913
Metro Region Distribution	*83.3%*	*7.6%*	*7.2%*	*1.8%*	*0.2%*	*100%*
Collar Counties	693	56	11	32	80	872
Collar County Distribution	*79.5%*	*6.4%*	*1.3%*	*3.7%*	*9.2%*	*100%*
Total Region	2,286	201	148	66	84	2,785
Regional Distribution	*82.1%*	*7.2%*	*5.3%*	*2.4%*	*3.0%*	*100%*
National Distribution	*64.3%*	*8.2%*	*8.5%*	*4.3%*	*5.1%*	*100%*

forecasts. It should be noted that general aviation, operating out of MSP International Airport, is included here under system-wide discussion of general aviation activities. The G.A. forecasts do not include special analysis of Seaplanes, Sailplanes, Ultra-light aircraft or Helicopters.

In 2007 there were an estimated 2,785 G.A. aircraft based in the metro and collar county airports as depicted in Table 10-38.

About 80% of the region's based G.A. aircraft are single-engine piston aircraft with a high proportion being used for personal flying; therefore much of the following discussion focuses on that part of the aircraft fleet. The 2030 forecast of based aircraft and aircraft operations for each system airport and average annual growth is depicted in Table 10-39.

G.A. does tend to run in an extended cycle. In the personal flying sector, aircraft are kept in service for decades. Pilots often take their training at an early age and embark on a lifetime of flying, provided of course they can afford the cost of keeping certifications current, maintaining or renting an aircraft, and paying for fuel. Personal flying patterns can span an entire generation so there is a substantial drag on change. It is possible that recent economic upheavals may convert to long-term trends. On a national basis total hours flown in G.A. has declined and the relative share of these hours flown for personal use has also declined as depicted in Figure 10-40.

Aside from the obvious deterrents of high fuel costs and weak economy, industry data suggests another key reason to expect fewer operations is the age of the G.A. aircraft fleet. Figure 10-41 depicts annual shipments of aircraft manufactured over the past 50 years. About 220,000 were delivered in the peak years from 1965 to 1980 (these numbers do not include kit and homebuilt aircraft).

As can be seen in Figure 10-41, product liability suits decimated manufacturing from about 1982 until the mid-1990's, when a federal government recovery program was instituted and a 20 year limitation on product liability was instituted.

Table 10-39: Forecast of Based G.A. Aircraft/Operations

Metro Airports	2007	2015	2020	2030	Average Annual Growth
Minneapolis-St. Paul International	24	27	30	30	1.0%
Airlake	162	211	203	204	1.0
Anoka County-Blaine	437	452	433	409	-0.3
Crystal	244	269	254	246	0.0
Flying Cloud	421	411	406	396	-0.3
Forest Lake	26	26	27	30	0.7
Lake Elmo	229	261	247	248	0.3
St. Paul Downtown	83	107	118	127	1.9
South St. Paul	237	235	242	255	0.3
Surfside Seaplane Base	45	42	42	43	-0.2
Wipline Seaplane Base	5	5	5	5	0.0
Total	**1,913**	**2,046**	**2,007**	**1,993**	**0.2**

Figure 10-40: Hours Flown by Use - 1997-2007

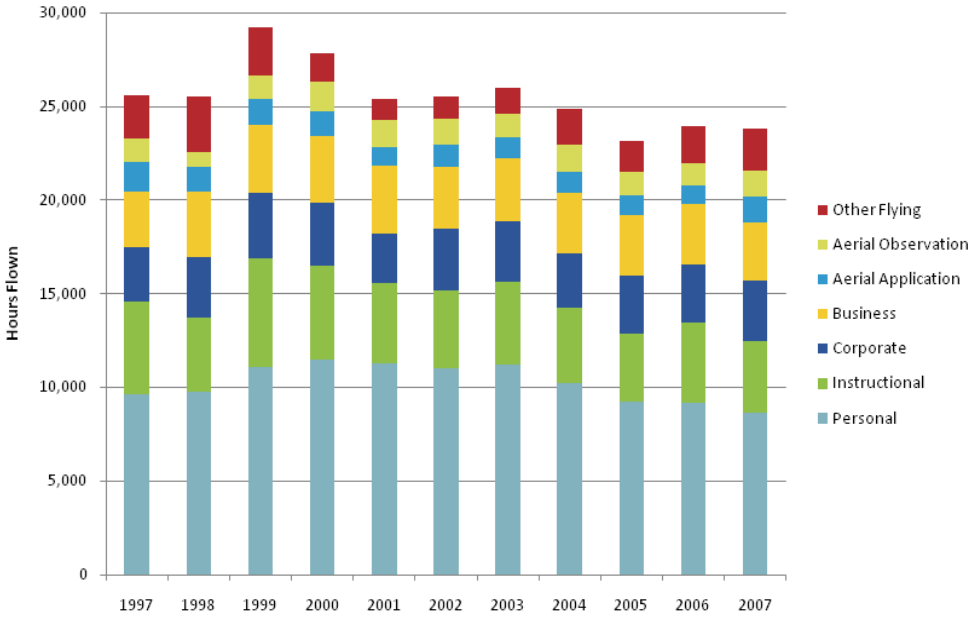


Figure 10-41: Worldwide Total G.A. Shipments 1957-2007

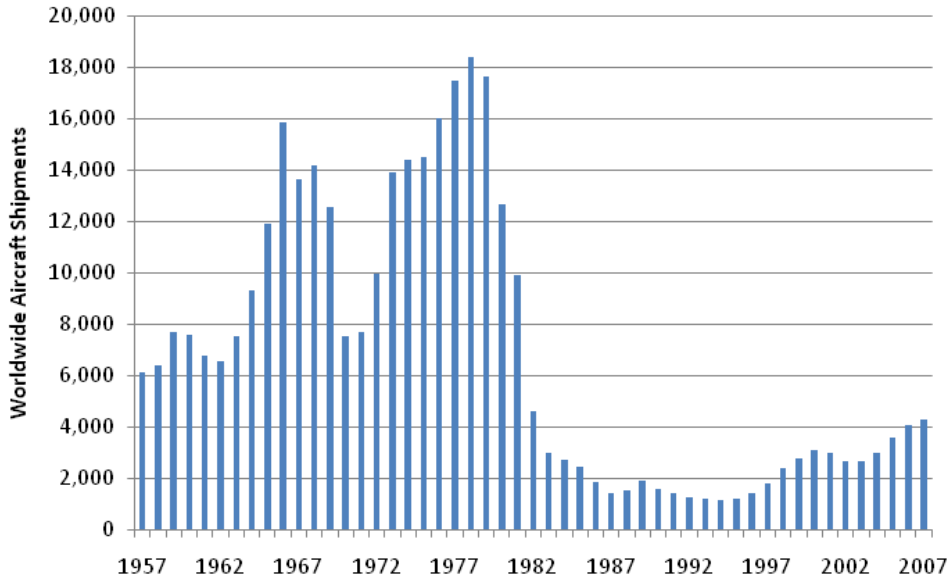


Figure 10-42: Age of Aircraft vs Average Annual Hours Flown

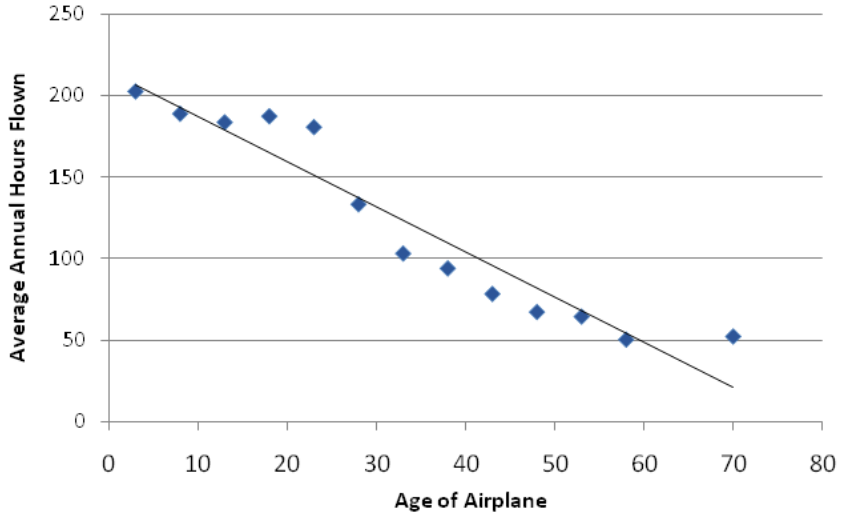
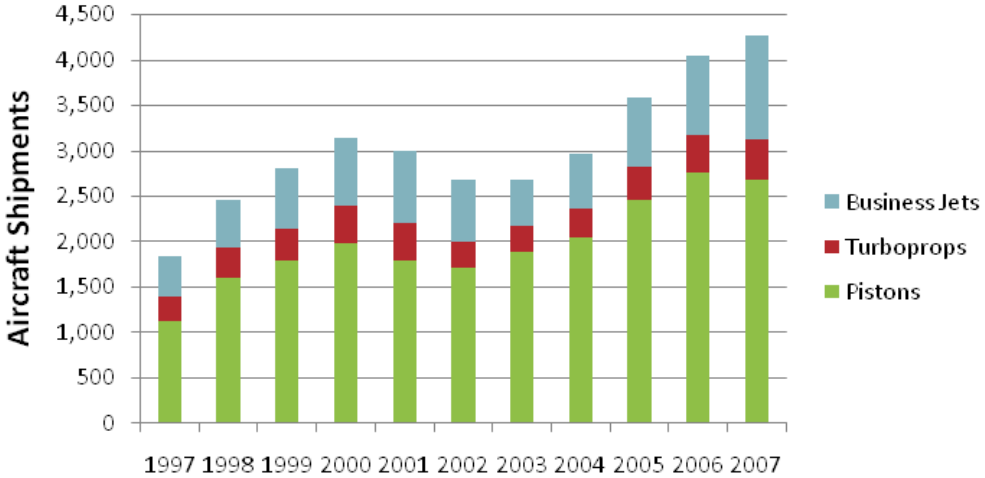


Figure 10-43: Shipments by Type of Aircraft



Many of these aircraft are still active, but are getting older and flown less often. When the number of aircraft are correlated with hours flown it is very apparent that new aircraft fly significantly more hours than older aircraft as shown in Figure 10-42.

