METROPOLITAN COUNCIL
2005 TWIN CITIES TRANSPORTATION SYSTEM AUDIT

Metropolitan Council

October 2006

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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 2000 to 2003, passengers per revenue hour decreased more in the Twin Cities than the peer average.

- ✓ The Twin Cities cost to provide service was 20% less expensive than the peer average.

- ✓ Twin Cities operating cost per passenger was slightly less than the peer average but growing at a faster rate.

- ✓ Twin Cities' total operating funding per capita is 16% lower than the average for its peers or $21.24 less per capita than the average for its peers. The region would have to spend over $50 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 30% higher in fare recovery percentage than the peer average.

- ✓ Twin Cities subsidies per capita are 23% 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 brining 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 Cites 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.

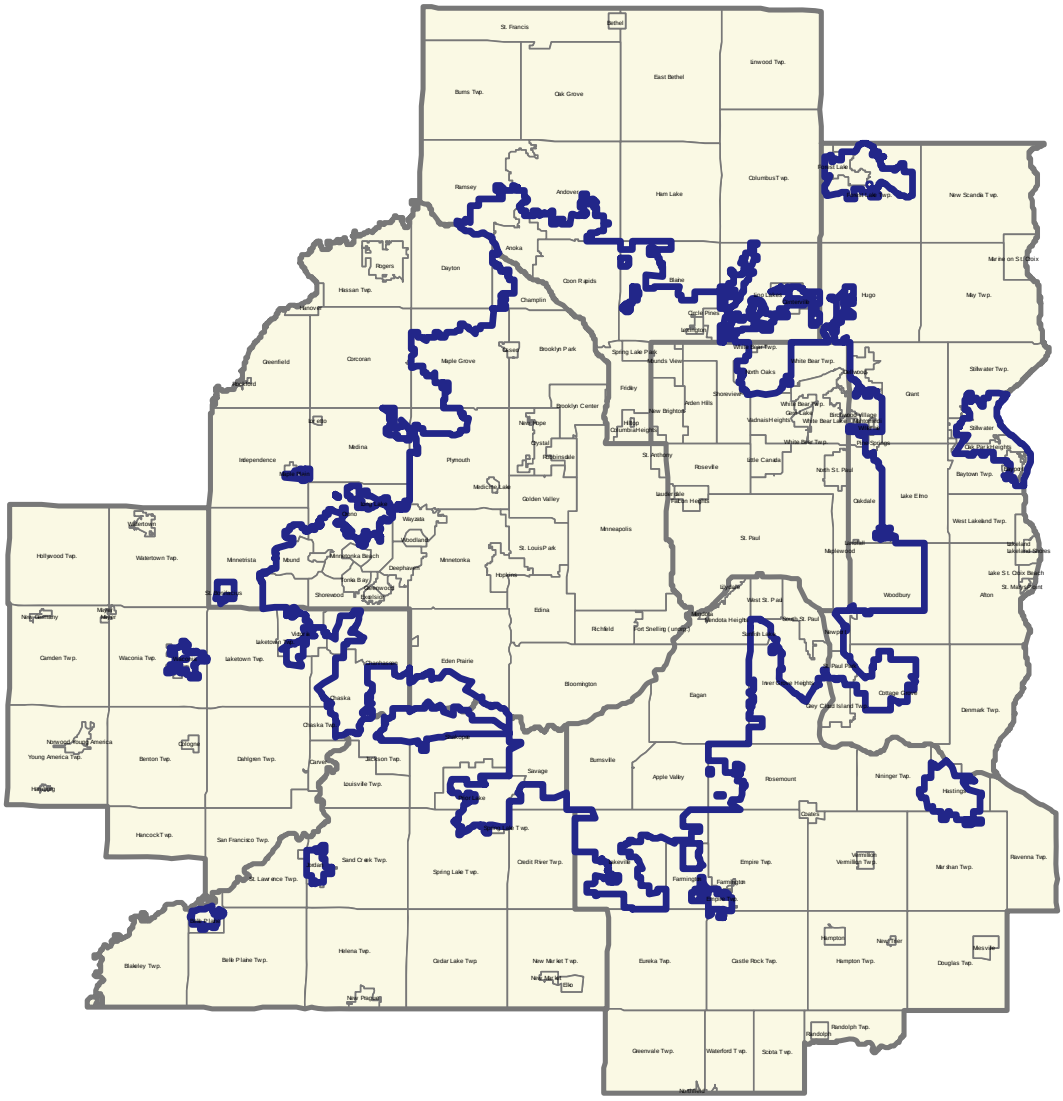
CHAPTER 3: TWIN CITIES COMMUTING REGION

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 Cites Metropolitan Area and 2000 MUSA Boundary



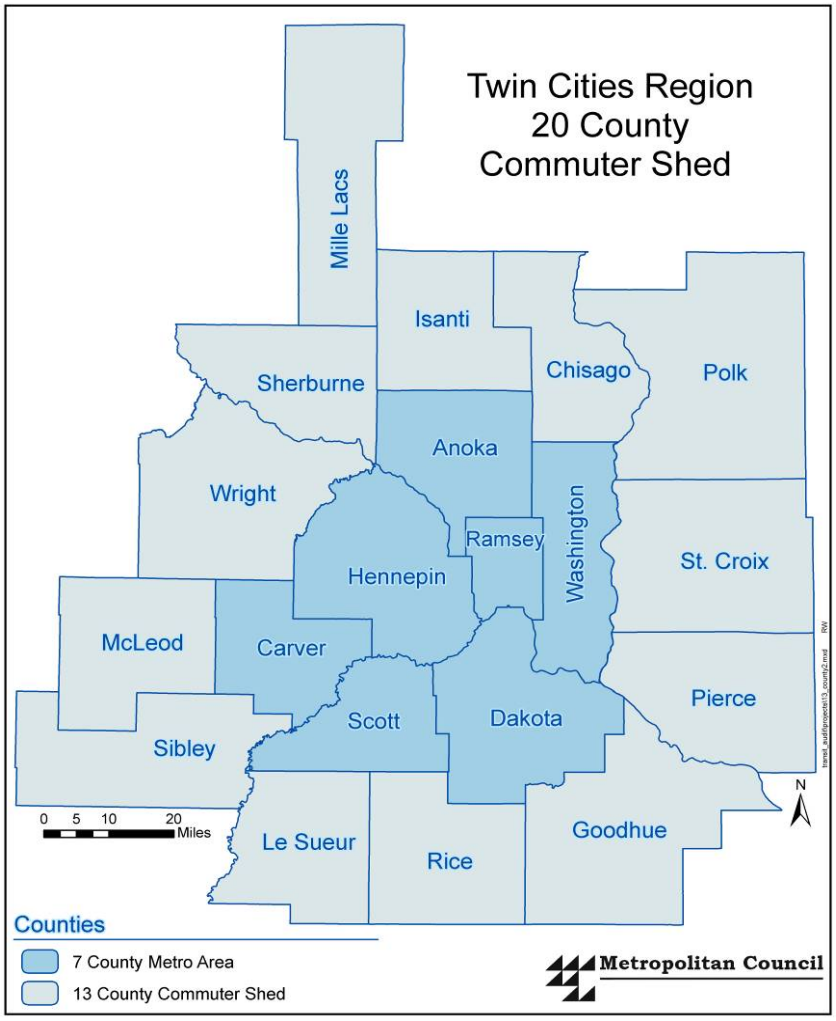
Urbanized Area (MUSA)

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 Cites 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.

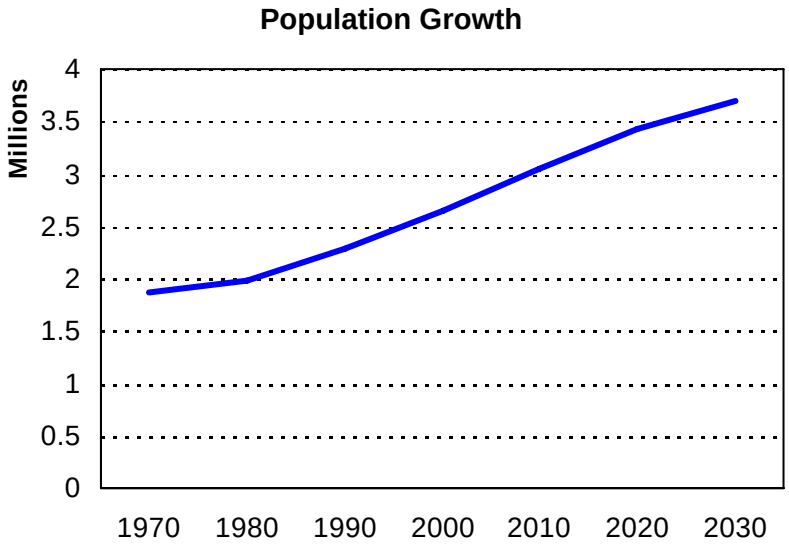
Peer cities for transit are the same as for highways, with the addition of Houston. Peer cities have been selected primarily based on their population, urban-area size and economic comparability.

CHAPTER 4: DEMOGRAPHIC AND DEVELOPMENT TRENDS

Population

The Twin Cities region is growing and is expected to grow steadily in the future. The U.S. Census reports that in 1990, the region had 2,288,729 people. In 2000, it had 2,642,062, a growth of 353,333 people, or 15% (1.4% annual growth). It is projected that by 2030, there will be 3,693,000 or an additional 40% (1.1% per year).

This population gain came from 379,000 births minus about 160,000 deaths, resulting in a natural increase of 219,000 persons. Migration contributed 134,000 additional persons. The net migration for that decade was the largest for the region in any decade.



