

# METROPOLITAN COUNCIL 2005 TWIN CITIES TRANSPORTATION SYSTEM AUDIT



**Metropolitan Council**

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# EXECUTIVE SUMMARY

This report, a requirement of Minnesota statutes, consists of the Metropolitan Council's review of the performance of the regional transportation system in the Twin Cities metropolitan area. It includes a review of the transportation system performance since the last performance audit in 2001, a comparison of the performance to peer urban areas and a comparison of service to existing standards or benchmarks.

## MAJOR FINDINGS AND CONCLUSIONS

### DEMOGRAPHIC AND DEVELOPMENT TRENDS

- ✓ Population is expected to grow by 40% (1.1% per year) from 2000 to 2030, and the number of households is expected to increase by 48% (1.6% per year). This will mean more trips taken, more automobiles on streets and highways, more demand for transit and more freight to be moved.
- ✓ The average age of the population is increasing. By 2030, 601,000 people (16.3% of the region's population) are expected to be above age 65 (compared with 9.7% of the population currently). It is unclear what transportation impacts will be caused by the aging of the "baby boom" population. Although they are more likely to have mobility limitations and thus use transit increasingly, this population group also has high levels of auto-oriented mobility.
- ✓ High concentrations of lower-income persons, with low automobile ownership, exist in the core cities where transit service is most extensive. However, entry-level jobs are generally dispersed throughout the region and are not as well served by transit, especially in the reverse-commute direction. In addition, many areas where lower income persons live are not well served by high-frequency transit.
- ✓ It is expected that most of the growth in the region in the next 20 years will be within the existing boundary of the designated Metropolitan Urban Service Area (MUSA), where generally contiguous urban development occurs.
- ✓ The number of households in developing areas grew faster during the 1990s (45%) than in the central cities and fully developed area, which lack large supplies of vacant land and must rely primarily on redevelopment. The number of households in developing areas overtook the number of households in central cities during the mid-1990s. By 2030, developing areas will have 39% of the region's households compared to 21% in the central cities.
- ✓ In 2000 the Twin cities area was ranked 18th of the 25 largest urban areas in population density. The number of persons per acre in the region had been declining steadily, primarily the result of smaller household sizes; but even as household sizes decreased, household density increased 37% from 1990 to 2000. This may be a result of increased traffic congestion and a desire to live closer to jobs. However, the density of the Twin Cities still makes transit less effective.
- ✓ Population density has declined because family sizes are smaller than in the past. This drives the region toward being even less dense, although this process will be more gradual in the next 30 years than the last three decades. Density affects the effectiveness of the transportation system because higher densities can make mass transit more effective. Lower densities can necessitate the construction of additional highways and streets.

- ✓ Increasing employment directly increases the number of trips taken in the region. This has driven such travel factors as the number of trips per capita, the number of miles driven per capita and the total number of miles driven.
- ✓ The number of jobs in the Twin Cities region grew by 2.1% per year from 1990 to 2000, a pace 50% higher than the population increase (1.4%). The above-population-rate increase in jobs was accommodated by the increase in labor-force participation by women and others (such as those over age 65), plus commuters who live outside the seven-county area. The future increase in employment is more closely expected to reflect the growth in population (a 37% increase from 2000 to 2030). This has driven such travel factors as the number of trips per capita, the number of miles driven per capita and the total number of miles driven.
- ✓ Two of the factors that contribute to high increases in the rate of travel may be reaching equilibrium: the decline in household size has slowed and the percent of women participating in the labor force is approaching that of men.
- ✓ The Twin Cities urban area has one of the lowest unemployment rates among the 25 largest urban areas. Employed persons make more trips than unemployed persons do, so that with a higher portion of the population employed, more trips can be expected per capita in the Twin Cities region.
- ✓ Employment occurs in concentrations throughout the region but has its largest concentrations in downtown Minneapolis, downtown St Paul and along the I-494 corridor in the southwest metro. This creates a challenge during peak-travel periods to move people efficiently to and from these areas of high-job concentration.
- ✓ The developing areas added more employment than the central cities and developed areas during the past decade. However, these suburbs still have fewer jobs available than persons in the workforce, contributing to the potential need for long commutes.