Aircraft under 25 years old fly an average of 190 hours a year, between 25 and 40 years of age the average drops to 90 hours a year, and over 40 years old about 90-50 hours a year. A very large portion of aircraft in the U.S. general aviation fleet is approaching the 40 year old mark. The cost of newer, more productive, aircraft is such that a one-for-one replacement of aircraft does not appear to be happening. In addition, the number of student pilots has declined 15% since 2000; new pilots are currently not replacing pilots that become inactive.

A slow recovery has ensued. Figure 10-43 indicates that the aircraft replacement process for aging aircraft has just begun, but the historical demand for primarily single-engine and other piston engine aircraft is changing to business type turboprop and jet powered aircraft.

The implications are for less activity for some time at airports where predominant use is personal use aircraft, and conversely, enhancements will be needed at airports that have the capability of supporting the more sophisticated business users. The system airports in this region reflect these implications in their recently completed updates to their LTCP's through lowered planning and development expectations, reductions in costs, instituting overall rate increases and proposed development of new non-aviation revenue sources. Although the composite activity trend is down throughout the country, at any individual airport the experience is mixed, reflecting the importance of local conditions, services offered, and community support.

SYSTEM PERFORMANCE

The performance of a system or system facility is evaluated in different ways by its managers and users to assess the effectiveness based upon established measures, benchmarks, criterion, guidelines and policies. During the 2030 Plan Update Technical Study the metro aviation system was assessed at the system level compared to other peer-airport systems, commercial hub airports, and individual airport analysis.

Peer Airport Systems

Six peer airport systems were identified for comparison with the Twin Cities regional airport system; they included Atlanta, Charlotte, Denver, Detroit, Philadelphia, and Pittsburg. Their selection was based upon the following factors:

- Only one major hub airport serves the metropolitan area,
- Low cost airline service was present for some time at the hub airport, and;
- The hub airports rank in the top twenty in terms of activity.

Table 10-44 defines the various factors used to do the system comparisons. The comparison indicated that MSP compares favorably in most categories and currently does not have vastly over or under-built capacity. With the recent extension of the runway at Flying Cloud Airport, the region now is more comparable to other systems in the number of relievers with 5,000' or longer runways. From an operations stand point, MSP was second highest in general aviation operations for these hub airports in 2007 at 6.7 percent; this is about half as many operations as it had in 2000. With the improvements at Anoka County-Blaine, Flying Cloud and St. Paul Downtown airports it is expected that the trend toward less General Aviation traffic using MSP will continue.

Table 10-44: Airport System Factor Comparison

City Name	MSA Population (July 2007)	Number of NPIAS Airports In System	Number Reliever Airports in System	No. of GA Based Aircraft in System	Number of GA Based Jets in System	Annual GA Aircraft Operations In System	Number of Airports with 5,000 foot Runways
Atlanta	5,278,904	13	4	1,907	175	868,710	9
Charlotte	1,651,568	5	2	350	30	253,566	3
Denver	2,464,866	4	3	1,509	125	605,315	3
Detroit	4,467,592	10	7	1,474	208	593,555	3
Minneapolis	**3,208,212**	**8**	**7**	**1,913**	**137**	**641,550**	**3**
Philadelphia	5,827,962	18	10	1,656	78	772,550	3
Pittsburgh	2,355,712	10	5	693	93	345,569	3
Average	3,607,831	10	5	1,357	121	582,974	4

Peer Commercial Airports

To help gauge how MSP ranks among its peers the top 20 airports were compared for passenger enplanements, aircraft operations and cargo tonnage. MSP rankings in these various categories in 2007 are depicted in Table 10-45. It has historically ranked higher in all three categories. The top five airport rankings are very consistent over time due primarily to market size and international connections. The rankings vary year-by-year, but occasionally major changes occur, such as when TWA was acquired by American Airlines and the St Louis hub went from a Large hub to a Medium hub status and is no longer in the top 20 large-hub ranking. Atlanta is ranked first in enplanements and operations since it has a system focus on domestic and international connections. Memphis is ranked first as an air cargo hub primarily due to a single operator, FedX, The majority of flights at MSP are provided by Delta Air Lines and its SkyTeam Alliance partners. MSP is now in a different airline system, and although it tracked closely with Detroit when they were in the NWA system, that relationship is likely to change as Delta is defining new international focus hubs. The lowest 2030 MSP forecast is for 16,624,900 annual passenger originations, in the “declining connections” scenario, that would likely lead to a softening in its relative rankings.

Table 10-45: Top 20 U.S. Airports 2007 Activity Comparison

	Enplanements Ranking	Passenger Enplanements (millions)	Operations Ranking	Aircraft Operations (thousands)	Cargo Ranking	Air Cargo (millions metric tons)
1	Atlanta (ATL)	44.8	ATL	994	MEM Memphis	3,840
2	Chicago (ORD)	38.4	ORD	927	ANC Anchorage	2,826
3	Los Angles (LAX)	31.0	DFW	685	SDF Louisville	2,079
4	Dallas/Ft.Worth (DFW)	29.9	LAX	681	MIA	1,923
5	Denver (DEN)	24.9	DEN	614	LAX	1,884
6	New York (JFK)	23.8	LAS	609	JFK	1,607
7	Las Vegas (LAS)	23.5	IAH	604	ORD	1,534
8	Houston (IAH)	21.6	PHX	539	IND Indianapolis	999
9	Phoenix (PHX)	20.9	CLT	523	EWR	964
10	Newark (EWR)	18.2	PHL	500	DFW	724
11	Orlando (MCO)	18.2	DTW	467	ATL	720
12	Detroit (DTW)	18.0	MSP	453	OAK	648
13	San Francisco (SFO)	17.7	JFK	446	SFO	563
14	Minneapolis (MSP)	17.5	EWR	436	PHL	543
15	Miami (MIA)	16.9	SLC Salt Lake City	422	ONT Ontario, CA	483
16	Charlotte (CLT)	16.6	BOS	400	IAH	409
17	Philadelphia (PHL)	16.0	LGA	392	TOL Toledo	362
18	Seattle (SEA)	15.6	MIA	386	IAD	359
19	Boston (BOS)	14.0	IAD Dulles D.C.	383	SEA	319
20	New York (LGA)	12.5	SFO	380	BOS	299
21					DEN	267
22					MSP	257
23					PDX Portland	255
24					PHX	252
25					AFW Ft. Worth	237
26					DTW	233
	US Total	762.4		60,807		29,297

Color Key: MSP Delta SkyTeam Alliance

Facility Criteria/Performance

The role of each airport is reassessed as part of every system plan update. For each airport role a set of service and facility objectives were developed based upon the types of aviation users the airport predominately served. These recommended objectives covered the following airside and landside facilities and services:

- Air Traffic Control Tower
- Airport Reference Code
- Approach Lighting Systems
- Auto Parking
- Fixed Base Operator (FBO)
- Food Services
- Fuel
- Ground transportation
- Instrument Approach
- Other Visual Aids
- Paved Aircraft Parking
- Phone
- Primary Runway Length
- Runway Lighting
- Snow Removal
- Taxiway Type
- Visual Glide Slope Indicators
- Weather Reporting

The system airports met 98% of its individual facility objectives; it is a mature and well developed system with little in the way of unmet facility and service needs in the short-term. For the medium and long-term there are a number of deficiencies identified in individual airport plans for which specific improvements are needed, including maintenance of current infrastructure.

In addition to specific facility objectives, individual airport performance was also examined for having up-to-date airport long-term comprehensive plans (see Table 10-5 Airport Facility Status), a joint airport/community airport zoning board (JZB) and an approved zoning ordinance (refer to Figure 10-22 Jurisdictional Areas in Twin Cities Aviation System). An overall report card on individual airport operational performance is included in Appendix N.

SYSTEM CHANGES AND IMPROVEMENTS

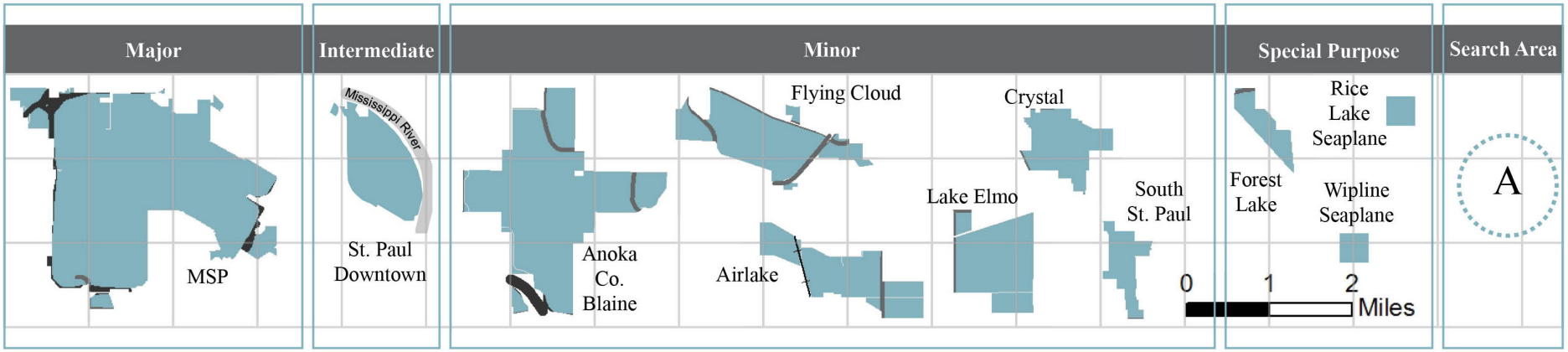
The continued protection and maintenance of the regional aviation system is an important aspect of the Twin Cities transportation infrastructure. A number of recommendations were made in the system update technical report to further enhance the regional system and are included in the 2030 plan:

- Retain the existing regional airport classification system,
- Fulfill Long-term comprehensive airport plan (LTCP) objectives,
- Eliminate General Aviation search area (A) from the system plan,
- Change Forest Lake Airport role from Special Purpose to a Minor airport,
- Install runway end identifier lights (REILS) at So. St. Paul Airport, and
- Examine feasibility of intermodal connectivity options to system airports.

The following illustration, Figure 10-46, indicates how these recommendations relate to the airport classification system.

