

2030

TRANSPORTATION *Policy Plan*



Adopted Jan. 14, 2009



2030 TRANSPORTATION *Policy Plan*

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Contents

Preface	ix
Chapter 1: Overview	1
Chapter 2: Policies and Strategies	7
Chapter 3: Regional Transportation Finance	25
Chapter 4: Transportation and Land Use	39
Chapter 5: Regional Mobility	48
Chapter 6: Highways	55
Chapter 7: Transit	86
Chapter 8: Freight and Goods Movement	139
Chapter 9: Pedestrians and Bicyclists	149
Chapter 10: Air Transportation	165
Chapter 11: Federal Requirements	198
Chapter 12: Work Program	213

Tables

Table 3-2:	MVST Phase-In Distribution FY 2008 - FY 2012	26
Table 3-4:	Gas Tax and Debt Service Surcharge	28
Table 6-3:	Highway Projects Implemented or Advancing Since 2004	58
Table 6-19:	Congested Lane Miles, 2005 and 2030	67
Table 6-18:	Vehicle Trips and Miles Traveled, 2005 and 2030	67
Table 6-21:	Major Highway Projects Under Construction or Included in 2009-2012 Transportation Improvement Program (TIP)	71
Table 6-24:	Total Metro Area Target Funds Available	73
Table 6-25:	Portion of Federal Target Funds Available for Regional Solicitation	73
Table 6-26:	State Road Construction Funds, Mn/DOT Metro	74
Table 6-27:	TSP Investment Plan: State Road Construction 2013 – 2030 (<i>in millions</i>)	74
Table 6-28:	Major Tier 1 Bridges – Metro Area	75
Table 6-31:	Other Tier 1 and Tier 2 Bridges Requiring Investment before 2018	76
Table 6-34:	List of Congestion Management Planning Study Projects	79
Table 6-37:	Expansion Projects to be Reassessed	83
Table 7-13:	Twin Cities Transit Ridership	94
Table 7-45:	Estimated Capital Costs and Revenues to Maintain the Transit System	134
Table 7-46:	Estimated Capital Costs to Expand the Transit System	135
Table 7-47:	Estimated Revenues to Expand the Transit System	136
Table 7-48:	Estimated Annual Operating Costs to Maintain and Expand the Transit System	137
Table 7-49:	Estimated Sources of Revenues to Maintain and Grow the Transit System	138
Table 7-50:	Summary of Estimated Capital and Operating Costs	138
Table 10-4:	Airport Facility Status	168
Table 10-5:	Summary of Key System Accomplishments	169

2030 TRANSPORTATION *Policy Plan*

Table 10-22:	Airport Classifications	181
Table 10-24:	Airport Functional and Operational Characteristics / Classification of Metro Region Airport System Facilities	182
Table 10-30:	Estimated Landside Capacity Utilization	188
Table 10-31:	Air Service Available at Region's Airports	190
Table 10-32:	Comparison of Metro Growth and Commercial Aviation Activity	191
Table 10-33:	MAC 2007 - 2009 Capital Improvement Program Funding (Dec. 2007)	193
Table 11-1:	Cross-Reference of Eight SAFETEA-LU Planning Factors with Metropolitan Council Policies, Procedures and Solicitation Criteria	198

Figures: Maps

Figure 5-6:	Freeway Transit Passengers and Highway Throughput	52
Figure 6-1:	Metro Highway System	56
Figure 6-2:	Regional Highway System	57
Figure 6-20:	2030 Congested Principal Arterial Segments	68
Figure 6-32:	Required Bridge Investments	77
Figure 6-36:	Expansion Projects to be Reassessed	82
Figure 7-7:	Regular Route Bus Service	90
Figure 7-10:	Current Transit Passenger Infrastructure	92
Figure 7-15:	Freeway Transit Passengers and Highway Throughput	96
Figure 7-19:	Transit Market Areas	107
Figure 7-20:	Potential 2030 Local Bus Routes	108
Figure 7-21:	Potential 2030 Arterial Network	109
Figure 7-22:	Potential 2030 Express Bus	110
Figure 7-23:	Planned 2030 Park & Rides	113



2030 TRANSPORTATION *Policy Plan*

Figure 7-28:	Existing Transit Support Facilities	116
Figure 7-29:	Existing Transit Advantages	117
Figure 7-30:	Planned 2030 Bus Shoulders	118
Figure 7-39:	Potential 2030 Arterial Streets BRT Routes	126
Figure 7-42:	Proposed 2030 Express Service Corridors	129
Figure 7-44:	2030 Transitway System	133
Figure 8-4:	Regional Freight System	140
Figure 8-10:	Average Daily Truck Traffic	142
Figure 9-3:	Existing Metro Bike Trails	150
Figure 10-20:	Metropolitan Urban Service Area (MUSA)	179
Figure 10-21:	Regional Aviation System Policy Framework Areas	180
Figure 10-27:	Typical Aircraft One-Hour Flight Access	186
Figure 10-35:	Jurisdictional Areas Twin Cities Aviation System	196
Figure 11-5:	Population in Poverty & Hwy Expansion Projects to be Reassessed	207
Figure 11-6:	2000 Minority Populations & Hwy Expansion Projects to be Reassessed	208
Figure 11-7:	Population in Poverty & Proposed 2030 Transitways	209
Figure 11-8:	2000 Minority Populations & Proposed 2030 Transitway	210



Figures: Charts and Graphs

Figure 3-3:	Changes in State MVST Forecasts	27
Figure 3-8:	State Highway User Fund and Federal Highway Aid Historical and Forecast Revenues	34
Figure 3-9:	Metropolitan Council 2008 Transit Revenues and Expenses	35
Figure 3-10:	MVST Transfers to Metro Area	36
Figure 6-22:	Metropolitan Highway System Investment Strategy (MHSIS) Process	72
Figure 7-11:	Regional Transit Rides and Goal	93
Figure 7-18:	Ridership by Mode 2003 - 2030 (Including rides changing modes)	105
Figure 8-1:	Freight Movement by Tonnage and Value	139
Figure 8-5:	Forecast Increase in Minnesota Freight Movement to 2020	141
Figure 10-1:	Modal Advantages by Trip Distances	166
Figure 10-19:	Aviation Planning Process	178

A	<u>Land Transportation Glossary</u>
B	<u>2009 - 2012 TIP</u>
C	<u>Public Participation Plan</u>
D	<u>Functional Classification Criteria</u>
E	<u>Highway Interchange Requests: Evaluation Criteria and Review Procedure</u>
F	<u>Clean Air Act Conformance</u> <i>Conformity Documentation of the 2008 TPP to the 1990 Clean Air Act Amendments</i>
G	<u>Regional Transit Standards</u>
H	<u>2007 MAC Planning Environment</u>
I	<u>National and State Airport Classification</u>
J	<u>Airport Service Areas</u>
K	<u>MSP Class B Airspace</u>
L	<u>Land Use Compatibility Guidelines for Aircraft Noise</u>
M	<u>2007 Preliminary System Airport Assessments</u>
N	<u>Aviation Glossary</u>
O	<u>Conformity Documentation of Potential Economic Stimulus Projects</u>

2030

TRANSPORTATION

Policy Plan

Preface

Purpose

This document presents the Metropolitan Council’s policies and plans to guide development of the region’s transportation system to the year 2030. It addresses problems and issues in preserving the region’s mobility and describes actions which will be undertaken to preserve, improve and expand the region’s highways, transit and other transportation modes.

Authority

This *Transportation Policy Plan* fulfills provisions of federal and state law.

As the designated Metropolitan Planning Organization (MPO) of the Twin Cities seven-county region, the Metropolitan Council conducts transportation planning to meet the requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). It does so with the involvement of local elected officials through the Council’s Transportation Advisory Board and the participation of the region’s residents. The *2030 Transportation Policy Plan* conforms to the 1990 Clean Air Act Amendments (CAAA) as required by TEA-21.

State law (Minn. Stat. sec. 473.145 and 146) directs the Council to prepare a comprehensive development guide for the seven-county Twin Cities region. The guide consists of the 2030 Regional Development Framework and regional plans for water resources, regional parks and transportation, including aviation. This policy plan fulfills this state requirement for transportation.

Public Participation Process

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The Council provided a variety of methods for interested parties and the public to participate in the formulation of the region's *Transportation Policy Plan*. Described below are the specific activities undertaken to encourage public participation in the development of this regional transportation plan. These activities are consistent with the Council's Public Participation Plan, found in Appendix C of this plan.

- Preliminary plan drafts were presented and discussed with the Technical Advisory Committee (TAC), Transportation Advisory Board (TAB) and their subcommittees.
- Outreach meetings were held with all seven county boards between February and May 2008 to present issues and the schedule for system plan preparation.
- The draft policy plan was presented to the TAC Planning and Funding and Programming Committees, the TAC, and the TAB Policy Committee and TAB.
- Sept 10, 2008 – Council adopted the draft plan for purpose of public hearing. Notice of the hearing was provided in the State Register, two daily newspapers, seven Council designated county newspapers, and on the Council website.
- September and October 2008- Six public open houses were held throughout the region to present the draft plan.
- October 22, 2008 – Public hearing on draft plan.
- November 6, 2008– Record closed on public comments.
- Copies of the draft plan and background material were posted on the Council's Web site, and hard copies were provided free upon request. The draft plan was sent to the Legislative library, St. Paul, Minneapolis and five county libraries for public access.
- Comments were accepted at the public hearing, at open houses via comment cards, mail, facsimile, a comment telephone line, email and a web-based comment site set up especially for this purpose.
- Copies of all comments received are available for review at the Council's Data Center.
- The Council's Transportation Committee considered the public hearing comments and report at its December 8 meeting.
- One change that was proposed to the plan as a result of the public comments, the addition of several highway expansion projects for potential federal stimulus funding, triggered an additional public comment period between December 8, 2008 and January 12, 2009, which noticed in the State Register and on the Council website.
- The Council's Transportation Committee considered the additional comments and the revised plan at its January 12, 2009 meeting.
- The Council accepted the public hearing report at its January 14, 2009 meeting and adopted the plan with recommended changes.

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 retaining 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 25 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. Two-thirds of revenues from the state motor vehicle sales tax (MVST) are currently dedicated to transportation and the figure will rise to 100 percent by FY 2012. 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.

A recent state law will channel 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.

The law permits funding of transitway development by revenues from a new quarter-cent sales tax to be 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 is scheduled for reauthorization in 2009, offering some potential for higher levels of federal high-

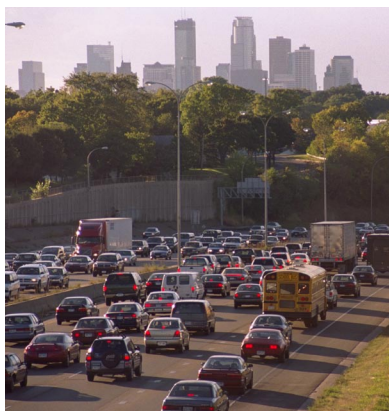


Figure 1-1: Road congestion is expected to continue to grow

way and transit funds. In addition, infrastructure investments could be part of a potential federal funding package to stimulate the nation's economy in 2009.

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 in recent months, 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, fuel prices have now fallen and the future direction is uncertain.
- In a reversal of past trends, the number of vehicles miles traveled (VMT) per capita in the region edged downward in 2005 and 2006; 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, but how much is uncertain.

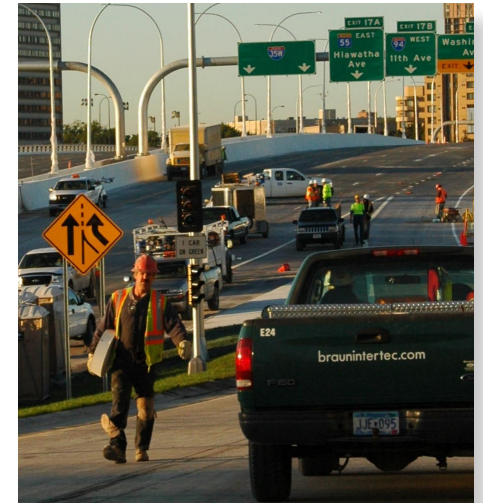


Figure 1-2: Road construction expenditures will be focused on maintenance, particularly Tier 1 and Tier 2 bridges

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. The transportation system must optimize all available transportation modes – highways, transit and others – and coordinate them 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.

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.

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

- Increase the people-moving capacity of the metropolitan highway system while reducing future demand on the system.
- Manage and optimize, to the greatest extent possible, the existing system.
- Implement strategic and affordable capacity expansion projects.

In order to achieve the above objectives, this plan recommends the following strategies:

- Encourage the use of alternatives to the single-occupant vehicle and changes in travel patterns such as high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes, bus-only and priced dynamic shoulder lanes, roadway pricing and other transit advantages.
- Implement low-cost/high-benefit highway construction improvements, including some capacity expansion projects, on a system-wide basis to improve traffic flow by removing bottlenecks, improving geometric design and eliminating safety hazards.
- Reassess the scope and cost of proposed major highway expansion projects to bring them more in line with projected highway revenues and to enhance Mn/DOT's ability to implement them.

In 2009, Mn/DOT and the Metropolitan Council will complete a Metropolitan Highway System Investment Strategy (MHSIS) to refine in greater detail this highway vision, identify low-cost/high-benefit projects along congested highway corridors and reassess major expansion projects. Also in 2009, Congress is expected to authorize a new six-year federal transportation funding bill, providing greater certainty about future highway funding levels. Additional infrastructure funds may also be included in an economic stimulus package.

The MHSIS, coupled with refined financial projections, will permit a better definition of the highway improvement projects to be implemented by 2030. The result of this analysis will be incorporated as an amendment to the *Transportation Policy Plan* in 2010.

Emerging needs in the developing portions of the region, including new principal and "A" minor arterials, new/rebuilt interchanges and new river crossings, must also be acknowledged in spite of current financial constraints.

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





Figure 1-3: Hiawatha LRT



Figure 1-4: Metro Transit Bus



Figure 1-5: Northstar Commuter Rail



Figure 1-6: BRT - U of M Campus Connector on Transitway

The Transit Contribution

Transit is already a major contributor to regional mobility. Ridership has grown steadily since 2003 to 89 million rides in 2007. 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 highways, 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, HOV/HOT lanes, dynamic shoulder lanes, bus-only shoulders and arterial street bus lanes).

Most of the corridors labeled as Tier I in the Council's previous plan are well underway. The Northstar Commuter Rail Line is scheduled to start operations between downtown Minneapolis and Big Lake in 2009. Central Corridor Light Rail, to connect the St. Paul and Minneapolis downtowns and the University of Minnesota, is now in design and is expected to open in 2014. Hiawatha Light Rail, already operating between downtown Minneapolis and the Mall of America, will need to shift from two- to three-car trains to expand its capacity, and 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.

Eight 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. Both are under study, as is the Rush Line, the proposed link between Forest Lake and St. Paul. An alternatives analysis for Red Rock was recently completed, and bus improvements are currently being planned.



Four other promising transitway corridors - I-35W North, Highway 36/NE Corridor, I-94 East and Highway 65/Central Avenue/BNSF (Bethel/Cambridge), should also be analyzed in the next three years to determine the most appropriate mode and alignment for implementation.

This plan assumes that one of these eight 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 additional LRT 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, once Northstar is operational, it will be possible 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 Intermodal Station.

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.

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.



Figure 1-7: Some BRT stations may look similar to this LRT station



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.

The **freight movement system** and the **region's airports** connect the region to the rest of the nation and the world. The Council will continue to work with Mn/DOT and monitor the issues confronting the freight industry, and it 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.



Figure 1-8: Bike commuting is a growing mode choice in the region

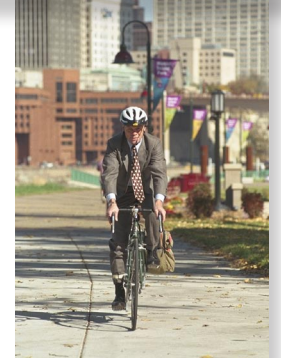
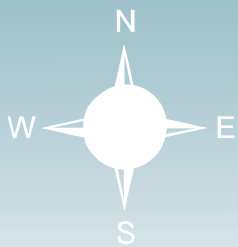


Figure 1-9: Pedestrian facilities are an important component of multimodal transportation



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 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,





Figure 2-1: Regional transit providers are already investing in multimodal facilities

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 in 2009, will develop a Congestion Management Process (CMP) that meets federal requirements. The CMP will incorporate and coordinate 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 low-cost safety and mobility projects where feasible.

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

Strategy 3c. Alternatives to Congestion: The region has and will continue to implement bus-only shoulders, high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes and priced dynamic shoulders to provide alternatives to traveling in congested highway conditions.

Strategy 3d. Travel Demand Management Initiatives: The region will promote a wide range of Transportation Demand Management (TDM) initiatives that help to avoid and lessen 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.

Strategy 3e. Parking Pricing and Availability: The Council will continue to work with its TDM partners to help define the relationship of parking supply, demand, location and cost relative to the use of the single-occupant automobile 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 lessen congestion including riding transit, priced lanes, bicycling, walking, vanpooling or carpooling.

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, where appropriate, will monitor and evaluate 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.



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



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, zoning and community development strategies 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.

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.

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 corridors listed in this policy plan or any "officially mapped" state highway project within the metropolitan area.

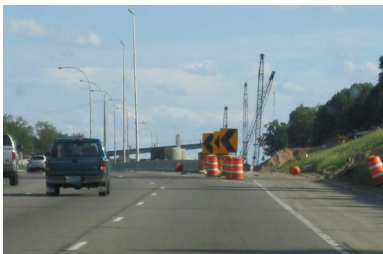


Figure 2-3: Road maintenance is a primary focus of new roads funding





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



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

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.

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.

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 2-6: New fuel options are already being implemented



Figure 2-7: Transportation projects must adhere to federal standards, such as air quality

Highway System Policies

Policy 9: Highway Planning

The Council, Mn/DOT, and local governments will plan the regional and local highway systems to provide a cost-effective, multimodal and safe roadway system that reflects the needs of a growing population and economy.



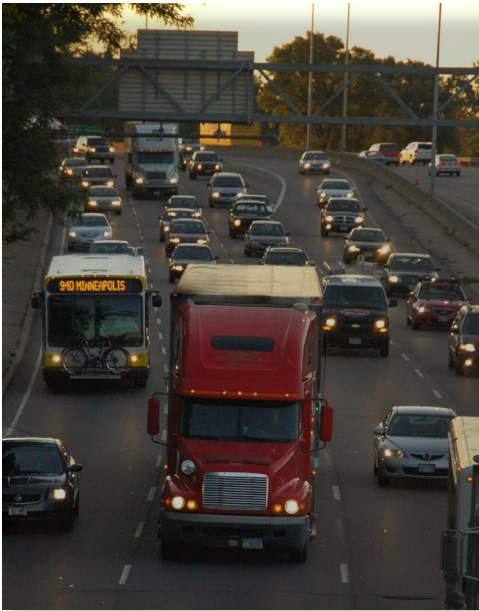


Figure 2-8: A highway is a multimodal facility capable of carrying cars, buses and trucks.



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

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 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, bus-only shoulders, high-occupancy vehicle and toll (HOV/HOT) lanes, and priced dynamic shoulder lanes.

Strategy 9d. Congestion Management Process: The Council, working with Mn/DOT in 2009, will develop a Congestion Management Process (CMP) that meets federal requirements. The CMP will incorporate and coordinate 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 low-cost safety and mobility projects where feasible.

Strategy 9e. Reassess Major Highway Expansion Projects: Mn/DOT and the Council should reexamine major expansion projects included in the 2004 *Transportation Policy Plan* in an attempt to reduce their scope and cost to make them more affordable while preserving the critical elements of each project that address preservation and management needs, mitigate congestion, improve safety and optimize facility performance. These projects should be reassessed using a consistent and fair procedure.

Strategy 9f. 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 9g. 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.





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

Strategy 9h. 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 9i. 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 9j. 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 low-cost congestion mitigation and safety improvements.

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.



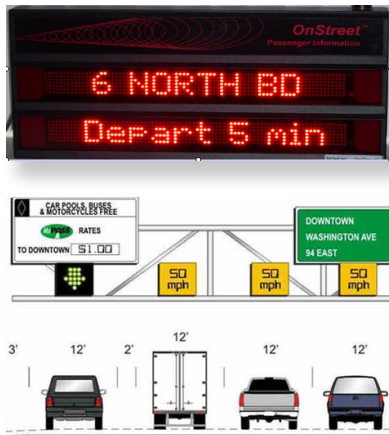


Figure 2-11: Technology represents one method to mitigate congestion

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 regional 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 Metropolitan Highway System to optimize the performance of existing facilities. New or reconstructed trunk highway interchanges to expand capacity or meet safety concerns will be considered only if they are consistent with this policy plan (Appendix E) and Mn/DOT's criteria and cost-sharing policies.

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: Capacity expansion projects are necessary in order to 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.



Figure 2-12: Transit options are part of a mature transportation system

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.

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.





Figure 2-13: LRT is one transit mode that has been successfully implemented in the region

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.

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 should 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 bus 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 Policies: The Council will develop, in consultation with regional providers, CTIB and other partners, regional fleet and facilities policies 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 also 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.



Figure 2-15: Metro Mobility satisfies federal ADA requirements

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 fixed-route transit system, comparable ADA, and other dial-a-ride programs.

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





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

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

Strategy 16c. Access to Transit Stops and Stations: The Council will encourage cities to place priority on providing adequate access to transit stops and stations, including snow removal.

Strategy 16d. Transfers Between Fixed-Route and ADA Services: The Council will encourage transfers between fixed-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.

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 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 in order for a local bicycle or pedestrian project to be eligible for federal transportation funding it must be consistent with an adopted plan.



Figure 2-17: The Council will prioritize federal funding allocated for bike and pedestrian improvements

Bike lockers at regional park-and-ride



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. Multimodal Roadway Design: Design and planning for principal or minor arterial road construction and reconstruction projects will consider off-road walkway and both on- and off-road bicycle accommodation with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians.

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 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.

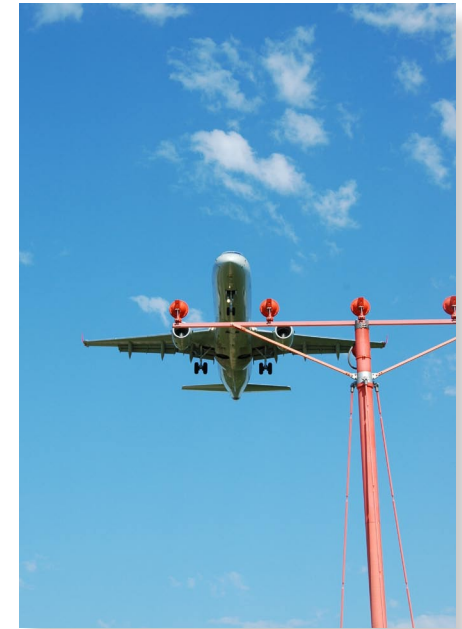


Figure 2-18: Freight transportation can take a variety of modes, including aviation



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 commercial air-service competition plan and annual airport marketing program.

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 ensure assessment 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 in the forefront of regional decision-making.
- 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 document.

Strategy 22b. Updating/Amending LTCPs: The LTCP should be periodically updated according to the timetable established in the *Transportation Policy Plan*. 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 indicate 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 250 feet or more above ground level at the site to minimize potential general airspace hazards.

Strategy 24a. Notification to FAA: The local governmental unit should 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 airport. 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. In addition to including information that must be consistent with plans of watershed management organizations and the state wetland regulations, the water management plan should include provisions to mitigate impacts from construction, restore or retain natural functions of remaining wetlands and water-bodies, and include the pretreatment of runoff prior to being discharged to surface waters.

Strategy 25b. Protecting Groundwater Quality: Airport LTCPs shall 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 shall 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 be reviewed, and if necessary, amended to 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.





Despite recent changes in state transportation finances, adequate funding for highways and transit remains an issue.

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 recent changes in state financing for highways and transit, it remains an 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 dedicates 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 is scheduled for reauthorization in 2009, offering some potential for higher levels of federal highway and transit funds. However, it is difficult to predict whether or not they will be sufficient to alter regional policy direction.

A new metropolitan sales tax provides the opportunity to increase investment in regional transitways, an important option for serving commuters. However, legislative limitations on the use of this new revenue source mean that identifying adequate funding to expand the bus system will continue to be a major issue for the region.

Because of the very recent enactment of the state transportation funding bill and the upcoming federal bill reauthorization, there are still many uncertainties as to how much revenue will be available, how it will be allocated statewide and how the new Counties Transit Improvement Board (CTIB), a joint-powers body, will choose to operate and allocate the revenues generated by the quarter cent sales tax. The Council recognizes these uncertainties and anticipates that this policy plan will require an amendment to provide additional specifics and details on projected project expenditures.





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 February 08 statewide MVST forecast for FY 2008 was \$487 million, with a forecasted continued decline to \$445 million in FY 2009. 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 projected FY 2009 total of \$445 million.

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%	50.25%	56.25%	60.00%
Metropolitan Area Transit	24.00%	27.75%	30.00%	33.75%	36.00%
Greater Minnesota Transit	1.50%	1.75%	3.50%	3.75%	4.00%
TOTAL	63.75%	73.75%	83.75%	93.75%	100%



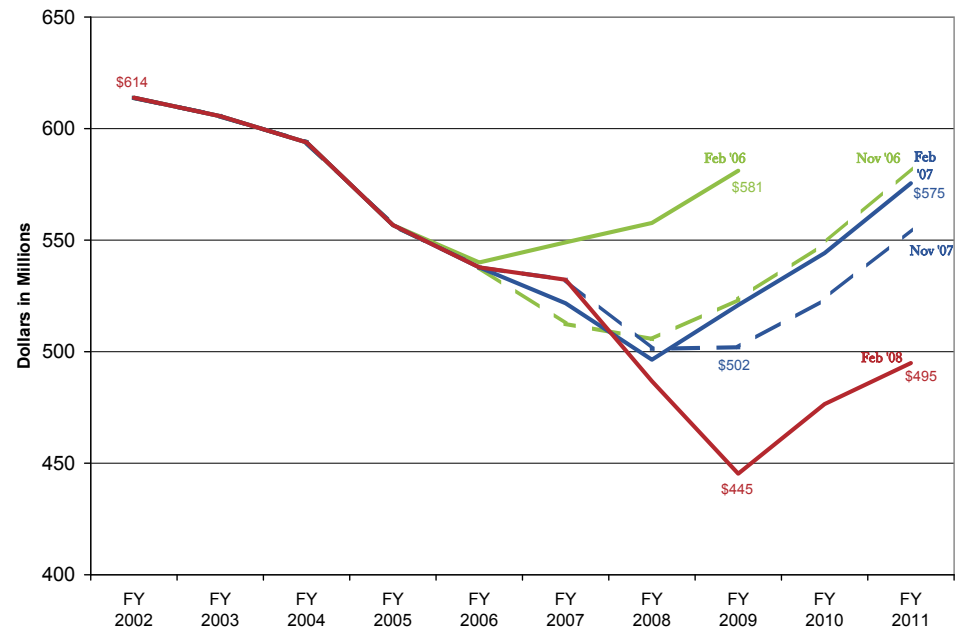
Therefore, while the phase-in of the constitutional dedication of MVST will bring new revenues to transportation, the falling total collections will not result in nearly the level of new transportation revenues originally expected.

Given the sagging economy, a saturated vehicle market (there are more registered vehicles than drivers in the metro area) and increased longevity of vehicles, it is not likely that in the foreseeable future MVST revenues will recover to previous collection levels. It is even difficult to know if the revenues will continue to decline or begin to recover as indicated by the state forecasts for FY 2010 and beyond.

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

Note: In December 2008, while this plan was in the final stages of adoption, a new MVST forecast was released again revising the MVST forecasts for fiscal years 2009, 2010, and 2011 downward. The new forecast continues to demonstrate the volatility of MVST and the difficulty of relying on MVST as a primary revenue source for transit operations. During the 2009 legislative session, the Council will work with the Governor, Legislature and other partners to identify and implement funding solutions to, at a minimum, allow for maintaining existing levels of transit system operations. The MVST revenue estimates in this plan reflect the February 2008 MVST forecast.

Figure 3-3: Changes in State MVST Forecasts



**Table 3-4:
Gas Tax and Debt
Service Surcharge**

Year	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.*

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 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 debt service surcharge was also added to the total gas tax beginning August 1, 2008, and each July 1st thereafter. 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 previous rate.

The debt surcharge will finance \$1.7 billion in trunk highway bonds which was authorized 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.

In addition, the vehicle registration tax was changed to eliminate the caps on fees, and the depreciation schedule for vehicles was adjusted to slow the reduction in vehicle value. The registration tax increase applies only to newly registered vehicles - current vehicles are grandfathered in at the current tax rate or less.

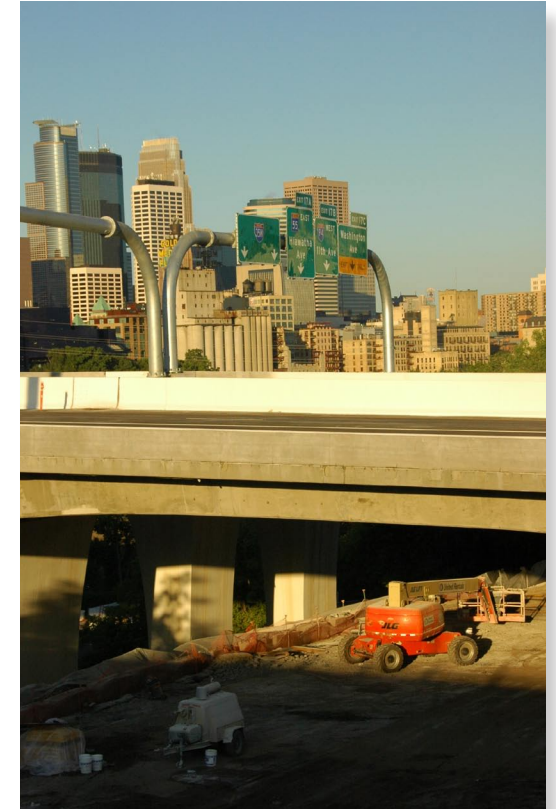


Figure 3-5: Bridge construction work is an investment priority mandated by the Legislature

Legislative Direction for Expenditures

In Chapter 152, the Legislature provided specific direction for expenditure of funds from the sources described above.

- A Bridge Improvement Program was 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 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.
- The County State-Aid Highway funding formula was changed to allocate the new proceeds (from the gas tax and surcharge and registration tax) according to a formula that tends to shift revenue to more urbanized counties.
- In 2011 and on, the seven metropolitan counties will receive for expenditure on metropolitan roads of regional significance one half of the proceeds from the leased vehicle sales tax (after subtracting an amount necessary to pay for a low-income motor fuel tax credit) and a small portion of the highway user funds apportioned by the Legislature every six years.

The highway funding portions of the bill provide significant new revenues to both Mn/DOT and local units of government (cities, counties and townships). While Mn/DOT has been working to identify the impact of these revenues on future expenditures, it will not fully determine the impact in time for the completion of this plan.

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 will be responsible for allocating the sales tax revenues. The state Department of Revenue began collecting the new sales tax on July 1, 2008. It is currently estimated that the tax will raise approximately \$85 million annually (in 2008 dollars).

The decline and volatility of MVST revenues renders it a very unstable funding source.

The 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 any 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 service levels to be maintained.



Figure 3-6: Increasing fuel prices may reduce potential road revenues

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 caused both a reduction in vehicle miles of travel and increased use of more fuel efficient vehicles, both of which cause a reduction in the amount of motor fuel taxes collected. While a reduction in travel may ease congestion, there is no indication that it will have a significant impact on the level of highway expenditure required in the region.

In addition, since 2003, state motor fuel collections have been relatively flat at approximately \$650 million annually or \$32.5 million per penny of tax (at 20 cents per gallon). Most likely the recent interest and demand for fuel efficient vehicles will begin to push the per penny gas tax collections downward. 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 may begin to decrease.

Inflation of Project Costs

Recent trends are that the costs of highway construction projects are greatly outpacing normal inflationary increases. The American Road and Transportation Builders Association (ARTBA) estimates that highway and street construction costs have increased 43 percent since 2003. In just 2007 alone, highway construction inflation was 5.7 percent while the overall inflation rate was 2.8 percent. Indications are that increases in the costs of steel and petroleum will continue to drive up the construction project inflation rate in the near future. Project cost increases due to inflation will require continuing transportation revenue increases just to provide adequate revenues to preserve and maintain the existing system.

Uncertain Future of Federal Revenues

The six-year federal highway and transit funding bill is set to be reauthorized in fiscal year 2009. Heading into this reauthorization, the federal highway trust fund is dangerously close to insolvency, which could require a significant reduction in highway and transit spending levels. While there are indications that Congress will act to preserve the current spending levels in fiscal year 2009, it is very uncertain what level of funding states should plan for into the future. In addition, recent discussion of a federal economic stimulus package could result in an increase in highway construction funding.

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 highway expansion 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.

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

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 and is expected to generate over \$900 million annually.

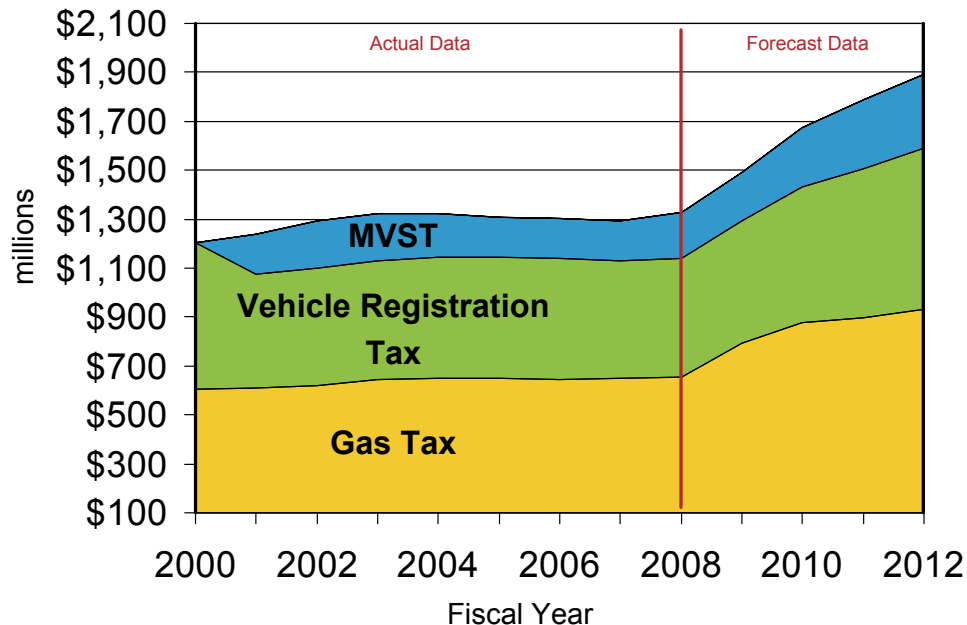
Passenger vehicles pay a registration tax assessed on the basis of the value and age of the vehicle and as discussed previously, under the 2008 legislation an increase to these tax revenues will be phased in over the next decade or so. In FY 2007 the vehicle registration tax generated approximately \$475 million and it is expected that this amount will grow to over \$650 million annually by 2012.

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 \$165 million in FY 2007. Under the new constitutional dedication, this amount will grow to 60 percent of total MVST revenues by 2012 or about \$330 million annually. As mentioned previously, the dedication of the MVST



Figure 3-7: Highways are funded by state gas taxes, MVST, vehicle registrations and federal gas taxes

**Figure 3-8: State Highway User Fund and Federal Highway Aid
Historical and Forecast Revenues**



revenues will result in significantly less new revenue than originally anticipated due to the steep declines in total MVST collections (over 28 percent) which has taken place since FY 2002.

Figure 3-8 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.

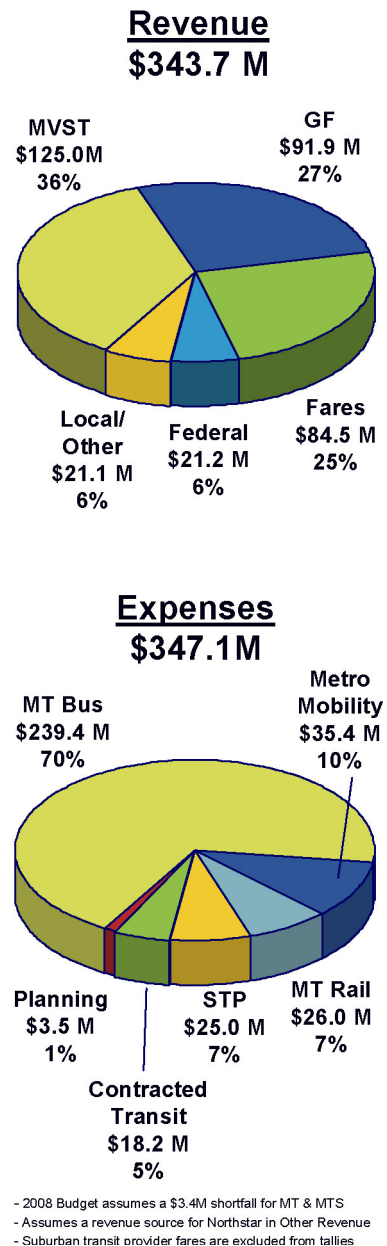
In FY 2007 the highway user fund revenues totaled almost \$1.3 billion statewide, about \$750 million of which was transferred to the trunk highway fund for Mn/DOT. These funds were further allocated about \$470 million for operations and maintenance purposes and about \$280 million for state road construction.

In addition to the state highway user funds, Minnesota receives approximately \$450 million in federal highway aid for construction purposes each year. The federal funds are typically allocated 75 percent or about \$340 million annually to Mn/DOT for the trunk highways and 25 percent for local roads. Between the state (\$280 million) and federal funds (\$470 million), Mn/DOT's state road construction program totaled \$620 million in FY 2007.

In federal fiscal year 2009, Congress must enact a reauthorization of the six-year federal transportation funding bill. At this point in time it is very uncertain what level of federal funding to expect in the future. This uncertainty is one of the reasons this plan contemplates an amendment in early 2010. Mn/DOT's revenue projections currently plan for a flat level of federal highway funding through 2012, 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

**Figure 3-9:
Metropolitan Council
2008
Transit Revenues
and Expenses**



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 are shown in Table 6-26 of Chapter 6: Highways and average approximately \$300 million per year from 2013-2018 and to an average of \$360 million per year from 2019-2030. 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 can vary significantly up or down from the available revenues. The total amount estimated to be available to the Metro District for highway construction in the 2013-2030 time frame from the existing state and federal taxes and from the 2008 transportation funding bill is approximately \$5 billion and is discussed in more detail in Chapter 6: Highways.

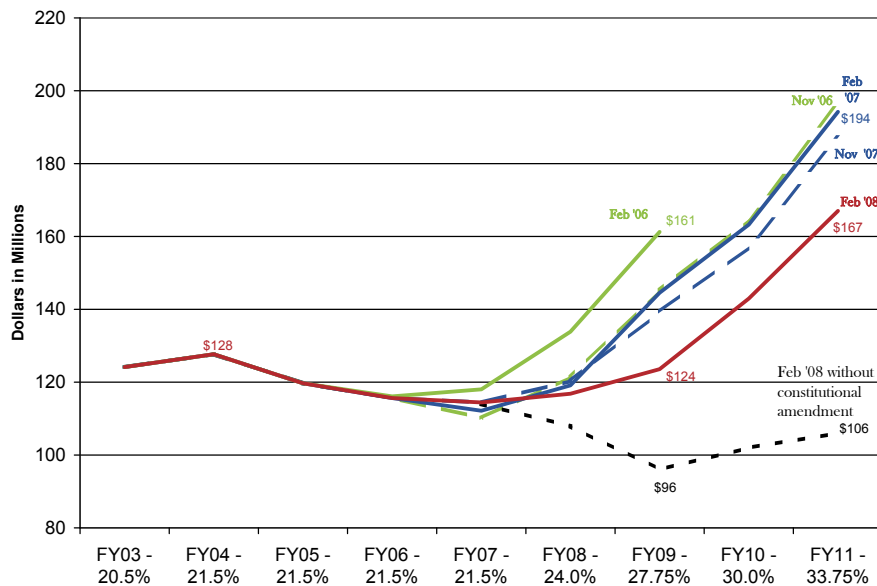
Transit Revenues

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 2008, the Council's transit operating budget was almost \$350 million (including MVST revenues passed-through to Suburban Transit Providers) in revenues and expenses. (Reserves were budgeted to fill the revenue gap of \$3.4 million.) MVST revenues are the biggest funding source for transit operations at approximately 36 percent of the transit budget, the state general fund provided 27 percent, passenger fares 25 percent, and federal and other revenues each provide approximately six percent of total revenues.

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 70 percent of total expenses; Metro Transit rail operations (Hiawatha LRT only at this time) expenses are approximately seven percent; Metro Mobility is ten percent; contracted regular route and community-based services are five percent; transportation planning one percent and the Suburban Transit Providers (STP) are seven percent 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.

Figure 3-10: MVST Transfers to Metro Area



In the short term (FY 2009 - FY 2011), the Council is anticipating operating funding shortfalls to maintain existing service levels. These shortfalls are primarily due to underperforming MVST revenues (as previously discussed). It is expected that a combination of fare increases, new state funding and use of existing reserves will allow for service levels to be maintained. Metropolitan area transit will also continue to receive a higher percentage of the MVST revenues until fully phased-in at 36 percent in 2012. This phase-in, combined with a forecast recovery in the state MVST collections and actions taken to address the shortfalls in FY 2009 – FY 2011, should provide for a balanced transit operating budget to maintain existing services in FY 2012 and beyond. Figure 3-10 shows the change in the biannual forecast for the metropolitan area share of MVST revenues.

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.

Under 2008 legislation, it is expected that new rail transitway operating expenses will be paid 50 percent from the county transit sales tax and 50 percent from additional state appropriations. Bus transitway operations are also eligible for sales tax funding, however, the newly formed CTIB has not yet determined to what extent it will use its revenues for bus transitway operations. The regional goal of doubling transit ridership by 2030 cannot be met without an expansion of the bus system. At this point, it is not clear what funding source will provide for this expansion. The estimated unfunded costs are discussed in Chapter 7: Transit.

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. The current federal process requires the projects to meet a specified cost effectiveness index (CEI) at each point before the project can proceed. If the project meets the required CEI and is accepted, the federal funds will usually pay for 50 percent of the total project costs, including the preliminary engineering phase.

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 regional 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 \$85 million annually from this quarter cent sales tax. As of the drafting of this plan, the CTIB is in the midst of developing an investment framework to guide the board in making its investment decisions.

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. CTIB funds will also be available for other transitway capital and operating investments, but given the very recent formation of the CTIB it is unclear at this time where the board will choose to direct additional funds. It is anticipated that when this plan is amended in 2010, it will include additional revenue and expenditure detail for the CTIB funds.



Chapter 4: Transportation and Land Use



Transportation and land use together make possible the wide range of destination opportunities in the region. Transportation provides the connections, and, in turn, land use imposes demands on the transportation system, underscoring the need to plan both in close coordination as the region grows.

This region has experienced both benefits and challenges of growth, and will continue to do so into the future. As the region grows, so too does the demand for transportation capacity.

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.

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.



Figure 4-1: Land use and transportation decisions impact each other

Downtown Minneapolis - looking north from E 15th St. at the Grant St. / 11th St. exit



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



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

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, zoning and community development strategies 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.

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 9f. Interconnected Roadway Network

Strategy 9g. Roadway Jurisdiction

Strategy 9h. Corridor Studies

Strategy 9i. 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

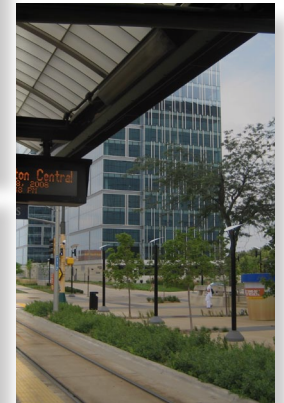
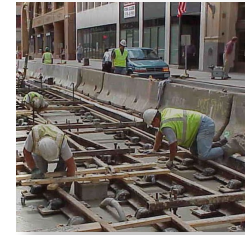


Figure 4-4: Transportation investments and planning decisions are integrated



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

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.



Figure 4-5: Employment density is one of the seven indicators which strongly impact the effectiveness of transitways

Riverfront development in downtown Minneapolis

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.





Figure 4-6: A job cluster like downtown Minneapolis is one way to improve transitway effectiveness

IDS Center - downtown
Minneapolis

Number of jobs. Most transit trips take people to or from work. If there are not enough jobs along a corridor, transit ridership will not support transitway investment.

Clustering of jobs. In addition to enough jobs, employment must be clustered so it is possible to walk 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 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.

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 Cities include:

- Promote 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.
- Adopt land development policies that encourage more density. These can include density bonuses, lot-size reductions, setback reductions and allowing accessory units.



- Allow for structured and underground parking, which supports higher-density housing development.
- However, a critical mass of potential transit users is needed to support transit service investment.

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 distances between buildings. This structured parking needs to enhance rather than distract from the pedestrian experience.
- Vertical or horizontal mixes of uses in the same development can support transit use by clustering trips to be within convenient walking distance for pedestrians.

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



The transportation system will experience new resource, policy, and local and global economic conditions that may differ from those of the past.

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 the 1956 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 demand for a time, but travel 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.

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 dollar
- Increasing cost of gasoline
- New policy pressures to address climate change.

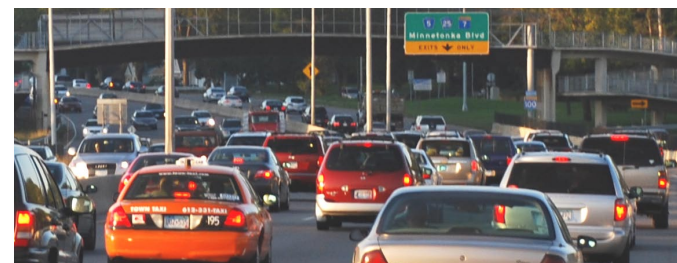


Figure 5-1: Congested roads hurt the competitiveness of the region

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 the existing transportation system capacity and right-of-way, along with strategic capacity expansion, and it envisions a region better served by alternatives to driving alone.



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 reducing future demand on the system.

The transit system serves the urban core and other centers with bus and light rail. Recently, improved service and high gasoline prices have 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 the last several 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 terms of time and money.

Moreover, traffic and resulting congestion are growing faster than the ability of the region to increase road 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.

The Principal Arterial Study conducted by the Council and Mn/DOT in 2007 indicated that it would cost \$40 billion (in 2005 dollars) or more to successfully solve congestion in 2030 by simply expanding highway capacity to meet travel demand. This amount is 20 times the cost that the 2004 Transportation Policy Plan assumed would be available for highway expansion.

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 reducing future demand on the system. Strategies to reduce demand on the highway system include giving priority to high-occupancy vehicles (HOVs) and transit vehicles 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 and HOV lanes also help to mitigate congestion by expanding the number of people served in a corridor. Expanding highway capacity is most effectively accomplished by adding lanes to existing freeways or by adding transit-only and HOV lanes in dedicated rights-of-way along highway corridors, and by managing the highway system better with tools such as ramp meters at freeway on-ramps, toll lanes, and access management on minor arterials.

Connecting land use decisions to transportation investments with the purpose of reducing per capita vehicle miles traveled will also help reduce 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

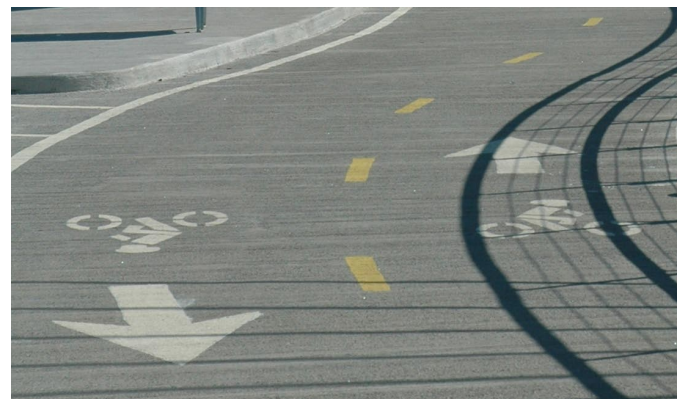


Figure 5-2: Bike trails, such as this facility, can provide for mobility options and help reduce the growth of congestion.





Figure 5-3: Transit stations, like this one near the Global Market, can impact densities for transit



Figure 5-5: Providing transit investments helps enable the region to lessen its dependence on automobile travel.

Government Center LRT Station
in Downtown Minneapolis

local travel off of highways and making local travel more walkable and amenable to bicycling. 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.

A better-managed transportation system will include a greater share of travel accommodated by modes other than the single-occupant automobile. Expanding the transit system and facilitating 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 help enable the region to lessen its dependence on automobile travel.

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 in 2009, will develop a Congestion Management Process (CMP) that meets federal requirements. The CMP will incorporate and coordinate 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 low-cost safety and mobility projects where feasible.

The CMP will be guided by the policy direction provided in two plans to be prepared in 2009, the Congestion and Safety Management Plan (CSMP) and the Travel Demand Management Strategic Plan (TDMSP). These plans will define a set of measurable strategies that the region will use in implementing a CMP, recommending changes in highway operations that can increase the people-moving capacity, safety and efficiency of the existing highway system and provide travelers alternatives to congestion. The CSMP will set up a process and criteria to define and prioritize low-cost/high-benefit highway construction projects that provide localized mobility, safety, and efficiency benefits. The TDMSP will set up a process and criteria to define strategies to reduce the demand for vehicle trips. These plans will include a method to monitor and evaluate the performance of these strategies on an ongoing basis.



Figure 5-4: The region's first commuter rail will open in 2009



The goal for the regional highway system is to maximize the use of existing highway capacity, shoulders and right-of-way.

Prioritizing express bus service can not only provide alternatives to congestion but can expand the use of the existing highway right-of-way and pavement.

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

The goal for the regional highway system is to maximize the use of existing highway capacity, shoulders and right-of-way. Performance of the system in this regard will be measured by person throughput instead of other measures such as Level 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 instead of measuring 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 expanding capacity (Figure 5-6). The role of "A" minor arterials to supplement and to relieve principal arterials will also be included in determining the performance of transportation service in a corridor. There has not been much data collected on this measure as a performance measure and more research will be required as it is put into use.

Strategy 3c. Alternatives to Congestion: The region has and will continue to implement bus-only shoulders, high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes and priced dynamic shoulders to provide alternatives to traveling in congested highway conditions.

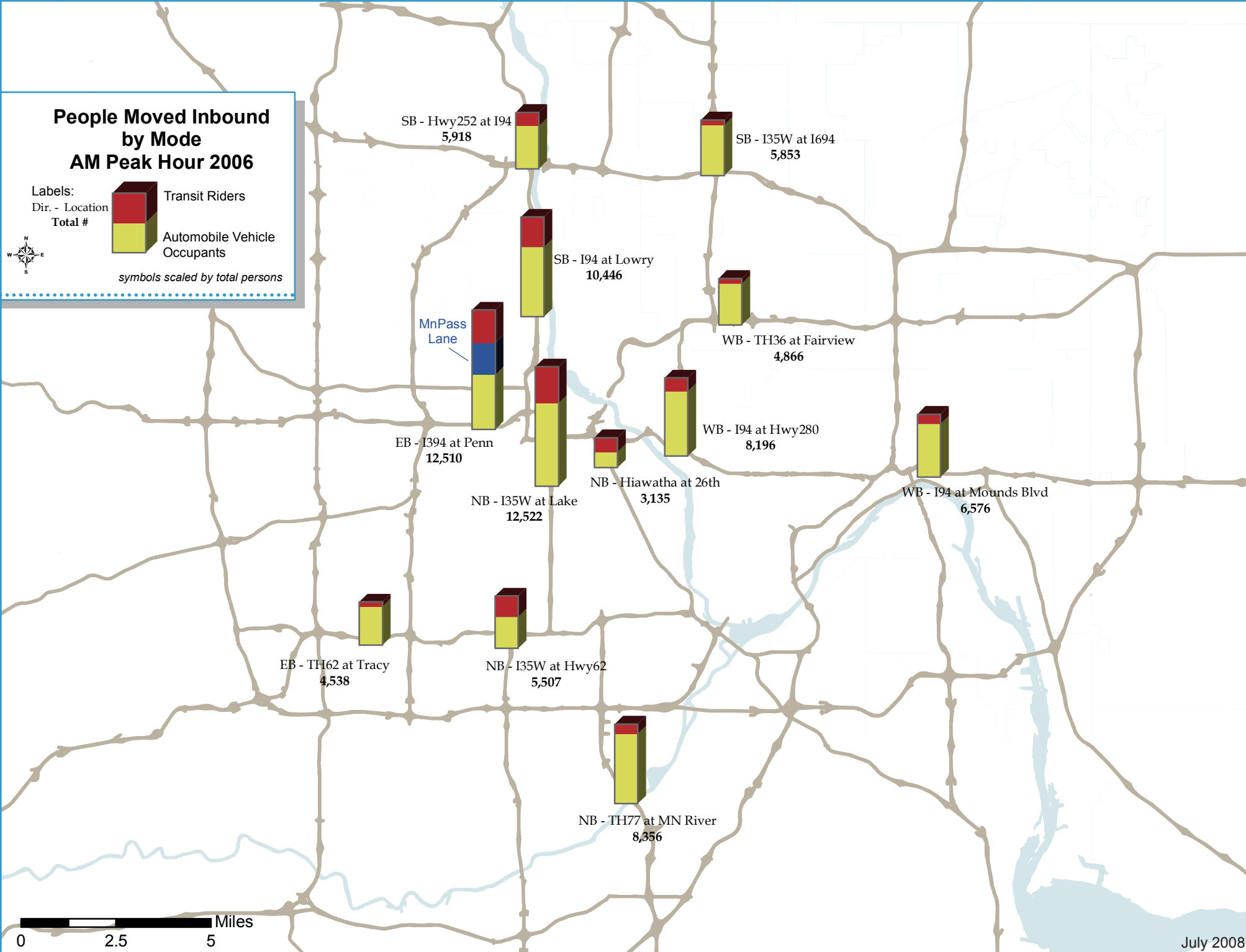
The use of bus-only shoulders in combination with express bus service has enabled the region to expand the person throughput capacity of much of the highway system (See Figure 5-6). In certain corridors, prioritizing express bus service can not only provide alternatives to congestion but can expand the use of the 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.

Strategy 3d. Travel Demand Management Initiatives: The region will promote a wide range of Transportation Demand Management (TDM) initiatives that help to avoid and lessen 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.

The Congestion Management Process will follow the development of a TDM Strategic Plan (TDMSP). This TDMSP will include guidance for all TDM activities in the region.

Travel Demand Management seeks to provide incentives for people to more effectively use the existing transportation resources and infrastructure and to promote mobility and reduce congestion by reducing vehicle trips. TDM will use the most effective strategies to facilitate the movement of people by transportation modes such as carpooling, vanpooling, transit, bicycling, and walking. TDM also supports flexible employment arrangements that do not require peak-period travel. Reducing single-occupant-vehicle travel and vehicle 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 land use





TDM strategies are aimed at changing individual choices, but the cumulative impacts of an integrated, comprehensive set of strategies can have significant community and regional benefits

patterns and development decisions also provides increased system efficiencies and economic benefits to businesses, individuals, and the region. TDM strategies are aimed at changing individual choices, but the cumulative impacts of an integrated, comprehensive set of strategies can have significant community and regional benefits.

The region's objectives for Travel Demand Management are:

- 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.
- Mitigate 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 its TDM partners. These partners are agencies such as Mn/DOT, local units of government 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 transportation management organizations and to employers and building owners/managers, especially those located in areas with the highest levels of congestion. The Council and its TDM partners will also provide assistance to local units of government to implement TDM strategies.

Strategy 3e. Parking Pricing and Availability: The Council will continue to work with its TDM partners to help define the relationship of parking supply, demand, location and cost relative to the use of the single-occupant automobile versus transit and other modes.

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.



*Future funding
will be geared
toward strategies
that most
effectively result
in more efficient
use of the
transportation
system*

Strategy 3f. Promoting Alternatives: The Council and its regional partners will promote and market transportation choices that allow travelers to avoid and help lessen congestion including riding transit, priced lanes, bicycling, walking, vanpooling or carpooling.

The Metropolitan Council will promote the use of alternative transportation modes to improve air quality, reduce contributors to congestion, as well as reduce personal expenditures on transportation. The Council, through the Transportation Advisory Board will distribute federal transportation funding to Transportation Management Organizations and Metro Transit Rideshare to promote preferred transportation modes. The Metropolitan Council manages the regional VanGo program, which matches commuters with vanpools.

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, where appropriate, will monitor and evaluate the spectrum of congestion mitigation and avoidance actions put in place in the region and modify future investments accordingly.

The Congestion Management Plan will include a methodology for monitoring and evaluating the specific strategies and projects including the TDM Strategy. 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 single-occupant vehicles 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

Automobile and truck travel in the region involves movement through 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 relatively less speed and mobility.

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

- Principal Arterials, consisting primarily of Interstate highways and “other freeways” or expressways, most of them owned and operated by the Minnesota Department of Transportation (Mn/DOT), with three under the jurisdiction of counties or cities;
- Minor Arterials, divided into “A” and “B” groups – the former serving to supplement the principal arterials;
- Collectors, which provide a balance of mobility and land use access; and
- Local Roads, including most city streets and township roads.

The Metropolitan Council focuses its 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. Mn/DOT, the counties, and ten municipalities have jurisdiction over the principal and “A” minor arterials. The principal arterials account for 657 miles (about five percent of all the region's roadways) and carry 59 percent of the total vehicle miles traveled in the region. These arterials constitute the Metropolitan Highway System (See Figure 6-1).

Most metropolitan highways are part of the National Highway System, which encompasses important connectors to the state and nation. Mn/DOT has also identified a system of Interregional Corridors (IRC) that connect the most important regional centers in the state and adjacent states to the metropolitan area and to each other. Most of these are also part of the National Highway System.

The “A” minor arterials account for nearly 1,900 miles of the region's roadways. The approximately 11,600 miles of “B” minors, collectors and local streets, whose primary function is land access, is the responsibility of local units of government. (The details of the roadway classification system and its characteristics are described in Appendix D.) The Regional Highway System consists of the “A” minor arterials and principal arterials (See Figure 6-2).



A

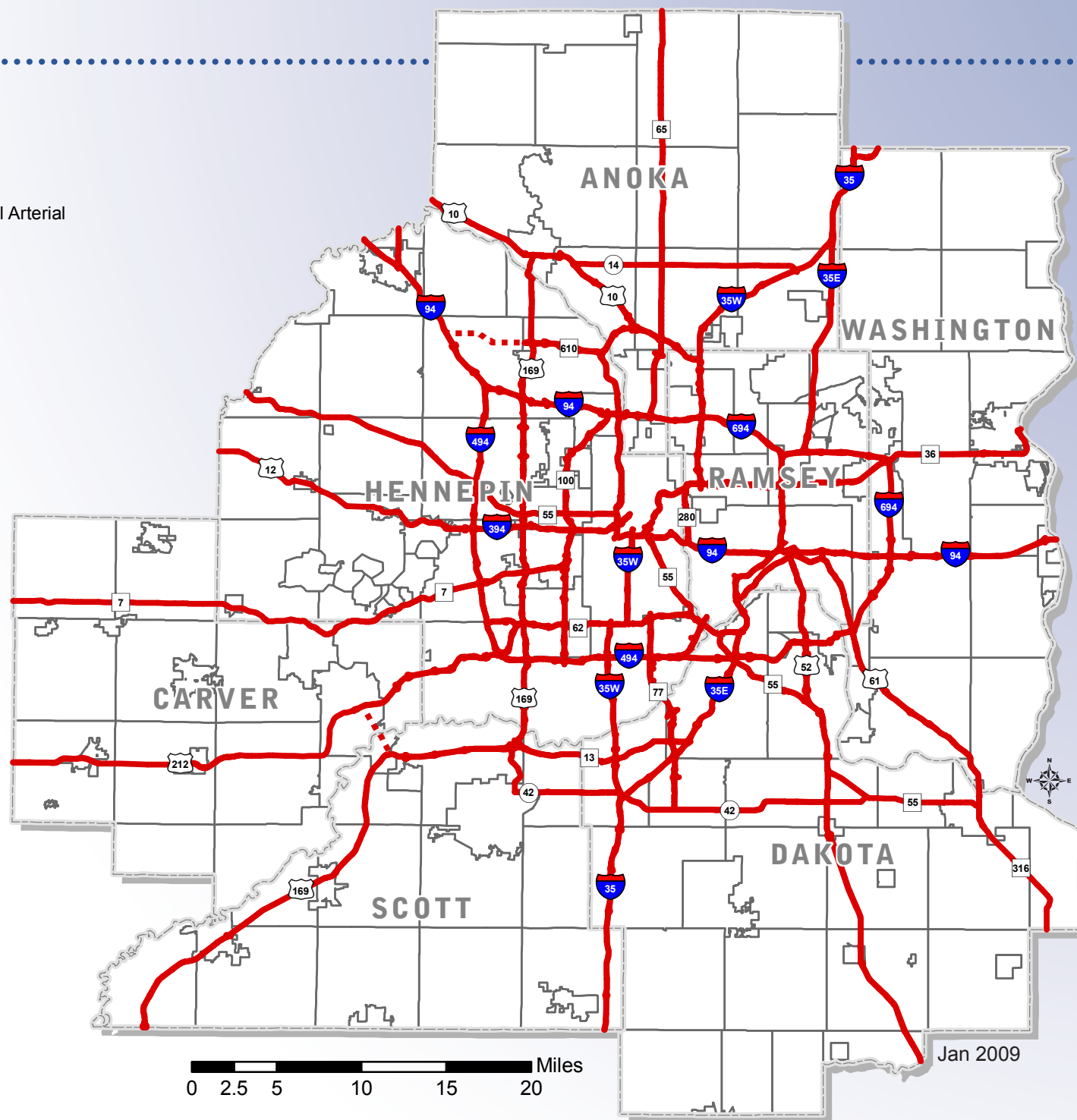
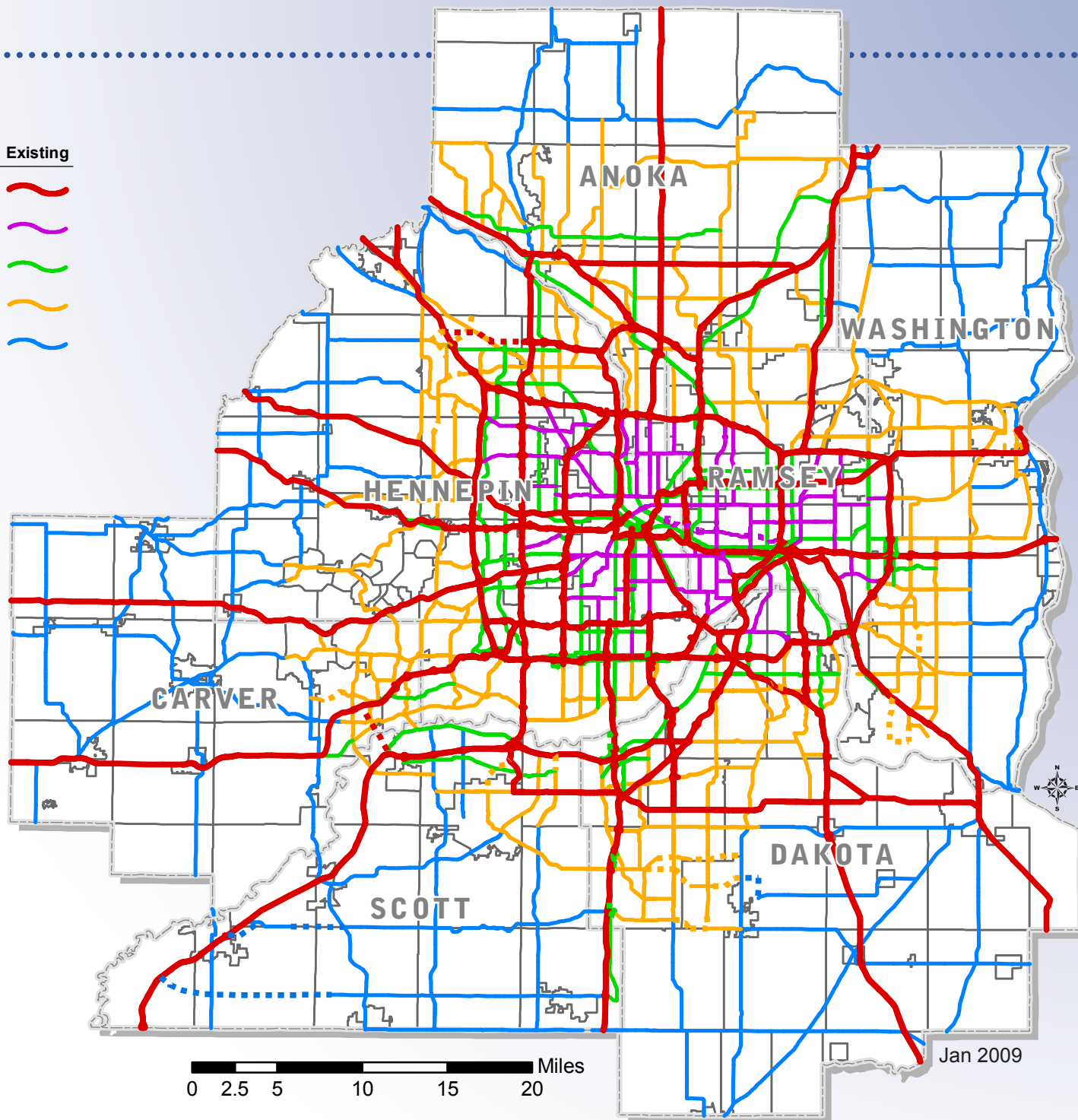


FIGURE 6-2: REGIONAL HIGHWAY SYSTEM

Planned	Functional Class Roads	Existing
	Principal Arterial	
	A Minor Augmentor	
	A Minor Reliever	
	A Minor Expander	
	A Minor Connector	



Progress Since Adoption of the 2004 Transportation Policy Plan

Highway Construction

Mn/DOT has pursued a very aggressive construction program since 2004. Table 6-3 lists the projects included in the previous *Transportation Policy Plan* that have opened to traffic since that plan was adopted in 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 passage and content of Minnesota Laws 2008 Chapter 152.

The state used a number of funding techniques to build expansion projects in the 2004-2008 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.



Figure 6-4: The road expansion construction program implemented in 2004 cannot be delivered.

Table 6-3: Highway Projects Implemented or Advancing Since 2004

1. I-94, I-494 to Humboldt Avenue. Reconstruct and widen to six through lanes and auxiliary lane.
2. TH 100, Glenwood to CSAH 152. Reconstruct, eliminate intersection and widen to six through lanes.
3. TH 55, Hiawatha Ave. Reconstruct, widen, add turn lanes and build interchanges with TH 62 and TH 5.
4. I-35E, Mississippi River Bridge. Replace four-lane bridge with six through lanes, auxiliary lane and pedestrian/bike trail.
5. Wakota Bridge over the Mississippi River. Replace WB bridge, reconstruct interchange with TH 61 and TH 61 through Newport. EB bridge contract let in 2007.
6. I-494, I-394 to TH 100. Rebuild to six through lanes, includes a continuous auxiliary lane.
7. TH 36, I-35E to Margaret. Build a four-lane freeway to replace four-lane expressway.
8. I-694, I-35E “Unweave the Weave”. Rebuild this area to provide six through lanes in all directions.
9. New TH 212 from CSAH 4 to old alignment. Build four-lane freeway.

Table 6-3: Highway Projects Implemented or Advancing Since 2004

10. Low-Cost/High-Benefit projects <ul style="list-style-type: none">• Add I-394 auxiliary lane, west bound between TH 100 and TH 169• Add TH 100 lane, from Excelsior Blvd. to Cedar Lake Rd.• Add I-94 lane, from Century Avenue to McKnight Rd.
11. TH 65 and TH 242 / CSAH 14 intersection reconstruction to an interchange with additional over-passes and frontage roads – under construction.
12. TH 12, Wayzata Blvd. to CR 6. Build two-lane freeway - under construction.
13. TH 62/I-35W. Rebuild interchange and add HOT lane from 66th Street to 42nd Street - under construction.
14. Urban Partnership Agreement Projects. Convert existing I-35W HOV lane to HOT lane, add priced dynamic shoulder lane northbound from 42nd Street to Minneapolis. Install lane control signals, cameras, dynamic signs and tolling infrastructure - under construction.
15. TH 169, Pioneer Trail and Anderson Lakes Pkwy. Intersections rebuilt as interchanges.
16. TH 169 at CSAH 81. New interchange - under construction

Functional Classification Changes to the Principal Arterial System

In 2006-07, Mn/DOT requested the Council to consider reclassifying certain highways to principal arterials as part of updating the Statewide Functional Classification Study.

As a result, TH 55 west of I-494 and TH 101 north of I-94 have been reclassified as principal arterials and are shown in Figure 6-1 as principal arterials. These changes do not commit the region to any roadway improvements.

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
- Growing employment levels in spite of baby-boomers' retirement
- Gas tax receipts not keeping up with inflation



Figure 6-5: Other modes will be used to reduce the impacts of congestion



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



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

Highway System Policies and Strategies

Policy 9: Highway Planning

The Council, Mn/DOT, and local governments will plan the regional and local highway systems 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 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 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, bus-only shoulders, high-occupancy vehicle and toll (HOV/ HOT) lanes and priced dynamic shoulder lanes.

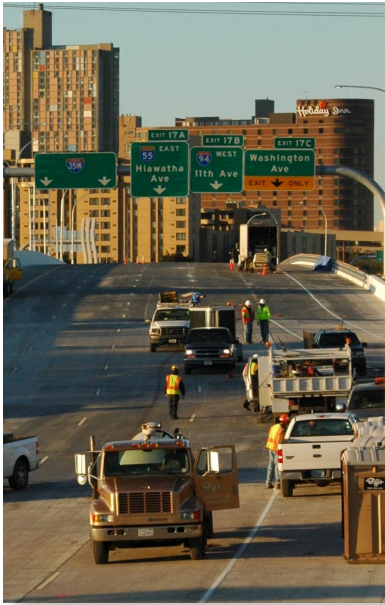


Figure 6-8: Low-cost / high-benefit projects will be emphasized in this plan



Figure 6-10: Higher gas prices may reduce demand and funds for roads projects.

Strategy 9d. Congestion Management Process: The Council, working with Mn/DOT in 2009, will develop a Congestion Management Process (CMP) that meets federal requirements. The CMP will incorporate and coordinate 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 low-cost safety and mobility projects where feasible.

Strategy 9e. Reassess Major Highway Expansion Projects: Mn/DOT and the Council should reexamine major expansion projects included in the *2004 Transportation Policy Plan* in an attempt to reduce their scope and cost to make them more affordable while preserving the critical elements of each project that address preservation and management needs, mitigate congestion, improve safety and optimize facility performance. These projects should be reassessed using a consistent and fair procedure.

Strategy 9f. 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 9g. 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: Road projects will be impacted by demographic shifts.



Figure 6-12: Cost-effective technology investments will be used in the management process.

Strategy 9h. 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 9i. 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.

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 9j. 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 low-cost congestion mitigation and safety improvements.



Figure 6-11: Transportation management decisions will be geared toward optimizing person throughput

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 6-13: 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.

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. Bicycles 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 regional 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 6-14: Traffic control facilities will be an important tool to manage congestion

Mn/DOT Traffic Control Center -
Waters Edge - Roseville



Figure 6-15: Access management requires interjurisdictional cooperation.

Strategy 11e. Access Management: State, county and local governments will manage access to the Metropolitan Highway System to optimize the performance of existing facilities. New or reconstructed trunk highway interchanges to expand capacity or meet safety concerns will be considered only if they are consistent with this policy plan (Appendix E) and Mn/DOT's criteria and cost-sharing policies.

The capacity, safety, efficient operations and utility of principal and "A" minor arterials are dictated in large part by how access to these highways is provided and managed. These efforts must be carried out in cooperation between Mn/DOT, the counties and the cities. It is clear that the capacity and safety, and the ability of these roads to help implement land use plans, diminish as access increases. The need for new or modified access to principal arterials must be examined in a consistent manner throughout the system.

Mn/DOT and the counties can manage access on access-controlled highways where access rights have been purchased. Control of access on other principal and "A" minor arterials must be managed through other techniques. Cities that contain non-freeway principal arterials or "A" minor arterials are expected to adopt either Mn/DOT's or the appropriate county's access-management guidelines and incorporate them into their zoning, subdivision and platting regulations. Mn/DOT and the Council encourage the integrated development of local land use, transportation and access plans that increase or preserve the mobility on interregional corridors (IRCs) and other trunk highways. Applicable cities and towns are expected to implement IRC access management plans before capital investments are programmed. In the absence of an accepted/approved corridor access management plan, Mn/DOT will review and approve access changes based on adopted access management guidelines.

Requests for new or expanded interchanges should follow the procedures and respond to the criteria described in Appendix E. The construction of two or more consecutive interchanges is considered an expansion investment and will only be approved if consistent with Mn/DOT's *Transportation System Plan* and this plan.

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.



Figure 6-16: Construction and related improvements should not negatively affect safe operation of the main roadway

Mn/DOT and the Council are working on implementing 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 in the fall of 2010 and subsequently evaluated. If successful, pricing may be a very cost-effective way to provide a congestion alternative to many drivers. Until such time, Mn/DOT should preserve shoulders for use by buses only. These, in turn, could be converted to priced dynamic shoulders at a later date.

Strategy 11g. Highway Expansion: Capacity expansion projects are necessary in order to 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

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

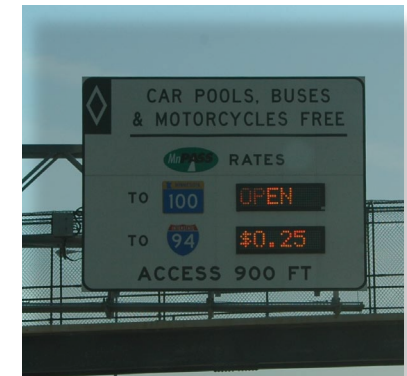


Figure 6-17: Pricing will be an important tool for the region.