#### **TRAVEL TRENDS**

- ✓ Daily-person trips are increasing at a higher rate now than the decades preceding the 1980s. The increases in daily trips put more demand on the transportation system. Daily motorized trips per capita have been increasing continuously since the 1940s. Although it will continue to increase, the rate of increase has slowed in the last decade.
- ✓ Travel time per trip grew from 1990 to 2000 by 14.3% for home-based work trips and by 7.6% for all trips.
- ✓ The growth in vehicle-miles traveled is projected to be much larger than the growth in population or households.

#### **HIGHWAY SYSTEM**

- ✓ From 2000 to 2004, lane miles in the seven-county metro area total increased 1.2% (405 lane-miles). This growth was about one-sixth the increase in the regional population during that same period (7.2%).
- ✓ The Twin Cities has a substantially greater number of roadway-system mileage per capita than other large urban areas.

- ✓ The pavement on the region's highway system is generally in good condition but has declined from 1996 to 2005. The pavement quality on non-principal arterials in the metro region has declined the most dramatically.
- ✓ The condition of principal arterial bridges in the region are failing to meet state targets, while minor arterial bridges are meeting their targets. The condition of principal arterial bridges has deteriorated between 1998 and 2003.
- ✓ The growth in the number of households and in the number of people working outside of the home has outpaced the growth in population in the region. This dynamic has led to greater development pressures and greater demand for travel.
- ✓ The number of vehicle-miles traveled (VMT) on Twin Cities' roads has been increasing constantly during the last 20 years. Daily VMT has increased most considerably on principal arterials. Per capita daily VMT is higher in the Twin Cities than in peer regions and in other large cities.
- ✓ The number of miles of travel of heavy commercial trucks in the region has been increasing steadily in the last 10 years. The increase in truck traffic is most pronounced in the nine-county commute shed, where it increased 29.1% between 1995 and 2004. Growth in the seven-county region during the same period was 9.1%.
- ✓ The number of crashes per traveler on the highway system has been declining over the last 10 years. However, the number of fatalities from crashes has increased.
- ✓ During the 1980s, construction of new highway-lane miles was able to keep up with increases in daily VMT. By the 1990s however, growth in daily VMT far outpaced increases in the construction of new highway-lane miles. This has led to more intensive use of the existing highway network.
- ✓ The proportion of trips taken as single-occupant trips has increased since 1970. However, it appears that this trend is stabilizing and that the proportion of non-work trips taken as single-occupant trips has begun to decrease in recent years. The Metropolitan Council's travel-demand model projects that more people will switch to high-occupant trips to a modest degree during the next 25 years.
- ✓ Twin Cities' residents spent more time in delay than residents of peer cities or large cities (on average). Growth in delay per traveler was three times that of growth in delay per traveler for comparable cities. In 2003, the average Twin Cities traveler spent 43 hours delayed in traffic, according to the TTI Urban Mobility Report.
- ✓ Traveling during the peak period was not significantly more difficult than any other time in 1983. But by 2003, traveling during the peak period took an average of 34% longer than travel in free-flow conditions. This trend exists for other cities as well but has been more pronounced in the Twin Cities than elsewhere. The Travel Time Index for peak travel in the Twin Cities has increased twice as fast as for comparison cities.
- ✓ The region has two HOV lanes. These lanes carry almost as many people per lane as the adjacent multi-use lanes but with less than half the number of vehicles. The region has begun experimenting with allowing SOVs to use the HOV lane on I-394 for a demand-sensitive price in order to take advantage of the excess capacity in the HOV lane. Early reports indicate that this has reduced the number of miles of congestion on I-394.

- ✓ Regional travel-demand models predict total daily VMT to increase to almost 85 million and daily vehicle-hours traveled to increase to over 3 million by 2030. This is based on projections of employment and population growth and transportation network improvements included in the fiscally constrained scenario of the *2030 Transportation Policy Plan*.