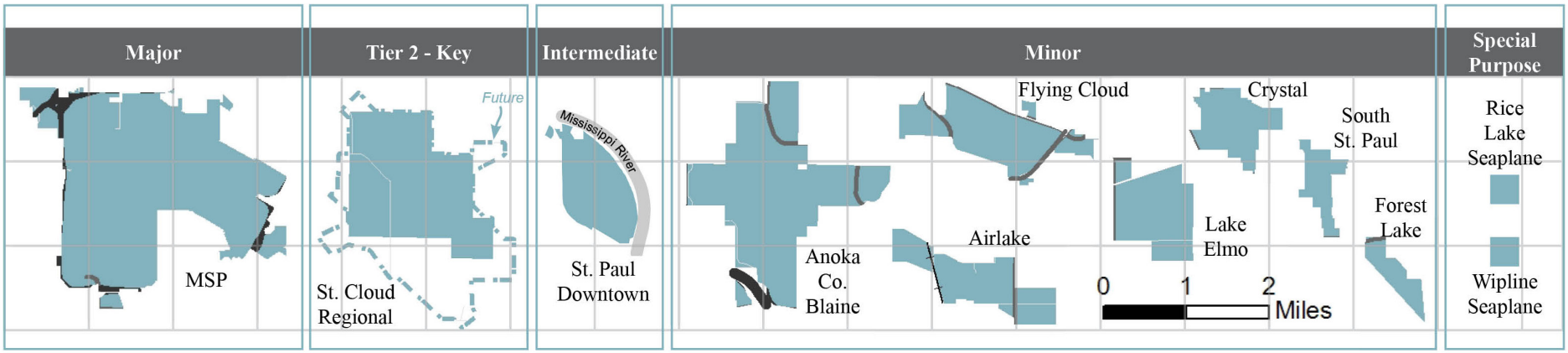
Figure 10-46: Twin Cities Regional Airports Role and Classification

CURRENT



Changes in the various system facilities, as recommended in the Twin Cities 2030 System Update *Technical Report,* are identified under the current 2010 airport role and classification as compared to the revised 2030 role changes. The general aviation search area (A) located in Hennepin County is removed from the system. The Forest Lake Airport is designated a Minor airport. Rice Lake and Wipline seaplane bases retain their Special Purpose roles. The St. Cloud Airport, although not a part of the metro airport system, is identified in the current state airport system plan as a Tier 2 commercial reliever for the metro area and is included for comparison purposes. The 2030 role for St. Cloud is depicted by the planned land acquisition. The facilities are shown to scale and indicate areas where roads or major physical barriers segregate the airport property.

REVISED



SYSTEM IMPROVEMENT COSTS

In order for metro area airports to meet their facility and service objectives, and for the system to maintain its performance and function, continued investments will be needed over the 20-year planning period as depicted in Table 10-47. The first five years reflects the CIP estimates (except for MSP, which also includes LTCP estimates); the 10, 15, and 20 year estimates reflect order-of-magnitude cost derived from the updated airport LTCP's. Overall high cost range is estimated at $ 2.6 Billion, based upon 2009 U.S. dollars. Environmental evaluation and potential noise mitigation costs for the MSP 2030 LTCP are not included in Table 7-47.

Table 10-47: Cost Estimates for Capital Projects

(in millions)

Airport	2010-2015	2016-2020	2021-2025	2026-2030
MSP International				
CIP	$112			
LTCP (cost range)	$377 - $444	$819 - $964	$666 - $783	$191 - $224
St. Paul Downtown	$10	$5		
Anoka County-Blaine	$7	$1		
Flying Cloud	$6	$2		
Crystal	$3	negligible		
Lake Elmo	$4	$3	$1	
Airlake	$5	$1	$7	$0.9
So. St. Paul	$4	negligible		
Forest Lake	$6	Short-term funding needs likely to shift into out years unless federal funding under NPIAS		

FUNDING RESOURCES

Airports rely on a variety of public and private funding sources to finance their capital development, including airport bonds, federal and state grants, passenger facility charges (PFCs) and airport generated income.

Table 10-48 indicates the various funding sources identified by the MAC for its 2010-2016 capital development projects. The approved 2010 – 2016 CIP and operating budget are used in assessing system development costs and funding needs for short, term projects.

Table 10-48: MAC 2010 – 2016 CAPITAL IMPROVEMENT PROGRAM FUNDING SUMMARY

($ 000's)

FUNDING SOURCES	2010 FUNDING	2011 FUNDING	2012 FUNDING	TOTAL FUNDING	% OF TOTAL 2010 - 2012 CIP
Passenger Facility Charges (PFC's)	**$7,550**	**$31,300**	**$31,210**	**$70,060**	17.41 %
Federal & State Aid	**$34,729**	**$31,200**	**$53,950**	**$119,879**	29.79 %
2010 General Airport Revenue Bonds**	$27,400	$21,020	$45,100	$93,520	23.24 %
MAC Funds	$22,321	$19,410	$16,575	$58,306	14.49 %
Airline Repair & Replacement Fund	$31,250	$6,650	$16,275	$54,175	13.46 %
Other Funding***	$3,000	0	$3,500	$6,500	1.62 %
Total All Funding Sources	$126,250	$109,580	$166,610	$402,440	100.00 %

** Grants from Mn/DOT for this period have been committed to projects from prior years.*

*** Currently Revenue Bonds are anticipated to be issued in May 2010 to cover 2010—2012 projects.*

**** Other funding sources represent facilities built by MAC, tenant, or developer and paid for by the tenant or developer.*

SYSTEM PLANNING AND DEVELOPMENT PRIORITIES

Planning Process Timelines

In planning for air-transportation services and facilities, there are certain timelines and benchmarks that come into consideration. They can be reflective of planning activities and environmental evaluations that have to occur before projects are eligible for funding, they may indicate when a project should be programmed for funding, when a project is in the capital improvement plan, when a plan update is scheduled, or new forecasts prepared, pavement conditions reviewed, or activities needing monitoring.

The 2030 LTCP was found by the Council to be consistent with the 2030 Transportation Policy Plan (TPP) if, the following issues are addressed in the final plan:

1. The LTCP should note that the MAC will update the plan every five years and that the MAC will budget for this in the appropriate years to ensure that the first update is prepared by 2015.
2. The MAC should initiate a capacity study two years in advance of when MSP is expected to have 540,000 annual operations and incorporate the results of this study into the following LTCP update.
3. The MAC should initiate an FAA Part 150 study update (which includes a comprehensive noise analysis and mitigation program), in consultation with the MSP Noise Oversight Committee (NOC), when the forecast level of operations five years into the future exceeds the levels of mitigation in the Consent Decree (582,366 annual operations). The results of this study should be incorporated into the first subsequent LTCP update.
4. The MAC shall continue to work with all appropriate agencies to implement the Interstate 494/34th

Avenue, Trunk Highway 5/Glumack Drive and Trunk Highway 5/Post Road interchange modifications included in the 2030 Concept Plan, including preliminary environmental scoping and analysis. These highway modifications are not currently included in the region's fiscally-constrained 2030 highway plan.

5. The LTCP needs to acknowledge that storm water from MSP detention ponds discharges to the reaches of the Minnesota and Mississippi Rivers that are identified as water-quality impaired for a number of pollutants and stressors.
6. The LTCP should include a general discussion of financial assumptions and funding mechanisms available to implement the proposed development.

The following planning process timelines have been included for consideration in identifying and assessing project phasing, prioritization, and implementation. Table 10-49 assumes no changes in the regional aviation planning process through the 2030 planning horizon, and assumes a fiscally constrained and demand-driven system.

Development Priorities

The key priorities are to maintain existing facilities, security/safety of operations, and to fulfill the airport development plan objectives as depicted in Table 10-50.

Table 10-49: PLANNING PROCESS TIMELINES

Planning Horizon	NPIAS 2-year Update, 5-yr. horizon	SASP 5-year Update, 20-yr. horizon	SASP 5-Yr. CIP	TPP-RASP 4-year Update, 20-yr. horizon	LTCP 5-year Update, 20-yr. horizon		MAC Strategic Plan 5-year moving	MAC – CIP Annual Update, 7-yr. horizon	AOEE Annual Update	MLPA 10-year Update, 20 yr. horizon
					G.A. Airports	MSP				
2011-2015	2011, 2013, 2015	2011	2013	2010, 2014	2013 Updates MIC, LVN,ELM, FOR and SGS 2015 Updates ANE, FCM, STP	2015	2011, 2012, 2013, 2014, 2015	2011-2017	2011 - 2015	[2008]
2016-2020	2017, 2019,	2016	2018	2018	2018 Updates MIC, LVN, ELM FOR and SGS 2020 Updates ANE, FCM, STP	2020				2018
2021-2025	2021, 2023, 2025	2021	2023	2022	2025 Updates ANE, FCM,STP	2025				
2026-2030	2027, 2029	2026	2028	2026	2028 Updates MIC, LVN, ELM FOR and SGS 2030 Updates ANE,FCM, STP	2030				2028
Post 2030	2031, 2033	2031	2033	2030	2033 Updates MIC, LVN, ELM, FOR, SGS	2035				2038

Table 10-50: System Development Phasing Priorities

Aviation Facility	Short-Term 0 to 5 Years (2010-2015)	Mid-Term 6 to 15 years (2016-2020)	Mid-Term 6 to 15 years 2021-2025	Long-Term 16 to 30 years 2026-2030	Post 2030
MSP International	Implement projects to Expand Terminal 2 Humphrey (Assumes all non-SkyTeam Alliance airlines are moved to Terminal 2) Implement the MAC annual Capita Improvement Program.	Implement projects to Modernize and Expand Terminal 1 Lindbergh Complex. (Assumes all non-SkyTeam Alliance Airlines are moved to Terminal 2 – Humphrey)	Complete Terminal 2 HHH Expansion, Expand Terminal 1 Lindbergh, Concourse G, Expand Parking, Develop Hotel	Construct Crossover Taxiways and Access Road to Terminal 1	
STP St. Paul Downtown	Pavement maintenance and replacement program, on-going throughout planning period. Terminal sub-drain, electric vault improvements, MAC building maintenance on-going, Non-aeronautical land use development.	Pavement Maintenance Building Maintenance Non-Aeronautical land use Development	Pavement Maintenance Building maintenance	Pavement Maint. Building Maint.	On-going On-going
ANE Anoka County-Blaine	Security Gate Improvements, Taxiway Charlie Extension, Xylite Street Relocation, Pavement Maintenance Program, Non-Aeronautical Land Use Dev.	Pavement Maintenance Non-Aeronautical Dev.	Pavement Maintenance	Pavement Maint.	West Bld. East Bldg. N/S Rwy. E/W Rwy.
FCM Flying Cloud	Extend, shift, reconstruct Rwy. 18/36, Construct North perimeter Rd, Replace 18/36 VASI's, So. Hangar Area Utilities, Pavement Management Program.	Pavement Maintenance Non-Aeronautical Dev.	Pavement Maintenance Clear Taxiway (A) object-free area. Relocate ATCT.	Pavement Maint.	
MIC Crystal	Pavement Rehabilitation Obstruction Removals Runway 14R/32L modifications				