U.S. Census/Council estimates, 2006

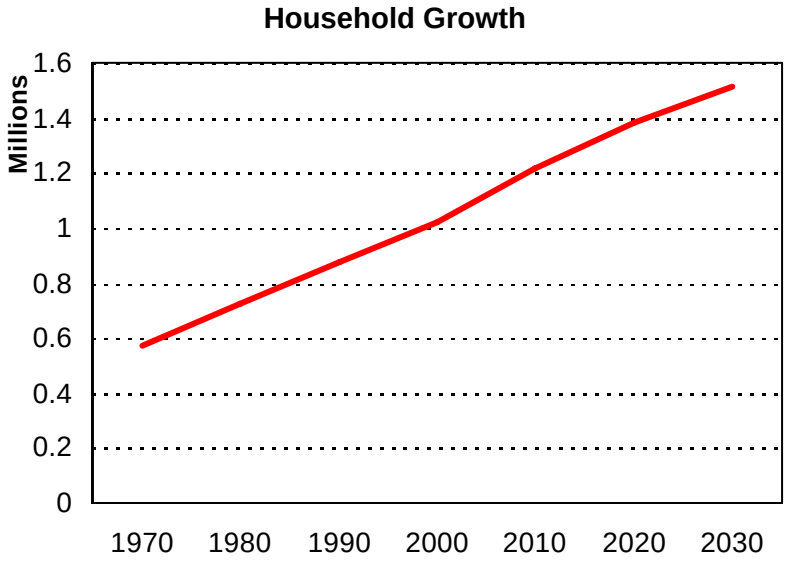
This was the most population growth of any decade in the history of the region (4,000 more than in the 1960s and 14,000 more than the 1950s). This ten-year period did not have the fastest growth rate but experienced the largest increase in number of persons in the region.

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.

Households

The number of households in the region has also increased significantly since 1990. In 1990, there were 875,504 households. In 2000, there were 1,021,454 households, an increase of 17% or 1.6% per year. Projections show by 2030, there will be 1,513,000 households, an increase of 492,000 or 48%, or 1.3% per year.

Part of this household increase is due to population growth and part is due to demographic and lifestyle changes leading to a reduction in

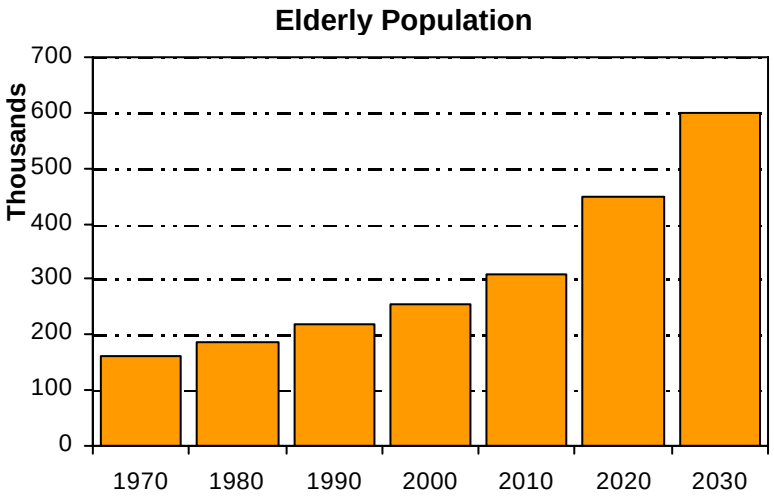


U.S. Census/Council estimates, 2006

the size of households. In 1970, the average household size was 3.27 persons, but in 2000 was only 2.53 persons and by 2030, it is projected that the average household size will be 2.44 persons. Even so, this would represent a substantial slowing in the decline of average household size by 2030.

Changes in Elderly Population

As the baby-boom generation grows older, the number of elderly persons will increase substantially. In 1970, 164,000 people in the Twin Cities were over age 65. By 2030, it is projected that 601,000 people will be over age 65. Currently 18% of transit riders are over age 55. The aging population pattern should increase demand for transit as the number of people in this age group increases, according to existing trends.



U.S. Census/Council estimates, 2006

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.

Income and Transit Dependency

Low-income persons are concentrated in the two central cities. This is an especially critical issue, as most of these persons do not have cars. Minnesota Family Investment Program (MFIP) is the core welfare program in the state of Minnesota. Only 25% of MFIP clients in the central cities have automobiles. In the suburbs, 45% of MFIP clients have automobiles. (1999 – Department of Human Services).

Figure 4.1: Location of MFIP Recipients

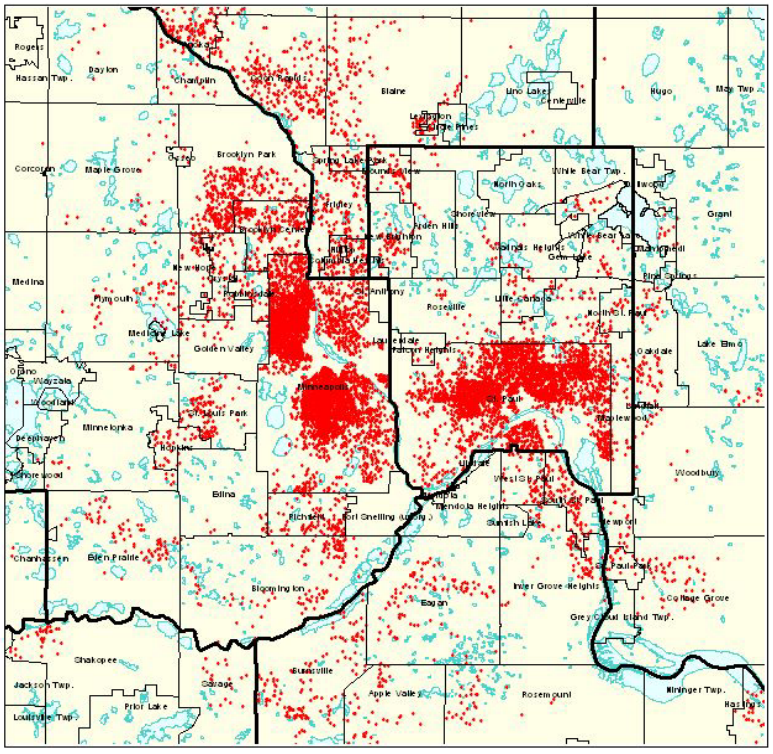


Figure 4.2: Entry-Level Jobs

This is contrasted with the location of entry-level jobs. Entry-level jobs are scattered throughout the region with concentrations in the core cities and along transportation corridors. Jobs are not grouped in the same area as residents because people generally do not live where they work. The primary issue for entry-level workers and low-income persons is access. Because only 25% of MFIP recipients have automobiles, their access is more transit dependent than those who can drive.

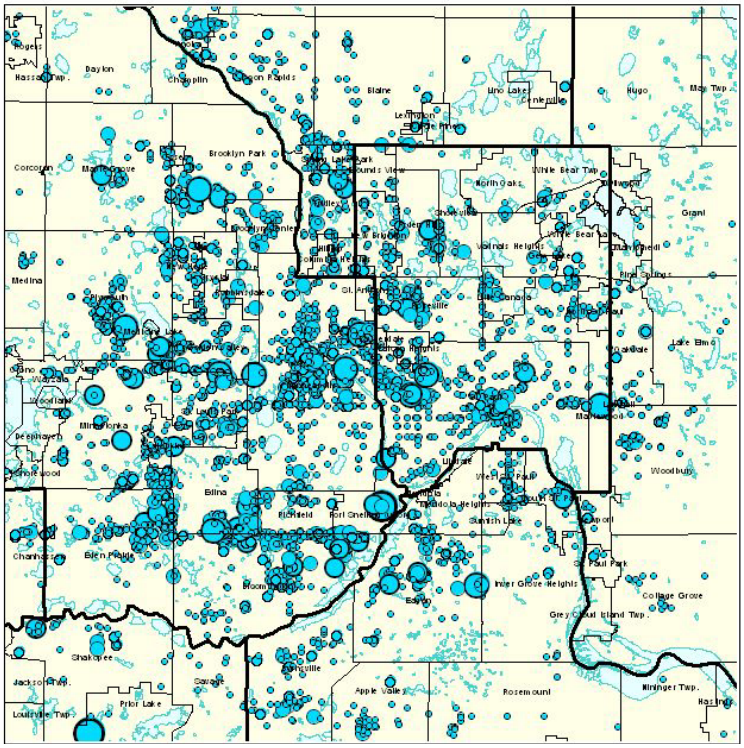
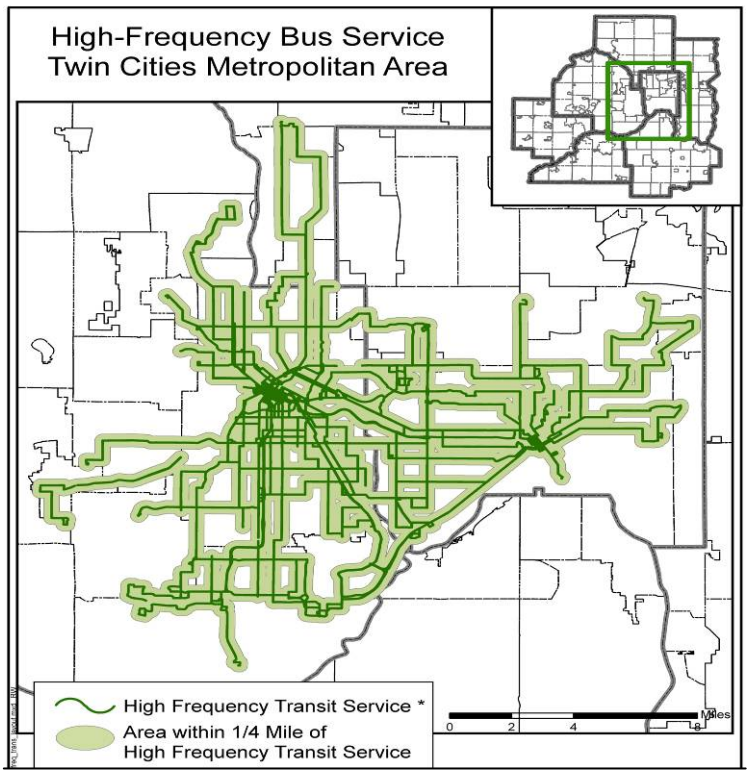


Figure 4.3: Extent of High-Frequency Bus Service

High-frequency bus service is available in many of the areas where there is a concentration of residences of persons enrolled in welfare programs. However, due to the wide dispersion of jobs throughout the region and the lack of high-frequency transit service in many suburbs, there are many entry-level jobs that transit-dependent persons are unable to easily access.