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. Multimodal Roadway Design

A Vision for Metropolitan Highway Investments

The very extensive highway system developed over the last 50 years requires 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.

It is also important, however, to continue to improve the performance of the highway system to maintain mobility levels that promote economic growth and preserve the quality of life of its residents.

Population and job growth will push highway traffic in the region to even higher levels by the year 2030 even

though increasing fuel costs, global warming 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, if the users of the system continue to travel as they do currently (Tables 6-18 and 6-19 and Figure 6-20).

A principal arterial study conducted by Mn/DOT and the Metropolitan 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.

Potential capacity expansion of the principal arterial 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 costs of building the freeway, as roadway construction costs skyrocket from growing global demand for raw materials, including steel and petroleum. Additional right-of-way in urban areas is also more costly.

In essence, it is not realistic to assume that congestion will be eliminated and that individual projects can be designed under the assumption that a congestion-free system will exist some-time in the future. Traffic increases on a given segment of the system have an impact on adjacent segments.




While congestion will not be solved because of financial realities and other constraints, congestion impacts can and must be mitigated in order to preserve mobility levels essential to the region's economic vitality and quality of life.

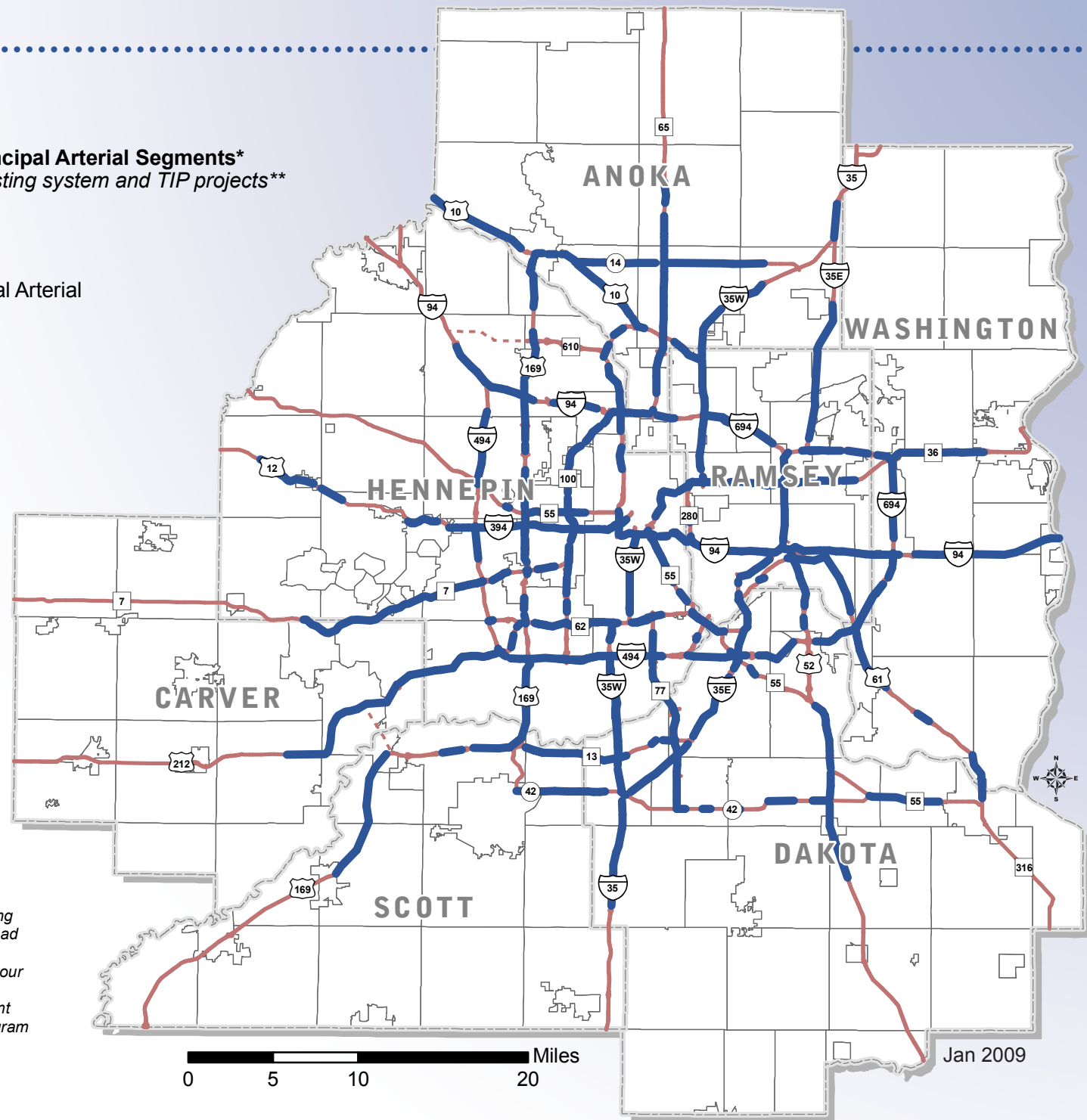
Table 6-18: Vehicle Trips and Miles Traveled, 2005 and 2030

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

Table 6-19: Congested Lane Miles, 2005 and 2030

Year and Scenario	Congested Lane-Miles of Principal Arterials	Vehicle-Hours of Delay on Principal Arterials
In 2005	1,200	300,600
In 2030 with existing system and TIP projects	2,000	531,400
In 2030 with existing system, TIP projects and 2004 TPP projects	2,000	525,800
<i>"Congested" = the condition occurring when the modeled volume on a road equals or exceeds the theoretical capacity of the road; in this case, during an average weekday for at least one hour.</i>		
<i>"TIP" = Transportation Improvement Program, an adopted four-year program of projects.</i>		
<i>"Vehicle-hours" = Total number of hours of daily delay experienced by users of the principal arterials in metro area.</i>		

-  **Congested Principal Arterial Segments***
*in 2030 with existing system and TIP projects***
-  Principal Arterial
-  Planned Principal Arterial



*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 3-year program of projects

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

- Increase the people-moving capacity of the Metropolitan Highway System while reducing future demand on the system,
- Manage and optimize the existing system to the greatest extent possible and,
- Implement strategic and affordable capacity expansion projects.

In order to achieve the above objectives, this plan recommends the following strategies:

Encourage the Use of Alternative Modal Options and Changes in Travel Patterns

The use of alternatives to the single occupant vehicle can reduce the number of vehicles that use the highway system while still carrying an increasing number of travelers. In other words, congestion can be mitigated if a greater share of travel on the highway system is accommodated by modes other than the single-occupant automobile.

In addition, changes in travel patterns that reduce peak demand can allow travelers to avoid congestion and help reduce the congestion impact on others. This will also result in a better-managed, more efficient and more effective transportation system.

Examples of actions that implement this strategy include, but are not limited to, new transitways, high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes, bus-only and priced dynamic shoulder lanes, roadway pricing and other transit advantages and improvements.

Construct Low-Cost/High-Benefit Highway Improvements

Low-cost/high-benefit projects improve traffic flow by removing bottlenecks, improving geometric design and eliminating safety hazards. Recently, Mn/DOT has implemented with great success some low-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, 20 low-cost/high-benefit projects, already selected by Mn/DOT for implementation, are shown later in this chapter in Table 6-34. Some of these projects entail capacity enhancement and lane additions while others focus on system management. Many more projects of this nature will be identified by 2010 along congested corridors on a system-wide basis for construction.

Reassess the Scope and Cost of Proposed Major Highway Expansion Projects

This plan does include some major highway expansion projects. There are six major highway projects included in the 2009-2012 TIP (Table 6-21). This plan also includes a significant commitment to major bridge replacement projects (Table 6-28) which in many cases entail capacity expansion.



However, the policy plan adopted in 2004 included 14 proposed major highway expansion projects (Table 4-10 of the 2004 plan) totaling over \$2.3 billion which are now beyond the fiscal constraint of this plan. This plan emphasizes the need to reassess the scope of these expansion projects by 2010 (as well as TH 169 at I-494 which was included in 2005-2008 TIP) in an attempt to reduce their cost significantly while still achieving substantial preservation, congestion mitigation and safety benefits. Some of these projects may either become low-cost/high-benefit projects or, at least at a reduced scope and cost, may be easier to implement within currently projected highway revenues.

If the scope and cost cannot be reduced significantly, but a project is still deemed necessary for the efficient operation of the system, its implementation would be contingent upon a new federal transportation bill with increased funding, an economic stimulus package or additional state legislative action.

Metro Highway System Investment Strategy

In 2009, the Council and Mn/DOT will develop a Metro Highway System Investment Strategy (MHSIS). This effort will carry out four activities, depicted in Figure 6-22, prior to the 2010 *Transportation Policy Plan* amendment:

- Refine in greater detail the investment vision discussed in this chapter and establish overarching principles that govern future Metropolitan Highway System investments;
- Refine critical highway system preservation and safety needs;
- Prepare federally required Congestion Management Process (CMP) which includes two major components, a Congestion and Safety Management Plan (CSMP) that will include new low-cost/high-benefit projects on a system-wide basis and a Travel Demand Management Strategic Plan (TDMSP); and
- Reassess major expansion projects to determine to what extent projects with a reduced scope and cost can contribute to mitigating congestion and to the efficient operation of the Metropolitan Highway System within financial constraints and estimate additional funding needed to complete them.

In 2009, Congress is scheduled to pass a new six-year transportation bill, providing greater certainty regarding the levels of federal funding states can plan for into the future. Congress may also pass in 2009 an economic stimulus package including significant infrastructure funds to be spent in a relatively short period of time. In that case, the Metropolitan Council with the TAB and Mn/DOT will jointly determine the appropriate use of those funds.

The MHSIS results and established levels of federal funds will permit better definition of highway improvement projects that can be implemented by 2030. The conclusions of this analysis will be incorporated as an amendment to the *Transportation Policy Plan* in 2010.

Table 6-21: Major Highway Projects Under Construction or Included in 2009-2012 Transportation Improvement Program (TIP)

Highway and Bridge Project	Cost Estimates	Project Description	Status and Other Comments
I-35W, HOV lane, from 66th Street to 42nd Street	\$285 M	Reconstruct TH 62 and I-35W and add the HOT lane.	Under construction. Priced HOT lane part of UPA.
UPA / I-35W / Cedar Avenue	\$185 M	A series of projects that received special federal and state funding. Provide transit and priced alternatives to congestion.	Under construction
I-494/TH 61 Interchange, TH 61 local access, Wakota Bridge	\$50 M	Replace and widen I-494 bridge, reconstruct interchange, reconstruct TH 61.	Eastbound bridge under construction.
TH 610 from TH 169 to CR 130	\$42 M	Continue construction of unfinished four-lane freeway on new alignment.	Majority of funds included in the TIP for TH 610 will be spent on this section
TH 169 So. of CSAH 81 to No. of CSAH 109 (Devil's Triangle)	\$42 M	Construct interchange, bridges.	Project let in summer 2008.
TH 52 Lafayette Bridge	\$170 M	Reconstruct bridge, auxiliary lane and full shoulders.	Tier 1 Bridge
TOTAL	\$774 M		

Emerging Needs

As the region continues to grow a number of emerging highway needs must be recognized even though it may take a long time for them to become a reality. Those needs can be categorized as follows:

- New principal and “A” minor arterials in the developing portions of the region where the grid of existing arterials is not adequate to serve future growth;
- New or rebuilt interchanges to improve traffic conditions and safety; and
- New river crossings to improve connectivity among developing areas separated by the Mississippi and Minnesota Rivers

Figure 6-22: Metropolitan Highway System Investment Strategy (MHSIS) Process

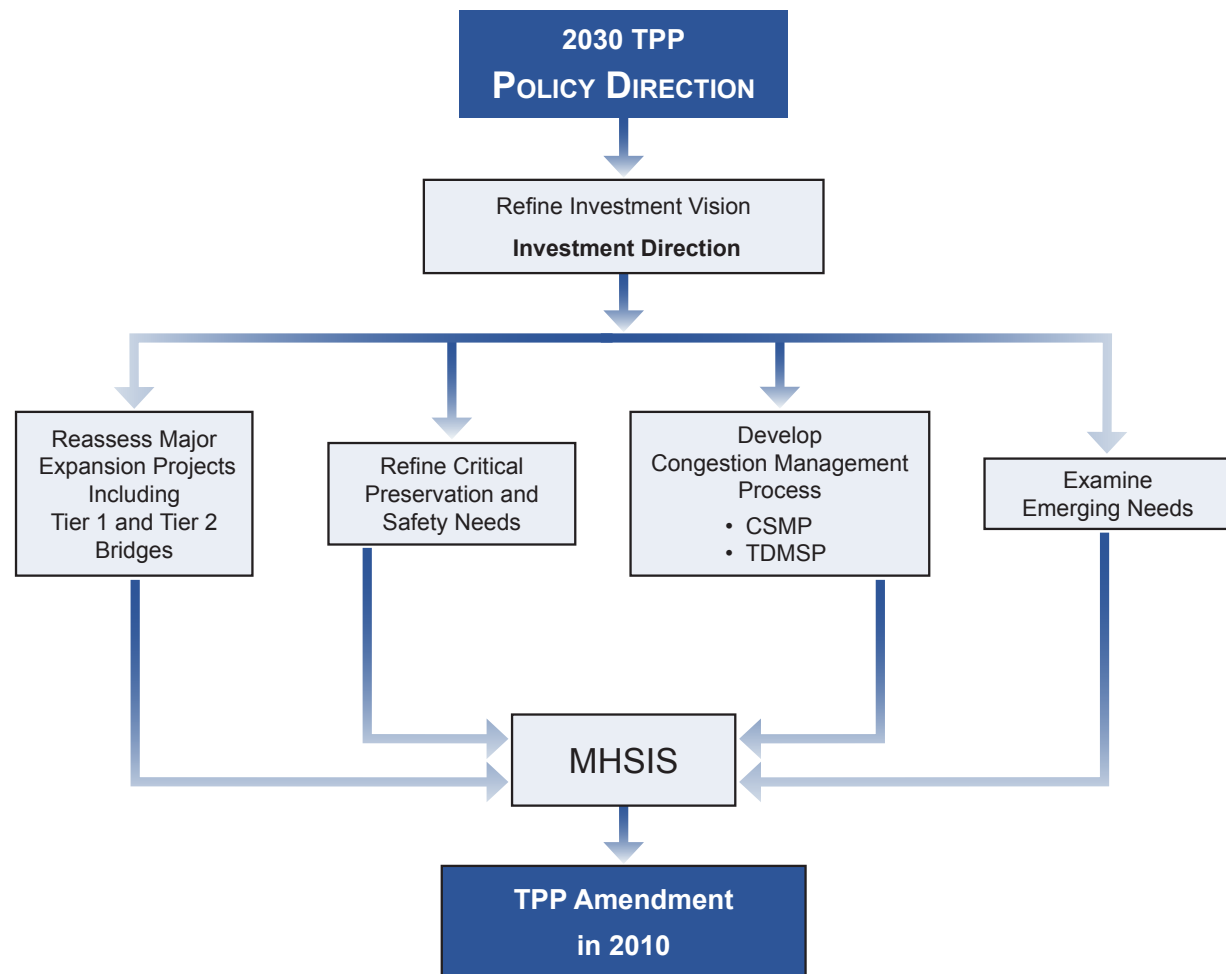




Figure 6-23: Gas tax revenues have not kept up with inflation.

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. Once the MHSIS is completed the Council will develop an amended fiscally constrained plan to be adopted in 2010.

2009-2030 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. The highway revenue estimates include the federal funds allocated through the TAB “regional solicitation process,” such as STP Urban Guarantee. Mn/DOT typically receives a portion of these funds for non-freeway principal arterial and “A” minor arterial projects, with the balance going to local government projects.

Table 6-24: Total Metro Area Target Funds Available <i>(in millions)*</i>			
	Federal Target Funds	State Target Funds	Total
2013-2018	\$ 1,040	\$ 800	\$ 1,840
2019-2028	\$ 2,135	\$ 1,600	\$ 3,735
2029-2030	\$ 360	\$ 320	\$ 680
TOTAL	\$ 3,535	\$ 2,720	\$ 6,255
<i>*These funds are exclusive of Tier 1 & 2 bridge repair or replacement and other bridge preservation.</i>			

Table 6-25: Portion of Federal Target Funds Available for Regional Solicitation <i>(in millions)</i>	
2013 - 2018	\$ 560
2019 - 2028	\$ 1,235
2029 - 2030	\$ 180
TOTAL	\$ 1,975

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 to pay for bonds to repair or replace bridges and various other allocations, such as transit advantages and interchanges. Because of the need to appropriately direct the bonds and to account for the payback of bonds, this budget activity has been separated from the normal Mn/DOT District planning and programming process.

Target Funds

Mn/DOT has established a basis for distributing state and federal highway funds among the eight Mn/DOT districts throughout the state. The amount of money “targeted” for each area of the state is often referred to as the “target funds” for that district. These funds are forecasted by Mn/DOT Central Office and represent the best estimate of future funds at this time. The target funds available to the Metro District are shown in tables 6-24, 6-25 and 6-26. These tables only include a small portion, \$130 million, of funds for the Tier 1 and 2 bridge needs which are primarily to be funded with bonds and are handled separately from the target funds.

In Table 6-24 total state and federal dollars are shown for three time frames out to 2030. (Mn/DOT’s planning extends only to 2028, requiring this plan to add an additional two years.) The four year (2009 – 2012) TIP is in Appendix B. The federal target funds are forecast 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.

Table 6-26: State Road Construction Funds, Mn/DOT Metro

(in millions)

	Federal *	State	Total
2013 - 2018	\$ 480	\$ 800	\$ 1,280
2019 - 2028	\$ 900	\$ 1,600	\$ 2,500
2029 - 2030	\$ 180	\$ 320	\$ 500
TOTAL	\$ 1,560	\$ 2,720	\$ 4,280

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

Table 6-24 shows the total federal funds for the region. These funds are then split into two categories – federal funds allocated by the Council / TAB and federal funds allocated to Mn/DOT. The federal funds available for allocation by TAB and the Council through the regional solicitation process are found in Table 6-25. These are approximately 55 percent of the traditional federal highway formula funds that come to the region. Table 6-26 shows the federal and state target dollars that are available to Mn/DOT's state road construction fund.

2030 Highway Investment

Table 6-27 summarizes projected available funds for state highway construction for the 2013-2030 time period. It does not include, however, a large portion of the

bridge investments shown in tables 6-28 and 6-31. Investments for 2009-2012 are also not included in Table 6-27 because these funds are already adopted and funded in the 2009-2012 Transportation Improvement Program (TIP).

Preservation, the Cornerstone of Safety

The first investment priority must be to preserve the existing trunk highway system, a significant regional asset that includes 657 miles of metropolitan highways and an additional 450 miles of minor arterials, most of which are "A" minors. A legislative auditor's report 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).

Table 6-27: TSP Investment Plan: State Road Construction 2013 – 2030

(in millions)

Preliminary Investment Scenario	2013-2018	2019-2028	2029-2030	Total
Available Target Funds	\$1,280	\$2,500	\$500	\$4,280
Metro Share of Tier 1 and 2 Bridges	\$130	\$0	\$0	\$130
Preservation				
Pavement	\$200 - \$250	\$800	\$160	\$1,185
Other Bridge	\$300	\$1,000	\$200	\$1,500
BARC ¹	\$30	\$30	\$5	\$65
Other Infrastructure	\$120	\$140	\$30	\$290
Safety				
Safety Capacity	\$120	\$120	\$25	\$265
Safety- HSIP ²	\$20	\$30	\$5	\$55
Cooperative Agreements	\$30	\$30	\$5	\$65
Congestion Mitigation				
Congestion Mitigation	\$250 - \$300	\$300	\$60	\$635
Team Transit	\$10	\$20	\$5	\$35
Community Improvements	\$20	\$30	\$5	\$55
TOTAL	\$1,280	\$2,500	\$500	\$4,280

1. BARC - Bridge and Road Construction 2. HSIP - Highway Safety Improvement Program



Figure 6-29: Preservation is the first investment priority

Those investments are shown under four broad categories: Pavement, Other Bridges, Bridge and Road Construction (BARC) and Other in Table 6-27; these investments will absorb a very large percentage of the current funds coming to Mn/DOT.

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. The Tier 1 and 2 bridge improvements must be completed or under contract by 2018. This represents a very large percentage of the new funding, with more than \$700 million of the bond funds estimated to go to Tier 1 and 2 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 6-32 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 are shown in Table 6-28. The current cost estimates of these four bridges, with approaches, range from \$900 million to \$1.25 billion, although more detailed scoping reports and cost estimates will be prepared on these bridges. The remaining Tier 1 bridges and the Tier 2 bridges which require additional investment before 2018 in the metro area are listed in Table 6-31. 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 expansions.

Table 6-28: Major Tier 1 Bridges – Metro Area				
Bridge	Cost Estimates (in millions)	Current Program Year	Project Description	Status/ Comments
TH 52 - Lafayette Bridge over Mississippi River	\$170-200	2010	Replace four-lane bridge	In 2008-2011 TIP
TH 61 - Hastings Bridge over Mississippi River	\$275-335	2010	Replace two-lane bridge	
TH 36 - St. Croix River Bridge at Stillwater	\$300-400	2012	Build new four-lane bridge	
I-35E- Cayuga Bridge in St. Paul	\$175-275	2014	Replace bridges and pro- vide access to Phalen Blvd.	
TOTAL	\$900-1,250			

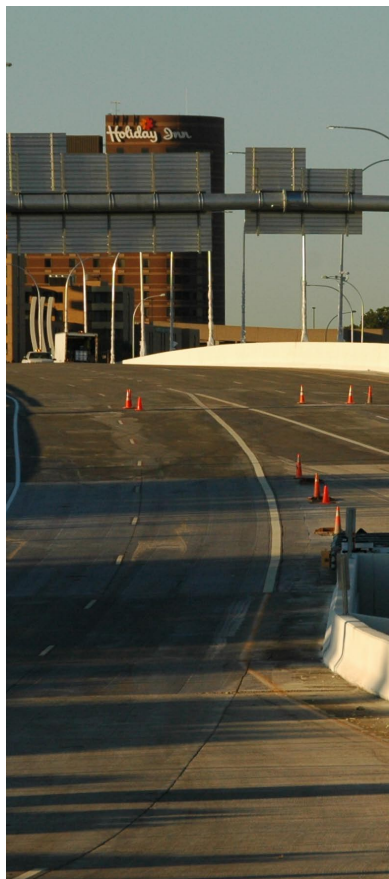
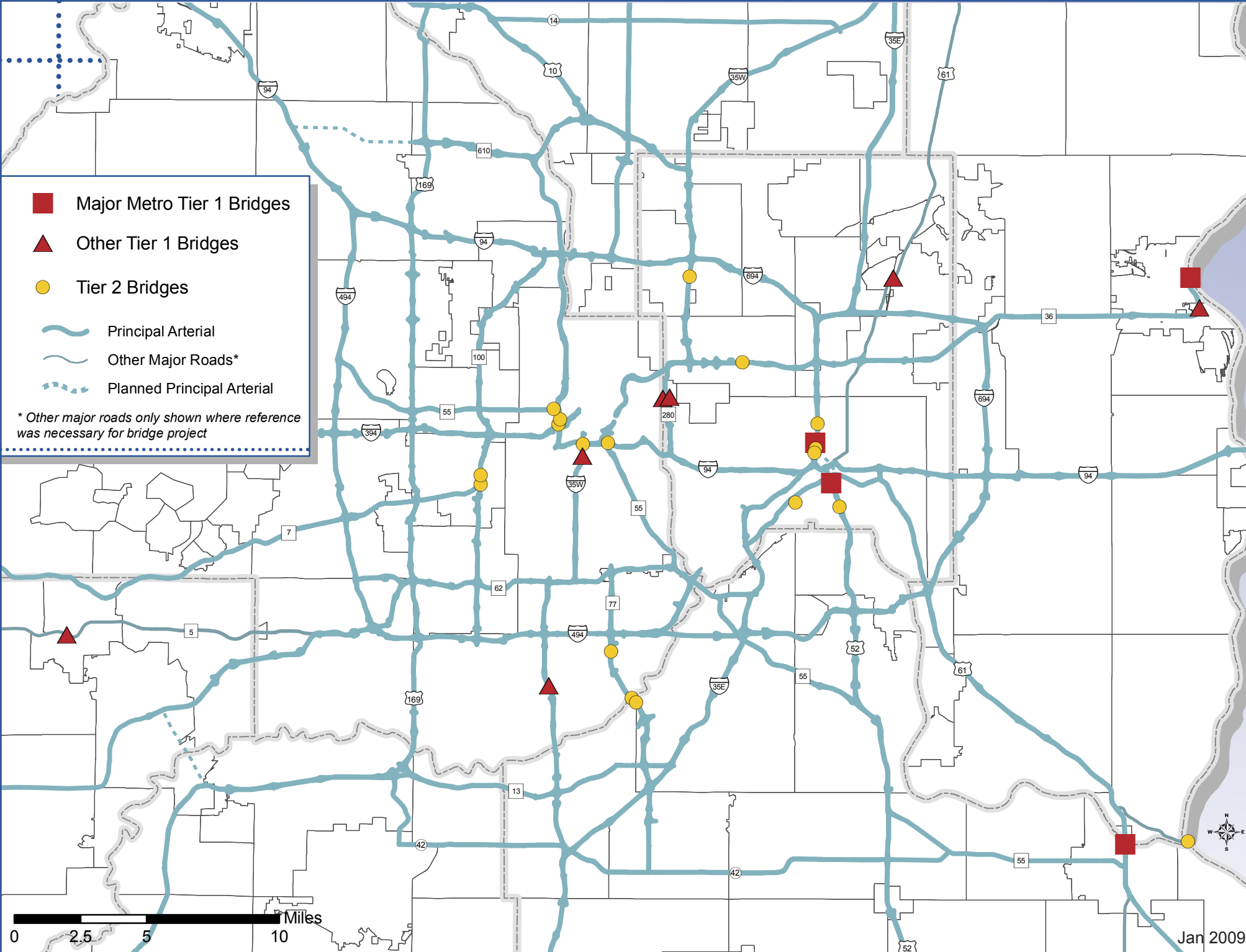


Figure 6-30: Construction of bridges is a priority for the region

Table 6-31: Other Tier 1 and Tier 2 Bridges Requiring Investment before 2018

Bridge	Tier
TH 5 over recreation trail	Other Tier 1
I-35W SB over TH 65 NB	Other Tier 1
W 94TH St over I-35W	Other Tier 1
TH 280 - Hennepin Avenue over MT RAIL	Other Tier 1
US 61 over BNSF RR	Other Tier 1
TH 280 - Larpenteur (CSAH30) over TH 280	Other Tier 1
TH 36 EB over TH 95 (part of St Croix)	Other Tier 1
TH 243 (Osceola) over St Croix River *	Tier 2
TH 77 SB Coll Rd over Killebrew Dr	Tier 2
I-94 SB off ramp over Lyndale Avenue N & RR	Tier 2
I-94 SB on ramp over Glenwood Avenue & RRs	Tier 2
I-94 WB on ramp over I-94 & TH 65	Tier 2
I-94 WB off ramp over CP RAIL & city street	Tier 2
TH 7 (CSAH 25) over TH 100	Tier 2
TH 100 - Minnetonka Blvd over TH 100	Tier 2
TH 55 over Bassett Creek	Tier 2
TH 77 NB over Minnesota River & Black Dog	Tier 2
TH 77 SB over Minnesota River & Black Dog	Tier 2
TH 36 over Lexington Avenue	Tier 2
US 52 (Lafayette) over UP RR & Eaton Street	Tier 2
TH 149 (Smith Avenue) over Mississippi River & RR	Tier 2
I-35E - Maryland (CSAH 31) over I-35E (part of Cayuga)	Tier 2
I-35E over BNSF RR (part of Cayuga)	Tier 2
I-35E over Pennsylvania Avenue (part of Cayuga)	Tier 2
I-35W - Co Rd E2 (CSAH 73) over I-35W	Tier 2
US 10 (Prescott) over St Croix River	Tier 2
* Project in Chisago County (part of Mn/DOT Metro District) - not shown on map of Required Bridge Investments (Figure 6-32)	

FIGURE 6-32: REQUIRED BRIDGE INVESTMENTS



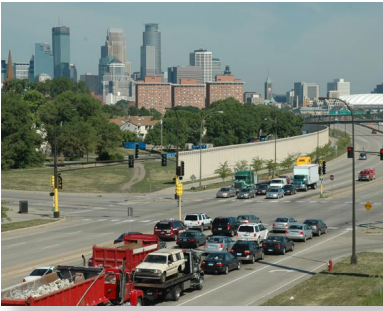


Figure 6-33: SAFETEA-LU elevated Safety to a high priority and a core program

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. This category consists of three parts. (See Table 6-27, 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. Again, after 2018, these funds are not adjusted for inflation.

Congestion Mitigation and System Management

The next investment priority (Table 6-27) is to manage the trunk highway system to improve its efficiency and safety and mitigate congestion. The goal of system management must be to move more people and freight, not necessarily more vehicles, in a safe and efficient manner. In doing so, management of the highway system should provide incentives to those willing to share rides and reduce vehicle travel whenever possible. Should management funds be less than projected, management investments on principal arterials should have priority over the other trunk highways.

Management investment strategies may include a wide range of spot geometric design and traffic flow improvements which are typically low-cost/high-benefit projects, to address localized concerns. Isolated interchanges and interchange improvements (as opposed to converting an expressway to a freeway) would fall into this category.

A Congestion Management Planning Study, completed in 2007, identified 20 projects which are shown in Table 6-34 and are funded in this plan. Many of these projects will result in capacity expansion through the addition of new lanes. The “before” and “after” data from continued low-cost investments will provide the basis of an objective evaluation of these strategies. Future investments in congestion management projects will be determined prior to the *Transportation Policy Plan* amendment in 2010 as part of the Congestion and Safety Management Plan (CSMP).

Table 6-34: List of Congestion Management Planning Study Projects

Highway #	Begin/End	Potential Solutions ^{1, 2}	Direction	Applicable Strategy/ Project Type	Estimated Cost	Project Status
I-35E	TH 77 to CR 11	Add auxiliary lanes	SB	Auxiliary Lane	\$4,000,000	Layout Work Started
TH 77	138th to Diffley	Add lane	NB	Lane Addition	\$13,000,000	Layout Work Started
I-35E/W	I-35E merge area	Extend fourth lane to exit to TH 97	NB	Lane Addition	\$5,000,000	Layout Work Started
I-35W	106th to TH 13	Add lane	SB	Lane Addition	\$6,000,000	Included in UPA
I-35W	I-694	Revise NB to create buffer lanes	NB	Interchange	\$4,000,000	Layout Work Started
I-494	TH 55	Lengthen turn lanes and triple left; 3rd lane to Plymouth Blvd/Niagara (or Fernbrook only)	NB (494 & 55)	Arterial – Ramp	\$2,500,000	None
I-494	I-35W to TH 100	Add auxiliary lane between NB I-35W loop to NB TH 100	WB	Lane Addition	\$4,000,000	Layout Work Started
I-494	France to I-35W	Add auxiliary lane between S France loop and SB I-35W	EB	Lane Addition	\$4,000,000	None
I-94	TH 101	½ mile auxiliary lane, the two lane exit with ramp becoming 3 lane mainline over S Diamond Lake intersection, signal revisions and re-alignment of NB through lanes from Rogers at north ramp	WB	Ramp	\$10,900,000	STP Funds 2011/12
I-94	TH 61 to White Bear	Add auxiliary lane for EB	EB	Auxiliary Lane	\$750,000	Layout Work Started
TH 10	Egret to Hanson	Add third lane	EB/WB	Lane Addition	\$12,000,000	Funded, Env. Review underway
I-35W	Washington	Re-stripe SB on the Mississippi River bridge to have right lane end at the Washington exit and second lane exit to C-D road, thru SB I-35W and traffic to TH 55 stays in left two lanes	SB	Management	\$500,000	Addressed with new I-35W Bridge
I-94	I-394	Convert exit to I-394 from tunnel to 2-2 fork. Striping change/small amount of pavement work and signing east of tunnel	WB	Management	\$300,000	Additional Analysis Needed
TH 100	I-694	Two lane on-ramp from TH 100 to EB I-694 & re-striping	NB	Maintenance Project	\$500,000	TR Project

1. The identified treatment to address the mobility and safety issue may or may not resolve the problem at this location. The project development and approval process will result in the appropriate treatment.

2. Additional CMPS type projects were implemented to address congestion caused by the I-35W bridge collapse. Given the success of these projects, Mn/DOT continues to pursue similar CMPS opportunities beyond those identified in this table, such as the connection of auxiliary lanes on I-494 from Lake Dr to Tamarack Rd which is included in the 2009-2011 TIP.

Table 6-34: List of Congestion Management Planning Study Projects

Highway #	Begin/End	Potential Solutions ^{1, 2}	Direction	Applicable Strategy/ Project Type	Estimated Cost	Project Status
I-94	TH 101 to I-494	Install ramp meters at northbound TH 101 and 95th Avenue	EB	Ramp Metering Expansion	\$20,000	None
I-94	TH 61 to Radio Drive	Install ramp meters at White Bear Avenue, McKnight Avenue, and Radio Dr.	EB	Ramp Metering Expansion	\$40,000	None
TH 100	I-694 to I-394	Install ramp meters at TH 55, Duluth Street, 36th Avenue, CR 81, and France Avenue	NB/SB	Ramp Metering Expansion	\$120,000	Funded
TH 13	Yankee Doodle to Prior Lake	Corridor tuning for 25 signals in five zones	NB/SB	Signal Operations	\$97,500	CMAQ Funding 2011/12
TH 65	I-694 to CSAH 24 (East Bethel)	Corridor tuning for 35 signals in three zones plus wireless interconnect	NB/SB	Signal Operations	\$107,500	CMAQ Funding 2011/12
TH 7	East Ramp MN 100 - MN 41	Corridor tuning for 24 signals in four zones	EB/WB	Signal Operations	\$94,000	CMAQ Funding 2011/12

1. The identified treatment to address the mobility and safety issue may or may not resolve the problem at this location. The project development and approval process will result in the appropriate treatment.

2. Additional CMPS type projects were implemented to address congestion caused by the I-35W bridge collapse. Given the success of these projects, Mn/DOT continues to pursue similar CMPS opportunities beyond those identified in this table, such as the connection of auxiliary lanes on I-494 from Lake Dr to Tamarack Rd which is included in the 2009-2011 TIP.

Other management-type investments including ramp meters and bypasses, ITS technology to allow monitoring and active intervention by use of changeable message signs, and transit advantages such as bus-only shoulders and park-and-ride lots are used by Mn/DOT to increase the safety and throughput of trunk highways.

The Team Transit projects, which provide transit advantages on trunk highways or related to the trunk highway use, are a specialized subset of congestion management. A portion of the right-of-way set aside will also be used for congestion management investments.

Four traditional set-asides included in the congestion mitigation category are: right-of-way, cooperative agreements, consultant agreements and supplemental agreements. As further studies take place, the level of funding for all of these should be closely examined. For instance, right-of-way needs may change if there are fewer large expansion projects.

Community Improvements

The funds identified for community improvements in Table 6-27 will pay back communities for interchange construction projects, and construct noise walls based on a prioritized list until 2018. After 2018, up to 5% of the Mn/DOT District target funds may be allocated to a flexible fund, such as the cooperative agreements program, to promote partnership projects.



Figure 6-35: Expansion projects will emphasize system optimization

Expansion

This plan supports the implementation of affordable and strategic capacity expansion through the bridge program and low-cost/high-benefit congestion management projects. It also recognizes, however, that because of financial constraints many of the expansion projects proposed in the past need to be reassessed to bring them more in line with projected revenues and Mn/DOT's ability to implement them. This reassessment has to be 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.

Six major expansion projects from the *2004 Transportation Policy Plan* shown earlier in Table 6-21 are either under contract or are programmed for contract letting in the 2009-2012 period. Those projects included and funded in the currently adopted 2009-2012 TIP are estimated to cost about \$770 million.

Table 6-37 includes the remaining expansion projects and two future major river crossings that were recommended for funding by 2030 in the *Transportation Policy Plan* that was adopted in 2004. Figure 6-36 shows the locations of these 14 projects. It should be noted that the I-494/169 interchange project was in the 2005-2008 TIP (an appendix to the *2004 Transportation Policy Plan*) but was removed from the TIP for budgetary reasons.

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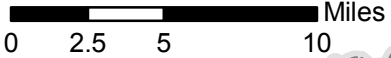


Table 6-37: Expansion Projects to be Reassessed

Highway	From	To	Length (miles)	2007 Cost Estimate (millions)	Recommended Facility Improvement
I-35E	TH 110	TH 5	2.3	40	Add third lane
I-35E	I-94	TH 36	4.0	104	Add 4th lane. This lane add is a separate project from the Tier 1 Cayuga Bridge, adjacent bridges and Phalen Avenue interchange project.
I-35W	46th Street	I-94	5.3	402	Add HOV/transit priority lane and Lake Street Interchange. The UPA provides elements of this project.
I-494	TH 55	I-94	5.5	245	Add 3rd lane
I-494	TH 77	TH 100	5.1	1052	Build in accordance with EIS completed in 1997.
I-494 / 169*	Highwood Rd	Valley View Rd	1.0	105	Interchange reconstruction
I-694	I-35W	W. Jct. I-35E	5.6	267	Add 3rd lane
I-694	E Jct. I-35E	TH 36	5.5	113	Add 3rd lane
TH 36	I-35W	I-35E	5.3	119	Add 3rd lane
TH 100	36th St	Cedar Lake Rd.	1.0	130	Add 3rd lane. Elements of the project were completed in 2007; others will be completed with Tier 2 bridges.
TH 252	73rd Avenue	TH 610	2.9	139	Convert to four-lane freeway
TH 610	CR 130	I-94	5.0	210	Complete unfinished four-lane freeway and I-94 interchange
TH 41 - New River Crossing	TH 169	TH 212	3.0	10	Preserve right-of-way after alignment is defined.
New Miss. River Crossing	TH 10	I-94	2.0	10	Preserve right-of-way after alignment is defined.
TOTAL			53.5	\$2.946 B	

* Cost estimates for the I-494 / 169 project are from the 2005-2008 TIP.

The total cost of these 14 projects exceeds \$2.9 billion, a level of expenditure that cannot be supported with projected highway revenues for the 2009-2030 time period. For this reason, all 12 expansion projects, and the right-of-way preservation for the two major river crossings must be reassessed in an attempt to reduce the scope and cost of those projects significantly while still achieving substantial preservation, congestion mitigation, capacity expansion and safety benefits. This analysis should be carried out in a consistent manner for all projects to ensure comparable results. Some of these projects which have been allocated earmarked federal funding will continue to progress as this reassessment takes place.

If low-cost/high-benefit solutions can be found for some of these major capacity improvements, once the reassessment is completed, they should be included in the CSMP project list. On the other hand, if a larger project is still considered necessary for the efficient operation of the Metropolitan Highway System but projected revenues are still insufficient for its construction, the implementation of such a project by 2030 would be contingent upon either increased federal funding for infrastructure investments or additional state legislative action.

The conclusions and recommendations of the MHSIS, including the CSMP and the reassessment of major expansion projects, will be incorporated as a fiscally constrained amendment to this plan in 2010.

Emerging Highway Needs

As the region continues to grow, a number of emerging highway needs must be recognized even though it may take a long time for many of them to become a reality because of financial constraints. Those emerging needs can be included in four major categories:

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. The *2004 Transportation Policy Plan* already identified needs for future principal arterials in Anoka County (east-west), Dakota County (east-west) and Washington County (north-south). Those principal arterials are the most efficient and safe way to accommodate longer and faster regional vehicle trips.

Given the role of 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. Current highway revenue projections indicate that Mn/DOT will not have resources to add new principal arterials or “A” minor arterials to serve the expanding urban area in the foreseeable future. However, cities and counties with a growing urban area that are not adequately serviced by a grid of principal or “A” minor arterials may want to consider reserving new right-of-way or right-of-way adjacent to existing local, county or state highways that could be used for a future principal or “A” minor arterial. Cities, counties and the Mn/DOT may want to manage the access to these or other highways so that conversion to a principal arterial is possible some time in the future. Revised spacing guidelines and access-management guidelines are provided in Appendix D.

New Bridges Crossing Major Rivers

The *2004 Transportation Policy Plan* noted the need for two new bridges across the Mississippi and the Minnesota rivers. While a number of studies have been carried out on the Mississippi crossing between Dayton and Ramsey, a specific right-of-way has not been accepted by all parties. The TH 41 Minnesota River replacement bridge analysis has progressed to the Draft EIS. While these bridges were conceived to be regional facilities, Mn/DOT does not, nor will it, have funds to build these bridges or needed approach highways in the foreseeable future. If agreement can be reached with the concerned parties, regional funds (RALF) or local funds should be used to acquire the right-of-way. This will help ensure these bridges can be built in the future when additional funds become available.



New/Rebuilt Interchanges

Improvements to existing interchanges and new interchanges are identified on an ongoing basis to improve highway operations and address safety concerns. Those improvements should be considered only when they are consistent with Mn/DOT's *Transportation System Plan* (TSP), this policy plan and the interchange procedures and criteria discussed in Appendix E. Construction of those improvements should not negatively affect safe operations on the main roadway.

Non-Mn/DOT Principal Arterials

At present, there are three principal arterials in the seven counties that are not under Mn/DOT jurisdiction: Dakota CSAH 42, Anoka CSAH 14 and Shepard Road. These metropolitan highways should be under Mn/DOT jurisdiction.

Potential Economic Stimulus Funding

Recent changes in the national economy have led to calls for Congress to adopt an economic stimulus package that would include funding for transportation infrastructure. How this region would respond to any such additional federal funding was raised during the public comment period on the draft plan.

For the region to have maximum flexibility to take advantage of this potential funding source, the Council has taken the necessary procedural steps to allow any one of the 12 major expansion projects (shown in Table 6-37, excluding the new river crossings) from the *Transportation Policy Plan* adopted in 2004 to be funded. Air quality conformity analyses were conducted adding each of these projects individually to the fiscally constrained plan and all were found to be in conformance. The results of the air quality analyses and the MPCA review letter are available in Appendix O.

These projects are being included in this plan contingent upon additional federal funding being available. If no additional funding is received, these projects are beyond the fiscally constrained plan.

In keeping with the overall direction of the plan, the Council continues to support reassessing these projects before they are constructed. If there are ways that the scope and costs can be reduced, while still meeting the critical preservation, safety and mobility needs in these corridors, this will benefit the entire region.

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 is currently under construction in the region with a completion date of 2009. 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 will open in 2009



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

- 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 are unable to use the regular fixed-route system due to a disability or health condition. This service must match the span and service area of local bus service, although current service levels exceed this in some locations. Other dial-a-ride services provide mobility to the general public. Dial-a-ride service areas include developed, developing, and rural areas. Dial-a-ride trips are typically scheduled individually, and passengers board and alight at any location within the dial-a-ride service area.
- 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.

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.
- 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 HOV lanes, allow buses to bypass congested conditions on highways and downtown streets throughout the region.



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





Figure 7-6: Logos of Providers

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: Operates the Hiawatha Light Rail line between Bloomington and Minneapolis
 - Metro Transit Commuter Rail: The Northstar Commuter Rail line currently under construction between Big Lake and Minneapolis
- Metropolitan Transportation Services
 - Metro Mobility: Specialized demand response service for persons with disabilities, provided in compliance with the ADA.
 - Contracted Regular Routes: Contracted regular-route service using private providers in the Metro Transit service area
 - Community Dial-A-Ride: General public dial-a-ride covering most suburban areas
 - Public Vanpools: Approximately 70 vanpools providing 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.

→ Northstar Commuter Coach: Regular-route coach bus service from Elk River through Coon Rapids to Minneapolis operated by a private provider under contract to the Northstar Corridor Development Authority and managed by Anoka County.

→ 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.

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



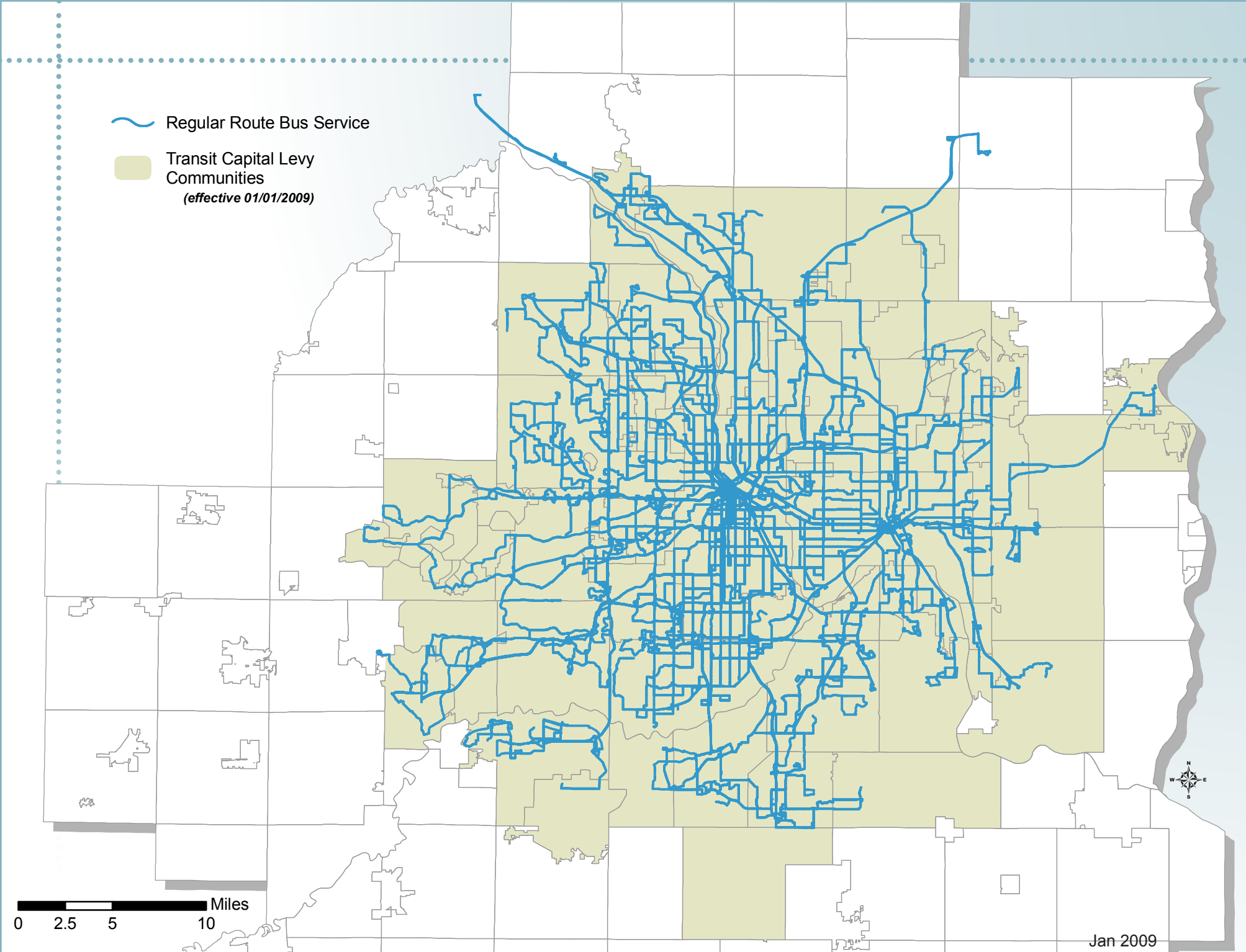
Transit Service Areas

Regular-route service provided by the Metropolitan Council and the Suburban Transit Providers operates within the Transit Taxing District, the portion of the seven-county region where property taxes are levied to pay for capital improvements for the transit system. The Northstar Commuter Coach and Ramsey Star travel outside of this boundary. Also, a route operates to Columbus and Forest Lake, initiated by a temporary emergency federal grant to help local transit providers alleviate increased congestion caused by the collapse of the Interstate 35W bridge. Figure 7-7 shows the extent of regular-route service in the region as of 2008.

Dial-a-ride service is provided throughout Anoka, Carver, Dakota, Scott and Washington Counties and in select areas of Hennepin and Ramsey Counties.



FIGURE 7-7: REGULAR ROUTE BUS SERVICE



Transit Infrastructure

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

The Twin Cities transit system has 218 regular routes and a dial-a-ride system that covers most of the seven counties. This system requires 1,250 regular-route buses, 27 light-rail vehicles, and 460 dial-a-ride buses.

In 2008, the region had 111 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. Twenty-seven transit centers and stations have been built to improve waiting conditions and facilitate transfers among buses and trains. Riders access the light-rail system at 17 stations. An 18th LRT station, at American Boulevard, will be added to the Hiawatha line in 2009.

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 250 miles of bus-only shoulders, ten miles of bus-only lanes on city streets, 88 ramp meter bypasses, 38 miles of HOV/HOT lanes including the I-394 reversible HOT lane and seven miles of exclusive busway.

The region's first commuter rail line, the Northstar Commuter Rail line, will be supported by five commuter rail stations, five commuter rail locomotives and 18 passenger cars. A multimodal station is being constructed at the connection between the commuter rail and Hiawatha Light Rail line, next to the new Minnesota Twins ballpark. A maintenance shop is also being constructed.

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



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



Figure 7-8: Park-and-ride facilities are important amenities along roads with bus-only shoulders





FIGURE 7-10: CURRENT TRANSIT PASSENGER INFRASTRUCTURE

Active Park & Ride by Capacity

-  0 - 100
-  101 - 500
-  501 - 1376

Only P&Rs within 7 County Metro shown

Bus and Shoulder Lanes

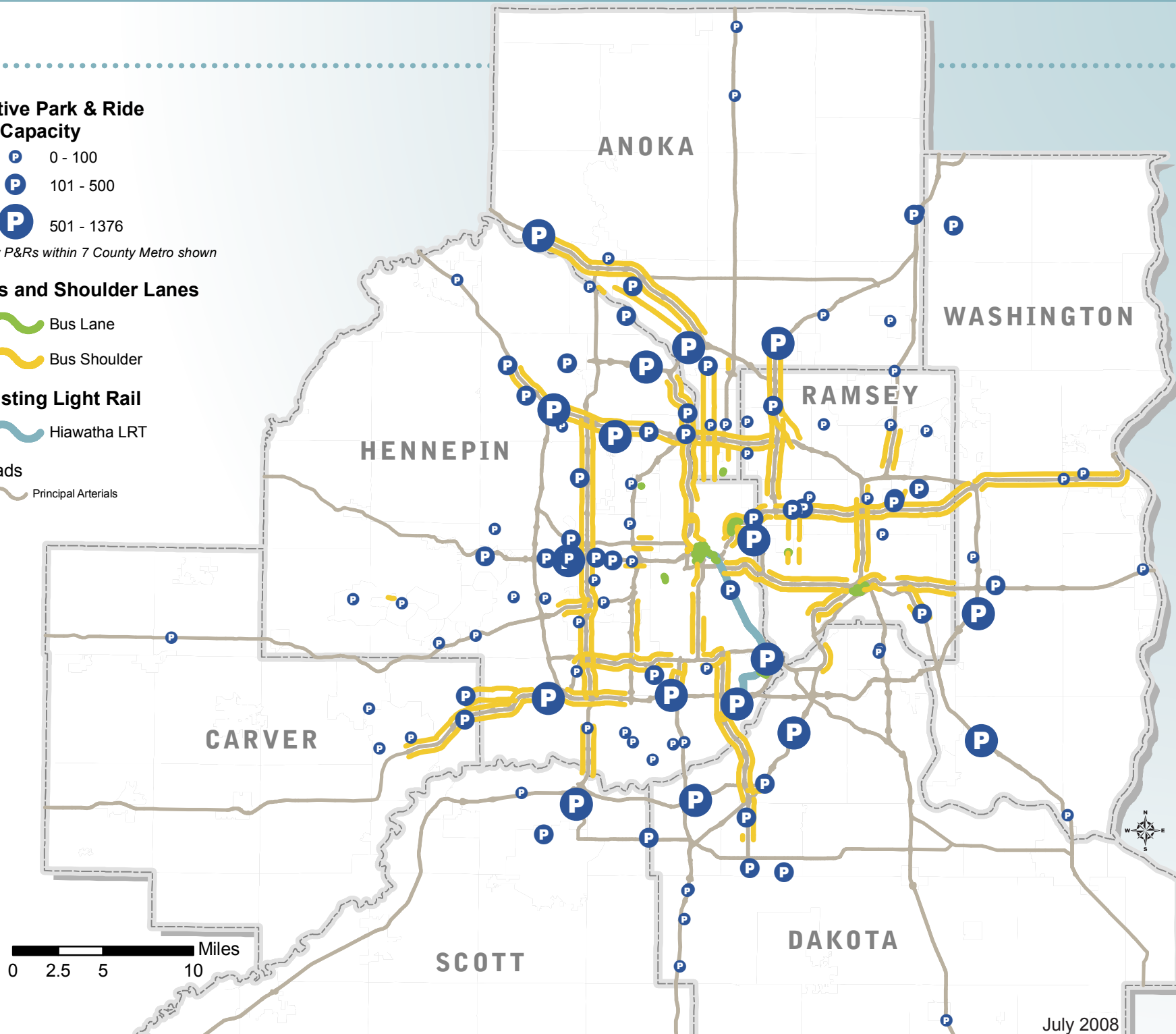
-  Bus Lane
-  Bus Shoulder

Existing Light Rail

-  Hiawatha LRT

Roads

-  Principal Arterials



July 2008



Progress Since Last Policy Plan

Growing Ridership

The Metropolitan Council set a goal of doubling transit ridership in the *Transportation Policy Plan* it adopted in 2004 – to about 147 million rides by 2030. Since setting that goal, transit ridership has grown steadily. Through 2007, ridership remains on target for reaching this 2030 goal, as shown in Figure 7-11.

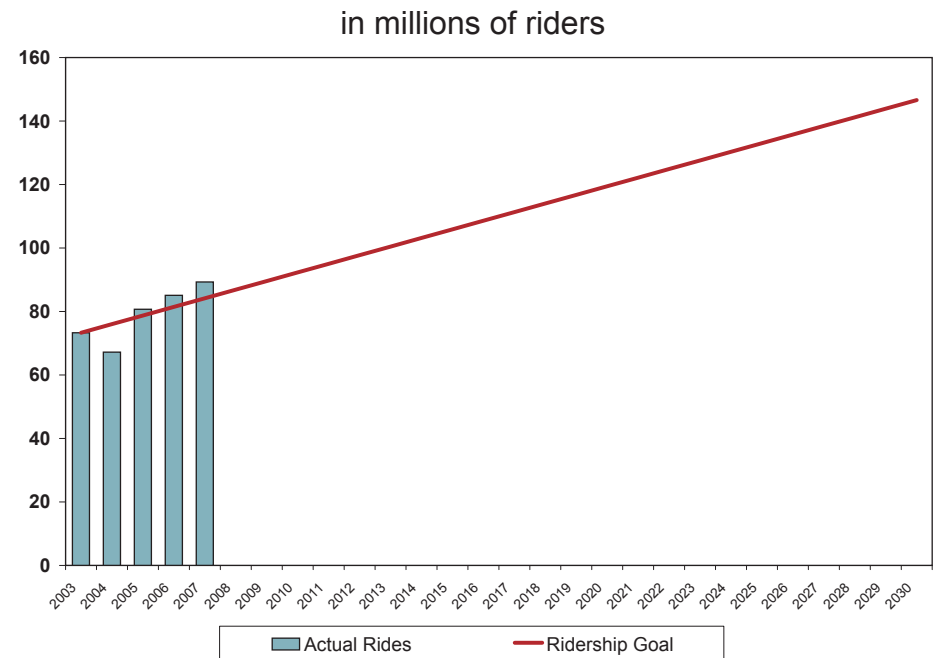
Factors driving this growth include the opening of the region's first modern rail transit line in 2004, higher fuel and parking prices, changes in employment in the core cities, and increasing congestion. Unlimited ride college pass programs have helped

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

Figure 7-11: Regional Transit Rides and Goal



Existing regular-route programs have also shown substantial ridership increases. Metro Transit restructured service in two sectors: Central-South in 2004 and Northwest Metro in 2007. New transit centers opened 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 6.3 million rides in the past three years. Suburban transit providers added over 1.3 million rides over the last four years. Other programs also showed substantial ridership growth. Detailed growth in ridership is shown in Table 7-13.



*Transit
ridership has
grown 21%
since the last
Transportation
Policy Plan*

Table 7-13: Twin Cities Transit Ridership

	2003	2004*	2005	2006	2007
Metro Transit Bus	66,000,000	53,200,000	60,900,000	63,500,000	67,300,000
Metro Transit LRT	0	2,940,000	7,900,000	8,960,000	9,100,000
Suburban Providers	3,430,000	3,570,000	3,950,000	4,380,000	4,790,000
University of Minnesota**	0	3,580,000	3,800,000	3,690,000	3,270,000
Contracted Routes	1,910,000	1,720,000	2,050,000	2,440,000	2,290,000
Metro Mobility/ADA	1,290,000	1,330,000	1,280,000	1,290,000	1,360,000
Dial-a-Ride	502,000	493,000	499,000	496,000	491,000
Northstar/Ramsey Star***	144,000	174,000	180,000	182,000	188,000
VanGo Vanpools	103,000	131,000	131,000	158,000	176,000
Regional Total	73,300,000	67,200,000	80,700,000	85,100,000	88,900,000

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

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

*** Ramsey Star operations began in 2007.

Current Development of Transitways

The region made substantial progress in developing transitways in the past several years. The previous *2030 Transportation Policy Plan*, adopted in 2004, identified five “Tier I” transitways as the first corridors to be examined for implementation:

- Northstar Commuter Rail secured funding and began construction. The Northstar corridor links Big Lake with downtown Minneapolis.
- Central Corridor LRT advanced to the Preliminary Engineering design phase and has recently requested permission from the FTA to complete final design. All local funding has been committed from the CTIB and Hennepin and Ramsey County Regional Railroad Authorities. The corridor connects St. Paul, the University of Minnesota, and downtown Minneapolis.
- The Bottineau Transitway, linking downtown Minneapolis to communities in northwestern Hennepin County, began a federally compliant alternatives analysis to be completed in 2009.
- Two Bus Rapid Transit (BRT) lines started construction. The region secured funding for segments of the I-35W BRT and Cedar Avenue BRT, extending south of downtown Minneapolis, through an Urban Partnership Agreement (UPA) with the federal government.



The previous plan identified three “Tier II” projects:

- The Southwest Transitway connects Eden Prairie with Minneapolis via St. Louis Park and Hopkins. The project completed an alternatives analysis and recommended three LRT alternatives for environmental documentation. A Draft Environmental Impact Statement (DEIS) is underway.
- The Red Rock Corridor connects Hastings to St. Paul and Minneapolis. The project completed an alternatives analysis in 2007.
- Rush Line, linking St. Paul with Forest Lake and beyond, completed a commuter bus study in 2007 and an alternatives analysis is underway.

The Robert Street Corridor, included in the 2004 plan as a local arterial bus corridor south of downtown St. Paul, completed a transit feasibility study.

Alternatives to Congestion

For some key congested highways, transit moves a quarter or even one-third of the persons using that highway. This allows the existing highway to carry more persons. Figure 7-15 shows the number of persons carried at the peak hour in the inbound lane both by transit and in automobiles. This figure shows how transit adds highway capacity during peak congested periods.

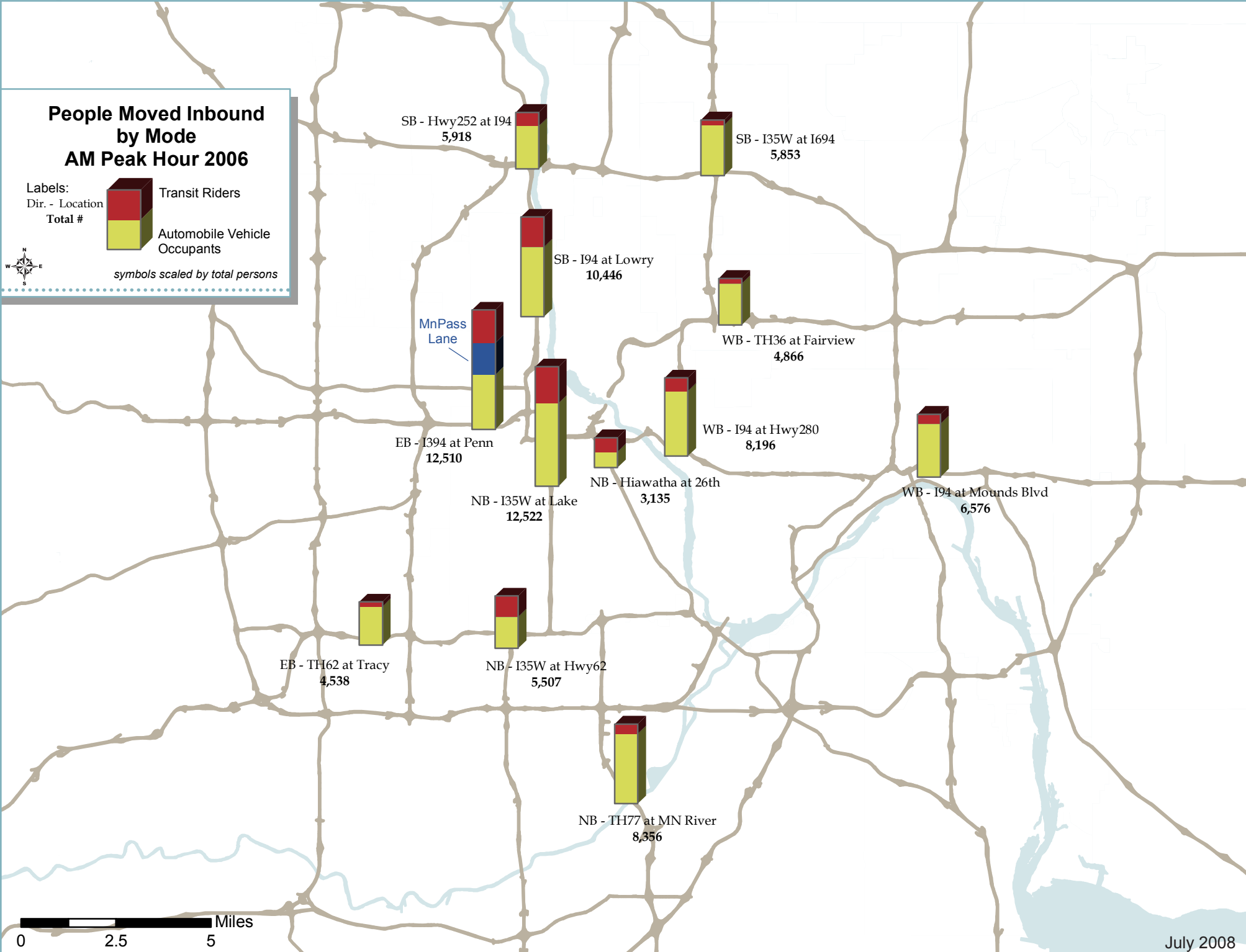
For some key congested highways, transit carries a quarter or even a third of persons on that highway



Figure 7-14: LRT is a dependable, comfortable, and frequent transit option



FIGURE 7-15: FREEWAY TRANSIT PASSENGERS AND HIGHWAY THROUGHPUT



Demand for transit is increasing while major revenue sources have been declining

Issues and Trends

Demand for Service Increasing

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 2007, transit ridership was at its highest level in 25 years. Ridership growth is expected to continue as gasoline prices and congestion are forecast to increase over the long-term. There is growing pressure for expanded transit service beyond the Transit Taxing District (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.

Declines 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 2001. From 2001 to estimated 2009 collections, revenues are projected to decline 26 percent. As a result, fares were raised in 2003, 2005 and again in 2008 and service cuts in 2002, 2003, and 2005 have reduced the bus system by approximately 10 percent. Going forward, it appears that the popularity of less-expensive vehicles will continue and vehicles will be retained longer, generating less MVST revenue into the future (see Chapter 3: Finance). Also, the growth in the number of cars per capita appears to have slowed, as there are now more vehicles than drivers in the region.

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. 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.



A new 1/4 percent sales tax was approved by five counties in 2008 but this cannot be used to expand the base bus system.

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 HOV/HOT 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. Planned improvements, such as double bus lanes, will increase downtown Minneapolis' bus capacity but 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 with Central and Hiawatha trains. Additional rail lines beyond these four will require a new alignment through downtown Minneapolis. The downtown Minneapolis Intermodal Station will accommodate Northstar Commuter Rail, but 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 St. Paul Union Depot 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, counties were given the authority to levy a quarter-cent (1/4 percent) sales tax. In addition, they were given the authority to form a joint-powers board (JPB) to allocate this funding to transitway projects. It is not yet clear which projects will receive funding through this source as JPB has not yet developed funding policies.

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 or for operating projects that did not receive capital funds from this source. It also cannot be used to operate or expand the base bus system. If the regional goal of doubling transit ridership is going to be met, additional funding to offset any additional declines in the motor vehicle sales tax or grow the bus system will need to be identified.

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





Figure 7-16: Transit police are part of providing a safe and secure transit system

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.

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, in consultation with regional providers, CTIB and other partners, regional fleet and facilities policies 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, HOV or HOT 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.

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 fixed-route transit system, comparable ADA, and other dial-a-ride programs.

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 fixed-route transit system will be provided to individuals who are certified under the Americans with Disability Act (ADA) and who are unable to use the fixed-route transit systems.

Strategy 16c. Access to Transit Stops and Stations: The Council will encourage cities to place priority on providing adequate access to transit stops and stations, including snow removal.

Strategy 16d. Transfers Between Fixed-Route and ADA Services: The Council will encourage transfers between fixed-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



Figure 7-17: Metro Mobility provides paratransit service to the region



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

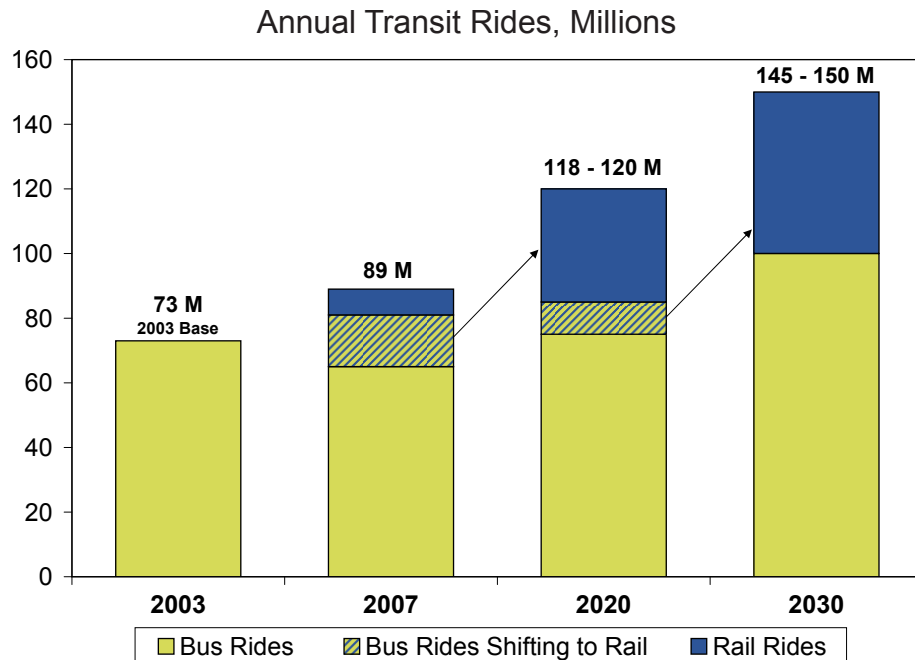
Strategy 18b. Connectivity to Transit



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.

**Figure 7-18: Ridership by Mode 2003 - 2030
(Including rides changing modes)**



Transit Growth by Mode

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.

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.

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.






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. Routes that may be added or improved by 2030 are included in Figure 7-21. Some of these arterial routes have potential to be upgraded to 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. Possible corridors include Interstate 35 from North Branch, I-35 from Faribault, Highway 55 from Buffalo and a connection between the Big Lake Northstar commuter rail station and St. Cloud.



FIGURE 7-19: TRANSIT MARKET AREAS

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 fixed 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.