Table 10-50: System Development Phasing Priorities

Aviation Facility	Short-Term 0 to 5 Years	Mid-Term 6 to 15 years		Long-Term 16 to 30 years	Post 2030
	(2010-2015)	(2016-2020)	2021-2025	2026-2030	
ELM Lake Elmo	Rwy 14/32 reconstruction, Pavement rehabilitation, Install AWOS New hangar bldg. area Phase I Pursue agreements for sewer and water service	Rwy 4/22 Extension	Reconstruct crosswind rwy.		East Bldg. East Twy. Relocate Primary Rwy
LVN Airlake	Pursue sanitary sewer and water Agreements, pursue agreements To protect for Cedar Avenue Relocation, complete so. Bldg. area, Including sewer/water service.	Extend Rwy and Twy (A) to 5,000 ft, including ILS relocation and improved minimums.	Reconstruct existing runway.		
SGS So. St. Paul	Obstruction removal, pavement and hangar maintenance, (2) 12 unit T hangars, field equipment.				
FOR Forest Lake	Obstruction removal, land Acquisition, arrival/departure Bldg, Perimeter fencing, Install AWOS, Pave Rwy/Twy, T Hangar Dev.				
Lino Lakes SPB	Unknown projects, Private facility maintained				
Wipline SPB	Unknown projects, Private facility maintained				

NOTE: Projects identified in 0-5 year time period often move into out-years due to funding and other issues. The information is updated every 5 years.

Aviation Appendices

I - Airport Long-term Comprehensive Plans (LTCP)
J - National and State Airport Classification
K - Airport Service Areas
L - Regional Airspace
M - Land Use Compatibility Guidelines for Aircraft Noise
N - 2010 Preliminary System Airport Assessments
O - Glossary of Aviation Terms
P - Capital Investment Review Process
Q - Airport Capacity Criteria

Chapter 11: Federal Requirements

This chapter responds to federal planning requirements contained in the Safe Accountable Flexible Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) and provides references to other sections in this policy plan or to other Council documents that address the requirements.

Eight SAFETEA-LU Transportation Planning Factors

SAFETEA-LU requires Metropolitan Planning Organizations (MPOs) to address eight planning factors through their metropolitan transportation planning process. The Metropolitan Council is the MPO for the Twin Cities metropolitan area. The planning factors are addressed in this plan and also in the Council's overall regional development plan, the *Regional Development Framework*, that guides future development in the seven county metropolitan area.

Table 11-1 cross-references each of the eight factors with relevant policies, strategies, criteria and plan sections from either the *Framework* or from the *Transportation Policy Plan*. The relevant categories and criteria used in the regional project selection process for SAFETEA-LU funds are also identified as they relate to the eight planning factors.

Table 11-1: Cross-Reference of Eight SAFETEA-LU Planning Factors with Metropolitan Council Policies, Procedures and Solicitation Criteria

SAFETEA-LU Planning Factor	Development Framework		Transportation Policy Plan		Regional SAFETEA-LU Project Selection Process/TIP	
	Policy / Action Step	Page	Policy / Strategy	Page	Category	Criteria
(1) Support the economic vitality of the metropolitan planning area, especially by enabling global competitiveness, productivity, and efficiency;	Policy 12	14	Policy 3	61	Principal Arterial and Transit Capital	Access to or capacity for economic development
			Policy 9	69		
			Policy 11	72		
			Policy 12	116		
			Policy 13	117		
			Policy 15	118		
(2) Increase the safety of the transportation system for motorized and non-motorized users;	----------	-----	Policy 9	69	Principal Arterial and "A" Minor Arterial Bikeways and Walkways	Accident reduction forecast, Bike/ped safety improvements
			Strategy 16c	120		
			Policy 18	172		

Table 11-1: Cross-Reference of Eight SAFETEA-LU Planning Factors with Metropolitan Council Policies, Procedures and Solicitation Criteria

SAFETEA-LU Planning Factor	Development Framework		Transportation Policy Plan		Regional SAFETEA-LU Project Selection Process/TIP	
	Policy / Action Step	Page	Policy / Strategy	Page	Category	Criteria
(3) Increase the security of the transportation system for motorized and non-motorized users;	----------	-----	Strategy 13e	117	----------	--------
(4) Increase accessibility and mobility of people and freight;	Policy 2	14	Policy 3	61	Principal Arterial, "A" Minor Arterial, and Transit Capital; Bikeways and Walkways	Integration of modes, Integration with transit
			Policy 9	69		
			Policy 10	71		
			Policy 11	72		
			Policy 12	116		
			Policy 13	117		
			Policy 14	118		
			Policy 15	118		
			Policy 16	120		
			Policy 17	164		
			Policy 18	172		
(5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;	Policy 4	18	Policy 3	61	Transit Capital, Principal and "A" Minor Arterial, Bikeways and Walkways	Reduction in CO emissions, Potential for increased use, Development Framework Implementation
			Policy 4	41		
			Policy 8	12		
			Strategy 9h	71		
			Policy 12	116		
			Policy 13	117		
			Policy 18	172		

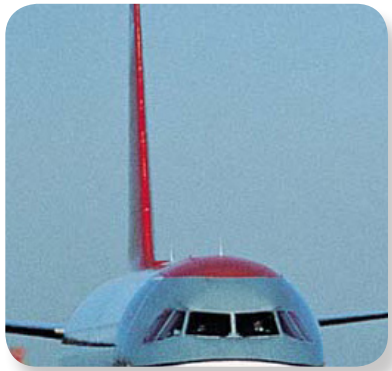


Table 11-1: Cross-Reference of Eight SAFETEA-LU Planning Factors with Metropolitan Council Policies, Procedures and Solicitation Criteria

SAFETEA-LU Planning Factor	Development Framework		Transportation Policy Plan		Regional SAFETEA-LU Project Selection Process/TIP	
	Policy / Action Step	Page	Policy / Strategy	Page	Category	Criteria
(6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;	Policy 2	14	Strategy 2e	31	Principal Arterial, "A" Minor Arterial, and Transit Capital; Bikeways and Walkways	Integration of modes (bikes, pedestrians, freight), Integration with transit
			Policy 3	61		
			Strategy 9b	69		
			Strategy 11f	73		
			Policy 12	116		
			Policy 15	118		
			Policy 17	164		
			Strategy 18b	172		
			Strategy 18d	172		
			Strategy 18e	172		
(7) Promote efficient system management and operation;	Policy 2	14	Strategy 2b	31	Principal Arterial and "A" Minor Arterial.; Transit Capital, Travel Demand Management, Transportation System Management	Solutions to problems and deficiencies; Service efficiency
			Policy 3	61		
			Policy 10	71		
			Policy 11	72		
			Policy 14	118		
(8) Emphasize the preservation of the existing transportation system.	Policy 2	14	Strategy 2a	31	Principal Arterial and "A" Minor Arterial	Corridor preservation efforts/access management
			Policy 10	71		

Other Federal Requirements

Congestion Management Process

Federal regulations (CFR 450.320) require that the transportation planning process in a TMA "address congestion management through a process that provides for safe and effective integrated management and operation of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities through the use of travel demand reduction and operational management strategies."

The congestion management process for the region is fully described in Chapter 5: Regional Mobility.

Cooperative Revenue Forecasting

Mn/DOT and the Council have worked together to develop the highway revenue forecast used in this plan. It represents the best estimate of future available funds at this time, and includes the new transportation revenue package passed by the Minnesota Legislature in the spring of 2008. SAFETEA-LU established funding levels for the surface transportation system through 2009, but it will expire on September 30, 2009. Without any available information on the upcoming reauthorization of the transportation act, this plan assumes the federal funds will remain stable until 2015 and then will increase by 1.6 percent per year. It further assumes that state funding will remain stable until 2018, at which time the estimates of state funding sources are also increased by 1.5 percent per year. These increases are not assumed to equal the level of inflation over the plan period.

The forecast also assumes the metro area will receive approximately 44% of the federal Title I (highway) funds that come to Minnesota (after the state has set aside funds for specific items such as design and engineering services.) This percentage is based on a Mn/DOT formula that includes miles of highways, number of buses, future population, etc.

This plan will have to be adjusted if the new federal transportation bill includes significant changes in federal revenue coming to Minnesota.

ITS Applications and Regional Architecture

Mn/DOT and the Center for Transportation Studies at the University of Minnesota have been leaders in intelligent transportation systems (ITS) research and application. The Council has worked closely with Mn/DOT, ITS America and Minnesota Guidestar in their attempts to move ITS from the experimental stage to wide-scale application. ITS focuses on the management of the entire transportation network through the movement of more people and freight, in fewer vehicles, on the existing system. It is within this context that the Council supports the ITS regional architecture and will require its use in all its applications in the region.

Federal requirements include the definition of a "regional architecture" for ITS activities. In Minnesota the regional ITS architecture has been developed by Mn/DOT with wide-scale input from its partners and is used statewide. The architecture defines the functions that could be performed to satisfy user

requirements and how the various elements of the system might connect to share information. It also defines the framework around which multiple design approaches can be developed. Each approach can be tailored specifically to meet the user needs, while maintaining the benefits of a common approach.

Since its inception in 1991, Minnesota Guidestar has performed a broad range of ITS activities including needs assessments, research and development, full-scale operational testing, and deployment of ITS strategies and technologies. The success of Minnesota Guidestar has been more than advancing ITS technology. Its success is based on a strong cooperation between the public and private sectors, which has produced innovative and unique programs and projects.

Figure 11-2: Changeable traffic signs allow individuals to make their own travel decisions

Intelligent transportation systems, or ITS, encompass a broad range of wireless and wireline communications-based information, control, and electronics technologies. When integrated into the transportation system infrastructure, and in vehicles themselves, these technologies help monitor and manage traffic flow, reduce congestion, provide alternate routes to travelers, enhance productivity, and save lives, time and money.

Figure 11-3: ITS tools, like this camera, allow system monitoring.