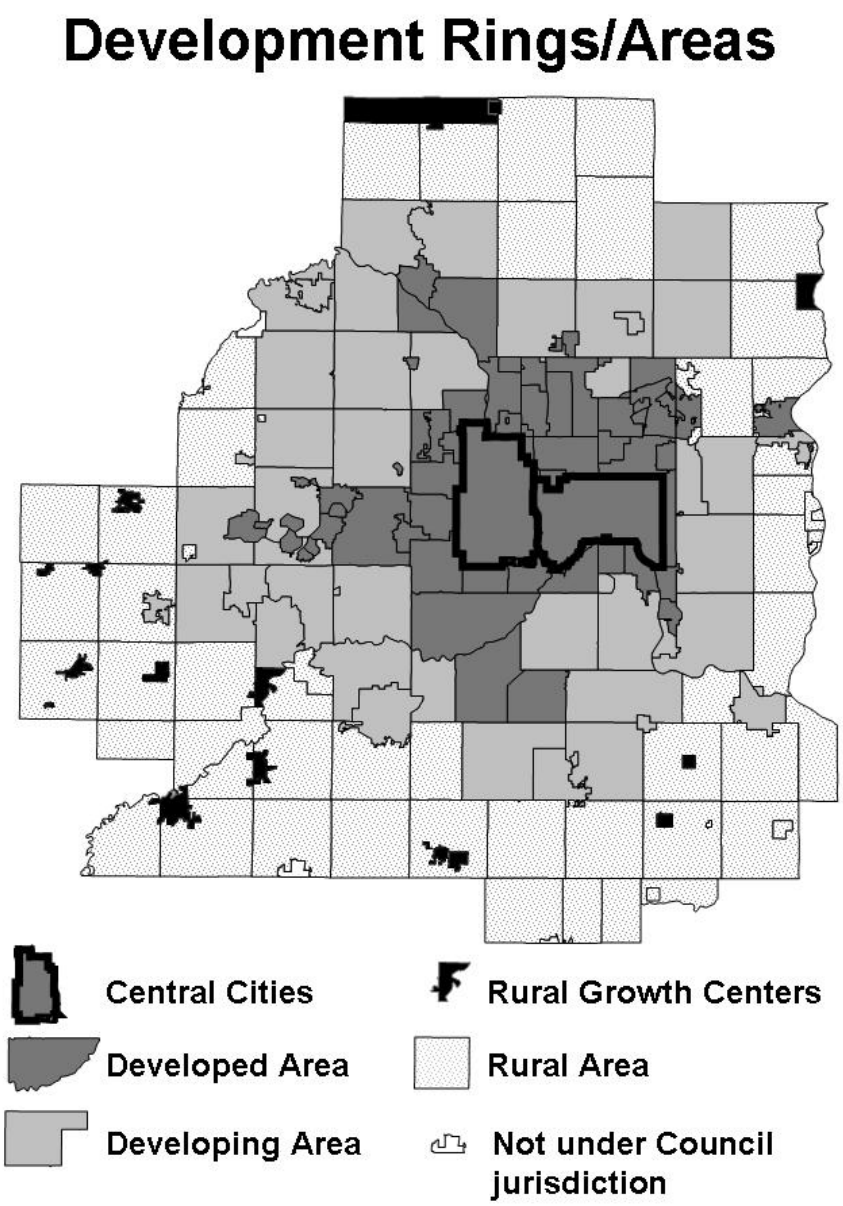


High concentrations of low-income persons, with low automobile ownership, exist in the core cities where transit service is most extensive. However, entry-level jobs are generally dispersed throughout the region and are not as well served by transit, especially in the reverse-commute direction. In addition, many areas where low-income persons live are not well served by high-frequency transit.

Regional Development Patterns

Most of the development of the region occurred within the borders of Minneapolis and St Paul prior to World War II. After 1945, development expanded to the suburbs immediately surrounding the two central cities and freestanding cities near the central cities. Development continued primarily in these areas from 1945 through the 1980s. By 1990, however, new development had shifted primarily from the fully developed suburbs outward to the developing suburbs. The region still retains a large rural area with freestanding cities or "growth centers."

Figure 4.4: Development Areas

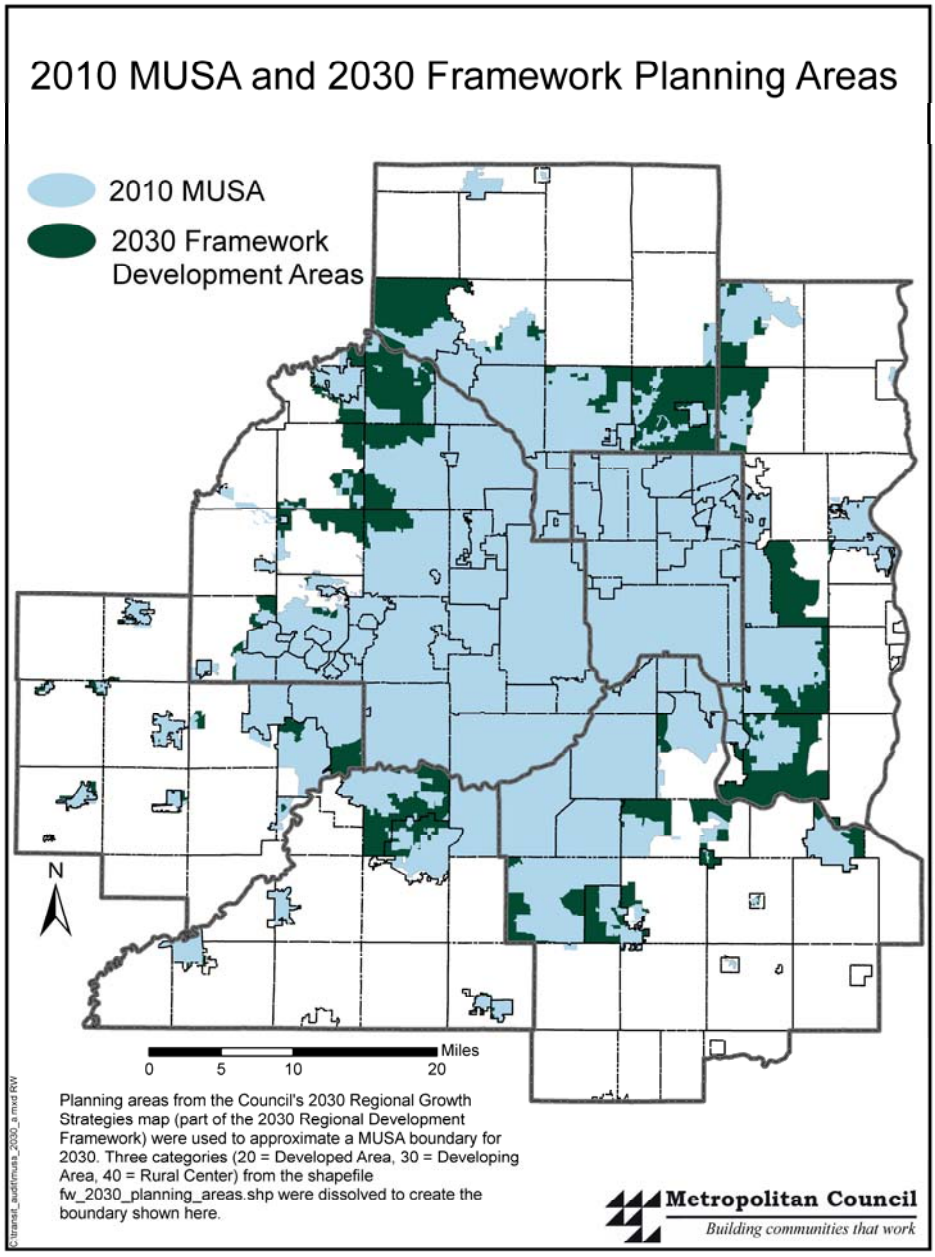


The continuing expansion of the suburban area will require increased investments in freeways and arterials, transit services and freight handling facilities to provide accessibility to those areas.

Forecast Growth

The Metropolitan Urban Service Area (MUSA) represents the portion of the Twin Cities that receives regional sewer service. As such, it represents the best definition of the portion of the region that is urbanized. The projected growth of the MUSA boundary is the best estimate of how and where the urbanized area will expand in the future. This map shows the portion of the region that is within the MUSA in 2000 and where additional expansions of the MUSA are projected to be by 2030.

Figure 4.5: MUSA and Framework Areas



It is expected that most of the growth in the region in the next 20 years will be within the existing MUSA boundaries.

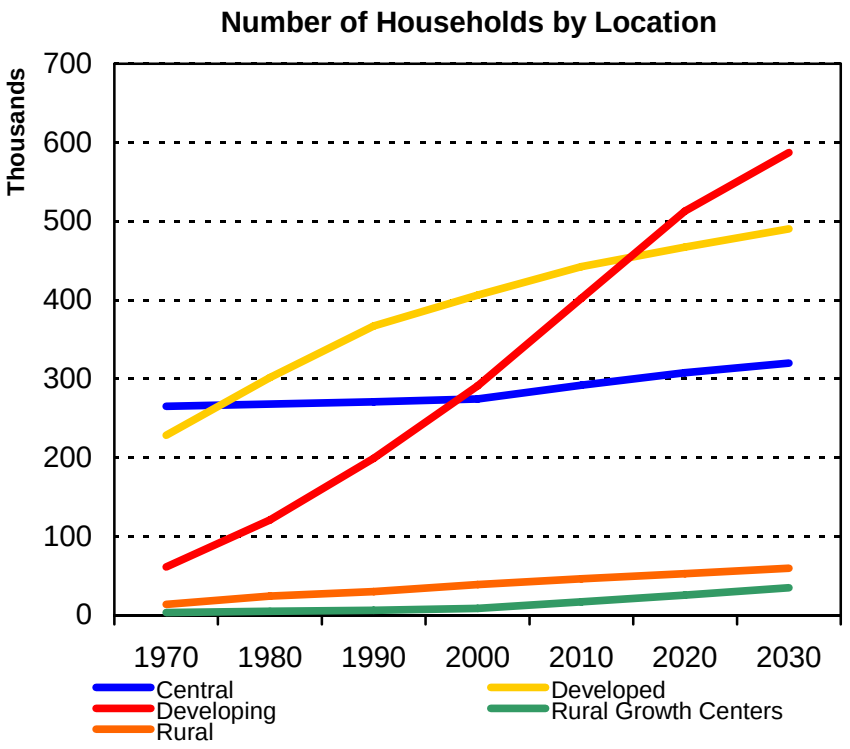
Housing Location

Prior to 1945, most of the region's growth occurred in the two central cities of Minneapolis and St Paul. Although some redevelopment is occurring and will continue to occur, there will not be substantial increases in households in these cities into the future because these areas are essentially fully developed.