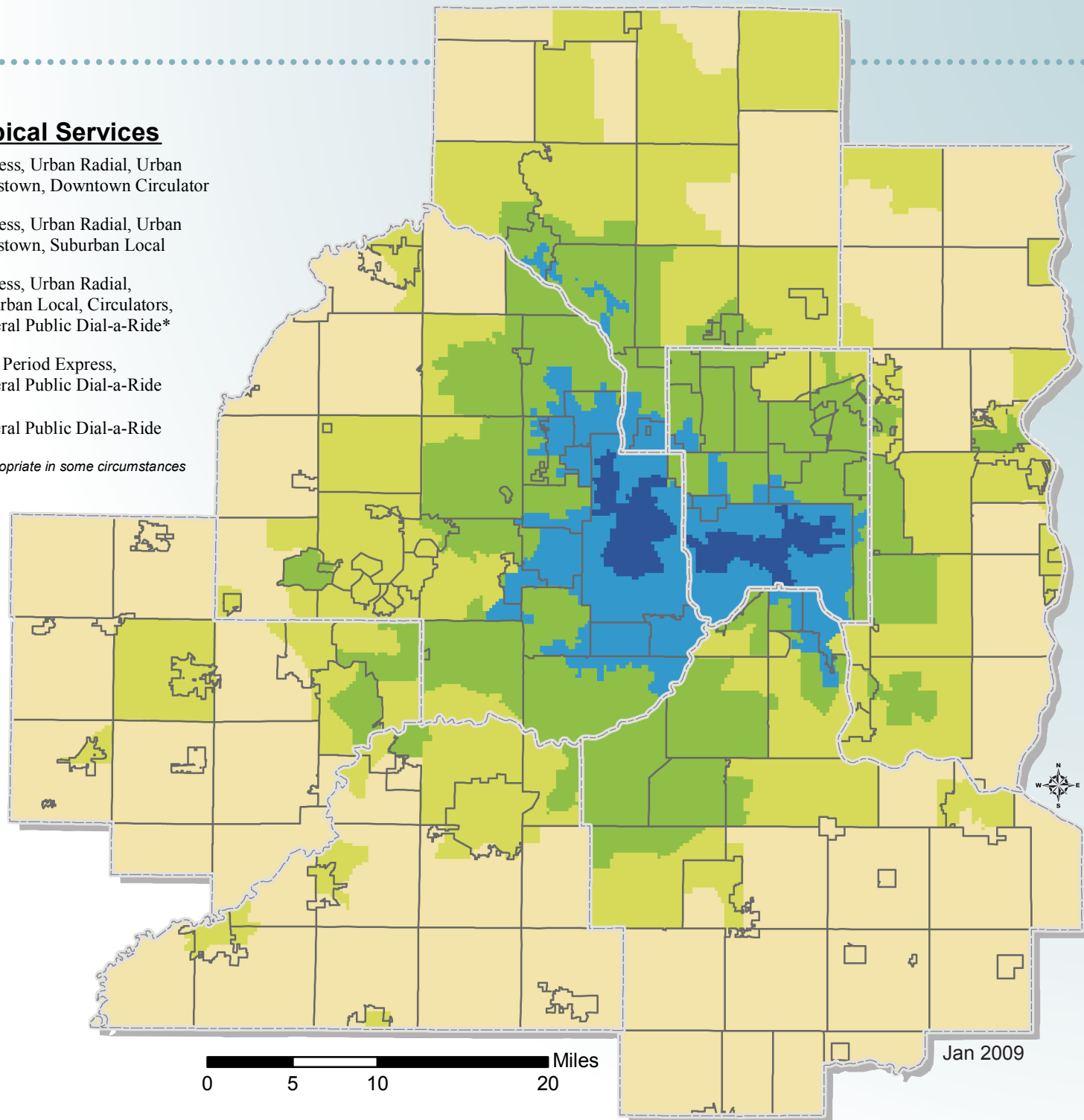


FIGURE 7-20: POTENTIAL 2030 LOCAL BUS ROUTES

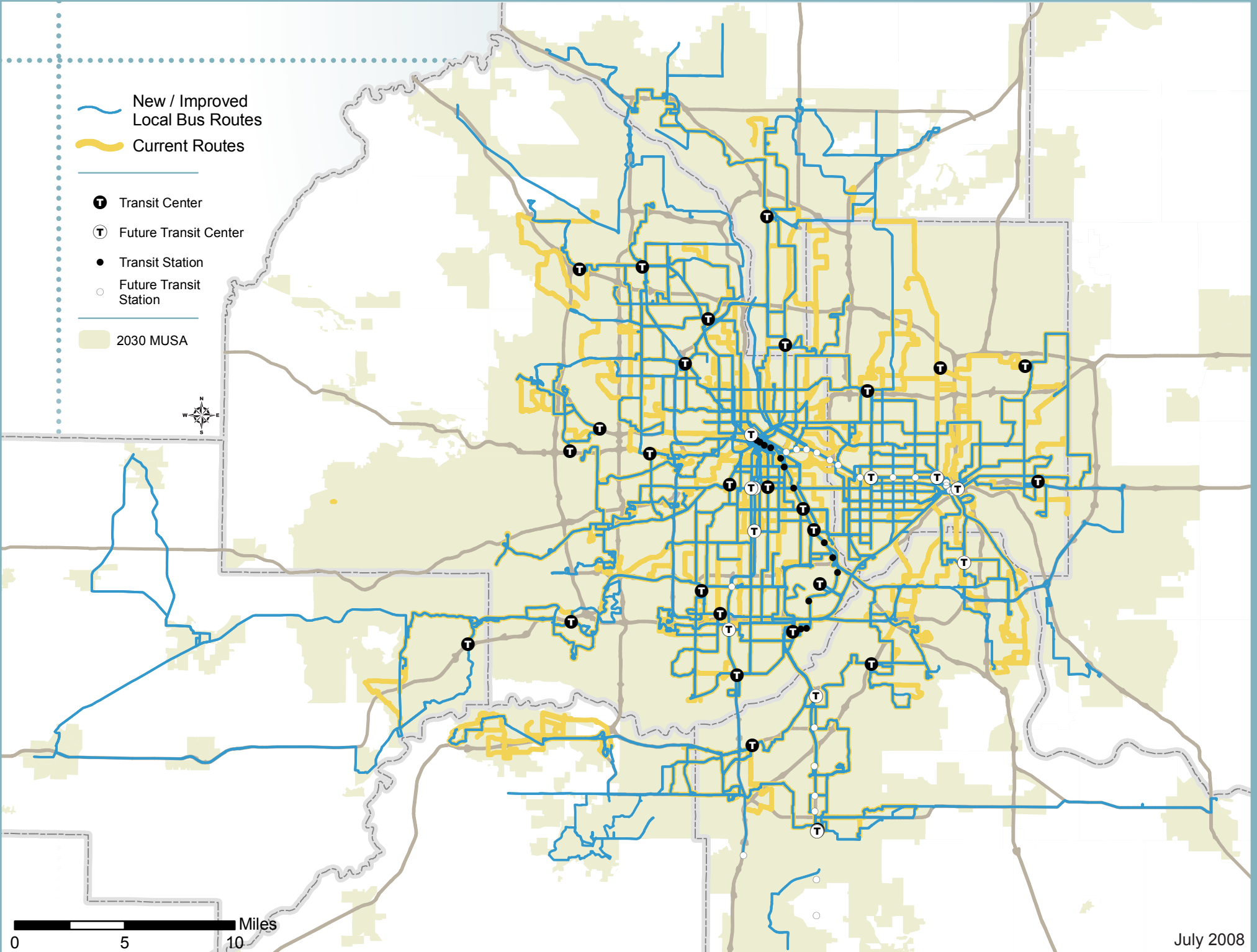


FIGURE 7-21: POTENTIAL 2030 ARTERIAL NETWORK

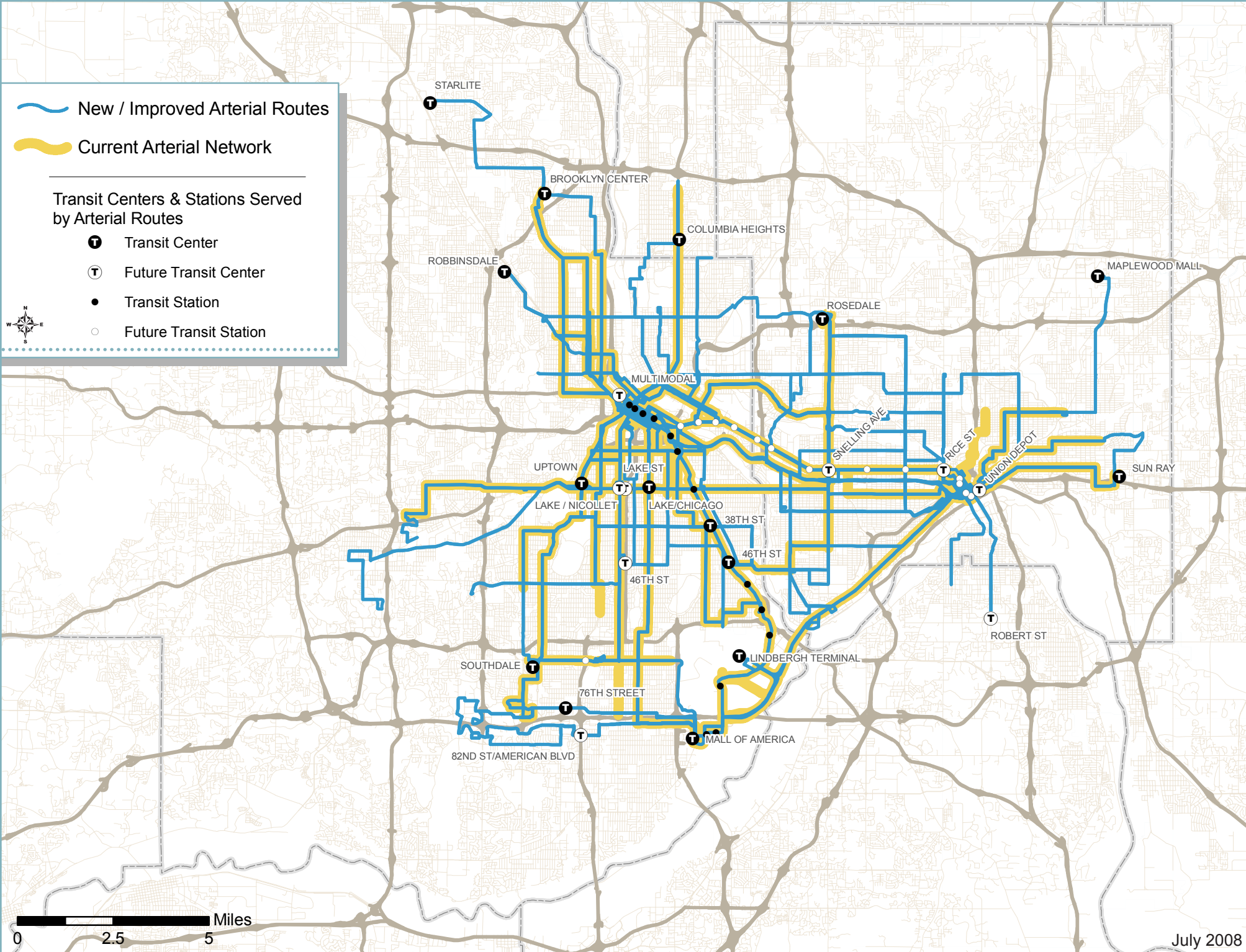
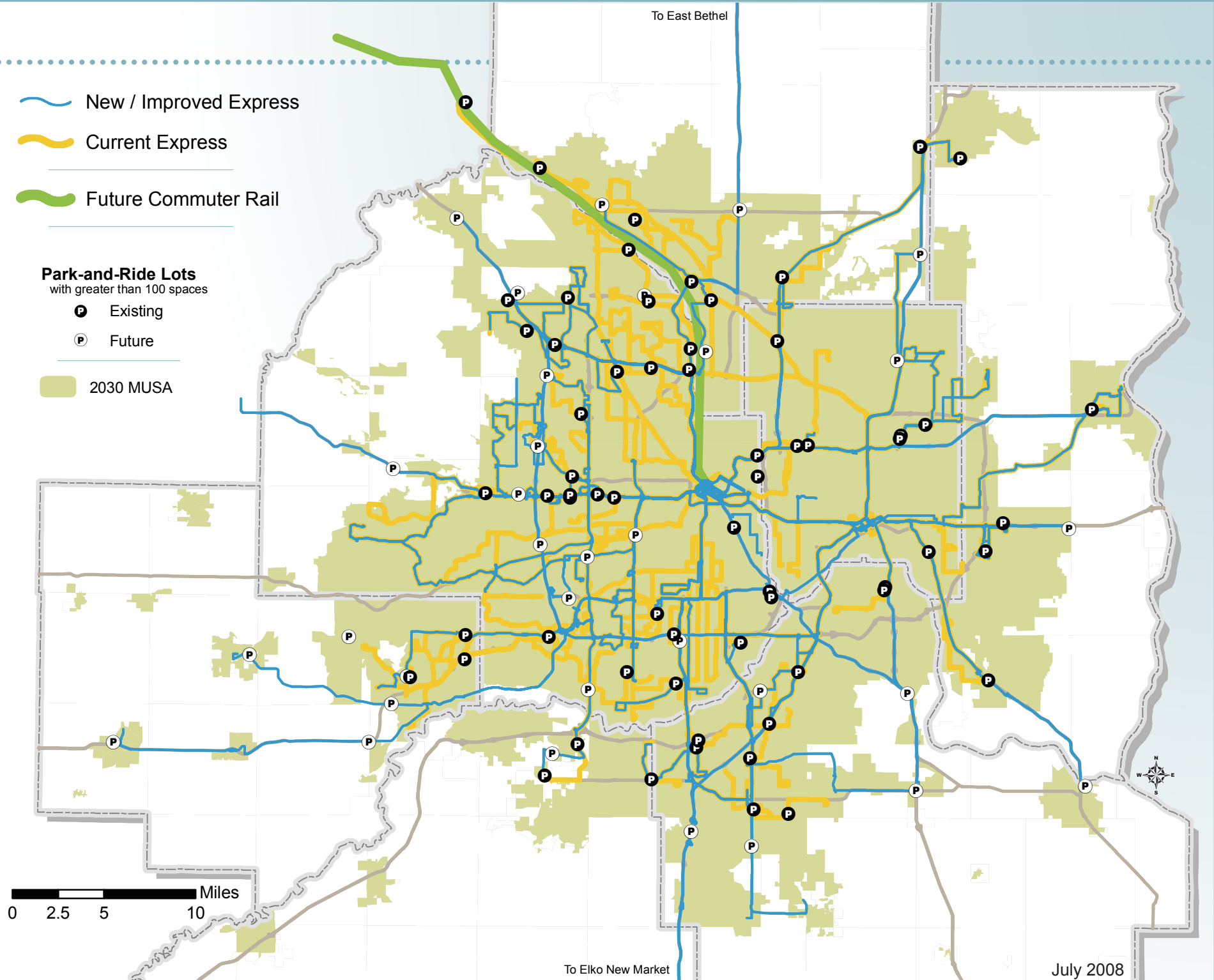


FIGURE 7-22: POTENTIAL 2030 EXPRESS BUS



Metro Mobility is projected to grow 70% between 2008 and 2030

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 service operates. It also may provide service beyond the requirements of the ADA to provide mobility to people with disabilities. It is projected that Metro Mobility service will grow 30% between 2008 and 2020 and 70% 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 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. 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.



Passenger facilities like park-and-rides, shelters and transit stations provide rider amenities that boost ridership.

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.

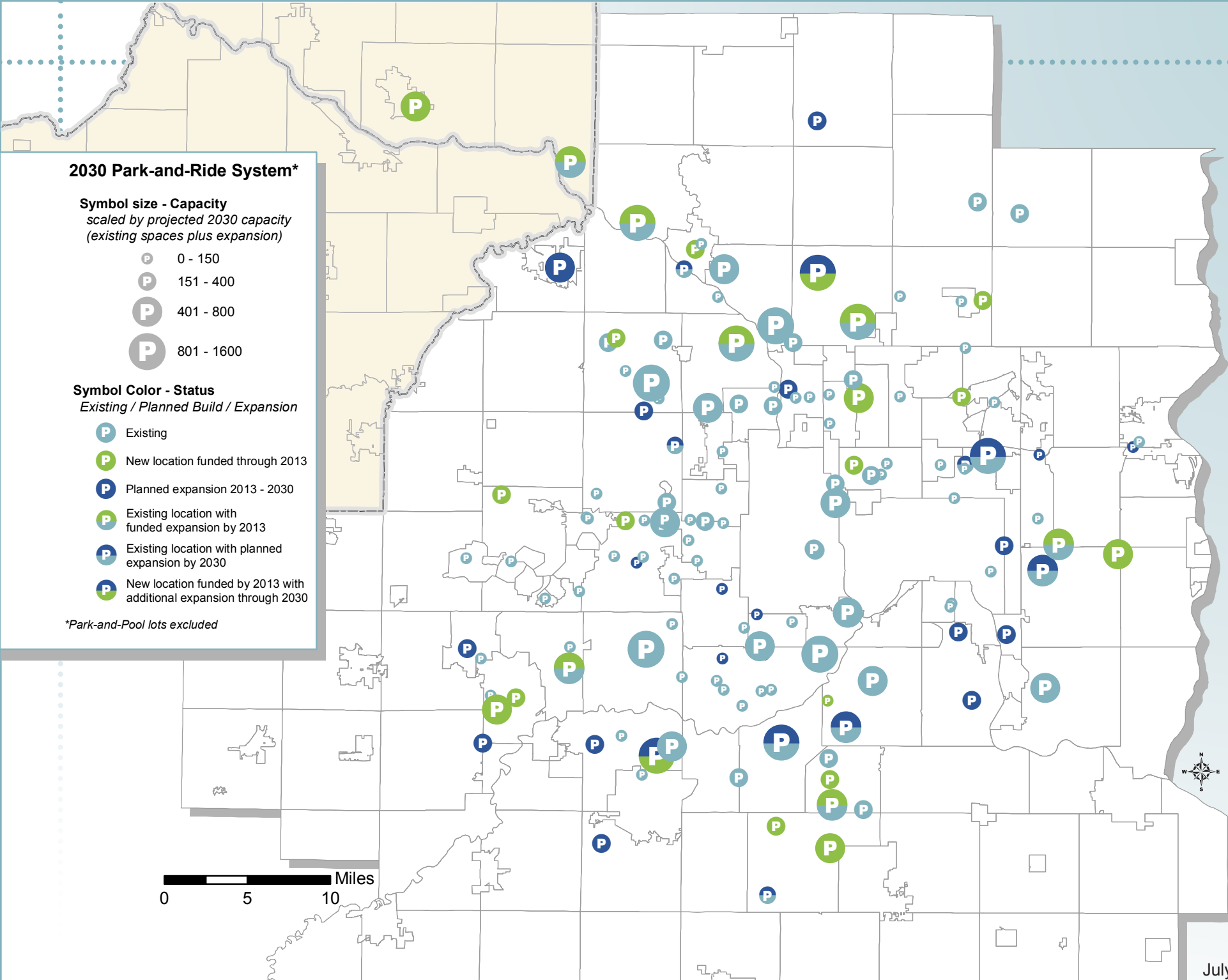
Customer information systems (CIS), which include both static and dynamic systems, are important tools for providing basic route information and directions to transfer points and real-time service information. Technology will affect all aspects of a passenger's trip, such as updated information about 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 St. Paul Union Depot and the Minneapolis Intermodal Station 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, these needs include double-width bus lanes on Marquette and Second Avenues (scheduled for completion in late 2009) and retaining the bus contra-flow lane on 4th Street. In St. Paul, these needs include retaining bus lanes on 5th and 6th Streets.



FIGURE 7-23: PLANNED 2030 PARK & RIDES



July 2008



Transit 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.

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 is being constructed in Big Lake and a layover track in the downtown Minneapolis area. Maintenance facilities and layover track will be needed for any additional commuter rail lines.

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 7-28 shows the locations of existing major transit support facilities. Additional facilities will be required as service expands to meet growing demand for transit.



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

Metro Transit East Metro Garage



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



Roadway improvements support efficient transit service

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, high-occupancy toll (HOT) lanes, high-occupancy vehicle (HOV) lanes, and ramp meter bypasses. On city streets, dedicated bus lanes, dynamic parking lanes 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. Priced dynamic shoulder lanes open up existing highway shoulders to buses and toll-paying automobiles during peak periods. Priced lanes (either new lanes or dynamic shoulders) allow buses to share a lane with a limited number of automobiles to provide a congestion-free trip. Tolls can be adjusted to limit the number of autos using the lane to preserve free-flow traffic conditions. Potential planning and implementation of these tools should optimize benefits to transit operations.



Figure 7-26: Ramp meter bypasses are transit advantages that encourage ridership by improving transit time.



Figure 7-27: HOT lanes on 394 are another transit advantage



FIGURE 7-28: EXISTING TRANSIT SUPPORT FACILITIES

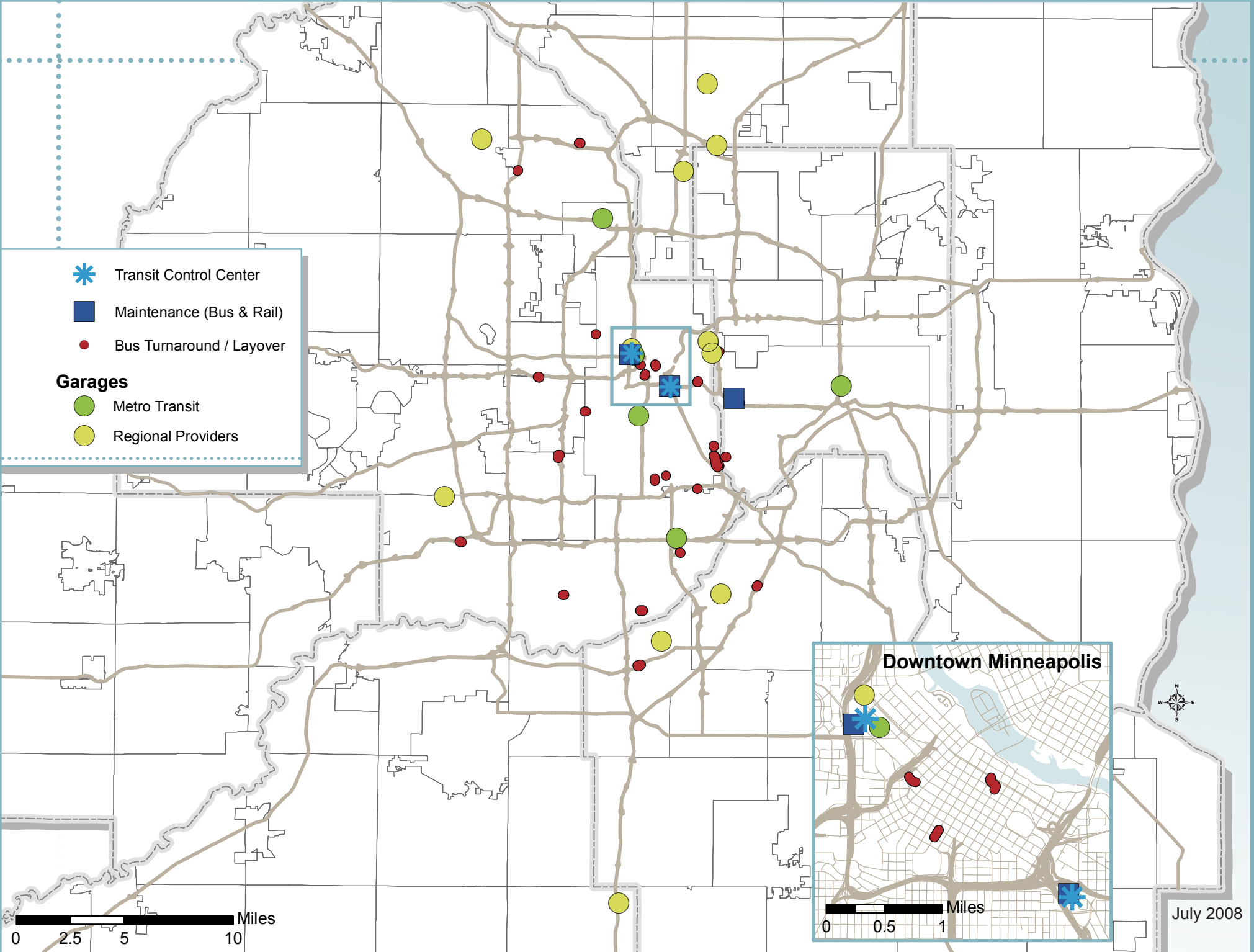
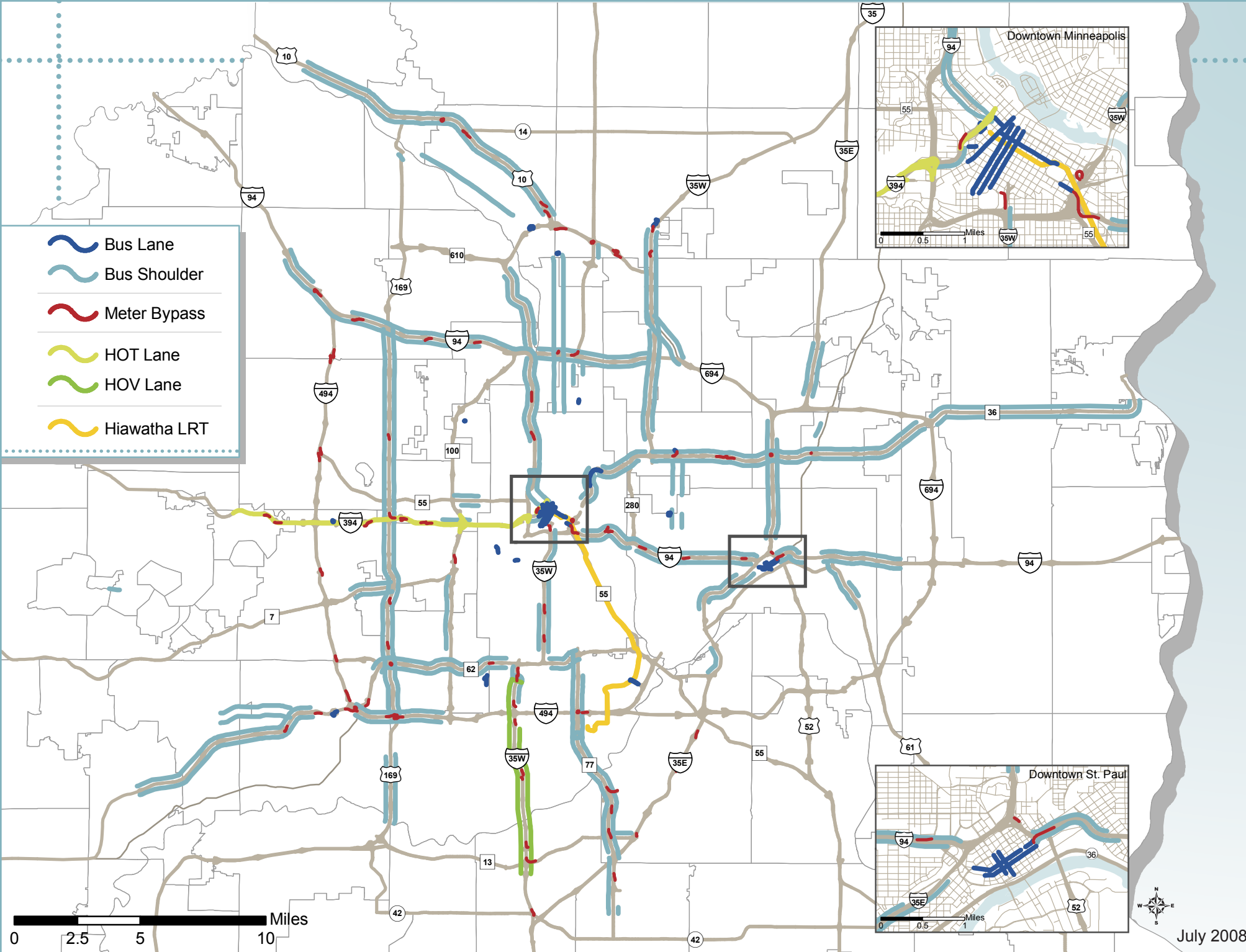


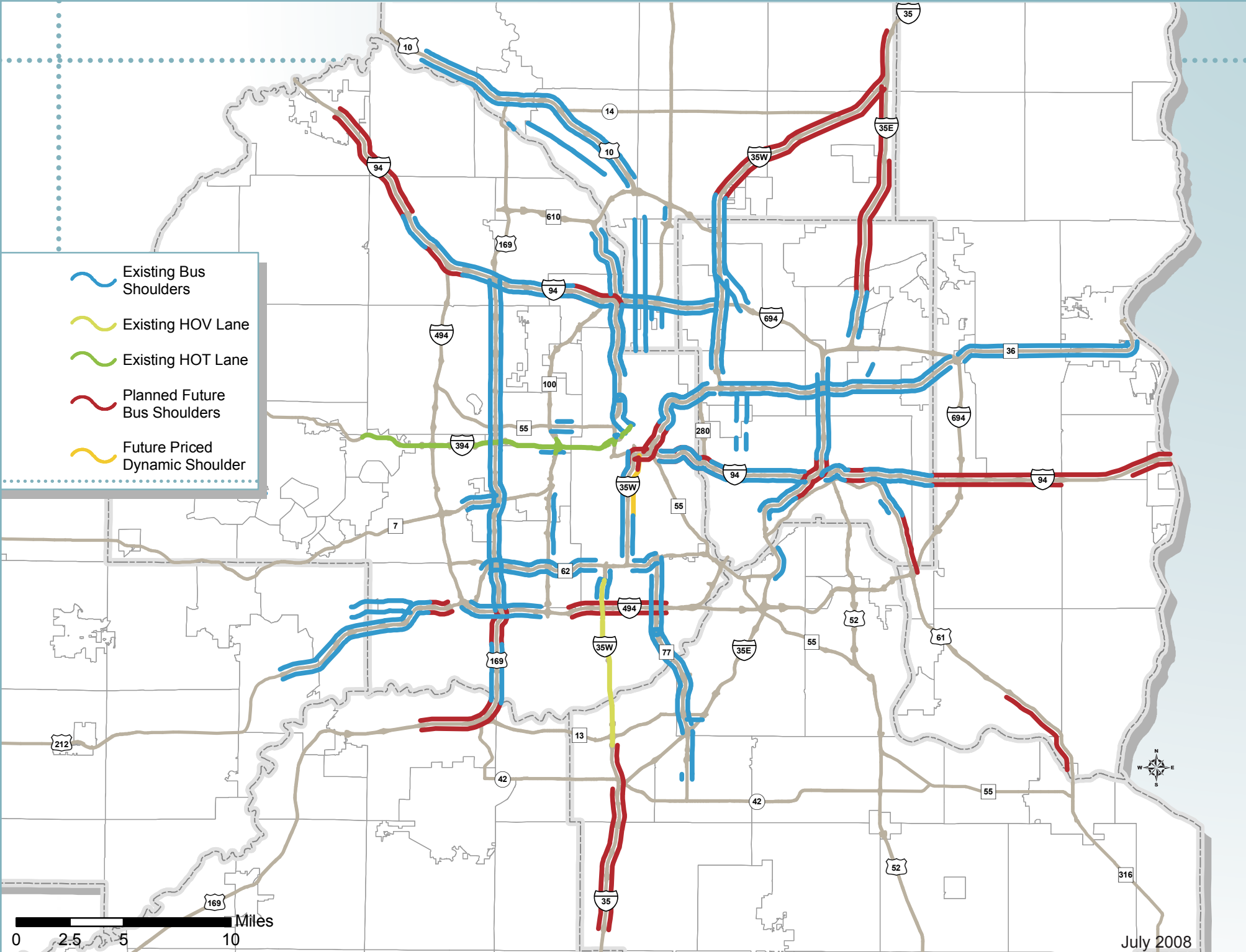
FIGURE 7-29: EXISTING TRANSIT ADVANTAGES



July 2008



FIGURE 7-30: PLANNED 2030 BUS SHOULDERS



July 2008



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 will guide 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 will outline standards regarding vehicle types and configurations, standard features, farebox equipment, procurement and graphics. The policy will also reflect 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 Plan

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 Service Improvement Plan, the Council will prepare a 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.

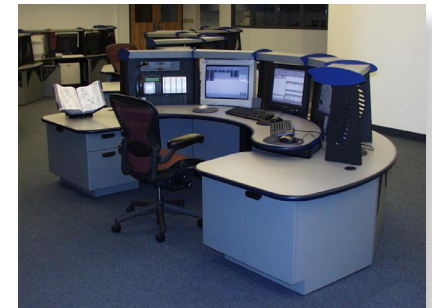


Figure 7-31: The Transit Control Center ensures efficient and safe operations



A network of transitways will connect the region's major employment centers and allow commuters to avoid congested roads.



Play Animation of Potential BRT operations



Play Animated Corridor Map

Figure 7-33: 35W BRT animation and Northstar Commuter Rail animation

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.

Develop a Network of 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 from the *2030 Transportation Policy Plan* adopted in 2004 include:

- Northstar Commuter Rail –This transitway is under construction, to open in late 2009.
- I-35W and Cedar Avenue BRTs – Many elements of these projects are under construction; their current phases will be complete in late 2009.
- Central Corridor Light-Rail Transit – Engineering and design work continues towards a projected opening in 2014.
- Bottineau Transitway – Alternatives analysis will be completed in 2009.
- Southwest Transitway – Three LRT alignments from an alternatives analysis will be studied in environmental documentation work began in 2008.
- Rush Line Corridor – Work on an alternatives analysis continues.
- Red Rock Corridor – The project will study improved express bus service with transit advantages as an interim strategy towards a long-term rail investment.

The screenshot shows the NexTrip MetroTransit website. At the top, there are tabs for 'SELECT TRIP', 'TRIP PLANNER', and 'TEXT VERSION'. The 'TRIP PLANNER' tab is active. Below it, there are input fields for 'Route' (21 SELBY-LAKE), 'Direction' (WEST BD), and 'Stop or Station' (SELBY DALE). A 'Refresh' button and 'Current Time: 4:41 PM' are also visible. Below these fields, a yellow banner says 'Departs in 12 Min'. A table lists the route and departure times:

Route	Departs
21 SELBY-LAKE	Departed
21 SELBY-LAKE	12 Min
21 SELBY-LAKE	5:14 PM
21 SELBY-LAKE	5:26 PM
21 SELBY-LAKE	5:38 PM
21 SELBY-LAKE	5:50 PM
21 SELBY-LAKE	6:03 PM
21 SELBY-LAKE	6:16 PM
21 SELBY-LAKE	6:28 PM
21 SELBY-LAKE	6:48 PM

At the bottom, there is a 'Feedback' link and a legend for 'Real Time' (blue square) and 'Scheduled' (red square).

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



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

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 further 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

Funding has been secured and construction work is in progress for the Northstar Commuter Rail Line operating on the Burlington Northern Santa Fe railroad line from downtown Minneapolis to Big Lake. The projected completion date is late 2009. This will be 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 other commuter rail corridor than Northstar would have enough ridership to justify intensive investments. However, commuter rail ridership forecasts are hampered by the lack of data about travel patterns of commuter rail customers because the region currently does not have an operating commuter rail. Once Northstar Commuter Rail opens in 2009, it will be possible to use observed data



Figure 7-34: NorthStar Commuter Rail train will open in 2009



for commuter rail to calibrate the travel forecast modeling. Because of this, the region should look again at demand for commuter rail in 2010 when Northstar is operational and the rail line's impacts on travel patterns are more fully understood. New census and Travel Behavior Inventory data on travel trends will also be available. 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 freight or intercity 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 passenger service were developed from Duluth, it could substantially change costs of the Bethel-Cambridge corridor for commuter rail. If either of these triggering events occurs, those corridors should be re-studied for commuter rail investments.

Intercity passenger rail and bus service are important to the economy of the Twin Cities. These modes enhance connectivity and provide transportation alternatives between the Twin Cities and other regions. Because of this, the Metropolitan Council supports the development of these alternatives. However, intercity passenger rail or bus service is not included in this plan. Intercity passenger rail service is provided by Amtrak and regulated by the Federal Railroad Administration (FRA), not the Federal Transit Administration (FTA). As such, planning for these services extends beyond the jurisdiction of an individual metropolitan planning organization. Because of this, this type of service is usually planned at the state and federal levels. In Minnesota, Mn/DOT is the lead agency for planning intercity rail service. The Council supports and will work closely with Mn/DOT in efforts to plan and develop intercity rail. 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.

Figure 7-35: Central Corridor LRT animation



Play Animation of Central Corridor Train and Stations

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.

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. The University of Minnesota busway 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.

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. The project has proceeded to preliminary engineering and is working toward final design and secure funding for construction. Construction is projected to begin 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 with three LRT alternatives under consideration began in 2008. Bottineau Corridor runs from Minneapolis along Highway 81 to either Maple Grove or Brooklyn Park. Work has begun on an alternatives analysis for this corridor, with LRT and busway alternatives under consideration.

In addition five other corridors (I-94 East, TH 36 / NE, I-35W North, Central Avenue / TH 65 / BNSF and Rush Line) are recommended for mode and alignment studies, and may be determined to have potential for LRT, busway, or on another mode.

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.



Figure 7-36: Hiawatha LRT is a successful regional transitway





Figure 7-37: The Eagan Transit Station and Park & Ride exemplifies types of facilities riders will see on the I-35W BRT

The Midtown Corridor shows promise as a transitway connecting Hiawatha LRT and Southwest Transitway. However, it is not yet clear which Southwest alignment will be selected. This corridor should be examined after the Southwest Transitway alignment is determined to see if a connection between Hiawatha and Southwest is warranted.

Bus Rapid Transit

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, HOT lanes, HOV 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.





Bus Rapid Transit Recommendations

In the Twin Cities, there are two variations of BRT proposed: arterial street BRT and highway BRT.

Bus Rapid Transit on Arterial Streets

The 2030 Transit Master Study and other studies screened high ridership arterial 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. 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

Some of these corridors are proposed to be studied for other modes in addition to bus rapid transit. Detailed corridor analyses 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.

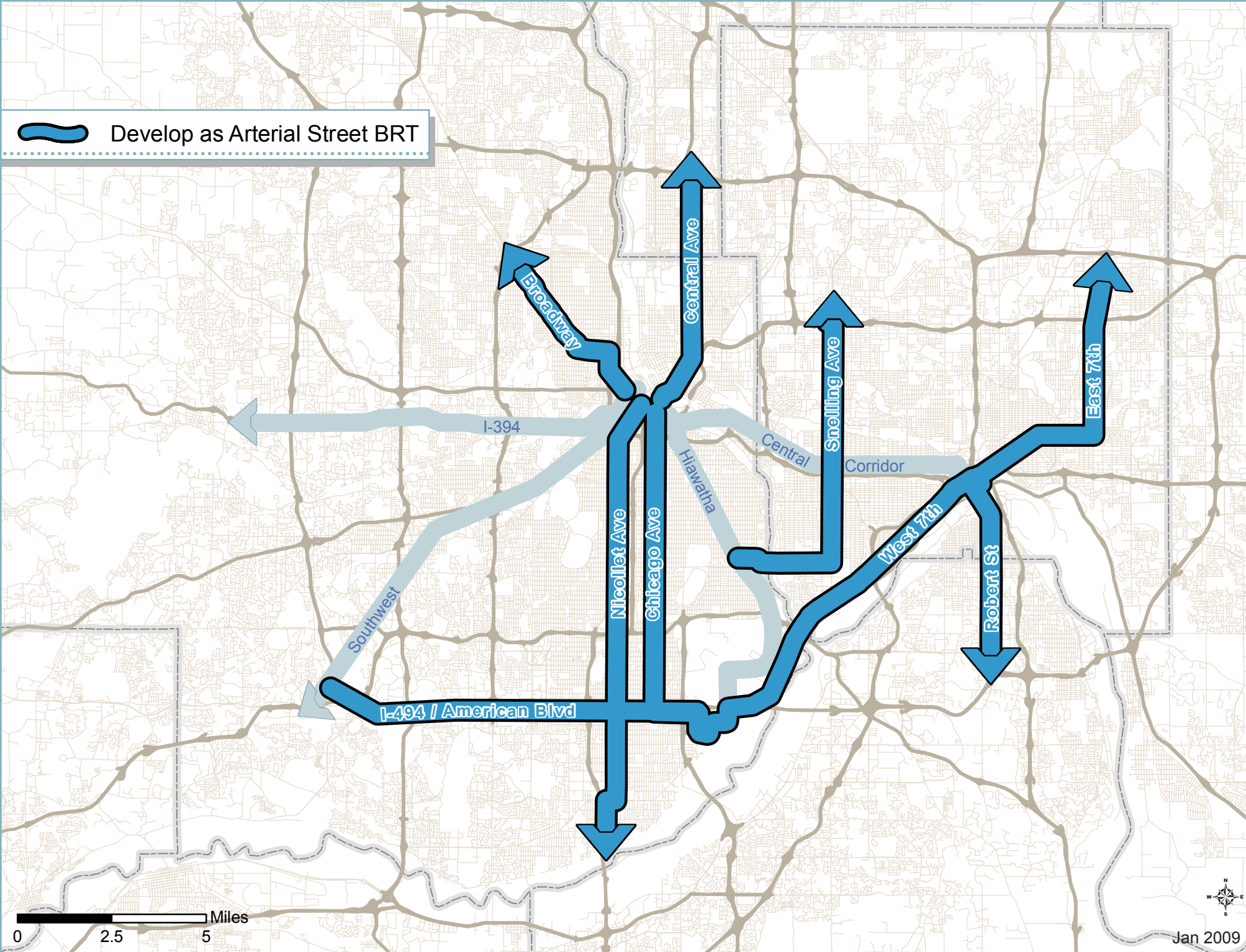


Figure 7-38: BRT service on arterial streets will provide options for riders

The U of M transitway is dedicated right-of-way for campus transit vehicles



FIGURE 7-39: POTENTIAL 2030 ARTERIAL STREETS BRT ROUTES



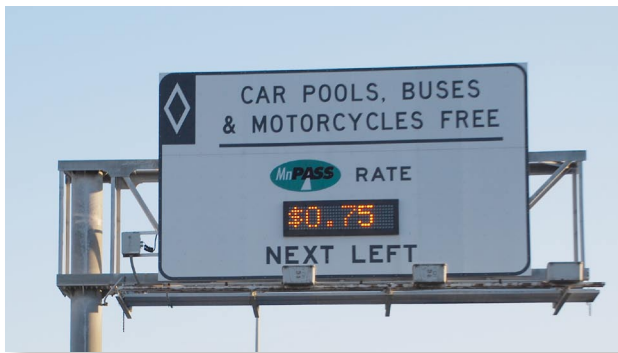


Figure 7-40: HOT lanes are an example of a regional transit advantage



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

Bus Rapid Transit on Highways

Bus Rapid Transit (BRT) also operates on limited access roadways. It can use bus-only shoulders, HOV/HOT 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 Mall of America, with express service continuing to downtown Minneapolis using TH 62 and transit advantages related to 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 shoulders added south of 138th Street. These elements are expected to be in place by 2011.

The Twin Cities received an Urban Partnership Agreement grant from the federal government, which will advance both the I-35W and Cedar Avenue BRTs. This agreement calls for the establishment of a priced dynamic shoulder lane (PDSL) 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 that is available for transit use. This will allow 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 will be converted to dual lanes, reducing travel time through downtown by as much as 10 minutes. Additional transit vehicles will be purchased, park-and-ride spaces will be created, new BRT stations will be built, a bus bypass lane at TH 62 and TH 77 will be added, priority for transit vehicles at signalized intersections will be implemented, and electronic signs at stations will project bus arrival times based upon real-time data will be installed. These improvements are scheduled for completion in 2009.

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, HOT or HOV lanes, ramp meter bypasses or other 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 HOT lanes to avoid congestion. Many other routes use bus-only shoulders to avoid congestion. Highway improvements such as bus-only shoulders, HOV lanes, priced dynamic shoulder lanes and priced 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.

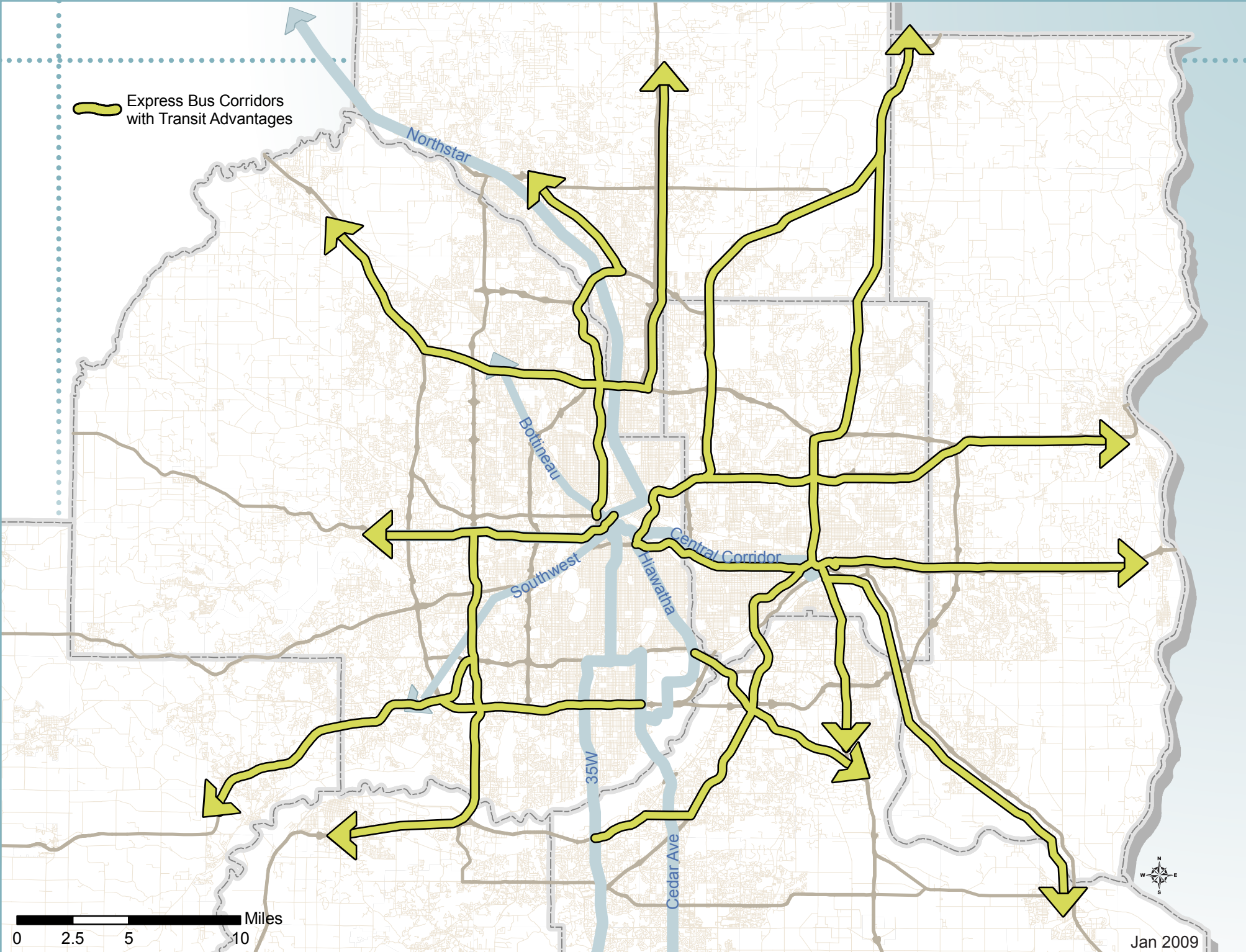
Between 2008 and 2030, the region's urbanized area will grow, necessitating the expansion of highway transit advantages. In addition, there are gaps within the existing network of transit advantages that should be closed for the system to function optimally. As a result, it will be necessary to expand the bus-only shoulder network by up to 135 miles, depending on the reconstruction schedule for the highway system.

The I-394 HOT lane will continue to provide a substantial advantage to express buses on the western end of the region as will the new lanes being 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.



FIGURE 7-42: PROPOSED 2030 EXPRESS SERVICE CORRIDORS



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
- I-94 east of downtown St. Paul and Minneapolis

In addition, the Rush Line Corridor is 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 high-occupancy toll lanes, dynamic shoulder lanes or express buses with transit advantages.

Some modes of transportation are not included in this plan:

Intercity passenger rail is not included in this plan, as discussed in the commuter rail section of this chapter. However, existing and 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.

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. Typically streetcar lines are less than three miles long while light rail is 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 every mile while streetcars operate in mixed traffic and stop every few blocks. Service maybe faster than bus service due to faster boarding, faster fare collection, and intersection priorities, though BRT service can offer these travel time benefits and is not subject to service disruption from being on a fixed rail like streetcars. Streetcar service is particularly suitable for high volume local routes with short average trip distance in urban areas. Streetcars maybe also be appropriate as a development tool for local units of government.



Figure 7-43: Amtrak provides intercity passenger rail service to the Metro Area



The Council will collaborate with local units of government to determine where and when streetcars may be appropriate. If it is determined that streetcars are less cost-effective than buses and that they are being constructed primarily as a development tool, capital costs for streetcars should be funded primarily at the local, not regional, level. Streetcar service would be expected to integrate with the regional transit system. Federal or state grant funding for local streetcar lines should not compete with regional transit priorities unless streetcars are shown to be more cost-effective than bus or LRT improvements on particular transit corridors.

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.

Summary of Transitway Recommendations

Complete, In Construction, Final Design or Preliminary Engineering

Six transitway corridors, Hiawatha LRT, I-35W BRT, Cedar Avenue BRT, I-394 HOT Lane, Northstar Commuter Rail and Central LRT are complete, in construction, final design or preliminary engineering.

Develop as LRT/Busway/BRT/Commuter Rail

Eight corridors, Southwest, Bottineau, I-35W North, Central Ave/TH65/BNSF, Rush Line, TH36/NE, I-94 East, 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.

The cost estimates in this plan allow for the following transitways to be implemented:

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

Based upon current data, no commuter rail line other than the Northstar corridor appears to generate enough ridership to justify this kind of large capital investment. However, this assumption should be reexamined in 2010, using actual Northstar ridership data to evaluate the accuracy of current ridership projections and to modify the ridership model, if warranted. In addition, progress in potential high speed or passenger rail connections to Chicago and Duluth could significantly reduce the capital cost of the Red Rock and Bethel-Cambridge commuter rail lines and, coupled with possible higher ridership projections,



improve their cost/effectiveness. Because other commuter rail corridors may become viable in the future, based upon the analysis described above, this plan assumes implementation of a second commuter rail line in its cost estimates between 2020 and 2030.

Corridor Status:

- Southwest: Alternatives Analysis completed and Draft EIS for three LRT options underway
- Bottineau Boulevard: Alternatives Analysis underway
- Rush Line: Alternatives Analysis underway
- I-35W N, Central Ave/TH65/BNSF, TH36/NE and I-94 East: Preferred mode and alignment to be determined through alternatives analyses over the next three years
- Red Rock: Alternatives Analysis completed recommending a phased approach with commuter rail implemented if high speed rail is developed in the corridor.

Develop as Arterial Street BRT Corridors

Nine arterial corridors are recommended as potential 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

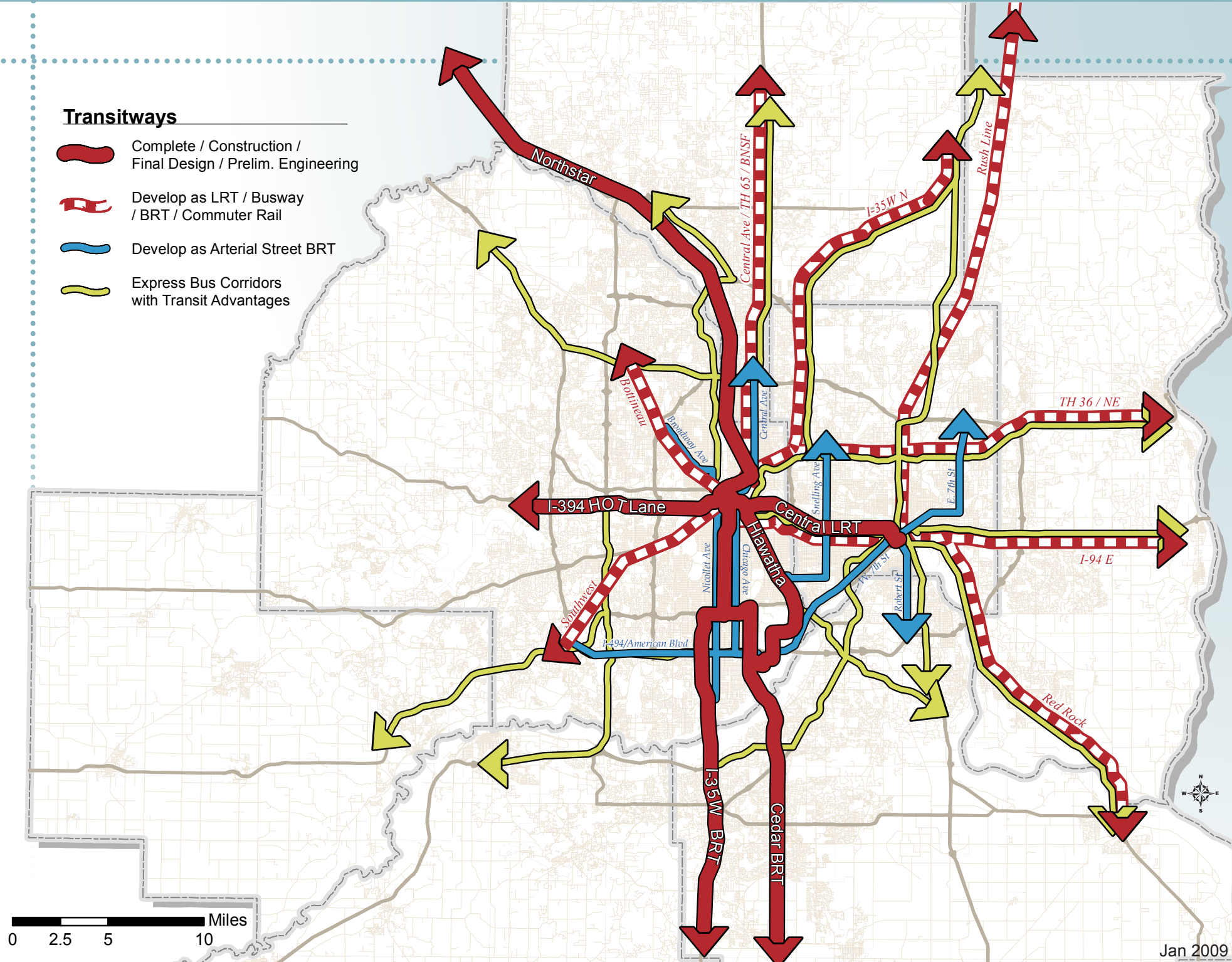
Various corridors

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 St. Paul Union Depot and the Minneapolis Intermodal Station as those two intermodal hubs.



FIGURE 7-44: 2030 TRANSITWAY SYSTEM



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. The costs to maintain the transit system and double ridership are shown in Table 7-45.

Capital Costs to Maintain the Transit System

The Council's 2008-2013 capital improvement program projects approximately \$70 million a year is needed to maintain the existing transit system, in 2008 dollars. Based on this, approximately \$840 million is needed to maintain the transit system between 2008 and 2020 and \$700 million between 2020 and 2030, in 2008 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 2008 to 2020	Capital Cost 2020 to 2030
Projected Costs	\$840 M	\$700 M
Projected Revenues		
Federal	\$470 M	\$400 M
Regional Transit Capital	\$330 M	\$275 M
Other	\$40 M	\$25 M
2008 Dollars		

Capital Costs to Expand the Transit System

It is projected that the following projects will be completed between 2008 and 2020:

- Expansion of Hiawatha LRT from two-car trains to three-car trains
- Completion of Central Corridor Light Rail
- One additional light-rail transit line or dedicated busway completed and one begun by 2020
- Investments in the Cedar BRT
- Investments in the I-35W BRT
- Two additional highway BRT by 2020





- New facilities and increased express bus service in corridors with transit advantages
- Investments in six arterial street BRT lines
- Expanded local bus service.

Northstar Commuter Rail is currently under construction and will be completed in 2009. Some improvements to I-35W BRT and Cedar BRT are also underway, including those associated with the UPA grant. These costs are not reflected in this plan because funds have already been secured for these projects.

It is projected that, from 2020 to 2030, the following projects will be completed:

- Three additional rail transit lines
- Three additional arterial street BRT
- Two additional highway BRT lines.

If improvements, such as passenger rail, high-speed rail, dynamic shoulder lanes, or high-occupancy toll lanes are added, these priorities could change. Also, local and express bus service will continue to be expanded. If it possible for more than one major project to receive federal funding concurrently, this timeline may be accelerated.

In addition, it is projected that federally mandated ADA service will grow by 70% from 2008 to 2030, with 30% occurring between 2008 and 2020. This increase is driven by the increasing population in the region and the growing percentage of persons above age 65.

Table 7-46 is an estimate of 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 dynamic shoulder lanes or high-occupancy toll lanes, which provide substantial advantages for transit, are not included here, but are assumed to be funded using highway revenues.

Table 7-46: Estimated Capital Costs to Expand the Transit System				
Expansion Costs	2008 – 2020		2020 – 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
<i>2008 Dollars</i>				



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	2008 – 2020		2020 – 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
<i>2008 Dollars</i>				
<i>1. Other federal revenues include federal formula, congestion mitigation / air quality and discretionary funds.</i>				
<i>2. State revenues include general obligation bonds, trunk highway bonds and general funds.</i>				

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. This board is still establishing its long-term funding process and priorities. Coordination will be needed between CTIB and the Council to move projects forward. Last, the federal transportation bill will be reauthorized in 2009. 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 2008 regional transit operating expenditures are approximately \$360 million, with \$345 million included in the Metropolitan Council budget. The net subsidy (when fares are deducted) is \$275 million in 2008. 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	\$275 M	\$275 M	\$275 M	\$275 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	\$350 M	\$380 M	\$470 M	\$510 M
2008 Dollars				

The primary sources of funds to operate 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 rail system or dedicated busway operations and expanded service for highway bus rapid transit would be funded 50% from the 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. 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 \$40 - \$60 million annually will be needed by 2020 and \$75 - \$100 million annually by 2030 for the expanded bus system. The Council will amend this plan in 2010 to reflect development of CTIB funding policies, a new federal transportation bill and future MVST forecasts.

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	\$275 M	\$275 M	\$275 M	\$275 M
Motor Vehicle Sales Tax	\$125 M	\$125 M	\$125 M	\$125 M
State General Fund	\$92 M	\$92 M	\$92 M	\$92 M
Federal	\$31 M	\$31 M	\$31 M	\$31 M
Other	\$27 M	\$27 M	\$27 M	\$27 M
Expand System	\$75 M	\$110 M	\$195 M	\$240 M
CTIB Sales Tax	\$17.5 M	\$25	\$40 M	\$45 M
State Revenues	\$17.5 M	\$25	\$40 M	\$45 M
Unfunded: To Be Determined	\$40 M	\$60	\$115 M	\$150 M

2008 dollars

2030 Numbers represent the total costs in 2030, not the incremental costs from 2020 to 2030.

Summary of Costs for the Transit Plan

Table 7-50 summarizes the range of costs to maintain and expand the transit system from 2008 - 2030.

Table 7-50: Summary of Estimated Capital and Operating Costs

Incremental Costs	Maintain Existing System	Expand System	Total
Capital Needs 2008 – 2020	\$840 M	\$2,400 - \$2,850 M	\$3,240 - \$3,690 M
Capital Needs 2020 – 2030	\$700 M	\$2,300 - \$2,650 M	\$3,000 - \$3,350 M
2020 Annual Operating Subsidy	\$275 M	\$75 - \$105 M	\$350 - \$380 M
2030 Annual Operating Subsidy	\$275 M	\$195 M - \$235 M	\$470 - \$510 M

2008 dollars in millions



Chapter 8: Freight and Goods Movement

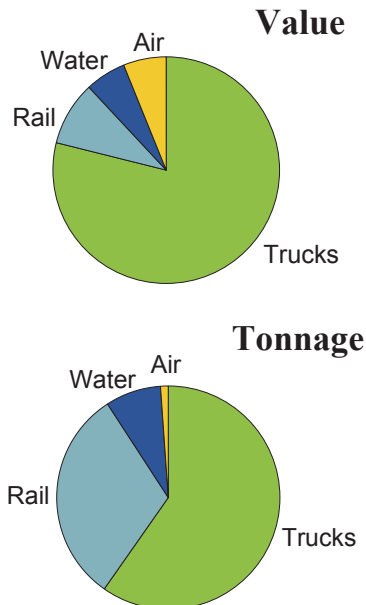
A safe, efficient, high-capacity freight transportation system is essential to the economic well being of the region and the state. Producers and consumers alike rely on an effective and efficient freight system to prosper.

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 8-1:
Freight Movement by
Tonnage and Value**



Source: 2004 State Freight Plan, Mn/DOT



Figure 8-2: Trucks are an essential freight element



Figure 8-3: Rail traffic comprises a large portion of the regional tonnage total

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.




Water

Portions of the Mississippi and Minnesota Rivers in the region are navigable by channels and locks maintained by the U.S. Army Corps of Engineers. The rivers carry bulk commodities to domestic and international markets. The region's port terminals are concentrated in St. 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 7-County region has over 550 miles of class I railroads, and over 700 total miles of commercial freight railroad.

FIGURE 8-4: REGIONAL FREIGHT SYSTEM

-  Major Intermodal Freight Terminals
-  Principal Arterial Highways
-  Railroads

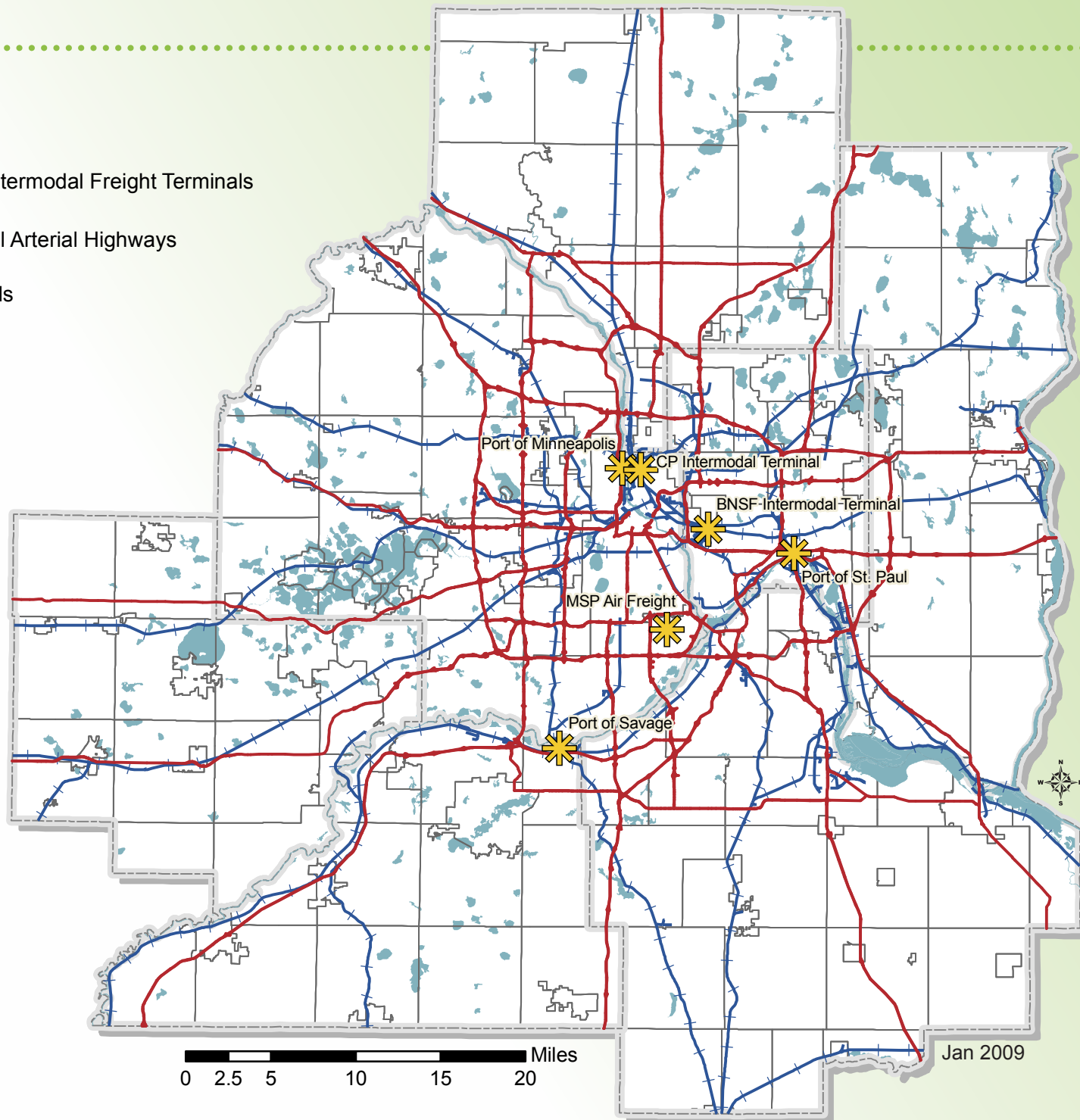




Figure 8-6: Barge facilities



Figure 8-7: Freight aircraft facilities



Figure 8-8: Intermodal railroad yard



Figure 8-9: Freight warehouse facilities

Air

Air freight service providers ship goods through MSP International Airport. High-tech and biomedical companies in the region are major air freight customers.

Intermodal

Container-based shipping has substantially increased the efficiency of goods movement. Containers can be moved across modes without the need to repack goods. The region has two primary rail-truck intermodal terminals, one in Minneapolis (CP Shoreham) and the other in St. Paul (BNSF Midway).

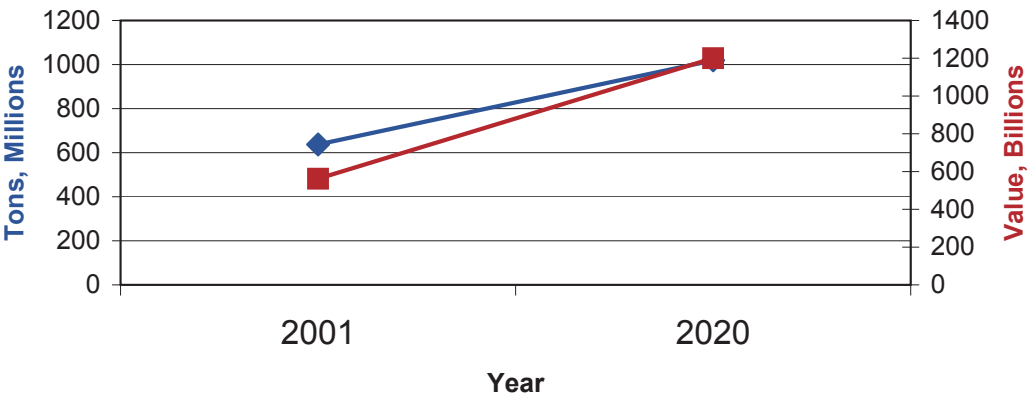
Freight Movement

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.

Continued population and employment growth will further expand the regional and state economy, creating new demand for freight movement. Figure 8-5 shows forecast freight growth 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.

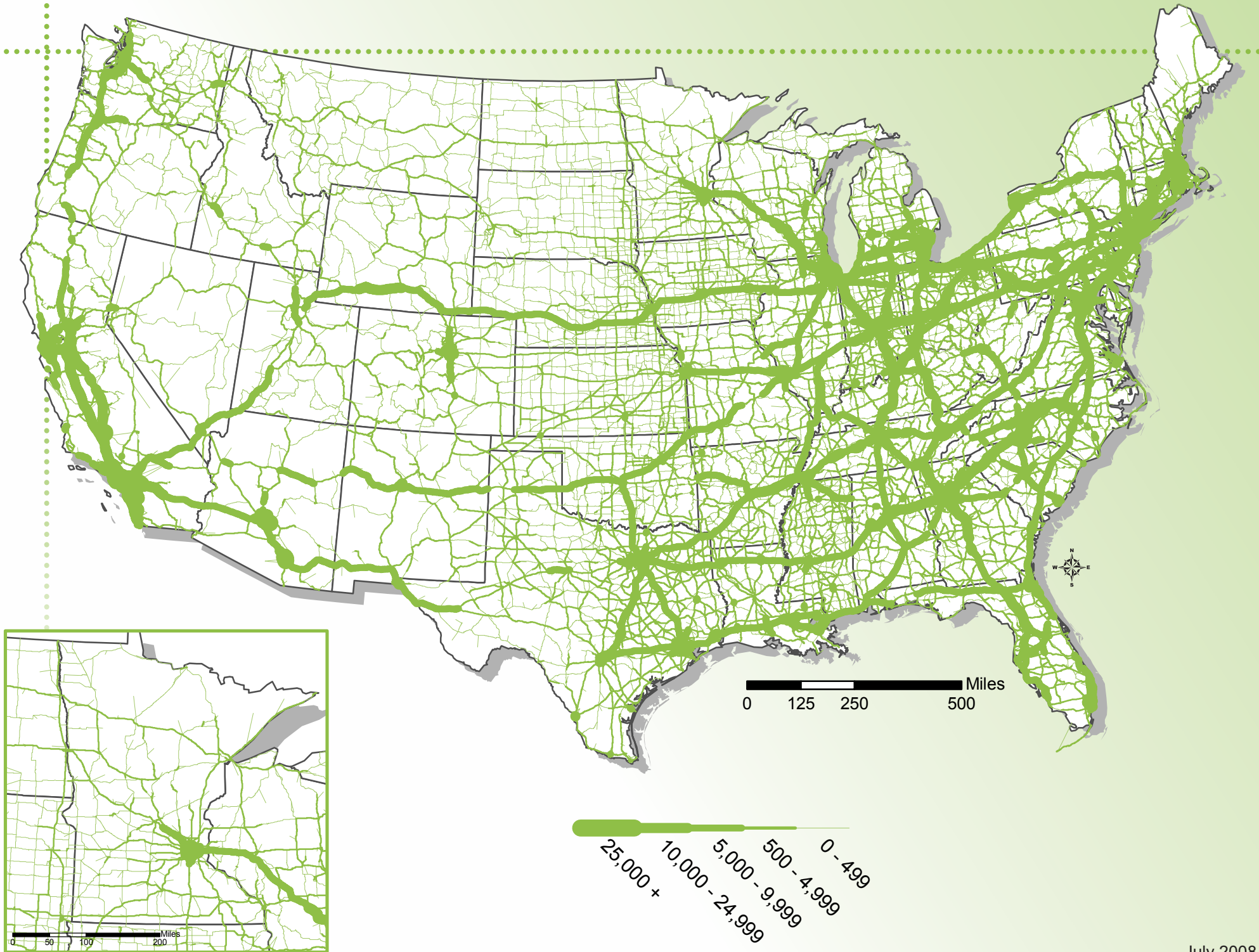
As shown in Figure 8-10, the region does not carry a major share of national freight movement when compared to major shipping ports such as Los Angeles or rail hubs such as Chicago. Still, the Twin Cities region is a major freight hub for Minnesota and the upper Midwest. Due to strong economic growth in the state and region, freight movement is becoming capacity restricted.

Figure 8-5:
Forecast Increase in Minnesota Freight Movement to 2020



Source: 2004 Minnesota Statewide Freight Plan

FIGURE 8-10: AVERAGE DAILY TRUCK TRAFFIC



July 2008

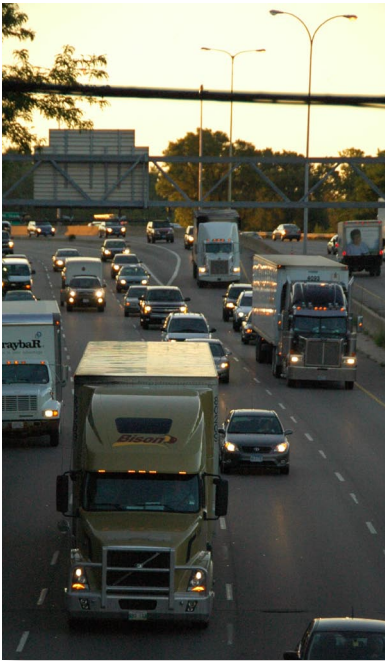


Figure 8-11: Road congestion impacts truck traffic and the freight system

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



Figure 8-13: Diesel fuel price increase may cause changes to freight mode selections

High Fuel Costs

The cost of fuels used in freight movement, including diesel and jet fuel, has grown dramatically over the past five 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.

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 St. 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

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>

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 9f. 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.

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.

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.

Metro Freight Study

Mn/DOT recently completed a statewide freight plan, and has begun developing district-specific implementation plans for freight. Recently, Mn/DOT completed a freight study for Mn/DOT District 7, which covers much of southwestern Minnesota. Continuing the district-level freight planning concept, this plan recommends a joint, comprehensive study of metro-area freight issues and development of a prioritized list of specific freight improvement projects within the Metro District and the seven-county region. This project would be a coordinated effort led by Mn/DOT Office of Freight working with the Metropolitan Council and regional stakeholders.



Chapter 9: Pedestrians and Bicyclists



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 daily routine.



Figure 9-2: New bike facilities
Midtown Greenway

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

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.

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. This program is administered by Bike Walk Twin Cities, which has distributed a portion of this funding to eligible jurisdictions and will continue to do so through 2010. 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.

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







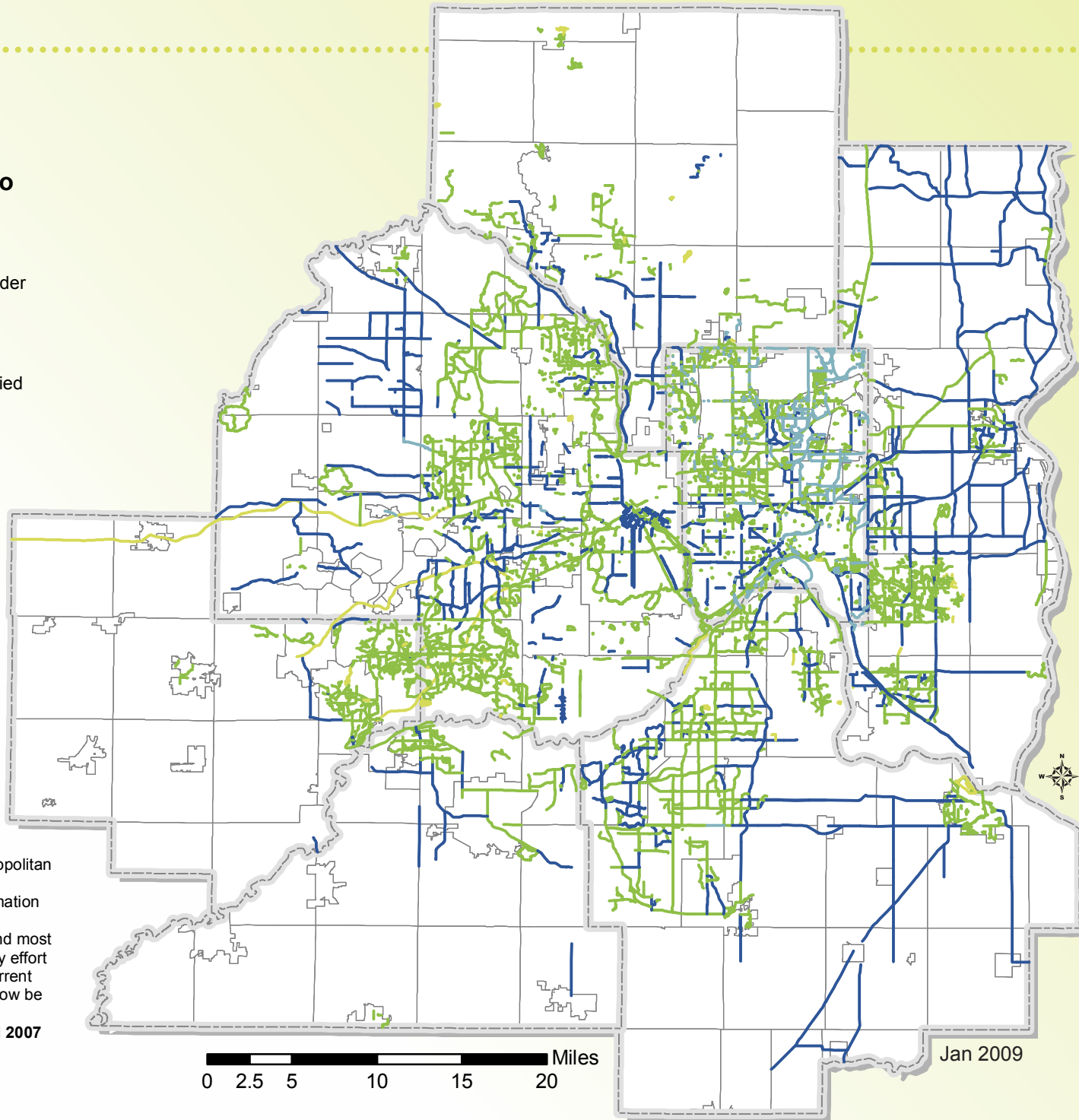
Figure 9-1: Bike commuters



FIGURE 9-3: EXISTING METRO BIKE TRAILS

Existing Twin Cities Metro Bikeways

-  Bike Lane or
Shoulder 5' or wider
-  Paved Trail
-  Non-Paved Trail
-  Other / Unclassified



Bikeways data was prepared for the Metropolitan Council by the Minnesota Department of Administration's Land Management Information Center in cooperation with the Minnesota Department of Transportation, counties and most cities in the metropolitan area. While every effort was made to collect and map the most current data available, portions of this map may now be out of date.

Updated: April 2007

0 2.5 5 10 15 20 Miles

Jan 2009





Figure 9-4: Transit-supportive pedestrian environment

Pedestrians exit a Metro Transit bus at a wide sidewalk on Nicollet Avenue in Minneapolis.



Figure 9-5: 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.

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.

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 9-3). This map has been made available on the Council's website for the purpose of coordinating planning for bikeways in the region. 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.

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.

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.

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



Figure 9-6: Pedestrian crossings

Bicyclists and pedestrians cross Oak Grove Street at Lyndale Avenue in Minneapolis



Despite obstacles, bicycling in the Twin Cities region is gaining popularity as a means of transportation.

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.

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 3.8 percent of all commute trips made via bicycle in 2007. 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. Multimodal Roadway Design: Local and state agencies will implement a multimodal roadway system and design and planning for principal or minor arterial road construction and reconstruction projects will explicitly consider off-road walkway and both on- and off-road bicycle accommodation with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians.

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 9f. Interconnected Roadway Network

Strategy 9i. 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:

There are significantly more needs for bicycle and pedestrian infrastructure and operations improvements than there is available funding.



- 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. 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.



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.



Figure 9-9: A bicyclist accesses the Hiawatha LRT

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.

Further support for combined bicycle and transit trips can include marked 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 9-7: Bus passengers wait on the sidewalk to board a Metro Transit bus at the Midtown Exchange



Figure 9-8: Bicycle racks and lockers at a station on the Hiawatha LRT line



Improving network connectivity and bicycle safety are primary ways that transportation investment can encourage bicycling.

Figure 9-11: “Trail Oriented Development”

New residential construction at the Bryant Street entrance to the Greenway



Overcoming Barriers

There are many gaps and barriers to bicycle travel in the region. Free-ways, 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.

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 must 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.

Multimodal Roadway Design

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.



Figure 9-10: A bicyclist uses the marked shoulder on the Lake Street Bridge between Minneapolis and St. Paul





**Figure 9-14: Bicyclists cross-
ing the intersection of Lyn-
dale Avenue and Hennepin
Avenue**



**Figure 9-15: A bicyclist turn-
ing left from the Greenway to
Bryant Avenue bikeway**

*While more facili-
ties are being built
to give the bicycle
its own right-of-
way, such as on the
Midtown Greenway,
most bicycling oc-
curs on roadways.*

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 must be considered, with special emphasis placed on safety and barrier removal with the goal that the street meets the needs of all users. Design for roads and bikeways and combined bicycle/pedestrian facilities will meet the requirements of the Mn/DOT State Aid process and AASHTO guidelines, and also consider guidelines from the Mn/DOT Bikeway Facility Design Manual.