Intelligent transportation systems provide the tools to collect, analyze, and archive data about the performance of the system. Having this data enhances traffic operators' ability to respond to incidents, adverse weather or other capacity constricting events.

Examples of Intelligent transportation systems include Advanced Traveler Information Systems, Advanced Traffic Management Systems, and Incident Management Systems, described below:

- Advanced Traveler Information Systems deliver data directly to travelers, empowering them to make better choices about alternate routes or modes of transportation. When archived, this historical data provides transportation planners with accurate travel pattern information, optimizing the transportation planning process.
- Advanced Traffic Management Systems employ a variety of relatively inexpensive detectors, cameras, and communication systems to monitor traffic, optimize signal timings on major arterials, and control the flow of traffic.
- Incident Management Systems provide traffic operators with the tools to allow quick and efficient response to accidents, hazardous spills, and other emergencies. Redundant communications systems link data collection points, transportation operations centers, and travel information portals into an integrated network that can be operated efficiently and "intelligently."

The Council's policy concerning ITS investments is to support the inclusion of ITS improvements in the broadest spectrum of situations, from the replacement of aging signals with the latest interconnected self-programmable models, to the recent completion of the new traffic management center with the latest generation electronics.

ITS is a significant element of the region's Congestion Management Plan. Since ITS can be included as part of preservation, management, improvements, expansion and transit investments, the Council has determined that no "set-asides" or sub-targets are appropriate for ITS. Mn/DOT, Metro Transit and other agencies responsible for delivering transportation services should determine how best to maximize ITS applications and include funding for them as an integral part of larger projects.

Current ITS activities in the metro area include Regional Traffic Management Center, Metro Transit Control Center, 800 Mhz radio system, freeway message signs, ramp meters and bypasses, Metro Transit's web-based travel planner, signal preemption for both buses and emergency vehicles, and automatic vehicle locators on the buses.

Operations and Management

The SAFETEA-LU requires that the long-range transportation plan include operations and management strategies to improve the regional transportation system. This plan lists as its first priority the preservation of the trunk highway system. Management investments are the next highest highway priority. Management investments for highways include access management, high-technology traffic management tools such as ramp meters and changeable message signs and transit advantages like bus-only shoulders. Operations and management strategies form the basis of the highway investment strategy outlined in this plan also places priority on supporting preservation, maintenance, and replacement of the existing transit system's capital assets before considering new, expanded or enhanced capital facilities and equipment.

Coordinated Action Plan for Public Transit and Human Services

The Federal Transit Administration (FTA) is interested in assisting people who are disadvantaged in terms of their ability to obtain their own transportation. SAFETEA-LU established a new formula-based program, the New Freedoms program, to expand transportation services for the elderly and persons with disabilities beyond what is required by the Americans with Disabilities Act (ADA). It also changed the Job Access and Reverse Commute (JARC) program into a formula-based program. Along with these changes came a requirement that a coordinated action plan for public transit and human services transportation be created at the regional level. This plan is meant to document existing resources, identify gaps in the transportation system, and establish goals, strategies and criteria for delivering efficient, coordinated services to elderly, underemployed or otherwise financially disadvantaged persons and persons with disabilities. In 2007, the Metropolitan Council adopted such a plan for the region, replacing the JARC plan adopted in 2000. The FTA requires this plan to be updated at least every four years in non-attainment regions and every five years in attainment regions. The Metropolitan Council will be updating the plan in 2011.

The Metropolitan Council is working with county organizations, the region's transit providers and human service agencies to develop a set of programs that help fill gaps in transportation needs experienced by unemployed and under-employed persons. A variety of programs, including reverse commute

Figure 11-4: A successful transportation plan will benefit all of the region's residents

routes, transit beyond the ADA required distance (within ¾ mile of regular-route transit), dial-a-ride restructuring, transportation coordinators, van programs, technology improvements, and auto ownership programs, have been funded through the FTA Job Access and Reverse Commute (JARC) and New Freedoms programs.

Environmental Justice

Executive Order 12898 requires all federal agencies to define environmental justice as part of their mission and to address any adverse health and environmental effects of their programs on traditionally underserved minority and low-income populations. In response, the U.S. Department of Transportation issued an Order on Environmental Justice in Minority and Low-Income Populations, which establishes a process for integrating the goals of environmental justice into federally funded transportation activities.

Further guidance for incorporating environmental justice into the metropolitan transportation planning and implementation process was developed by the Federal Highway Administration and Federal Transit Administration. As the Council conducts federally funded plans, programs, and projects, it must comply with these orders and guidance. This update of the *Transportation Policy Plan* details the Council's compliance with the environmental justice directives within the framework of existing requirements, including the National Environmental Policy Act (NEPA), Title VI of the Civil Rights Act of 1964, SAFETEA-LU, and the Americans with Disabilities Act (ADA).

The *Transportation Policy Plan* addresses environmental justice by providing a location analysis of low-income and minority populations in relation to the planned investments in the metropolitan transportation system. This analysis includes a discussion of whether disproportionate impacts were identified, the extent and magnitude of those impacts, and how the impacts will be avoided or mitigated, if practical.

Specific strategies and programs employed by the Council to improve the transportation system to the benefit of low-income and minority populations are also described. Finally, Appendix C to the *Transportation Policy Plan* includes a detailed discussion of the public participation process, including the methods employed to involve traditionally under-served populations. The Council's process ensures that members of low income and minority communities are provided with opportunities to participate in the transportation planning process, including the development of the *Transportation Policy Plan*.

Investment Strategies Related to Low-Income and Minority Populations

The impacts of transportation improvement projects on low-income and minority populations are difficult to analyze under environmental justice at a system/policy level. Those impacts will be analyzed on an individual project basis as prescribed under federal guidance. However, it is possible to describe the impacts of these investments at a larger scale.

The planned improvements to the Regional Highway System illustrate regional priorities as established by the Council. These priorities stress the preservation and maintenance of the existing highway system over expansion of the system. The relationship between the locations of low-income and minority populations (as shown in the 2000 Census) and planned investments in the transportation system are shown on Figures 11-5 through 11-8. Low-income populations are concentrated in relatively small pockets near the downtowns of Minneapolis and St. Paul. Outside of the two central cities very few census tracts contain significant (greater than seven percent) percentages of residents in poverty. The highest proportion of minority residents correlates significantly with the locations of low-income residents - concentrated primarily in the core area - but moderate levels of minority residents are also found in inner-ring suburbs, such as the Brooklyn Park/Brooklyn Center area and Richfield/Bloomington.

The new construction and expansion projects planned for in the *Transportation Policy Plan* should not create disproportionate adverse effects on low-income or minority populations, and in fact should create a benefit to them in the form of improved mobility and expanded transit service. Historically, the greatest harm done to minority and low-income populations as a result of transportation system investment decisions was caused by new highway construction or realignment projects that encroached upon, divided or even displaced neighborhoods. Mitigation techniques will be employed in all projects to minimize and mitigate the construction impacts on all affected populations.

Many of the Metropolitan Council's strategies and programs are aimed at improving and preserving the transportation system in the core area of the Twin Cities, especially through significant investments in the transit system. As Figures 11-5 through 11-8 illustrate, the core area is home to a significant portion of the region's low-income and minority residents. The focus of investment in this document's Transit System Plan is on transit markets and their potential for transit usage. Because the core area (Market Area I, as defined in Chapter 4) is where the greatest number of people who are transit dependent reside, the focus of investment will continue to be on the core area. As stated in Chapter 7, the Council supports the provision of sufficient transit services and alternative modes of transportation in Market Area I to allow its residents to live without the need to drive an automobile.

Key Transit System Plan improvements in the core area include faster service (with dedicated transitways, signal preemption for buses and limited stop operation), expanded service frequencies (15-minute frequencies for 18 hours a day), and enhanced security and pedestrian amenities within one-quarter mile of stations and stops. Other investments and policies of this plan that will benefit core-area minority and low-income populations include continued expansion of transit centers and stations, continued marketing of regional transit and rideshare services and incentives, enhanced safety and security, and continued development of the regional network of transitways on dedicated rights of way and bus rapid transit.

The transit system will also serve as a magnet for other types of investments, such as new commercial and residential development, that will benefit those populations. Additional investment in Access to Jobs programs will provide increased economic and career opportunities for low-income residents, many of whom do not have access to a private vehicle. Transit-oriented development policies will promote land

uses that improve access to transit, make bicycle and pedestrian travel safer and more convenient, and create common open and green spaces.

After analyzing the distribution of programs and projects identified in this *Transportation Policy Plan*, and the location of low-income and minority populations in the region, it can be concluded that any benefits or adverse effects associated with implementing the plan are not distributed to these populations in a manner significantly different than to the region's population as a whole. During the project development process, individual programs and projects will be further evaluated for potential adverse effects on these population groups in order to make a determination of no adverse effects or to identify mitigation for any adverse effects that are found.

Americans With Disabilities Act (ADA)

The Americans With Disabilities Act requires that all pedestrian facilities and transit facilities that are constructed be accessible to users with all levels of functional ability. Policy 16 of the Transportation Policy Plan assures that this goal is pursued for the entire transit system including pedestrian access to that system. Chapter 9 also includes a discussion of the requirement that all owners of pedestrian facilities should strive to make them accessible and that all public entities with 50 or more employees are required by law to develop an ADA Transition Plan that will detail steps to make their public rights of way accessible.