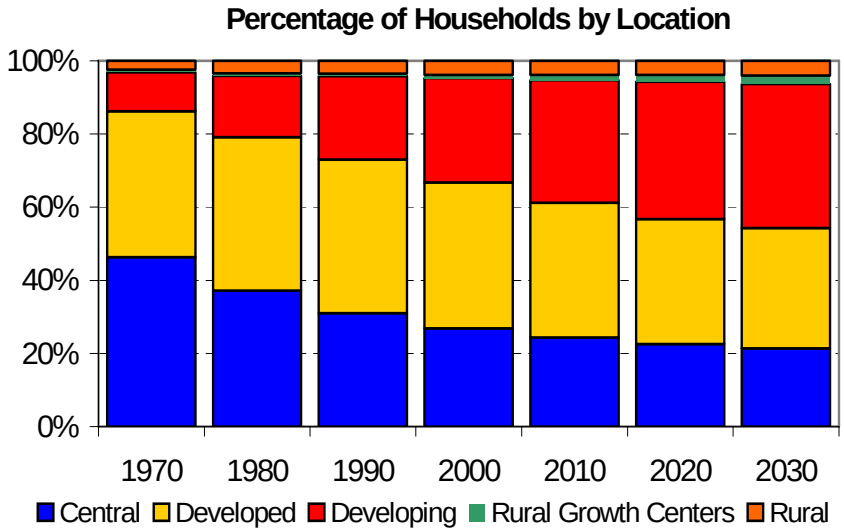
From 1950 into the 1980s, most of the region's growth occurred in the suburbs immediately surrounding the center cities, the developed area. By 2000, their growth had slowed as they approached becoming fully developed. Growth is projected to continue, albeit at a slower pace and primarily through in-fill development and redevelopment similar to the pattern for the central cities.

From 2000 to 2030, the majority of new development in the region will be occurring in the second- and third-ring suburbs (the developing area).

In 1970, the two core cities made up 46% of the region's population and the developing-ring suburbs made up about 11%. This relationship will be reversed by the year 2030. Central cities will contain only 21% of the region's population while the developing area will have 39%. This is not because the central cities will lose population – in fact, all parts of the region are projected to grow – but because the growth in the developing ring will substantially exceed the growth in the rest of the region.



U.S. Census/Council estimates, 2006

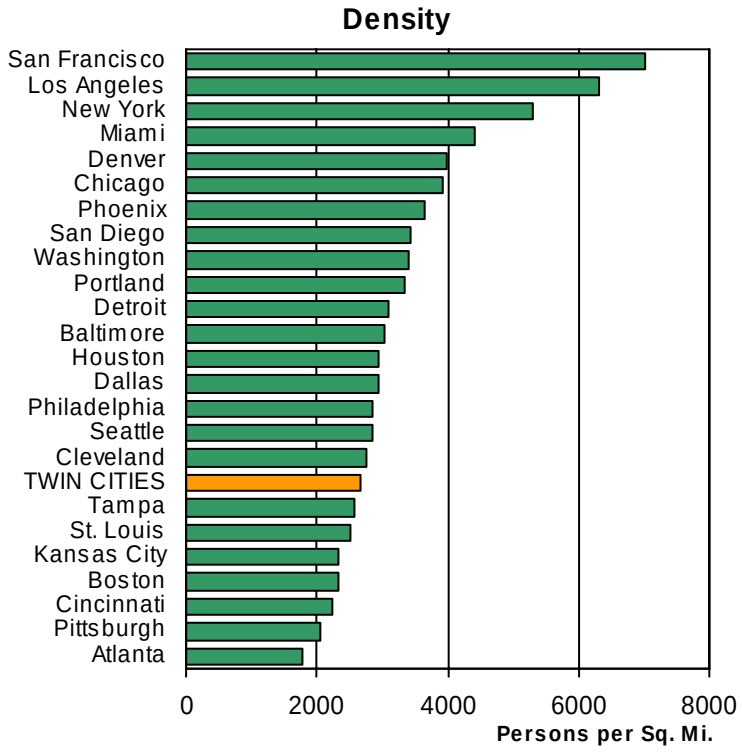


U.S. Census/Council estimates, 2006

The number of households in developing areas grew faster during the 1990s (45%) then 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.

Population Density

The Twin Cities metro area is less dense than other metropolitan areas in the United States. In 2000, it was 18th of the 25 largest metropolitan areas (UZA's).



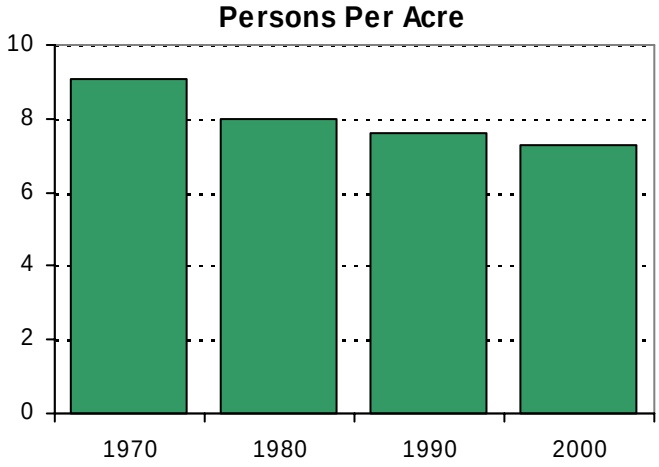
2000 U.S. Census

There are several reasons for this:

- Growth is unimpeded by major barriers such as oceans or mountain ranges.
- Growth has radiated from two central cities rather than one core city.
- The Twin Cities has a stronger preference for home ownership, which is mostly single-family housing. The Twin Cities had the highest home ownership rate among the 25 UZA's in 2000.
- A higher proportion of Twin Cities' housing was built after World War II. There are more single-family suburban-style homes on larger lots as compared to other regions.
- The Twin Cities have a higher than average number of lakes, wetlands, floodplains, steep slopes, gravel pits and other non-buildable land.

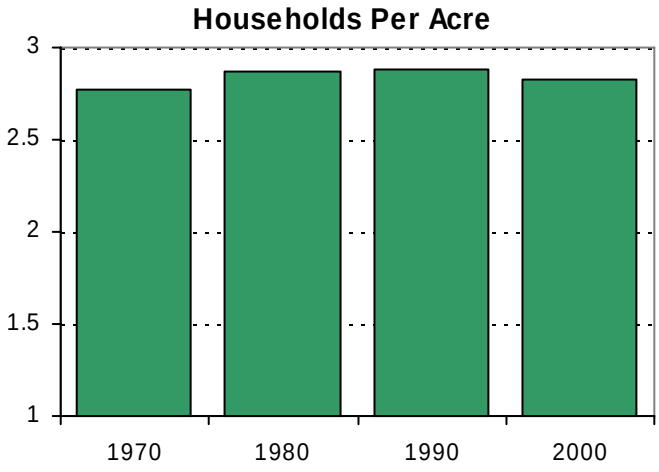
In 2000, the Twin cities area was ranked 18th of the 25 largest urban areas in population density. The number of persons per acre in the region had been declining steadily, primarily the result of smaller household sizes. But even as household sizes decreased, household density increased 37% from 1990 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.

The number of persons per acre in the urbanized area of the region has been declining. Since 1970, the number of people per acre has gone from 9.1 to 7.3.



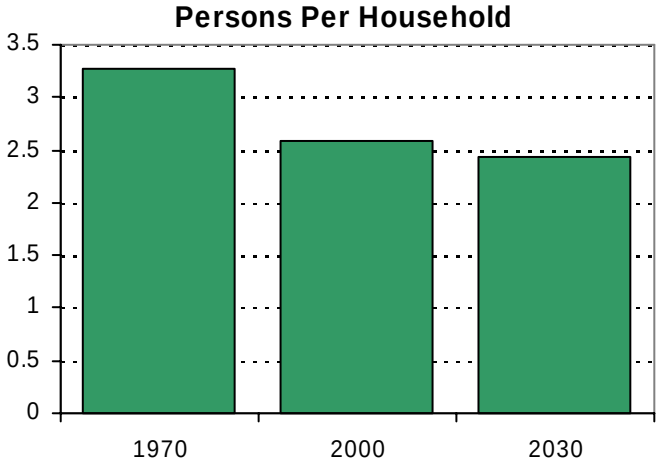
U.S. Census

This is not because the urbanized area of the region is building less dense housing. Household density (and thus that of housing units) has remained relatively constant over the last 30 years. In 1970, there were 2.77 households per acre and in 2000, there were 2.83 households per acre. This means that as a region, we are building housing units as densely as we did in the past.



U.S. Census

However, the number of persons living in each of those households has been declining. In 1970, there were 3.27 persons per household but in 2000, there were 2.59 persons. By 2030, the average household size is expected to be 2.44 persons.



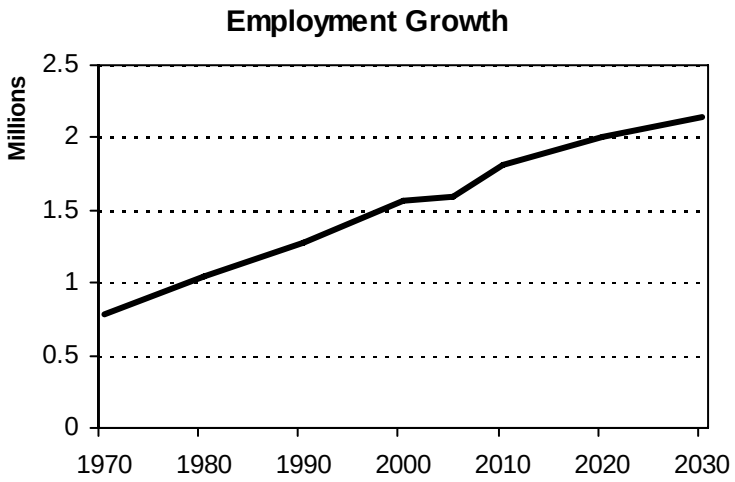
U.S. Census

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 a higher density can make mass transit more effective. A lower density can necessitate the construction of additional highways and streets.