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” or bike-walk streets 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

**Figure 9-12: Bike
Route Signage**

**Figure 9-13:
Bicyclists riding
on the bike lane
on Marquette
Avenue in Down-
town Minneapolis**



**Figure 9-16: Marshall Avenue in
St. Paul is a “complete street”
with bike lanes, sidewalks, multi-
use lanes and bus shelters.**



infrastructure. However, they do not replace the need to provide bicycle accommodation on collector or minor arterial roadways.

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 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.

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.

Multimodal Study

The Council is participating in a legislatively mandated study led by Mn/DOT to be completed by the end of 2009 on the feasibility of pursuing a statewide “complete streets” policy. “Complete streets” is a concept that all roads must be designed to meet the needs of all users. Some cities and states have adopted policies that mandate the construction and reconstruction of “complete streets” unless they are proven to be impractical. This plan generally supports the goal behind this concept and the Council is prepared to support and apply measures to implement any future policy if mandated by legislation following completion of this study.

Figure 9-17: Lake Street in Minneapolis includes “bump outs” at crosswalks that shorten the distance pedestrians must be in the crosswalk.



Planning to Better Accommodate Pedestrians

Pedestrian paths can take the form of sidewalks, pedestrian plazas, skyways, and multi-use trails. Healthy communities include safe and attractive spaces for pedestrians including on local streets in residential neighborhoods,

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.





Figure 9-19: 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.

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

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 may consult the Access Board's Public Rights-of-Way guidelines at the board's [website](#) for guidance on developing an accessible pedestrian system. 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.

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 9-18: Pedestrian amenities, such as trees and a buffer between the road and the walkway, increase walkability.



Figure 9-20: The Americans with Disabilities Act (ADA)

requires local governments to construct accessible rights-of-way for persons with disabilities



Along with improvements to facilities, education and promotion are important fundamentals in increasing the amount of bicycling and walking while also improving its safety.

All partners in bikeway and walkway development should work collaboratively as much as possible to improve connectivity.

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.



Figure 9-21: Children ride bikes for fun and transportation

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



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.

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.

Purpose

This Twin Cities regional aviation system plan consists of the first of two updates. This Phase I incorporates a revised air transportation element into this *2030 Transportation Policy Plan*, updating and replacing the *1996 Aviation Policy Plan*. Phase II, to be completed in the 2008-2009 time period, involves a full technical evaluation of the aviation system plan, including updated forecasts, with amendments to this *Transportation Policy Plan* in 2010 as warranted.

Uses of this Plan

The Council will use this aviation policy guide to fulfill its state and federal statutory responsibilities concerning air transportation, including:

- Conducting referral reviews (including airport development plans, airport capital improvement programs, environmental documents, community comprehensive plans),
- Providing local planning assistance,
- Providing a basis for system monitoring and evaluation, identifying issues, defining needs and priorities, developing guiding policy and direction for coordination of implementation activities, and
- Providing a forum for informing the public and ensuring citizen participation.

Existing Airport System

System Overview and Status

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, providing its own unique characteristics and values for interstate and international mobility as depicted in Figure 10-1.

Airspace is the key resource for aviation. To use the global airspace resource air transportation requires two basic types of infrastructure: airports and an air-traffic control 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.

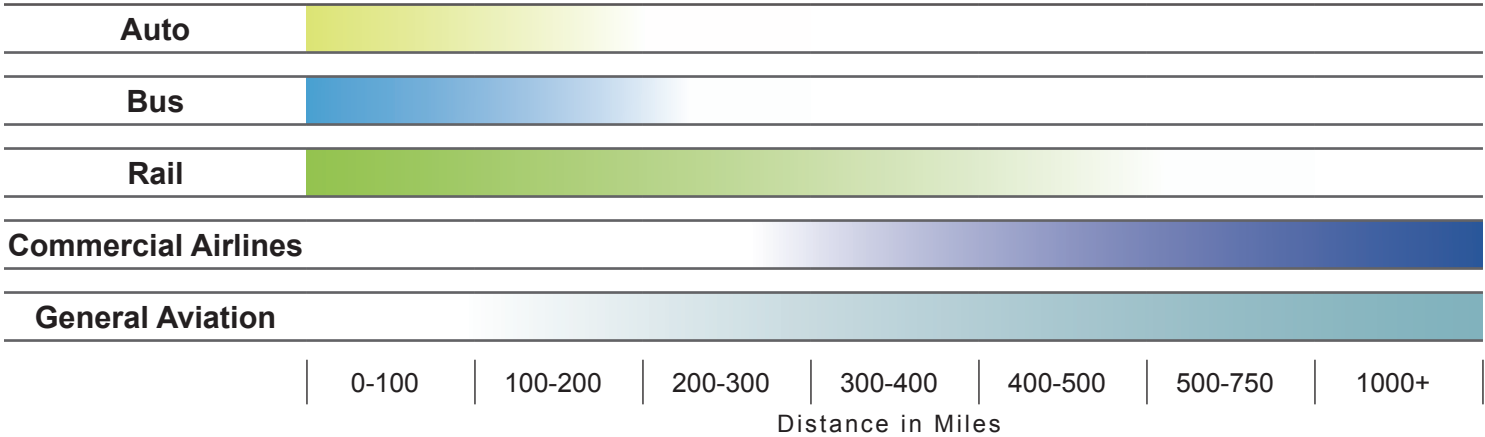




Figure 10-2: Air service provider at MSP

Economic and security issues since the year 2000 have caused turmoil in both the national and local airline industry and the disappearance of some locally based carriers.

Figure 10-1: Modal Advantages by Trip Distances



The Twin Cities region is served by one commercial airport and seven reliever airports for general aviation business and recreational users. The airports are classified according to their system role as a Major, Intermediate, Minor or Special Purpose facility. The system focus has been to complete a \$3.1B expansion of Minneapolis-St. Paul International Airport (MSP), and 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 2007 MSP airport, as a hub serving the Upper Midwest, handled over 35 million passengers, 453,000 aircraft operations and 260,000 metric tons of cargo. The relievers handled approximately 500,000 aircraft operations. The regional airports are working reasonably well; however, substantial changes are occurring at all levels of the industry and economy, including federal governmental 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, a sharing of concession revenues with the airlines, and a revision to the Metropolitan Airports Commission (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 from 2000 through 2007 and effects on the system will be assessed in the Phase II work.



The system is basically performing well operationally, but faces financial uncertainties.

The system is basically performing well operationally, but faces financial uncertainties. Growth in flight activity for both commercial and general aviation is essentially flat. Airside capacity has been improved with a new runway at MSP Airport, runway extension at Anoka County-Blaine Airport, flood protection of the St. Paul Downtown Airport airfield, and current construction to extend 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 funding becomes available. At MSP improvements contained in the 2010 development plan are nearly completed, and MAC has initiated an update of the 2020 Long-term comprehensive plan (LTCP). Table 10-4 provides an overview on the status of 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.



Figure 10-3: Minneapolis skyline and departing aircraft from MSP



Table 10-4: 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 2007	Total Annual Aircraft Operations 2007
Minneapolis-St. Paul International (MSP)	2010 Plan adopted by MAC in 1996. 2020 Plan Update initiated 2007.	3,100	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	15	453,566
St. Paul Downtown (STP)	2025 Plan Update anticipated adoption by MAC in 2009	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	122	117,535
Anoka Co.-Blaine (ANE)	2025 Plan Update anticipated adoption by MAC in 2009	1,900	Two Paved	Rwy 9-27 5,000'	Rwy 18-36 4,855'	15 Hr. Contract ATCT	Precision Instrument, High Intensity Runway Lights	460	80,508
Flying Cloud (FCM)	2025 Plan Update anticipated adoption by MAC in 2009	760	Three Paved	Rwy 10R-28L 3,909'	Rwy 18-36 2,691'	16 Hr. FAA ATCT	Precision Instrument, High Intensity Runway Lights	453	117,492
Crystal (MIC)	2025 Plan Update adopted by MAC in 2008	436	Three Paved One Turf	Rwy 14R-32L 3,267'	Rwy 6-24 2,500'	16 Hr. FAA ATCT	Non-Precision Instrument, Medium Intensity Runway Lights	263	53,038
So. St. Paul (SGS)	1993 Plan adopted by city 1976; Airport Layout Plan updated 2002	270	One Paved	Rwy 16-34 4,000'	None	Unicom	Non-Precision Instrument, Medium Intensity Runway Lights	217	51,000
Airlake (LVN)	2025 Plan Update adopted by MAC in 2008	425	One Paved	Rwy 12-30 4,098'	None	Unicom	Precision Instrument, High Intensity Runway Lights	159	41,292
Lake Elmo (21D)	2025 Plan Update adopted by MAC in 2008	640	Two Paved	Rwy 14-32 2,850'	Rwy 4-22 2,497'	Unicom	Non-Precision Med. Intensity Runway Lights	228	38,617
Forest Lake (25D)	City Feasibility study 1996, Airport Area AUAR in 2000	330	One Turf	Rwy 13-31 2,575'	None	Unicom	Visual Low Intensity Runway Lights	26	8,000
Rice Lake SPB (8Y4) <i>Private, Public-Use</i>	City of Lino Lakes Comprehensive Plan	20 Land area only	Two Water Lanes	NE/SW 6,500'	N/S 5,500'	Unicom	Visual No Lighting	45	4,100

Source: Airport Master Record, FAA ATCT data.



Progress Since 2004 Adoption of the *Transportation Policy Plan*

Numerous 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 10-5.

Issues and Trends

U.S. National Debt Weakening Air Transportation Investments

In assessing the aviation issues it is apparent that one major trend, debt, overshadows all the others both in the short and long term. The U.S. national debt and budget deficit, the U.S. trade gap, the U.S. airlines debt levels, large personal debt of U.S. citizens, and continuing depletion of the financial equities markets for all economic sectors has potentially serious consequences for the future of air transportation in this country. Since 2001 spending for air travel has fallen as a percent of the U.S. economy. In 2005 there was a \$26B shortfall and recent estimates indicate \$41B in deferred air travel has occurred. Because of this debt load the net-worth of Southwest Airlines is more than all the domestic legacy air carriers combined.

Table 10-5: Summary of Key System Accomplishments

Planning Activities/Actions:

- Completed MSP 2010 LTCP.
- LTCP Updates for all MAC reliever airports.
- Reliever Airports financial model and self-sustainability effort established by MAC.
- MAC implemented new Airline Agreement at MSP after airline bankruptcies.

Development/Operations:

- Implemented flood protection at St. Paul Downtown Airport.
- Completed new runway 17/35 at MSP.
- Completed light-rail transit facilities to serve MSP passenger terminals.
- Completed runway 9-27 extension/ILS projects at Anoka County-Blaine Airport

Environmental:

- Commissioned a glycol collection and recovery facility at MSP.
- Initiated MSP noise mitigation projects in DNL 60 to 64 noise zones.
- Municipal sewer and water to serve Flying Cloud Airport.

High Energy Costs Dampening Demand and Airline Revenue

On top of the huge debt that many U.S. airlines are carrying there is a substantial increase in oil prices affecting the immediate operating costs of full service airlines, air cargo operators, corporate aircraft, and private pilots. Overall energy supply costs also affect the economy, dampening demand for air service and further reducing revenue for U.S. legacy airlines. Even the low cost carriers (LCCs) are affected by the high fuel costs. Without funds to replace aging aircraft with more fuel efficient planes, domestic airlines are becoming less competitive with other world airlines.

Economy Affecting Viability of Domestic Air Transportation

The U.S. dollar is very weak compared to many other currencies and is likely to





Figure 10-6: Fuel farm at MSP

The national system of airports has been increasingly congestion prone.

Figure 10-7: Airport security at MSP Lindbergh Terminal



stay that way in the foreseeable future. Foreign country ownership of America's airlines, and provision of air service in the U.S., is very high on the list for discussion between the European Union and U.S. in their recent Open Skies Agreement. At the local level, Northwest has decided to address their current economic conditions by merging with another U.S. legacy airline, Delta. 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 and some calls for re-regulation or curtailing oil speculation are being sought from Congress by the airline community.

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, but are still a problem at many commercial and general aviation airports. Implementation of the NextGen air navigation and air traffic control systems is years behind schedule and over budget. 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 their worst on-time records ever, and although safety has been good over the years, there are increased inspections being required by FAA due to age of aircraft.

Funding of Airport Projects Coming to a Stand-Still

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 unresolved 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 was 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 Air-Side 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





Figure 10-8: Aircraft landing aids



Figure 10-9: Airport and community compatibly
Community athletic fields at Flying Cloud Airport

and services. New passenger gate development at MSP is on hold pending identified airline needs 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 reliever airport projects at the Anoka County-Blaine airport a reality.

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, off-setting the previous “constraint” issues is continued general optimism expressed in government and industry economic and aviation forecasts of passenger and 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 monitor activity levels at regional airports is needed.

Environmental Issues Emerging in a Global Forum

Reducing aircraft air pollution is becoming increasingly important at the international and national levels. “Going green” is being incorporated in a programmatic way for everyday airport operations around the country and at MSP. Improvements in noise and air pollution are being realized at the local level from old aircraft being retired and new aircraft entering the fleets. The current noise mitigation/residential insulation program for MSP neighborhoods is nearing completion in the next few years.

The foregoing issues affect the aviation system as a whole. Phase II of the update will identify those more specifically at the individual airport and operations level. Appendix H includes an assessment of airport issues as determined by the MAC in 2007 prior to Northwest Airlines exiting from bankruptcy. Many of the items are still of concern and will be considered in establishing assumptions for use in preparing new forecasts and evaluations.





Figure 10-10: Passenger terminal improvements at MSP



Figure 10-11: Air cargo at MSP

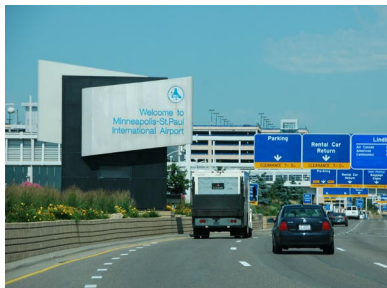


Figure 10-12: Ground access and parking at MSP

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.

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 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 commercial air-service competition plan and annual airport marketing program.

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.





Figure 10-13: Multimodal access at MSP

Signage to LRT station at Lindbergh Terminal

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 ensure assessment 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 in the forefront of regional decision-making.
- 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 document.

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

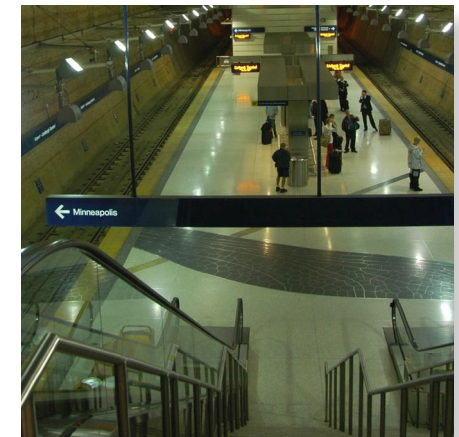


Figure 10-14: Passengers waiting on Lindbergh Terminal LRT station platform





Figure 10-15: FAA building



Figure 10-16: Shoreview tall tower antenna farm

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 indicate 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 250 feet or more above ground level at the site to minimize potential general airspace hazards.

Strategy 24a. Notification to FAA: The local governmental unit should 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 airport. 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.





Figure 10-17: Environmental compatibility around MSP



Figure 10-18: Plane on taxiway at MSP

Strategy 25a. Surface-Water Management: Airport LTCPs should include a plan for surface-water management that contains provisions to protect surface and groundwater. In addition to including information that must be consistent with plans of watershed management organizations and the state wetland regulations, the water management plan should include provisions to mitigate impacts from construction, restore or retain natural functions of remaining wetlands and water-bodies, and include the pretreatment of runoff prior to being discharged to surface waters.

Strategy 25b. Protecting Groundwater Quality: Airport LTCPs shall 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 shall 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 be reviewed, and if necessary, amended to 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

Goals and Principals

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.

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 airports 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 principals 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.

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.



Numerous public and private interests are partners in the aviation planning process.

Airport systems of the states and metropolitan areas make up the National Plan of Integrated Airports.

- **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.

Development Framework

The Council's *Development Framework* provides policy direction and strategies for coordinating and implementing the orderly and economic development of a seven-county metropolitan area containing many local governmental units and 2.82 million people. The current metropolitan urban service area, and location of the existing aviation system in relation to future urban development areas, is depicted in Figure 10-20.

Partners

Numerous public and private interests are partners in the aviation planning process, including the airlines and several user groups, FAA, Mn/DOT, MAC and other airport sponsors, the Council and communities. The roles and responsibilities of these partners are further defined in the *Plan Implementation* portion of this aviation plan. MSP provides passenger and cargo services to the collar counties, and one of the areas for working with our neighbors involves the protection of the general airspace resource from potential obstructions to air navigation. Another area of interest involves the efficient use of regional airport airspace, and individual airport capabilities such as runway length, published approaches and levels of service that contributes to the overall system meeting the area's air-transportation needs.

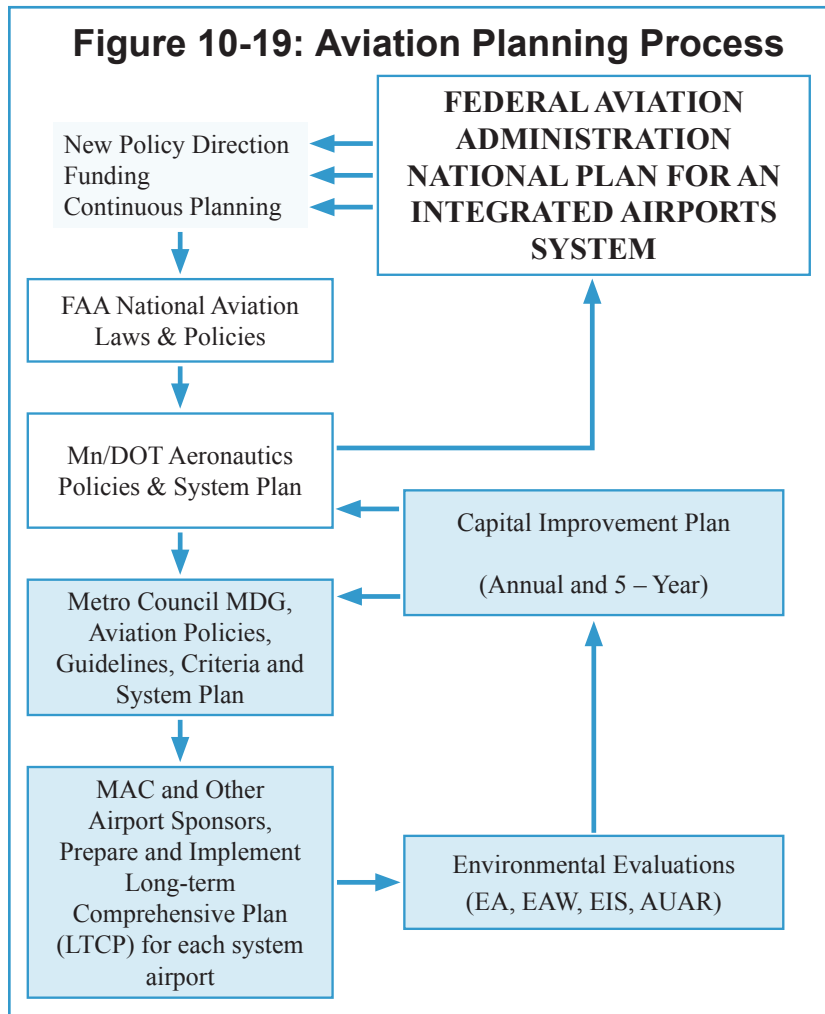
Planning Process

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. In Minnesota there is a state airport system plan (SASP), a Twin Cities regional aviation system plan (RASP), and individual airport long-term comprehensive plans (LTCPs) that provide the basis for defining airport roles, development, funding and environmental mitigation. Figure 10-19 shows the feedback nature of the process. The metropolitan portion is highlighted.

This planning process is periodically repeated to ensure 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 updated every 10 years. 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 into the NPIAS, a prime requisite for federal funding.



Figure 10-19: Aviation Planning Process



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 statements are given to communities:


- Communities with only general airspace protection and notification to FAA for tall structures.
- Communities with general airspace protection considerations, but also directly affected by aircraft and adjacent airport facility operations.
- Communities with an aviation facility located within its corporate limits.


The planning process and local plan requirements are further defined in the *Local Planning Handbook* (www.metrocouncil.org/planning/LPH/handbook.htm). Figure 10-21 depicts the regional aviation system and identifies those communities and geographical areas affected by air transportation planning and development considerations.




FIGURE 10-20: METROPOLITAN URBAN SERVICE AREA (MUSA)

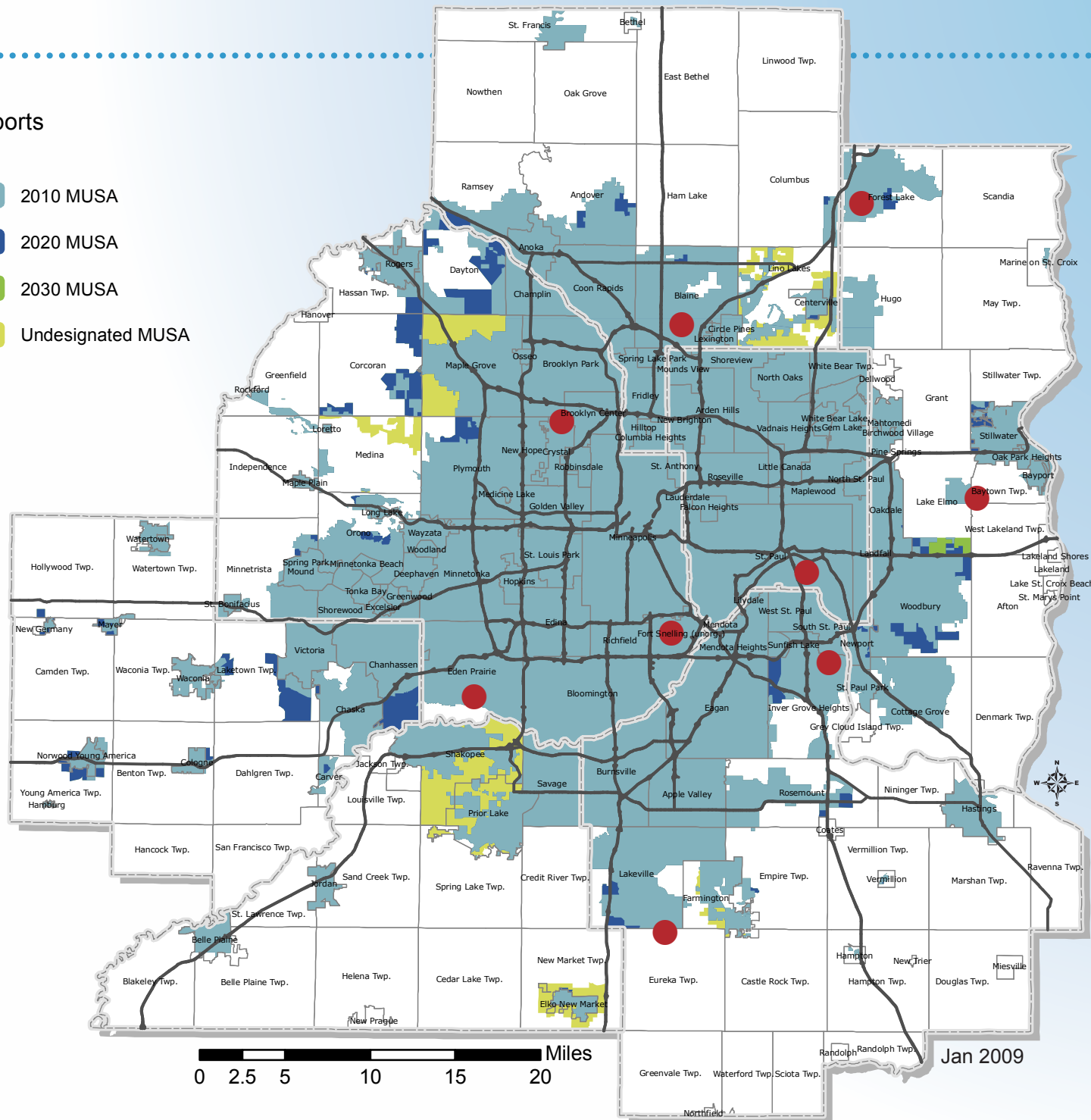
 Airports

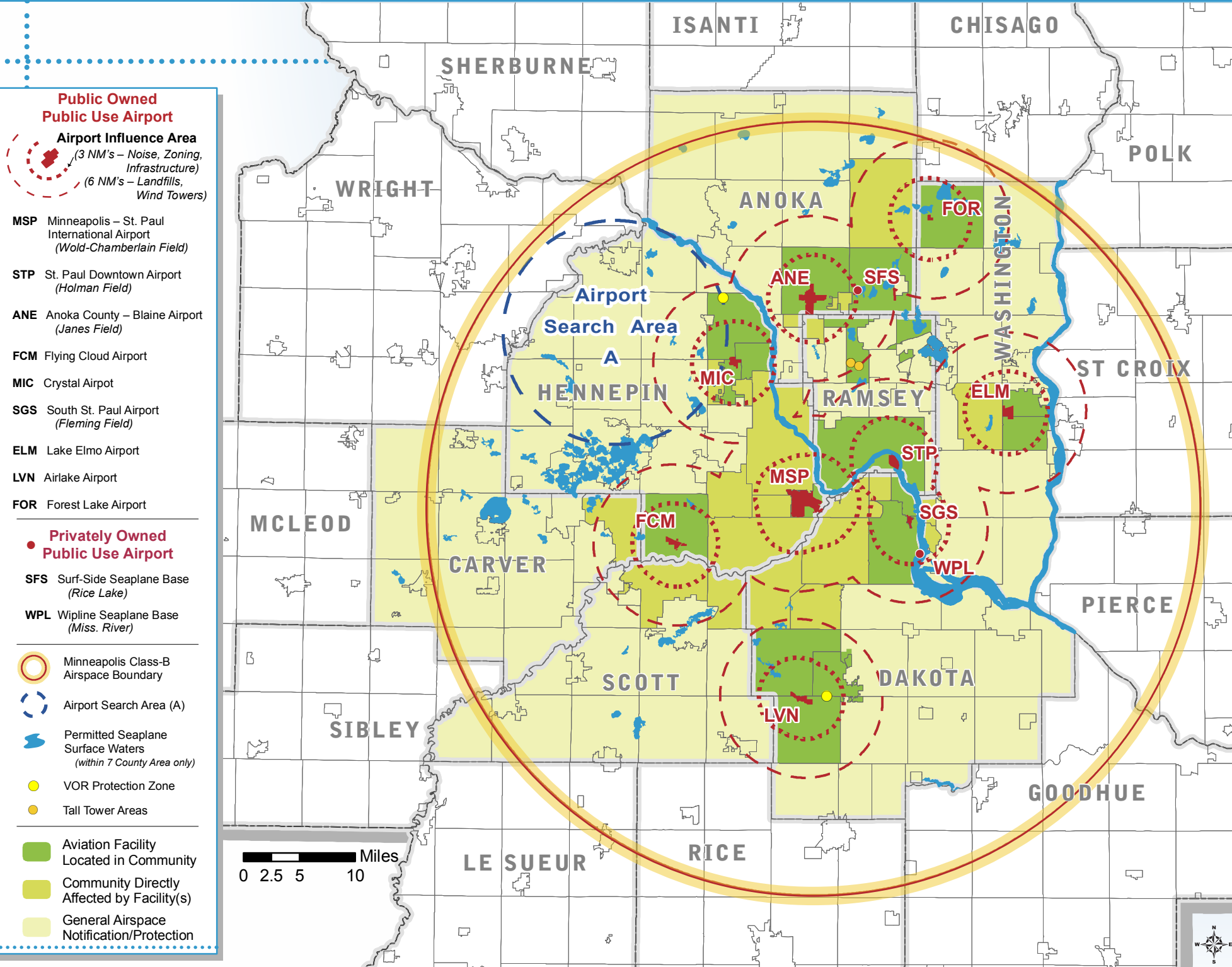
 2010 MUSA

 2020 MUSA

 2030 MUSA

 Undesignated MUSA





Airport Plans

Classification of Airports

All airports are subject to the rules of airspace sovereignty and national governmental controls. Airports in the metropolitan and state system are part of a National Plan of Integrated Airport Systems (NPIAS). 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 purpose and goals of 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 10-22.

Table 10-24 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 I 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 airports.

Table 10-22: 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	Special Purpose



Figure 10-23: Minor reliever airport - South St. Paul



**Table 10-24: Airport Functional and Operational Characteristics /
Classification of Metro Region Airport System Facilities**

Facility Classification	Functional Characteristics			Operational Characteristics		Airport Influence Area *
	System Role	Users Accommodated	Air - Service Access Provided	Primary Runway Length	Instrumentation Capability	Compatibility Considerations
Major Airport						<div>Airport Compatibility Area requirements for airport system functioning:</div> <ul style="list-style-type: none">Regional Airspace ProtectionAirport Airspace and land use safety zoningLand Use Guidelines for Aircraft NoiseLocal Infrastructure and Services<ul style="list-style-type: none">Sewer ServiceWater ServiceStorm WaterRoad AccessPolice-FireNon-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	Regional/Commuter, 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	3,909 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 Influence 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 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 will be examined in Phase II of the 2030 system plan update and will consider the following:

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* (www.dot.state.mn.us/aero/avoffice/pdf/executivesummary.pdf). 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 Commercial Reliever since it is the closest Tier 2 airport to MSP and the metro growth and service area.

Light Sport Aircraft

The FAA has implemented a new category of general aviation aircraft, light sport aircraft, and an associated sport pilot certificate that necessitated looking at the existing airport classification scheme. Expectations were that these aircraft would be based and operate at the reliever airports. A special study on sport aviation was conducted by the Council to assess potential effects on the system.

The study 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 system classification accommodates this aircraft group in the metro designated Special Purpose airport role.

Small Business Jet

The FAA has encouraged airports to be business-jet ready. The advent of the very light business jet (VLJ), the growth of the existing larger-scale corporate business aircraft fleet, and increasing fractional ownership, are expected to be the growth segments for general aviation. The RASP recognizes the demand for qualitative improvements and in past actions the Council has approved airport plans that upgrade capabilities for the business users. Thus, plans and investments have gone forward at St. Paul Downtown, Anoka County-Blaine, and Flying Cloud airports that support such improvements. Continued emphasis on business jet aircraft at these Minor airports should be recognized in the airports designated role.



Figure 10-25: Corporate business aircraft



Accessibility, both by air and ground, is important to efficient use of air-transportation.

Development of the regional system of airports should reflect the trends in long-term urban development, population, and employment patterns.

Airport Rates-and-Charges

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, and that the reliever airports should become more self-sufficient and 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 www.mspairport.com/relievers/docs/taskforce/reliever_airports_task_force_report.pdf*) The end result is that rates-and-charges increased over previous levels and a financial model was implemented to monitor longer term financial performance.

Service Areas and Access

Accessibility, both by air and ground, is important to efficient use of air-transportation. Overall growth, at both the national and regional level, is expected to continue fueling future travel demand and increase current levels of commercial airport and urban roadway congestion. Total trip times for air transportation has increased over the past decade due in part to peak hour capacity issues on runways and roads, increased overall use of each system on a daily and annual basis, and increased security demands at the airports and for aircraft operations. The U.S. urban land use pattern is now more spread out, with jobs increasingly dispersed throughout the region. Development of the regional system of airports should reflect the trends in long-term urban development, population and employment patterns.

Regional Growth Management & Airport Service Areas

Population growth and land use development provide both constraints and opportunities. The regional growth management plan, in coordination with local communities, defines when and where the growth is likely to occur, including type and density of development. A tool for alignment of the aviation system with the *Development Framework* is the use of airport service areas to relate regional and aviation forecasts and plans.

There are two types of criteria used in the aviation policy 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 defined by ground access users are identified by surface travel times on the future 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 J. (Figure J-2 depicts airport service areas for the metro area system. Figure J-3 depicts airport service areas for the collar county public. Figure J-4 depicts selected metro and collar county turf and seaplane facilities.)



Figure 10-27 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.

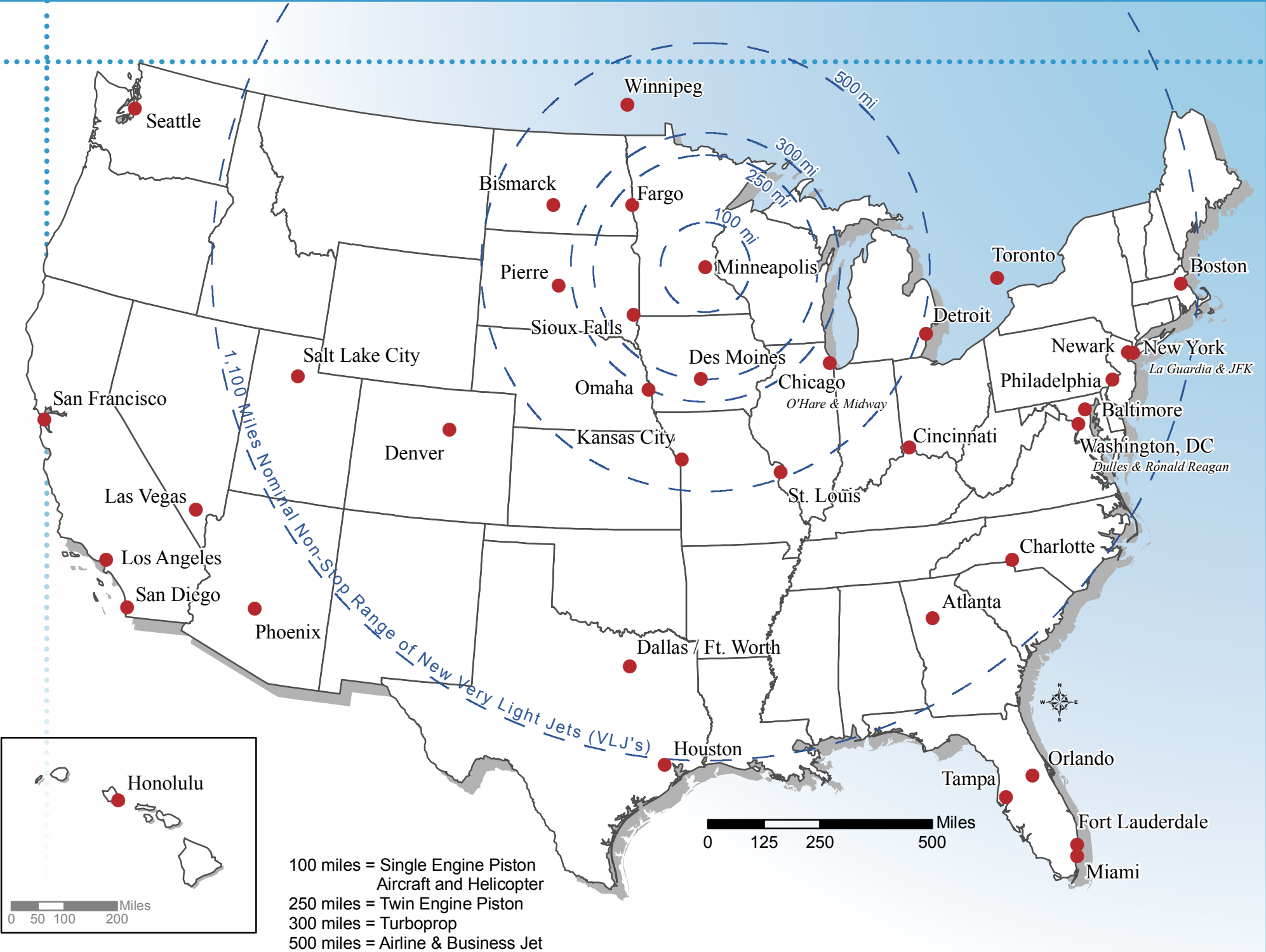
Business jets are expected to play a larger role in regional air service; this continues a trend over the past two decades and is a continuing focus in qualitative upgrades to several of the existing reliever airports. No new general aviation airports are proposed in the existing plan; the plan envisions that public airports in the collar counties would provide future capacity. 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. In Phase II of the update the existing metro and collar county airport capabilities will be reassessed.



Figure 10-26: Special purpose airport - Forest Lake



FIGURE 10-27: TYPICAL AIRCRAFT ONE-HOUR FLIGHT ACCESS



Jan 2009



The region's airspace has adequate capability to handle air traffic generated by the MSP hub airport.

Airport Capacity and Delay

Capacity of the regional aviation system is usually determined by several interrelated components: the airspace structure and facilities, airport airside facilities, airport landside facilities and aircraft mix.

Airspace Capacity

At MSP the FAA has in place a Class - B airspace that expands out to 30 nm from MSP and includes airspace in the collar counties of Minnesota and Wisconsin, as depicted in Appendix K. The region's airspace 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 prevailing wind, orientation of runways to the winds and to each other if multiple runways, number and type of taxiways, mix of aircraft using the airport, operational characteristics of the based aircraft, and weather conditions. The FAA has established a definition of 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.

When an airport is projected to reach 60% of ASV it is recommended that planning for improvements begin; when an airport's operations reach about 80% of ASV project programming and implementation should be initiated. Phase II of the *Transportation Policy Plan* aviation system update will include estimates of annual and peak hour runway capacity.

The regional airports airside capacity is adequately meeting current demand. At MSP the new north/south runway and downturn in traffic has substantially reduced pressure on runway capacity. Airside capacity at privately owned public-use facilities continues to be lost over time as airports close and are redeveloped. Updates of several reliever airport LTCPs indicate airside capacity is adequate, and at Crystal airport two runways are planned to be removed. Airside development capacity additions are likely to come from a combination of runway, air-traffic and aircraft on-board improvements.

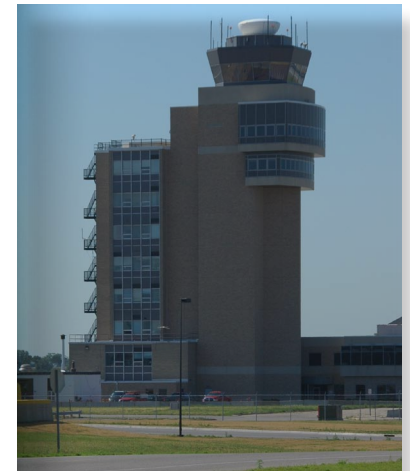


Figure 10-29: FAA air traffic control tower - MSP

Figure 10-28: Aircraft at the gates - MSP



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 reliever airports. The gate and apron needs for passenger and air cargo at MSP appear adequate within the immediate short-term given the current economic downturn. However, the changes in aircraft fleet mix due to operating costs, along with a likely shift in fleet mix resulting from the NWA/Delta merger, may have other short-term effects that will be addressed in the MSP 2020 LTCP Update. General aviation based-aircraft users are restricted, by policy, at MSP and itinerant general aviation users, especially for small piston powered aircraft, are constrained by landing fee costs and air-traffic control requirements. General Aviation is encouraged to use the reliever airports and improvements are aimed to attract these users away from MSP.

Land side capacity at most of the system's general aviation airports is defined by the availability of aircraft storage hangars. Hangar storage is necessary because of security concerns, aircraft ownership/operational requirements, and effects of the Minnesota weather seasons. The most current estimates of existing hangar spaces and percent of capacity utilized are presented in Table 10-30.

Delay

A four minute delay is a threshold used by FAA to define an acceptable level of delay. The development framework adopted a 2030 target of 7.1 minutes 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. After the new north/south runway 17/35 opened the average

delay dropped to 5.5 minutes. New delay-assessment will be included in Phase II of the *Transportation Policy Plan* aviation update using new aviation demand forecasts and taking into account any airport facility/operational improvements.

The level of utilization will be reassessed as part of the Phase II *Transportation Policy Plan* Update work using new forecasts out to a 2030 planning horizon and new inventory data on hangar facilities.

Land Use and Environmental Compatibility

Most of the land use surrounding the system airports now consist essentially of urban built-up areas. Only Lake Elmo and Airlake airports have rural land use areas. Anoka County-Blaine and Forest Lake areas are in rapid transition to being enveloped by urban developed. Local land use development, however, is quite variable within these service areas and requires local units of government to commit to comprehensive compatibility planning actions.

Table 10-30: Estimated Landside Capacity Utilization

Airport	Hangar Spaces	Based Aircraft*	Percent of Capacity
MSP International	no estimate	15**	(policy-limited)
Anoka Co.-Blaine	510	466	91
Crystal	382	260	68
Flying Cloud	450	453	100***
Lake Elmo	256	236	92
So. St. Paul	N/A	241	N/A
Forest Lake	22	26	100+
St. Paul Downtown	159	130	82

* Includes military aircraft at some airports.

** G.A. only

*** Indicates that some aircraft are accommodated using outside storage.



The Council has implemented land use compatibility guidelines for aircraft noise as a preventative measure to help communities control sensitive land uses around airports. The airport sponsors use corrective land use measures to help mitigate noise in existing development areas incompatible with designated noise levels. The definition and application of the guidelines is found in Appendix L. In addition, the Council reviews the long-term comprehensive plans for each airport including whether the airport plan is in conformance with land use and environmental evaluation requirements concerning metro systems, and 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, noise, ground access, sewer and water service, and safety/security services.

A preliminary assessment for year 2007 status of each airport is included in Appendix M and will be used to help identify issues and areas that may need to be further addressed in Phase II of the *Transportation Policy Plan 2030* Amendment in 2009. The compatibility estimate for future years will be predicated on implementation of airport long-term comprehensive plans (LTCPs) to meet forecasted demand for short, medium and long-term planning horizons out to 2030.

Airspace and Airport Safety

Protection of the region's airspace and airport safety is accomplished by focusing on four areas:

- 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 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 foot above ground level. 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 Aeronautics *Tall Towers* (www.dot.state.mn.us/aero/avoffice/talltowers.html) and to coordinate with 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 Influence Area (AIA), along with the other policy framework areas, is used for review and monitoring of proposals affecting the region's airspace.



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 the *Land Use Compatibility Manual* (<http://www.dot.state.mn.us/aero/avoffice/planning/airportcompmanual.html>). 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 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 Part 77 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 foot or more in height AGL should be clustered in a way to take advantage of shadowing effects; structures over 1,000 foot above ground level should either be co-located with similar structures or located outside the metro area.

Table 10-31: Air Service Available at Region's Airports*

Types of Air Transportation Services Provided - Primary (P) - Secondary (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	P		
Scheduled and non-scheduled air-taxi air services	P	P	P	
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

Air Service

There are five different categories of public and private air service providers and users in the Twin Cities. Table 10-31 identifies these providers/users and the type of metro area airports they typically operate from.

Demand for aviation services is primarily a reflection of population and employment in a particular catchment area. The historical and projected levels of metro area population and employment, in comparison to commercial aviation activity at MSP, is depicted in Table 10-32. These numbers will be revised in the Phase II work on preparing the 2030 aviation forecasts.



Table 10-32: Comparison of Metro Growth and Commercial Aviation Activity

Year	Population	Employment	MSP Total Annual Passengers	MSP Total Annual Aircraft Operations
1990	2,288,721	1,273,000	20,381,314	383,922
2000	2,642,062	1,600,348	36,614,671	523,170
2007	2,850,000	-----	35,157,322	452,972
2010	3,005,270	1,805,700	41,700,000	-----
2020	3,334,160	1,978,000	43,000,000	-----
2030	3,607,660	2,126,000	44,300,000	676,000

A glossary of aviation terms is included in Appendix N.

Phase II Tasks Leading to Policy Plan Amendment

Phase II of updating the aviation element of the 2008 *Transportation Policy Plan* involves a series of work tasks, conducted with consultant assistance, to analyze various aspects of the RASP. Results of the following tasks will be used to amend the plan.

- Preparation of a Study Design
- Data Collection and Preparation of Inventory Information
- Identify Trends and Issues
- Preparation of Demand Forecasts
- Evaluate System Performance
- Analyze System Context and Capabilities
- Present System Development Options
- Identify System Development Costs and Implementation Priorities

Plan Implementation

Planning and Development Priorities

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 following timelines have been included for consideration in identifying project phasing and prioritization in Phase II of the *Transportation Policy Plan* update:

- 2013 - state aviation 5-year capital improvements plan.
- 2020 - a new ten-year development plan horizon for MSP future development.
- 2030 - new *Transportation Policy Plan* planning horizon for assessing regional growth needs.
- 2032 - current scheduled debt service on the MSP 2010 Plan.
- 2033 - 25 year assurances for FAA funded projects to remain in use.
- 2038 - physical life of newly acquired mainline aircraft.
- 2048 – pavement life, with normal maintenance, of current MSP airside improvements.

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 10-33 indicates the various funding sources identified by the MAC for its capital development projects. The 2009 CIP and operating budget are now in development and will also be used in assessing system development costs and funding needs for short and medium term projects in Phase II.



Table 10-33: MAC 2007 - 2009 Capital Improvement Program Funding (Dec. 2007)

(\$=000)

Proposed Funding Available		2007 Funding	2008 Funding	2009 Funding	2007-2009 Funding	% of Total 2007-2009 CIP
PFCs						
PFC Application #8 - Bonds (issued 2005)	2010 Plan	\$15,600	\$ -	\$ -	\$15,600	
PFC Application #10 - Pay As You Go (2007)	2010 Plan	10,300	26,200	9,600	48,100	
PFC Application #11 - Pay As You Go (2008)	2020 Plan	-	50,598	-	50,598	
PFC Application #11 - Bonds (Issued 2008)	2020 Plan	-	-	72,408	72,406	
PFC Application #12 - Pay As You Go (2009)	2010 Plan	-	400	9,850	10,250	
Total PFC Funding		\$25,900	\$77,198	\$91,858	\$194,956	39.33%
Federal & Mn/DOT Grants						
Federal Entitlement		\$6,300	\$6,200	\$6,000	\$18,500	
Federal Discretionary		7,900	21,496	24,133	53,529	
Federal Non Primary Aid Relievers		1,321	675	875	2,871	
Mn/DOT Grants		7,400	-	-	7,400	
Total Federal & Mn/DOT Grants		\$22,921	\$28,371	\$31,008	\$82,300	16.6%
Internally Generated Funds		\$28,349	\$24,745	\$22,225	75,319	15.19%
Commercial Paper & Non PFC Garb Debt						
2005 Garbs		\$8,900	\$3,500	\$9,000	\$21,400	
2008 Garbs	2010 Plan	-	9,900	-	9,900	
2008 Garbs	2020 Plan	-	36,463	24,983	61,445	
Total Governmental Paper & Non PFC Garb Debt		\$8,900	49,863	\$33,983	\$92,746	18.71%
Total Funding All Sources		\$86,070	\$180,177	\$179,074	\$445,321	89.83%
Other Funding Sources		\$7,600	\$14,813	\$10,876	\$33,289	
Noise 60-64 DNL - Funding TBD		\$ -	\$3,200	\$13,900	\$17,100	10.17%
CIP Totals 2007 - 2009		\$93,670	\$198,190	\$203,850	\$495,710	100%
Metropolitan Airports Commission - Capital Improvement Program Funding Summary 2007 - 2009						



Partner Roles and Responsibilities

User Groups

User responsibilities include:

- **Private 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 for 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 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

Owns and operates airports on a daily basis. Responsible for airport certification and security. Provides 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, responds 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.

Regional Systems Planning

The Metropolitan Council prepares various regional system plans including air transportation. Performs Metropolitan Planning Organization (MPO) functions, and operates several systems. 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.



The partners not only have different aviation roles and responsibilities but also different geographic areas of jurisdiction.

State Airport Planning and Development

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 Airport Planning and Development

Prepares the national airports and airspace plan, operates navigational aids and air traffic control, provides management of aviation development funds for airport improvement program (AIP), develops/enforces airport design standards, provides planning assistance, coordination with DOT, and participates in local planning, environmental and implementation activities that are federally funded or under federal purview.

Partner Jurisdictional Areas

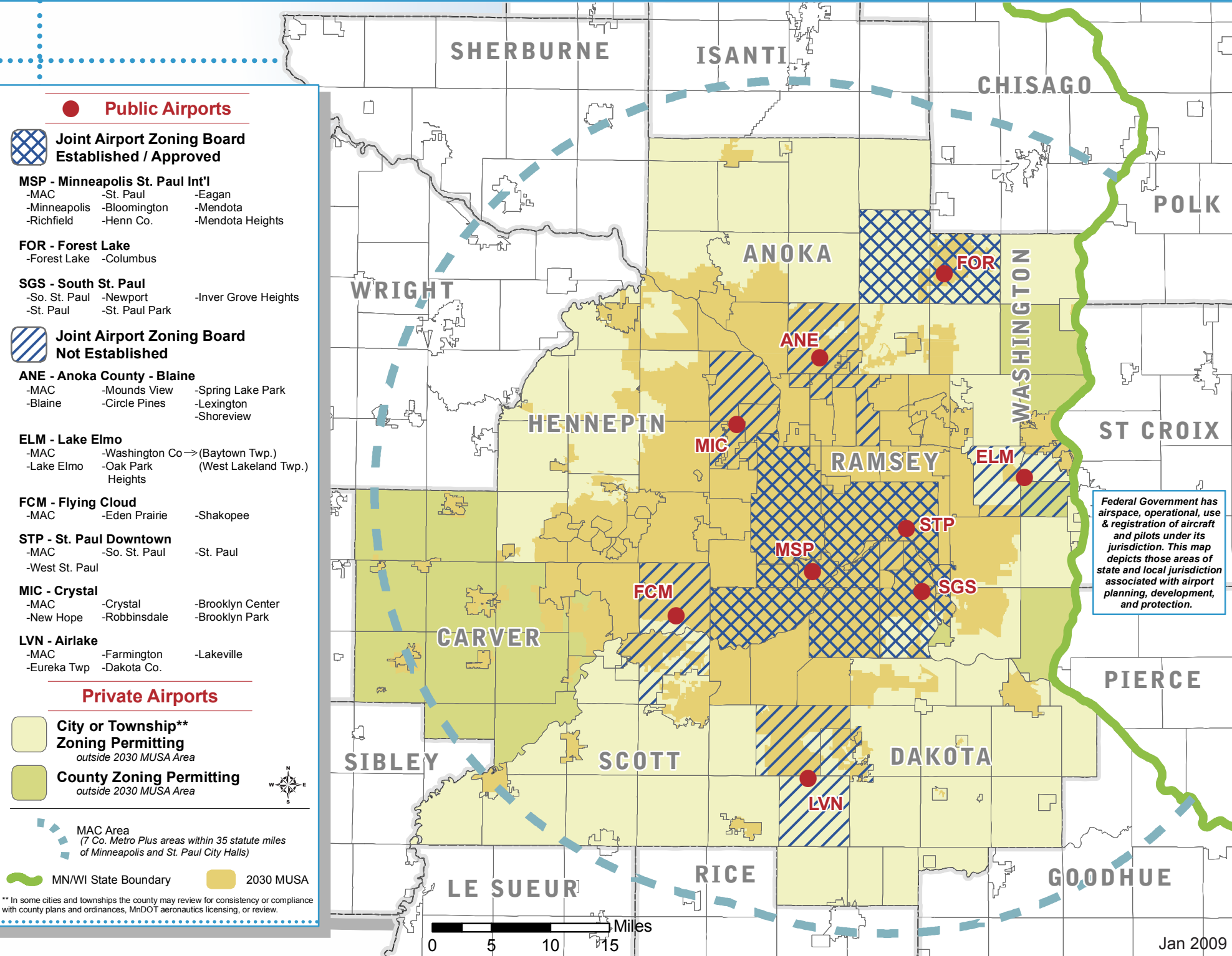
The partners not only have different aviation roles and responsibilities but also different geographic areas of jurisdiction. Figure 10-35 shows the main jurisdictional areas between MN and WI state airports system plan areas, the Metropolitan Council and MAC areas, and those communities involved in joint airport/city zoning efforts. Areas of County and Township permitting of private airports, are also identified.



Figure 10-34: Plane using new North/South runway at MSP



FIGURE 10-35: JURISDICTIONAL AREAS TWIN CITIES AVIATION SYSTEM



Aviation Appendixes

H - 2007 MAC Planning Environment

I - National and State Airport Classification

J - Airport Service Areas

K - MSP Class B Airspace

L - Land Use Compatibility Guidelines for Aircraft Noise

M - 2007 Preliminary System Airport Assessments

N - Glossary of Aviation Terms



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	50	Principal Arterial and Transit Capital	Access to or capacity for economic development
			Policy 9	60		
			Policy 11	63		
			Policy 12	99		
			Policy 13	100		
			Policy 15	101		
(2) Increase the safety of the transportation system for motorized and non-motorized users;	-----	-----	Policy 9	60	Principal Arterial and "A" Minor Arterial Bikeways and Walkways	Accident reduction forecast, Bike/ped safety improvements
			Strategy 16c	103		
			Policy 18	152		

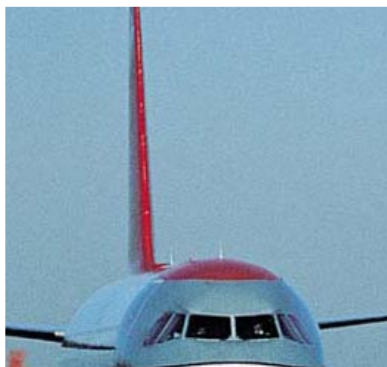




**Table 11-1:
Cross-Reference of Eight SAFETEA-LU Planning Factors with Metropolitan Council
Policies, Procedures and Solicitation Criteria**

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	100	-----	-----
(4) Increase accessibility and mobility of people and freight;	Policy 2	14	Policy 3	50	Principal Arterial, "A" Minor Arterial, and Transit Capital; Bikeways and Walkways	Integration of modes, Integration with transit
			Policy 9	60		
			Policy 10	62		
			Policy 11	63		
			Policy 12	99		
			Policy 13	100		
			Policy 14	100		
			Policy 15	101		
			Policy 16	103		
			Policy 17	145		
			Policy 18	152		
(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	50	Transit Capital, Principal and "A" Minor Arterial, Bikeways and Walkways	Reduction in CO emissions, Potential for increased use, Development Framework Implementation
			Policy 4	40		
			Policy 8	12		
			Strategy 9i	62		
			Policy 12	99		
			Policy 13	100		
			Policy 18	152		





**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	33	Principal Arterial, "A" Minor Arterial, and Transit Capital; Bikeways and Walkways	Integration of modes (bikes, pedestrians, freight), Integration with transit
			Policy 3	50		
			Strategy 9b	60		
			Strategy 11f	64		
			Policy 12	99		
			Policy 15	101		
			Policy 17	145		
			Strategy 18b	152		
			Strategy 18d	153		
(7) Promote efficient system management and operation;	Policy 2	14	Strategy 18e	153	Principal Arterial and "A" Minor Arterial.; Transit Capital, Travel Demand Management, Transportation System Management	Solutions to problems and deficiencies; Service efficiency
			Strategy 2b	32		
			Policy 3	50		
			Policy 10	62		
			Policy 11	63		
(8) Emphasize the preservation of the existing transportation system.	Policy 2	14	Policy 14	100	Principal Arterial and "A" Minor Arterial	Corridor preservation efforts/access management
			Strategy 2a	32		
			Policy 10	62		



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.



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.

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.



Figure 11-3: ITS tools, like this camera, allow system monitoring.



Figure 11-2: Changeable traffic signs allow individuals to make their own travel decisions





Figure 11-4: A successful transportation plan will benefit all of the region's residents

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 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 establish goals, criteria and strategies 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 Metropolitan Council is working with county organizations and the region's transit providers to develop a set of programs which help fill gaps in transportation needs experienced by unemployed and under-employed persons. A variety of programs, including reverse commute routes, transit beyond the ADA required distance (within $\frac{3}{4}$ mile of regular route transit), dial-a-ride programs, transportation coordinators, van programs, 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

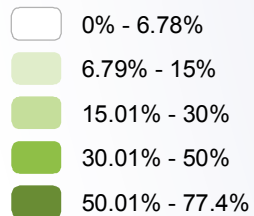


process, individual programs and projects will be further evaluated for potential adverse effects on these population groups in order to make a determination of no adverse effects or to identify mitigation for any adverse effects that are found.



FIGURE 11-5: POPULATION IN POVERTY & HWY EXPANSION PROJECTS TO BE REASSESSED

Percent Population in Poverty



2000 US Census by Blockgroup

Expansion Projects

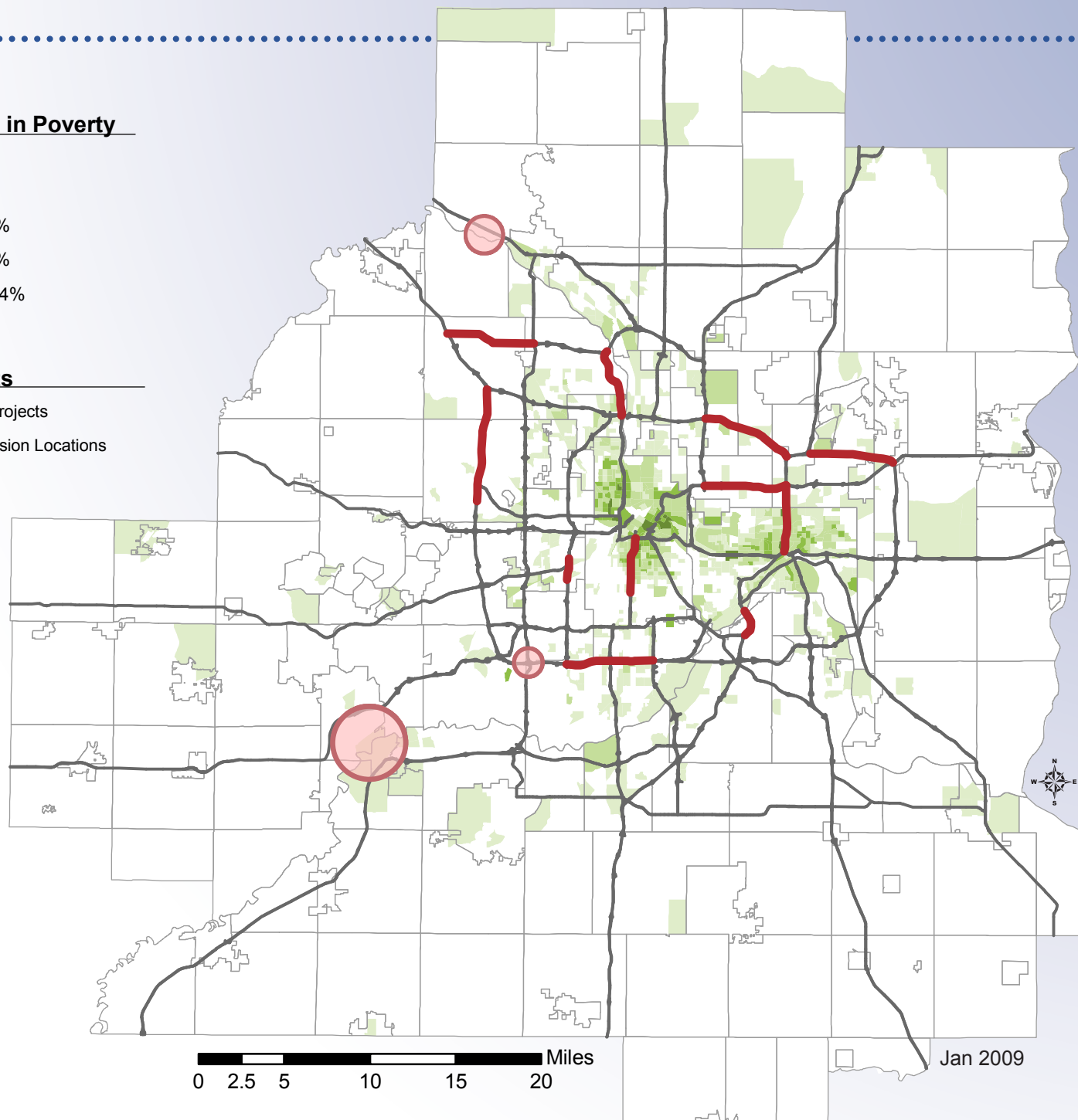
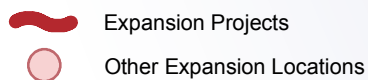


FIGURE 11-6: 2000 MINORITY POPULATIONS & HWY EXPANSION PROJECTS TO BE REASSESSED

Percent Minority Population

- 0% - 16.7%
- 16.71% - 25%
- 25.01% - 50%
- 50.01% - 75%
- 75.01% - 98.8%

2000 US Census by Blockgroup

Expansion Projects

- Expansion Projects
- Other Expansion Locations

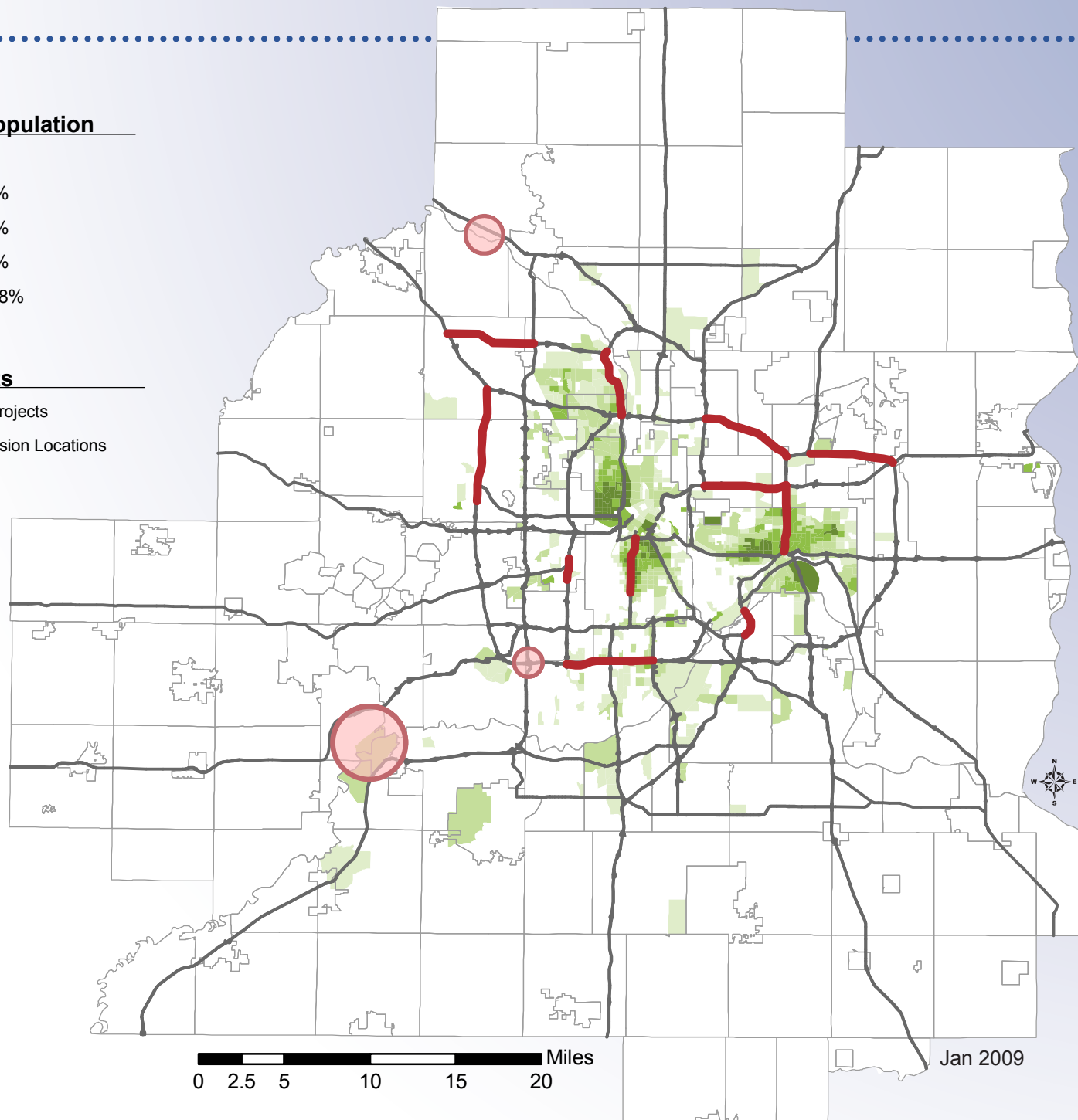
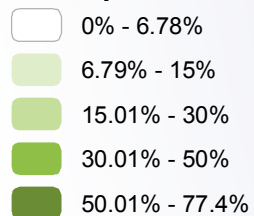


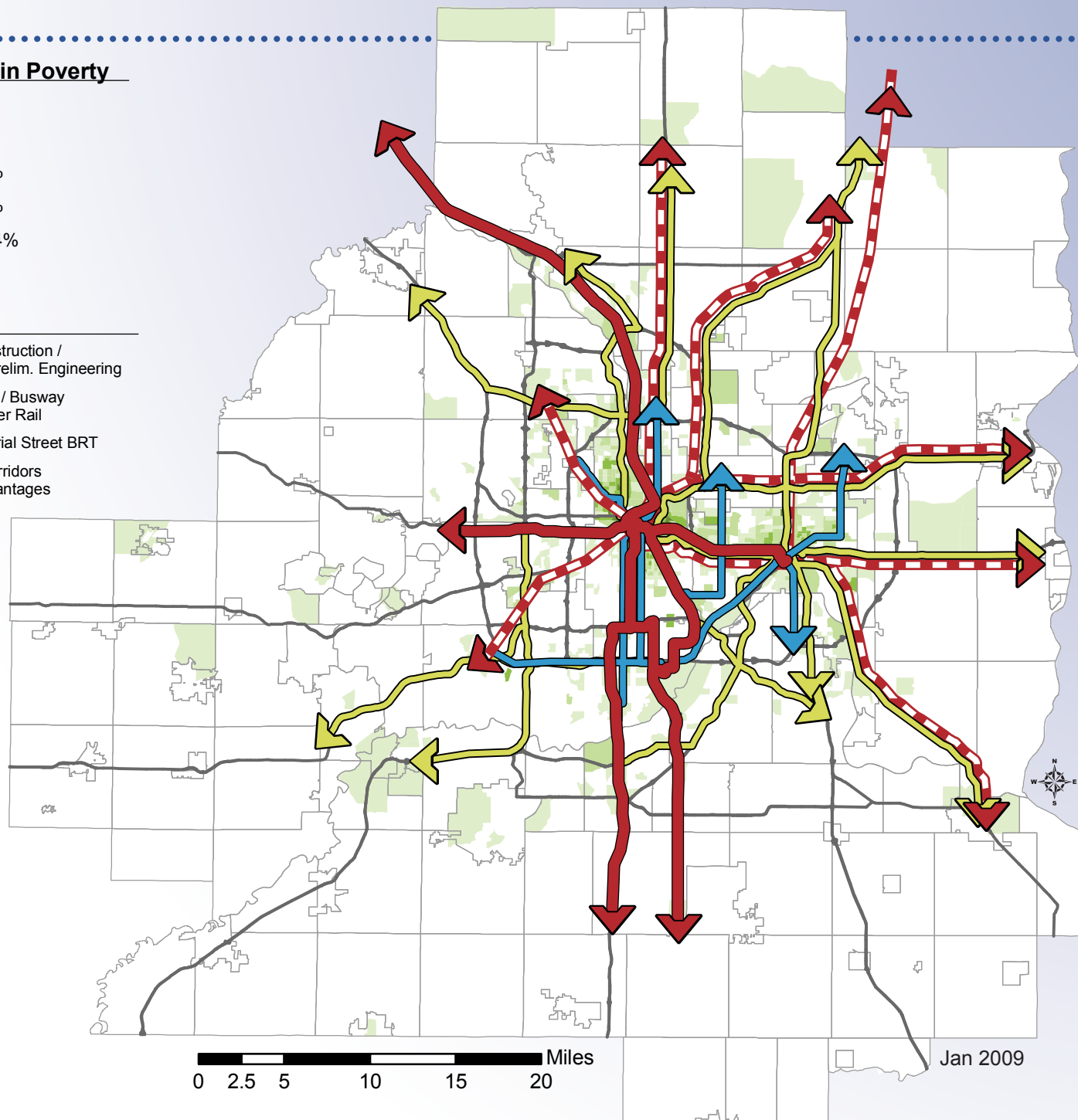
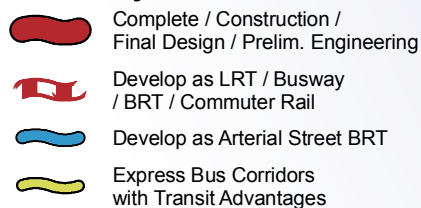
FIGURE 11-7: POPULATION IN POVERTY & PROPOSED 2030 TRANSITWAYS

Percent Population in Poverty



2000 US Census by Blockgroup

Transitways



**FIGURE 11-8: 2000 MINORITY POPULATIONS
& PROPOSED 2030 TRANSITWAYS**

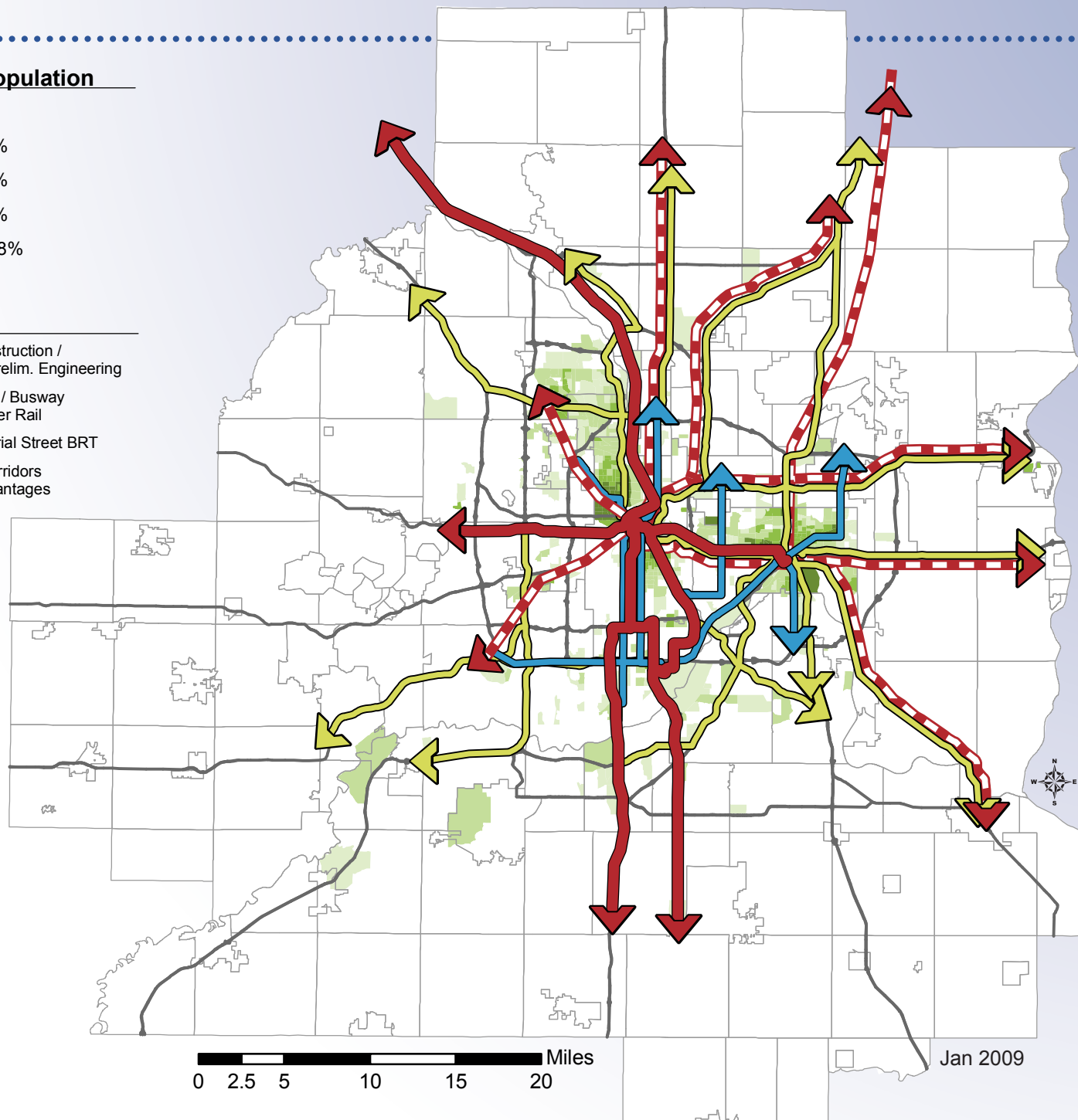
Percent Minority Population

- 0% - 16.7%
- 16.71% - 25%
- 25.01% - 50%
- 50.01% - 75%
- 75.01% - 98.8%

2000 US Census by Blockgroup

Transitways

- Complete / Construction / Final Design / Prelim. Engineering
- Develop as LRT / Busway / BRT / Commuter Rail
- Develop as Arterial Street BRT
- Express Bus Corridors with Transit Advantages



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*. Many of the studies identified below will be completed by the end of 2009 and will likely result in an amendment to this plan in 2010. The next scheduled update of the *Transportation Policy Plan*, as required by state and federal law, is due in 2012.

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 it is anticipated a complete TBI will be done in 2010. 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.

Metropolitan Highway System Investment Strategy (MHSIS)

The Council, working with Mn/DOT, will conduct a Metropolitan Highway System Investment Study to produce a future investment strategy for metropolitan trunk highways. This study 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. The intent is to better utilize the design capacity, pavement, including shoulders and right-of-way. The study will ask what could be done to improve the performance of the Metropolitan Highway System and preserve high levels of regional mobility.



Figure 12-1: The UPA is one example of congestion management.



Congestion Management Process (CMP)

The Council, working with Mn/DOT, will develop a Congestion Management Process for the region that meets federal requirements. The two studies described below will be conducted in 2009 as input into the CMP.