Figure 11-5: Population in Poverty & Major Plan & TIP Projects

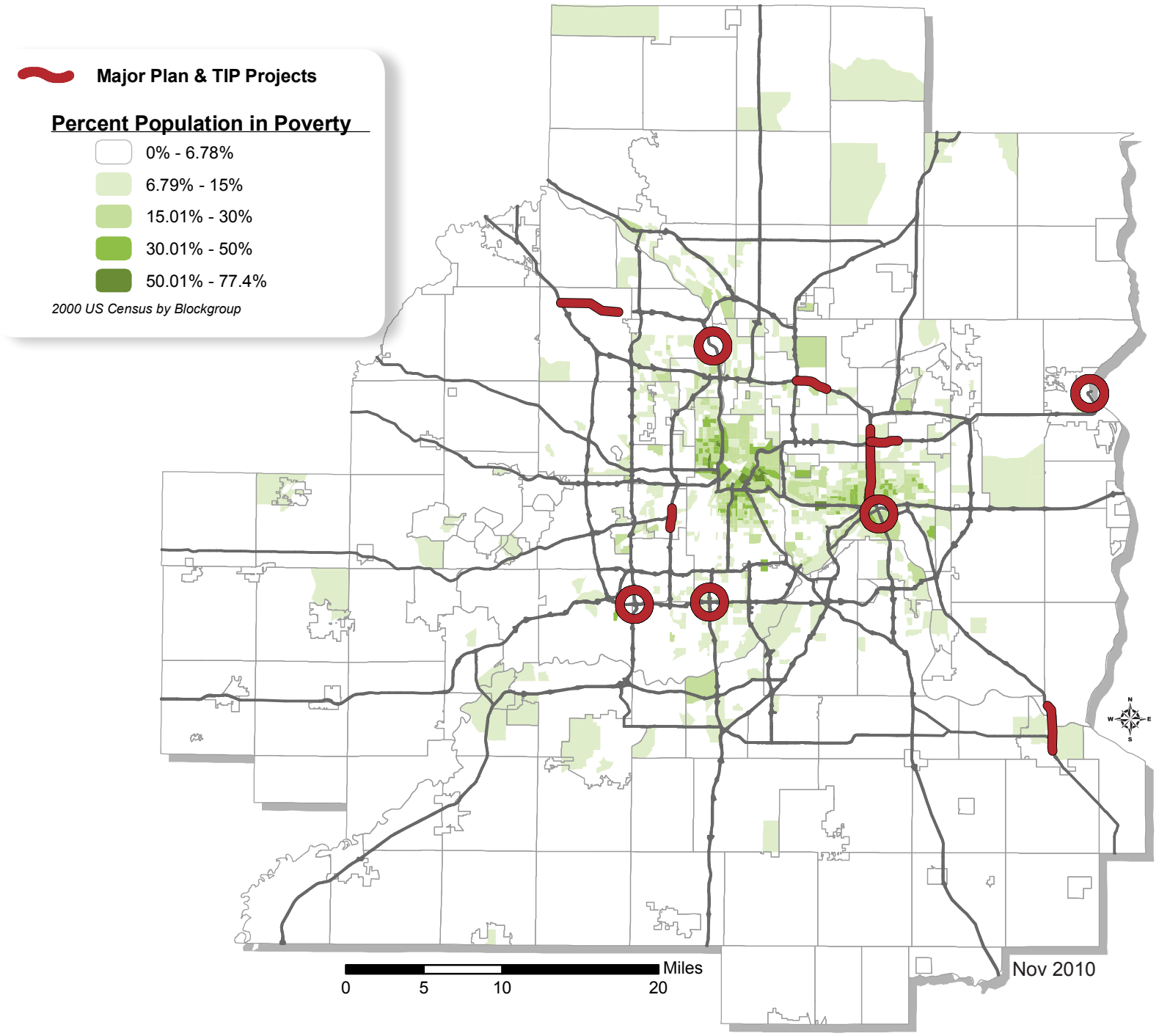


Figure 11-6: 2000 Minority Populations & Major Plan & TIP Projects

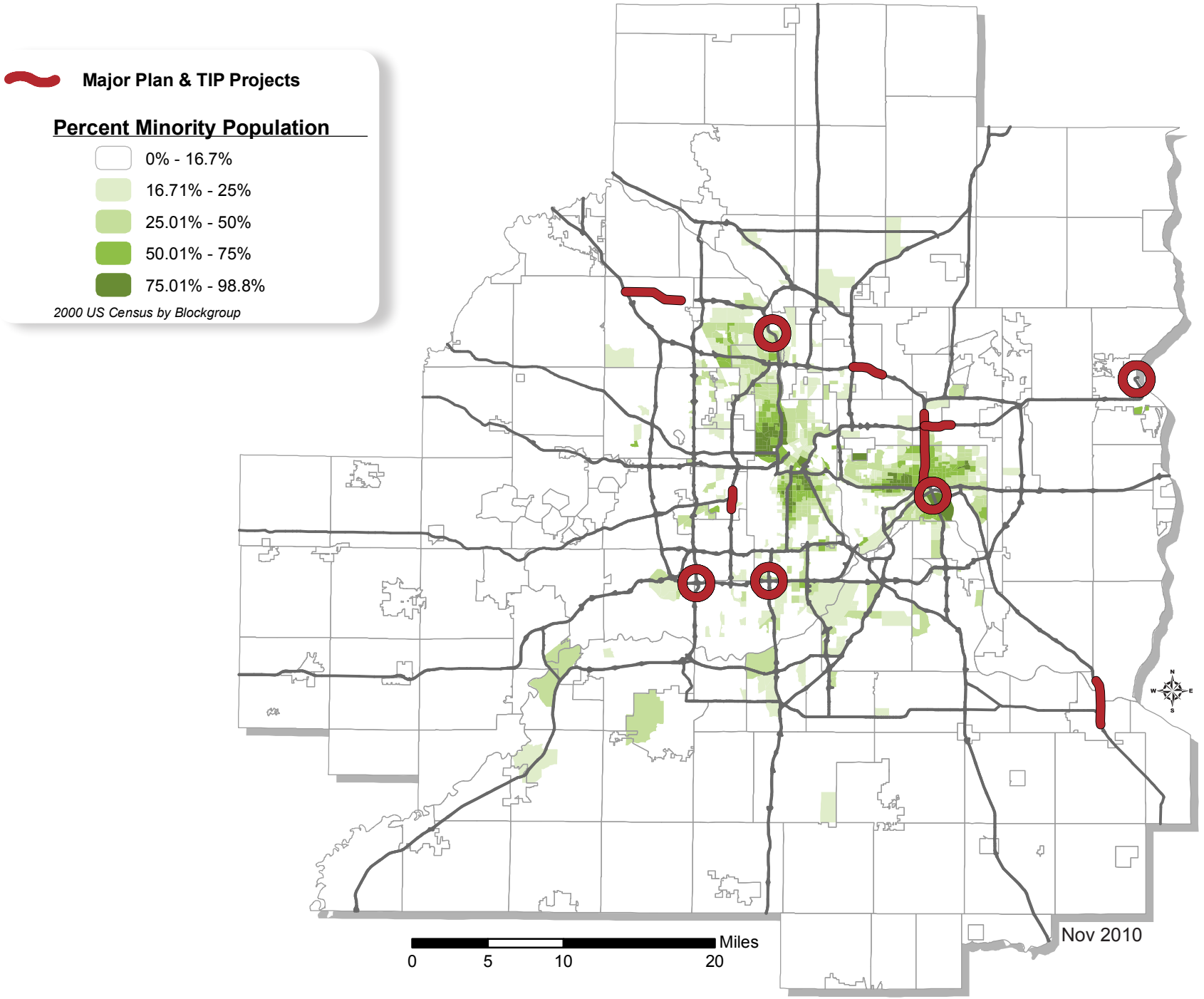


Figure 11-7: Population in Poverty & Proposed 2030 Transitways

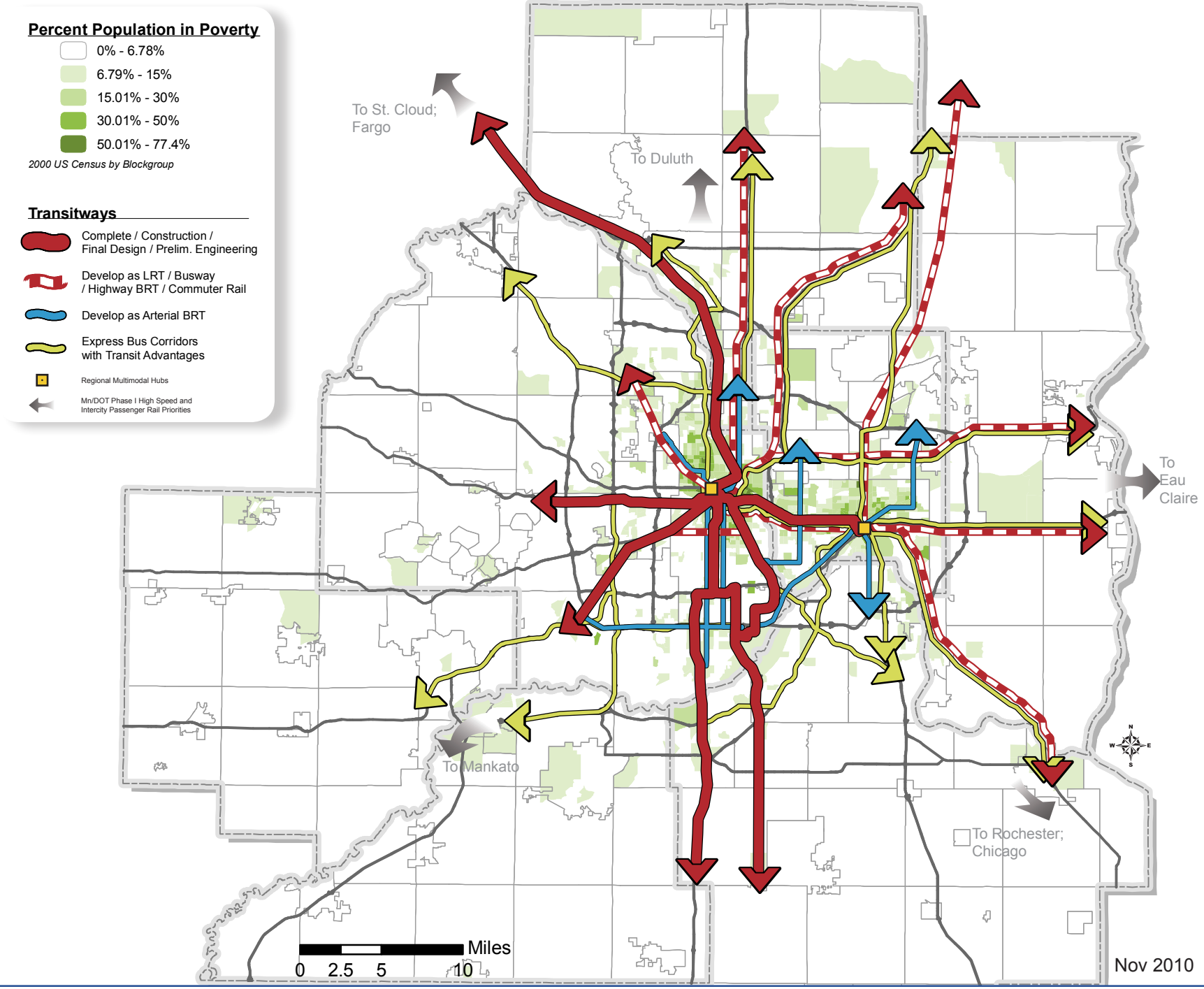
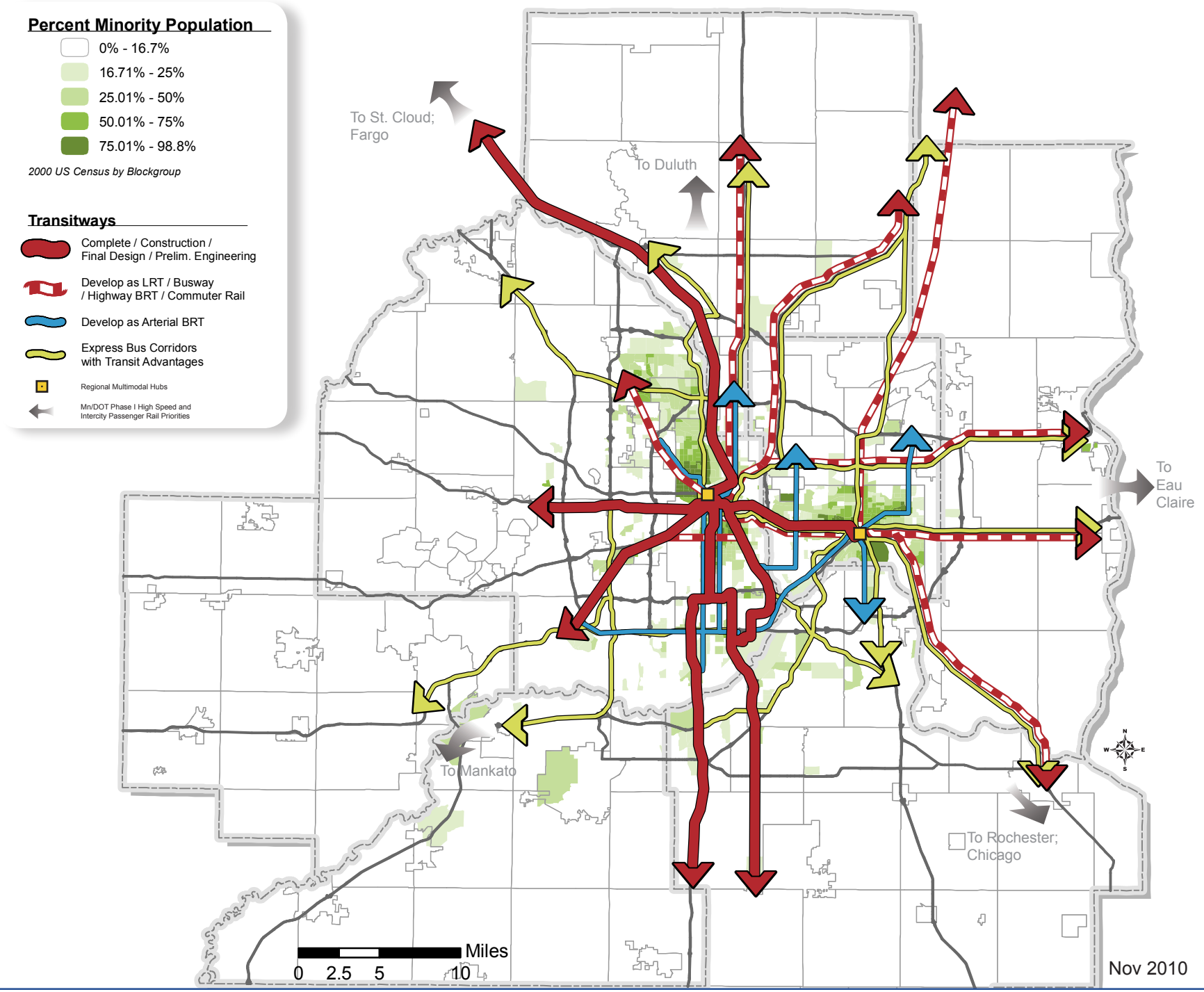


Figure 11-8: 2000 Minority Populations & Proposed 2030 Transitways



Environmental Streamlining – Planning and Project Development Linkage

The Council is committed to the protection and enhancement of the environment. The Council promotes the planning, project development, implementation and operation of transportation services and facilities in an environmentally sensitive manner.

Early integration of project planning and the environmental review and approval process improves the likelihood that projects and services can be implemented in a timely and environmentally sensitive manner. SAFETEA-LU stresses the need for integrating the planning and environmental process, and thereby promotes a streamlined process for reviews and permitting.

The *Regional Development Framework* – the development plan for the region – and other policy documents of the Council strongly support the protection and enhancement of the environment. In developing the region's *Transportation Policy Plan* and other system plans the Council closely followed the direction established in the *Regional Development Framework*. The Metropolitan Council, together with the DNR, has developed the Natural Resources Inventory and Digital Atlas that is made available to local governments and other stakeholders involved in planning and implementing transportation investments. The Natural Resources Inventory provides comprehensive information about environmental resources throughout the seven-county metropolitan area.

The integration of the planning and development process will vary for projects included in the 2030 Regional Transportation Plan and for those already in the design phase. For many projects, the planning and environmental processes have progressed to such a stage that little will change based on this policy plan update.

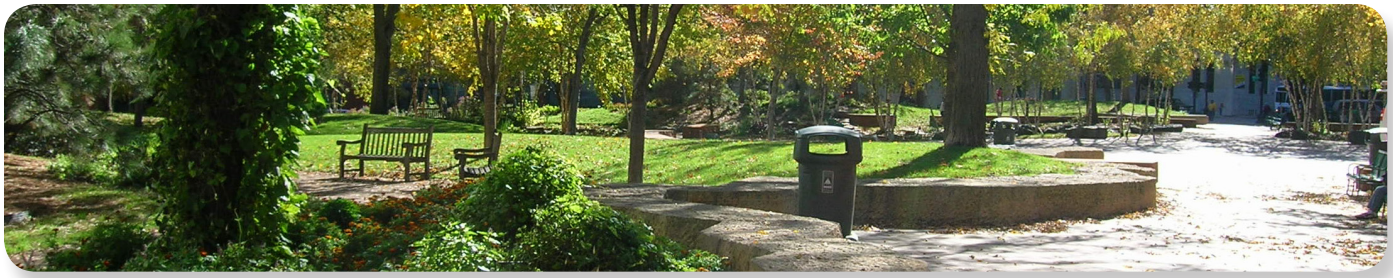


Figure 11-9: Environmental considerations are an important part of the planning for any transportation project

Most highway projects consist of the widening or reconstruction of existing facilities and have been in the plan for a number of years. Environmental approvals will be necessary but are significantly different than if the projects were proposed on new rights-of-way.

All of the transitways included in this revision of the plan have also been shown in previous regional plans. Most of the corridors follow existing road or railroad rights-of-way. Many of the corridors are already undergoing detailed analysis and environmental review, and in some corridors, such as Central, environmental documentation has already been completed. This plan has and will continue to help focus the analysis and shorten the process by defining the number of corridors and the types of transit technologies to be studied.