## **TRANSIT SYSTEM**

- ✓ Service-type splits have remained relatively the same but the quantity of service being provided (revenue hours) increased in 2005.
- ✓ The region has seen a renewed growth in transit ridership in 2005, a 3.3% increase since 2000, with increased investments in new service.
- ✓ Transit ridership for Metro Transit bus service has declined over the last five years but other bus programs have had increased ridership. Service cuts over this period have affected Metro Transit and contractor-provided service. Hiawatha Light Rail Transit, begun in 2004, now contributes over 10% of total regional transit ridership. Part of the decline in Metro Transit bus ridership is due to riders shifting to light rail as well as reductions in funding, fare increases and demographic changes.
- ✓ In 2004, the Metropolitan Council set the goal of doubling overall transit ridership by 2030. With a baseline year of 2003, the Metropolitan Council was slightly above the goal at the end of 2005.
- ✓ Passengers per revenue hour are decreasing for Metro Transit and Contracted routes but increasing for opt-outs and community-based programs.
- ✓ Gross cost per passenger increased from 2000 to 2005, from \$2.75 to \$3.61.

## **Peer Comparison**

- ✓ From 2001 to 2005, passengers per revenue hour decreased less in the Twin Cities than the peer average.
- ✓ The Twin Cities cost to provide service was 17% less expensive than the peer average.
- ✓ Twin Cities operating cost per passenger was slightly less than the peer average and growing at a slower rate.
- ✓ Twin Cities' total operating funding per capita is 12% lower than the average for its peers or \$17.37 less per capita than the average for its peers. The region would have to spend over \$41 million per year more to reach the average for its peers. Because of the lower density of the region, however, this would still result in a lower level of service productivity than its peers have.
- ✓ The Twin Cities is 28% higher in fare recovery percentage than the peer average.
- ✓ Twin Cities subsidies per capita are 19% lower than average for its peers.
- ✓ The Twin Cities provides a lower number of rides per capita than its peer cities.

## **ADA**

- ✓ By 2004, all regular-route buses were fully ADA-accessible.

- ✓ In providing ADA-paratransit service, grouping trips with a common destination is more efficient than bringing a single individual to a destination. Demand trips typically average an efficiency of 1.6 persons per hour as opposed to group trips, which have an average efficiency of 3.5 riders per hour. Over the last several years, an effort has been made to move more trips to group trips whenever possible, which has increased the efficiency of the system.
- ✓ A trip request may be denied because there are not vehicles available to provide the requested service; these types of denials are called trip denials due to limited capacity. From 1999 to 2006, the number of trips denied due to capacity declined by 96%.

## **FREIGHT SYSTEM**

- ✓ A regional freight agenda is needed for transportation infrastructure investments. Such an agenda would help businesses continue to successfully compete in the global economy and better define the appropriate role of the public sector in guiding capital-investment decisions.
- ✓ Measured in terms of its 2005 “logistics-friendly” measure, the Twin Cities ranked 7th among the 362 metropolitan areas examined and second overall among its peers cities.
- ✓ In 2000, 91 million tons of freight flowed in and out the region by truck to domestic and international markets. Within the Twin Cities’ Bureau of Economic Analysis (BEA), 37 million tons of freight was carried by truck. An additional 3.4 million tons was shipped by truck/rail intermodal as containerized freight. The total tonnage shipped had an estimated value of \$192 billion. This represents 63% of the total regional freight tonnage.
- ✓ The number of at-grade rail crossings with high exposure ratings and hazard ratings increased from 10 in 2000 to 15 in 2005. The crossings with hazard ratings decreased in the metro area from 80 in 2000 to 62 in 2005.
- ✓ The two existing intermodal container terminals have capacity limits. One of the facilities is already at capacity. Containers are the primary means to move international freight. The region's ability to compete in a global market is dependent on the level and cost of intermodal service provided by the railroads.
- ✓ Air cargo traffic through the Minneapolis-St. Paul Airport declined 23% during the past five years, while the industry declined by 17%. MSP competes with Chicago for airfreight traffic generated by the region.
- ✓ Commercial river navigation is the primary mode to move commodities such as grain from the Twin Cities ports to international markets. At current levels of growth, capacity at the existing 43 terminals is projected to be sufficient until 2010.
- ✓ Highway access restrictions serving the terminals at the Port of Savage are part of the near-term capacity issues that need to be addressed.
- ✓ Although overall barge traffic declined by 21% between 1990 and 2000, between 1995 and 1999 total tonnage shipped increased by 20%. However, between 2002 and 2005, total Twin Cities tonnage declined by 30%.