Transportation Demand Management Strategic Plan (TDMSP)

The Council, working in consultation with Mn/DOT and its regional partners in Travel Demand Management (TDM) including Metro Transit and transportation management organizations (TMO) will develop a regional TDM strategic plan (TDMSP) that will be used to guide investments in TDM activities in the region. The TDMSP will articulate regional TDM goals, recommend TDM activities to meet these goals and recommend an administrative structure to oversee the regional TDM program and its ongoing evaluation.

Congestion and Safety Management Plan

Mn/DOT will lead this analysis to identify a variety of system-management techniques. A key component will be to create the process and criteria to select low-cost/high-benefit projects to mitigate safety and mobility issues on the regional highway system. It is envisioned these projects will be the primary highway system investments that might effect over 150 locations throughout the region.

Reassess Major Highway Expansion Projects

Co-led with Mn/DOT, the major expansion projects adopted in the previous *Transportation Policy Plan* (2004) will be reassessed to evaluate needs and design more affordable solutions to address these needs. Each project will be examined to identify the preservation, safety or mobility needs and determine what might be funded given available resources. Assuming there are mobility problems in these corridors, the intent will not be to fix congestion for the next 20 years, but to optimize the highway segment, reducing problems without creating additional bottlenecks.

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. These plans will be submitted to the Council to prepare a regional Service Improvement Plan.



Figure 12-2: Transit service performance will be evaluated annually.



Figure 12-3: Transit improvements will match market conditions



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 reviews to the Council for inclusion in a regional service performance review.

Arterial Bus Rapid Transit Scoping 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.

Community Based Transit

The Metropolitan Council contributes funding to locally controlled dial-a-ride programs throughout the metropolitan area. Fourteen programs currently receive funds; seven operated by cities or groups of cities, three by counties and four by non-profit organizations. These programs will be reviewed during 2008/2009 with proposed program changes scheduled for implementation in 2010. The changes will assure:

- the Council is investing in general public transit service
- consistent operating policies for all general public dial-a-ride services
- duplicative transit services are eliminated
- equitable coverage throughout the seven county area
- improved coordination at the local level between non-profits, Department of Human Service programs and fixed route service.

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.





Bicycle Route Information and Signing Plan

In 2009, the Council will update 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.

2030 Aviation System Plan Update: Phase II

In 2008 and 2009 the Council conduct a number of technical evaluations and analysis of the regional aviation system. The work will be coordinated with affected agencies and communities through the TAC Aviation Technical Task Force. Outcomes of the Phase II work will be used as warranted in a 2010 amendment to the *Transportation Policy Plan*.

Studies to be Conducted by Other Agencies, with Council Participation

- Complete Streets Study - Mn/DOT
- Statewide Comprehensive Freight and Passenger Rail Plan - Mn/DOT
- Mode and Alignment Studies - as recommended in Transit Chapter
- Metro District Freight Study - Mn/DOT
- MSP 2020 Long-term Comprehensive Plan (LTCP) Update - MAC
- Anoka County-Blaine Airport, Flying Cloud Airport, and St. Paul Downtown Airport 2020 LTCP Updates - MAC
- Forest Lake Airport Role Change Assessment - Forest Lake, working with the Metropolitan Council



Figure 12-4: Non-motorized travel modes will play an important role in the region.



A

Appendix A: Land Transportation Glossary

Accessible	A facility that provides access to people with disabilities using design requirements of the ADA.
Access to opportunities	Generally, the ease with which an area can be reached. Technically, it is the distance between origin and destination expressed in terms of time.
Americans with Disabilities Act (ADA)	Civil rights legislation passed in 1990 and effective July 1992. The ADA sets design guidelines for accessibility to public facilities, including sidewalks, trails, and public transit vehicles by individuals with disabilities.
Alternatives Analysis (AA)	A study of a corridor or travel shed to determine viable transit alternatives, which is required in order to potentially receive federal funding for project construction. These studies examine potential alignments and modes, including enhanced bus service. All alternative analyses include both bus and rail options. Bus options 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, HOV or HOT lanes, or other advantages. Land use and zoning needs are also evaluated.
Arterial routes	Transit routes on major local streets. These routes typically have higher frequencies of bus service.
Automatic vehicle location (AVL)	A system that determines the location of vehicles carrying special electronic equipment that communicates a signal back to a central control facility. AVLs are used for detecting irregularity in service and are often combined with a computer-aided dispatch system to improve on-time performance and provide real time information for customers.
Auto occupancy	The number of persons per automobile, including the driver.

Bike lane	A portion of a roadway or shoulder designed for exclusive or preferential use by persons using bicycles. Bicycle lanes are distinguished from the portion of the roadway or shoulder used for motor vehicle traffic by physical barrier, striping, marking, or other similar device.
Bike-walk streets (or “bicycle boulevards”)	A shared roadway, typically a local residential street, which has been optimized for bicycle traffic. Bike/walk streets accommodate auto travel but literally give priority to cyclists and pedestrians. These streets use traffic calming techniques, signage, lighting, and other amenities to provide a safe, quiet, and direct route for bicyclists and pedestrians.
Bio-fuel	Fuel derived at least in part from renewable materials, like ethanol.
Branded vehicle	A transit vehicle with a unique design or logo that helps identify it with a specific route.
Bus-only shoulders	A system of highway shoulder lanes that Mn/DOT has identified and signed as being available for bus use to avoid congestion. Speeds are limited to 35mph for safety.
Busways	A special roadway designed for exclusive use by buses. It may be constructed at, above, or below grade and may be located in separate rights-of-way or within roadways. Variations include grade-separated, at-grade, and median busways.
Bus lanes	Lanes designated solely for buses. These lanes are typically in downtowns and allow buses to travel with reduced impacts from automobiles.
Bus rapid transit (BRT)	A transitway mode that uses bus vehicles but incorporates characteristics of light rail or commuter rail to improve bus speed, reliability, and identity. These characteristics can include specialized vehicles, unique and improved stations, signal preemption or priority, off-board fare collection, improved signage and other features that allow vehicles to operate faster and more reliably than local or express buses. BRT can be run on a dedicated right-of-way or in mixed traffic. Typically, service frequencies are every fifteen minutes or better on the core portions of the line.
Carbon monoxide maintenance area	Most of the Twin Cities area is part of an EPA designated maintenance area for carbon monoxide emissions from transportation sources. This designation and area affected is based on national air quality standards. A portion of this area extends into eastern Wright County.
Carpool	When two or more persons share a private vehicle. At times, vehicle sharing is facilitated by government.
Center	A place of sufficient scale, density and mix of uses, where there is convenient access to housing, jobs, daily services, shopping and recreation. (See transit-oriented development.)

Circulator system	A means of movement provided within a major activity center (such as a regional business concentration or community) for going from place to place within the center; such a system may be entirely pedestrian or may use transit.
Collector streets	The streets that connect neighborhoods and connect neighborhoods to regional business concentrations (see Appendix D for functional classification criteria and characteristics).
Commuter rail	A passenger railroad that carries riders within a metropolitan areas, typically between urban areas and their suburbs. They typically operate on freight rails or dedicated tracks. Propulsion is provided either by diesel locomotives or by self-propelled Diesel Multiple Units. Typically there are a small number of stations and multiple departure times primarily in mornings and evenings. Stops are typically five miles or more apart and route lengths extend more than 20 miles. In some areas it is called regional rail.
Conformity	The agreement of transportation plans and programs with the assumptions and commitments designed to attain federal and state air quality standards. As it refers to the State Implementation Plan for Air Quality, it means conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality and standards, in the frequency or severity of an existing violation, or delay in timely attainment of any standard or interim milestone. Further, transportation plans and programs can be found to conform only if (1) emissions resulting from such plans and programs are consistent with emissions projections and reductions assigned to those transportation plans and programs in the State Implementation Plan, and (2) the plans and programs provide for timely implementation of the State Implementation Plan's Transportation Control Measures.
Congestion	Overloading of roadway with vehicles (see Level of Service).
Congestion management	A systematic process for evaluating and developing transportation strategies and plans for addressing existing and future traffic congestion.
Congestion mitigation and air quality improvement program (CMAQ)	CMAQ is a categorical funding program created under SAFETEA-LU. It directs funding to projects that contribute to meeting national air quality standards and further reducing transportation-related air pollution.
Congestion pricing	User fees that are charged to manage traffic and reduce congestion, also called "value pricing." Typically higher prices reduce the use of priced lanes. This technique can be used to ensure free-flow conditions in priced lanes.

Contraflow lane	A lane that travels the opposite direction of other traffic lanes. For example, on 4th Street in downtown Minneapolis, three lanes of traffic are designated one-way for automobiles while a fourth lane travels the opposite direction and is designated solely for buses. Also highway lanes can be designated as contra-flow lanes, which change direction depending on the time of day. For example, a lane can flow into a downtown in the morning, then have its direction changed and flow out of a downtown in the afternoon to add capacity.
Context sensitive design	Roadway standards and development practices that are flexible and sensitive to community values, balancing economic, social, aesthetic and environmental objectives.
Corridor studies (highway)	Typically, highway corridor studies focus on a segment of a particular travel corridor or travel shed. Land use, access issues, capacity, level of service, geometrics and safety concerns are studied; alternatives analyzed and recommendations made. Corridor studies are usually prepared with the participation and cooperation of the affected communities and governmental agencies. Recommendations for improvements are often incorporated into the local comprehensive plans of the participating cities and continue to be used by implementing agencies as improvements in the corridor are made.
Corridor studies (transit)	Focus on transit alternatives within a travel corridor or travel shed. Studies typically examine all potential alignments and modes (light rail, commuter rail, bus rapid transit, express bus or other alternatives). Studies examine these alternatives against a set of criteria, typically (but not restricted to) factors such as mobility improvements, operating efficiency and effectiveness, environmental impacts, economic development impacts, readiness and cost-effectiveness. Corridor studies include alternatives analyses, which are done to meet federal New Starts criteria.
County Transit Improvement Board (or CTIB)	The joint powers board created to oversee the distribution of the ¼ cent sales tax imposed by certain counties in the region for transit.
Cost-sharing	A contractual arrangement whereby a local unit of government or other governmental body enters into an agreement to pay for part of a physical facility or a service; includes subscription transit service.
Crosswalk	That portion of a roadway ordinarily included with the prolongation or connection of the lateral lines of sidewalks at intersections or any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings on the surface.
Deadhead	The portion of trip that does not carry passengers. This can be the portion of a trip when a transit vehicle travels between the garage and the start or end point of a route or when a vehicle travels between routes.

Dynamic Parking lane	A parking lane on a street that is used for regular traffic during peak periods. In non-peak periods, it reverts back to a parking lane.
Dynamic Shoulder Lane	A highway shoulder lane that is used for vehicle traffic during peak periods. In non-peak periods, it is not available for travel but is used for break-downs.
Demand-responsive service	see Dial-a-Ride.
Developed Communities	Cities where more than 85% of the land is developed, infrastructure is well established and community development efforts are focused on maintenance, preservation and redevelopment. These communities have the greatest opportunities to adapt or replace obsolete buildings, improve community amenities, and remodel or replace infrastructure to increase their economic competitiveness and enhance their quality of life. Developed Communities are expected to accommodate approximately 30 percent of new households and about half of new jobs through 2030.
Developing Communities	Cities where the most substantial amount of new growth—about 60 percent of new households and 40 percent of new jobs—will occur. Community development activities are focused on initial infrastructure investment and development staging to accommodate growth at appropriate densities; three to five units plus per acre overall in developing communities for areas outside the current staged development and higher density in locations (nodes and centers) with convenient access to transportation corridors and with adequate sewer capacity.
Dial-a-ride (also demand-response)	A public transit service using passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. Typically, the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted en route to these destinations to pick up other passengers. These vehicles do not operate on a fixed schedule or route.
DMU or Diesel Multiple Unit	Self-propelled passenger rail cars that operate on railroad track. Typically used to provide commuter rail passenger service.
Environmental Impact Statement (EIS) and Draft Environmental Impact Statement (DEIS)	A document that must be filed with the Federal Government when a “major Federal action significantly affecting the quality of the human environment” is taken. These studies typically include a statement of the purpose and need for the project, a description of the affected environment, a range of alternatives to the proposed action and an analysis of the environmental impacts of each of the possible alternatives. The law requiring this is the National Environmental Policy Act. (NEPA) Major highway and transit projects are required to develop these studies and follow these processes.

Fare	The amount paid for a transit trip. Fares vary by the type of trip and service.
Fixed-route transit	Services provided on a repetitive, fixed schedule basis along a specific route with vehicles stopping to pickup and deliver passengers to specific locations; each fixed route trip serves the same origins and destinations. Both rail and buses can provide fixed-route transit. Also regular route transit.
Functional classification	Classification of roadways according to their primary function— mobility for through trips or access to adjacent lands. A four-class system (described in Appendix D) is used to designate roads (principal arterials, minor arterials, collectors and local streets) in the Twin Cities. The major arterials are classified as either “A” minor arterials or “B” / other minor arterials.
Expansion (of highway capacity)	Adding a multi-use or managed lane of a mile or more in length is defined as expansion in this plan and for air quality conformity purposes. Construction of two or more consecutive interchanges is also capacity expansion.
GPS or Global Positioning System	A device that lets the location of a vehicle be tracked in real-time. For example a GPS device is placed on a bus and then information is relayed to a central information depository about the location of bus. This information can then be shared with customers through real-time information systems and also be used by controllers to monitor the performance of the bus.
Grade separation	Separation of traffic at different levels with crossing structures like underpasses or overpasses; interchanges.
High-occupancy vehicle (HOV) lanes	Highway lanes reserved for vehicles carrying more than one person. These lanes are officially denoted with a diamond marking and are sometimes called “diamond lanes.” Public transit is also allowed to use these lanes, providing it a time advantage over congested conditions.
High-occupancy toll (HOT) lanes	Lanes that allow high-occupancy vehicles and public transit vehicles to travel free and allows single-occupancy vehicles to use these lanes through paying a toll. Tolls can be fixed or they can vary with the amount of traffic.
High speed passenger rail	A type of intercity passenger rail that operates at speeds significantly faster than current passenger rail. Speeds are in excess of 90 mph in the United States and in excess of 125 mph by the European Union.
Hybrid electric bus	A bus that operates at times on electrical power and at times on diesel fuel. Typically the electrical engine is powered by the energy created through braking or from power generated from the diesel engine.
Infrastructure	Fixed facilities, such as roadways or railroad tracks; permanent structures or improvements.

In-Service Hour	The time from when the transit vehicle begins its first trip at the first time point to the time the transit vehicle completes its last trip at the last time point excluding recovery time and any double-back between trips.
Intelligent Transportation System (ITS)	<p>The development or application of technology (electronics, communications, or information processing) to improve the efficiency and safety of surface transportation systems. ITS is divided into five categories that reflect the major emphasis of application:</p> <ul style="list-style-type: none"> • Advanced Traffic Management Systems • Advance Traveler Information Systems • Advanced Public Transportation Systems • Automatic Vehicle Control Systems • Commercial Vehicle Operations
Intermodal (freight)	“Seamless” delivery of freight from one mode to another. Modes may include truck, rail, air or barge.
Intermodal (transit)	A location where different transportation modes come together, typically locations where persons can transfer among light rail, commuter rail, buses and/or automobiles.
Lane capacity	<p>The Twin Cities regional travel demand model assumes the following lane capacities representing level of service “D”:</p> <ul style="list-style-type: none"> • Un-metered freeway = 1,750 vehicles per hour • Metered freeway = 1,950 vehicles per hour • Concurrent flow high-occupancy vehicle facility = 1,400 vehicles per hour • Divided arterial = 700 to 1,000 vehicles per hour • Undivided arterial = 600 to 900 vehicles per hour • Collector = 400 to 600 vehicles per hour
Level of service	As related to highways, the different operating conditions that occur on a lane or roadway when accommodating various traffic volumes. It is a qualitative measure of the effect of traffic flow factors, such as speed and travel time, interruption, freedom to maneuver, driver comfort and convenience, and indirectly, safety and operating costs. It is expressed as levels of service “A” through “F.” Level “A” is a condition of free traffic flow where there is little or no restriction in speed or maneuverability caused by presence of other vehicles. Level “F” is forced-flow operation at low speed with many stoppages, with the highway acting as a storage area. Level “F” is considered to be fully congested.

Light rail transit (LRT)	Electrically powered trains typically operating primarily in an exclusive right-of-way, with stops approximately one mile apart.
Linear right-of-way	A narrow, well-defined corridor of contiguous land dedicated to or preserved for transportation purposes.
Livable Communities Act (LCA)	The Minnesota Legislature created the Livable Communities Act (LCA) in 1995. The LCA is a voluntary, incentive-based approach to help the metropolitan area address affordable and lifecycle housing needs while providing funds to communities to assist them in carrying out their development plans. The Council awards LCA grants to participating communities in the seven-county area to help them: (1) to clean up polluted land for redevelopment, new jobs and affordable housing; (2) to create development or redevelopment that demonstrates efficient use of land and infrastructure through connected development patterns; and (3) to create affordable housing opportunities.
Local streets	The streets that provide land access (see Appendix D for functional classification criteria and characteristics).
Meters	Signals on freeway ramps that smooth traffic flow to increase road capacity and safety. Many metered ramps within the region have bypasses for buses and carpools.
Metro Commuter Services	A service of the Metropolitan Council that administers travel demand management programs and promotes alternatives to travel in single-occupant vehicles.
Metro Mobility	A service of the Metropolitan Council that provides door-to-door transit service for persons with disabilities that prevent them from using the fixed route bus and rail system.
Metro Transit	A service of the Metropolitan Council that provides rail transit and the largest amount of regular route bus service in the region.
Metropolitan Highway System	The system of highways intended to serve the region. Only principal arterials, which include interstate freeways, are part of the metropolitan highway system. In some places, the plan identifies the metropolitan highway system as the interstate freeways and other principal arterials.
Metropolitan transit system	The system of all public transit services available to the general public.

Metropolitan Urban Service Area (MUSA)	The area in which the Metropolitan Council ensures that regional services and facilities under its jurisdiction are provided.
“A” minor arterials	Minor arterial roadways within the metropolitan area that are more regionally significant than other minor arterials. These roadways are classified into the following groups:
Relievers	Minor arterials that provide direct relief for traffic on major metropolitan highways. These roads include the closest routes parallel to the principal arterials within the core, urban reserve and urban staging areas. These roadways are proposed to accommodate medium-length trips (less than eight miles) as well as providing relief to congested principal arterials. Approximately 400 miles of relievers have been identified. Improvements focus on providing additional capacity for through traffic.
Expanders	Routes that provide a way to make connections between developing areas outside the interstate ring or beltway. These roadways are proposed to serve medium-to-long suburb-to-suburb trips. Approximately 650 miles of expanders have been identified.
Connectors	This category of “A” minor arterials are roads that would provide good, safe connections among town centers in the urban reserve, urban staging and rural areas within and near the seven counties. Approximately 680 miles of connectors have been identified. Improvements focus on safety and load-bearing ability.
Augmentors	The fourth group of “A” minor arterials are those roads that augment principal arterials within the interstate ring or beltway. The principal arterial network in this area is in place. However, the network of principal arterials serving the area is not in all cases sufficient relative to the density of development that the network serves. In these situations, these key minor arterials serve many long-range trips. Approximately 200 miles of augmentors have been identified. Improvements focus on providing additional capacity of through traffic.
Metropass	A program where employers provide discounted transit passes to employees. Employers get tax breaks for participating in the program.
Metropolitan Land Planning Act (MPLA)	The sections of Minnesota Statutes directing the Council to adopt long-range, comprehensive policy plans for transportation, airports, wastewater services, and parks and open space. It authorizes the Council to review the comprehensive plans of local governments which they are to review and update at least once every 10 years.

Mixed use	A single building containing more than one type of land use or a single development of more than one building and use, where the different land uses are in close proximity, planned as a unified, complementary whole, and functionally integrated with transit, pedestrian access and parking areas.
Mobility	The ability of a person or people to travel from one place to another.
Motor Vehicle Sales Tax (MVST)	MVST is the 6.5 percent sales tax applied to the sale of new and used motor vehicles. Under a constitutional amendment passed in 2006, MVST revenues must be dedicated exclusively to highway and transit purposes.
Multimodal link	The connection between two or more passenger transportation methods (such as bicycle, walking, automobile and transit).
Multi-use paths	A bikeway that is physically separated by a roadway or shoulder by the use of an open space buffer or physical barrier. A shared-use path can also be used by a variety of non-motorized users such as pedestrians, joggers, skaters and wheelchair users.
National Highway System (NHS)	A transportation system consisting of approximately 155,000 miles of highway that provide an interconnected system of principal arterial routes serving major population centers, major transportation facilities, major travel destinations, interstate and interregional travel and meeting national defense requirements.
New or restructured transit service	Significant change in service, including establishment of a new mass transportation service, addition of new route or routes to mass transportation system, a significant increase or decrease in service on or realignment of an existing route, or a change in the type or mode of service provided on specific, regularly scheduled route.
New Starts	A federal transit funding program for major projects, typically commuter rail, light rail or dedicated busways. The program pays up to 50% of a project cost.
Off-board fare collection	Collection of transit fares before a rider gets on a transit vehicle, generally by paying the fare to a ticket agent or fare validator. Off-board fare collection speeds trips.
Off-peak period	Time of day outside the peak period (see peak period).
Operational improvement	A capital improvement consisting of installation of traffic surveillance and control equipment, computerized signal systems, motorist information systems, integrated traffic control systems, incident management programs, and transportation demand and system management facilities, strategies and programs.
Opt-out System	See Suburban Transit Providers

Paratransit services

Transit service that provides generally more flexible service than regular-route transit, using a variety of vehicles, such as large and small buses, vans, cars and taxis. Paratransit can serve a particular population, such as people with disabilities, or can be assigned to serve the general population. Paratransit is frequently provided in less densely populated areas, and used at times and in areas where trip demands are less concentrated, such as during weekends and evenings in suburban settings. Paratransit services are of several types:

Ridesharing - Car and van pooling intended primarily to serve the work trip.

Demand-Response - This is any type of public transportation involving flexibly scheduled service that is deployed upon a person's request for a trip. There are two types of demand response:

- **Dial-a-ride services** - The most common type of paratransit, involving advance request pickup and drop-off at desired or designated destinations. Dial-a-ride may deploy vans, small buses or shared-ride taxis.
- **Flexible fixed-route or deviation services** - Either point deviation or route deviation where vehicles stop at specific locations on a regular schedule but do not have to follow a set route between the stops. They can deviate from the route to pick up or drop off passengers upon request.

Park-and-ride	A place where passengers park their cars and board some form of transit. There may be a transit station or transit center attached to a park-and-ride.
Peak hour	The hour during the peak period when travel demand is highest. Generally, peak hours are found to be from 7 to 8 a.m. and from 4:30 to 5:30 p.m.
Peak period	The time between 6:30 and 9 a.m. and between 3 and 6 p.m. on a weekday, when traffic is usually the heaviest.
Person throughput	The number of persons that pass a point on a roadway in a specified period of time. Person throughput includes all passengers in vehicles.
Platform hour	The time from when the transit vehicle pulls out (leaves from the vehicle storage facility) to the time the transit vehicle pulls in (returns to the vehicle storage facility) (i.e. in-service plus recovery plus deadhead).
Preservation	Preservation activities are directed toward the elimination of deficiencies and major cost replacement of existing facilities. Preservation is not meant to include work that will increase the Level of Service by the addition of traffic lanes.
Principal arterials	The high-capacity highways that make up the metropolitan highway system See Appendix D for functional classification criteria and characteristics.
Project	A group of tasks or methods designed to accomplish a specific purpose.

Queue jump (also queue jump lane)	A lane on a street that lets transit vehicles bypass a congested intersection.
Ramp metering	The electronically regulated flow of vehicles to increase capacity of through lanes and improve safety.
Ramp Meter Bypass	A lane at ramp meters that let certain vehicles like transit vehicles or high-occupancy vehicles bypass the ramp meter.
Real-time information	Transit service information that reflects actual operating conditions and is provided as actual time as compared to the scheduled time. Often, on-time arrival information available at bus stops or via the web.
Regional Guaranteed Ride Home program	A program that provides an “insurance policy” for those who commute by bus, pool, bike or walking by underwriting the cost of taxi rides homes in emergencies.
Regional highway system	All highways serving the region, including principal arterials and “A”.
Regional Railroad Authority	Each county in the region has a regional railroad authority to preserve rail corridors, preserve right-of-way if rail lines are abandoned and develop rail transportation options. The county board sits as the regional railroad authority.
Regular-route transit service	A transit service that operates on a predetermined, fixed route and schedule. Regular-route service is usually classified as four types:
Local service	Buses make frequent pickups and drop-offs, stopping at almost every street corner.
Urban locals	Buses operate primarily in central cities and first-ring suburbs and include regular-route radial service (routes serve one or both of the two major downtowns); crosstown (usually providing connecting links between radial routes); and limited stop (buses make limited stops as a supplement to local service along a route or “skip stops,” achieving faster service to selected destinations).
Suburban locals	Buses operate in suburban environments, beyond first-ring suburbs, many times as suburban circulators, and regular-route suburb-to-suburb crosstowns (often as feeder routes to radial services) and in some cases may include specially designed paratransit services.
Express	Buses operate nonstop on highways or dedicated transitways for at least four miles and include peak only and all-day express. Express routes provide travel times competitive with driving in an automobile. Most express routes operate longer distances (8-25 miles) and during peak times, and are destined to and from one of the two major downtowns.

Rehabilitation	Roadway improvements intended to correct conditions identified as deficient without major changes to the cross section. These projects consist of removal and replacement of base and pavement, shouldering and widening and drainage correction as needed without changing the basic boundaries of the roadway.
Revenue Hour	The time from when the transit vehicle begins its route at the first time point to the time the transit vehicle completes its route at the last time point including the time the transit vehicle is in recovery (laying over).
Reverse-commute	Transit service from the core cities to an employment location in suburban locations, typically in a direction opposite to the heaviest flow of traffic.
Ridesharing	A paratransit service with two or more persons in the vehicle consisting usually a prearranged car pool, van pool or subscription bus.
Right-of-Way Acquisition Loan Fund (RALF)	This program grants interest-free loans to communities within officially mapped highway corridors to purchase property threatened by development. The loan is repaid when the property is purchased by the highway construction authority. The Minnesota Legislature established the RALF program in 1982. It is funded by a property tax levied by the Metropolitan Council and funds are loaned out on a revolving basis.
Route deviation	A transit service operating on a fixed route from which vehicles may deviate to pick up or drop off passengers. Requests for route deviation may come by phone via radio contact with the driver or may be requested by a passenger upon boarding. Generally, this strategy utilizes a small vehicle.
Routine maintenance	Roadway maintenance consisting of snow and ice control, mowing, sweeping, periodic applications of bituminous overlays, seal treatments, milling, crack routing and filling and base repair. These treatments are intended to help ensure the roadway can be used to the end of its design life.
Rural area	The rural area is divided into four specific geographic planning areas: Rural Centers/Rural Growth Centers, the Diversified Rural Communities, the Rural Residential Areas and the Agricultural Areas.
SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users)	A six-year federal funding bill for transportation projects.
Shoulder	The part of a highway that is contiguous to the regularly traveled portion of the highway and is on the same level as the highway, generally reserved for breakdowns and emergency vehicles. Some shoulders in the Twin Cities are designated for bus utilization called “bus-only shoulders.”

Sidewalk	That portion of a street between the curb lines or the lateral lines of a roadway and the adjacent property lines, intended for the use of pedestrians.
Signal preemption	A technology that triggers the green go-ahead on meters or traffic lights to allow transit vehicles to more quickly move through freeway ramp entrances or intersections.
Small Starts	A federal program for funding transit infrastructure. This program funds smaller projects than the “New Starts” program.
SOV	Single-occupant vehicle
Special transportation services	Transit services provided on a regular basis to elderly and disabled persons who are unable to use regular means of transportation. Rides are provided through a variety of public and private entities, including social services and transit agencies, using lift-equipped vans, taxis, buses and volunteer drivers.
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 instead of starting its own service.
Surface Transportation Program (STP)	One of the five core federal highway funding programs. STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the national highway system, bridge projects on any public road, transit capital projects, and intra-city and intercity bus terminals and facilities.
System statement	The system statement informs each community how it is affected by the Metropolitan Council’s policy plans for four regional systems - transportation, aviation, water resources (including wastewater collection and treatment), and regional parks and open space. System statements include forecasts of population, households and employment.
2030 Regional Development Framework	The Metropolitan Council plan that sets the general direction for future development patterns in the metropolitan area and establishes guidelines for making decisions about major regional facilities that are needed to support the commercial, industrial and residential development of the area.
Telecommuting	The elimination or reduction in commuter trips by routinely working part or full-time at home or at a satellite work station closer to home.
Throughput	The number of vehicles/persons that pass a point on a roadway over a specified period of time. Person throughput includes passengers of vehicles while vehicle throughput only includes vehicles.
Timed-transfer station	Point where several transit lines converge in a synchronized manner, facilitating passenger transfers.

Tolls	A fee collected for the use of a road.
Traffic Calming	Techniques such as speed bumps, narrow lanes and traffic circles used to slow traffic in primarily residential neighborhoods.
Traffic signal control systems	The degree of traffic management of an arterial is grouped and defined as follows:
Fixed time	The traffic signals on an arterial are controlled locally through a time clock system. In general, the progression of a through band (the amount of green time available along an arterial at a given speed) along the arterial in the peak direction is determined by past experience and is not a function of immediate traffic demand.
Semi-actuated	The traffic signals along the arterial are designed to maximize the green time on the major route in the major direction. Timing and through band are based upon historical records. Use of green time on the minor leg depends on real-time demand and maximized based upon total intersection delay.
Interconnection	A traffic signal system in which data collected at individual signals is shared with a central processor or controller. Adjustments in traffic signal control can be made based upon incoming data as opposed to historical data.
Optimization	The process in which a traffic signal or system is modified to maximize the amount of vehicles passing through the intersection for all approaches or on the major road in the peak direction.
Real-time adaptive control	An advanced traffic control system that incorporates current technologies in communications, data analysis, and traffic monitoring to provide real-time traffic control of arterials, corridors or roadway networks.
Transit advantages	Facility improvements that offer travel-time benefits to transit vehicles. Examples include bus lanes, bus-only shoulders, ramp meter bypasses, and HOV lanes. Transit advantages can also include priced lanes which allow buses to share lanes with automobiles metered by tolls.
Transit Centers	A transit stop or station at the meeting point of several routes or lines or of different modes of transportation. It is located on or off the street and is designed to handle the movement of transit units (vehicles or trains) and the boarding, alighting, and transferring of passengers between routes or lines (in which case it is also known as a transfer center) or different modes (also known as a modal interchange center, intermodal transfer facility or an hub).

Transit Market Area	The Twin Cities have been divided into five areas depending on their land use characteristics. These characteristics determine the types of transit service that are appropriate. See Appendix G for a full description of the Twin Cities market areas.
Transit-oriented development	The concentration of jobs and housing around transit hubs and daily conveniences. TOD is moderate to higher-density development located within easy walking distance of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. (Additional information about transit-oriented development can be found in the online handbook Guide for Transit Oriented Development)
Transit Redesign	A 1996 Metropolitan Council comprehensive review of the regional transit system and resultant action plan to build a stronger, more effective transit system. “Redesign” also may refer to restructuring of transit services in an effort to better meet local needs.
Transit stations	Facilities provided at light rail, commuter rail and bus rapid transit stops and in some cases for major suburban bus transit centers that serve as the central transit facility within a community.
Transit Taxing District	The portion of the Twin Cities metropolitan area where property is taxed to support transit services as defined in Minnesota State Statute 473.446 or who have joined the Transit Taxing District under Minnesota State Statute 473.4461.
Transitways	Travel corridors that offer transit service using express buses with transit advantages, bus rapid transit, light rail or commuter rail.
Transit Advantages	Facility improvements that offer travel time benefits and connections to multi-occupant vehicles such as bus-only shoulders, bus lanes, HOV/HOT lanes, priced dynamic shoulders, ramp meter bypasses, signal preemption, transit centers, transit stations, and major park-and-ride lots.
Transit trip	A person trip as a passenger of a public transit vehicle.
Transportation Advisory Board	The Transportation Advisory Board, established in accordance with State Statutes, section 473.146, is part of the Metropolitan Council and is a forum for deliberation on transportation-related issues among state, regional and local officials and private citizens. The TAB advises the Council in preparing transportation plans and provides coordination and direction to the agencies responsible for implementing the plans.
Transportation demand management (TDM)	Programs and methods to reduce travel demand. In the broadest sense, any activity or facility that reduces vehicle trips. The highest priority in the region is given to reducing single-occupant vehicle trips in the peak periods. Techniques that might be utilized are car pooling, van pooling, transit, alternative work hours, transportation management associations, and land development or ordinances that discourage vehicle trips and encourage walking, biking, ridesharing and transit trips.

Transportation Policy Plan	This document which is one chapter of the Metropolitan Council’s Metropolitan Development Guide, as provided for in Minn. Stat. 473, Sec. 145 and 146. Section 145 states: “The Metropolitan Council shall prepare and adopt...a comprehensive development guide for the metropolitan area.” This chapter deals with the transportation needs of the seven county area.
Transportation Improvement Program (TIP)	A three-year multimodal program of highway, transit, biking, walking and transportation enhancement projects and programs proposed for federal funding in the seven-county Twin Cities metropolitan area. The TIP must include capital and non-capital transportation projects proposed for funding under Title 23 United States Code (USC) (highways) and Title 49 USC (transit). The TIP must also contain all regionally significant transportation projects that require an action by the Federal Highway Administration (FHWA) or the Federal Transit Authority (FTA).
Transportation Management Organization (TMO) or Association (TMA)	Nonprofit organizations formed in highly congested areas to deal with common transportation concerns, particularly alleviating congestion, improving employee commutes and increasing access to customers.
Transportation System Plan (TSP)	Mn/DOT’s 20-year district a plan that identifies regional investment priority categories for the highway system.
Travel Behavior Inventory (TBI)	A set of surveys identifying travel patterns and characteristics of people and vehicles within the metropolitan area. In the Twin Cities, the first study was done in 1949 and has been repeated every ten years since.
Travel-demand management (TDM)	Strategies to manage demand on roadways designed to redirect trips to higher-occupancy modes or away from peak-traffic periods so that the total number of vehicles trips are reduced and the number of persons carried on highways can be increased. Can include both capital and service improvements to highways, carpooling, transit, pricing or and other techniques.
UPA or Urban Partnership Agreement	A program by the federal government to explore the use of priced lanes on highways. The Twin Cities received a UPA grant and is completing a set of improvements on I-35W, Cedar Avenue and in downtown Minneapolis to implement a priced lane and improve transit.
Urban Area	The area consisting of two Regional Development Framework-defined planning areas— Developed Communities and Developing Communities—occupying about 50% of the region’s land area.
Vanpool	A paratransit service provided by a publicly or privately provided van on a scheduled or unscheduled basis with at least five persons as occupants.
Vehicle trip	A one-way journey made by an auto, truck or bus to convey people or goods.

VMT	Vehicle miles traveled
Volume-to-capacity ratio	The number of vehicles expected to use a roadway in the busiest hour, divided by the number of moving vehicles the roadway can accommodate in an hour.

Appendix B: 2009-2012 Transportation Improvement Program

Transportation Improvement Program for the Twin Cities Metropolitan Area

The Transportation Improvement Program is updated each year by the Transportation Advisory Board and the Metropolitan Council. The federal transportation bill, SAFETEA-LU, requires that all federally-funded transportation projects within the seven-county metropolitan area be included in the four-year Transportation Improvement Program (TIP). The TIP is prepared by the Metropolitan Council with assistance from the Minnesota Department of Transportation. It represents a fiscally-constrained four-year program of project delivery.

The full 2009-2012 Transportation Improvement Program is available online at:

<http://www.metrocouncil.org/planning/transportation/tip.htm>

Appendix C: Public Participation Plan



Introduction

The Metropolitan Council (“Council”) is the designated Metropolitan Planning Organization (“MPO”) for the seven-county metropolitan area and is responsible for certain regional transportation planning activities. This **Public Participation Plan** (“PPP”) was adopted to help ensure the Council’s transportation planning processes include a proactive public involvement process and comply with federal public participation plan requirements. This PPP identifies strategies and tools to help ensure effective public participation in the Council’s transportation planning activities. This PPP replaces the *Citizen Participation Plan* contained in Appendix D of the Council’s *2030 Transportation Policy Plan* (adopted December 15, 2004).

Policy Statement

The Council’s agency-wide Customer Relations and Outreach Policy states: ***“The Metropolitan Council recognizes the importance of stakeholders in its decision-making processes, including other units of government, other metropolitan area agencies, customers and the public. Sound policy and service delivery decisions need to reflect community sentiment and public opinion from broad outreach. These public outreach strategies must be designed to offer the customer effective access to information and efficient, convenient methods of participating in the Council’s public process.”***

Background and Reasons for Plan

The PPP is intended to help ensure the public participation activities of the Council’s transportation planning processes:

1. Comply with the proactive public involvement requirements of title 23 Code of Federal Regulations section 450.316, the public participation plan requirements of the federal Safe, Accessible, Efficient Transportation Act—A Legacy for Users (SAFETEA-LU) (title 23 United States Code section 134(i)(5)), and other applicable federal regulations and guidelines on transportation planning and program access.
2. Efficiently use resources devoted to public participation.
3. Contribute to sound transportation planning decisions that benefit the region.

The PPP reinforces the Council’s long-standing commitment to public involvement in its planning efforts, and continues its tradition of incorporating best practices. The PPP offers a range of practices to engage people with diverse backgrounds and life experiences. It incorporates a summary of regulations and continues Council activities that comply with Federal Highway Administration (FHWA) and other

Excluded Activities

- The PPP does not apply to **normal course-of business** or **administrative activities** that do not significantly affect the general public or alter public policy.

- **Meetings of the Metropolitan Council** and its standing committees are governed by the Council's bylaws and Minnesota's Open Meeting Law and are therefore outside the scope of the PPP.

- **Alternate approaches** may be considered following consultation with the Council's Legal, Public Affairs and Diversity Departments.

applicable standards for collecting and addressing public comments. The Council will use its data collection and analysis processes to guide participation efforts and help ensure meaningful access to its public participation opportunities.

Scope

The PPP applies to transportation planning activities for which public participation is a required component.

When the Council is lead agency for regional activities undertaken with other government agencies, and a public participation process is involved, the PPP applies to joint participation activities. When another unit of government is the lead agency, the PPP applies only if the Council conducts its own public participation activities for decisions that do not involve its partners.

Implementation

Project staff and members of the Council's Public Affairs Department should consult the PPP to identify appropriate levels of involvement, tools and regulatory requirements when preparing public participation plans for specific planning processes or activities.

The Council's Data Resources Department, Office of Diversity, and Public Affairs Department provide expert advice and resources to help identify and involve members of the general public and other stakeholders throughout the region, including people who belong to traditionally underserved or underrepresented groups.

Roles and Responsibilities

1. **Metropolitan Council:** The Council sets policy direction, fosters and participates in public involvement initiatives, and considers the outcomes of public participation when making key decisions.
2. **Metropolitan Council staff** should encourage public participation by:
 - a. Providing easily accessible information
 - b. Identifying parties likely to be affected by or interested in a Council activity
 - c. Informing affected or interested parties about ways they may participate
 - d. Identifying opportunities to increase public participation.
3. The **Public Affairs Department** should cooperate with Division staff to:
 - a. Provide direction about public participation strategies
 - b. Maintain staff resources, including the online [Public Participation Plan](#)
 - c. Execute, or assist with planning and implementing, specific participation activities.

Administration

The Council's Director of Public Affairs (651-602-1518) will respond to inquiries regarding Council public involvement activities and implementation of this PPP. The Council's Regional Administrator will review any issues that remain if cooperative efforts between the Director of Public Affairs and program staff responsible for the subject participation processes have not resolved the issues.

Public Participation Overview

Public participation activities obtain information and identify public sentiment. They help the Council build public support and trust in the region. Although the goal is always better decisions, the level of public influence on a decision and the tools used to inform and involve the public may vary.

For some Council initiatives, appropriate participation may be limited to public information. Other initiatives and key decisions may require much more involvement, incorporating techniques commonly associated with social science and marketing research, facilitation and mediation, organizational development, and/or consensus building.

Recognize that People “Have a Stake” in Council Decisions:

Public participation is designed to involve “stakeholders” with meaningful public access to key decisions. Stakeholders may be people, groups or organizations who care about or might be affected by a Council action. Because the Council recognizes that stakeholder participation improves its decisions, it provides resources and guidance to encourage public comments and involvement.

Federal transportation planning statutes and regulations require stakeholder participation in key decision-making activities. Staff are encouraged to consult with the Council's Legal, Diversity and Public Affairs staffs to better identify appropriate stakeholders and target audience(s) for their public participation efforts.

The metropolitan transportation planning process must be a proactive public involvement process that provides public access to key decisions. The public involvement process should provide timely information about transportation issues and processes to citizens, affected agencies, representatives of transportation agency employees, private providers of transportation, other interested parties and segments of the community affected by transportation plans, program and projects, including central city and other local jurisdiction concerns.

As appropriate, the metropolitan transportation planning process should include: traffic, ridesharing, parking, transportation safety and enforcement agencies; commuter rail operators; airport and port authorities; toll authorities; appropriate private transportation providers; and city officials.

Make Participation Meaningful:

Public participation opportunities are most meaningful when agencies ask questions that matter to the participants. As part of its efforts to assure appropriate and meaningful opportunities, the Council should structure participation opportunities to fit their audiences. Examples of subjects appropriate to a stakeholder group include:

- Technical committees: expert advice
- Local governments: impacts related to local projects
- Jurisdictional agencies: relation to plans for other regions
- General public: priority rankings, neighborhood character

The Council will also structure its events to include **visualization techniques** when appropriate to help members of the general public understand potential outcomes of complex projects or plans.

Develop, Maintain and Update Key Contact Lists:

The Council's Public Affairs Office, operating divisions and individual departments develop and maintain stakeholder, media and marketing databases. Project staff should regularly update these lists to reflect current data and a broad range of stakeholders.

Stakeholders are often specific to a particular initiative. Contact lists should expand throughout the project as people, organizations and agencies become involved and offer their opinions. To establish new key contacts, the Council may provide or request:

- "Opt-in" registration on its website or via email
- Announcements of advisory body and focus group opportunities, which may be online, in Council newsletters, through news releases, or read at meetings
- Existing stakeholders to suggest potential participants
- Professional, civic and community organizations to provide representatives, suggest participants, or encourage participation.

Identify Participants Through Geographic Analysis:

The Council carefully analyzes the relationship between the region's populations and its regional investments, plans and programs. Geographic analysis may help the Council:

- Identify and target stakeholders likely to be affected by or interested in the outcome of key Council decisions.

- Periodically assess the locations of persons or populations, in consultation with the Office of Diversity, related to the delivery of Council services and participation opportunities.
- Identify threshold concentrations that require outreach specific to a target population.
- Prepare maps illustrating the correspondence between affected persons or populations, and mailing list ZIP codes to help the Council evaluate its effectiveness in providing equal access notification and public participation opportunities.

Efforts may be geographically targeted:

As a regional agency, the Council provides plans, policies, programs and services that cross jurisdictional boundaries. Where this is true, the Council considers everyone served by the various jurisdictions and governments to be stakeholders. In the case of more localized issues, the public may be defined by the affected geographic areas.

Promoting Inclusion

Recruit Representatives of Underrepresented Groups:

The Council may recruit representatives of groups traditionally underrepresented in regional policy making and provide enhanced participation opportunities to encourage people who belong to under-represented groups to share their unique perspectives, comments and suggestions.

The Public Affairs Department and Office of Diversity monitor emerging practices and techniques, and provide consultation to project staff to support effective participation methods. Council members or employees may:

- Participate in community organizations/events to build relationships
- Prepare culturally-sensitive outreach materials and meeting plans, such as:
 - Use appropriate language (for example, say “people with disabilities” instead of “the disabled”)
 - Consider colors and graphics that appeal to target groups
 - Incorporate photos and art that depict people of diverse cultures, age, abilities and economic status
 - Demonstrate respect for cultural sensitivities and prohibitions

Accommodate People With Disabilities:

To ensure compliance with the Americans with Disabilities Act (ADA), the Council’s Public Meeting Notices and comment opportunities include TTY information and provide multiple input methods.

Public meetings are held at ADA-accessible locations, and notices and information are published on the Council's ADA-compliant website. Extended public hearing notices in the Council's Metro Meetings bulletins and on its Meetings and Events webpage provide needed planning time for people who rely on public transit, Metro Mobility or special arrangements to get to Council events.

The Council may use one or more of the following tools to reasonably accommodate people with disabilities:

- Provide copies of materials in 14-point or larger type
- Adapt computer screens for people with visual or hearing impairments (technology includes screen magnifiers, readers and translators)
- Prepare easy-to-read versions of materials for people with learning disabilities
- Provide Braille or raised-print notices, materials and displays
- Allow visually impaired participants to touch 3-Dimensional maps or architectural models
- Record materials to audio or audio-visual media
- Require presenters to verbalize information provided through presentations or written during activities
- Provide electronic copies that participants may open on personal equipment
- Structure seating to provide visibility for participants who lip-read
- Mount microphones at wheelchair height
- Require facilitators to provide hand-held microphones to participants
- Provide amplification systems
- Provide sign language interpreters
- Display spoken information as printed words through technology (computer assisted reading technology, known as CART)
- Present meetings through video- or teleconferencing, to allow offsite participation

Accommodate People with Limited English Proficiency (LEP):

Individuals with limited English proficiency ("LEP") and for whom English is not their primary language may have difficulty participating in key decisions. Accordingly, the Council will take reasonable steps to help ensure LEP persons have meaningful access to key transportation planning decisions and have opportunities to become involved in Council transportation planning processes.

Public Notices

The Council informs stakeholders about its public participation meetings and opportunities, as well as involvement milestones and outcomes. The Council's Public Affairs Department publishes public comment opportunities at the Council's ADA-compliant website (www.metrocouncil.org), in the *State Register*, and in designated newspapers, as well as on the Council's official calendar. As a rule, the Council releases information about regional participation opportunities through both popular and specialized media outlets that serve people with disabilities and limited English proficiencies.

Vital public information documents written in English, including meeting notices, will include statements that the Council will reasonably accommodate people with disabilities or limited English proficiency.

The Council provides legal notices, beginning 30 to 45 days prior to public hearings, to inform members of the general public and other stakeholders about opportunities to provide formal public comments. Each notice provides, at a minimum, the following information:

- Name of activity/type of participation event
- Sponsoring organization
- Subject of meeting
- Action to be taken and by whom
- Day, date, time and location of meeting
- Brief summary of the proposed action or plan and geographic scope
- Start and end dates for public comments
- Where to obtain copies of the plan or materials, and how to provide formal comments
- A designated contact for more information (name, telephone, email, TTY)
- Offer to provide accommodations for people with limited English proficiency (published in the native languages for identified subject threshold groups)
- Offer to provide accommodations for people who are disabled

Council design standards require program staff to consult with members of the Public Affairs design staff or Metro Transit marketing group to assure consistent use of Council identity elements, design features and typography before publishing display advertisements. *(This requirement does not apply to classified-style legal notices placed through the Data Center.)*

Public Comments:

The Council values the efforts stakeholders make to participate in its regional decisions. To inform participants how their ideas, comments and suggestions influence key regional decisions, the Council considers summaries of public comments at regular business meetings. The Council's designated project managers prepare and present the summaries following each major initiative or project participation process, and provide copies to the Public Affairs Department for publication on the Council's ADA-compliant website and distribution through the Data Center.

The Council's public comment summaries identify:

- the Council activity for which comments were solicited
- the matters on which public input was sought
- a description of the public participation methods used
- a general description of groups that participated (categorized by factors such as interest, demographic sub-group, or agency affiliation)
- public comments categorized by major themes
- how public comment influenced the outcome or recommendation that resulted from the process, and why any consistent themes are not reflected in proposed Council actions.

Scheduling Public Meetings:

The Council provides a variety of opportunities for face-to-face and interactive public participation at ADA-accessible venues. Council public participation activities may range from highly structured public hearings to informal special events, and may incorporate online forums or surveys. The Council's Public Affairs staff provides consultation for planning, organizing and publicizing public meetings, and can assist division staff with presentation coaching or meeting evaluation.

Whenever reasonably possible, the Council holds its public meetings at times and places convenient to its stakeholders. To encourage optimal participation, the Council may consider:

- Locations easily accessed by transit riders and Metro Mobility clients
- Holding meetings in different areas of the region
- Holding meetings at nontraditional locations such as schools, religious facilities or cultural centers
- Partnering with community or service organizations to promote/host participation events
- Holding meetings outside of traditional business hours

- Holding multiple meetings on different days of the week and/or at different times of the day
- Avoiding potential conflicts with participation opportunities hosted by other units of government in the region

Information Documents

The Council distributes policy documents and data sets that provide stakeholders and the general public with pertinent information about the planning and decision process. The Council provides copies of its draft and adopted policy and plan documents for public review at its Data Center, library and ADA-compliant website. Single copies of most Council documents are free. A nominal fee may be collected to recover costs on select items.

In response to an informal request for information, any Council staff member may distribute published Council documents or direct the requester to the Public Affairs Department.

Data Practices

Documents, data and information at the Metropolitan Council, unless specifically excepted, are a matter of public record under Minnesota Statutes Chapter 1. Staff must respond in a timely manner to any request for information from a member of the public. If a staff member receives a request for information under the Minnesota Government Data Practices Act, the request should be referred to the Data Practices Official, at 651-602-1387, in accordance with the Council's Data Practices Procedure.

Advisory Bodies

The Council's advisory bodies provide key opportunities for stakeholder participation. They allow members, representing a cross-section of key stakeholder groups in the region, to help shape regional transportation plans and policies. The Council appoints members of the general public, local elected officials, professionals with technical knowledge and experience, or representatives of statute-identified groups, according to the responsibilities of particular advisory bodies. Advisory bodies may conduct studies, recommend action to the Council's standing committees, and/or provide expert advice.

1. Transportation Advisory Board (TAB): Advises the Council on transportation matters involving the regional highway, public transit and airport systems; helps the Council, Mn/DOT, counties and cities carry out transportation planning and programming for the region as designated in state and federal laws; participates in drafting the *Transportation Policy Plan* (TPP), and reviews and adopts the region's three-year Transportation Improvement Program (TIP). Its 33 members include 10 municipal elected officials; seven county commissioners; four state and regional agency representatives (Mn/DOT, Minnesota Pollution Control Agency (MPCA), Metropolitan Airports Commission – (MAC), Metropolitan Council); eight citizen representatives; and four transportation mode representatives (one represents freight provid-

ers, two represent transit providers, and one represents nonmotorized transportation users of bicycle and pedestrian facilities).

2. Transportation Accessibility Advisory Committee (TAAC): The TAAC advises the Metropolitan Council on short- and long-range management plans and policies for special transportation services. Composed of transit riders and advocates for the disability community, it includes 2 Senior Federation representatives, 2 from the Minnesota Consortium for Citizens with Disabilities, and 1 American Association of Retired Persons (AARP) representative.

3. Transportation Technical Advisory Committee (TAC): provides expert advice about plans and programs to the TAB. It includes staff from the Council including Metro Transit; representatives from Transit Opt-Out providers; Mn/DOT; MAC; the MPCA; the FHWA; the seven counties; the cities of Minneapolis and St. Paul; and 8 representatives from the Association of Metropolitan Municipalities (AMM). Members of the TAC may also serve on one or more subcommittees. One subset, the Funding and Programming subcommittee, includes representatives from the state Department of Natural Resources (DNR) and state Bicycle Advisory Committee.

4. Transit Providers Advisory Committee (TPAC): Advises the Council on issues related to contracted transit services and reviews and participates in the Council's referral process for the TPP and TIP. Its members represent transportation providers, including private transportation providers.

Local Government Participation

In addition to involving local governments in regional transportation planning processes through its advisory bodies, the Council actively seeks participation by local governments informally and early in its decision-making process. Council and staff members obtain input from local governments through a variety of venues, several of which are integral to the Council's land use planning and other statutory obligations.

1. Face-to-Face Meetings and Interviews: Council members and staff may participate in professional networks or meet with their peers and other agency contacts to discuss regional policy and program issues, as well as day-to-day services and community issues, concerns and needs.

2. Discussion, Educational and Outreach Meetings: The Council may customize forums, workshops, focus groups and other participation processes to encourage participations by representatives from local governments.

3. Local Government Meetings: Council members and staff may attend city, county or township meetings to inform local officials about Council activities, listen to local concerns, or solicit participation in public activities.

4. Review Process: The Council's departments use a formal review process to comment on updates and amendments to local comprehensive plans, Environmental Assessment Worksheets, Envi-

ronmental Impact Statements, and Surface Transportation Referrals. Its departments consult about activities that interact, guiding and coordinating implementation of transportation and other regional facilities with local and regional land use plans, in accordance with the Council's regional development guide and metropolitan system plans.

5. Staff Assistance: To assist local governments with land use, facilities and service planning related to regional issues and Council activities, the Council provides designated staff experts and periodic technical assistance opportunities to local governments. Council Sector Representatives act as first contacts for assigned communities and meet regularly with local officials and staff members. Staff assistance develops relationships with local governments throughout the region, enhancing the Council's ability to identify and address local issues in its regional decisions.

Council Tools and Resources

Formal Public Meetings

The Council accepts testimony from stakeholders and the general public in multiple formats, including testimony, postal mail, email, voice mail, fax, and on forms provided for written or website comments. Guidelines for the content of accessible notices soliciting formal public comments are included under "Public Notices."

- **Business and Committee Meetings** – are always open to the public as required by Minnesota's Open Meeting Law and allow the Council's stakeholders to provide public comments and observe the way it conducts its business. Business and committee meetings are listed in the Council's master calendar, posted online and publicized through Metro Meetings. They typically are held at Council headquarters, located at 390 Robert Street North, St. Paul, MN 55101. The building is ADA-compliant and accessible via several major transit routes.
- **Public Hearings** – provide formal public input on issues and business of regional interest. In accordance with state law, the Council adds public hearings for matters that do not pertain to Comprehensive Plan Amendment and Updates to its master calendar and publishes, at least 30 days prior to the meeting, paid legal notices in the State Register and local newspapers. The Council may also issue news releases and highlight hearings on its homepage to promote participation at public hearings and meetings.

Education and Outreach Meetings

The Council implements a variety of face-to-face and interactive opportunities to ensure meaningful public participation and promote full understanding of Council initiatives. Education and outreach meetings provide information and may solicit input.

- **Forums** – Including online forums, elicit stakeholders’ and communities’ ideas and perspectives on regional issues, projects and initiatives. Usually held in series, forums are often used to encourage continuous feedback/input. While formal minutes are optional, the Council’s staff or facilitators generally record general or specific content of public comments.
- **Workshops** – Include meetings or series of meetings designed to share knowledge or information, educating the audience on a topic of regional interest or importance. The Council’s workshops provide technical assistance to local communities, help it increase public awareness or promote public involvement. The Council may record public responses or additional questions/concerns for later use by staff or the Council.
- **Special Events** – The Council may develop special events to announce, highlight or kick-off its outreach about an issue, project, initiative or news event. The Council generally publicizes its special events through the media, Council websites or direct mail.
- **Open Houses** – The Council may provide meetings/tours/receptions specific to locations that interest the public, in order to highlight an initiative, project or facility.
- **Conferences** – Provide opportunities for the Council to enhance its regional reputation for leadership and innovation by providing professional education, participating in policy discussions and forums, or networking with stakeholders who are interested in similar issues or technically skilled in areas of Council business.
- **Focus Groups** – Solicit in-depth information about issues, activities or public perceptions from small groups of stakeholders. Often held in series, focus groups allow the Council to obtain detailed information and responses by asking questions that build upon knowledge discovered during the course of the meetings or prior public interaction. May also be used as a problem-solving vehicle, a specialized focus group also known as a “Charrette”.
- **Key Person Interviews** – Council members or employees may meet individually with designated stakeholder opinion leaders, such as Chamber officials or members, mayors, advisory body members, nonprofit agency representatives, education representatives, religious leaders, business owners or individual constituents potentially impacted by a Council decision.
- **Civic and Community Meetings** – the Council provides updates to City Councils and other elected bodies, and speakers on topics of interest to groups hosting meetings in the region. Council representatives establish relationships host organizations and may attend the organization’s meetings and events.

Interactive/Visualization Techniques:

The Council provides a variety of accessible information resources to help participants understand competing proposals, impacts and possible outcomes related to complex regional transportation

projects and plans. Visualization techniques used to illustrate these issues may include, but are not limited to, one or more of the following materials and practices:

- Aerial photographs, alone or with mapping overlays
- Photo simulations of proposed projects
- Photographs of existing projects comparable to those proposed
- Interactive maps that allow comparison of proposals
- Interactive maps that allow addition/subtraction of proposed elements
- Printed, three-dimensional, or raised print maps, diagrams, or architectural figures
- “Before” and “After” photos, simulations, maps, diagrams or drawings
- Scenario planning exercises

Media Relations: 651-602-1357

The Council’s Public Affairs Department includes staff experienced in news reporting and media relations. It issues news releases, works with reporters to generate stories about Council activities, responds to reporter inquiries, provides briefings, holds press conferences and prepares editorial commentaries. Media activities inform and interest members of the media and public about Council issues, events and opportunities for public participation, maintaining contact with more than 40 broadcast outlets and daily newspapers, 40 weekly newspapers, more than 30 specialty news outlets (serving audiences such as ethnic minority groups, people with disabilities and people over age 65), and 50 neighborhood publications. Staff also produces content for and places the Council Chair’s Annual State of the Region Address, and periodic highlights of regional issues, on local broadcast/cable television.

Websites: www.metrocouncil.org and www.metrotransit.org

The Council’s ADA-compliant websites provide interactive content and static documents, accessed at a rate of more than 200,000 visits per month. The website includes contact information and venues for public comment, and advertises openings on the Council’s advisory bodies. It provides information about the Council’s planning and decision-making processes, as well as copies of its draft and adopted plans and policies, maps, displays, and meeting agendas. The homepage highlights public events, and “Meeting and Events” pages provide calendars of the public hearings, meetings and events held by the Metropolitan Council, the Metropolitan Airports Commission and the Metropolitan Sports Facilities Commission. The Council’s website provides information about federally funded projects, grant opportunities, Council programs and affordable housing. Metro Mobility, the Council’s transportation provider for people with disabilities, provides an online handbook and enrollment form, and the Council’s Metro Transit site provides transit schedules, dynamic trip planning and fare information online.

Data Center: 651-602-1400

Public Comment Line: 651-602-1500

TTY: 651-291-0904

Fax: 651-612-1464

Email data.center@metc.state.mn.us

390 Robert Street North

St. Paul, MN 55101

The Council Data Center publishes official public notices of the Council's hearings and public participation meetings. Data Center staff members respond to 12,000 public contacts annually, including requests for printed documents, inquiries about the status of projects, and public comments received at the data center during the public participation process. The Data Center staff assists at events managed by the Public Affairs Department and maintains several database lists. The Data Center distributes Council documents, notices and newsletters via email, messenger and traditional mail service.

Print materials, electronic publications and presentations

The Council's Public Affairs team includes professional editors, writers and designers who are available to assist program staff developing public participation materials. The Public Affairs Department publishes, periodically updates and distributes an extensive array of fact sheets, policy summaries, brochures, audio-visual materials and topical print and electronic publications. The Council distributes several periodicals to stakeholders and interested parties. At the time of PPP adoption, Council publications included the following titles:

1. ***Metro Meetings*** (electronic and print, based on preference): Sent weekly to 300 subscribers, provides information about meetings and public events held by the Council, its committees and subcommittees, the Metropolitan Airports Commission and the Metropolitan Sports Facilities Commission.
2. ***Directions Newsletter***: Electronic version mailed monthly to 700 subscribers, provides articles to inform the public and stakeholders about current regional planning, program and service issues; promotes public use of best management practices related to Council responsibilities. Print version mailed bi-monthly to 4,000 subscribers, summarizes information provided in the electronic version.
3. ***Metro Digest*** (electronic and print, based on preference): Sent monthly to 300 subscribers, summarizes Council and Commission activities (see Metro Meetings), as well as committee and commission vacancies.

4. **Take Out** (print): Provided for user pickup monthly on all regional buses and trains, discusses meetings and decisions affecting the region's transit system.
5. **Annual Report** (print): Distributed annually by direct mail to 300 subscribers and at the Council's State of the Region event, discusses major Council accomplishments and initiatives.
6. **Metro Mobility Monitor** (print): mailed at least annually to 20,000 clients and stakeholders of the Council's ADA-demand transportation service, discusses policy and service matters affecting its clients.
7. **The Wire** (electronic): distributed to Council members and staff by email, discusses activities and personnel at the agency.
8. **Insights** (print and electronic): distributed to Council members and transit staff, available online to other Council employees; discusses activities and personnel within the transit operations.

Direct Mail/Email Notices

Council departments, as well as its Public Affairs and Transit Marketing staffs, maintain active lists of subscribers and parties interested in the Council's public participation efforts. In addition to its "Meetings and Events" web presence and Metro Meetings bulletins, the Council distributes:

- Formal meeting notices with requests for comments
- Form/personalized letters requesting comments and participation, and
- Form/personalized participation invitations.

Database contacts include members of the media or general public, local officials, citizen activists, interest groups and other stakeholders; materials may be sent electronically or by post.

Library: 651-602-1310

390 Robert Street North
St. Paul, MN 55101

The Council's library and library staff assist members of the Council and its staff, members of the public, and local officials with Council or regional research.

Staff assistance: 651-602-1545

The Council's public outreach coordinator and other members of the Public Affairs staff provide expert assistance with planning, implementing and evaluating a broad range of public participation activities.

D

Appendix D: Functional Classification Criteria

Functional classification involves determining what function each roadway should perform before determining street widths, speed limits, intersection control or other design features. Functional classification ensures that nontransportation factors, such as land use and development, are taken into account in planning and design of streets and highways.

A major purpose of functional classification is to determine which routes should be on the metropolitan highway system. Functional classification is also used to decide which roads to use for transit service. Once function is established, appropriate or desirable design and operational characteristics can be used as further guidelines for implementation.

The criteria of the functional classification system are presented in Tables D-1, D-3 and D-5. Tables D-2, D-4 and D-6 list typical characteristics for roadways. The criteria are intended to be the primary tool for determining the function of a roadway. The characteristics are intended to be guidelines when plans are developed for a given classified route. However, if the guidelines are significantly different for a given highway, they may be used to supplement the criteria in making final decision on the function of that given highway.

The functional classification system consists of four classes of roadways within the seven-county metropolitan area: principal arterials (which include Interstate freeways), minor arterials, collector streets and local streets. The region has defined a sub-set of minor arterials as a means to supplement the Metropolitan highways and to establish priorities in federal funding. The four “A” minor arterial categories are: Expander, Reliever, Connectors and Augmentors. The roadways are the publicly provided elements of a land transportation system.

- Metropolitan Highways
 - Principal Arterials
 - Interstate freeways
 - Other principal arterials
- Other Regionally Important Highways
 - “A” minor arterials
- Local Highways and Roads
 - “B” minor arterials
 - Collector streets
 - Local streets

Principal Arterials

The metropolitan highway system is made up of the principal arterials in the region. Principal arterials include all Interstate freeways. Interstate freeways connect the region with other areas in the state and other states. Principal arterials connect the metro centers to regional business concentrations. The emphasis is on mobility as opposed to land access. They connect only with other Interstate freeways, other principal arterials and select minor arterials and collectors. Principal Arterials provide for the longest trips in the region and express bus service.

Spacing of principal arterials will vary from two to three miles in the fully developed area, to six to 12 miles in the rural area. Where urban level development is planned, spacing of principal arterials or future principal arterials may be 2 to 3 miles. Principal arterials other than interstate freeway provide land access somewhat more frequently than Interstate freeways.

Minor Arterials

The minor arterial system connects the urban service area to cities and towns inside and outside the region. They interconnect the rural growth centers in the region to one another as well as to similar places just outside the region. They provide supplementary connections between the two metro centers and the regional business concentrations. They connect major generators within the central business districts (CBDs) and the regional business concentrations.

The emphasis of minor arterials is on mobility as opposed to access in the urban area; only concentrations of commercial or industrial land uses should have direct access to them. The minor arterial should connect to principal arterials, other minor arterials and collectors. Connection to some local streets is acceptable. Minor arterials should service medium-to-short trips. Both local and limited-stop transit will use minor arterials.

The spacing of minor arterials in the metro centers and regional business concentrations will vary from one-fourth to three-fourths mile. Typically, in the fully developed area, spacing would range from one-half mile to one mile. In the developing area, one-to-two-mile spacing is adequate, but to accommodate urban development in the future, one-half to two mile spacing will be needed. (The region has subdivided minor arterials into two classes for administrative purposes. "A" minor arterials are eligible to compete for federal funding.) The criteria and characteristics of minor arterials apply to all minor arterials. The "A" minor arterials are described below and the characteristics of the four types of "A" minor are given in Table D-7.

Collector Streets

The collector system provides connection between neighborhoods and from neighborhoods to minor business concentrations. It also provides supplementary interconnections of major traffic gen-

erators within the metro centers and regional business concentrations. Mobility and land access are equally important. Direct land access should predominately be to development concentrations. Collector connections are predominately to minor arterials.

Typically, collectors serve short trips of one to four miles. Local transit service uses these streets. Spacing in the metro centers and regional business concentrations may vary between one-eighth to one-half mile. In the fully developed area, collectors are needed one-fourth to three-fourths mile apart. In the developing area, spacing may range from one-half to one mile may service existing development, but one-fourth to three-fourth mile spacing may be required in the future.

Local Streets

Local streets connect blocks and land parcels. The primary emphasis is on land access. In most cases, local streets will connect to other local streets and collectors. In some cases, they will connect to minor arterials. Local streets serve short trips at low speeds. In the urban area, local streets will occur every block. In the rural area, one-mile spacing may be adequate.

Table D-1: Functional Classification System Criteria for Principal Arterials

Criterion	Principal Arterial			
	Freeway		Other Principal Arterial	
	Urban	Rural	Urban	Rural
Place Connections	Interconnect the metro centers and regional business concentrations, important transportation terminals and large institutional facilities within the MUSA (see Figure D-1).	Connect the MUSA with urban areas and major cities in Minnesota and other states.	Interconnect the metro centers and regional business concentrations, important transportation terminals and large institutional facilities within the MUSA.	Connect the MUSA with major cities in Minnesota and other states.
Spacing	Developed Planning Area: 2-3 miles Developing Planning Area: Spacing should vary in relation to density of travelshed development, 2-6 miles.	Rural Planning Area: 6-12 miles. Closer spacing may be required to connect portions of Urban Planning Areas to each other or to Rural Centers.	Developed Planning Area: 2-3 miles. Developing Planning Area: Spacing should vary in relation to density of development, 2-6 miles.	Rural Planning Areas: 6-12 miles. Closer spacing may be required to connect portions of Rural Planning Areas to each other or to Rural Centers.
Management	Maintain at least 40-mph average speed during peak-traffic periods.	Retain ability to meet urban speed objective if and when area urbanizes.	Maintain at least 40-mph average speed during peak- traffic periods.	Retain ability to meet urban speed objective if and when area urbanizes.
System Connections and Access Spacing*	To other Interstate freeways, other principal arterials and selected minor arterials. Connections between principal arterials should be of a design type that does not require vehicles to stop. Access at distances of 1-2 miles.	To other Interstate freeways, principal arterials, selected minor arterials and major collectors. Access at distances of 2-6 miles.	To Interstate freeways, other principal arterials, selected minor arterials and selected collectors. Connections between principal arterials should be of a design type that does not require vehicles to stop. Intersections should be limited to one-half mile with 1-2 miles desired.	To Interstate freeways, other principal arterials, selected minor arterials and selected major collectors. Intersections should be limited to several miles.
Trip-Making Service	Trips greater than 8 miles with at least 5 continuous miles on principal arterials. Express transit trips.		Trips greater than 8 miles with at least 5 continuous miles on principal arterials. Express transit trips.	
Mobility vs. Land Access*	Emphasis is placed on mobility rather than land access. No direct land access should be allowed.	Emphasis is placed on mobility rather than land. No direct land access should be allowed.	Greater emphasis is placed on mobility than on land access. Little or no direct land access within the urban area.	Greater emphasis is placed on mobility than on land access. Little or no direct land access.

*The key objective is stated under "Management" heading in this table.

Table D-2: Functional Classification System Characteristics for Principal Arterials

Characteristics	Principal Arterial			
	Freeway		Other Principal Arterial	
	Urban	Rural	Urban	Rural
System Mileage	Suggested limits for Interstate and other principal arterials at 5-10% of system.	Suggested limits for Interstate and other principal arterials at 2-4% of system.	See "Freeway."	See "Freeway."
Percent of Vehicle Miles Traveled	Suggested limits for Interstate and other principal arterials at 40-65% of system.	Suggested limits for Interstate and other principal arterials at 30-55% of system.	See "Freeway."	See "Freeway."
Intersections	Grade separated.	Grade separated.	Grade separated desirable. At a minimum, high-capacity controlled at-grade intersections.	Grade separated desirable. At a minimum, high-capacity controlled at-grade intersections.
Parking	None.	None.	None.	None.
Large Trucks	No restrictions.	No restrictions.	No restrictions.	No restrictions.
Management Tools	Ramp metering, preferential treatment for transit, interchange spacing.	Interchange spacing.	Ramp metering, preferential treatment for transit, access control, median barriers, traffic signal progression, staging of reconstruction, intersection spacing.	Interchange spacing, access control, intersection spacing.
Vehicles Carried	25,000-200,000	5,000-50,000	15,000-100,000	2,500 - 25,000
Posted Speed Limit	45-55 mph	55-65 mph	40-50 mph	Legal limit
Right-of-Way	300 feet	300 feet	100 - 300 feet	100 - 300 Feet
Transit Accommodations	Priority access and movement for transit in peak periods where needed.	None.	Priority access and movement for transit in peak periods where possible and needed.	None.

Table D-3: Functional Classification System Criteria for Minor Arterials

Criterion	Minor Arterial (“A” or “B”)	
	Urban	Rural
Place Connections	Provide supplementary connections to metro centers and regional business concentrations within the MUSA. Provide interconnection of major traffic generators within the metro centers and regional business concentrations.	Connect the MUSA with cities and towns in Minnesota outside the Twin Cities region. Interconnect rural growth centers inside the Twin Cities region and comparable places near the Twin Cities region.
Spacing	Metro centers and regional business concentrations: 1/4-3/4 mile. Fully developed area: 1/2-1 mile. Developing area: 1-2 miles.	Permanent Rural and Agricultural Areas: As needed, in conjunction with the major collectors, provide adequate interconnection of places identified in “Place Connections” criterion.
System Connections	To most Interstate freeways and other principal arterials, other minor arterials and collectors and some local streets.	To most Interstate freeways and other principal arterials, other minor arterials and collectors, and some local streets.
Trip-Making Service	Medium-to-short trips (2-6 miles depending on development density) at moderate speeds. Longer trips accessing the principal arterial network. Local and limited-stop transit trips.	
Management	Maintain the following minimum average speed during peak-traffic periods: Metro centers and regional business concentrations - 15 mph. Fully developed area - 20 mph. Developing area - 30 mph.	Retain ability to meet urban speed objective if and when area urbanizes.
Mobility vs. Land Access*	Emphasis on mobility rather than on land access. Direct land access within the MUSA restricted to concentrations of commercial/industrial land uses.	Emphasis on mobility rather than on land access.

*The key objective is stated under “Management” heading in this table.

Table D-4: Functional Classification System Characteristics for Minor Arterials

Characteristics	Minor Arterial (“A” or “B”)	
	Urban	Rural
System Mileage	Suggested limits for principal arterials and minor arterials at 15-25% of system.	Suggested limits for principal arterials and minor arterials at 6-12% of system
Percent of Vehicle Miles Traveled	Suggested limits for principal arterials and minor arterials at 65-80% of system.	Suggested limits for principal arterials and minor arterials at 45-75% of system.
Intersections	Traffic signals and cross-street stops.	Cross-street stops.
Parking	Restricted as necessary.	Restricted as necessary.
Large Trucks	Restricted as necessary.	Restricted as necessary.
Management Tools	Traffic signal progression and spacing, land access management/control, preferential treatment for transit.	Land access management/control.
Vehicles Carried Daily	5,000-30,000	1,000-10,000
Posted Speed Limit	35-45 mph	Legal limit
Right-of-Way	60-150 feet	60-150 feet
Transit Accommodations	Preferential treatment where needed.	None.

Table D-5: Functional Classification System Characteristics for Collectors and Local Streets

Criterion	Collector		Local	
	Urban	Rural	Urban	Rural
Place Connections	Interconnect neighborhoods and minor business concentrations within the MUSA. Provide supplementary interconnection of major generators within the metro centers and regional business concentrations.	Provide supplementary interconnection among rural growth centers inside the Twin Cities region and comparable places near the Twin Cities region.	Interconnect blocks within residential neighborhoods and land parcels within commercial/industrial developments.	
Spacing	<p>Metro centers and regional business concentrations: 1/8 - 1/2 mile.</p> <p>Fully developed are: 1/4 - 3/4 mile.</p> <p>Developing area: 1/2 - 1 mile</p>	Permanent Rural and Agricultural Areas: As needed in conjunction with minor arterials, to provide adequate interconnection of places identified in "Place Connections" criterion. In addition, minor collectors should be designated at an average spacing of not less than 4 miles.	As needed to access land uses.	As needed to access land uses.
System Connections	Sometimes to Interstate freeways and other principal arterials. To minor arterials, other collectors and local streets.	To minor arterials, other collectors and local streets.	<p>To a few minor arterials.</p> <p>To collectors and other local streets.</p>	<p>To a few minor arterials.</p> <p>To collectors and local roads.</p>
Trip-Making Service	Short trips (1-4 miles depending on development density) at low-to-moderate speeds. Longer trips accessing the arterial network. Local transit trips.		Short trips (under 2 miles) at low speeds. Longer trips accessing the collector or collector and arterial network.	
Mobility vs. Land Access	Equal emphasis on mobility and land access. Direct land access predominantly to development concentrations.		Emphasis on land access, not on mobility. Direct land access predominantly to residential land uses.	Emphasis on land access, not on mobility. Direct land access predominantly to agricultural land uses.