Environmental Mitigation

This Plan has a “fix it first” policy in highway development meaning that preservation, operations and management take priority before investing in any highway expansion. The plan proposes no highways on new alignment, except completion of TH 610. The emphasis in the Plan is on multimodal investment including transitway expansion and investments in bicycle and pedestrian infrastructure and programs.

Policy 8 in the Plan states that “transportation planning and investment decisions will consider and seek to minimize impacts on the environment” and includes several strategies for doing so. In addition, the highway plan includes Strategy 9i supporting Context-Sensitive Design in highway projects that requires projects to be planned and designed in a way that protects and enhances the environment.

The *Regional Development Framework* emphasizes the protection and enhancement of environmental quality. The Metropolitan Council supports work toward this end through application of the Natural Resources Inventory which is a tool made available to local government units and agencies such as Mn/DOT who are responsible for planning and implementing transportation investments. The Natural Resources Inventory provides comprehensive information about environmental resources throughout the seven-county metropolitan area.

Consultation and Cooperation

The Metropolitan Council regularly involves local and state agencies in development of its plans and programs. This Plan was developed in consultation with technical staff and policy makers of local and state agencies represented on the Technical Advisory Committee and Transportation Advisory Board. In addition, local and state historic and natural resource protection agencies were given opportunities for public input. The Metropolitan Council has recently developed a new Memorandum of Understanding (MOU) on Metropolitan Transportation Planning Responsibilities for the Twin Cities Metropolitan Area with the Minnesota Department of Transportation. This MOU replaces and updates the previous *Prospectus*.

Public Participation

SAFETEA-LU significantly increased the emphasis on improving public participation in the transportation planning and programming process. In response to SAFETEA-LU, the Council adopted a new Public Participation Plan (PPP) for transportation planning included as Appendix C in this *Transportation Policy Plan*. This Plan was developed under the guidance of the PPP.

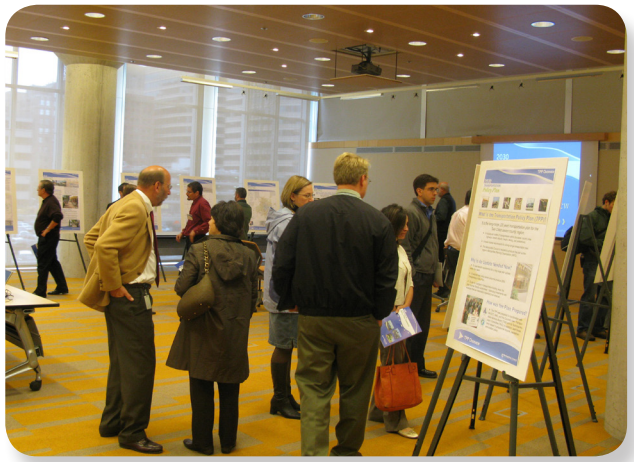


Figure 11-10: Transportation decisions are made with an emphasis on public participation

Chapter 12: Work Program

The Metropolitan Council will carry out or participate in many studies and plans over the next two to three years. These studies will be used to gather additional information and perform further analysis to inform the development of future revisions to the *2030 Transportation Policy Plan*. The next scheduled update of the *Transportation Policy Plan*, as required by state and federal law, is due in 2014.