## **BIKEWAYS/PATHWAYS**

- ✓ Bikeways, bike lanes and off-street paths are viable options for improving the attractiveness of biking as a viable transportation option.
- ✓ Survey data for the seven-county metropolitan area indicate 1.6% of all trips are made bicycling.
- ✓ Since 54% of Americans live less than five miles from their jobs and 50% of all car trips are five miles or less, bicycling is a viable alternative to the automobile for many trips.
- ✓ Usage of the system increases as funding increases.
- ✓ Planning for bicycling facilities should be a coordinated effort. This effort will improve greatly when the existing system is inventoried, mapped and analyzed for needs and gaps.

# CHAPTER 1: PURPOSE

This report presents the results of a comprehensive audit of the Twin Cities transportation system performed in 2005 by the Metropolitan Council. This was done in response to a statutory directive from the Minnesota State Legislature.

## Legislative Requirement

In 1996, the Minnesota State Legislature adopted statutes requiring the Metropolitan Council to perform an audit of the Twin Cities transportation system. The statute reads as follows:

*473.1466 Performance audit; transit evaluation.*

*(a) In 1997 and every four years thereafter, the Council shall provide for an independent entity selected through a request for proposal process conducted nationwide to do a performance audit of the commuting area's transportation system as a whole. The performance audit must evaluate the commuting area's ability to meet the region's needs for effective and efficient transportation of goods and people, evaluate future trends and their impacts on the region's transportation system, and make recommendations for improving the system. The performance audit must recommend performance-funding measures.*

*(b) In 1999 and every four years thereafter, the council must evaluate the performance of the metropolitan transit system's operation in relationship to the regional transit performance standards developed by the council.*

The Metropolitan Council completed the first full Transportation Systems Audit in 1997 and the first Transit System Audit in 1999. There was a subsequent Transportation Systems Audit in 2001 and a Transit System Audit in 2003. This report is an update of the most recent reports but primarily the 2001 Transportation System Performance Audit.

The purpose of the Transportation System Performance Audit, established by the Minnesota Legislature in 1996, is to evaluate the ability of the transportation system serving the Twin Cities metro area to meet the regional need for effective and efficient travel of goods and people.

## CHAPTER 2: GOALS OF THE TRANSPORTATION SYSTEM

Two policy documents provide guidance for the development of the regional transportation system:

- Regional Development Framework
- Transportation Policy Plan

### Regional Development Framework

The *2030 Regional Development Framework* is the Council's overarching outline for the future of the Twin Cities region. It contains short- and long-term strategies to enhance economic growth and development, bolster reinvestment, strengthen environmental protection and build stronger local and regional communities. The Council's strategies are organized around four principles:

- Working collaboratively with regional partners to accommodate growth within the metropolitan area.
- Maximizing the effectiveness and value of regional services, infrastructure investments and incentives.
- Enhancing transportation choices and improving the ability of Minnesotans to travel safely and efficiently throughout the region.
- Preserving vital natural areas and resources for future generations.

### Transportation Policy Plan

The *Transportation Policy Plan* takes the goals from the *Regional Framework* and applies them to the region's transportation system. The policies from the *Transportation Policy Plan* are:

1. **Land Use and Transportation Investments:** Regional transportation investments will be coordinated with land use objectives to support and encourage the intensification of development at key nodes and along major transportation corridors within the Metropolitan Urban Service Area to accommodate growth and reinvestment and minimize loss of vital natural resources. Transportation services and facilities will serve existing development needs and help shape future patterns and intensity of development.
2. **Adequate Transportation Resources:** The Metropolitan Council will actively pursue an adequate level of transportation funding to implement this policy plan and address identified but unmet investment needs.
3. **Priorities for Transportation Modal Investments:** Regional transportation investments will be made on the basis of need and will be consistent with the policies, strategies and priorities of this policy plan and the *Region Development Framework*.
4. **Public Participation:** Public participation will be promoted in formulating transportation policy and implementing decisions.
5. **Tailoring Transit Services to Diverse Market Conditions:** The Council will make the transit system more compatible with different land use patterns and socioeconomic conditions. The Council will also promote development of more transit-compatible land uses, in line with the *Regional Development Framework* objectives.