Table D-6: Functional Classification System Characteristics for Collectors and Local Streets

Criterion	Collector		Local	
	Urban	Rural	Urban	Rural
System Mileage	Suggested federal limitations: 5-10%.	Suggested federal limitations: 20-25%.	Suggested federal limitations: 65-80%.	Suggested federal limitations: 63-75%
Percent of Vehicle Miles Traveled	Suggested federal limitations: 5-10%.	Suggested federal limitations: 20-35%.	Suggested federal limitations: 10-30%.	Suggested federal limitations: 5-20%.
Intersections	Four-way stops and some traffic signals.	Local street traffic should be required to stop.	As required.	As required.
Parking	Restricted as necessary.	Unrestricted.	Permitted as necessary.	Permitted as necessary.
Large Trucks	Restricted as necessary.	Restricted as necessary.	Permitted as necessary.	Permitted as necessary.
Management Tools	Number of lanes, traffic signal timing, land access management.	Land access management.	Intersection control, cul-de-sacs, diverters.	
Vehicles Carried Daily	1,000-15,000	250-2,500	Less than 1,000	Less than 1,000
Posted Speed Limit	30-40 mph	35-45 mph	Maximum 30 mph	Maximum 30 mph
Right-of-Way	60-100 feet	60-100 feet	50-80 feet	50-80 feet
Transit Accommodations	Cross-sections and geometrics designed for use by regular-route buses.	None.	Normally used as bus routes only in nonresidential areas.	None.

Table D-7: Characteristics of “A” Minor Arterials

Characteristics	“A” Minor Arterial Categories			
	Relievers	Augmentors	Expanders	Connectors
Use	Provide direct relief for traffic on Metropolitan Highway Principal Arterials	Augment the PA within the Beltway	Provide connection between developing areas outside the beltway, connect principal arterials	Provide connection between rural town centers in the urban reserve and rural area
Location	Developed and developing areas within the MUSA and 2040 Urban Reserve	Within the I-494 / I-694 Beltway	Outside the I-494 / I-694 Beltway with the 2020 MUSA or 2040 Urban Reserve	In or near the seven county area, one end may be in the urban area
Trip Length	Medium length Trips less than 8 miles	Medium to long trips	Medium to long trips	Medium to long trips
Problem Addressed	Relief of parallel congested Principal Arterials	Serve Principal Arterial function where PAs don't exist	Accommodate added urban development	Improve the safety and directness of routes without continuous lane adds
Existing System	400 miles	200 miles	650 miles	680 miles

**Table D-8: Generalized Summary of Mn/DOT Recommended Public Street Spacing Access
in the Twin Cities Metropolitan Area ***

	Area or Facility Type	Public Street Spacing		Signal Spacing
		Primary Full-Movement Intersection	Secondary Intersection	
Principal Arterials				
in the Twin Cities Metropolitan Area and Primary Regional Trade Centers (Non-IRCs)	Interstate Freeways	Interchange Access Only		None
	Non-Interstate Freeway	Interchange Access Only		None
	Rural	1 mile	1/2 mile	Only at Primary Intersections
	Urban/Urbanizing	1/2 mile	1/4 mile	Only at Primary Intersections
	Urban Core	300-600 feet, dependent upon block length		1/4 mile
Minor Arterials				
	Rural	1/2 mile	1/4 mile	Only at Primary Intersections
	Urban/Urbanizing	1/4 mile	1/8 mile	Only at Primary Intersections
	Urban Core	300-600 feet, dependent upon block length		
Collectors				
	Rural	1/2 mile	1/4 mile	Only at Primary Intersections
	Urban/Urbanizing	1/8 mile	Not Applicable	1/4 mile
	Urban Core	300-600 feet, dependent upon block length		1/8 mile

* This table is intended to provide a summary of Mn/DOT Access Guidance for the Metropolitan Area. This chart does not reflect all the facets of Mn/DOT guidance. Agencies should work with Mn/DOT, the appropriate county highway authority and the local land use authority when planning new or modified access.

Appendix E: Highway Interchange Requests: Evaluation Criteria and Review Procedures

Background

The evaluation criteria and review procedures for highway interchange requests have been established by the Metropolitan Council to meet the objectives of Policy 11.

The Council will work with the Minnesota Department of Transportation and local units of government to ensure the metropolitan highway system and its supporting road system are built and designed to adequately serve travel demand to the extent possible, to provide for the safety of users and to minimize negative impacts on the environment.

The procedures are primarily intended for reviewing requests for either new interchanges on existing metropolitan highways that are controlled-access, freeway-design facilities, or for additional interchange capacity (such as new or wider ramps) on those freeways. However, the basic principles of need, spacing and design are also applicable to those parts of the metropolitan highway system that are not freeways (such as TH 7 and TH 65), and are useful in planning new highways such as TH 610.

These criteria and procedures are based on work originally done in 1979 by a joint committee of the Transportation Advisory Board and the Metropolitan Council. They have been revised and simplified to reflect policy changes, revised state and federal laws and regulations and experience with applying the criteria.

Procedures

The basic premise of these procedures is that the petitioner has the responsibility to prove that new interchange or additional interchange capacity is required. Typically this will require a detailed analysis of existing and forecasted highway access needs. Therefore, informal discussion of interchange requests with Minnesota Department of Transportation and Metropolitan Council staff is encouraged before the applicant initiates a potentially expensive and time-consuming study.

The following steps should be taken to obtain Council approval to add or expand a metropolitan highway interchange:

1. A request for an interchange addition or expansion is made to the Metropolitan Council as a major comprehensive plan amendment. The applicant must respond to each of the criteria shown below. The response to the criteria should be a separate report from the plan, but may include information from the plan by reference.

2. The Metropolitan Council and implementing agency staff (typically, the Minnesota Department of Transportation) jointly evaluate the response to the criteria.

This evaluation process will begin with a review of the proposal for compliance with the first six qualifying criteria. These six criteria must be met before a proposal is examined for compliance with the technical criteria.

3. The results are forwarded to the Technical Advisory Committee of the Transportation Advisory Board for information.
4. As part of the comprehensive plan amendment review process, Council staff will analyze the consistency of the proposed interchange with regional and local plans.
5. If the proposed interchange is consistent with regional plans, and the Council approves the plan amendment, it can become an element in the local unit of government's approved comprehensive plan.
6. The approved request is transmitted to the implementing agency, which considers its inclusion in a study program or implementation program.

Criteria

Qualifying Criteria

1. Additional interchange capacity should be considered only when it supports the Metropolitan Council's *Regional Development Framework* and the *Transportation Policy Plan*, and local comprehensive plans approved by the Metropolitan Council.

Discussion: This is a critical objective. In addition to solving highway capacity deficiencies, new interchanges or major interchange modifications should be consistent with regional plans and regionally approved local plans, and should support development in desirable locations.

2. The need for additional capacity or safety improvements must be demonstrated and documented before new ramps are considered.

Discussion: Subjective arguments alone should not be used to justify interchange design revisions. Volume forecasts and capacity calculations are required to document the need for a design revision. Volume and capacity figures should be consistent with Council-approved land use plans and with the transportation element of those local plans.

3. Metropolitan highway interchanges may connect only to metropolitan highways, minor arterials or collectors as defined in the functional classification system adopted by the Transportation Advisory Board and approved by the Metropolitan Council.

Discussion: The intent of this criterion is to ensure that the metropolitan highways connect to adequate arterials in the local road system. These roads should be continuous and connect to other minor arterials or connectors.

4. New or expanded interchanges are not to be provided if the need for additional capacity is justified only:
 - a. As a convenience for short trips;
 - b. To compensate for lack of an adequate complementary minor arterial or collector system;
 - c. To compensate for deficient minor arterial or frontage road capacity; or
 - d. To correct collector or minor arterial capacity deficiencies caused by poor design or excessive access to adjacent parcels.

Discussion: The purpose of the metropolitan highway system is to serve regional trips, not to replace or substitute for inadequate local access and circulation capacity.

5. When an interchange is to be constructed or expanded, the operational integrity of the mainlines and associated weaving sections must be maintained. The new interchange or related system change must be acceptable in terms of route design and standards as specified by the Minnesota Department of Transportation or the implementing agency, conforming to such factors as basic number of lanes, lane continuity, lane balance, lane drops, continuity of mainline levels of service and other general design criteria.

Discussion: Highway design standards should be maintained to the greatest extent possible. Operational integrity is measured by the forecasted level of service and safety considerations, including freedom or ease of lane changing and vehicle spacing on the through lanes of a freeway or arterial.

6. Generally, interchanges on the metropolitan highway system should be spaced at a minimum of one mile (center to center). If it is determined appropriate to locate an interchange at less than one mile or modify an existing interchange, the safe operation of the main roadway must be maintained.

Discussion: Experience has shown that interchanges spaced less than one mile apart have inadequate weaving distance and require special design features such as auxiliary lanes to maintain safety.

Technical Criteria

Development Criteria

1. An interchange may be warranted when access to new development cannot be adequately or safely served by existing or new minor arterials or by existing ramps at an adjacent interchange.

Discussion: New local development must be provided with good local arterial access before metro-

politan highway system access is considered. Local comprehensive plans should establish the level of development expected (land use element) and the local arterial system (transportation element) proposed to serve the expected development pattern.

2. Interchange additions or revisions to support new development must be subordinate to current, adopted corridor plans for the route.

Discussion: Regional travel demand for the metropolitan highway system will take precedence over local or land parcel development and related access needs. Access needs should be evaluated as part of an overall corridor plan when such plans are done.

3. The proposed ramp configuration may not serve a single development exclusively.

Discussion: Legal as well as policy requirements dictate that a public highway facility may not be designated for the sole benefit of a property owner.

4. Public benefits, as well as estimated costs of the interchange, should be evaluated.

Discussion: Detailed cost-benefit analyses normally are not used for interchange justification because of inadequate estimates of benefits. However, cost data for an interchange proposal should be developed during review and the public benefits summarized, at least subjectively.

5. Local governments and the owners and developers of properties that would benefit from an additional interchange should share the cost of additional construction or right-of-way to the extent that they receive tangible benefits.

Discussion: If the interchange is essential to initiating or expanding a development project, contribution by the benefited individual or group may be warranted through such means as right-of-way dedication, negotiation of damages or construction costs. Emphasis should be placed on tangible benefits.

6. When the implementation of the interchange would require delaying other improvements of regional facilities, an additional contribution toward the interchange project development and construction costs may be required.

Discussion: Such extra contributions would prevent delaying the implementing agency's previously programmed project.

Design Criteria

1. Whenever possible, standard ramp and interchange configurations should be used for design.

Discussion: Standard ramp designs minimize driver indecision, prevent abrupt changes in operating speeds and reduce accident potential.

2. Interchange ramp configuration and design should be based on traffic forecasts developed and adopted by the Metropolitan Council and the Minnesota Department of Transportation.

Discussion: Regional traffic forecasts have been developed jointly by the transportation department and Council staffs. They are based on socioeconomic data developed for the entire region. Local units of government and developers may submit revised forecasts based on more detailed land development plans, but such forecasts must be analyzed and accepted by the transportation department and the Council before they are used to evaluate design changes.

3. Traffic backups resulting from interchange ramp designs must occur on cross streets and frontage roads rather than on the mainlines.

Discussion: If traffic backups at an interchange are unavoidable for short periods, the design should ensure that they occur on the slower-speed, lower-function roadways.

4. Selected collector and minor arterial roadways connecting with the proposed interchange must be adequate for the anticipated volumes on the interchange.

Discussion: An interchange justification must demonstrate that the connecting and other supporting roadways critical to its safe and adequate operation are or will be available at the time the interchange is open to traffic.

5. Ramp configurations must be capable of being signed for safe and expeditious movement prior to construction approval.

Discussion: Signing is a critical element of roadway design, ensuring safe and adequate operations. Signing should be part of the design development, not added after construction is approved.

6. Interchange ramp configuration and design should provide for preferential treatment of transit and rideshare vehicles.

Discussion: Because of the desirability of higher vehicle occupancies, transit incentives such as bypass ramps should be considered in the initial interchange design even if their construction is not immediately warranted.

7. If local cross-street improvements are needed in conjunction with the interchange, their construction must be coordinated with construction of the interchange.

Discussion: Local cross-street improvements necessary for safe and adequate operations should be part of the interchange design, not a prerogative of another jurisdiction after operational problems develop. A common problem is that the cross-street restrictions must be implemented by an agency other than the one designing the higher function route. Since such restrictions may affect the safe operation of the higher function route, the cross-street restrictions must be agreed upon before the higher function route design is committed.

Appendix F: Clean Air Act Conformance

Conformity Documentation of the Metropolitan Council 2008 Transportation Policy Plan to the 1990 Clean Air Act Amendments

July 25, 2008

The United States Environmental Protection Agency's (EPA's) 40 CFR PARTS 51 and 93, referred to together with all applicable amendments as the "Conformity Rule," requires the Metropolitan Council (the Council) to prepare a conformity analysis of the region's *Transportation Policy Plan* (the Plan), as well as the FY 2009-2012 Transportation Improvement Program (TIP). Based on an air quality analysis, the Council must determine whether the transportation plan conforms to the requirements of the 1990 Clean Air Act Amendments (CAAA) with regard to National Ambient Air Quality Standards (NAAQS) for mobile source criteria pollutants. Under consultation procedures developed by the Minnesota Interagency and Transportation Planning Committee, the MPCA reviews the Council's conformity analysis before the plan is approved for public review; a letter describing MPCA's review is on page F-3.

Specifically, the Minneapolis/St. Paul Metropolitan Area is within an EPA-designated carbon monoxide (CO) maintenance area. A map of this area, which for air quality analysis purposes includes the seven-county Metropolitan Council jurisdiction plus Wright County and the City of New Prague, is shown in Exhibit F-1. The term "maintenance" reflects the fact that regional CO emissions were unacceptably high in the 1970s when the NAAQS were introduced, but were subsequently brought under control through a metro-area Vehicle Inspection and Maintenance (VIM) Program completed in the 1990s. The EPA then re-designated the area as in attainment of the NAAQS for CO in 1999 and approved a "maintenance plan" containing a technical rationale and actions designed to keep emissions below a set region-wide budget. This plan has remained the same since 2005, when changes to the emissions rates approved by EPA necessitated an update of the approved CO budget as well. Every long-range Plan or TIP approved by the Council must be analyzed using specific criteria and procedures defined in the Conformity Rule to verify that it does not result in emissions exceeding this current regional CO budget.

A conforming TIP and Plan, satisfying the aforementioned analysis requirement, must be in place in order for any federally funded transportation program or project phase to receive FHWA or FTA approval. This appendix describes the procedures used to analyze the *2008 Transportation Policy Plan* and lists findings and conclusions supporting the Metropolitan Council's determination that this Plan conforms to the requirements of the CAAA.

The analysis described in the appendix has resulted in a Conformity Determination that the projects included in the 2008 Transportation Policy Plan meet all relevant regional emissions analysis and budget tests as described herein. The 2008 Transportation Policy Plan conforms to the relevant sections of the Federal Conformity Rule and to the applicable sections of Minnesota State Implementation Plan for air quality.

Contents

Minnesota Pollution Control Agency – Letter of Review	3
I. Conformity of the 2008 Transportation Policy Plan: Findings and Conclusions	4
II. Consultation Procedures	6
III. Description of Emissions Analysis Methodology and Assumptions	6
IV. Estimated Future Emissions in the Twin Cities Carbon Monoxide Maintenance Area	17
V. Timely Implementation of Transportation Control Measures	18
VI. Exhibits	22
Exhibit F-1: Carbon Monoxide Maintenance Map	23
Exhibit F-2: Regional Travel Demand Forecasting Model Flow Chart	24
Exhibit F-3: Samples of MOBILE 6.2 Input and Output Files	25
Exhibit F-4: Codes for Projects that do not Impact Regional Emissions	36



August 29, 2008

Ms. Arlene McCarthy
Director
Metropolitan Transportation Services
Metropolitan Council
390 North Robert Street
St. Paul, MN 55101

**Re: Air Quality Conformity Documentation for the Metropolitan Council's
2008 Update of the 2030 Transportation Policy Plan**

Dear Ms. McCarthy:

I have completed my formal review of the above referenced document submitted by the Metropolitan Council (Council) in support of its 2008 update of the 2030 Transportation Policy Plan (Plan). As part of this plan update, the Council prepared a quantitative analysis of CO emissions impact of the all regionally significant projects and submitted it as an "Appendix G Conformity Documentation". I have reviewed the document for conformance with a check list of requirements from the joint Transportation Conformity Rule of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation.

Appendix G analysis shows that daily CO emissions in tons/day for the milestone years of 2009, 2015, 2020, and 2030 are below the regional CO motor vehicle emissions budget revised by the MPCA in 2005 even if all the regionally significant project listed in the plan are built. Based on this information, the MPCA has determined that the projects included in the 2008 Plan update meet all relevant regional emissions analysis and budget tests as presented in the document. Therefore, the 2008 Plan update conforms to the relevant sections of the federal transportation conformity rule and to the applicable sections of the Minnesota State Implementation Plan for Air Quality.

I appreciate the opportunity given to review this document as part of the EPA Transportation Conformity rule consultation process, and the great work done by the Council's staff to make this possible. I also appreciate the cooperation of the interagency consultation group that includes the Council, Minnesota Department of Transportation, EPA, and Federal Highway Administration, in their immediate assistance in resolving all the policy and technical issues with respect to the Plan's air quality conformity determination.

Ms. Arlene McCarthy
August 29, 2008
Page 2

Please contact me by any of the ways listed below if you have any questions.

Sincerely,

Innocent E. Eyoh

Innocent E. Eyoh
Principal Transportation Planner

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I. Conformity of the 2008 Transportation Policy Plan: Findings and Conclusions

A quantitative analysis of CO emissions impact of the regionally significant projects listed in the Plan was prepared. The analysis included the projects listed in Tables F-1 through F-4 . The analysis shows that daily CO emissions in tons/day for the milestone years of 2009, 2015, 2020 and 2030 are below the regional CO motor vehicle emissions budget, which was revised in 2005 (see Table F-7). This analysis meets the following Conformity Rule requirements:

- **Inter-agency consultation** (§93.105, §93.112). The Minnesota Pollution Control Agency (MPCA), Minnesota Department of Transportation (Mn/DOT), Environmental protection Agency (EPA), and Federal Highway Administration (FHWA) were consulted during the preparation of the Plan and its conformity review and documentation. The “Transportation Conformity Procedures for Minnesota” handbook provides guidelines for agreed-upon roles and responsibilities and inter-agency consultation procedures in the conformity process.
- **Regionally significant and exempt projects** (§93.126, §93.127). The quantitative analysis includes all known federal and nonfederal regionally significant projects as defined in §93.101 of the Conformity Rule. Exempt projects not included in the regional air quality analysis were identified by the inter-agency consultation group and classified in accordance with §93.126 of the Conformity Rule.
- **Donut areas** (§93.105(c)(2)). No regionally significant projects are planned or programmed for the City of New Prague. The air quality analysis of CO emissions for Wright County is prepared by the Council as part of an intergovernmental agreement with the County, MN/DOT and the Council. Four regionally significant projects were identified for Wright County to be built within the analyses period of the Plan and are included in the air quality analysis. The projects are in the maintenance area, but are outside of the Metropolitan Council’s seven-county planning jurisdiction.
- **Latest planning assumptions** (§93.110). The Council is required by Minnesota statute to prepare regional population and employment forecasts for the Twin Cities Seven-County Metropolitan Area. The published source of socioeconomic data for this region is the Metropolitan Council’s 2030 Regional Development Framework. This planning document provides the Council with socio-economic data (planning assumptions) needed to develop long range forecasts of regional highway and transit facilities needs. The latest update to these forecasts was published January 9, 2008; this latest version was used in the *2008 Transportation Policy Plan* air quality analysis (see Table F-5).
- **Horizon years; Motor vehicle emissions budget** (§93.118). The motor vehicle emissions budget test was prepared for the following horizon years: 2009, 2015, 2020 and 2030.

The first year of this set is the year for which the current conformity budget was established in the August 2004 “Revision of the Minneapolis-St. Paul Carbon Monoxide Maintenance Plan” approved by EPA, and is also ten years after the approval of the previous Maintenance Plan. The last year of this set is the last year of this plan. No two horizon years within the 2008-2030 forecast period are more than ten years apart.

- **Network-based travel model** (§93.122 per §93.118). In accordance with past practices, the Regional Travel Demand Forecast Model (RTDFM) was used to develop forecasts of travel on the region’s roadway system based upon the planning assumptions referred to above. Factors were developed to reconcile and calibrate network-based estimates of VMT to Highway Performance Monitoring System (HPMS) estimates of vehicle-miles-traveled for 2000, the validation base year. These factors were then applied to model estimates of future VMT.
- **Latest emissions model** (§93.111). The latest emissions model approved by EPA, MOBILE 6.2, was used to estimate regional emissions based upon the VMT estimates output by the RTDFM described above. CO emissions were calculated in a manner consistent with the methodology presented in the August 2004 “Revision of the Minneapolis-St. Paul Carbon Monoxide Maintenance Plan” documentation. Example emissions model output files were reviewed by MPCA as part of the inter-agency consultation process.

Other conformity requirements have been addressed as follows:

- The Plan was prepared in accordance with the *Public Participation Plan for Transportation Planning*, adopted by the Council on February 14, 2007. This process satisfies SAFETEA-LU requirements for public involvement, in addition to the public consultation procedures requirement of Conformity Rule §93.105.
- The Plan addresses the fiscal constraint requirements of the SAFETEA-LU metropolitan planning rule 23 CFR part 450, §450.324 and §93.108 of the Conformity Rule. Chapter 2 of the Plan documents the consistency of proposed transportation investments with already available and projected sources of revenue.
- The Council has reviewed the Plan and certifies that the Plan does not conflict with the implementation of the SIP, and conforms to the requirement to implement the Transportation System Management Strategies which are the adopted Transportation Control Measures (TCMs) for the region. All of the adopted TCMs have been implemented.
- The Plan includes the 2009-2012 Transportation Improvement Program projects. Moreover, any TIP projects that are not specifically listed in the Plan are consistent with the policies and purposes of the Plan and will not interfere with other projects specifically included in the Plan.
- There are no projects which have received NEPA approval and have not progressed within three years.

- Although a small portion of the Twin Cities Metropolitan Area is a maintenance area for PM-10, the designation is due to non-transportation sources, and therefore is not analyzed herein.

II. Consultation Procedures

A. Public Involvement Process

The Council remains committed to a proactive public involvement process used in the development and adoption of the plan as required by the Council's Public Participation Plan for Transportation Planning. The Public Participation Plan is in Appendix C of the *2030 Transportation Policy Plan* and complies with the public involvement process as defined in 23 CFR 450.316 and the SAFETEA-LU requirements of Title 23 USC 134(i)(5), as well as the most current revisions to the Conformity Rule.

In addition to the Public Participation Plan, the Council continues to develop, refine and test public involvement tools and techniques as part of extensive ongoing public involvement activities that provide information, timely notices and full public access to key decisions and supports early and continuing involvement to the development of plans and programs. For example, open houses, comment mail-in cards, emails, letters, internet bulletin board, voice messages and notices on its web site are used to attract participation at the open houses, disburse informational materials and solicit public comments on transportation plans.

B. Interagency Consultation Process

An interagency consultation process was used to develop the *Transportation Policy Plan*. Consultation continues throughout the public comment period to respond to comments and concerns raised by the public and agencies prior to final adoption by the Council. The Council, MPCA and Mn/DOT confer on the application of the latest air quality emission models, the review and selection of projects exempted from a conformity air quality analysis, and regionally significant projects that must be included in the conformity analysis of the plan. An interagency conformity work group provides a forum for interagency consultation. The work group has representatives from the Council, MPCA, Mn/DOT, EPA and FHWA. An interagency meeting was held on July 15, 2008 to consult during the preparation of the plan document. Ongoing communication occurred along with periodic meetings, draft reports, emails and phone calls.

III. Description of Emissions Analysis Methodology and Assumptions

A. Project Lists and Assumptions

Definition of Regionally Significant and Exempt Projects

Pursuant to the Conformity Rule, the projects listed in the Plan were reviewed and categorized using the following determinations to identify projects that are exempt from a regional air quality analysis, as well

as regionally significant projects to be included in the analysis. The classification process used to identify exempt and regionally significant projects was developed through an interagency consultation process involving the MPCA, EPA, FHWA, the Council and Mn/DOT. Regionally significant projects were selected according to the definition in §93.101 of the Conformity Rules:

Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Junction improvements and upgraded segments less than one mile in length are not normally coded into the Regional Travel Demand Forecast Model (RTDFM), and therefore are not considered to be regionally significant, although they are otherwise not exempt. The exempt air quality classification codes used in the "AQ" column of project tables of the TIP are listed in Exhibit F-4. Projects which are classified as exempt must meet the following requirements:

- The project does not interfere with the implementation of transportation control measures.
- The project is segmented for purposes of funding or construction and received all required environmental approvals from the lead agency under the NEPA requirements including:
 - A determination of categorical exclusion: or
 - A finding of no significant impact: or
 - A final Environmental Impact Statement for which a record of decision has been issued.
- The project is exempt if it falls within one of the categories listed in §93.126 in the Conformity Rule. Projects identified as exempt by their nature do not affect the outcome of the regional emissions analyses and add no substance to the analyses. These projects are determined to be within the four major categories described in the conformity rule.
 - Safety projects that eliminated hazards or improved traffic flows.
 - Mass transit projects that maintained or improved the efficiency of transit operations.
 - Air quality related projects that provided opportunities to use alternative modes of transportation such as ride-sharing, van-pooling, bicycling, and pedestrian facilities.
 - Other projects such as environmental reviews, engineering, land acquisition and highway beautification.

2009-2012 Transportation Improvement Program Projects

The inter-agency consultation group, reviewed the list of projects to be completed by the 2009-2012 TIP timeframe, including the following:

- In-place regionally significant highway or transit facilities, services, and activities;
- Projects selected through the Council's Regional Solicitation process;
- Major Projects from Mn/DOT's ten-year work program; and
- Regionally significant projects (regardless of funding sources) which are currently:
 - under construction, or;
 - undergoing right-of-way acquisition, or;
 - have completed the NEPA process.

Each project was assigned to a horizon year (2009 or 2015) and categorized in terms of potential regional significance and air quality analysis exemption as per §93.126 and §93.127 of the Conformity Rule, using the codes listed in this Appendix. The resulting list of regionally significant projects for 2009 is shown in Table F-1.

2030 Transportation Policy Plan

The inter-agency consultation group also reviewed projects to be completed before 2030 but not within the 2009-2012 TIP timeframe, including the project types listed above, as well as regionally significant planned projects in the *Transportation Policy Plan* and other regionally significant projects, regardless of funding source. Each project was assigned to a horizon year (2015, 2020, or 2030) and categorized in terms of potential regional significance and air quality analysis exemption as per §93.126 and §93.127 of the Conformity Rule, using the codes listed in this Appendix. The resulting list of regionally significant projects for 2015, 2020 and 2030 is shown in Tables F-2 through F-5.

Wright County and City of New Prague Projects

A significant portion of Wright County and the City of New Prague are included in the Twin Cities CO maintenance area established in October 1999. However, since neither the county nor the cities are part of the Seven County Metropolitan Area, Wright County and New Prague projects were not coded into the Seven-County regional transportation model. However, Wright County and New Prague projects are evaluated for air quality analysis purposes, and the emissions associated with the regionally significant projects identified are added to the Seven-County region's emissions total. No regionally significant projects are currently planned or programmed for the City of New Prague during the time period of this plan. Six Wright County projects were considered in the regional air quality analysis:

- TH 23 from TH 95 E. of St. Cloud to TH 25 in Foley; 2 to 4 lane expansion (2015)

- TH 25 from TH 55 in Buffalo to beginning 4-lane in Monticello; 2 to 4 lane expansion (2015)
- I-94; construct new interchange at Orchard Rd and at Naber Ave (2015)
- New river crossing south of Clearwater (2020)
- TH 55 from Annandale to Rockford; construct to four lanes (2030)
- I-94 from Rogers to Monticello; construct to six lanes (2030), construct new interchange at Kadler Ave

Table F-1: Regionally Significant TIP Projects - 2009 Action Scenario

Route	Description	Agency	MN/DOT Project Number/Comments
CSAH 8	ON CSAH 8 FROM TH 61 IN HUGO TO WASH/ANOKA CO LINE & ON ANOKA CSAH 14 FROM CO LINE TO I-35E IN LINO LAKES - RECONSTRUCT TO 4-LANE ROADWAY, PARK/RIDE	WASHINGTON COUNTY	82-608-07
TH 12	CO RD 6 TO WAYZATA BLVD - RECONSTRUCT TH 12 WITH INTERCHANGES AT COUNTY ROAD 6 AND AT WAYZATA BLVD.	MN/DOT	2713-83
CSAH 13	ON RADIO DR (CSAH 13) FROM SOUTH OF PIONEER DR/AFTON RD. TO SOUTH OF BAILY RD(CSAH 18) - RECONSTRUCT FROM 2-LANE RURAL RDWY TO 4-LANE DIVIDED RDWY WITH SEPARATED PED/BIKE PATH	WASHINGTON COUNTY	82-813-22
CSAH 25	ON CENTURY AVE(CSAH 25) IN FROM WOODBINE AVE TO VALLEY CREEK RD(CASH 16) IN WOODBURY-RECONSTRUCT 2-LANE TO 4-LANE RDWY, PED/BIKE PATH SIGNALS,ETC.	WASHINGTON COUNTY	82-625-02
CR 28	TH 149 IN EAGAN TO CSAH 63 IN INVER GROVE HEIGHTS - CONSTRUCT 4-LANE ROADWAY	DAKOTA COUNTY	19-596-03
CSAH 42	ON CSAH 42 FROM CSAH 5 IN BURNSVILLE TO GLENDALE RD IN SAVAGE-RECONSTRUCTION, LANE ADDITION, ACCESS MANAGEMENT, ETC.	DAKOTA COUNTY	19-642-42
CSAH 60	CSAH 60 & CSAH 21 FROM KENYON AVE IN LAKEVILLE TO E OF THE CREDIT RIVER IN SCOTT CO - RECONSTRUCT TO 4-LN RDWY	DAKOTA COUNTY	19-660-05
TH 61	VICINITY OF ST PAUL PARK - RECONSTRUCT, INTERCHANGE, FR RDS, BRS	MN/DOT	8205-100 ; Part of Wakota Bridge project
CSAH 61	NORTH OF BREN RD TO SOUTH OF CSAH 3 - RECONSTRUCT TO 4-LANE ROADWAY	HENNEPIN COUNTY	27-661-34
CSAH 70	ON CSAH 70 FROM 0.6 MILE WEST OF I-35 TO 0.4 MILE OF I-35 IN LAKEVILLE -RECONSTRUCT INTERCHANGE AT I-35, CSAH 70 TO 4-LANE DIVIDED RDWY, BIKE TRAILS, FRONTAGE RDS, ETC	DAKOTA COUNTY	19-670-08
CSAH 78	S OF TH 242 IN COON RAPIDS TO N OF CSAH 116 IN ANDOVER - RECONSTRUCT TO 4 LANES, SIGNALS	ANOKA COUNTY	02-678-16

Table F-1: Regionally Significant TIP Projects - 2009 Action Scenario

Route	Description	Agency	MN/DOT Project Number/Comments
CSAH 101	TH 7 TO CSAH 5 IN MINNETONKA - RECONSTRUCT TO 4-LANE ROADWAY	HENNEPIN COUNTY	27-701-10
CSAH 116	ON BUNKER LAKE BLVD.(CSAH 116) FROM TH 65 TO RADISSON RD & ON RADISSON RD (CSAH 52) FROM BUNKER LAKE BLVD TO CASH 14 IN HAM LAKE AND BLAINE- RECONSTRUCT SEGMENTS FROM 2-LANE RURAL TO 4-LANE DIVIDED RDWY, TRAIL, ETC	ANOKA COUNTY	02-652-0
TH 149	FROM WESCOTT RD TO TH 55 IN EAGAN- RECONSTRUCT FROM EXISTING 2-LANE UNDIVIDED TO 4-LANE DIVIDED HWY. PED/BIKE PATH, TRAFFIC SIGNAL, ETC.	EAGAN	178-010-02, 178-010-02L
TH 169	S OF CSAH 81 TO N OF CSAH 109 IN BROOKLYN PARK - CONSTRUCT INTERCHANGE, BR, PARK/RIDE	MN/DOT	2750-57
TH 212	CSAH 4 IN HENNEPIN CO TO CR 147 IN CARVER CO - CONSTRUCT NEW FREEWAY	Mn/DOT	-
I- 35E/I-694	WEST OF JCT. WITH I-694 TO EAST OF JCT WITH 1-694, GRADING, SURFACING, BRIDGES,WEAVE CORRECTION, ADD 3RD LANE	MN/DOT	6280-317, 6280-304 "Unweave the weave"
I- 35W	66TH ST TO 42nd ST. - GRADING, SURFACING, BRIDGE AND HOV LANE AND ON TH 62 FROM XERXES AVE. TO PORTLAND AVE. - RECONSTRUCT, HOV LANES	MN/DOT	2782-281, Cross-town
I-35W	NEW MISSISSIPPI RIVER CROSSING	MN/DOT	
I-35W	HOT LANE 46TH ST TO I-94	MN/DOT	UPA
I- 494	TH 212 TO TH 55, GRADING, SURFACING, ADD 3RD LANE EACH DIRECTION	Mn/DOT	2785-304
I- 494	WAKOTA BRIDGE FROM TH 61 TO TH 56 - REPLACE BRIDGE AND ADD LANE IN EACH DIRECTION	MN/DOT	Wakota Bridge
TH 610	REALIGN CSAH 81 IN THE VICINITY OF TH 610 - GRADING,SURFACING ,BRIDGE	MN/DOT	2771-31
TH 610	AT ZACHARY LANE - CONSTRUCT OVERPASSES, PARK/RIDE	MN/DOT	2771-32
CITY	ON 4TH AVE FROM 20TH ST TO 2ND ST-RECONSTRUCTION & CONST ENG	NEWPORT	98-080-14, Part of Wakota Bridge project
CITY	ON 7TH AVE IN SAINT PAUL PARK - RECONSTRUCT	MN/DOT	184-108-01, Part of Wakota Bridge project
CSAH 61	BREN ROAD TO CSAH 3 - RECONSTRUCT TO 4-LANES	HENNEPIN COUNTY	
CSAH 23	147TH ST TO 160TH ST - CONSTRUCTION OF 6-LANE FACILITY, INTERSECTION UPGRADES TO ACCOMMODATE BRT BUSES ON CEDAR AVENUE	DAKOTA COUNTY	
CSAH 30	CSAH 101 TO DUNKIRK LANE - RECONSTRUCT TO 4-LANE DIVIDED ROADWAY	MAPLE GROVE	
CSAH 81	CSAH 81 REALIGNMENT SOUTH OF INTERSECTION WITH I-94 EASTBOUND RAMPS	ROGERS	
CSAH 18	UPPER 5TH ST N TO 7TH ST S - RECONSTRUCT TO DIVIDED 2-LANE ROADWAY WITH TURN LANES	WASHINGTON COUNTY	

Table F-2: Regionally Significant TIP Projects - 2015 Action Scenario

Route	Description	Agency	MN/DOT Project Number/Comments
TH 25	TH 55 IN MONTICELLO TO I-94 IN BUFFALO, WRIGHT CO. - RECONSTRUCT TO 4 LANES	MN/DOT	8605-44
TH 23	FROM E OF ST. CLOUD TO TH 25 IN FOLEY - 2 TO 4 LANE EXPANSION	MN/DOT	
CSAH 116	SUNFISH LAKE BOULEVARD TO GERMANIUM ST - RECONSTRUCT TO FOUR LANES	ANOKA COUNTY	
CSAH 23	147TH ST TO 160TH ST - CONSTRUCTION OF 6-LANE FACILITY, INTERSECTION UP-GRADES TO ACCOMMODATE BRT BUSES ON CEDAR AVENUE	DAKOTA COUNTY	
CSAH 109	MAIN ST TO JEFFERSON HWY - CONSTRUCT 4-LANE DIVIDED ROAD	HENNEPIN COUNTY	
CSAH 17	CSAH 14 (MAIN ST) TO CSAH 116 (BUNKER LAKE BLVD) - RECONSTRUCTION TO SIX-LANE ROADWAY IN BLAINE AND FOUR-LANE ROADWAY IN HAM LAKE	ANOKA COUNTY	
CSAH 2	19TH ST SW TO 12TH ST SW AND THE I-35 INTERCHANGE - RECONSTRUCTION	WASHINGTON COUNTY	
CSAH 21	CSAH 16 TO CSAH 18 - RECONSTRUCTION	SCOTT COUNTY	
CSAH 81	TH 100 TO CSAH 10 - RECONSTRUCT TO 6-LANE URBAN DIVIDED ROADWAY	HENNEPIN COUNTY	
TH 242	THRUSH ST TO CRANE ST - RECONSTRUCT TO 4-LANE DIVIDED ROADWAY, INTERSECTION IMPROVEMENTS AND ACCESS MANAGEMENT	ANOKA COUNTY	
CSAH 21	FROM CSAH 42 IN PRIOR LAKE TO CSAH 15 IN SHAKOPEE	SCOTT COUNTY	
CSAH 96	AT TH 10 IN ARDEN HILLS-CONSTRUCT INTERCHANGE, ETC.	RAMSEY COUNTY	
TH 101	I-94 WB OFF RAMP TO N OF S DIAMOND LAKE RD-EXTEND RAMP & GRADE SEPARATION OVER S DIAMOND LAKE RD. ETC.	ROGERS	
TH 7	AT LOUISIANA AVE IN ST. LOUIS PARK- CONSTRUCT INTERCHANGE ETC.	ST. LOUIS PARK	
CSAH 10	FROM VICKSBURG LANE TO CSAH 101 IN MAPLE GROVE-RECONSTRUCT TO 4-LANE DIVIDED ROADWAY, TRAILS, ETC.	MAPLE GROVE	
CSAH 116	FROM CSAH 7 TO 38TH AVE IN ANOKA & ANDOVER-RECONSTRUCT TO 4-LANE DIVIDED RDWY, PED/BIKE TRAIL, ETC.	ANOKA COUNTY	
CSAH 81	N OF CSAH 10 IN CRYSTAL TO N OF 63RD AVE N IN BROOKLYN PARK-RECONSTRUCT TO 6-LANE DIVIDED RDWY, ETC.	HENNEPIN COUNTY	
TH 169	S OF CSAH 81 TO N OF CSAH 109 IN BROOKLYN PARK, CONSTRUCT INTERCHANGE	MN/DOT	2750-57UGAC
I-494	FROM 10TH ST IN OAKDALE TO LAKE RD IN WOOBURY- REPLACE CONCRETE PAVEMENT, CONNECT AUXILIARY LANES, ETC.	MN/DOT	8285-93
TH 13	FROM ZINRAN AVE S TO LOUISIANA AVE S IN SAVAGE-RECONSTRUCT TH 13/101 INCLUDING AN OVERPASS FOR EB 101 TRAFFIC, ETC	SCOTT COUNTY	
TH 36	AT HILTON TRAIL IN PINE SPRINTS-RECONSTRUCT INTERSECTION	MN/DOT	8204-55

Table F-3: Regionally Significant TIP Projects - 2020 Action Scenario			
Route	Description	Agency	Mn/DOT Project Numbers / Comments
TH 61	REPLACE MISSISSIPPI RIVER BRIDGE AND APPROACHES	Mn/DOT	1913-64
TH 52	REPLACE LAFAYETTE BRIDGE	Mn/DOT	6244-30
I-35E	REPLACE CAYUGA BRIDGE	Mn/DOT	6280-308

Table F-4: Regionally Significant TIP Projects - 2030 Action Scenario			
Route	Description	Agency	Mn/DOT Project Numbers / Comments
	NO REGIONALLY SIGNIFICANT PROJECTS IDENTIFIED		

B. Travel Forecasting Model Overview

The following provides a summary of the traffic forecast models used in the air quality analysis. Detailed technical information on the models is found in technical memorandums developed as part of the 2000 Travel Behavior Inventory. The information is available through the Council's web site or the Metropolitan Transportation Services Division.

The RTDFM is broadly based upon the classical "four-step" family of travel demand models, with some added features that implement Conformity Rule analysis requirements. Exhibit F-2 illustrates the flow of the sub-models used in the RTDFM; these are described in further detail below. All sub-models were calibrated using of the 2000 Travel Behavior Inventory Home Interview Survey, which provides a database of observed daily trips by origin, destination, purpose, and mode.

Highway Model Network

Travel analysis zones (TAZ's) are used in the travel demand modeling process as a common geographic unit for data summary. The system of TAZ's covers the entire seven-county Twin Cities Metropolitan Area, plus the adjoining collar counties. All home-interview data and selected other trip and socioeconomic data were compiled by TAZ. In addition, the TAZ system forms the geographic framework for coding highway and transit networks. Each TAZ is linked to all others by the highway network, and within the region's core, most are linked to one another by the transit network as well. The most significant application of the TAZ is as the geographic unit used by the models to predict attractions and productions of person-trips.

The year 2000 zone system consists of 1201 zones within the 7-county region (Anoka, Dakota, Carver, Hennepin, Ramsey, Scott, and Washington), 35 "inner" external station zones around these 7 counties, 364 zones in the 13 collar or ring counties (Chisago, Isanti, Mille Lacs, Sherburne, Wright,

McLeod, Sibley, LeSueur, Rice, Goodhue, Pierce, WI; St. Croix, WI; and Polk, WI) and 32 zones representing “outer” external stations around the ring counties. Internal zone boundaries most often lie along major highways or arterial streets or on any other significant physical boundary that shapes and directs trip movements, such as a large lake or major river. County boundaries also form edges of zones where appropriate. An external station is a point at the edge of the twenty-county area where vehicle trips leave and/or enter the twenty-county area.

The development of the 2000 highway network was completed by the Council with assistance from Mn/DOT and the transportation departments of counties and cities. Future year projects were added to this base to create future year networks including roadway condition information for all horizon years. Every TAZ is classified by area type (e.g. Rural, Developing, Developed, Residential Core, Business Core and Outlying Business Center), and every roadway link is assigned the same area type as the TAZ within which it lies (using GIS). These area types are then combined with facility types to create a matrix of assumed speeds and capacities based upon the 2000 Travel Behavior Inventory (TBI) highway speed and capacity survey. Facility types are categories of roads which operate in a similar manner, including the following:

- | | | |
|----------------------|-----------------------|---------------------------|
| 1. Metered Freeway | 6. Undivided Arterial | 13. Metered System Ramp |
| 2. Unmetered Freeway | 7. Collector | 14. Unmetered System Ramp |
| 3. Metered Ramp | 8. HOV | 15. Expressway |
| 4. Unmetered Ramp | 9. Centroid Connector | |
| 5. Divided Arterial | 10. HOV Ramp | |

A revision completed in December 2005 added two new fields to the highway network. One of these is used to assign differential capacities by time of day to HOV facilities on I-394 and I-35W, while the other is used to store manually coded default speeds for freeways, which are set at 10% above observed posted speed limits.

Trip Generation Model

The traffic forecasts used to calculate the CO emissions listed in Table F-7 are based on the most recent socioeconomic data prepared by the Council for the 2030 Regional Framework. The Trip Generation Model produces total trip productions and attractions by purpose for each transportation analysis zone based on the population, number of households, employment level and socio-economic characteristics of each zone, including estimated auto ownership. Table F-5 lists the assumed population, household, and employment totals by year for the seven-county metro area, based upon the 2030 Regional Development Framework, revised March 15, 2007.

Table F-5: METROPOLITAN AREA FORECAST SUMMARY

	1990	2000	2015	2020	2030
Population	2,288,729	2,642,062	3,169,500	3,334,000	3,608,000
Households	875,504	1,021,459	1,280,000	1,362,000	1,492,00
Employment	1,272,773	1,563,245	1,903,000	1,990,000	2,124,000

Destination Choice Model

The Destination Choice Model (also known as the trip distribution model) estimates the probability of selecting a particular destination zone, given a particular zone of origin, as defined by the regional network and zone system. This sub-model estimates the number of person-trips to be anticipated between any two zones in the regional model on an average weekday, regardless of mode.

The probability of selecting any particular destination zone is a decreasing function of the composite impedance to said zone, calculated using a “logsum” combination of level of service and cost variables extracted from the congested highway and transit networks, computed in a manner consistent with the mode choice model described below.

Mode Choice Model

The Mode Choice Model applies a hierarchical nested logit model to estimate the percentage of trips by purpose assigned to non-motorized (bicycle/pedestrian), transit, single-occupancy vehicle (SOV) and high-occupancy vehicle (HOV) travel modes. For a given trip and market segment, weighting factors are applied to level of service and cost values extracted from the congested highway and transit networks to compute an overall “utility” associated with each alternative mode available. The difference between these utilities is used to calculate the probability of selecting each alternative mode, using a mathematical formulation that ensures that the probabilities of all alternatives add to one. Different parameters are used for off-peak and peak trips by purpose, including home-based work, home-base other and non-home-based trips (the last of these being further sub-divided into work-related and non-work related trip types). Home-based trips destined to the University of Minnesota are dealt with separately, in a special combination destination/mode choice model.

Diurnal Factoring Model

The Diurnal Factoring Model (also known as the Temporal Distribution Model) splits the daily trip tables into 24 time segments to replicate the peak and off-peak period travel shares observed in the 2000 TBI. This permits the network to be reasonably sensitive to peak and off-peak travel congestion as required by §93.122 of the Conformity Rule.

Assignment Model

The Assignment Model assigns vehicle trips to capacity restrained equilibrium shortest paths built from the individual links of the highway system. Initially, all speeds are set to free-flow (uncongested) values, and all trips are assigned to the shortest path between their respective origins and destinations. Then, the speeds on each link are reduced to reflect the effects of congestion, and the set of shortest paths is re-calculated based upon the congested travel times. A percentage of the trips are assigned to these congested paths, and the process is repeated iteratively until user equilibrium is reached. Congested speeds are a decreasing function of the volume-to-capacity ratio, so that the final congested

travel time is influenced by utilization levels as well as distances and posted speeds. The delay function used to adjust link speeds is based upon a conical function calibrated using 2000 Travel Behavior Inventory Highway Speed Survey data, rather than the default Bureau of Public Roads equation.

The I-394 MnPASS lanes, which opened in May 2005, are also taken into account in the highway assignment step of the regional travel demand model by using dynamic toll tables (provided by Mn/DOT) and the estimated sample distribution of I-394 corridor drivers' willingness to pay for time savings (derived from a research study by the University of Minnesota). This route diversion approach is common throughout the traffic and revenue forecasting industry. It is assumed that these lanes will continue operation into the future, and that the current relationship between congestion levels and toll rates reflected in the aforementioned dynamic toll tables will remain the same in real terms through 2030. The same approach is followed for modeling the dynamic shoulder lanes on I-35W.

External Travel Model

A parallel four-step process is performed for the counties surrounding the seven-county Metro to address the effects of improvements within the Council jurisdiction area on travel crossing the seven-county boundary. This process includes simplified trip generation, distribution, and mode choice steps, as well as an external station choice step which determines which roadways crossing the boundary are used by externally-based vehicle trips. The external travel model is not intended to address the effects of improvements outside the seven-county area on vehicle travel in the "collar" counties. A separate "Collar County Travel Demand Model" has been created for this purpose by Mn/DOT and is under evaluation for potential air quality analysis use in the Wright County portion of the CO maintenance area. No network-based modeling was used to analyze the impacts of Wright County projects.

Method of Successive Averages Model Loop

In accordance with §93.122 of the Conformity Rule, which specifies that, "zone-to-zone travel impedances used to distribute trips between origin and destination pairs must be in reasonable agreement with the travel times that are estimated from final assigned traffic volumes," the Regional Travel Demand Forecast Model includes a feedback loop which extracts congested level of service and cost values from the assignment step and inputs these to prior steps. The entire model is run iteratively and volumes from each iteration are averaged together until input and output travel times are in reasonable agreement with one another. Typically 3-4 model iterations are required to reach the assumed 2% link volume convergence criterion; the feedback loop and convergence check process is automated using a batch file.

C. Air Quality Modeling

The MOBILE 6.2 model is used to produce carbon monoxide emission factors from mobile sources for the region. Sample input and output files for MOBILE 6.2 are in Exhibit F-3. Daily mobile source CO air pollution was calculated based on emission factors from MOBILE 6.2 (in grams per vehicle mile), applied to vehicle miles of travel (VMT) aggregated by county and road facility type. The model also

Table F-6: MOBILE 6.2 INPUT VALUES

The EPA-MOBILE 6.2 model produced the vehicular CO emissions for the inventory using the following input values:

Passenger/light vehicle Registration.....	2004, 7-county area
Heavy Duty Trucks	MOBILE 6 Default
Gasoline volatility	13.4 RVP
Minimum temperature.....	16 degrees F.
Maximum temperature.....	38 degrees F.
Altitude	low altitude

accounts for travel on centroid connectors (which serve as proxies for local roads), as well as intra-zonal travel. Adjustment factors were implemented to ensure consistency with 2000 Highway Performance Measures System (HPMS) data and to adjust for the use of January CO rates. Further information on the recalculation of the regional Motor Vehicle Emissions Budget (MVEB) shown in Table F-7 is in the *Revision of the Minneapolis-St. Paul Carbon Monoxide Maintenance Plan* prepared in August 2004 by Sonoma Technology, Inc. for the MPCA. The revised maintenance plan was submitted to the USEPA by the MPCA in October 2004 to revise the SIP.

The series of models currently used are not capable of analyzing individual travel demand management strategies. This type of analysis must be performed “off-model” by applying CO reduction estimate techniques developed to analyze the benefits of CMAQ-type projects.

Table F-6 lists the input values applied by the MOBILE 6.2 model.

D. Conformity Emissions Budget Test

The conformity test as defined in §93.118 requires that the CO emissions calculated in the conformity analysis for the plan and the TIP must be equal to or less than the CO MVEB for the region, 1,961 short tons/day. The budget is assumed to remain constant throughout the 25-year planning period of the plan.

The Action Scenario as described in the Conformity Rules §93.119(g) and referenced in §93.122(a)(5), is the future transportation system that would result from the implementation of the plan and other regionally significant projects to start construction in the time frame of the plan.

The results of the emissions budget conformity test for the plan are shown in Table F-1. CO emissions from motor vehicle sources remain below the MVEB for the analysis milestone years 2009, 2015, 2020 and 2030. The emissions can be reasonably expected to remain below the emissions budget for the following reasons:

1. Continued improvement in auto emissions controls systems and the ongoing implementation of an oxygenated gasoline program as reflected in the modeling assumptions used in the January 2005 amendment to the SIP.
2. A regional commitment to continue capital investments to maintain and improve the operational efficiencies of the highway and transit systems

Adoption of a regional long-term 2030 Regional Development Framework. The Development Framework strategies support land use patterns that efficiently connect housing, jobs, retail centers and civil uses with neighborhoods, urban and rural centers and transit oriented development along transit corridors. A land use development pattern is expected to

emerge that is more compact, mixed-use and pedestrian-friendly particularly along designated transitway corridors. Further, the Council has the authority by state statute to periodically review local comprehensive plans for consistency with regional plans and conformity to regional systems such as transportation and sewers, make capital investments for the regional sewer collection and treatment system and the metropolitan transit system which it operates, and approve design and capital investments on principal arterials. These capital investments are programmed to implement the regional land use and system plans. Also by statute, the Council must approve significant regional highways proposed for construction by Mn/DOT. A memorandum of understanding between the Council and Mn/DOT commits both agencies to pursuing innovative strategies for reducing passenger delay and growth in vehicle-miles-traveled such as congestion pricing.

4. Extensive CO air quality emissions modeling by the MPCA, accepted by the EPA as part of the documentation for the redesignation request, demonstrated that the National Ambient Air Quality standards can be met without the operation of a regional vehicle inspection maintenance program.

5. The continued involvement of local governmental units in the regional 3C transportation planning process allows the region to address local congestion, effectively manage available capacities in the transportation system, and promote transit supportive land uses and more compact development patterns as part of a coordinated regional growth management strategy.

The model results in a decrease in CO emissions from 2015 to 2020 and then an increase from 2020 to 2030. This is because reductions in the rate of CO emissions have been decreasing at a faster pace than vehicle-miles traveled (VMT) has been increasing in the region, such that overall CO emissions have been declining. This trend should continue between 2015 and 2020, but will reverse between 2020 and 2030 as the degree of improvement in CO emissions rates is expected to level off while VMT will continue to increase.

An attainment area for PM-10 is located in the City of St. Paul. The attainment designation is based on an USEPA approved MPCA plan to bring this area into attainment. The previous non-attainment designation was not due to transportation sources.

IV. Estimated Future Emissions in the Twin Cities Carbon Monoxide Maintenance Area

The USEPA, in response to a MPCA request, redesignated the Twin Cities seven-county Metropolitan Area and Wright County as in attainment for CO in October 1999. A 1996 motor vehicle emissions budget (MVEB) was revised in January 2005 in a revision to the SIP. The SIP amendment revised the MVEB budget to a not-to-exceed threshold of 1,961 tons per day of CO emissions for the analysis milestone years of 2009, 2015, 2020 and 2030. The results of the emissions analysis is shown in Table F-7.

V. Timely Implementation of Transportation Control Measures

Pursuant to the Conformity Rule, the Council reviewed the plan and certifies that the plan conforms with the SIP and does not conflict with its implementation. All Transportation System Management (TSM) strategies which were the adopted TCM's for the region have been implemented or are ongoing and funded. There are no TSM projects remaining to be completed. There are no fully adopted regulatory

new TCM's nor fully funded non-regulatory TCM's that will be implemented during the programming period of the TIP. There are no prior TCM's that were adopted since November 15, 1990, nor any prior TCM's that have been amended since that date.

As part of the Urban Partnership Agreement (UPA), additional transit lanes will be added to Marquette and 2nd Ave in Minneapolis, and transit capacity in the I-35W corridor will be enhanced through dynamic priced shoulder lanes.

A list of officially adopted TCM's for the region may be found in the November 27, 1979 Federal Register notice for EPA approval of the Minneapolis-St. Paul CO Maintenance Plan, based upon the 1980 Air Quality Control

Plan for Transportation, which in turn cites transit strategies in the 1978-1983 Transportation Systems Management Plan. It is anticipated that the Transportation Air Quality Control Plan will be revised in the near future. The following lists the summary and status of the currently adopted TCM's:

- **Vehicle Inspection and Maintenance Program** (listed in Transportation Control Plan as a potential strategy for hydrocarbon control with CO benefits). This program became operational in July 1991 and was terminated in December 1999.
- **I-35W Bus/Metered Freeway Project.** Metered freeway access locations have bus and carpool bypass lanes at strategic intersections on I-35W. In March, 2002 a revised metering program became operational. The *2030 Transportation Policy Plan* calls for the implementation of Bus Rapid Transit in the I-35W corridor. As part of the Urban Partnership Agreement (UPA), additional transit lanes will be added to Marquette and 2nd Ave in Minneapolis, and transit capacity in the I-35W corridor will be enhanced through dynamic priced shoulder lanes.
- **Traffic Management Improvements** (multiple; includes SIP amendments):
 - *Minneapolis Computerized Traffic Management System.* The Minneapolis system is installed. New hardware and software installation were completed in 1992. The system has been significantly extended since 1995 using CMAQ funding. Traffic signal improvements will be made to downtown street system to provide daily enhanced preferred treatment for bus and LRT transit vehicles in 2009.

Table F-7: CO EMISSION BUDGET CONFORMITY TEST PLAN ACTION SCENARIOS DAILY CO EMISSIONS FOR ANALYSIS MILESTONE

YEARS 2009, 2015, 2020, 2030 (Short Tons/day)

NETWORK	2009	2015	2020	2030
BASELINE EMISSIONS BUDGET (MVEB)	1,961	1,961	1,961	1,961
ACTION (BUILD) SCENARIO	1,408	1,210	1,161	1,199
CO EMISSIONS BELOW THE EMISSIONS BUDGET	553	751	800	762

- *St. Paul Computerized Traffic Management System.* St. Paul system completed in 1991.
 - *University and Snelling Avenues, St. Paul.* Improvements were completed in 1990 and became fully operational in 1991.
- **Fringe Parking Programs.** Minneapolis and St. Paul are implementing ongoing programs for fringe parking and incentives to encourage carpooling through their respective downtown traffic management organizations. These programs include the 3rd Ave. distributor in Minneapolis and parking messaging signage in both downtowns.
- **Stricter Enforcement of Traffic Ordinances.** Ongoing enforcement of parking idling and other traffic ordinances is being aggressively pursued by Minneapolis and St. Paul.
- **Public Transit Strategies** (from the 1983 Transportation Systems Management Plan):
 - *Reduced Transit Fares.* Current transit fares include discounts for off-peak and intra-CBD travel and are below 1978 levels in real terms. Reduced fares are also offered to seniors, youth, and medicare holders.
 - *Transit Downtown Fare Zone.* All transit passengers can ride either the Minneapolis or Saint Paul fare zones for 50 cents.
 - *Community-Centered Transit.* The Council is authorized by legislation to enter into and administer financial assistance agreements with local transit providers in the metropolitan region, including community-based dial-a-ride systems. This program is used to provide funding assistance to local agencies operating circulation service coordinated with regular route transit service.
 - *Flexible Transit.* Routes 755 and 756 in Medicine Lake were operated on a flex-route in 2006 by First Student, a private provider. Also, Metro Mobility, a service of the Council, as well as the dial-a-ride services mentioned above, operates with flexible routes catered to riders' special needs.
 - *Total Commuter Service.* The non-CBD employee commuter vanpool matching services provided by this demonstration project, mentioned in the 1983 Transportation Systems Management Plan as well as the Transportation Control Plan, are now offered in an expanded form by Metro Transit Rideshare and the Van-Go! program, both services of the Council
 - *Elderly and Handicapped Service.* ADA Paratransit Service is available for people who are unable or have extreme difficulty using regular route transit service because of a disability or health condition. ADA Paratransit Service provides "first-door-through-first-door" transportation in 89 communities throughout the metropolitan area for persons who are ADA-certified. The region's ADA paratransit service is provided by four programs, namely

Metro Mobility, Anoka County Traveler, DARTS, and H.S.I. (serving Washington County). In addition, every regular-route bus has a wheelchair lift, and drivers are trained to help customers use the lift and secure their wheelchairs safely. Hiawatha Line trains offer step-free boarding, and are equipped with designated sections for customers using wheelchairs. In addition, all station platforms are fully accessible.

- *Responsiveness in Routing and Scheduling.* Metro Transit has begun a series of Transit Redesign “sector studies” to reconfigure service to better meet the range of needs based on these identified transit market areas. The Sector 1 and 2 studies, covering the northeast quadrant of the region, were the first to be completed. Following the successful reorganization of transit service in those areas, the Central-South Sector (5) and a portion of Sector 3 in the western suburbs were implemented. The Sector 8 (Northwest Minneapolis and suburbs) bus-route restructuring plan is currently being completed.
- *CBD Parking Shuttles.* The downtown fare zones mentioned above provide fast, low-cost, convenient service to and from parking locations around the CBD. The Access Minneapolis plan currently under development also includes a proposal to provide free shuttle service on the bus-only Nicollet Mall in downtown Minneapolis.
- *Simplified Fare Collection.* The fare zone system in place at the time of the Transportation Systems Management Plan has since been eliminated. Instead, a simplified fare structure based upon time (peak vs. off-peak) and type (local vs. express) of service has been implemented, with discounts for select patrons (e.g. elderly, youth). Convenient electronic fare passes are also available from Metro Transit, improving ease of fare collection and offering bulk-savings for multi-ride tickets.
- *Bus Shelters.* Metro Transit coordinates bus shelter construction and maintenance throughout the region. Shelter types include standard covered wind barrier structures as well as lit and heated transit centers at major transfer points and light-rail stations.
- *Rider Information.* Rider information services have been greatly improved since the 1983 Transportation Systems Management Plan was created. Schedules and maps have been redesigned for improved clarity and readability, and are now available for download on Metro Transit’s web-site, which also offers a custom trip planner application to help riders choose the combination of routes that best serves their needs. Bus arrival and departure times are posted in all shelters, along with the phone number of the TransitLine automated schedule information hotline.
- *Transit Marketing.* Metro Commuter Services, under the direction of Metro Transit, coordinates all transit and rideshare marketing activities for the region, including five Transportation Management Organizations (TMOs) that actively promote

alternatives to driving alone through employer outreach, commuter fairs, and other programs. Metro Commuter Services also conducts an annual Commuter Challenge, which is a contest encouraging commuters to pledge to travel by other means than driving alone.

- *Cost Accounting and Performance-Based Funding.* Key criteria in the aforementioned Transit Redesign process include service efficiency (subsidy per passenger) and service effectiveness (passengers per revenue-hour). Metro Transit uses these metrics to evaluate route cost-effectiveness and performance and determine which routes are kept, re-tuned, or eliminated.
- *“Real-Time” Monitoring of Bus Operations.* The regional Transit Operations Center permits centralized monitoring and control of all vehicles in the transit system.
- *Park-and-Ride.* The Park-and-Ride Facility Site Location Study provides guidelines intended for use in planning, designing, and evaluating proposed park-and-ride facilities served by regular route bus transit. The guidelines can also be used for park-and-ride lots without bus service and at rail stations. The Metropolitan Council administers capital funding to transit operating agencies building, operating, and maintaining park-and-ride facilities.
- **Hennepin and First Avenue One-Way Pair.** These streets in downtown Minneapolis were re-configured subsequent to the 1980 Air Quality Control Plan for Transportation to address a local CO hot-spot issue that has since been resolved. The Access Minneapolis plan includes a proposal to revert to a two-way configuration in the future; this proposal will be evaluated as part of a separate SIP revision process and as such will be the subject of further inter-agency consultation.

The above list includes two TCM's that are traffic flow amendments to the SIP. The MPCA added them to the SIP since its original adoption. These include in St. Paul, a CO Traffic Management System at the Snelling and University Avenue. While not control measures, the MPCA added two additional revisions to the SIP which reduce CO: a vehicle emissions inspection/maintenance program, implemented in 1991, to correct the region-wide carbon monoxide problem, and a federally mandated four-month oxygenated gasoline program implemented in November 1992. In December 1999 the vehicle emissions inspection/maintenance program was eliminated.

The MPCA requested that the USEPA add a third revision to the SIP, a contingency measure consisting of a year-round oxygenated gasoline program if the CO standards were violated after 1995. The USEPA approved the proposal. Because of current state law which remains in effect, the Twin Cities area has a state mandate year-round program that started in 1995. The program will remain regardless of any USEPA rulemaking.

VI. Exhibits

This section contains the exhibits referenced in this appendix.

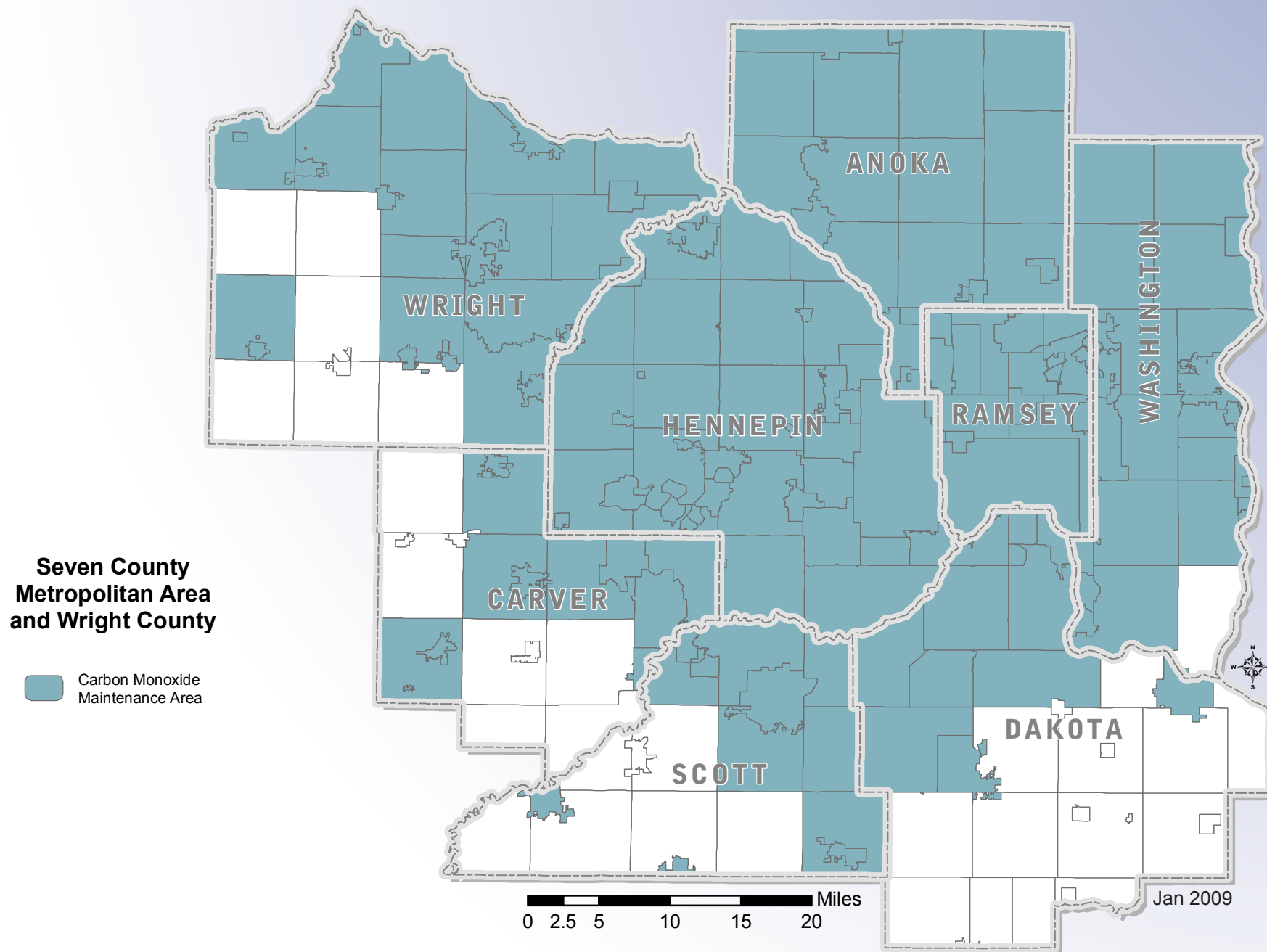
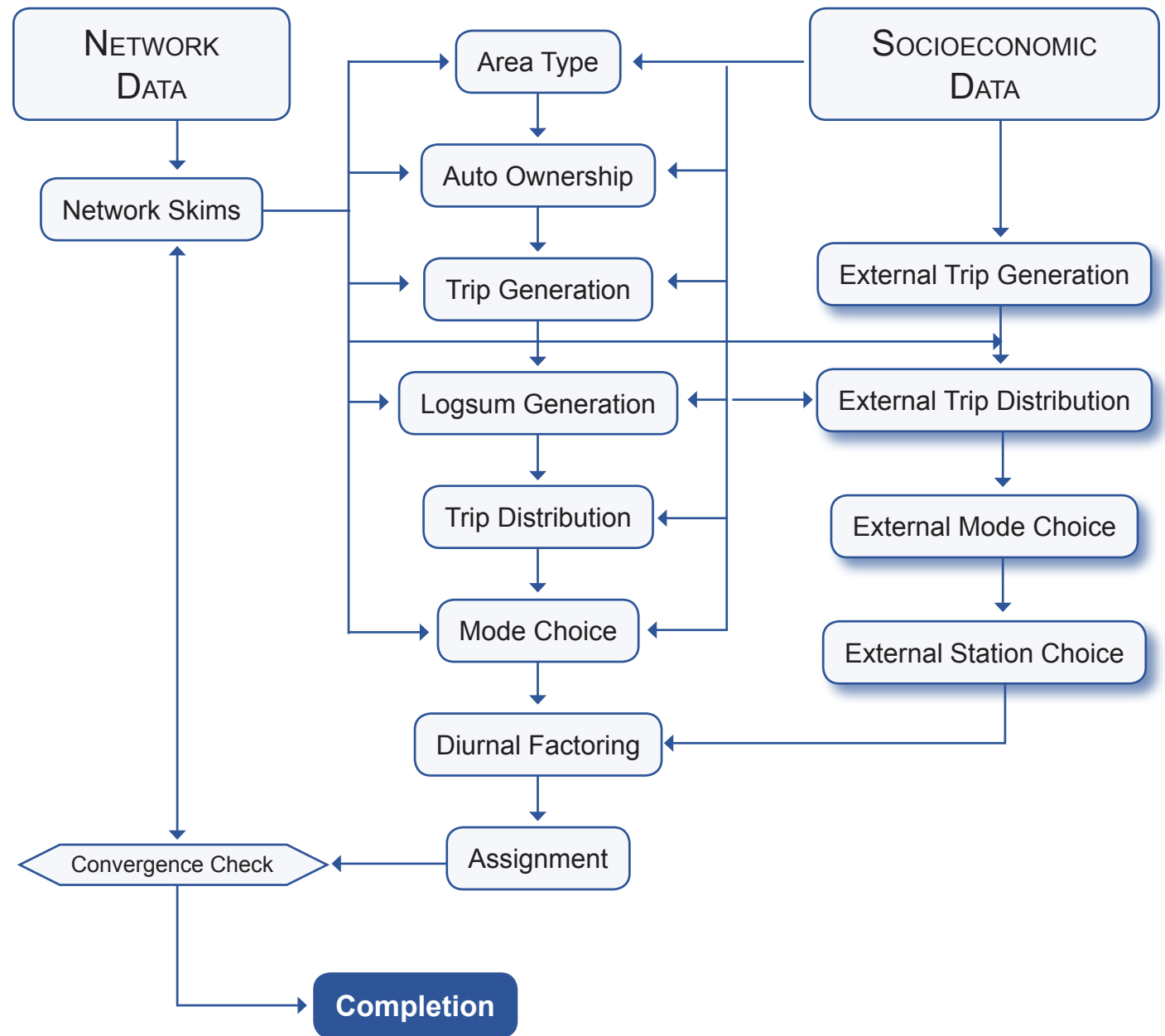


Exhibit F-2: Regional Travel Demand Forecasting Model Flow Chart



F

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDVV	LDVT	HDVV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2928	0.4227	0.1590		0.0345	0.0003	0.0024	0.0832	0.0050	1.0000
<hr/>										
Composite Emission Factors (g/mi):										
Composite CO :	17.19	15.92	17.45	16.34	9.15	0.665	0.375	0.707	20.28	15.017

```

* # # # # #
* Anoka arterial/collector - 35.3 mph
* File 1, Run 1, Scenario 2.
* # # # # #
M583 Warning:
  The user supplied arterial average speed of 35.3
  will be used for all hours of the day. 100% of VMT
  has been assigned to the arterial/collector roadway
  type for all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 14.64 13.34 14.54 13.67 6.35 0.630 0.354 0.642 10.57 12.566
-----

* # # # # #
* Carver arterial/collector - 43.0 mph
* File 1, Run 1, Scenario 3.
* # # # # #
M583 Warning:
  The user supplied arterial average speed of 43.0
  will be used for all hours of the day. 100% of VMT
  has been assigned to the arterial/collector roadway
  type for all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 15.31 14.02 15.31 14.37 5.83 0.590 0.329 0.567 9.39 13.141
-----

```

```

* #####
* Dakota freeway - 67.7 mph
* File 1, Run 1, Scenario 4.
* #####
M 96 Warning:
    67.7      speed reduced to 65 mph maximum
M581 Warning:
    The user supplied freeway average speed of 65.0
    will be used for all hours of the day. 100% of VMT
    has been assigned to the freeway roadway type for
    all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:           <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    17.19   15.92   17.45   16.34    9.15    0.665   0.375   0.707   20.28   15.017
-----

* #####
* Dakota arterial/collector - 38.2 mph
* File 1, Run 1, Scenario 5.
* #####
M583 Warning:
    The user supplied arterial average speed of 38.2
    will be used for all hours of the day. 100% of VMT
    has been assigned to the arterial/collector roadway
    type for all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:           <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    14.90   13.60   14.83   13.94    6.07    0.610   0.342   0.606   10.04   12.784
-----

```



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* #####
* Hennepin freeway - 67.0 mph
* File 1, Run 1, Scenario 6.
* #####
M 96 Warning:
    67.0      speed reduced to 65 mph maximum
M581 Warning:
    The user supplied freeway average speed of 65.0
    will be used for all hours of the day. 100% of VMT
    has been assigned to the freeway roadway type for
    all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:          <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    17.19   15.92   17.45   16.34    9.15    0.665   0.375   0.707   20.28   15.017
-----

* #####
* Hennepin arterial/collector - 29.9 mph
* File 1, Run 1, Scenario 7.
* #####
M583 Warning:
    The user supplied arterial average speed of 29.9
    will be used for all hours of the day. 100% of VMT
    has been assigned to the arterial/collector roadway
    type for all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:          <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    14.58   13.26   14.45   13.59    7.31    0.687   0.389   0.750   11.94   12.550
-----

```

```

* #####
* Ramsey freeway - 66.4 mph
* File 1, Run 1, Scenario 8.
* #####
M 96 Warning:
    66.4      speed reduced to 65 mph maximum
M581 Warning:
    The user supplied freeway average speed of 65.0
    will be used for all hours of the day. 100% of VMT
    has been assigned to the freeway roadway type for
    all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:           <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    17.19   15.92   17.45   16.34   9.15   0.665   0.375   0.707   20.28   15.017
-----

* #####
* Ramsey arterial/collector - 27.9 mph
* File 1, Run 1, Scenario 9.
* #####
M583 Warning:
    The user supplied arterial average speed of 27.9
    will be used for all hours of the day. 100% of VMT
    has been assigned to the arterial/collector roadway
    type for all hours of the day and all vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

    Vehicle Type:   LDGV   LDGT12   LDGT34   LDGT   HDGV   LDDV   LDDT   HDDV   MC   All Veh
    GVWR:           <6000  >6000   (All)
    -----
VMT Distribution:  0.2928  0.4227  0.1590      0.0345  0.0003  0.0024  0.0832  0.0050  1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :    14.65   13.32   14.52   13.65   7.85   0.717   0.407   0.806   12.56   12.635
-----

```