Two categories of work program items are listed below. The first category lists and describes studies to be completed by the Metropolitan Council, working with stakeholders in the region. The second category lists important studies of interest to the Council, but these studies will likely be completed by other agencies. The Council will seek active participation on these studies.

Studies Led by the Metropolitan Council

Working with stakeholders, the Metropolitan Council will lead studies that will inform plan amendments and updates, and other important regional transportation planning work. These include:

Travel Behavior Inventory (TBI)

The last TBI was conducted in 2001. A comprehensive TBI is usually done every 10 years in conjunction with the Census; therefore a complete TBI will be done in 2010 and 2011. The data collected includes information on regional travel patterns, and data on individuals' travel behavior collected through interviews and surveys. The data will be used to recalibrate the region's travel forecast model and also analyzed to provide a better understanding of travel patterns.

Transit Service Improvement Plan

Every two years, regional transit providers will prepare a short-term Service Improvement Plan that identifies their priorities for transit service expansion over the following two to four years. A regional committee will review and prioritize proposed transit expansion projects on the basis of efficiency and effectiveness in meeting regional transit goals. The committee will recommend a Regional Service Improvement Plan for approval by the Metropolitan Council.

Transit Service Performance Evaluation

All providers will review their transit service annually based on regional transit performance standards to ensure operational efficiency. Providers will annually submit their performance data to the Council for inclusion in a regional service performance analysis.

Arterial Transitways Study

A study of potential transitways identified for Arterial Bus Rapid Transit in this plan will evaluate potential improvements, costs, and benefits of BRT on arterial street corridors as identified in this document's Transit Chapter. The study will also consider strategies to integrate local bus service with

BRT investments, develop a branding strategy for Arterial BRT, and prioritize system improvements and implementation.

Figure 12-1: Non-motorized travel modes will play an important role in the region.

Transit System Financial Analysis

This plan identifies preservation of existing transit service as a top priority for the region. It also sets a goal of doubling transit ridership by 2030 which will require expansion of both the bus system and implementation of a system of Transitways. The transit system has experienced substantial change and volatility in the type and level of revenues available for transit purposes over the past decade. The Council will conduct a long-term (20-year) analysis of the revenues and expenses required to both maintain and expand the regional transit system. The analysis will evaluate a number of alternative financial scenarios, identify issues and make financial recommendations regarding the accomplishment of these two goals.

Commuter Rail Evaluation

This plan recommends a re-evaluation of commuter rail corridors when Northstar Commuter Rail is operational and travel patterns resulting from commuter rail implementation are more fully understood and incorporated into the regional travel demand forecasting model. Gathering this data and incorporating relevant factors in the regional forecast model must be completed prior to a system wide evaluation of potential additional commuter rail lines. Completion of the update of the regional travel demand forecast model based on travel pattern data gathered by the Travel Behavior Inventory and the 2010 Census is scheduled for mid-2013.

Bicycle Route Information and Signing Plan

The Council is updating the regional bikeways map with information from local comprehensive plans, which should provide the most current inventory of what local governments are planning and what exists today. The Council will be the lead agency in the regional mapping partnership to improve the dataset. In addition, the Metropolitan Council will work with local trail implementing agencies, Mn/DOT, the DNR, counties and cities to develop and implement a signage plan, including guidelines for sign content and placement to help bicyclists navigate the network within and between jurisdictions and to transit connections.

Regional Bicycle System Inventory and Regional Bicycle System Master Study

This project includes an inventory of existing and currently planned bicycle facilities in the seven county Twin Cities metropolitan area, followed by a Regional Bicycle System Master Study that will include

an analysis of existing conditions, connectivity and levels of use of the bikeway system with a special emphasis on connectivity to regional transitways and major travel generators.

Coordinated Action Plan for Public Transit and Human Services Update

In 2010 and 2011, the Council is updating the Plan to establish goals, strategies and criteria for delivering efficient, coordinated services to elderly, underemployed or otherwise financially disadvantaged persons and persons with disabilities. The Council will work with regional transportation agencies, human service agencies, and Mn/DOT to update the information in the existing plan, adopted in 2007. This Plan will be used to direct future funding solicitations for FTA Job Access and Reverse Commute (JARC) and New Freedom program funding in 2012 and 2014.

Evaluation of Active Traffic Management (ATM) Applications

The region has and will be implementing many ATM strategies in the I-35W South (UPA) and I-94 (between the two downtowns) corridors. While there is European data on the effectiveness of ATM strategies, there is little documentation on the North American experience and effectiveness. Comprehensive before and after studies should be carried out in these corridors to assess the costs and benefit of ATM applications both with and without a managed lane component. This evaluation will also provide input to the on-going regional Congestion Management Process.

Use of Additional Federal Transportation Funds

Congress typically passes a transportation authorization bill every six years. The most recent bill expired in 2009 so a new transportation bill is expected at some future point. Since 1991, every new federal transportation authorization bill has increased the level of funds available for the regional solicitation. Some comments received during the MHSIS outreach suggested that additional federal funds received by the region should be used to support larger highway projects than are possible given the current $7 M regional solicitation cap. The Council proposes to work with the TAC and TAB to evaluate a modified or parallel solicitation for larger highway projects, while still attempting to provide the highest system-wide benefit at the lowest cost. This analysis will begin once a new Transportation Act is passed, reflecting the specific requirements of the bill.

Figure 12-2: The UPA is one example of congestion management.

Evaluation of Regional Solicitation Criteria

This Policy Plan sets a new direction and vision for the expenditure of funds on the Metropolitan Highway System emphasizing ATM applications, lower-cost / high-benefit projects and the implementation of managed lanes system-wide. It emphasizes that investments on the non-freeway trunk highway system sought by local entities should also be consistent with the policy direction of this plan. However, the Regional Solicitation for highway projects to date has to a large degree emphasized funding for expansion. This policy direction should be revisited to ensure that, in accordance with this plan and federal policy, adequate preservation investments are being made on the federally eligible highway system. The Transit chapter also emphasizes system preservation as the top priority, with additional revenue (when available) used to expand the bus system and grow the system of bus and rail

transitways. The Council and TAB/TAC should work to evaluate the regional solicitation criteria for all funding categories and determine whether the existing criteria and evaluation process adequately emphasizes the policies articulated in this plan and if needed, recommend modifications to the criteria and process. The recommendations will most likely be incorporated into the solicitation beginning in 2012 for funds awarded in 2017 and 2018.

Managed Lane Implementation Policy and Design Issues

The managed/priced lane system development will reach a new level of implementation with the adoption of this plan. In the past, a number of policy issues have been addressed on a project-by-project basis as the I-394 and I-35W MnPASS lanes were implemented. For example, the distribution of MnPASS revenue and daily operational parameters differs between the existing projects. Another policy issue that must be addressed relates to the treatment of two-person high-occupancy vehicles. Currently these vehicles travel in the MnPASS lanes without paying a fee. As the MnPASS lanes become more congested in the future, this policy should be reevaluated to determine the appropriate treatment of these vehicles. In addition, there are managed lane design issues that directly impact transit operations and the efficiency of managed lanes for transit. As managed lane projects move toward implementation, the Council/Metro Transit and Mn/DOT must work together to assure that the lane designs provide the best advantage for transit operations. The issues enumerated above should be addressed by a joint work group and study by the Council and Mn/DOT.

Evaluation of RALF to Help Implement the New Transportation Policy Plan

The RALF program has existed in relatively the same form since it was established in 1982. TPP Policy 7b.supports the use of RALF funds for projects that are consistent with the policy direction of this plan. There is a need to evaluate the RALF program policies and procedures and make any necessary changes to help implement the new policy direction. The Council, working with Mn/DOT and the TAC/TAB, will review the RALF program and make recommendations for needed changes

Metro District Freight Study

Mn/DOT and the Council are working with USDOT's Volpe National Transportation Systems Center on a metropolitan freight study. This will strengthen the ability of Mn/DOT and Metro Council to address the highest priority freight issues in the state's major metropolitan region, by bringing freight planning more fully into on-going statewide and metropolitan planning processes and by promoting institutional arrangements that match the complexity of and funding requirements for an efficient regional freight system.

Evaluation of Methods and Technology Applications for Monitoring System Aircraft Activity

The Council is committed to improving aviation system data and forecasts. Not all airports have air traffic control towers to document aircraft operational activity, nor are all air traffic control towers open 24 hours per day. Activity is usually estimated using number of operations per based aircraft, but this methodology should be re-examined to take advantage of newer technology, such as a video imaging or a multi-latera-

tion system. The Council proposes to work through the TAC Aviation Technical Task Force to prepare an evaluation and assess steps for improving data and forecasts before the next system plan update.

Studies to be Conducted by Other Agencies, with Council Participation

Mode and Alignment Studies - as recommended in Transit Chapter

Interregional Corridor System Review – Mn/DOT lead

The Interregional Corridor System is a priority network of trunk highways designed to provide safe and timely travel connections between the major trade centers and regions of the state. As such, it supports the continued economic vitality/competitiveness of the state in the changing global economy, serves both people and freight, and connects to or accommodates other modes of transportation. The system was established over ten years ago and was designed to help guide priority highway investments and management efforts. Mn/DOT is currently reviewing the system to determine whether modifications to the network itself or the measures and targets used to evaluate its performance should be considered in light of current trends and conditions in transportation and the future outlook for Minnesota's economy and livability. This work will be completed in approximately a year. Any proposed changes to the system will be formally considered in the next update of Mn/DOT's 20 Year Highway Investment Plan.

Reassess Trunk Highway Non-Freeway Principal and "A" Minor Arterial Plans – Mn/DOT lead

Mn/DOT, working with the Council and TAC/TAB will develop a process to reassess the policy guidance and plans for improvement to these trunk highways. This work will begin once Mn/DOT Central Office has completed the IRC Study (noted above). The intent is to develop lower-cost approaches to manage and improve these trunk highways consistent with Council and Mn/DOT plans.

MSP Long-term Comprehensive Plan Environmental Assessment – Traffic Analysis

The Council indicated in its review of the MSP 2030 LTCP that "The MAC shall continue to work with all appropriate agencies to implement the I-494/34th Ave, and TH5/Glumack Drive – TH5/Post Rd. interchange modifications included in the 2030 Concept Plan, including preliminary environmental scoping and analysis, since these proposed modifications are not included in the region's fiscally-constrained 2030 highway plan." MAC, MnDOT and city of Bloomington have recently agreed to share the cost of further work on traffic forecasting and concept development for these interchanges. The LTCP environmental work is estimated to take up to two years to complete.