6. Increasing Transit Service Attractiveness: The Council will improve transit service coordination and passenger safety, provide financial incentives to transit users, and make the system more time travel competitive, visible, and user friendly.
7. Transitways: The Council will strongly pursue the cost-effective implementation of a regional network of transitways on dedicated rights-of-way and express bus-rapid-transit routes to provide a travel-time advantage for transit vehicles, improve transit service reliability, and increase transit accessibility to jobs.
8. Promoting Competition in the Delivery of Services: The Council and other transit providers should promote innovation, efficiency, and greater diversity of options through increased competition in delivering transit services.
9. 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.
10. Travel Demand Management: The Council supports aggressive use of travel-demand management techniques to reduce peak-period vehicle trips.
11. Highway Planning: Planning a cost-effective, multi-modal, and safe regional highway system that reflects the needs of a growing population and economy. Plan and design the Regional Highway System and the Local Street System to be comprehensive and integrated with present and future land uses, and respect for natural resources.
12. Implement a regional highway system in a cost-effective manner consistent with this policy plan.
13. Manage and operate the Metropolitan Highway System and "A" minor arterial system to provide maximum safety and mobility.
14. Maintain an Effective and Efficient Regional Freight Transportation System: The Council supports improving the efficiency of the region's commercial motor carriers, railroads, air cargo carriers and barge operators through strategic investments in the freight transportation system.
15. Develop and Maintain Efficient Pedestrian and Bicycle Travel Systems: Safe, high-quality, continuous, barrier-free pedestrian and bicycle facilities must be developed, maintained and improved to function as an integral part of the region's transportation system.
16. Preservation of Linear Rights-of-Way: Linear rights-of-way in the region should be preserved as corridors for public use.
17. Environmental Considerations in Transportation: The investment decisions and operations of transportation projects and facilities are to be consistent with federal, state, and regional environmental standards, regulations, plans, programs, and policies.
18. Transportation and Land Use Elements in Local Comprehensive Plans: Local comprehensive plans must be consistent with the *Transportation Policy Plan* and should recognize the special transportation opportunities and problems that various policy and geographic areas present with regard to transportation and land uses.

The Metropolitan Council's *Transportation Policy Plan* has been revised since the *2001 Transportation System Performance Audit*. The revisions provide a higher level of implementation detail.

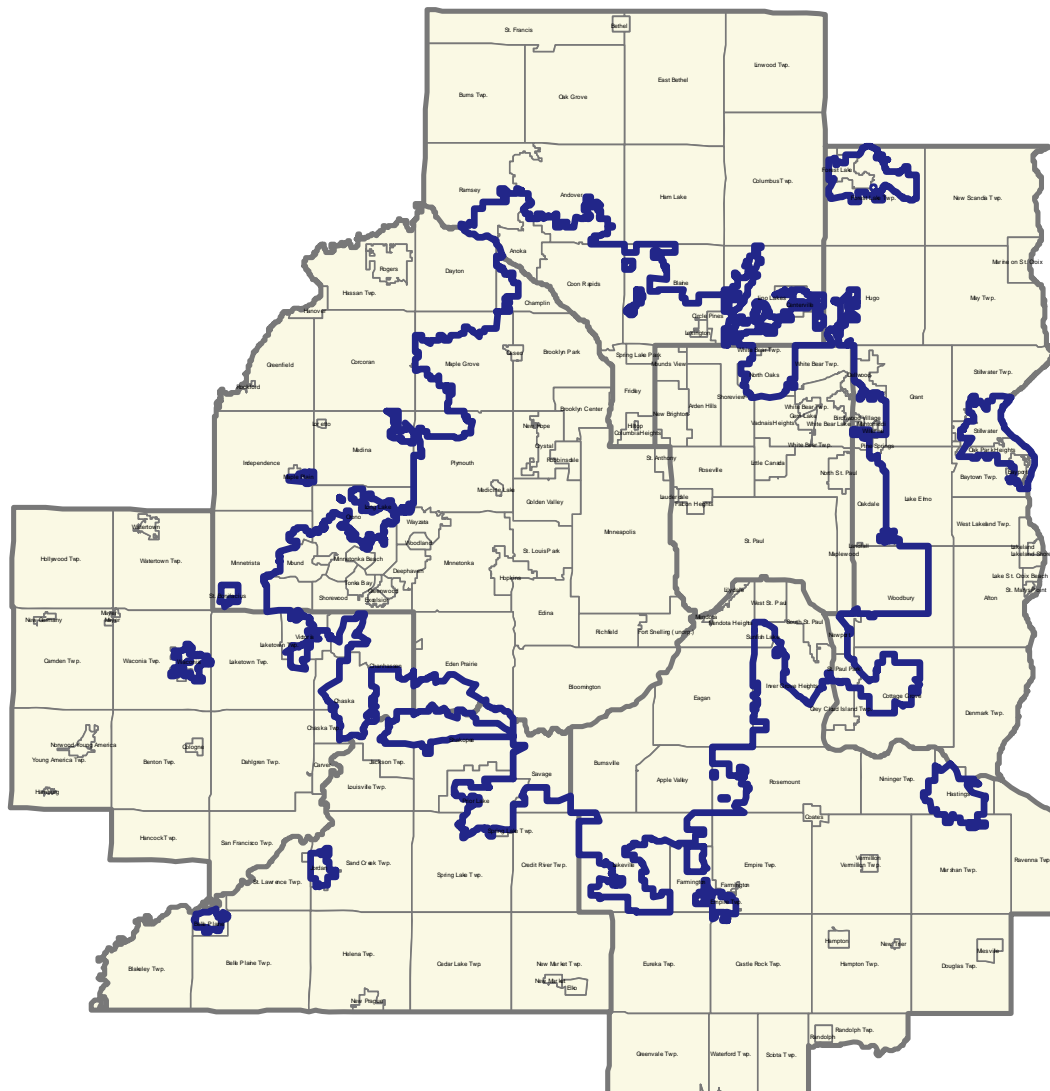
## CHAPTER 3: TWIN CITIES COMMUTING REGION