```

* #####
* Scott freeway - 70.0 mph
* File 1, Run 1, Scenario 10.
* #####
M 96 Warning:
    70.0      speed reduced to 65 mph maximum
M515 Warning:
    The combined freeway and ramp average speed entered
    cannot be greater than 60.7 miles per hour.
    The average speed will be reset to this value.
M582 Warning:
    The user supplied freeway average speed of 60.7
    will be used for all hours of the day. 100% of VMT
    has been assigned to a fixed combination of freeways
    and freeway ramps for all hours of the day and all
    vehicle types.
M 48 Warning:
    there are no sales for vehicle class HDGV8b
M 48 Warning:
    there are no sales for vehicle class LDDT12

    Calendar Year: 2015
    Month: Jan.
    Altitude: Low
    Minimum Temperature: 16.0 (F)
    Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
    Fuel Sulfur Content: 30. ppm

    Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
    Reformulated Gas: No

Ether Blend Market Share: 0.000      Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                     Alcohol Blend RVP Waiver: Yes

    Vehicle Type:      LDGV      LDGT12      LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV      MC      All Veh
    GVWR:              <6000    >6000      (All)
    -----
VMT Distribution:    0.2928    0.4227    0.1590      0.0345    0.0003    0.0024    0.0832    0.0050    1.0000
-----
Composite Emission Factors (g/mi):
Composite CO :      17.29    15.99    17.51    16.40      8.93    0.662    0.373    0.703    19.51    15.072
-----

```

```

* #####
* Scott arterial/collector - 43.0 mph
* File 1, Run 1, Scenario 11.
* #####
M583 Warning:
  The user supplied arterial average speed of 43.0
  will be used for all hours of the day. 100% of VMT
  has been assigned to the arterial/collector roadway
  type for all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 15.31 14.02 15.31 14.37 5.83 0.590 0.329 0.567 9.39 13.141
-----

* #####
* Washington freeway - 71.1 mph
* File 1, Run 1, Scenario 12.
* #####
M 96 Warning:
  71.1 speed reduced to 65 mph maximum
M581 Warning:
  The user supplied freeway average speed of 65.0
  will be used for all hours of the day. 100% of VMT
  has been assigned to the freeway roadway type for
  all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 17.19 15.92 17.45 16.34 9.15 0.665 0.375 0.707 20.28 15.017
-----

```



```

* #####
* Washington arterial/collector - 39.7 mph
* File 1, Run 1, Scenario 13.
* #####
M583 Warning:
  The user supplied arterial average speed of 39.7
  will be used for all hours of the day. 100% of VMT
  has been assigned to the arterial/collector roadway
  type for all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
  Composite CO : 15.02 13.72 14.97 14.06 5.93 0.601 0.336 0.589 9.79 12.884
-----

```

```

* #####
* Wright freeway - 73.9 mph
* File 1, Run 1, Scenario 14.
* #####
M 96 Warning:      73.9      speed reduced to 65 mph maximum
M515 Warning:
The combined freeway and ramp average speed entered
cannot be greater than 60.7 miles per hour.
The average speed will be reset to this value.
M582 Warning:
The user supplied freeway average speed of 60.7
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b
M 48 Warning:
there are no sales for vehicle class LDDT12

Calendar Year: 2015
Month: Jan.
Altitude: Low
Minimum Temperature: 16.0 (F)
Maximum Temperature: 38.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 13.4 psi
Weathered RVP: 13.9 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
GVWR: -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 17.29 15.99 17.51 16.40 8.93 0.662 0.373 0.703 19.51 15.072
-----

```

```

* #####
* Wright arterial/collector - 51.8 mph
* File 1, Run 1, Scenario 15.
* #####
M583 Warning:
  The user supplied arterial average speed of 51.8
  will be used for all hours of the day. 100% of VMT
  has been assigned to the arterial/collector roadway
  type for all hours of the day and all vehicle types.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 16.06 14.78 16.17 15.16 6.18 0.585 0.327 0.559 8.95 13.830
-----

* #####
* All ramps - 34.6 mph
* File 1, Run 1, Scenario 16.
* #####
M586 Warning:
  100% of VMT has been assigned to the freeway ramp
  roadway type for all hours of the day for all
  vehicle types with an average speed of 34.6 mph.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000 Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000 Alcohol Blend Oxygen Content: 0.027
Alcohol Blend RVP Waiver: Yes

  Vehicle Type: LDGV LDGT12 LDGT34 LDGT HDGV LDDV LDDT HDDV MC All Veh
  GVWR: <6000 >6000 (All)
  -----
VMT Distribution: 0.2928 0.4227 0.1590 0.0345 0.0003 0.0024 0.0832 0.0050 1.0000
-----
Composite Emission Factors (g/mi):
Composite CO : 18.51 16.72 18.13 17.10 6.44 0.636 0.357 0.653 10.65 15.702
-----

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```

* #####
* Local road - 12.9 mph
* File 1, Run 1, Scenario 17.
* #####
M585 Warning:
  100% of VMT has been assigned to the local roadway
  type for all hours of the day for all vehicle types
  with an average speed of 12.9 mph.
M 48 Warning:
  there are no sales for vehicle class HDGV8b
M 48 Warning:
  there are no sales for vehicle class LDDT12

  Calendar Year: 2015
    Month: Jan.
    Altitude: Low
  Minimum Temperature: 16.0 (F)
  Maximum Temperature: 38.0 (F)
    Absolute Humidity: 75. grains/lb
    Nominal Fuel RVP: 13.4 psi
    Weathered RVP: 13.9 psi
  Fuel Sulfur Content: 30. ppm

  Exhaust I/M Program: No
    Evap I/M Program: No
    ATP Program: No
  Reformulated Gas: No

Ether Blend Market Share: 0.000    Alcohol Blend Market Share: 1.000
Ether Blend Oxygen Content: 0.000    Alcohol Blend Oxygen Content: 0.027
                                      Alcohol Blend RVP Waiver: Yes