Employment

Going to and from work is one of the biggest single generators of travel. The Twin Cities has growing employment levels, high labor-participation rates and low unemployment. In 1990, there were 1,272,773 persons employed. In 2000, this increased to 1,563,245, a growth of 23%. By 2030, employment is expected to increase by 37% to 2,146,200 persons employed.

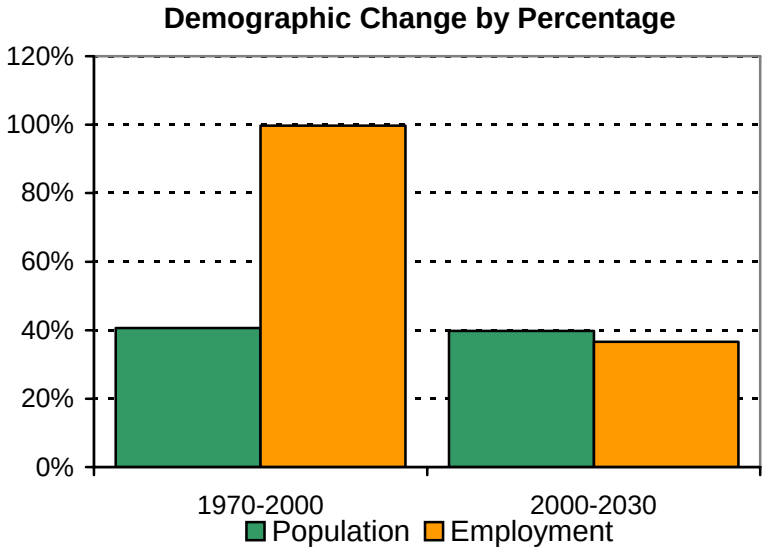
	Employment	Percent Change Over Previous Decade
1970	779,000	
1980	1,040,000	33%
1990	1,272,773	22%
2000	1,563,245	23%
2005	1,589,908	N/A
2010	1,819,630	16%
2020	2,002,060	10%
2030	2,146,200	7%



U.S. Census/Council estimates, 2006

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 economic base of the Twin Cities has been expanding, creating demand for workers. Typically, population and employment grow at similar rates. However, over the last 30 years, employment grew substantially faster than population, meaning that more people were employed relative to the total population than in the past. From 2000 to 2030, about the same growth rate for jobs and population is expected.

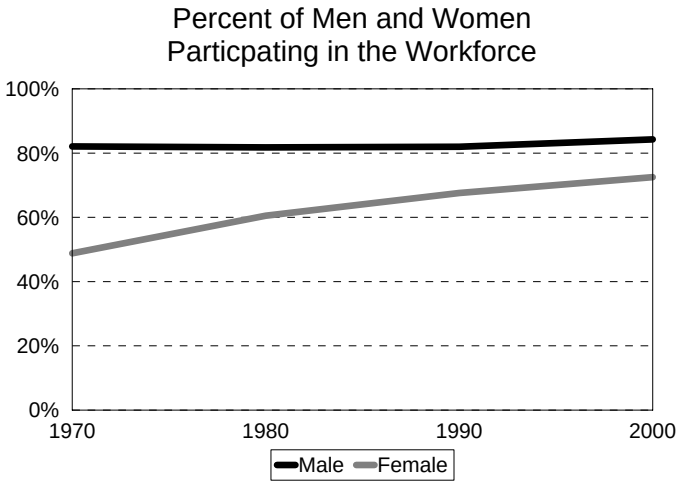


U.S. Census/Council estimates, 2006

The number of jobs in the Twin Cities region grew by 2.1% per year from 1990 to 2000, a pace nearly 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).

Employment grew faster than population in part because women's participation in the workforce increased. In 1970, only 48.8% of women participated in the workforce, while in 2000, 72.5% did. Other factors include the increasing participation rates of groups traditionally un- or underemployed, improving life expectancies and a stronger economy.

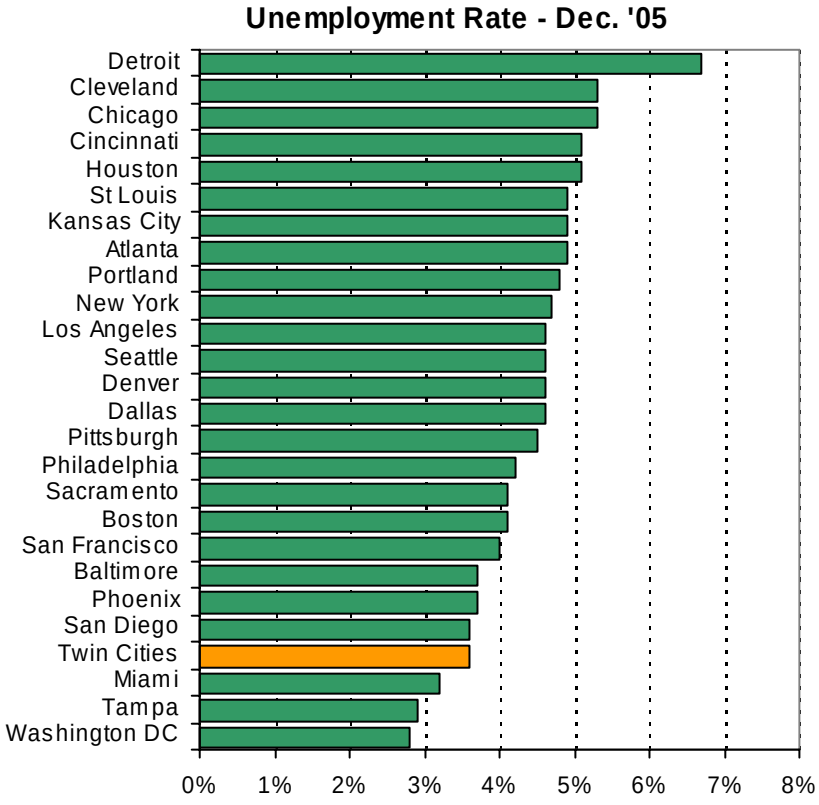
Employment growth is expected to more closely track with population changes in the future.



US Labor Department - Twin Cities MSA

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 has historically low unemployment rates. At the end of 2005, it had one of the lowest rates among the largest 25 urban areas in the United States. This means that it generates more work-based travel on a per capita basis than other regions.



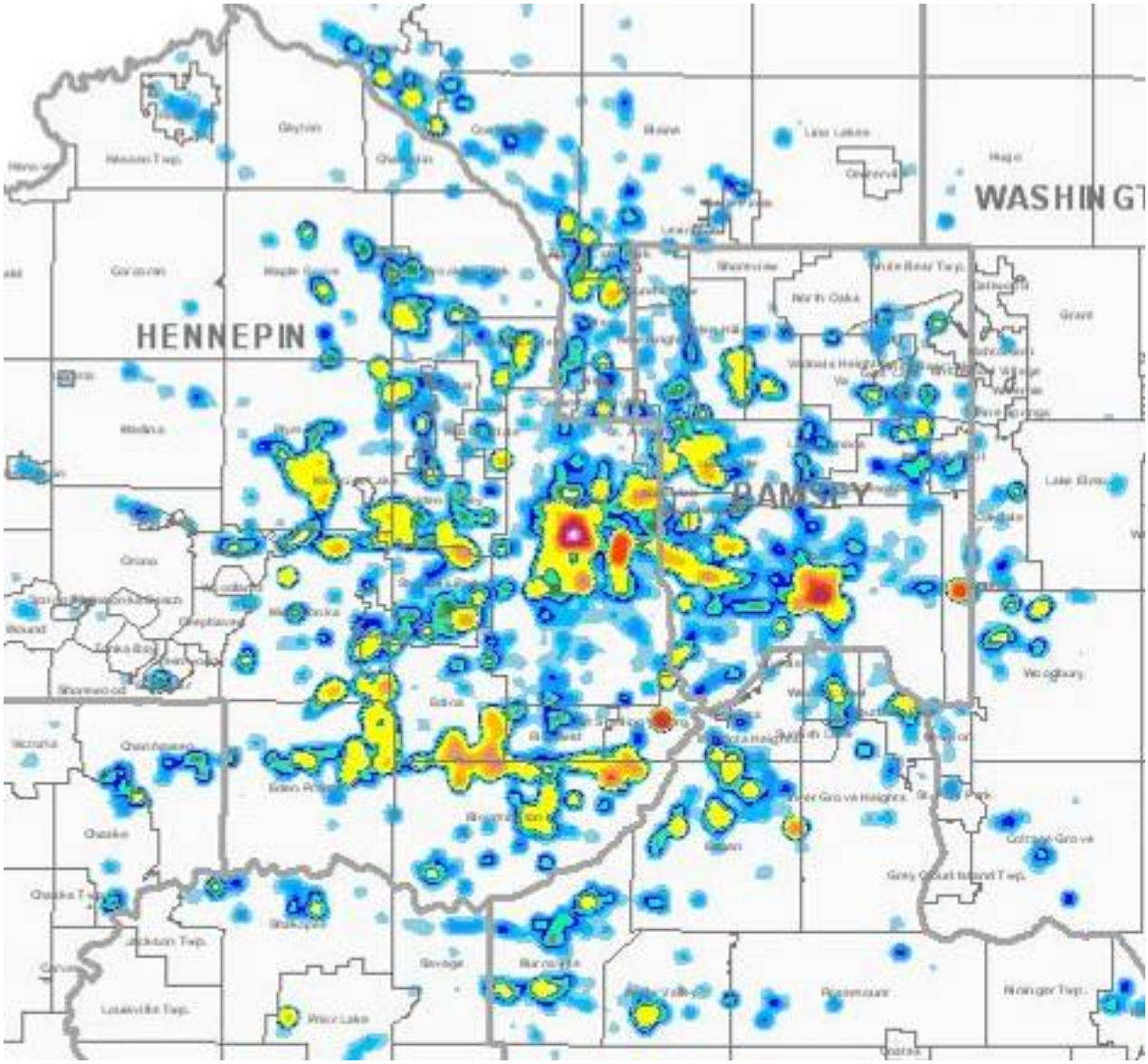
U.S. Department of Labor

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 Distribution in the Region

Employment is clustered in the downtowns of Minneapolis and Saint Paul and along major highway corridors in the region. The largest concentration of employment is in the two core cities, creating the transportation challenge of bringing people from outlying areas to these core areas. There is also a larger concentration of employment in the southwest quadrant of the Twin Cities than in other quadrants. That significantly contributes to congestion in that area.