Three levels of geography are relevant in examining the demands placed on the Twin Cities' regional transportation system. These levels are: the seven-county metropolitan area, the urbanized portion of the seven-county metro area and the 20-county area within which significant commuting occurs.

### Twin Cities Metropolitan Area

The Metropolitan Council's official jurisdiction is the Twin Cities metropolitan area. It comprises seven counties: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. It contains the two core cities of Minneapolis and St Paul, located respectively in Hennepin and Ramsey Counties. This region is depicted in Figure 3.1.

Figure 3.1: Twin Cities Metropolitan Area and 2000 MUSA Boundary



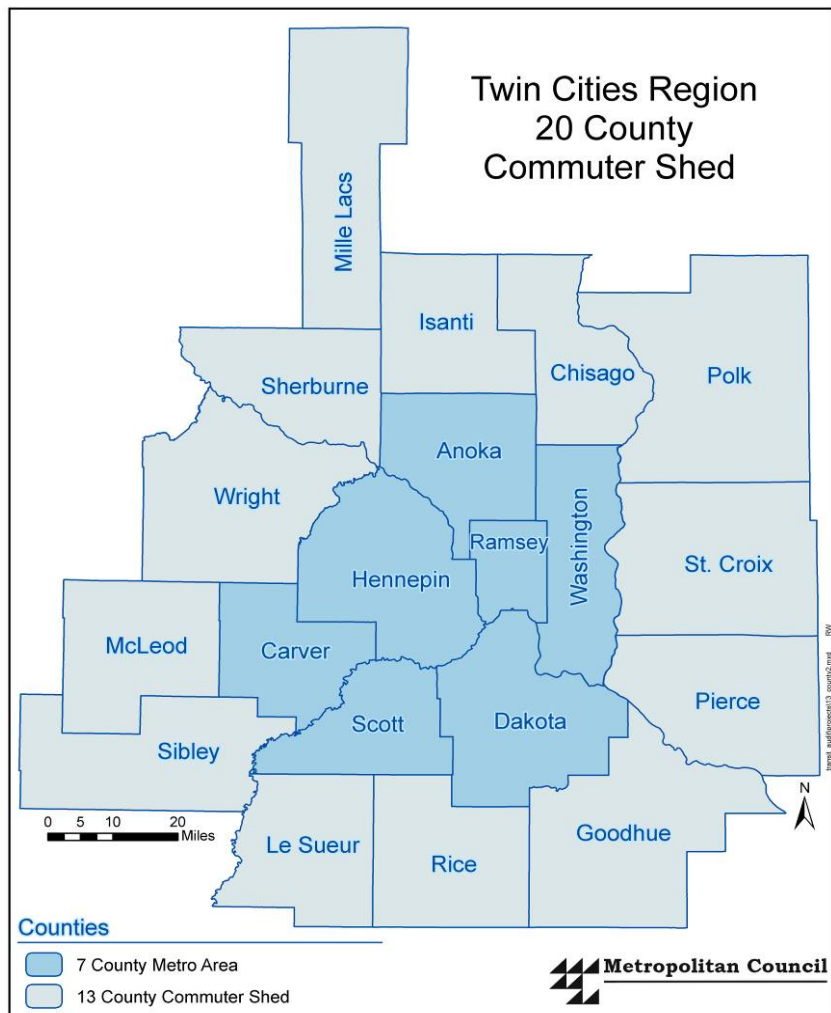
## Urbanized Area (MUSA)