  Vehicle Type:      LDGV    LDGT12    LDGT34    LDGT      HDGV      LDDV      LDDT      HDDV      MC    All Veh
  GVWR:             <6000    >6000    (All)
  -----
VMT Distribution:    0.2928    0.4227    0.1590    0.0345    0.0003    0.0024    0.0832    0.0050    1.0000
-----
Composite Emission Factors (g/mi):
  Composite CO :      14.98    13.64    14.92    13.99    17.38    1.209    0.707    1.725    22.55    13.385
-----

```

Exhibit F-4: Projects that do not Impact Regional Emissions, and Projects that also do not Require Local Carbon Monoxide Impact Analysis

Certain transportation projects eligible for funding under Title 23 U.S.C. or the Urban Mass Transportation Act have no impact on regional emissions. These are “exempt” projects that, because of their nature, will not affect the outcome of any regional emissions analyses and add no substance to those analyses. These projects (as listed in §93.126 of conformity rules) are excluded from the regional emissions analyses required in order to determine conformity of the *Transportation Policy Plan* and TIPs.

Following is a list of “exempt” projects and their corresponding codes used in column “AQ” of the 2009-2012 TIP. The coding system is revised from previous TIPs to be consistent with the coding system for exempt projects in the proposed Minnesota Pollution Control Agency (MPCA) revision to the State Implementation Plan for Air Quality for Transportation Conformity.

Except for projects given an “A” code or a “B” code, the categories listed under Air Quality should be viewed as advisory in nature, and relate to project specific requirements rather than to the TIP air quality conformity requirements. They are intended for project applicants to use in the preparation of any required federal documents. Ultimate responsibility for determining the need for a hot-spot analysis for a project under 40 CFR Pt. 51, Subp. T (The transportation conformity rule) rests with the U.S. Department of Transportation. The Council has provided the categorization as a guide to project applicants of possible conformity requirements, if the applicants decide to pursue federal funding for the project.

SAFETY

Railroad/highway crossing	S-1
Hazard elimination program	S-2
Safer non-federal-aid system roads	S-3
Shoulder improvements	S-4
Increasing sight distance	S-5
Safety improvement program	S-6
Traffic control devices and operating assistance other than signalization projects	S-7
Railroad/highway crossing warning devices	S-8
Guardrails, median barriers, crash cushions	S-9
Pavement resurfacing and/or rehabilitation	S-10
Pavement marking demonstration	S-11

Emergency relief (23 U.S.C. 125)	S-12
Fencing	S-13
Skid treatments	S-14
Safety roadside rest areas	S-15
Adding medians	S-16
Truck climbing lanes outside the urbanized area	S-17
Lighting improvements	S-18
Widening narrow pavements or reconstructing bridges (no additional travel lanes)	S-19
Emergency truck pullovers	S-20
<i>MASS TRANSIT</i>	
Operating assistance to transit agencies	T-1
Purchase of support vehicles	T-2
Rehabilitation of transit vehicles	T-3
Purchase of office, shop, and operating equipment for existing facilities	T-4
Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.)	T-5
Construction or renovation of power, signal, and communications systems	T-6
Construction of small passenger shelters and information kiosks	T-7
Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)	T-8
Rehabilitation or reconstruction of track structures, track and trackbed in existing rights-of-way	T-9
Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet	T-10
Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR 771	T-11

AIR QUALITY

Continuation of ride-sharing and van-pooling promotion activities at current levels

AQ-1

Bicycle and pedestrian facilities

AQ-2

OTHER

Specific activities which do not involve or lead directly to construction, such as:

Planning and technical studies

Grants for training and research programs

Planning activities conducted pursuant to titles 23 and 49 U.S.C.

Federal-aid systems revisions

O-1

Engineering to assess social, economic and environmental effects of the proposed action or alternatives to that action

O-2

Noise attenuation

O-3

Advance land acquisitions (23 CFR 712 or 23 CFR 771)

O-4

Acquisition of scenic easements

O-5

Plantings, landscaping, etc.

O-6

Sign removal

O-7

Directional and informational signs

O-8

Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities)

O-9

Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational, or capacity changes

O-10

Projects Exempt from Regional Emissions Analyses that may Require Further Air Quality Analysis

The local effects of these projects with respect to carbon monoxide concentrations must be considered to determine if a “hot-spot” type of an analysis is required prior to making a project-level conformity determination. These projects may then proceed to the project development process even in the absence of a conforming transportation plan and TIP. A particular action of the type listed below is not exempt from regional emissions analysis if the MPO in consultation with other state agencies MPCA, Mn/DOT, the EPA, and the FHWA (in the case of a highway project) or the FTA (in the case of a transit

project) concur that it has potential regional impacts for any reason.

Channelization projects include left and right turn lanes and continuous left-turn lanes as well as those turn movements that are physically separated. Signalization projects include reconstruction of existing signals as well as installation of new signals. Signal preemption projects are exempt from hotspot analysis. Final determination of which intersections require an intersection analysis by the project applicant rests with the U.S.DOT as part of its conformity determination for an individual project.

Projects Exempt from Regional Emissions Analyses

Intersection channelization projects	E-1
Intersection signalization projects at individual intersections	E-2
Interchange reconfiguration projects	E-3
Changes in vertical and horizontal alignment	E-4
Truck size and weight inspection stations	E-5
Bus terminals and transfer points	E-6

Regionally significant projects

The following codes identify the projects included in the “action” scenarios of the TIP air quality analysis:

Baseline - Year 2000	B-00
Action - Year 2005	A-05
Action - Year 2010	A-10

Non-Classifiable Projects

Certain unique projects cannot be classified as denoted by a “NC.” These projects were evaluated through an interagency consultation process and determined not to fit into any exempt nor intersection-level analysis category, but they are clearly not of a nature which would require inclusion in a regional air quality analysis.

Traffic Signal Synchronization

Traffic signal synchronization projects (Sec. 83.128 of the Conformity Rules, Federal Register, August 15, 1997) may be approved, funded, and implemented without satisfying the requirements of this subpart. However, all subsequent regional emissions analysis required by subparts 93.118 and 93.119 for transportation plans, TIPS, or projects not from a conforming plan and TIP must include such regionally significant traffic signal synchronization projects.

Appendix G: Regional Transit Standards

G

Transit Market Areas

While several factors influence the propensity to use transit, the primary predictors of transit productivity are density of development at the origin and destination of trips. Transit markets in the seven county region are identified using the Transit Market Index, which is calculated using three primary factors: 1) population density, 2) employment density, and 3) transit dependent population. This Transit Market Index measures the potential market for transit services in a given area. Different types and levels of transit services are appropriate for each transit market area.

The Transit Market Index for an area is expressed in relative units of expected transit demand per acre and is calculated as follows:

$$\text{Transit Market Index} = \frac{(\text{Total Population}) + (\text{Total Employment} / 3) + (\text{Population Over 16} - \text{Available Automobiles})}{\text{Acreage of populated land uses} \\ (\text{including industrial, institutional, commercial, and residential uses})}$$

For the purposes of this plan, Transit Market Index is calculated at the Census block group level.

The region has five distinct Transit Market Areas that are determined based on the Transit Market Index for a given location. The Transit Market Area for a location is determined not only based on the Transit Market Index for that location, but also on the Transit Market Index of surrounding areas.

Table G-1: Transit Mark Area Characteristics

Transit Market Area	Transit Market Index
Area I	Transit Market Index above 20.0
Area II	Transit Market Index between 10.0 and 20.0
Area III	Transit Market Index between 5.0 and 10.0
Area IV	Transit Market Index between 1.0 and 5.0
Area V	Transit Market Index below 1.0

Transit Market Area I has the highest density of population, employment, and people who depend on transit. Because of this, Market Area I is able to support intensive transit service.

Transit Market Area II has high to moderately high population and employment densities yielding a market area that is conducive to fixed route transit operations, but not as intensive as in Market Area I.

Transit Market Area III has moderate density and can support a variety of transit services, but at lower intensity than areas I and II. In some cases, general public dial-a-ride services may be appropriate in Market Area III.

Transit Market Area IV has lower concentrations of population and employment. This market can support peak-period express bus services, if a sufficient concentration of commuters likely to use transit

service is located along a corridor. Some areas may have sufficient density for Market Area IV, but may not have sufficient aggregate commuter demand to justify extension or improvement of express service. General public dial-a-ride services are appropriate in Market Area IV.

The low population and employment densities of Transit Market Area V increase the complexity and challenge of matching transit service to transit need. General public dial-a-ride service may be appropriate in Market Area V, but due to very low-intensity land uses, these areas cannot support regular route transit.

In the longer term to meet transit needs in suburban and rural settings, intensification of land use with a minimum ‘critical mass’ of increased intensity is necessary to provide and sustain increased transit service.

Transit Markets/Service Options

The table below identifies transit strategies that appear to be most appropriate for the different transit market areas. The service types presented are general descriptions for each market area; specific implementation of transit services will depend on available resources, specific analysis of transit demand,

complementary and competing services, and other factors. Detailed analysis of specific communities within the metropolitan area may generate additional transit service delivery strategies.

Table G-2: Market Areas - Suggested Service Types	
Transit Market Area	Suggested Service Type
Area I	Primary emphasis on regular route service. Downtown area circulators possible.
Area II	Primary emphasis on regular route service. Crosstown routes and limited stop services are appropriate to link major destinations.
Area III	A mix of regular route and community circulator service complemented by dial-a-ride service in specific cases. Community circulators should tie into regular route regional service at a transfer point.
Area IV	Peak period express service, if potential demand for service is sufficient to support at least three peak-period trips. General public dial-a-ride services are appropriate.
Area V	Primary emphasis on general public dial-a-ride services
ADA Paratransit Services	Paratransit service as determined by state and federal regulation. See ADA section of this appendix for additional details.
Transitways	Transitway service is unique to each transitway corridor, and is determined through detailed planning and study unique to individual transitway corridors.

Transitways

Transitways are unique transportation corridors with specific, detailed planning processes that result in appropriate levels of service for specific corridors. The detailed planning work on transitway corridors leads to unique applications of transit service design standards and specific types of service unique to each corridor.

ADA Paratransit Services

ADA paratransit service is public transportation for certified riders who are unable to use the regular fixed-route bus due to a disability or health condition. In the Twin Cities region, the Metropolitan Council oversees all ADA Paratransit Services. Metro Mobility contracts with ADA Paratransit service providers, who provide customers with “first-door-through-first-door” transportation.

ADA Eligibility

Eligibility is determined using federal guidelines established by the Americans with Disabilities Act (ADA). A person may be eligible for ADA Paratransit Service if any of the following conditions apply:

- He/she is unable to independently navigate the fixed-route transit system because of a health condition or disability (OR)
- He/she is unable to independently board or exit fixed-route vehicles due to a health condition or disability (OR)
- He/she is unable to propel to or from a bus stop within the fixed-route service area due to a health condition or disability.

ADA Service Span and Coverage

The ADA Paratransit Service coverage area and hours of service is determined by several factors including Federal and State requirements. Per the Federal requirements, ADA paratransit service must operate at a minimum within $\frac{3}{4}$ of a mile of the local fixed route network during the same hours of the day as the fixed route transit service operates.

Metro Mobility achieves this by analyzing the fixed routes hours of service delivery for weekday, Saturday and Sunday/Holiday service in each community where service is provided and then matches that service level.

Beyond the federal requirements, the State requires Metro Mobility to provide service to all communities within the transit taxing district. Metro Mobility is available to these eligible residents living outside of the federally mandated service area by currently providing 12 hours of service on weekdays, and on an as space is available basis on Saturday's and Sundays/Holidays.

Transit Service Design Standards

A consistent set of transit service design standards ensures regional coordination and consistency. Regional design standards are custom-tailored for each transit market area. These standards represent typical design guidelines for transit service, though exceptions often exist based on specific circumstances and conditions.

Transit Service Options

This table outlines what type(s) of service are appropriate for each Transit Market Area.

Table G-3: Transit Service Options					
Services Considered:	Area I	Area II	Area III	Area IV	Area V
Express	Yes	Yes	Yes	Yes	No
Urban Radial	Yes	Yes	Yes	No	No
Urban Crosstown	Yes	Yes	No	No	No
Suburban Local/ Circulator	Yes*	Yes	Yes	No	No
General Public Dial-a-Ride	No	No	Specific	Yes	Yes
*Area I circulators applicable for downtown or other employment areas over 30,000					

Service Span

Service Span is the number of hours during the day between the start and end of service on a transit route

Table G-4: Service Span					
Days and Times of Service:	Area I	Area II	Area III	Area IV	Area V
Express	PMENW	PMENW	PME	P	n/a
Urban Radial	PMENOW	PMENOW	PMENW	n/a	n/a
Urban Crosstown	PMENW	PMENW	n/a	n/a	n/a
Suburban Local/ Circulator	PMENW	PMENW	PMENW	n/a	n/a
General Public Dial-a-Ride	n/a	n/a	Up to 18 hours	Up to 14 hours	Up to 14 hours
A trip's service period is determined by the time the route crosses its maximum load point. This standard represents the upper limit of service. For example, owl service is allowable but not required in Area I for an urban local route.					
Peak: 6:00am-9:00am and 3:00pm-6:30pm; Midday: 9:00am-3:00pm; Evening: 6:30pm-9:00pm; Night/Early AM: 9:00pm-1:30am and 5:00am-6:00am and Owl: 1:30am-5:00am. Weekend is Saturday, Sunday/Holiday. Times do not necessarily correspond with fare structure times.					

Table G-5: Minimum Frequency					
	Area I	Area II	Area III	Area IV	Area V
Express	30" Peak	30" Peak	3 Peak Trips	3 Peak Trips	N/A
Urban Radial	15" Peak/ 30" Offpeak	30" Peak/ 60" Offpeak	60" Peak/ 60" Offpeak	N/A	N/A
Urban Crosstown	30" Peak/ 30" Offpeak	30" Peak/ 60" Offpeak	N/A	N/A	N/A
Suburban Local/ Circulator	N/A	30" Peak/ 60" Offpeak	60" Peak/ 90" Offpeak	N/A	N/A
<i>Additional service may be added as demand warrants. Applies primarily to peak travel direction</i>					

Minimum Frequency

Service frequency is expressed as the average number of minutes between transit vehicles on a given route or line, moving in the same direction. This table shows the recommended minimum service frequency for each service type in a given market area.

Route Spacing

Maximum desired distance between bus routes, in miles.

Table G-6: Maximum Route Spacing					
	Area I	Area II	Area III	Area IV	Area V
Express	Subject to availability and demand of a highway corridor				n/a
Urban Radial	0.5	1	Specific	n/a	n/a
Urban Crosstown	1	2	n/a	n/a	n/a
Suburban Local/Circulator	n/a	2	Specific	n/a	n/a
<i>"Specific" means the route structure will be adapted to demographics, geography and land use that impact route spacing.</i>					

Route Deviations

Route deviations are departures from a route's primary street to serve a specific transit generator. The route then returns and continues on the primary street.

- The number of riders served on the deviation must be greater than thru riders (deviation rides > thru rides).

Other factors, such as bus stop siting, access, and operational feasibility, are also involved in determining whether a route deviates.

Minimum Branch or Extension Productivity

Some transit routes serve multiple destinations at the end of a route using route “branches”. In addition, some routes are extended to serve additional destinations. To ensure that any route branches or extensions carry enough riders to justify the added cost of operation, the following productivity standards apply. Productivity is measured by passengers per in-service hour, as defined by the number of passengers getting on or off on a specific route segment, divided by the additional time required to operate the segment.

Table G-7: Minimum Branch or Extension Productivity*					
	Area I	Area II	Area III	Area IV	Area V
Express	25	25	15	9	n/a
Urban Radial	25	20	15	n/a	n/a
Urban Crosstown	25	20	n/a	n/a	n/a
Suburban Local/Circulator	n/a	15	9	n/a	n/a
* As measured by passengers per in-service hour for boardings/alightings					

Travel Time Competitiveness Guidelines

To be successful in attracting riders who have access to automobiles, transit service must provide travel times that are competitive with comparable auto travel times.

- Local bus travel time should generally not exceed 2.0 times average auto time.
- Express bus travel time should generally not exceed 1.35 times average auto time.

Network Transfer Connectivity

Transit network connectivity is the ability to travel anywhere the transit network reaches with minimal waiting time for transfers between the trips. Ideally, all transfers are designed to occur within 5-15 minutes at the transfer point. In specific situations where connections are less than 5 minutes, timed transfers should be arranged with specific transit operator instructions to “meet” the other bus.

Transit Stop Service Area

Standard walking distance to access transit services is ¼ mile for local bus service and ½ mile for limited stop bus or transitway stations.

Recommended Bus Stop Spacing

Bus stops that are close together reduce walking distance and access to transit, but tend to increase bus travel time. This recommended spacing seeks to achieve a balance.

- 6-8 stops per mile for local service
- 1-2 stops per mile for limited stop service

An allowable exception to standards may be central business districts and major traffic generators. These guidelines are goals, not a minimum nor a maximum.

Bus Stop Siting

- Near side stops are preferred in most areas.
- Far-side/mid-block stops are preferred in high density commercial areas, where traffic movements impede bus operations, or in applications of transit signal priority.
- Individual stop sites must be evaluated for:
 - Traffic conditions in area (i.e., right turns, merging, etc.)
 - Curb availability (see stop dimensions table below)
 - General suitability for bus stop (i.e., curb cuts, ADA considerations, obstructions, etc.).

Bus Stop Dimensions

The length of the bus stop, in feet, needed in order for a bus to safely pull into and out of a bus stop.

Passenger Waiting Shelters

A standard shelter location may be appropriate if the following ridership target is met at a proposed stop.

- Minneapolis and St. Paul: ≥40 boardings per day
- All other areas: ≥25 boardings per day

Heaters are occasionally installed in shelters with a warrant of 80 or more passenger boardings per day.

Custom Shelters

Custom shelters will meet a warrant of 100 boarding passengers per day, if one of the following criteria is met:

- Part of a larger project such as a bus corridor
- Transit Centers
- Park-and-Ride lots owned and maintained by regional transit providers
- Downtown bus stops

Table G-8: Bus Stop Dimensions		
Bus Stop Dimensions*	Standard Bus Stop	Small Bus Only Stop
Near-side Stop	100 ft.	75 ft.
Far-side Stop	120 ft.	90 ft.
Mid-Block Stop	150 ft.	110 ft.
*Bus stops which have multiple buses stopping at the same time require more space.		

Facility Amenities

Regional transit providers offer a range of amenities at bus stops, transit centers and other facilities for the comfort, convenience and safety of our customers. The following table identifies the standard amenities that are included with various facility types. Some amenities are always provided and others are occasionally provided, depending on the specific size, location or use of the facility.

Table G-9: Facility Amenities						
Facility Type	Lights	Heaters	Trash Receptacles	Stand Alone Benches	Cameras	Electronic Customer Information Displays
Transit Centers	Y	Y	Y	Y	O	O
Park & Ride Lots	Y	O	O	O	O	O
Rail Stations	Y	Y	Y	Y	Y	Y
Standard Shelters	O	O	N	N	N	O
Custom Shelters	O	O	N	O	O	O
Y = Yes, always provided; N = No, not provided; O = Occasionally provided						

Note that this guideline applies only to public transit agency-owned facilities. Providers also lease park & ride lots, and some shelters are owned and maintained by other entities. In those cases, providers do not normally offer customer amenities, although some may be included in certain situations.

Transit Vehicle Load Guidelines

The number of riders on board the vehicle as a percentage of the number of seats. This value is used to determine when is the bus is overloaded and additional service is needed. If the result is greater than 100%, then some standees are acceptable.

Table G-10: Peak Periods					
	Area I	Area II	Area III	Area IV	Area V
Express*	70-100%	70-100%	70-100%	70-100%	n/a
Urban Radial	85-125%	85-125%	85-125%	n/a	n/a
Urban Crosstown	50-125%	50-125%	n/a	n/a	n/a
Suburban Local/ Circulator	n/a	50-125%	50-125%	n/a	n/a
Light Rail Transit	200%	200%	200%	n/a	n/a
*Limited stop routes traveling less than 4 miles on freeways have a maximum load standard of 115%. Limited stop routes that do not travel on freeways have the same guidelines as urban radial or urban crosstown routes.					
Guidelines are based on the number of seats on the vehicle, measured at the maximum load point of route. These standards are flexible on the fringe of peak period.					
Maximum customer load average over a 15 minute period on a consistent basis					

Table G-11: Off Peak Periods					
	Area I	Area II	Area III	Area IV	Area V
Express	65-100%	60-100%	50-100%	n/a	n/a
Urban Radial	60-100%	60-100%	n/a	n/a	n/a
Urban Crosstown	50-100%	30-100%	n/a	n/a	n/a
Suburban Local/ Circulator	n/a	30-100%	30-100%	n/a	n/a
Light Rail Transit	200%	200%	200%	n/a	n/a
Limited stop routes that do not travel on freeways have the same guidelines as urban radial or urban crosstown routes.					
Guidelines are based on maximum load point of route.					
Maximum customer load average over a 30 minute period on a consistent basis.					

Transit Performance Standards

The primary performance standards to measure service performance are Subsidy per Passenger and Passengers per In-Service Hour. Performance standards are used to evaluate the relative productivity and efficiency of the services provided. To be responsible and dynamic, a transit system must consistently measure and adjust service in unproductive routes and address insufficient service in productive areas. The use of two regional performance standards provides better insight into the operational and financial performance of individual routes and services.

Revision of Transit Performance Standards

The Metropolitan Council will complete a review of these transit performance standards. Working with regional transit providers, the Council will review and potentially modify the standards listed below. Following this review and potential revision, all providers will review their transit service annually based on the regional transit performance standards. Providers will annually submit their performance reviews to the council for inclusion in a regional service performance review.

Table G-12: Passenger Subsidy

Threshold No.	Level of Subsidy per Passenger Performance	Monitoring Goal	Possible Action
1	20 to 35% over peer average	For Quick Review	Minor Modifications
2	36 to 60% over peer average	For Intense Review	Major Changes
3	More than 60% over peer average	For Significant Change	Restructure/ Eliminate

Subsidy per Passenger

Subsidy or net cost is the difference between the total cost of providing service minus revenue from passenger fares. Subsidy per passenger represents the net cost divided by the number of passengers using the service. This standard identifies services that are not operating within regional efficiency ranges and focuses corrective actions for those services. Subsidy thresholds are determined by calculating the non-weighted subsidy per passenger average within each service classification plus fixed percentage deviations from that average.

Table G-13: Passengers per In-Service Hour

Type of Service	Average Passengers per In-Service Hour	Minimum Passengers per In-Service Hour
Light Rail Transit	≥70	≥50
Big Bus Fixed Route – All Day	≥20	≥15
Big Bus Fixed Route – Peak Only	≥20	N/A
Small Bus Fixed Route	≥9	≥5
Small Bus Non-Fixed Route	≥3	≥2
Other/Rideshare/Shared Ride Taxi	≤2	N/A

Passengers per In-Service Hour

The passenger per in-service hour standard establishes a minimum threshold of performance for light rail transit, big bus fixed route service, small bus fixed route service and paratransit operations. Passengers per in-service hour represents the total passengers carried divided by the in-service time. This measure is most often calculated at the route level, but can also be used less formally at a route segment or trip level.

H

Appendix H: 2007 MAC Planning / Development Considerations and Conditions

Economic Conditions
<i>Considerations / Conditions</i>
1. Continued pressure for airlines and airports to reduce costs.
2. Federal funding of transportation security & infrastructure likely to decrease.
3. Increased pressure for airports to generate more operating revenue from non-aeronautical sources.
4. Increased positive impact of air transportation on the regional economy.
5. Projections of continued high energy costs.
6. Increased MAC debt at potentially higher interest rates to fund 2020 Vision.
7. State population growth projected at 197,000 between 2005 and 2010 with 73% in Twin Cities region.
8. Increasing strength of China & India in the global economy.
9. Potential restructured airline agreement at MSP

Technology
<i>Considerations / Conditions</i>
1. Improved asset management technology needed.
2. Increased use of technology for security.
3. Increased use of technology for safety.
4. Information systems will need to be updated on a regular cycle.
5. Increased customer and employee expectations of the organizations ability to respond with technology based information and services.
6. Common use systems will probably continue to be a primary tool at the Humphrey Terminal.

Political / Regulatory
<i>Considerations / Conditions</i>
1. Airlines continue to ask the MAC for financial concessions as the industry struggles to regain economic strength.
2. Legislative interest in the overall MAC system of airports remains high.
3. Local governmental units continue to be involved in MAC decisions.
4. Federal mandates are likely to increase without accompanying funding necessary to implement them.

Environmental
<i>Considerations / Conditions</i>
1. New environmental regulations governing water quality discharges, air quality emissions and noise standards will drive future planning requirements.
2. Increased monitoring and tracking requirements for compliance, monitoring and mitigating environmental permits and agreements.
3. Increased emphasis on facility design and pollution prevention practices to address event management and compliance.
4. Environmental management system (EMS) will become the industry standard to maintain compliance standards.
5. Legal challenges to policy decisions will continue to demand significant organizational resources.

Customers
<i>Considerations / Conditions</i>
1. Northwest will remain the dominant carrier at MSP.
2. Airlines will continue to push for expanded facilities and services without increased cost to them.
3. Increased customer demand for low cost services, additional non-stop flights and greater convenience.
4. In response to the demands of regional manufactures and the regional distribution center (RDC) initiative, freight consolidators increase their use of MSP resulting in an increase in the size and number on container-configured aircraft.
5. Price conscious travelers are willing to accept inconvenience in exchange for lower ticket prices.
6. Aging population will increase as a percent of total passengers, requiring changes in services and facilities to meet their needs.
7. International travelers will increase.
8. Increased ethnic diversity of customers.
9. Expectations for convenience factors continue to increase: e-park, registered traveler, one-stop business centers, etc.

Airport Capacity
<i>Considerations / Conditions</i>
1. Emphasis on maintaining and improving service levels in expanded facilities with limited resources.
2. MSP terminal and parking facilities will become more congested.
3. Reliever airports play an important role in overall air transportation capacity.
4. Reliever airport facilities need to be upgraded to accommodate more sophisticated aircraft.
5. Projected population growth of metropolitan area increases pressure on the ground transportation system and affects access to MSP.
6. Projected growth in passengers results in increased pressure on terminal facilities and higher operations and maintenance costs.
7. Initial phase of the 2020 Plan may be implemented to expand capacity.

Airline Industry
<i>Considerations/Conditions</i>
1. Increased consolidation within the industry with the potential liquidation on one or more legacy carriers.
2. Low-cost carriers will increase their market share.
3. Continued trend toward regional jets and increased operations.
4. Airline capacity and performance remains tied to overall U.S. economy fluctuations.
5. Increased passenger numbers result in increased demand on airport facilities.
6. Increased utilization of MSP by air cargo operators' result in more alternatives available to shippers.
7. Continued demand for high levels of security, coupled with increased passenger numbers and decreased federal resources, will impact passenger-processing rates.
8. Consumer resistance to higher ticket prices continues.
9. NWA will probably emerge from bankruptcy with a more competitive cost structure.
10. Airline jobs continue to be outsourced.
11. Increased pressure on air carrier labor groups to reduce costs.
12. Hub and spoke business model of legacy carriers will continue to evolve and disappear in response to challenges from low-cost point-to-point competition.
12. Decrease in international service offered at MSP.
13. Financial business model is changing for airlines.

I

Appendix I: National and State Airport Classifications

The *National Plan of Integrated Airports* (NPIAS) is constantly updated as state and local airport and system plans are completed and accepted by the FAA. Figure I-1 indicates the current mix of airports for the region included in the NPIAS and officially eligible for federal airport funding.

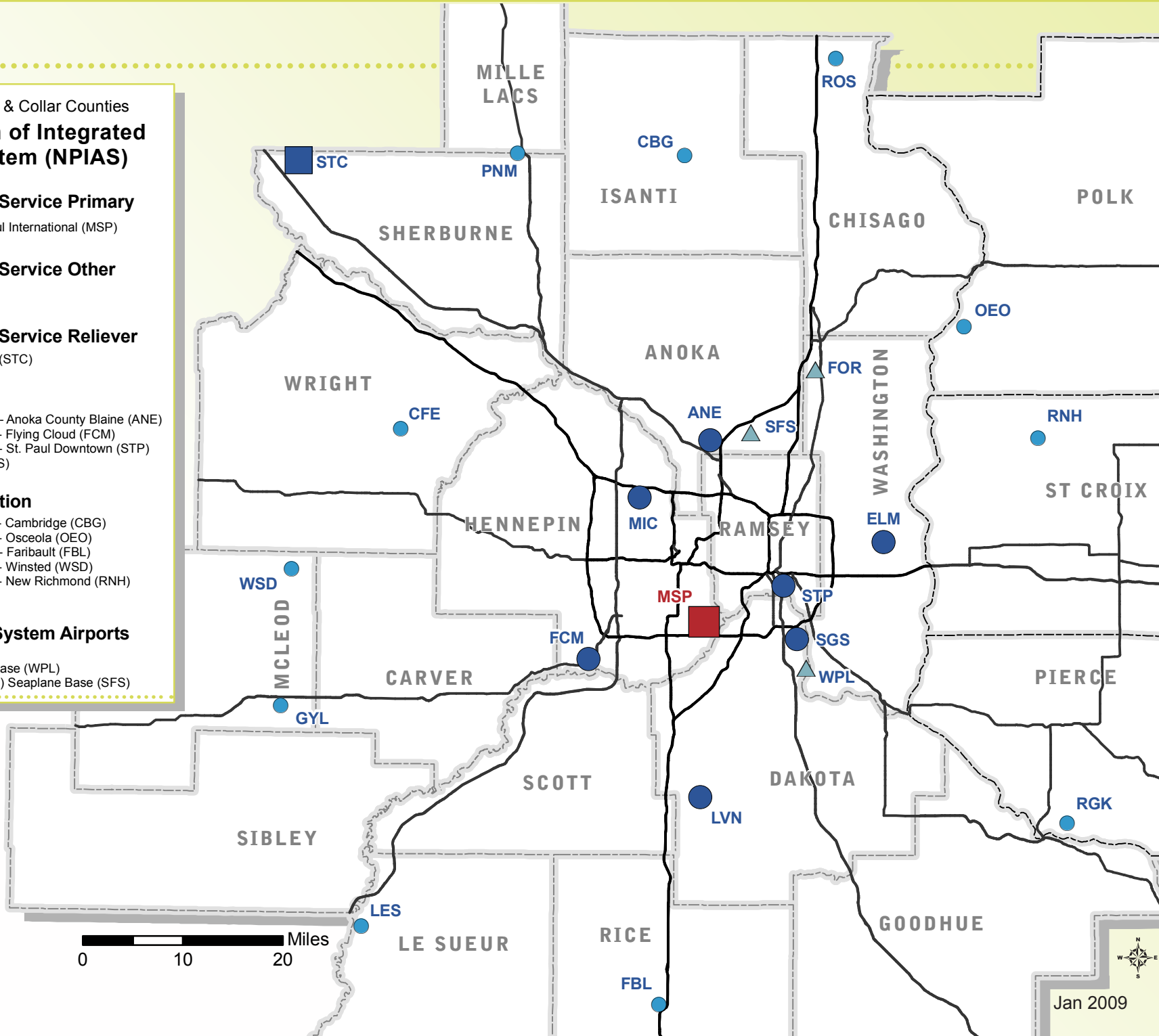
Other airports, in addition to those in the National Plan of Integrated Airports (NPIAS), are part of the Minnesota state airport system plan (SASP) as depicted in Figure I-2. Some of the ambiguities between the state and metro system designations are based upon state-wide requirements and laws and rules that apply only to the metro area; thus, the metro airport classifications are depicted on the map as a separate group without classification. It should especially be noted that this map legend includes a new state class of Special Purpose airports designed specifically to provide facilities for use by the new federally-created category of light sport aircraft. It should be noted that the Special purpose terminology is the same used in the metro classification; however, the state definition is primarily for licensing of runways < 1,000 ft long, while the metro definition is primarily for planning at airports and airstrips with runway lengths generally up to 2,500 ft long and also includes heliports and seaplane facilities.

The existing regional airport system plan for the metropolitan area (RASP) is depicted in Figure I-3; it identifies key parts of the system involving the hub airport, reliever airports, special purpose facilities and a search-area for location of a potential new general aviation facility if the need is warranted. Potential changes to the system designations involve an interest by the City of Forest Lake to have their airport become part of the reliever system. The other potential change involves clarifying the status of the General Aviation Search Area (A) in Hennepin County. No public-owned airports exist in either Scott or Carver Counties.

FIGURE I-1: NPIAS AIRPORT DESIGNATIONS 2007 -2011

Twin Cities Metro & Collar Counties
**National Plan of Integrated
 Airport System (NPIAS)**

- Commercial Service Primary**
 - Minneapolis St. Paul International (MSP)
- Commercial Service Other**
 - None
- Commercial Service Reliever**
 - St. Cloud Regional (STC)
- Reliever**
 - Crystal (MIC) - Anoka County Blaine (ANE)
 - Lake Elmo (ELM) - Flying Cloud (FCM)
 - Airlake (LVN) - St. Paul Downtown (STP)
 - South St. Paul (SGS)
- General Aviation**
 - Princeton (PNM) - Cambridge (CBG)
 - Rush City (ROS) - Osceola (OEO)
 - Red Wing (RGK) - Faribault (FBL)
 - Le Sueur (LES) - Winsted (WSD)
 - Buffalo (CFE) - New Richmond (RNH)
 - Glencoe (GYL)
- Non-NPIAS System Airports**
 - Forest Lake (FOR)
 - Wipline Seaplane Base (WPL)
 - Rice Lake (Surfside) Seaplane Base (SFS)



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FIGURE I-2: MN PUBLIC GENERAL AVIATION AND COMMERCIAL AIRPORTS

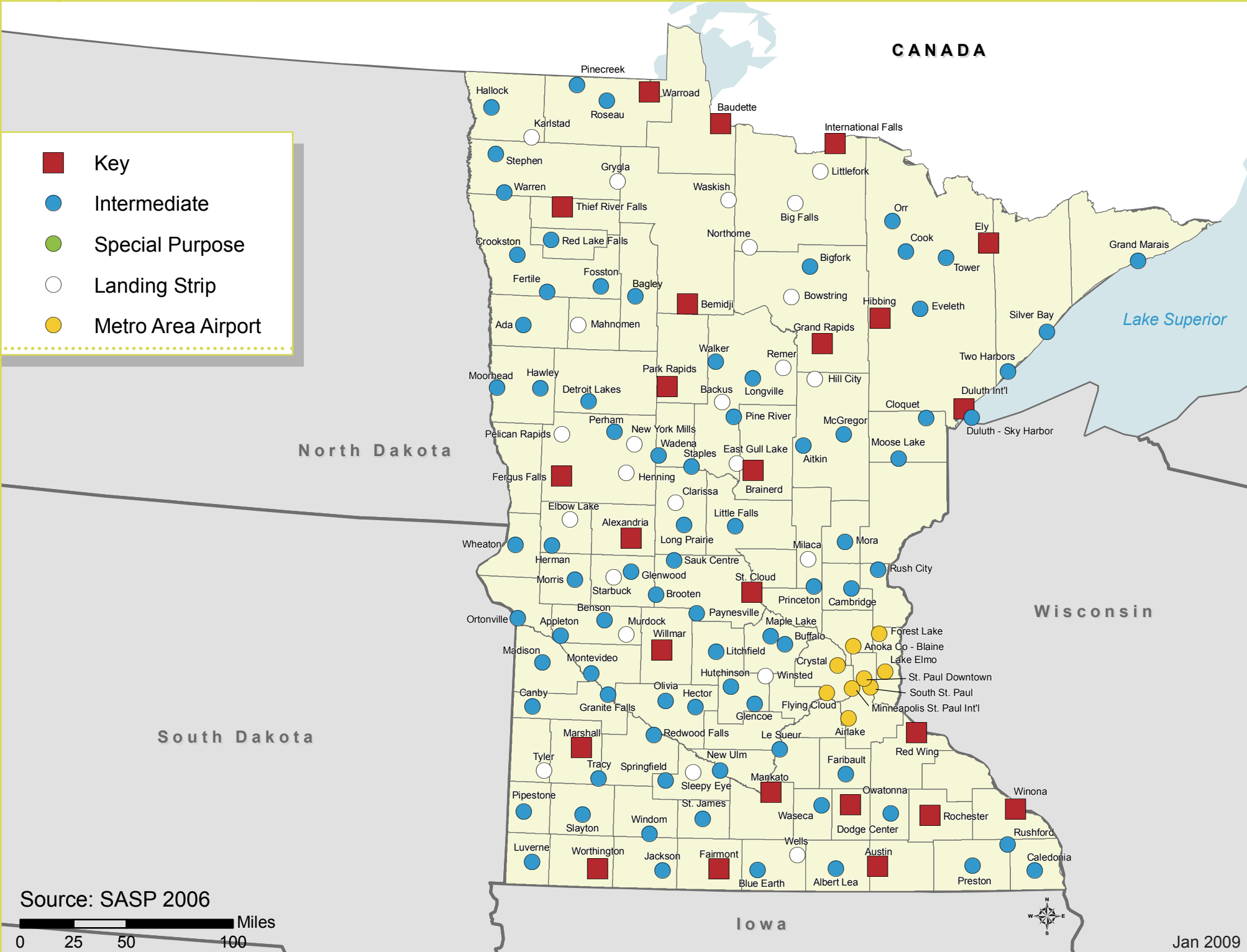
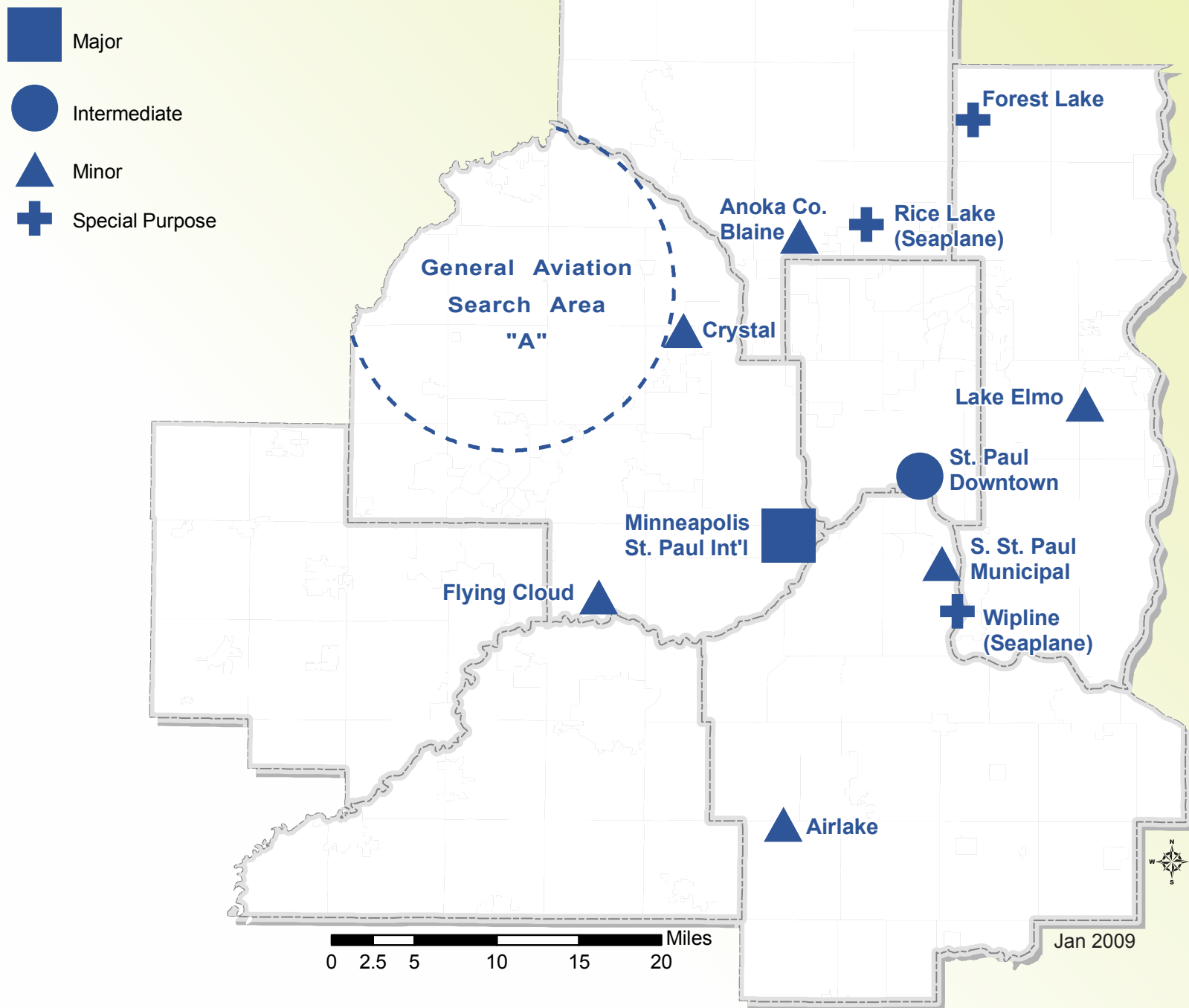


FIGURE I-3: REGIONAL AIRPORT SYSTEM



Appendix J: Airport Service Areas

Service Areas and Access

Accessibility, both by air and ground, is important to efficient use of air-transportation. Overall growth, at both the national and regional level, is expected to continue fueling future travel demand and increase current levels of commercial airport and urban roadway congestion. Total trip times for air transportation has increased over the past decade due to peak hour capacity issues on runways and roads, increased overall use of each system on a daily and annual basis, and increased security demands at the airports and for aircraft operations. The U.S. urban land use pattern is now more spread out, with jobs increasingly dispersed throughout the region. The regional system of airports should reflect the trends in long-term urban development, population and employment patterns.

Regional Growth Management & Airport Service Areas

Population growth and land use development provide both constraints and opportunities. The regional growth management plan, in coordination with local communities, defines when and where the growth is likely to occur, including type and density of development. A tool for alignment of the aviation system with the *Development Framework* is the use of airport service areas to relate regional and aviation forecasts and plans. Airport service areas have been identified for the Major, Intermediate and Minor system airports; they are used to reflect current forecast demand, at a regional and sub-regional level, for the 2030 planning horizon. The functional roles of the airports, and how the system is operated, results in types of service capabilities that are almost mutually exclusive between the different classes of airports.

There are two types of criteria used in the aviation policy 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 their preferred airport. The service areas defined by ground access users are identified by surface travel times on the future 2030 highway system.

Figure J-1 depicts the general accessibility provided by different types of aircraft based upon an estimated one-hour of flight in one direction from the middle of 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 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.

MSP and Metro Reliever Airport Service Areas

The service area for MSP International Airport reflects the fact that it is the region's only Major airport and provides service to many different types of air-service providers, and different user groups

accessing the airport by multimodal surface transportation. Predominant users of the airport can be grouped as follows:

- airline passengers, arriving by personal auto, and they originate their trips in all travel time zones,
- other users, are also characteristic within different travel zones for MSP:
 - within the 15 minute zone for example, a typical user group would be hotel courtesy vehicles and parking shuttle services,
 - within the 30 minute zone would be transit bus, shuttles, taxis and light rail transit,
 - within the 45 minute zone would be rental vehicles,
 - the 60 minute zone is the MSP primary service area within which most of the personal auto access is captured,
 - from 60 to 90 minutes there is a combination of personal auto and for-hire access,
 - within and beyond the 90 minute travel time there is an increase in the for-hire user group.

General ground access indicates service potential; it does not necessarily indicate where passenger, cargo or airline/airport employees origins and destinations occur. Over time cargo users and employees may tend to gravitate to certain areas around the airport, but many passengers will still tend to come from all over the greater metro region. Each of these groups will experience different levels of congestion and bottlenecks on their way to the airport. A separate O/D analysis is long overdue to identify IRCs and other road, turn lane, signal, bridge, signage, or transit links important to the total air trip travel time, and therefore important to be recognized in the TIP. Total trip time for air transportation is important as a cost factor to the region's economy and competitiveness. Multimodal access, at least within certain distances/links to the airport, should be part of an optimized transportation system.

The performance measure used in the NPIAS for access and location of airports at the national level uses a 60 minute criteria for scheduled air service airports, and 30 minutes for general aviation airports. In urban areas the 30 minute criteria is also interpreted as approximately 20 minutes driving time. Figure J-2 depicts the 60 minute threshold defining the MSP 2030 primary travel shed; also depicted is the combined 30 minute travel shed for the system reliever airports. A large portion of the central MUSA area is not within the access area of a reliever airport; developing portions of Scott County and the Lake Minnetonka area are also further removed. MSP access is less to the north and west due to higher density development and congestion.

Metro Collar County Airport Service Areas

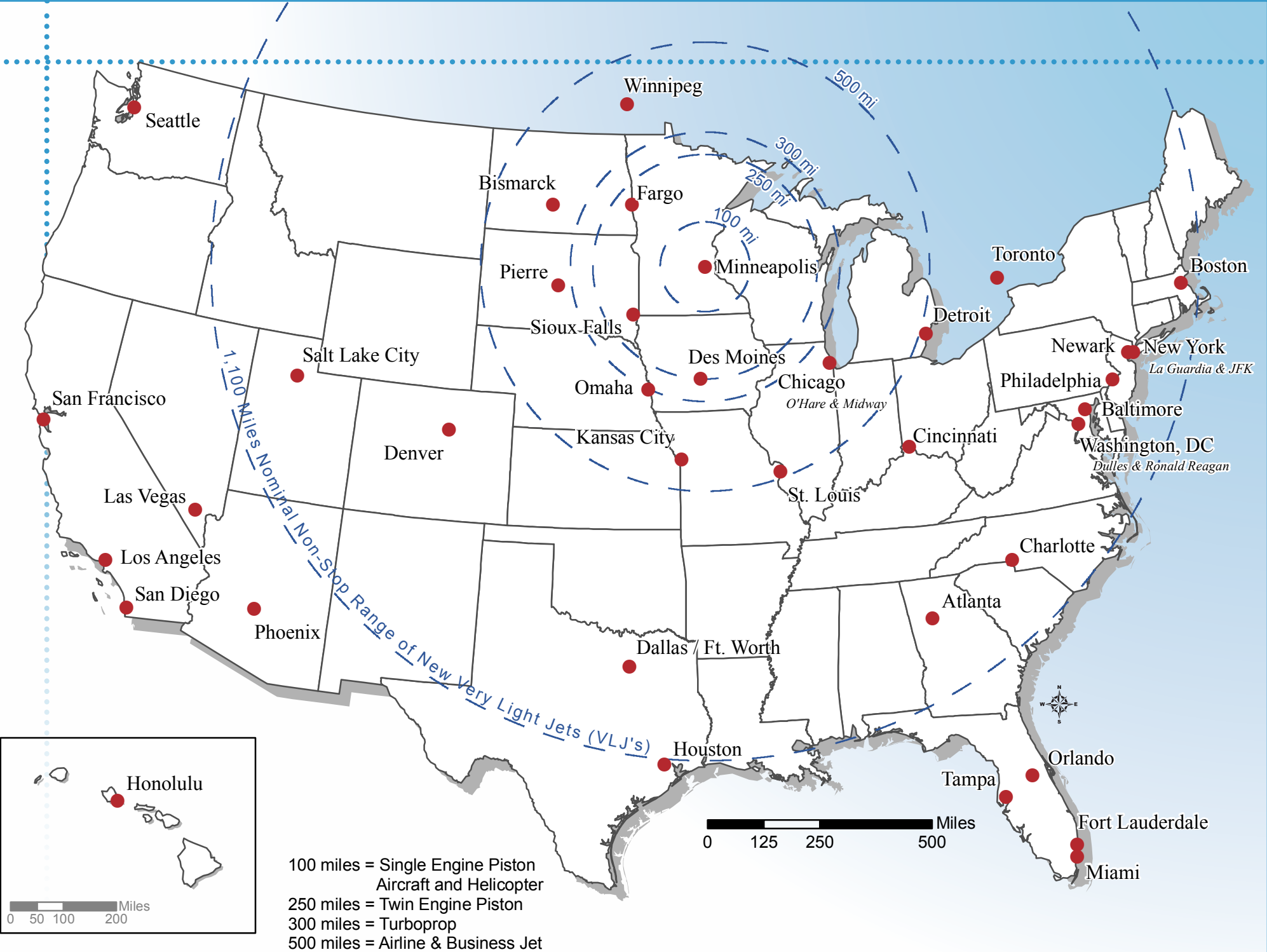
Airport role and function reflect the airport's location, airspace in relation to other airports, and navigational/landing aids. Figure J-3 depicts the 60 minute service area for the St. Cloud airport and a combined 30 minute service area for all the remaining public airports in the collar counties. Most of the metro airports [generally] have higher capabilities and levels of service than adjacent-county airports, and are generally expected to attract users from further away.

These service areas can obviously be enlarged or decreased by changes in facility capabilities, system role, or changes in costs and service levels. For example, Forest Lake airport in northern Washington County is expected to have an increased presence in the system; White Bear Lake airstrip, formerly a private airport [Benson's] but now public, located in Ramsey County is by legal agreement to be closed by 2036. The airport at River Falls, in Pierce County-WI was closed to allow development of a new high school - its service area has disappeared from the map. Some of the system airports are essentially being built-out (e.g. Crystal and So. St. Paul), and from a prospective users viewpoint, looking to base their aircraft, those facilities are limited. Until recently, most metro airports have had hangar waiting lists.

Special Purpose Airports Service Areas


A few facilities in the metro area and collar county area have privately-owned, public-use airports that are included in the SASP and RASP. Some of these facilities may eventually transition into the national plan of integrated airports and become eligible for federal airport improvement program funding. This category of airport is not only distinguished by type of ownership, but is usually characterized by turf runways. The category also includes seaplane bases and heliport sites. The Stanton airport is primarily used by glider enthusiasts, and the Forest Lake airport is pursuing construction of a paved runway. The users at these facilities are in general low-time fliers, and as urban development encroaches on individual's private-use airstrips these special purpose facilities may be attractive for relocation due to lower costs than public owned airports.

FIGURE J-1: TYPICAL AIRCRAFT ONE-HOUR FLIGHT ACCESS







Jan 2009

FIGURE J-2: METRO AREA PUBLIC AIRPORT SERVICE AREAS

 **Scheduled Service - MSP**
Minneapolis St. Paul International
Average travel time*
60 min or less

Metro Public Airports

-  with paved runways greater than 5000'
-  with paved runways less than 5000'
-  Average Travel Time* 30 Minutes or Less
-  2030 MUSA**

* by TAZ - 2030 PM peak levels

** Only MUSA beyond 30 min. travel areas shown

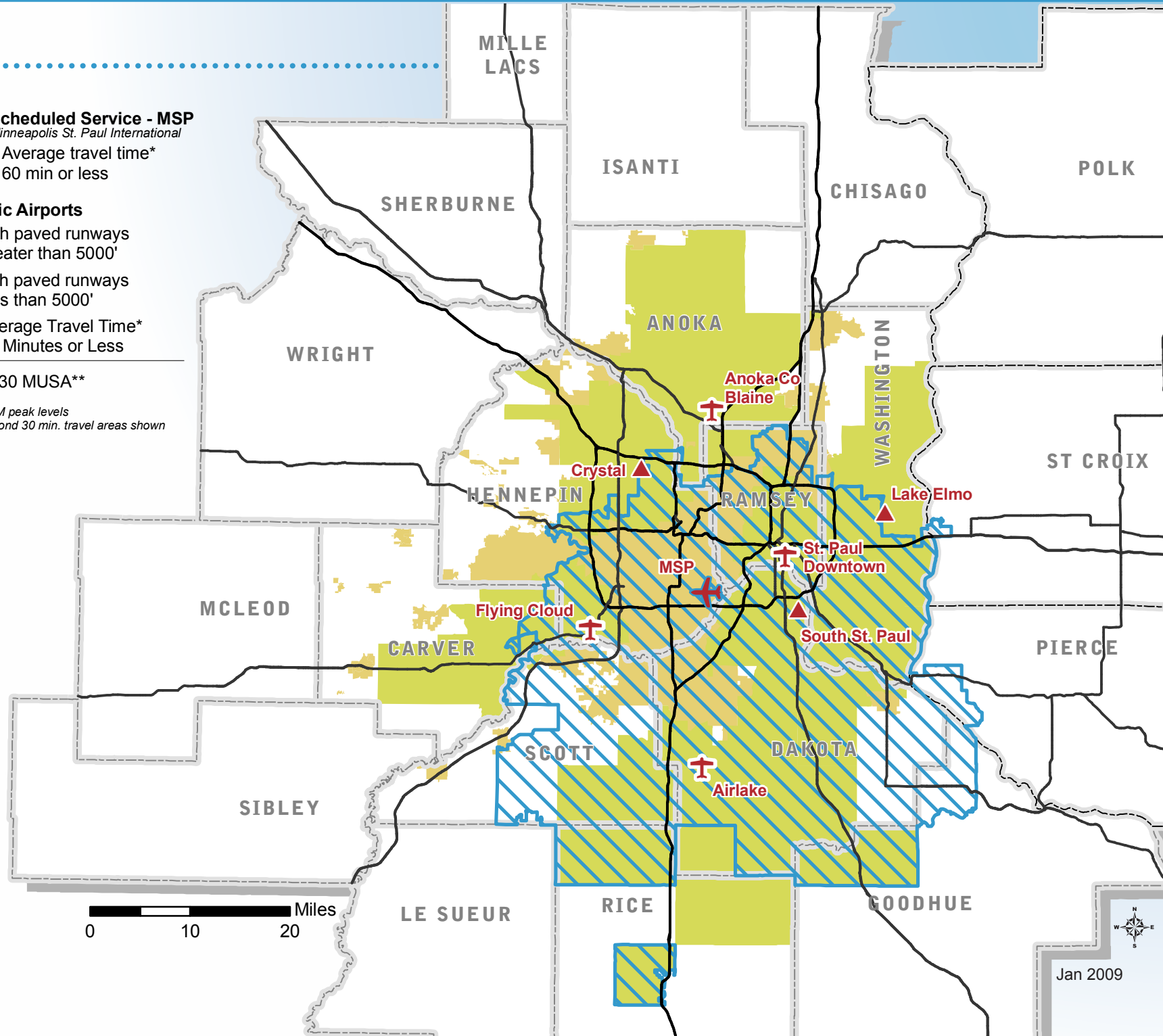


FIGURE J-3: COLLAR COUNTY – PUBLIC AIRPORT SERVICE AREAS



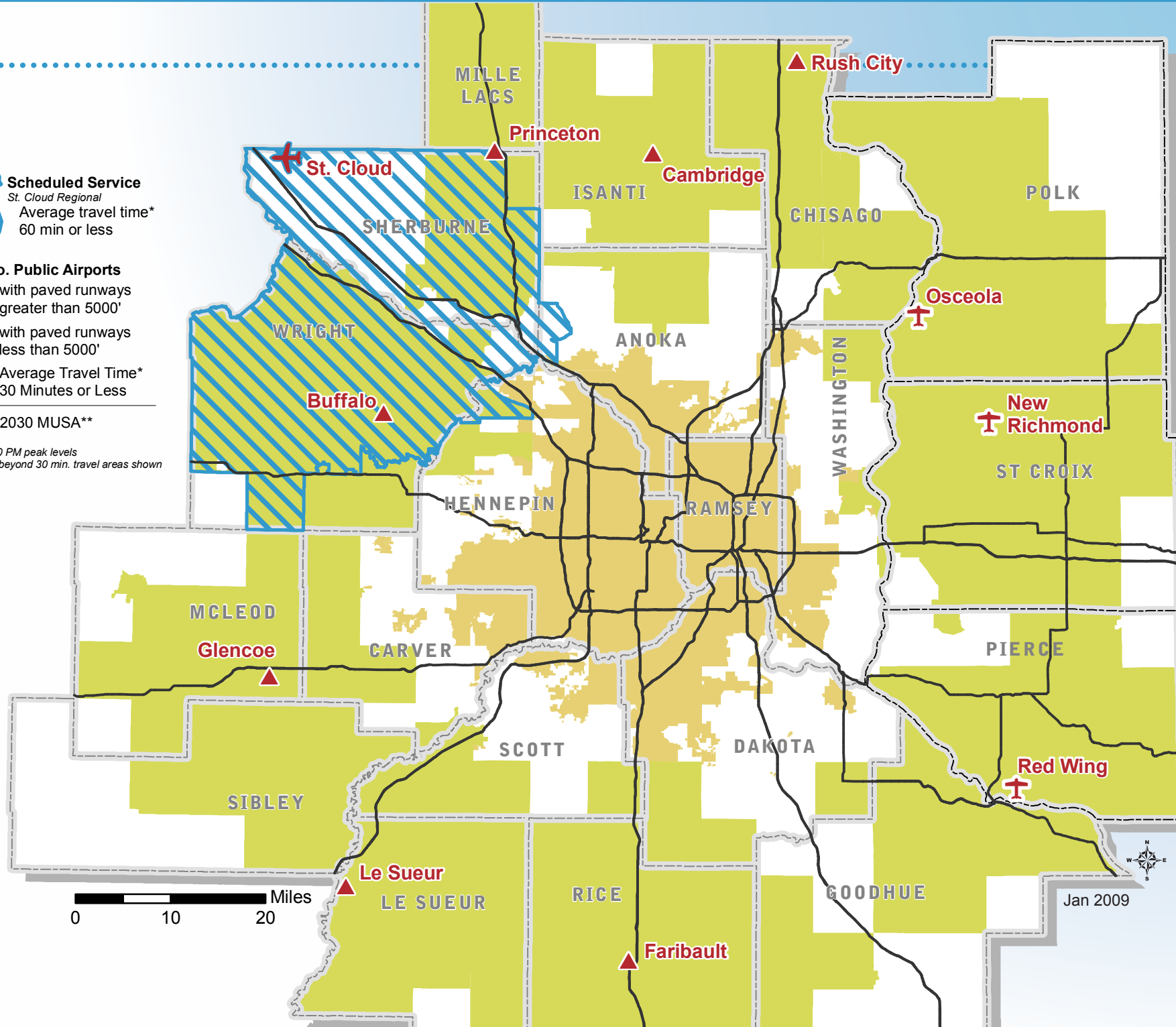
Scheduled Service
St. Cloud Regional
Average travel time*
60 min or less

Collar Co. Public Airports

- with paved runways greater than 5000'
- with paved runways less than 5000'
- Average Travel Time* 30 Minutes or Less
- 2030 MUSA**

* by TAZ - 2030 PM peak levels

** Only MUSA beyond 30 min. travel areas shown



Jan 2009

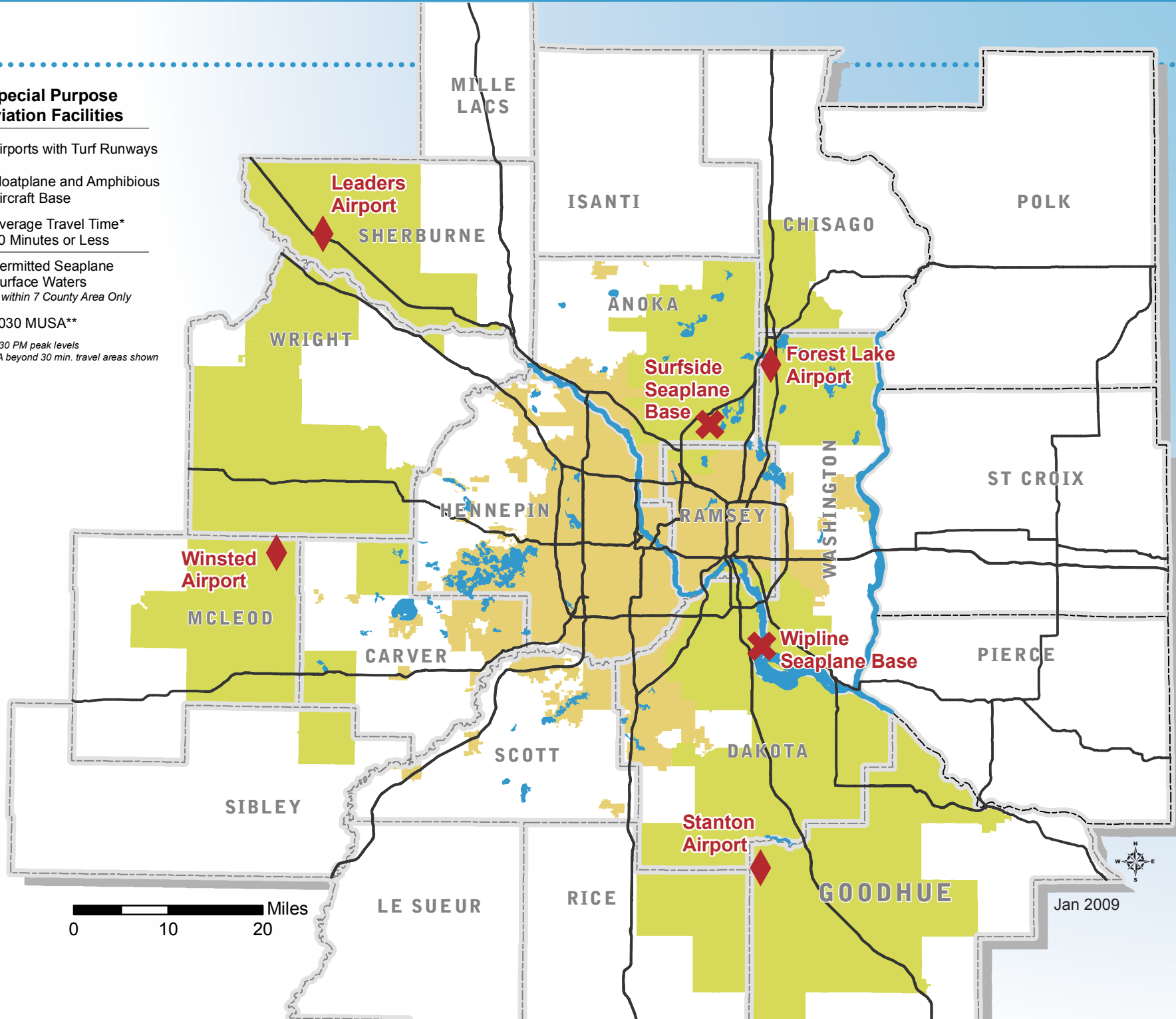
FIGURE J-4: SPECIAL PURPOSE AVIATION FACILITIES

Special Purpose Aviation Facilities

- ◆ Airports with Turf Runways
- ✕ Floatplane and Amphibious Aircraft Base
- Average Travel Time* 30 Minutes or Less
- ~ Permitted Seaplane Surface Waters within 7 County Area Only
- 2030 MUSA**

* by TAZ - 2030 PM peak levels

** Only MUSA beyond 30 min. travel areas shown



Jan 2009

K

Appendix K: MSP Class B Airspace

All of the open sky covering the United States, from less than an inch off the ground all the way to outer space, is part of America's airspace. This airspace resource is recognized in both the Minnesota state airports system plan (SASP) and the Minneapolis-St. Paul Metropolitan regional aviation system plan (RASP). All of this airspace is divided into several standardized types ranging from A through G, with A being the most restricted and G the least restrictive as depicted in Figure K-1.

Coordination and proper planning are required to make efficient and safe use of the airspace between the different classes of airports and air-transportation users. At lower altitudes this airspace is shared with the nation's communications industry and others that requires airport and airways protection from potential obstructions to air navigation, or activities that disrupt aviation communications and navigation/landing aids. Each type of airspace has its own required level of air traffic control services and its own minimum requirements for pilot qualifications, aircraft equipment, and weather conditions. In addition, there is other airspace reserved for special purposes called special use airspace (SUA).

Within the U.S., airspace is classified as either controlled or uncontrolled. Controlled airspace will have specific defined dimensions (e.g. altitude ranges or vertical boundaries, and an applicable surface area or horizontal boundaries). Within controlled airspace air traffic control (ATC) services are provided to all pilots operating under instrument flight rules (IFR), because they are flying solely by reference to instrument indicators. The services are also provide to some pilots operating under visual flight rules (VFR) even though they are using points on the ground to navigate.

Class A airspace covers the entire U.S. at altitudes between 18,000 and 60,000 feet mean sea level (msl). All jet routes are in this airspace that is used primarily by jets and airliners traveling over long distances between major cities. Air traffic in this airspace operates under IFR rules and must maintain radio contact with enroute ATC. As aircraft transition from a jetway to lower altitudes they are handed off to a specific destination airport's ATC. In most cases they will be arriving to an airport with an air traffic control tower (ATCT) that is surrounded by a Class B, C, or D airspace.

Class B airspace surrounds the nation's busiest airports, such as Minneapolis-St. Paul International Airport (MSP) as depicted in Figure K-2. This airspace extends from the surface to 10,000 feet and out to 30 nautical miles and is structured like an upside-down wedding cake. This structure helps separate the larger high-performance airline traffic arrivals and departures from the smaller and usually slower general aviation traffic operating at the reliever and local airports. At the outer limits of the Class B airspace, from the surface to 10,000 feet MSL at MSP, there is a Mode-C Veil. This is an imaginary vertical surface that delineates where an aircraft must have a Mode-C transponder so ATC can track their flight. VFR transition routes are specific designated flight paths used by ATC to route VFR traffic through Class B airspace. VFR flyways are general flight paths through low altitudes for general aviation to fly from one

ground-based radio beacon to another across the U.S. It helps pilots plan flights into, out of, through, or near complex Class B terminal airspace, especially where IFR routes occur.

Class C airspace extends from the surface to 4,000 feet above ground level (AGL) for a 20 nautical mile distance from the airport. This airspace surrounds other busy airports that have radar services for arriving and departing aircraft. No Class C airport airspace is designated in the Twin Cities metro area airspace.

Class D airspace surrounds airports with operating air traffic control towers and weather reporting services. This airspace extends from the surface to 2,500 feet AGL within 4.3 nautical miles (5 statute miles) of the airport. In the metro area the Anoka County-Blaine, Crystal, Flying Cloud and St. Paul Downtown Airports have a Class D airspace designation. These airports have part-time ATCT and their airspace reverts to Class E airspace areas when the towers are not in operation.

Class E airspace includes all other controlled airspace in the U.S. This airspace extends to 18,000 feet MSL to the surface and various altitudes in between that are established for areas generally located east or west of the Rocky Mountains. Class E airspace also surrounds airports with weather reporting services in support of IFR operations, but no operating control tower. In the Twin Cities area the Airlake Airport is such a facility.

Class F designated airspace is not used in the U.S.

Class G airspace is uncontrolled, it includes all airspace in the U.S. not classified as Class A, B, C, D, or E. No ATC services are provided and the only requirement for flight is certain visibility and cloud clearance minimums. Most of the airspace above 1,200 feet AGL is Class G airspace; virtually no Class G airspace exists east of the Rocky Mountains.

Special Conservation Area includes airspace surrounding national parks and wildlife refuges. In the Twin Cities region the St. Croix National and Scenic Wild River is such an area and pilots are requested to maintain a minimum altitude of 2,000 feet AGL whenever possible. One objective is to avoid bird strikes and another is to minimize noise intrusion on wildlife and quietude for user experience in protected natural settings.

Special Use Airspace is where aeronautical activity must be limited, usually because of military use or national security concerns, and includes the following areas: (Note: None of these limited airspace use areas occur within the Twin Cities region).

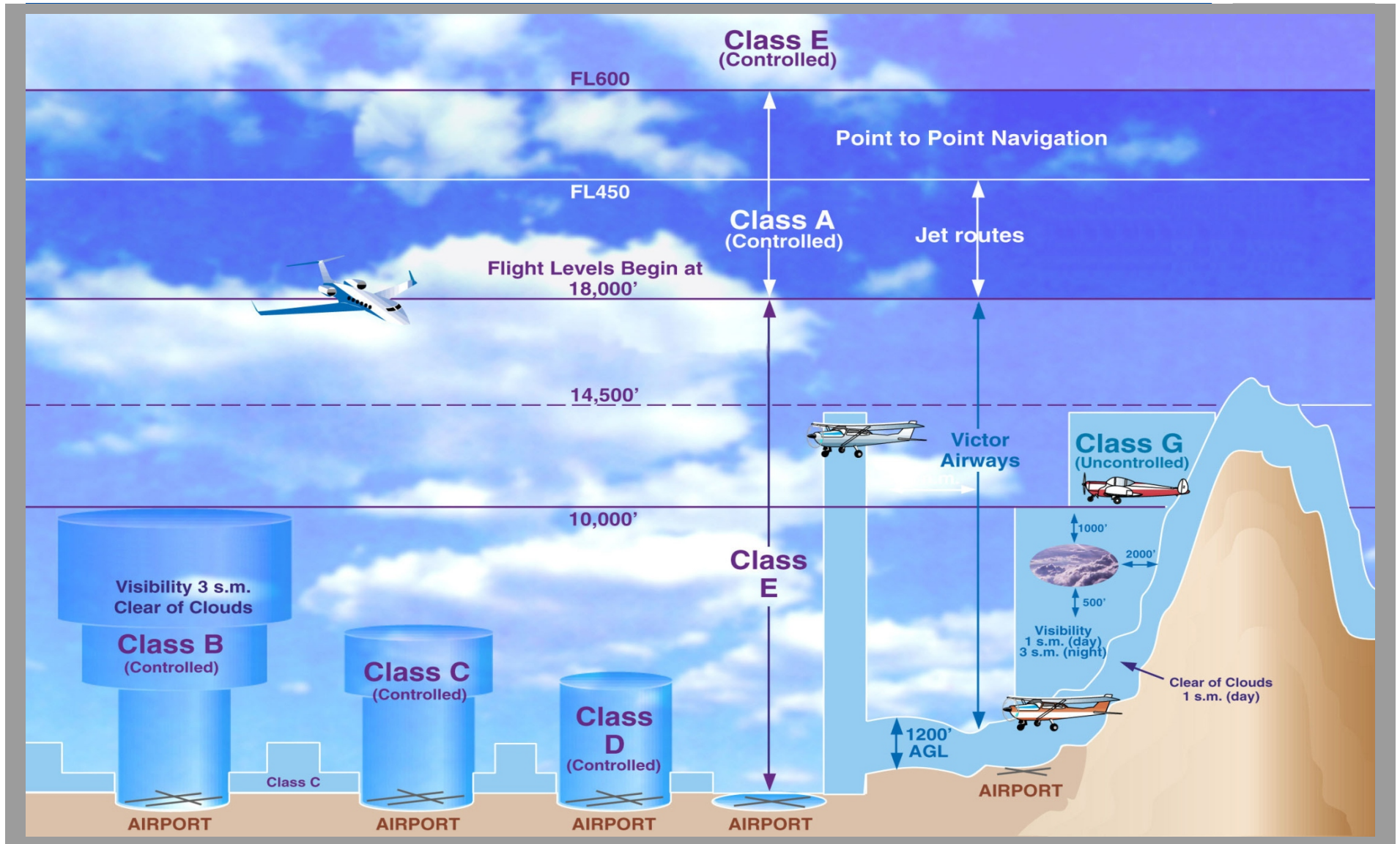
- Prohibited areas (e.g. Camp David)
- Restricted areas (military activities including Controlled Firing Areas)
- Warning Areas (extends outward from 3 nm off the coast).
- Military Operations Areas (MOA established for military training activities)

- Alert Areas (e.g. established for areas with a high volume of pilot training)

Other Airspace Areas are designated usually as temporary limitations for specific events and include:

- Airport Advisory Areas
- Military Training Routes (MTRs)
- National Security Area (NSA)
- Temporary Flight Restrictions (TFRs)

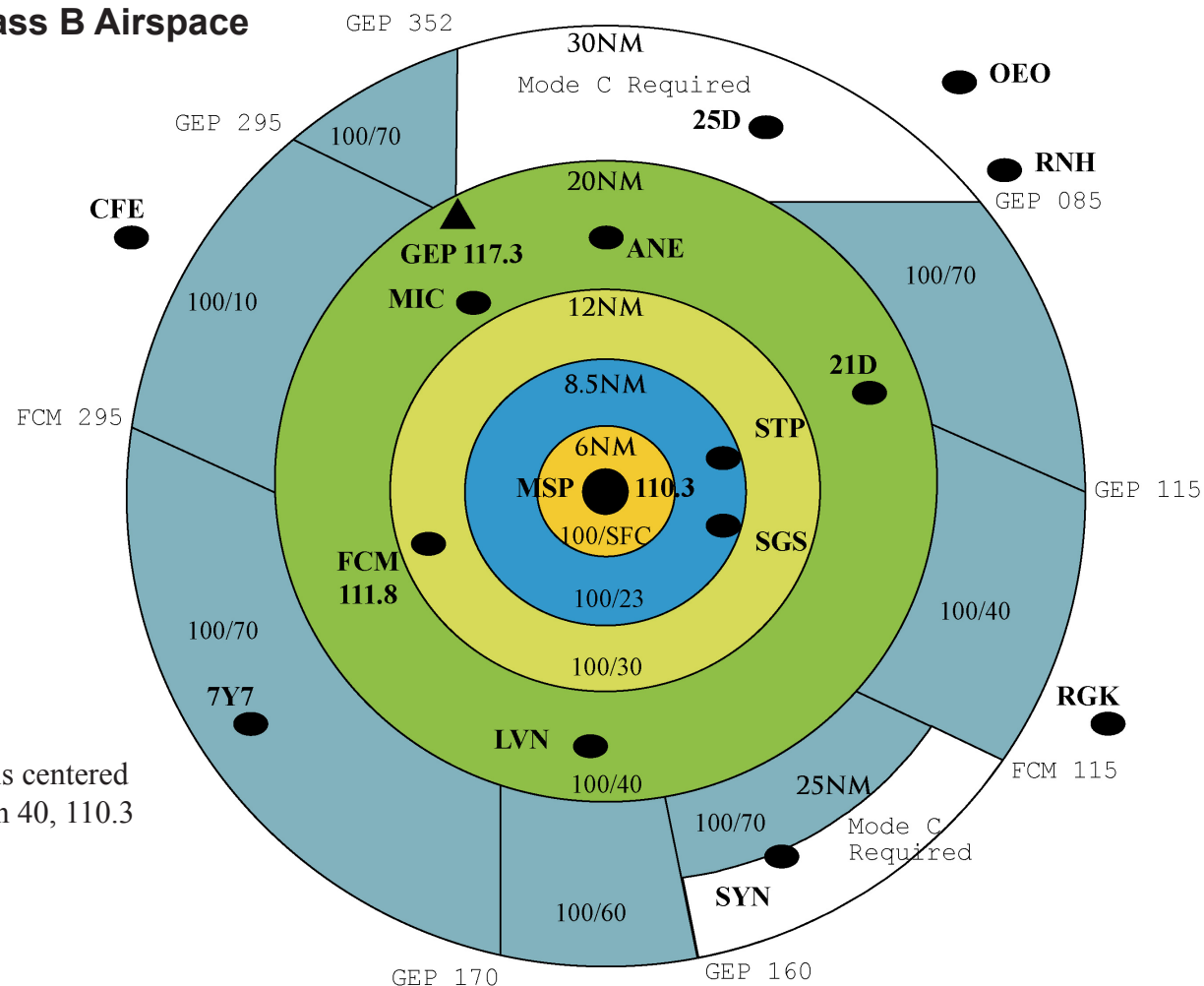
Figure K-1: National Airspace Classification



Source: FAA and HNTB Corporation

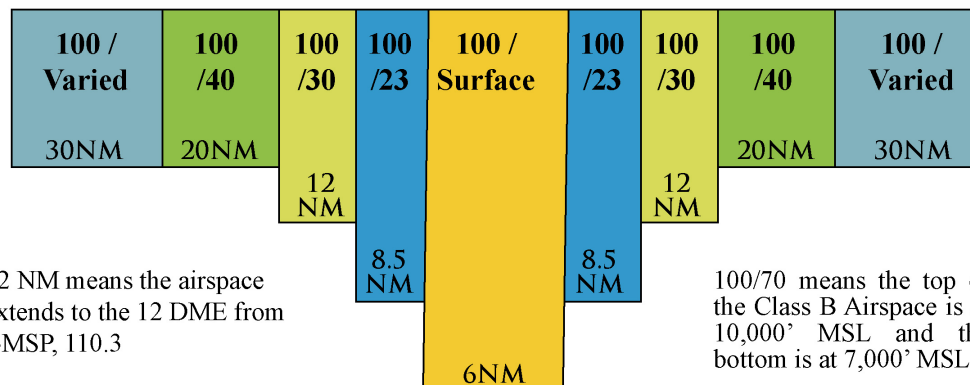
Figure K-2: Minneapolis - St. Paul Class B Airspace

Effective February 16, 2006



The Minneapolis – St. Paul Class B Airspace is centered on the Minneapolis DME Antenna (I-MSP) Ch 40, 110.3

Transponder with Mode C is required for operation within 30 DME of I-MSP



Original prepared by the Mn/DOT Office of Aeronautics

Appendix L: Land Use Compatibility Guidelines for Aircraft Noise

(revision of 2004 Transportation Policy Plan Appendix H)

L

Land Use Compatibility Guidelines for Airport and Heliport Noise

The regional, *Land Use Compatibility Guidelines for Aircraft Noise* have been prepared to assist communities in preventive and corrective mitigation efforts that focus on compatible land use. The compatibility guidelines are one of several aviation system elements to be addressed in the comprehensive plans and plan amendments of communities affected by aircraft and facility operational impacts. The Metropolitan Land Planning Act (MLPA), requires all local governmental units to prepare a comprehensive plan for submittal to the Metropolitan Council for review; updated plans are due December 2008. The following overall process and schedule applies:

- In 2003 the Council adopted the *Development Framework* chapter of the Metropolitan Development Guide (MDG).
- In 2008 the *Transportation Policy Plan* chapter of the MDG is updated and includes the revised land use compatibility guidelines for aircraft noise.
- In 2009, after adoption of the new *Transportation Policy Plan*, the Council transmits new *Systems Statements* to each metro community.
- Within nine months after receipt of the *Systems Statements* each community reviews its comprehensive plan and determines if a plan amendment is needed to ensure consistency with the MDG. If an amendment is needed the community prepares a plan amendment and submits it to the Council for review.
- Each community affected by aircraft noise and airport owner jointly prepare a noise program to reduce, prevent or mitigate aircraft noise impacts on land uses that are incompatible with the guidelines; both operational and land use measures should be evaluated. Communities should assess their noise impact areas and include a noise program in their 2018 comprehensive plan update.
- Owners/Operators of system airports should include their part of the noise program in preparation or update of each airports long-term comprehensive plan (LTCP). See Table L-1 for listing of noise affected airports and communities.
- Council reviews community plan submittal and approves, or requires a plan modification.
- Airport owner submits long-term comprehensive airport plan or plan update (LTCP), including noise mitigation program, for Council review and approval. A schedule for updates of LTCPs is included in the *Transportation Policy Plan*.

Airport Noise

Both the airport and heliport sections of the land use compatibility guidelines assume:

- Federal and Manufactures programs for reduction of noise at its source (engines, airframes),
- Airport operational noise abatement measures/plan in place,
- Community comprehensive plans reflect compatible land use efforts occurring through land acquisition, “preventive” land use measures, or “corrective” land use measures,
- Availability of an approved noise policy map for the facility under consideration. The noise exposure maps identify where, geographically, the land use compatibility guidelines are to be applied.

Preventive and Corrective Land Use Measures

Airport noise programs, and the application of land use compatibility guidelines for aircraft noise, are developed within the context of both local community comprehensive plans, and individual airport long-term comprehensive plans (LTCPs). Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. Table L-2 depicts the land use measures adopted as part of the MSP Part 150 noise compatibility program for 2007.

The status of noise programs at other system airports, in relation to the land use measures adopted at MSP, are also included to indicate the extent of the current noise control effort on a system-wide basis. Other land use measures may also need to be considered at the reliever airports. The level and extent of noise impacts vary widely between the airports and therefore not all land use measures may be appropriate or the level of emphasis may need to be different for neighborhoods within the same community.

Table L-1: Noise Impacted Communities*	
Airport	Community
MSP International	Minneapolis, Bloomington, Richfield, Mendota Heights, Mendota, Eagan, Burnsville
St. Paul Downtown	St. Paul
Anoka County – Blaine	Blaine
Flying Cloud	Eden Prairie
Crystal	Crystal
Airlake	Eureka Twp., Lakeville
South St. Paul	So. St. Paul, Inver Grove Heights
Lake Elmo	Baytown, West Lakeland, Lake Elmo
* As defined under MS 473.621, Sd. 6.	

Table L-2: Land Use Measures

PREVENTIVE LAND USE MEASURES			CORRECTIVE LAND USE MEASURES		
	MSP International Airport Communities	Other Regional Airport Communities		MSP International Airport Communities	Other Regional Airport Communities
Amend local land use plans to bring them into conformance with regional land use compatibility guidelines for aircraft noise.	YES	YES	Acquire developed property		YES
			• within RPZs	YES	FCM & STP Airports.
			• within runway safety zones	YES	
Apply zoning performance standards.	YES	YES	• within DNL 70.	YES	
Establish a public information program.	[YES] Policy Plan, LTCP, EIS, CIP	[YES] Policy Plan, LTCP, EIS, CIP	Part –150 sound insulation program.	YES (MAC 5db criteria)	NO
Revise building code.	YES - MS 473.192 Builders Guide	YES - MS 473.192 Builders Guide	Property purchase guarantee.	NO (Not supported by communities)	NO
Fair property disclosure policy.	[YES] Usually applied by developer or builder.	[YES] Usually applied by developer or builder.	Creation of sound barriers		[YES] Proposed in the FCM & ANE LTCPs.
			• walls,	YES	
Dedication of aviation easements.	YES	YES	• berms,	YES	
Transfer of development rights.	NO	NO	• ground runup enclosures	YES	
Land banking (acquisition of undeveloped property)	NO	NO			

The compatibility guidelines indicate that some uses be “Discouraged”. Prior to applying the guidelines the comprehensive plan or plan amendment needs to assess what has been or can be done to discourage noise sensitive uses. This should be done when the overall preventive and corrective land use measures are being assessed as part of the overall comprehensive plan. The land use compatibility guidelines (contained in Table L-3) are defined and described below. All new land uses are categorized according to whether they are considered new/major redevelopment or new/in-fill/redevelopment.

The land uses are listed in table three as specific categories grouped to reflect similar general noise attenuation properties and what the normally associated indoor and outdoor use activities are. The listing is ranked from most to least sensitive uses in reference to the aircraft noise spectrum. In Table L-6 there is an additional breakdown of the land uses in each category based upon the acoustic properties of typical land uses by the standard land use coding manual (SLUCUM). For new single-family detached housing, that is discouraged but may be allowed by communities in zone 4 and the buffer zone, the Council has prepared a *Builders Guide* to assist in determining acoustic attenuation of the proposed new home.

Table L-3: Land Use Compatibility Guidelines for Aircraft Noise

Land Use Category	Compatibility with Aircraft Noise Levels										Type of Development
	New Development and Major Redevelopment					Infill Development and Reconstruction or Additions to Existing Structures					
	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone*	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone *	
Residential											
Single / Multiplex with Individual Entrance	INCO	INCO	INCO	INCO		COND	COND	COND	COND		
Multiplex / Apartment with Shared Entrance	INCO	INCO	COND	PROV		COND	COND	PROV	PROV		
Mobile Home	INCO	INCO	INCO	COND		COND	COND	COND	COND		
Educational, Medical, Schools, Churches, Hospitals, Nursing Homes	INCO	INCO	INCO	COND		COND	COND	COND	PROV		
Cultural / Entertainment/Recreational											
Indoor	COND	COND	COND	PROV		COND	COND	COND	PROV		
Outdoor	COND	COND	COND	COND		COND	COND	COND	COMP		
Office / Commercial/Retail	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP		
Services											
Transportation-Passenger Facilities	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP		
Transient Lodging	INCO	COND	PROV	PROV		COND	COND	PROV	PROV		
Other medical, Health & Educational Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP		
Other Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP		
Industrial/Communication / Utility	PROV	COMP	COMP	COMP		PROV	COMP	COMP	COMP		
Agriculture Land/Water Areas / Resource Extraction	COMP	COMP	COMP	COMP		COMP	COMP	COMP	COMP		

New Development : Major Redevelopment - or - Infill/Reconstruction

- **“New Development”** - means a relatively large, undeveloped tract of land proposed for development. For example, a residential subdivision, industrial park, or shopping center.
- **“Major Redevelopment”** - means a relatively large parcel of land with old structures proposed for extensive rehabilitation or demolition and different uses. For example, demolition of an entire block of old office or hotel buildings for new housing, office, commercial uses; conversion of warehouse to office and commercial uses.
- **“Infill Development”** - pertains to an undeveloped parcel or parcels of land proposed for development, similar to or less noise-sensitive than the developed parcels surrounding it. For example, a new house on a vacant lot in a residential neighborhood, or a new industry on a vacant parcel in an established industrial area.
- **“Reconstruction or Additions to Existing Structures”** - pertains to replacing a structure destroyed by fire, age, etc., to accommodate the same use that existed before destruction, or expanding a structure to accommodate increased demand for existing use (for example, rebuilding and modernizing an old hotel, or adding a room to a house). Decks, patios and swimming pools are considered allowable uses in all cases.

Table L-4: Structure Performance Standards*

Land Use	Interior Sound Level **
Residential	45dBa
Educational/Medical	45dBa
Cultural/Entertainment/Recreational	50dBa ***
Office/Commercial/Retail	50dBa
Services	50dBa
Industrial/Communications/Utility	60dBa
Agricultural Land/Water Area/ Resource Extraction	60dBa
<p>* Do not apply to buildings, accessory buildings, or portions of buildings that are not normally occupied by people. ** The federal DNL descriptor is used to delineate all the system airport noise policy zones. *** Special attention is required for certain noise sensitive uses, for example, concert halls.</p>	

Definition of Compatible Land Use

The four land use ratings in land use compatibility Table L-3 are explained as follows:

- **COMP - “Compatible”** - uses that are acoustically acceptable for both indoors and outdoors.
- **PROV - “Provisional”** - uses that should be discouraged if at all feasible; if allowed, must meet certain structural performance standards to be acceptable according to MS473.192 (metropolitan area Aircraft Noise Attenuation Act). Structures built after December 1983 shall be acoustically constructed so as to achieve the interior sound levels described in Table L-4. Each local governmental unit having land within the airport noise zones is responsible for implementing and enforcing the structure performance standards in its jurisdiction.
- **COND - “Conditional”** - uses that should be strongly discouraged; if allowed, must meet the structural performance standards, and requires a comprehensive plan amendment for review of the project under the factors described in Table L-5.
- **INCO - “Incompatible”** - Land uses that are not acceptable even if acoustical treatment were incorporated in the structure and outside uses restricted.

Noise Policy Area

A noise policy area is defined for each system airport and includes - aircraft noise exposure zones; a [optional] buffer zone; and, the preventive and corrective land use measures that apply to that facility.

Noise Exposure Zones:

- **Zone 1** - Occurs on and immediately adjacent to the airport property. Existing and projected noise intensity in the zone is severe and permanent. It is an area affected by frequent landings and takeoffs and subjected to aircraft noise greater than 75 DNL. Proximity of the airfield operating area, particularly runway thresholds, reduces the probability of relief resulting from changes in the operating characteristics of either the aircraft or the airport. Only new, non-sensitive, land uses should be considered - in addition to preventing future noise problems the severely noise-impacted areas should be fully evaluated to determine alternative land use strategies including eventual changes in existing land uses.
- **Zone 2** - Noise impacts are generally sustained, especially close to runway ends. Noise levels are in the 70 to 74 DNL range. Based upon proximity to the airfield the seriousness of the noise exposure routinely interferes with sleep and speech activity. The noise intensity in this area is generally serious and continuing. New development should be limited to uses that have been constructed to achieve certain exterior-to-interior noise attenuation and that discourage certain outdoor uses.
- **Zone 3** - Noise impacts can be categorized as sustaining. Noise levels are in the 65 to 69 DNL range. In addition to the intensity of the noise, location of buildings receiving the noise must also be fully considered. Aircraft and runway use operational changes can provide some relief for certain uses in this area. Residential development may be acceptable if it is located outside areas exposed to frequent landings and takeoffs, is constructed to achieve certain exterior-to-interior noise attenuation, and is restrictive as to outdoor use. Certain medical and educational facilities that involve permanent lodging and outdoor use should be discouraged.
- **Zone 4** - Defined as a transitional area where noise exposure might be considered moderate. Noise levels are in the 60-64DNL range. The area is considered transitional since potential changes in airport and aircraft operating procedures could lower or raise noise levels. Development in this area can benefit from insulation levels above typical new construction standards in Minnesota, but insulation cannot eliminate outdoor noise problems.
- **Noise Buffer Zones** - Additional area that can be protected at option of the affected community; generally, the buffer zone becomes an extension of noise zone 4. At MSP, a one-mile buffer zone beyond the DNL60 has been established to address the range of variability in noise impact, by allowing implementation of additional local noise mitigation efforts. A buffer zone, out to DNL 55, is optional at those reliever airports with noise policy areas outside the MUSA.

Table L-5: Conditional Land Use Review Factors

Land Use Review Factor	Residential:		Education / Medical	Cultural / Entertainment / Recreational		Office / Commercial / Retail	Services
	Single, Multiplex with Individual Entrance, Mobile Home,	Multiplex/ Apartment, with Shared Entrance	Schools, Churches, Hospitals, and Nursing Homes	Indoor	Outdoor		
1. Indoor Sound level: Proposed construction design will provide outdoor to indoor attenuation required by structure performance standard in Table 2.	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible
2. Location: Located under major departure flight track used by jets.	Incompatible *	Compatible	Incompatible	Compatible	Compatible	Compatible	Compatible
3. Location: Located parallel to primary runway used by jets.	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Depends upon proposed use.
4. Location: Located parallel to runway to be used for unshielded engine run-ups.	Incompatible	Compatible	Incompatible	Compatible	Probably Incompatible, depends upon proposed use.	Compatible	Compatible
5. Planning Considerations: Consistent with adjacent land use ambient noise; consistent with the overall comprehensive plan.	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible
6. Method of Disclosure: Local government has adopted effective method to inform future occupants of aircraft noise exposure (notice in property deed, truth in housing, informational bulletin, and permit notice).	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible

* Incompatible for new development: compatible for redevelopment & infill development if the municipality determines that Factor 5 is satisfied & Factors 1 & 6 will be enforced

Table L-6: Typical Land Use by Standard Land Use Coding Manual Codes (SLUCM)

TYPE OF LAND USE		CODE NUMBERS AND SPECIFIC USES	
Residential			
Single/Multiplex with Individual Entrance	11	Household units	
	11.11	Single units - detached	
	11.12	Single units - semi detached	
	11.13	Single units - attached row	
	11.21	Two units - side-by-side	
	11.22	Two units - one above the other	
Multiplex/Apartment with Shared Entrance	11.31	Apartments - walk-up	
	11.32	Apartments - elevator	
	12	Group quarters	
	13	Residential hotels	
	14	Mobile home parks or courts	
Educational Services			
Educational and Medical, Schools, Churches, Nursing Homes	65.1	Hospital	
	68	Nursing homes	
	69.1	Religious activities	
	71	Cultural activities (including churches)	
Cultural, Entertainment, Recreational			
Indoor	72	Public assembly	
	72.1	Auditoriums, concert halls	
Outdoor	74	Recreational activities (golf courses, riding stables, water recreation)	
	75	Resorts and group camps	
	76	Parks	
Office, Commercial, Retail Services			
	52	Retail trade - building materials, hardware and farm equipment	
	53	Retail trade - general merchandise	
	54	Retail trade - food	
	55	Retail trade - automotive, marine craft, aircraft and accessories	
	56	Retail trade - apparel and accessories	
	57	Retail trade - furniture, home furnishings, and equipment	
	58	Retail trade - eating and drinking establishments	
	59	Other retail trade	
Other Medical, Health, Educational Services			
	60	Services	
	61	Finance, insurance and real estate services	
	62	Personal services	
	63	Business services	
	64	Repair services	
	65	Professional services	
	35	Professional, scientific and controlling instruments; photographic and optical goods; watches and clocks manufacturing	
Transportation Passenger Facilities	40	Transportation, communication and utilities	
Transient Lodging	15	Transient lodging	

Appendix M: 2007 Preliminary System Airport Assessments



Regional System Airports

Major Airport - Minneapolis-St. Paul International Airport

System Evaluation Criteria	Minneapolis-St. Paul International Airport				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	U	S ?	Pk. Hr. Issues, Rolling Hub, end around		
Landside – capacity vs. demand	Q	Q	Existing Gates, sizing & user issues		
Ground accessibility	Q	Q	Parking Capacity, I-494/34 th Avenue So.		
Environmental compatibility	Q	Q	Insl. Program \$, Glycol		
Infrastructure and Utilities	S	S			
Safety	Q	Q	New ATCT, Radar shadowing		
Air service	Q	Q	# & Type aircraft and service providers		
Economic impact	S	Q	DL/NWA Merger, U.S. economy		
Fiscal	S	Q	DL acquisition, PFCs, Debt		
S – Satisfactory Q – Questionable	U – Unsatisfactory	? – Unknown			

Status in 2000 – Many of the problems identified in 1990 were examined in preparation of the MSP 1996 [for 2010] Long Term Comprehensive Plan (LTCP). In 1996 the Minnesota Legislature accepted Council and MAC dual-track recommendations to provide major airport capacity by expansion at the existing MSP site. Additional detailed evaluations of the MSP LTCP were conducted in preparation of the Plan's Environmental Impact Statement (EIS).

Various mitigation efforts and capital improvement projects were initiated throughout the 1990s, and several problem areas have been improved; others are still in process. Generally, overall progress is being made in each category. It is assumed that the improvements will be adequate through 2010. The FAA has indicated a continued strong growth in air traffic and the MSP EIS adopted the 1993 high range forecasts for 2010/2020. The Council completed a review of the 1993 forecasts and a joint agency effort to prepare new forecasts was initiated in 2001.

Status in 2007 – Economic recession and the 9-11 terrorist attacks significantly changed the outlook from the 2000 historical high air traffic activity. Because of economic conditions completion of the new runway was 17/35 delayed until Oct. of 2005. Activity in passenger traffic and operations have decreased from the historical high. A legal settlement in the noise mitigation program will extend home insulation out to the DNL 60 noise contour and take until 2014 to complete.

A 2015 Terminal Expansion EA was prepared to initiate a first phase of gate expansion but has been put on hold due to industry economic conditions. As part of the 2015 assessment the 2020 Concept Plan for future development, adopted as part of the Dual track planning process, was dropped as a planning option. Northwest airlines went into Chapter 11 Bankruptcy in 2005, reorganized and exited in May 2007; other airlines serving MSP were also in bankruptcy proceedings. Since that time fuel costs have increased substantially, and Northwest, including its subsidiaries, has decided to merge with Delta Airlines by end of 2008.

All airlines are cutting back on the number of flights, parking older inefficient aircraft, and laying off personnel. A number of airlines have recently gone out of business and there are concerns of liquidity for several large domestic carriers to remain solvent into 2009. Parking facilities are continuing to be completed since demand is still high and they provide an important source of revenue. Fuel costs are tied to the low value of the U.S. currency, political instability in oil-producing/refining areas, and poor overall economic conditions.

Of MSP- based airlines, Mesaba Airlines was acquired by NWA, Champion Air charter operator has gone out of business, and Sun Country is requesting aid from the state. Aircraft maintenance work is increasingly outsourced and NWA/Delta merged headquarters will be located in Atlanta. The MAC has initiated forecasting work for an update of the MSP development plan to a 2020 planning horizon.

Intermediate Airport - St. Paul Downtown Airport

System Evaluation Criteria	St. Paul Downtown Airport (Primary Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	S	S			
Landside – capacity vs. demand	Q	Q	Storage consolidation, and limits		
Ground accessibility	S	S			
Environmental compatibility	S	S			
Infrastructure and Utilities	U	S	Implementation of flood protection		
Safety	S	S			
Air service	Q	Q	No longer Part 139 certified		
Economic impact	S	S ?	Activity decline		
Fiscal	S	Q	reliever funding		
S – Satisfactory Q – Questionable	U – Unsatisfactory	? – Unknown			

Status in 2000 – Parts of the 1977 development plan were implemented during the 1980s with completion of a new main-wind runway and taxiways, and initial phase of a raised hangar building area. The military hangar and operational apron areas were upgraded. In 1992 a LTCP was completed

for the airport. It reaffirmed most of the earlier plan, with implementation lighting and precision landing system, new air – traffic control tower, continued development of the elevated building area, agreements for improved FBO services, and new rates-and-services in the 1990s of improvements to agreement to improve the cost/revenue situation, and minor changes for flood control.

The MAC initiated an update of the LTCP in 1999 and a public hearing was held on February 28, 2001. Completion of the LTCP review/approval process has been put on hold by the MAC until FAA concerns with runway safety, and MAC continuing concerns with flood protection, are addressed.

Status in 2007- The airport has seen a number of improvements to runway safety, installation of an ILS, provision of flood control measures including a dike for 100 yr flooding levels. Continued hangar development has occurred in the raised hangar area and redevelopment to higher-end users has occurred in the other hangar areas. Urban encroachment is a continuing issue with community redevelopment in the airport environs.

A major change in MAC reliever airport funding has been put in place to make the reliever airport system as self-sufficient as possible. Activity levels have declined from historical highs and runway use is less than 50% of runway capacity. The MAC has started an update of the LTCP to a 2025 or 2030 planning horizon. It is anticipated that the update will be completed by the end of 2008. Zoning of the airport to meet state requirements is underway; approval of a zoning ordinance may occur in 2009.

Minor Airport - Airlake Airport

System Evaluation Criteria	Airlake Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	Q	S ?	Utility without crosswind?		
Landside – capacity vs. demand	S	Q	Hangar needs & Pvt. Funding		
Ground accessibility	S	S			
Environmental compatibility	Q	S ?	Land use & jurisdiction		
Infrastructure and Utilities	U	Q	Sewer and water service		
Safety	S	S ?	Increasing development, JZB		
Air service	S	S			
Economic impact	Q	S	Declining activity		
Fiscal	S	Q	reliever funding		
S – Satisfactory Q – Questionable		U – Unsatisfactory	? – Unknown		

Status in 2000 – The MAC updated the LTCP in 1996. The plan reaffirmed earlier evaluations concerning the runway layout; it was refined to reflect a 4,600-foot length for the main-wind runway, a

3,200-foot crosswind runway (4/22), and associated taxiways. Railroad and roadways are serious physical constraints to extension of the main runway. The proposed crosswind runway would require acquisition of about eighty acres of land. New demand forecasts indicated the need for an additional [south] building area to be constructed on the existing airport site.

Status in 2007- The airport airside development has been focused upon acquisition of private in-holdings to meet FAA design requirements for the parallel taxiway. Taxiway alley and other building area preparation for a new southwest hangar area were initiated but not implemented. A cross-wind runway was also not implemented. Issues with sewer service still remain. Urban growth continues in Lakeville and the industrial parks are also expanding east and west of the airport.

A major change in MAC reliever airport funding has been put in place to make the reliever airport system as self-sufficient as possible. Capital funding is a continuing issue and areas of the airport have been identified as non-aviation use areas for supplemental revenue generation. Activity levels have declined from historical highs and runway use is less than 50% of runway capacity. In 2007 the MAC adopted an airport 2025 LTCP update that recommended that the crosswind runway proposal be dropped from the plan, that the southwest building area be completed, and that extension of the main-wind runway to 5,000' be maintained for the long-term.

Minor Airport - Anoka County - Blaine Airport

System Evaluation Criteria	Anoka County - Blaine Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	Q	S			
Landside – capacity vs. demand	Q	S			
Ground accessibility	Q	S			
Environmental compatibility	Q	S			
Infrastructure and Utilities	Q	S			
Safety	Q	S ?	JZB, ordinance		
Air service	Q	Q	Dev. Of NW building area and services		
Economic impact	S	Q	Declining activity		
Fiscal	S	Q	Reliever funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – In May 2000 a settlement agreement was reached between the City of Mounds View, MAC and the Council concerning litigation on the 1986 stipulation agreement. The LTCP was resubmitted for Council review and approved, with a number of conditions, on August 30, 2000. The 1999/2000 legislature limited all Minor airport runways to a maximum of 5,000' – this was included in the

settlement agreement. The agreement is in effect until Dec. 31, 2020. A major shift in the ratings is expected to occur between 2003 – 2007 as projects are completed.

Status in 2007 – Most of the 2015 plan elements have been implemented. Improvements include a new runway approach lighting system and installation of a precision instrument landing system (ILS). The northwest hangar building area and extension of the east/west runway to 5,000' has been accomplished through a private public partnership involving the City of Blaine, Anoka County and private investors. Large parts of the airport are being used for recreational and other governmental purposes. Urban growth has occurred with development occurring in sod farms adjacent to the airport.

A major change in MAC reliever airport funding has been put in place to make the reliever airport system as self-sufficient as possible. Capital funding is a continuing issue and remaining areas of the airport have been identified as non-aviation use areas for supplemental revenue generation. Activity levels have declined from historical highs and runway use is less than 50% of capacity. A update to the airport LTCP to a 2025 or 2030 planning horizon will have been started with completion by end of the year. Airport zoning will need to be revised to reflect the LTCP.

Minor Airport - Crystal Airport

System Evaluation Criteria	Crystal Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	S	S			
Landside – capacity vs. demand	U	Q	Hangar expansion		
Ground accessibility	S	Q	Hwy 81 development		
Environmental compatibility	Q	S			
Infrastructure and Utilities	Q	S			
Safety	S	Q	JZB and ordinance.		
Air service	Q	Q-S	FBO and services		
Economic impact	S	S?	Declining activity		
Fiscal	S	Q?	Reliever funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – The City of Crystal comprehensive plan was reviewed by the Council in January 1994. The Council determined that the community plan could not be put into effect until it was modified to address airport-related issues. A key result of the Crystal community plan review process was that the MAC commit to preparation of a LTCP, since there was no plan adopted for the airport. An LTCP was prepared in 1994 and a public hearing held in June 1995. The public hearing report, and LTCP, was reviewed by the MAC Planning and Environment Committee in September 1995. The P&E Com-

mittee recommended that the Commission: adopt the hearing officers report; adopt the Crystal LTCP; authorize forwarding of LTCP to Metropolitan Council for review/approval; and request that Met Council initiate an airport system economic study.

In October 1995 the MAC appointed an “Obstruction Committee,” and throughout 1996/97 the committee met with the Crystal Airport Tri-City Airport Commission to resolve the airport safety ordinance and other issues. In early 1997 the MAC CIP included \$450,000 for removal of obstructions—primarily trees—many on private property. The Council completed a regional economic study in 1990, including data for Crystal Airport. In August of 1999 the MAC completed removal of all tree obstructions in the runway approaches. A Crystal LTCP has still not been submitted for Council review. The Council reviewed the city comprehensive plan on June 26, 2000. The city continues to desire that the airport be closed in the 2020 time period and does not want to participate in any noise mitigation program or land use compatibility programs.

Status in 2007- The airports runway configuration has been in place since the early 1960’s, hangar area development and taxiway improvements have been made over the years. Adjacent airports have improved their individual capabilities relative to Crystal. During 2007 the MAC prepared a draft 2025 LTCP update. The plan is to eliminate the turf cross-wind runway and one of the parallel main-wind runways. No new hangar areas are proposed since sufficient vacant hangars are currently available on-site. A major change in MAC reliever airport funding has been put in place to make the reliever airport system as self-sufficient as possible. Capital funding is a continuing issue and areas of the airport have been identified as non-aviation use areas for supplemental revenue generation. Activity levels and based aircraft numbers have declined from historical highs and runway use is less than 50% of capacity. The airport is fully encroached by urban development; there are no redevelopment plans by adjacent communities or the airport. Airport zoning will need to be revised to meet state standards. Adjacent communities have approved of the runway reductions and still want the airport to be closed.

Minor Airport - Flying Cloud Airport

System Evaluation Criteria	Flying Cloud Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	Q	Q	Capabilities for design aircraft		
Landside – capacity vs. demand	U	Q	Hangar needs and Pvt. Funding		
Ground accessibility	Q	S			
Environmental compatibility	Q	S			
Infrastructure and Utilities	U	Q	Sewer and water service		
Safety	Q	S ?	JZB, ordinance		
Air service	U	Q	Runway length		
Economic impact	S	Q	Declining activity		
Fiscal	S	S ?	Reliever funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – Ratings in 2000 reflect the 1992 [Amended] LTCP, 1994 FCM Stormwater Pollution Prevention Plan, and the 1999 FCM Expansion Plan DEIS. The development plan is essentially the same as the preferred alternative initially proposed in 1988. Since a FEIS/ROD is not completed the proposed development was not in place as of 2000. Therefore airside and landside capacity deficiencies are not changed, although land acquisition for the new building area indicates improvement. Ground access has been better defined but implementation not completed. EIS is in process, and LTCP approval conditions not yet implemented. Land acquisition for runway approaches is well under way and expected to be satisfactory before 2010. Air service will remain deficient until lengthened runway is operational. Economic impact is improved with information for Flying Cloud available from regional study. Fiscal is improved with MAC adoption of new rates-and-charges for their general aviation airports.

Status in 2007- A FEIS and federal record of decision (ROD) has been recently completed. An Agreement between the City of Eden Prairie and the MAC is in place for addressing land use issues, noise mitigation, utility services, and airport/aircraft operational limits. Sewer service to the north hangar area is occurring in mid 2008. A major change in MAC reliever airport funding has been put in place to make the reliever airport system as financially self-sufficient as possible. The approved LTCP includes extension of the parallel main-wind runways, and a new south-west hangar building area. The north parallel is being extended to 3,900' in 2008 and the south parallel to 5,000' in 2009. An update of the LTCP to a 2025 or 2030 planning horizon is expected to be completed by end of 2008. Airport zoning will need to be revised to reflect the new runway extensions and LTCP update proposal. Capital funding is a continuing issue and areas of the airport have been identified as non-aviation use areas for supplemental revenue generation. Activity levels and based aircraft numbers have declined from historical highs

and runway use is less than 50% of capacity. Adjacent airports have not improved their capabilities and a private use airport in Carver Co. is being lost to urban development.

Minor Airport - Lake Elmo Airport

System Evaluation Criteria	Lake Elmo Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	S	S			
Landside – capacity vs. demand	Q	Q	Hangar needs and Pvt. funding		
Ground accessibility	S	S			
Environmental compatibility	S	S?	Noise and land use		
Infrastructure and Utilities	U	Q	Sewer and water service		
Safety	S	S?	JZB and ordinance		
Air service	S	S?	Runway length		
Economic impact	S	Q?	Declining activity		
Fiscal	S	S-Q?	Reliever funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – Ratings are based upon the 1992 long-term comprehensive plan (LTCP); it was approved by the Council in 1994. The 1992 plan indicated that demand was less than earlier forecasts, and in the 10-year time-frame extension of the main-wind runway to 3,300', along with a non-precision VOR approach, should be sufficient. A supplement to the LTCP was prepared in 1993 concerning stormwater and groundwater management. During the 1990s continued growth in general aviation has almost filled capacity of existing hangar areas and capacity is questionable unless a new building area is opened. Sewer and water service issues with individual users have been addressed, and longer-term issues with potential central services are included in the new MAC policy on services at its reliever airports. A monitoring and mitigation agreement between the MAC and MPCA has been implemented concerning groundwater contamination in the airport area. Economic impact was identified in the 1990 Regional Economic Impact Study. Fiscal status improved with MAC adoption of new rates and charges for their general aviation airports.

Status in 2007- No major airside improvements implementing the approved 1992 LTCP has occurred. An EA was prepared for a potential new south-east hangar building area. A major change in MAC reliever airport funding has been put in place to make the reliever airport system as self-sufficient as possible. Urban growth and airport encroachment is still an issue. Central sewer and water service may become available in the near term. In 2007 the MAC finished a draft 2025 LTCP update. It proposes keeping the planned 3,900' new main-wind runway in the plan for long term growth potential, but in the short

term to extend the cross-wind runway to 3,300', and develop a new hangar area. Airport zoning will need to be revised to reflect the LTCP proposal. Capital funding is a continuing issue and areas of the airport have been identified as non-aviation use areas for supplemental revenue generation. Activity levels and base aircraft numbers have declined from historical highs and runway use is at about 25% of capacity. Adjacent airports have improved their individual capabilities relative to Lake Elmo.

Minor Airport - South St. Paul Municipal Airport

System Evaluation Criteria	South St. Paul Municipal Airport (Reliever)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	S	S			
Landside – capacity vs. demand	Q	S			
Ground accessibility	Q	S			
Environmental compatibility	?	?	Noise contours dated		
Infrastructure and Utilities	Q	S			
Safety	Q	?	RPZ relocation, land acquisition		
Air service	S	S			
Economic impact	S	S			
Fiscal	U	?	Local funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – Ratings in 2000 reflect the City of South St. Paul's 1999 Comprehensive Plan and draft airport layout plan (ALP), as well as the Council's 1998 Regional Economic Impact Study. Airside capacity is satisfactory. Sale of property in Inver Grove Heights, included in 1976 master plan for future building area improvements, substantially affected long-term growth options. Continued development of south building area occurred to meet demand. ALP update identified new hangar areas in east and west portions of the airport for future development. Landside capacity still questionable until ALP approved by the FAA. Ground access improved with connection to Hwy. 52, issue with signage. Adequacy/availability of documentation on environmental compatibility unknown. RPZ protection and obstruction removals still an issue; airfield fencing improved safety situation. Airspace operational interaction with STP and MSP needs continuous monitoring. Airside pavement and lighting improvements satisfactory; still need improvement in navigational aids. Air service has improved dramatically with provision of self-fueling and construction of an air terminal and services. Economic impact for SSP was identified in the regional evaluation. The City has identified economic development goals for the airport. Fiscal has improved with hiring of full-time airport manager; capital funding remains an important issue.

Status in 2007 – The City has improved the taxiway system and opened a new west-side forty-seven hangar building area with separate access road. Spillover effect of lease rate increases at MAC airports is a potential growth factor in activity levels.

Special Purpose Airport - Forest Lake Airport

System Evaluation Criteria	Forest Lake Airport (Municipal)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	Q	Q	Condition and utility of runway		
Landside – capacity vs. demand	Q	Q	Relocated building area		
Ground accessibility	Q	Q	Relocated access rd.		
Environmental compatibility	Q	S ?	Noise inf. lacking		
Infrastructure and Utilities	Q	S			
Safety	Q	S			
Air service	Q	Q	Design aircraft needs		
Economic impact	?	Q	Plan is lacking		
Fiscal	Q	Q	Local funding		
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – The ratings for 2000 are based upon information listed previously, the *1996 Airport Acquisition Feasibility Study* prepared by Forest Lake Township, and the *Comprehensive Plans* prepared by the City and Township of Forest Lake. The airport study investigated the possibility of public purchase of the private facility; it included assessing future development opportunities for the airport, defining the amount of land required by FAA and Mn/DOT standards to satisfy existing and proposed development, and ultimate revenue streams and operating costs that could be expected from the airport. The study did not include any aviation forecasts for determining facility demand or specific timing for development phasing. In 1999 there were 20 based aircraft at the airport. Assumptions on development needs were based upon meeting federal and state design standards; therefore, most of the ratings go from “unknown” to “questionable.” These categories remain as questionable until specific evaluations occur, funding programmed, and projects implemented. The airport zoning was approved by Mn/DOT.

Status in 2007 – The airport has been making progress in its land acquisition and land use safety efforts over the past few years with assistance from Mn/DOT Aeronautics. A new access road and new hangar area are under development for 28 conventional hangars and 15 T-hangars including paved alleyways. All leaseholds are served with water, sewer, electricity and natural gas. A paved taxiway is completed and paving of the runway to 2,700’ is anticipated for 2008 with eventual extension to 3,300’ when power line obstruction is removed. Future CIP projects are uncertain with state aviation trust funds

used to reduce state debt in 2007/08 legislative session. Not requesting a GPS approach. Spillover effect of rate increases at MAC airports is a potential growth factor.

Special Purpose Airport - Surfside Seaplane Base

System Evaluation Criteria	Surfside Seaplane Base (Private - Lino Lakes)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	?	S?	Water levels		
Landside – capacity vs. demand	S	S?	Storage capabilities		
Ground accessibility	S	S			
Environmental compatibility	?	S			
Infrastructure and Utilities	S	S			
Safety	?	S?	RPZ areas		
Air service	?	S			
Economic impact	?	S?	Economic eval.?		
Fiscal	?	U?	Private funding		
S – Satisfactory Q – Questionable	U – Unsatisfactory	? – Unknown			

Status in 2000 – Ratings in 2000 reflect information in the 1998 Lino Lakes comprehensive plan update. New general aviation forecasts were prepared as part of the Aviation Policy Plan Update 2000 – 2020; projections of fixed-wing aircraft growth were included, but a separate assessment of seaplanes was not prepared. The status of airside capacity has not changed since 1990. Landside capacity is estimated to have become more constrained in the last 10 years. Status of most other categories has remained unknown. Urban development is expected to continue and put additional pressures on the private airports in the metro region.

Status in 2007- Preliminary ratings for 2007 may change when the 2008 Lino Lakes CPU is submitted for Council review. Some reduction in activity reflects current trends in G.A. Projections of G.A. fixed-wing aircraft growth was included as part of the Sport Aviation Study, a separate seaplane assessment was not prepared. A second building area and access has been added. Status of airside and landside capacity is essentially unchanged since 2000. Land use compatibility with nearby residential development and regional park reserve/watershed district do not appear to be an issue, although long term urban development and park use is expected to increase. Future activity is unknown due primarily to private ownership and that most “based” aircraft are straight- float and not amphibian equipped, and the dirt runway is not available for regular operations or easily expandable.

Special Purpose Airport * - Benson Airport

System Evaluation Criteria	Benson Airport (White Bear Township)				
	Status in 2000	Status in 2007	2015 Forecast vs. LTCP	2020 Forecast vs. LTCP	2030 Forecast vs. LTCP
Airside – capacity vs. demand	?	S ?	Runway length		
Landside – capacity vs. demand	?	S ?	Hangar Size changes		
Ground accessibility	S	S			
Environmental compatibility	?	?			
Infrastructure and Utilities	?	?			
Safety	U	?			
Air service	?	S			
Economic impact	?	?			
Fiscal	?	?			
S – Satisfactory Q – Questionable U – Unsatisfactory ? – Unknown					

Status in 2000 – White Bear Township became owner of the Benson Airport in 1996. Under terms of the owner's estate, the 62-acre airport will be operated for at least 40 years by the Benson Airport Association. The Township got 19 acres for parkland and another four acres to locate a new water tower. Many of the ratings have remained unchanged since 1990; it is anticipated that this will change soon due to three key items:

- The preparation of an updated comprehensive plan by the Township that is to include aviation information (the plan was still not submitted for Council review as of June 2001).
- The FAA-proposed change to the MSP International Airport Class-B airspace, which could have a dramatic effect upon sailplane operations. Benson Airport is home to the Red Wing Soaring Association and the proposed airspace change could become a serious cost issue, forcing them to relocate, having a direct impact on airport use.
- The possibility of changes in state aeronautics rules/regulations that would set licensing standards, based upon runway length of 2,000', for airports designated as "special purpose." This new designation would be the same as currently used in the regional aviation system plan.

Status in 2007 – The Red Wing Soaring Association has moved to Osceola, WI and air traffic activity is down as a result. Some new conventional hangars are being proposed but a number of existing T-hangar facilities are being removed, so overall landside capacity for aircraft storage is essentially unchanged. Airside capabilities have been downgraded by removal of the runway lighting. The turf runway remains the same; no improvement to approach hazards or safety zoning has occurred. The airport

management association does not appear to encourage ultralights, homebuilts of light sport aircraft. This facility, under new state rules could conceivably be a “Special Purpose” licensed facility; however, it appears there is no desire either by the Township or the airport association to promote the airport to try and eventually become eligible for federal or state capital funding. Given these conditions the Council assumes that the facility closure sunset date of 2030 is highly likely and therefore will not include this airport in the metro system, but will continue to monitor the facility in relation to operations at the system airports. It is possible that some Benson’s airport users and private airstrips in the area under urban development pressures may elect to move to the Forest Lake Airport due to its planned improvements.

Note: This airport is not in the system, but may have a future impact and is included here to recognize potential forecast impacts and to present an example of issues to be examined for including potential facilities into the regional system plan.

N

Appendix N: Air – Transportation Glossary

AGL (above ground level)	usually used in reference to defining height of potential air obstructions above ground level at the site, not in reference to elevation of the site to sea level.
AIA (airport influence area)	The general geographic area around an airport that encompasses the major arena of aircraft operational and development interaction between an airport and its surrounding land uses. The area is defined as a radius area 3nm off the physical ends of existing and planned runways of the nearest system airport to the affected community (see Table 10-24). Size of an AIA varies according to the airport's role and function.
AIP (airport improvement program)	federal funding program administered by FAA for airport development and planning.
Air access	refers to provision of open competition for air service to an airport.
Air Cargo	freight, parcels and mail carried in the belly-hold of passenger aircraft, on an all-freight airline, or express carrier.
Air Carrier	a scheduled, certificated airline that provide commercial passenger and cargo services.
Aircraft fleet	all the aircraft operated by a particular airline or otherwise delineated by type, geographical location, etc.
Air operation	Either a landing or takeoff movement.
Aircraft mix	generally denotes type of aircraft in a fleet, aircraft operating at a airport, etc.
Airfield	that part of the airport containing the runways, taxiways, and safety areas associated with aircraft operations; also called “airside” area.
Airline agreement	the main legal document between an airline or group of airlines and the airport owner/authority outlining such things as responsibilities, rates and charges, operating conditions, etc.

Airport	identifies a defined property area for land based aircraft operations with turf or paved runways, as distinct from seaplane bases with water lanes, or heliports.
Airport capacity	the number of aircraft movements the runways of an airport can process within a specified period of time with the average delay to aircraft kept to an acceptable limit. Usually defined on an annual or peak period basis.
Airport functional classification	methodology used to categorize an airport for purposes of determining its role and functions in a system.
Airport sponsor	defines airport owner, airport operator, or other legal entity authorized as eligible by the FAA to enter into agreements for federal funding of projects.
Airport service area	an area around an airport, usually defined as a ground travel time in minutes on the roadway system, normally accessible by auto. It applies to airport users either working at the airport, basing their aircraft at the airport, or using air services at the airport; conversely, it also defines the general accessibility of someone flying into the airport to local businesses, etc.
Airstrip	describes a single runway, usually a turf runway, usually a privately-owned property with operating restrictions, most often without services and allowed under a conditional use permit from the local governmental unit.
Airports system plan	A plan, normally multi-county in scope that identifies the functional roles of all existing and proposed aviation facilities over time. A system plan includes policies, forecasts and capacity analysis and a generalized development program. Used to determine need and coordinate overall planning, funding and implementation priorities for system facilities
Airspace	that portion of the nation's air resource available for air navigation and landing and takeoff of aircraft. Usually defined by imaginary surfaces in height control ordinances/maps, air traffic control and navigational fixes.
Air transportation	mode of travel provided for rapid movement of freight and people through the air over long distances verses moving on the ground or using surface water to travel.
Airway	generally defined as an imaginary low or high altitude flyways established along defined compass headings and altitudes.
ALP (airport layout plan)	a specific set of required drawings documenting the airport facility in sufficient detail for FAA approval of project level decision making.

Ambient noise	existing background noise reflecting normal daily activities within a certain area and defined time period. Serves as a base for comparison of non-typical external noise source impacts introduced to the area.
AMSL (above mean sea-level)	method of defining elevation of a particular site, usually in relation to other sites, all using the same base elevation from sea level.
Apron	a paved or hard surface area available for temporary aircraft parking or servicing activity. Usually found at an FBO, hangar area, or terminal.
ASV (airport service volume)	The theoretical number of aircraft operations that can be handled by an airport in a year. This measurement depends upon runway layout (number, type, direction), instrument landing capability, average weather conditions, the presence of an air traffic control tower and related factors.
ATC (air traffic control)	positive control of aircraft flight activities through human or automated direction using electronic aids to maintain safety and efficient movement of aircraft.
ATCT (air traffic control tower)	a facility on-airport used by ATC to control arriving and departing air traffic to/from a specific runway, airport and associated airspace.
Aviation	definition used in this guide to define all elements of air transportation besides airports, to include aircraft industry, airspace resources, aircraft, pilots, users, air traffic control and navigation system, airlines, air service, airport facilities, etc.
Avigation easement	an airspace easement over a particular area usually for purposes of aircraft overflight or safety enhancement.
Based aircraft	Aircraft that are stored, hangared or tied-down at one particular airport, usually for at least a continuous 6-month period, and use the airport as their primary base of operations.
Code sharing	A practice whereby airlines use the same computer reservation codes to provide “seamless” ticket/price services, usually to take advantage of economies in hub airport connections.
Commercial air carrier airport	facility providing for scheduled air passenger and air cargo services.
Corporate aircraft	Aircraft used for the transportation of corporate executives and general business needs.
Cross-wind runways	Runways constructed to allow an airport to be used when the wind speed blowing across the main-wind runway is more than specified operational limits.
dBA	A dB is a unit of sound pressure (decibel) measured on the “A” scale.

Delay	terminology defining a constriction of time in performance of all or parts of an air trip. It can be a delay in accessing the airport, parking, terminal processing, gate unavailability, aircraft taxiing, runway queuing, air traffic control, airspace congestion, weather issues, etc.
EAS (essential air service)	federal program to subsidize air service to small communities where local demand is usually not sufficient to attract sustainable and reliable service.
Enplanements	The total number of passengers at a specific airport boarding an aircraft.
EQB (environmental quality board)	a state board that defines which projects require what level of environmental review and coordinates what agencies, groups, citizens need be involved in the particular review.
FAA (federal aviation administration)	federal part of DOT that deals with the air transportation mode and all aspects of pilot licensing, airport certification, aircraft certification, aviation rules and regulations, safety, operation, air traffic control, navigational system, fees and taxes, security, airline operations, etc.
FAR (federal air regulation)	rules and regulations issued by the FAA in administration of its regulatory functions, these regulations carry the force of law and are binding on all aviation activities within FAA purview.
FAR Part 77	establishes criteria and defines “objects affecting navigable airspace,” serving as a means to protect airspace needed for safe flights.
FAR Part 150	defines noise control and compatibility planning for airports in accordance with FAA criteria and funding requirements.
FBO (fixed base operator)	usually a private leasehold business providing facilities and services on the airport (e.g. fuel, maintenance, hangaring, etc.) for aircraft based at the airport and transient users.
FCC (federal communications commission)	controls communications facilities, frequencies and power output of electronic transmissions for radio, TV and microwave services. These facilities/activities share the airspace with aviation and FAA review is required prior to implementation.
FIS (federal inspection services)	portions of international airports are designated for international arrivals and departures, the inspection facilities allow for federal services in processing of passengers and goods.
FY (fiscal year)	federal 12 month period starting in October versus calendar year (CY) with 12 month period starting in January. Affects funding, planning schedules, and data collection/definitions.
G.A. (general aviation)	All aviation activity other than that of the scheduled air carriers and the military. G.A. includes single- and twin-engine aircraft with gross weights ranging from 2,000 to 60,000 pounds.

Gate	usually an enclosed seating area and associated jetway for multiple, daily passenger loading and unloading to an aircraft.										
Global alliance	groupings of airlines providing connectivity on a global scale; current groupings include Star, Oneworld, and SkyTeam.										
Going Green	expression for efforts to improve environmental sustainability into all aspects of the airline industry, airports, etc.										
GPS (global positioning system)	a federal government sponsored and operated, satellite based, navigation system providing real-time geographical referencing for all modes of transportation on a global basis.										
Ground Access	term for describing pathways, typically road and rail, for all rubber or steel-wheel vehicles’ providing service to the airport.										
Helicopter	A heavier-than-air rotorcraft that depends principally for its support in flight on the lift generated by one or more rotors, not fixed wings..										
Heliport	An identifiable area including facilities on land or on a structure used or intended for the exclusive use of helicopter landings or takeoffs. The facilities may include services, can be freestanding or located within an airport.										
Helistop	An identifiable area used or intended to be used for the landings or takeoffs of helicopters engaged only in dropping off or picking up passengers or cargo.										
Hub	A hub is a geographical area-Standard Metropolitan Statistical Area (SMSA) - and may have more than one airport in it. (This definition of hub should not be confused with the definition being used by the airlines in describing their “hub and spoke” route structure.) The classification scheme used for hubs by the FAA is defined in the following table:										
<table><tr><td>Hub Classification</td><td>Large</td><td>Medium</td><td>Small</td><td>Non-hub</td></tr><tr><td>Percent of National Total Enplaned Passengers</td><td>1.00 or more</td><td>0.25 to 0.9999</td><td>0.05 to 0.249</td><td>Less than 0.05</td></tr></table>		Hub Classification	Large	Medium	Small	Non-hub	Percent of National Total Enplaned Passengers	1.00 or more	0.25 to 0.9999	0.05 to 0.249	Less than 0.05
Hub Classification	Large	Medium	Small	Non-hub							
Percent of National Total Enplaned Passengers	1.00 or more	0.25 to 0.9999	0.05 to 0.249	Less than 0.05							
Instrument approach	An electronically-aided landing approach to a runway, often used under marginal or poor weather conditions. The approach to an airport’s runway is flown primarily by reference to instruments to a prescribed “decision height.” At this height, the pilot makes positive visual reference to the airport, or its approach lights, or terminates the approach and begins climbing back to a higher altitude (missed approach).										

INM (integrated noise model)	a computer software program specifically designed for calculating and displaying acoustic information on individual aircraft operations or entire annual operations of a large airport. The FAA designated model for use in its Part 150 noise compatibility program.
IFR (instrument flight rules)	rules as prescribed by Federal Air Regulations for flying by instruments. Often used when weather conditions, visibility or ceiling fall below those prescribed for Visual Flight Rules. Pilots must be instrument rated to fly in IFR conditions and aircraft must have required on-board equipment to be able to perform operations under IFR rules.
ILS (instrument landing system)	a non-visual, precision approach to a runway utilizing electronic equipment at the airport to provide lateral guidance to the runway centerline and to give positive vertical reference from the glide path to the runway end.
Intermediate airport	an airport whose system role is to provide facilities and services primary to corporate-business users of aircraft usually weighing less than 75,000 lbs.
Intermediate heliport	a heliport equipped with such amenities as lighting and communications, limited navigational aids, fuel, maintenance and passenger-related facilities. Some hangar or tie down space is available. This type of heliport is intended for corporate and charter helicopter services.
Itinerant aircraft	aircraft that is not based at a particular airport but is visiting or passing through from another facility usually more than 20 nm away.
JZB (joint zoning board)	terminology used in Minnesota statutes that allows an airport authority in an urban setting to form a board between the authority and airport-affected communities to address height control and land use type/density off-airport for safety of persons flying and persons on the ground within prescribed areas around an airport.
Ldn (level-day-night)	a method of measuring and plotting the amount of noise in a community, and includes an additional penalty for nighttime noise. The Ldn is normally averaged over a one-year period.
Legacy air carrier	terminology used to describe those airlines in existence at the time of national airline de-regulation in 1978 (e.g. United, American, Delta).
LCC (low-cost carrier)	recent popular term describing primarily new entry airlines since de-regulation that have cost structures and airfares lower than the legacy air carriers, thereby spurring competition and often lower fares.
LFN (low-frequency noise)	the (C) scale of the sound spectrum defining low level noise frequencies from jet engines, often referred to by onlookers as a “rumble” or “vibration” .

LSA (light sport aircraft)	a new category of general aviation aircraft certified by the FAA, limited to 1,320 lbs gross weight, a maximum stall speed, and maximum cruise speed. Normally associated with the new sport-pilot license and limited to VFR operating conditions.
Local flight operations	Refers to those activities by aircraft that: <ol style="list-style-type: none"> 1. Operate in the local traffic pattern or within sight of the airport; 2. Execute simulated instrument approaches or low passes at the airport (i.e., “touch and goes”); 3. Arrive from or depart to a local practice area located within a 20-mile radius of the airport. (Most instructional/training operations are local.)
LTCP (long-term comprehensive [airport] plan)	Overall plan for an individual airport. It integrates information pertinent to planning, environmental considerations, developing and operating an airport. Also includes forecasts of aviation demands, facility requirements, and general recommendations for development over a 20-year period.
MAC (Metropolitan Airports Commission)	an airport authority established for the Twin Cities area by the state legislature in 1943 to promote aviation in and through the area, operate a system of public airports and ensure provision of air passenger and cargo services.
Main-wind runway	a runway that is aligned with the prevailing winds and often designated as a primary runway for operations when multiple runways exist at the airport.
Major airport	an airport whose primary air service access area is international and national in scope. Its role in the airport system is to provide facilities and services primary to air carrier and regional commuter users. Also called a commercial-service airport.
Major heliport	a full-service facility complete with landing and navigational aids, refueling capabilities and hangar, maintenance and passenger terminal facilities. This heliport is designed for all forms of helicopter services.
Minor airport	An airport whose system role is to provide facilities and services primarily to personal, business and instructional users.
Minor heliport	A small-scale facility with minimal amenities that do not include refueling capabilities, navigational aids or tie down spaces.
MSP (Minneapolis-St. Paul International airport)	a three-letter designator used on a national basis to identify a particular airport (e.g. DFW = Dallas-Fort Worth)
Nautical mile	distances for air or sea travel are usually defined in terms of nautical, rather than statute miles (e.g. air nautical mile is 6,070.097 ft.).

NextGen (next generation)	term used by FAA for its next generation of air traffic control.
Nighttime	usually a defined period for noise modeling and/or noise mitigation, curfews and enforcement purposes.
Noise abatement	The attempt to reduce the amount and level of noise on and around airports, especially during takeoffs and landings, partly through special operational restrictions and proper land use planning for areas affected by aircraft noise.
Open Skies	a governmental policy of the U.S. to guide airline de-regulation with other countries or regions of the world. Usually includes a specific agreement for removing barriers and improvement of air services.
Out-sourcing	recent term used to describe airline practice of sending former in-house work (e.g. aircraft maintenance) to an outside contractor, whether domestic or foreign.
PFC (passenger facility charge)	a domestic charge allowed by the U.S. at commercial service airports, funds used primarily for capital projects at the specific airport.
Private heliport	A heliport facility for the exclusive use by the owner or other persons having prior authorization to use the facility
Privately owned, public-use airports	These airports are privately owned, but available for public use without needing prior permission to land.
Public heliport	A heliport facility available for the takeoff or landing of helicopters with no prior authorization required to use the facility
RASP (regional airport system plan)	a system plan where geographical or operational scope includes large urban areas that are multi-county or multi-state in size and interaction.
Reliever airport	an airport whose primary purpose is to serve general aviation and at the same time relieve congestion at a major airport having a high density of scheduled certificated airline traffic. It performs this function by providing services that attract and divert G.A. activity away from the major airport.
RJ (regional jet)	term associated with jet powered aircraft usually with 50 seats or less; since de-regulation this definition is blurring, as new aircraft (e.g. EMB 195) are coming into service with up to 110 seats, the current bottom-end of airlines “mainline” sized aircraft.
ROD (record of decision)	final federal determination documentation on environmental impact statement and related analysis needed prior to funding and implementation of a project.

Run-up	usually an engine testing procedure conducted at an engine maintenance facility or an on-aircraft test performed at a specific site on the airport to minimize effects of full engine power applications.
RUS (runway use system)	an air traffic control method for operating an airport in a safe and efficient manner while still meeting aircraft noise operation abatement objectives.
Runway	any prepared landing and takeoff surface of an airport.
RPZ (runway protection zone)	a federally defined clear area beyond the end of a runway, under control of the airport owner, in which the presence of structures or other obstructions are controlled to permit safe flight for takeoff and landing operations.
Runway incursion	an unauthorized physical presence on a runway surface by a person, vehicle or aircraft as a violation of rule, ordinance or air traffic control procedures/approval.
SASP (state airport system plan)	a plan of each airport's role, inclusion in the NPIAS, data files, development program, funding agreements, and implementation measures required by FAA for airports normally within the boundary of each state.
Search Area	a planning tool used to identify geographical areas meeting certain criteria as potential locations for new aviation facilities in event of need.
Special-Purpose aviation facility	a facility open to public-use, including heliport, seaplane base or airport landing area whose primary geographic and service focus is normally state and metropolitan in scope. Personal, business and instruction uses are accommodated at these facilities. Gliders have been mostly accommodated at private-use airports in the Metropolitan Area.
Statute mile	a measure of distance for ground travel defined as 5,280 feet.
TSA (transportation security administration)	transportation security unit under the overall department of homeland security. Established as a department of U.S. federal government as a result of terrorism act in N.Y. city, Nov. 11, 2001.
UNICOM	radio communications equipment mostly used at uncontrolled G.A. airports. Allows pilots to communicate with each other in vicinity of the airport, activate airport runway lights, and provide air-to-ground communications.
VLJ (very light jet)	recent new category of personal business jet aircraft certified by FAA. Aircraft weighs less than 11,000 lbs maximum weight and seats 6 or less persons.
Visual flight rules (VFR)	"See-and-be-seen" flight rules. Used during good weather conditions under which an aircraft can be operated by visual reference to the ground, to other aircraft and distances from clouds.

VOR
(very high frequency
omni-directional radio)

a ground radio station that provides a pilot of a properly equipped aircraft with his or her location in reference to that station.

VOR approach

A landing approach to a runway using the VOR as a reference point and directional guidance to the runway



Appendix O: Conformity Documentation of Potential Economic Stimulus Projects

The United States Environmental Protection Agency's (EPA's) 40 CFR PARTS 51 and 93, requires the Metropolitan Council (the Council) to prepare a conformity analysis of the region's *Transportation Policy Plan* (the Plan). Based on an air quality analysis, the Council must determine whether the transportation plan conforms to the requirements of the 1990 Clean Air Act Amendments (CAAA) with regard to National Ambient Air Quality Standards for mobile source criteria pollutants. Specifically, the Minneapolis/St. Paul Metropolitan Area is within an EPA-designated carbon monoxide (CO) maintenance area. Appendix F describes the procedures used to analyze the fiscally constrained *2030 Transportation Policy Plan* and lists findings and conclusions supporting the Metropolitan Council's determination that this Plan conforms to the requirements of the CAAA.

Due to recent changes in the national economy Congress is considering adoption of an economic stimulus package that would include new funding for transportation infrastructure. In order for the region to have maximum flexibility to take advantage of this potential funding source, the Council has taken the necessary procedural steps to allow any one of the 12 major expansion projects from the plan adopted in 2004 to be funded. These projects are being included in the plan adopted in January 2009 contingent upon additional federal funding becoming available. If no additional funding is received, these projects will not part of the fiscally constrained plan.

Air quality conformity analyses were conducted by adding each of these 12 projects individually to the fiscally constrained plan to verify that the plan, including that project, would not result in emissions exceeding the current regional CO budget. The documentation of these air quality analyses and the Minnesota Pollution Control Agency's review letter of the results are available on the following pages.

The analysis described in this appendix has resulted in a Conformity Determination that the plan adopted in January 2009 with the addition of any one of the projects will meet all relevant regional emissions analysis and budget tests.



December 8, 2008

Ms. Arlene McCarthy
Metropolitan Transportation Services
Metropolitan Council
390 North Robert Street
St. Paul, MN 55101

RE: Air Quality Conformity Analysis for the 2030 Transportation Policy Plan Modification

Dear Ms. McCarthy:

I have completed my review of the above referenced document submitted by the Metropolitan Council (Council) in support of its 2008 modification of the 2030 Transportation Policy Plan (Plan). The Minnesota Interagency Air Quality Conformity Consultation Committee, with representatives from the Minnesota Pollution Control Agency (MPCA), Council, Minnesota Department of Transportation (MNDOT), and Federal Highway Administration (FHWA) met on November 25, 2008, to discuss the proposed changes to the draft 2008 Plan in response to potential economic stimulus legislation targeting transportation infrastructure. Only one of the eleven projects selected from the Plan may be constructed with a decision to be made on a later date depending on the size of the stimulus package and other considerations.

At this meeting, the committee directed the Council staff to analyze these eleven projects individually. As part of this plan modification, the Council prepared a quantitative analysis of carbon monoxide (CO) emissions resulting from the addition of each of the eleven projects. Each project was added to the baseline network and modeled for years 2015, 2020, and 2030. (No modeling was performed for 2009, since all of the modeled projects would be constructed after that date). The regional model highway assignment was run, and the results were combined with MOBILE 6.2 emissions rates to produce tons-per-day estimates of CO emissions for each scenario. I have examined the document for conformance with a check list of requirements from the joint Transportation Conformity Rule of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation.

The analysis in the document shows that daily CO emissions in tons/day for the milestone years of 2015, 2020, and 2030 are below the regional CO motor vehicle emissions budget revised by the MPCA in 2005 even with the addition of any one of the projects listed in Table I of the document submitted by the Council. Based on this information, the MPCA has determined that the addition of any one of the projects listed in Table I of the conformity document meet all relevant regional emissions analysis and budget tests as described herein. Therefore, the 2008 Plan modification conforms to the relevant sections of the federal transportation

Ms. Arlene McCarthy
December 8, 2008
Page 2

Conformity rule and to the applicable sections of the Minnesota State Implementation Plan for Air Quality.

I appreciate the opportunity given to review this document as part of the EPA Transportation Conformity rule consultation process, and for the great work done by the Council's staff by completing this analysis in a timely fashion. I also appreciate the cooperation of the interagency consultation group with their immediate assistance in resolving all policy and technical issues with respect to the Plan's Air Quality Conformity determination.

If you have any questions, please contact me at 651-757-2347 or via e-mail at innocent.eyoh@pca.state.mn.us.

*MPCA is in the middle of changing phone services and phone numbers, my new number is 651-757-2347. You may still reach me from my old number until December 15.

Sincerely,

Innocent E. Eyoh
Principal Transportation Planner

cc: Jonathan Ehrlich, Met Council
Patricia Bursaw, MNDOT
Brian Isaacson, MNDOT
Susan Moe, FHWA
Michael Leslie, EPA
J. David Thornton, MPCA
John Seltz, MPCA
Frank Kohlasch, MPCA

IE:rlr

Memorandum

DATE: December 1, 2008

TO: Interagency Air Quality Conformity Work Group

FROM: Jonathan Ehrlich

SUBJECT: Air Quality Conformity Analysis for 2009 TPP Modification

The analysis described in this memorandum has resulted in a Conformity finding that the addition of any one of the projects listed in Table 1 meet all relevant regional emissions analysis and budget tests as described herein. The *Transportation Policy Plan* conforms to the relevant sections of the Federal Conformity Rule and to the applicable sections of the Minnesota State Implementation Plan for air quality.

On November 25, 2008, the Interagency Air Quality Conformity Work Group, with representatives from the Metropolitan Council, Mn/DOT, MPCA, FHWA, and EPA, met and discussed proposed changes to the draft *2009 Transportation Policy Plan* in response to potential federal economic stimulus legislation targeting transportation infrastructure. With a decision to be made at a later date based on the size of stimulus legislation and other considerations, exactly one of eleven projects listed in Table 1 may be constructed. The committee directed council staff to analyze these eleven projects individually.

TABLE 1: POTENTIAL ADDITIONAL PROJECTS	
1	I-35E: TH 110-TH 5
2	I-35W: 46th St to I-94
3	I-494: TH 55 to I-94
4	I-494: TH 77 to TH 100
5	I-694: I-35W to I-35E
6	I-694: I-35E to TH 36
7	TH 36: I-35W to I-35E
8	TH 100: 36th St. to Cedar Lake Rd
9	TH 252: 73rd Ave to TH 610
10	TH 610: CR 130 to I-94
11	TH 169: I-494 Interchange
12 ¹	I-35E: TH 36 to I-94

Quantitative analysis of CO emissions resulting from the addition of each of the projects listed in Table 1 was prepared. Transportation and emissions forecasting procedures, consultation procedures, and other assumptions may be found in Appendix G of the Draft 2009 Transportation Policy Plan.

Each project was added to the baseline network and modeled for years 2015, 2020, and 2030. (No modeling was performed for 2009, as all of the modeled projects would be constructed after that date). The regional model highway assignment was run, and results were combined with Mobile 6.2 emissions rates to produce tons-per-day estimates of CO emissions for each scenario. While each scenario was

1. I-35E from TH 36 to I-94 project was added to Dec 1 memo in response to Mn/DOT comment on Dec 29, 2008

modeled separately and represents a single project, the modeling is based on county-wide average speeds and should not be seen as sufficient for project-level environmental analysis.

ESTIMATED FUTURE EMISSIONS IN THE TWIN CITIES CO MAINTENANCE AREA

The EPA, in response to a MPCA request, redesignated the Twin Cities seven-county Metropolitan Area and Wright County as a maintenance area for CO in October, 1999. A 1996 motor vehicle emissions budget (MVEB) was revised in January 2005 in a revision to the SIP. The SIP amendment revised the MVEB budget to a “not-to-exceed” threshold of 1,961 tons per day of CO emissions for the analysis milestone years of 2009, 2015, 2020, and 2030. The results of the emissions analysis are shown below.

TABLE 2: CO EMISSION BUDGET CONFORMITY TEST (Short Tons/day)					
SCENARIO		2009	2015	2020	2030
TPP BASELINE	ACTION	1,408	1,210	1,161	1,199
	CO EMISSIONS BELOW MVEB		751	800	762
I-35E: TH 110-TH 5	ACTION		1,211	1,163	1,201
	CO EMISSIONS BELOW MVEB		750	798	760
I-35W: 46th St to I-94	ACTION		1,211	1,162	1,200
	CO EMISSIONS BELOW MVEB		750	799	761
I-494: TH 55 to I-94	ACTION		1,211	1,163	1,201
	CO EMISSIONS BELOW MVEB		750	798	760
I-494: TH 77 to TH 100	ACTION		1,211	1,163	1,200
	CO EMISSIONS BELOW MVEB		750	798	761
I-694: I-35W to I-35E	ACTION		1,211	1,163	1,201
	CO EMISSIONS BELOW MVEB		750	798	760
I-694: I-35E to TH 36	ACTION		1,211	1,164	1,201
	CO EMISSIONS BELOW MVEB		750	797	760
TH 36: I-35W to I-35E	ACTION		1,211	1,163	1,200
	CO EMISSIONS BELOW MVEB		750	798	761
TH 100: 36th St. to Cedar Lake Road	ACTION		1,211	1,162	1,200
	CO EMISSIONS BELOW MVEB		750	799	761
TH 252: 73rd Ave to TH 610	ACTION		1,212	1,163	1,202
	CO EMISSIONS BELOW MVEB		749	798	759
TH 610: CR 130 to I-94	ACTION		1,212	1,163	1,202
	CO EMISSIONS BELOW MVEB		749	798	759
TH 169: I-494 Interchange	ACTION		1,210	1,161	1,199
	CO EMISSIONS BELOW MVEB		751	800	762
I-35E: TH 36 to I-94	ACTION		1,210	1,161	1,199
	CO EMISSIONS BELOW MVEB		751	800	762