Figure 4.6: Density of Employment
(Metropolitan Council Data)



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.

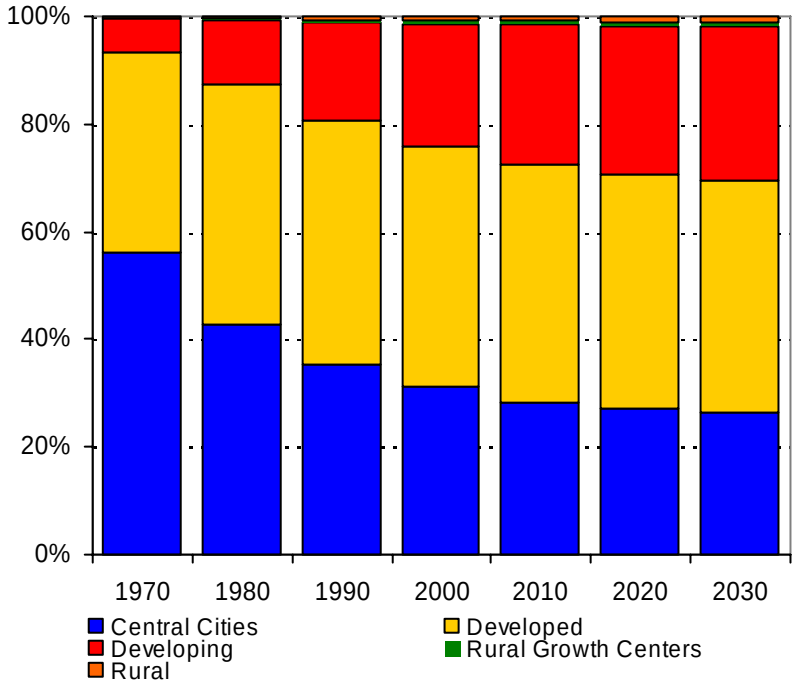
Large concentrations of jobs remain in the central cities and in the older developed cities, but the largest growth in the number of jobs occurred at the edge of the region in developing areas. Rural cities and areas have and continue to have very few jobs in relation to the whole region.

	% of Total 1970	% of Total 2000	% of Total 2030
Central Cities	55.9%	31.1%	26.4%
Developed	37.3%	44.6%	43.1%
Developing	6.2%	22.8%	28.4%
Rural Growth	0.3%	0.5%	0.7%
Rural Areas	0.3%	0.8%	1.1%

Data from Metropolitan Council

The distribution of jobs by five area classifications shows that in 1990, the developing cities contained 18% of the region's jobs. By 2000, these cities contained 22%. This percentage growth occurred even though all parts of the region grew in the number of jobs.

Employment by Planning Area



U.S. Census/Council estimates, 2006

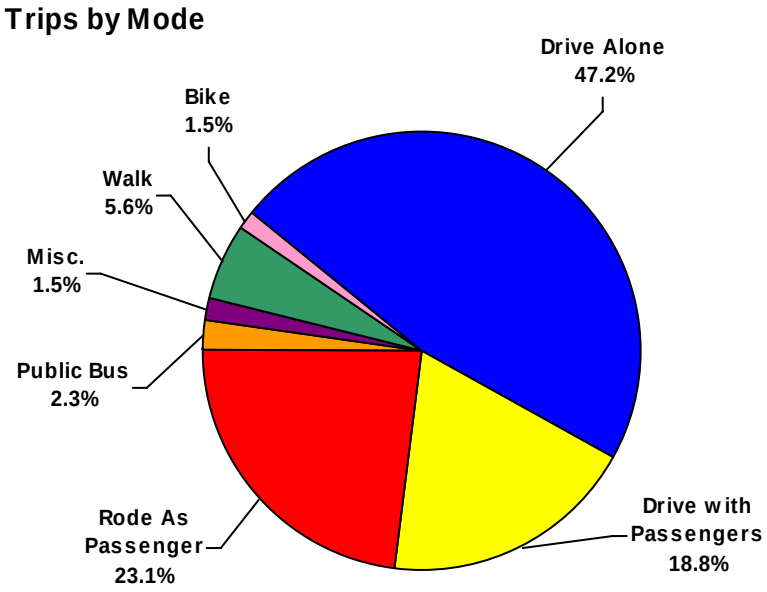
The developing areas added more employment than the central cities and developed areas during the past decade. However, these suburbs still have fewer jobs available than persons in the workforce, contributing to the potential need for long commutes.

CHAPTER 5: TRENDS IN TRAVEL

Trips by Mode

The 2000 Travel Behavior Inventory (TBI) study released by the Metropolitan Council in 2003 categorizes travel trends by mode, purpose, time of day, vehicle occupancy and a variety of other factors that indicate how travel trends are changing in the Twin Cities. The TBI showed that:

- Most trips were made by private automobiles (89.1%).
- Alternative modes of transportation made up a much smaller portion of trips (9.4%).
- Total number of trips is increasing.



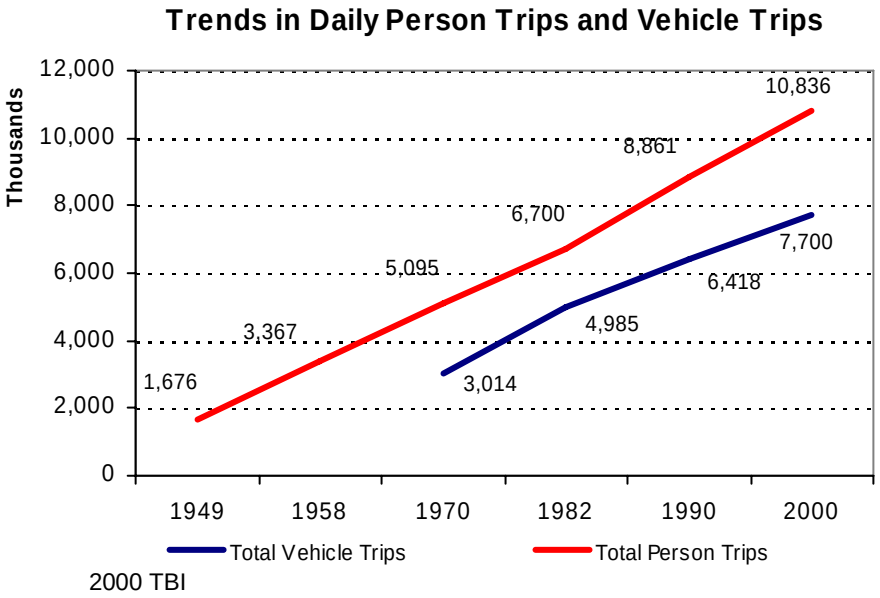
2000 Travel Behavior Inventory (TBI)

Weekday Daily Trips by Travel Mode

Travel Mode	Trips	Percent
Walk	657,321	5.6%
Bike	178,880	1.5%
Drive Alone	5,508,156	47.2%
Drive with Passenger	2,191,741	18.8%
Passenger	2,699,561	23.1%
Public Transit	266,662	2.3%
School Bus	138,166	1.2%
Taxi	11,833	0.1%
Motorcycle	7,584	0.1%
Other	10,193	0.1%
Refused	2,337	0.0%
Total	11,672,434	100.0%

Daily Trips

Daily person trips and vehicle 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.

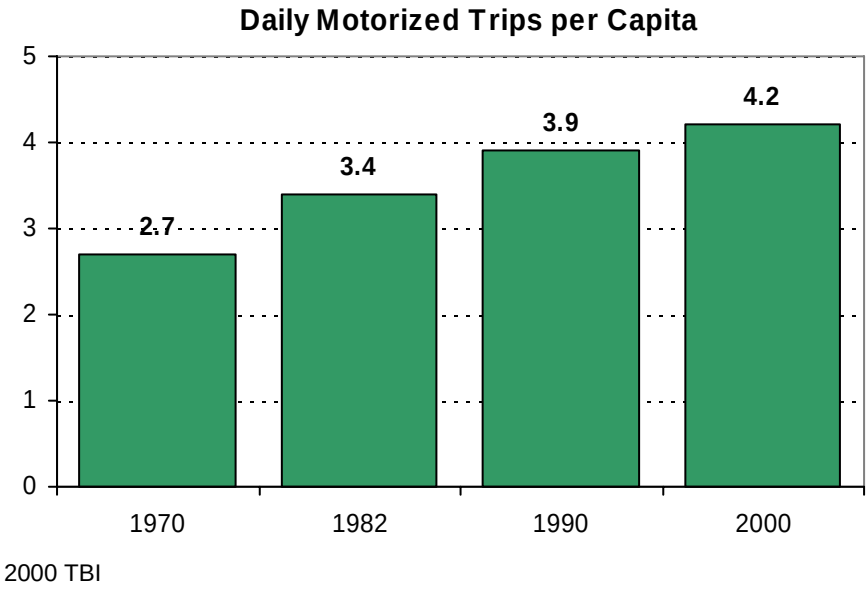


Daily person trips are increasing at a higher rate now than the decades preceding the 1980s. The increases in daily trips put more demand on the transportation system.

Person Trips per Capita

The number of daily-motorized trips per capita is increasing in the Twin Cities. Several factors are contributing to this increase:

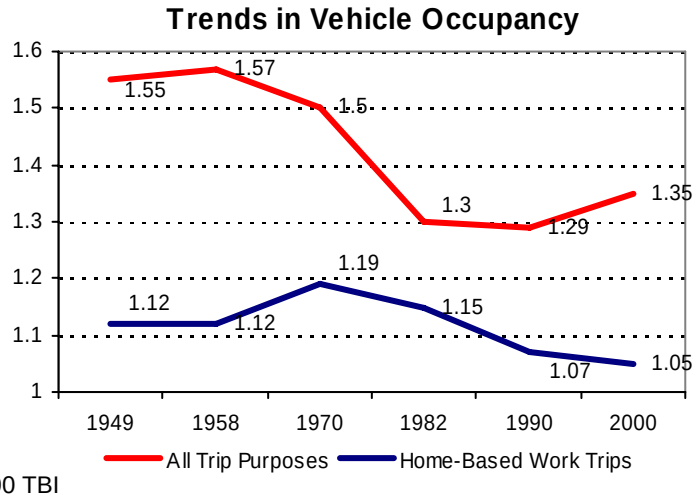
- More women are in the workforce.
- People are healthier, living longer and thus driving longer.
- Activities outside the home have increased.
- The number of automobiles per capita has increased.