Within the seven-county metro region, a portion of the land has been developed into a mostly contiguous urban development. This area is served by Metropolitan Council sewer service, an area defined as the Metropolitan Urban Service Area (MUSA). The area outside the contiguous urban area is primarily either rural or freestanding cities. As seen in Figure 3.1, the urbanized area within the MUSA occupies a significant portion of the seven-county metro area.

## Twin Cities Commuter Shed

Surrounding the seven-county metropolitan area are 10 Minnesota counties and 3 Wisconsin counties whose economies, populations and travel patterns are linked to the Twin Cities metro area. These surrounding counties are primarily rural in nature but have a significant portion of their populations who commute to the Twin Cities or who have businesses that draw employees from the Twin Cities. The 2000 census defined these counties as being part of the Twin Cities “commuter shed.” This meant that 5% or more of the residents of these outer counties commuted to employment in the metropolitan area. The most recent addition in 2000 was Goodhue County.

**Figure 3.2: 20-County Commuter Shed**



- Twin Cities Metropolitan Area Counties: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington
- Non-Metro Commuting Area Counties:
  - Minnesota: Chisago, Goodhue, Isanti, Le Sueur, Mille Lacs, McLeod, Rice, Sherburne, Sibley and Wright
  - Wisconsin: Pierce, Polk and St Croix

The travel impacts of these surrounding counties are still small in relation to the metro area's population and employment. The 2000 Travel Behavior Inventory showed that 95% of the trips in the metropolitan area both start and end within the region while 5% start or end outside the metropolitan area. However, these surrounding areas are growing at higher rates than the core urban area. Because of this, they will exert an increasing demand on transportation services.

This audit assesses the growth trends in this expanded region defined as the "commuter shed." The emphasis of the audit is on comprehensively evaluating the condition and performance of the metro region's transportation system and the specific needs of its businesses and residents for efficient and reliable transportation. The audit is concerned with the sufficiency of the transportation systems in the outlying counties to support their growth, but is not concerned with identifying the future transportation needs in these areas.

While the additional commuter-shed counties undoubtedly affect the transportation system in the seven-county metro area, they are not under the jurisdiction of the Metropolitan Council. Policies, plans and coordination efforts do not apply to areas outside of the seven-county area. Because of this, it is important for agencies with jurisdiction over these counties, such as the counties themselves, Mn/DOT and cities within these counties, to cooperate and work as part of a coordinated effort with the Metropolitan Council, especially as more growth occurs in these developing areas.

## **Twin Cities Peer Metro Areas**

Three sets of peer cities are used in this audit to compare conditions in the Twin Cities with conditions in other United States regions. Different peer groups are used for highways and transit.

For highways, the best source for comparisons of travel and congestion trends over time between urban areas is the Urban Mobility Report. It is produced by the Texas Transportation Institute for the Federal Highway Administration (FHWA). Data for the Twin Cities area is compared to data for the 10 peer cities from the year 2003. These cities are Baltimore, Cincinnati, Cleveland, Dallas, Denver, Milwaukee, Pittsburgh, Portland, Seattle and St. Louis. This peer group was used in prior transportation audits.

The Twin Cities falls into the TTI's report classification of a Large Urban Area. These areas are defined as urban areas with populations between one million and three million people. This definition is also used for some comparisons with other regions.

Peer cities for transit are the same as for highways, with the addition of Houston. Peer cities have been selected primarily based on their population, urban-area size and economic comparability.