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.

Vehicle Occupancy Trends

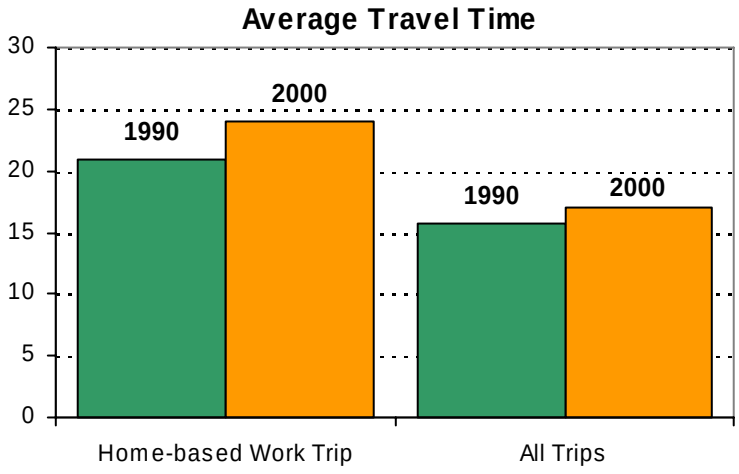
Overall vehicle-occupancy rates had been dropping in past decades, but there was a slight increase from 1990 to 2000. Occupancy rates for work trips continue to drop to very nearly one person per vehicle.



2000 TBI

Travel Time per Trip

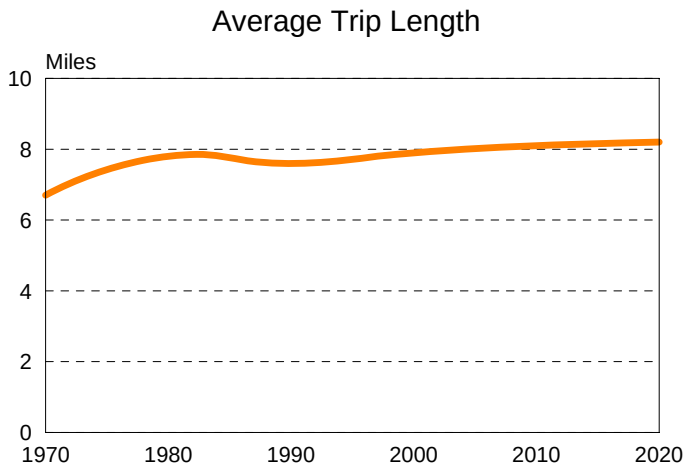
Travel time for the home-based work trip and for all trip purposes continues to increase. The TBI found that the commute trip lengthened from an average of 21 minutes in 1990 to an average of 24 minutes in 2000. The Census also reported an increase in commuting travel time during the same period, from 20.8 minutes in 1990 to 23 minutes in 2000. The average duration of all trips increased from 15.8 minutes in 1990 to just over 17 minutes in 2000.



2000 TBI

Length of Trip

The average length of vehicle trips has also increased over time. Between 1970 and 2000, the average length of a trip increased from 6.7 miles to 7.9 miles, an increase of almost 18%. The average length of vehicle trips is expected to increase an additional 3.8% by 2020 to 8.2 miles, a modest increase.

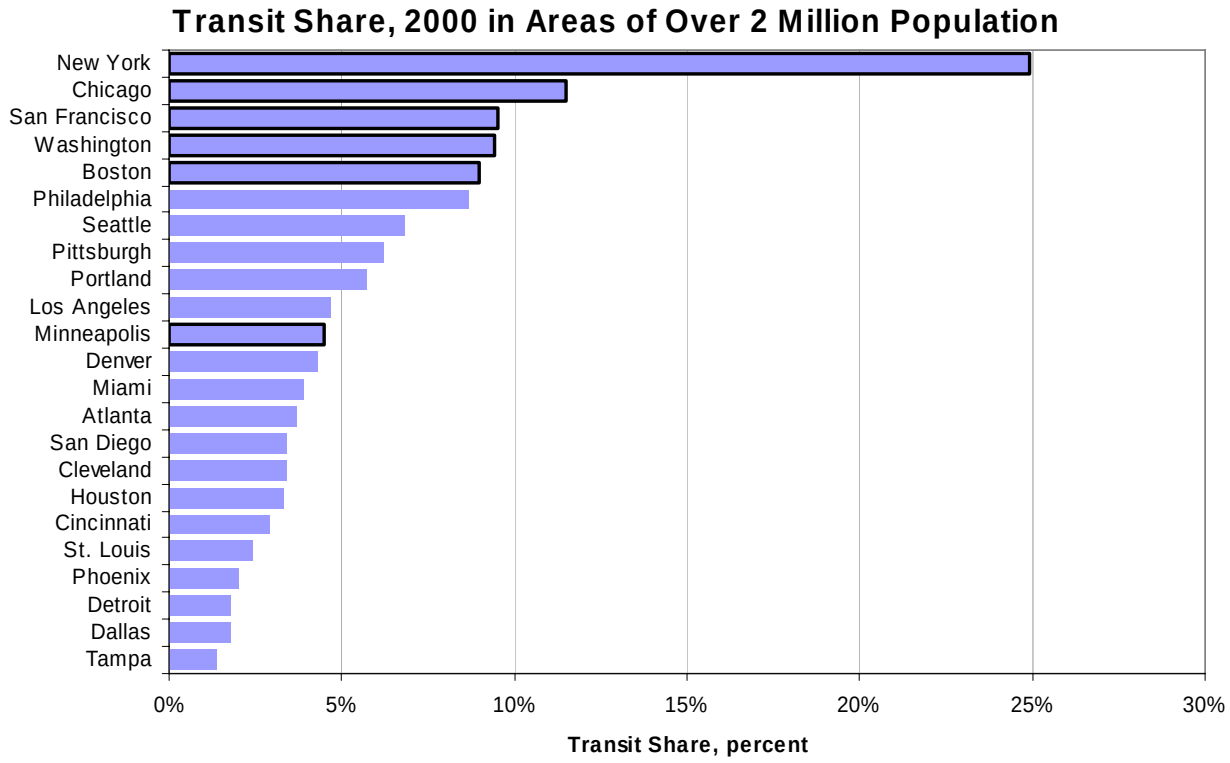


TBI/Regional Forecast Model

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 length of trips, which increased 0.6% per year from 1970 to 1990, increased by a modest estimated annual 0.4% from 1990 to 2000.

Regional Transit Share

The Twin Cities metro area ranked 11th in transit share of commuters in the 2000 Census *Journey to Work* data among regions with over 2 million people. The transit share of 4.5% was slightly less than double the mode share for all trips, as identified by the TBI. The top five transit markets are among the largest metro areas in the country and have transit shares more than double that of the Twin Cities region.



Source: U.S. Department of Transportation Census Planning Package

CHAPTER 6: HIGHWAY SYSTEM

Description of System

The seven-county metropolitan region has over 15,000 miles of roadways. The functional class of a roadway describes its role within the hierarchy of roadways according to their primary function— for example, mobility for through trips or access to adjacent lands. The region uses a four-class system to designate roads (principal arterials, minor arterials, collectors and local streets).

Principal Arterials -- Principal arterials are the high-capacity highways that make up the metropolitan highway system. These are primarily the interstate and state-trunk highway system, although some county highways are also included in the principal arterial system.

Minor Arterials – These are roadways within the metropolitan area that are not principal arterials but perform a regionally significant role in the transportation system. These roadways are designated the “A” Minor Arterial System and 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 but not in rural areas. These roadways are proposed to accommodate medium-length trips (less than eight miles) as well as to provide relief to congested principal arterials. There are approximately 310 miles of relievers in the seven-county region. Improvements to relievers focus on providing additional capacity for through traffic.

Expanders - These routes provide a way to make connections between developing areas outside the interstate ring or beltway. These routes are located beyond the area reasonably served by the beltway. These roadways are proposed to serve medium-to-long suburb-to-suburb trips. The seven-county region has approximately 430 miles of expanders. Improvements to expanders focus on preserving or obtaining right-of-way for future expansion.

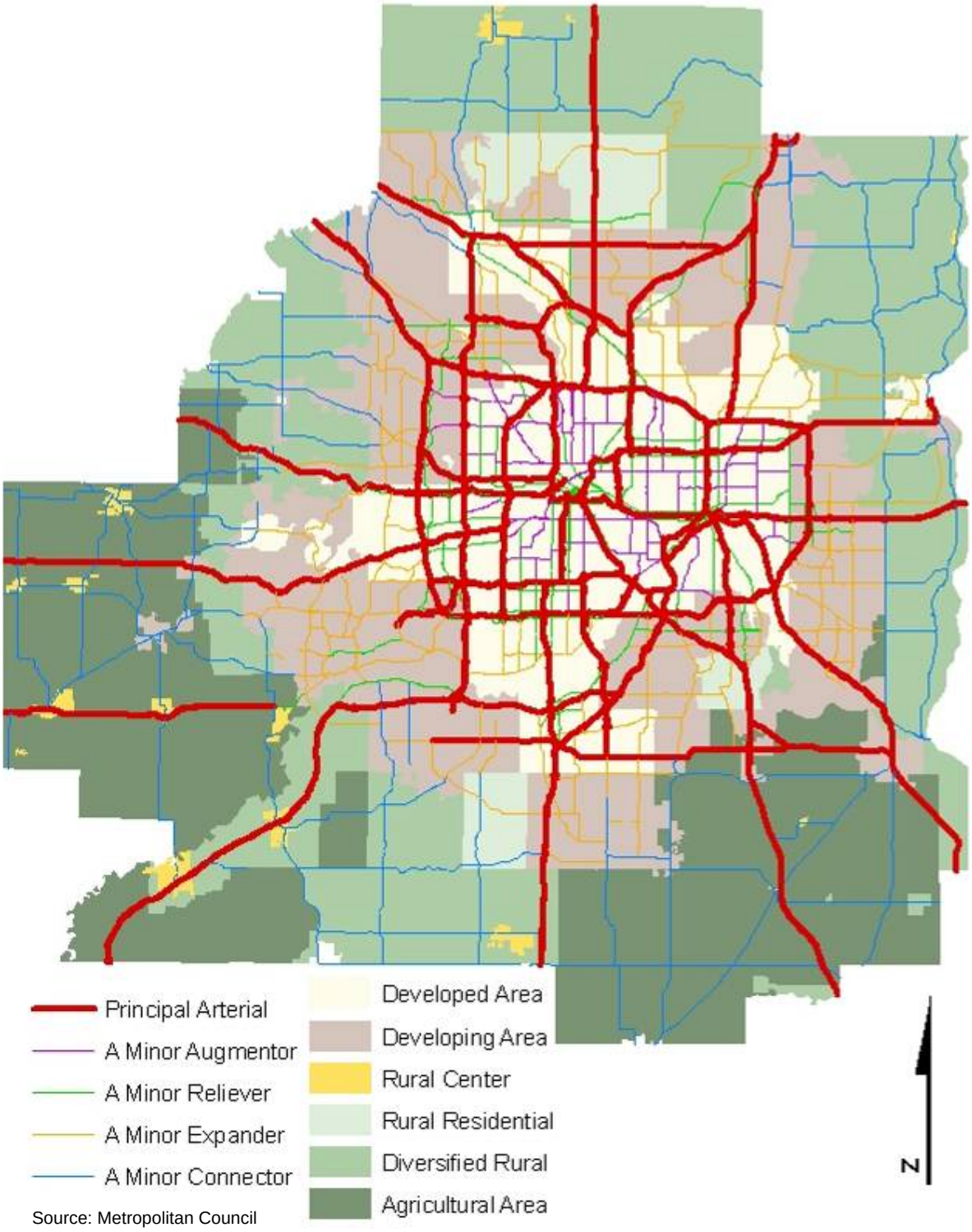
Connectors - These roads provide good, safe connections among town centers in the urban reserve, urban staging and rural areas within and near the seven counties. There are approximately 640 miles of connectors in the seven-county region. Improvements to connectors focus on safety and improving load-carrying capacity.

Augmenters - 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 at serving the density of development in this area. In these situations, these key minor arterials serve many long-range trips. There are approximately 145 miles of augmenters in the seven-county region. Improvements to augmenters focus on providing additional capacity for through traffic.

Collector Streets – These streets connect neighborhoods to one another and to regional business concentrations.

Local Streets – These streets provide access to homes and businesses.

Twin Cities Regional Highway System & 2030 Framework Planning Areas



Source: Metropolitan Council

Growth in Roadway System Mileage

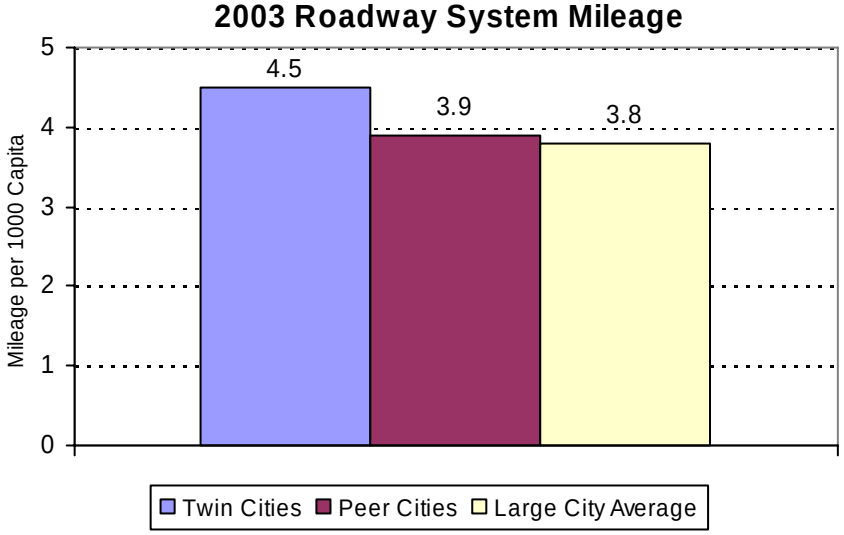
Between 2000 and 2004, lane miles of roadway in the seven-county commute area have grown by 1.2%. During this same period, vehicle-miles traveled increased by 5.4%.

2004 Lane-Miles by Functional Class	Seven-County Metro	Nine-MN-County Commute Shed	Total Metro Commute Area (in MN)
Principal Arterial - Freeway	1,721	330	2,051
Principal Arterial - Other	1,090	855	1,945
Minor Arterial	5,685	1,351	7,036
Collector	3,493	5,020	8,513
Local Systems	21,081	13,651	34,732
Total	33,070	21,207	54,277
2000 Lane-Miles	**Seven-County Metro**	**Nine-MN-County Commute Shed**	**Total Metro Commute Area (in MN)**
Principal Arterial - Freeway	1,711	365	2,076
Principal Arterial - Other	1,155	805	1,945
Minor Arterial	5,622	1,332	6,954
Collector	3,579	4,954	8,533
Local Systems	20,598	13,646	34,244
Total	32,655	21,099	53,764

Source: Minnesota Department of Transportation, Transportation Information System Database

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 Texas Transportation Institute (TTI) compiles data on transportation system performance for metropolitan areas throughout the United States. Its data can be used to measure changes in the performance of the Twin Cities' highway system over time and provide a rough comparison with other urban areas in the United States. TTI considers the Twin Cities a "large urban area," the second-largest urban area category. In this report, the Twin Cities area is compared to the average for large urban areas as well as with the average for our 10 peer urban areas. These urban areas are Baltimore, Cincinnati, Cleveland, Dallas, Denver, Milwaukee, Pittsburgh,



Source: TTI Urban Mobility Report

Portland, Seattle and St. Louis. The most recent year for which TTI had available data was 2003.

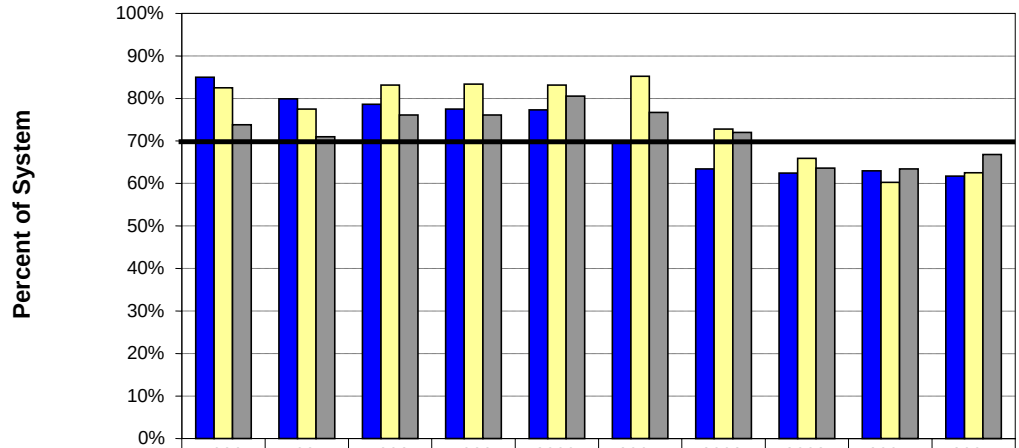
The Twin Cities has more roadway-centerline mileage per person than the average for our peer urban areas and TTI's large cities. This comparatively high amount of roadway is partly because the Twin Cities has one of the least dense patterns of urban development in the country, requiring more miles of roadway to provide access for all users of the system. Roadway centerline mileage is all roadways, including local streets, but does not include lane mileage.

The Twin Cities has a substantially higher number of roadway-system mileage per capita than other large urban areas.

Pavement Condition

The Minnesota Department of Transportation evaluates the quality of the pavement on roads under its jurisdiction. This is measured in terms of the Ride Quality Index (RQI). The RQI is an indicator of pavement smoothness based on ratings of users. The RQI is expressed as a number between 0 and 5 with the smaller values indicating greater pavement roughness. A section of roadway with a RQI rating of 3 is considered to be in good condition. Mn/DOT's goal is to maintain at least 70% of principal arterials and 65% of non-principal arterials in good or very good condition, and allow less than 2% of principal arterials and 3% of non-principal arterials to be in poor or very poor condition. Over the last few years, Mn/DOT has fallen behind in meeting this goal, particularly on metropolitan area non-principal arterials.

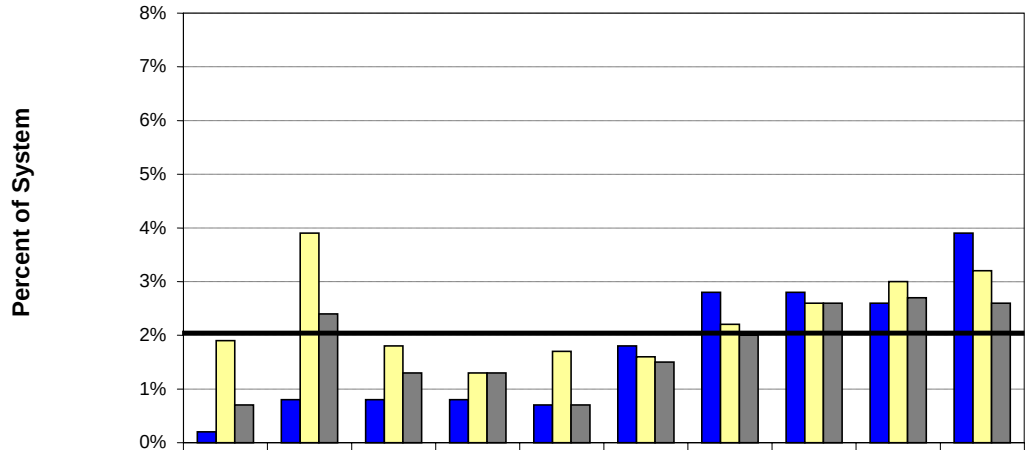
RQI in the Good/Very Good Category
(Principal Arterials)



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
7-County Metro Area	85.0%	79.9%	78.6%	77.5%	77.3%	69.7%	63.4%	62.4%	63.0%	61.7%
Surrounding Counties	82.5%	77.5%	83.1%	83.4%	83.1%	85.2%	72.8%	65.9%	60.3%	62.5%
Statewide	73.8%	71.0%	76.1%	76.1%	80.5%	76.7%	72.0%	63.6%	63.4%	66.8%

Source: Minnesota Department of Transportation

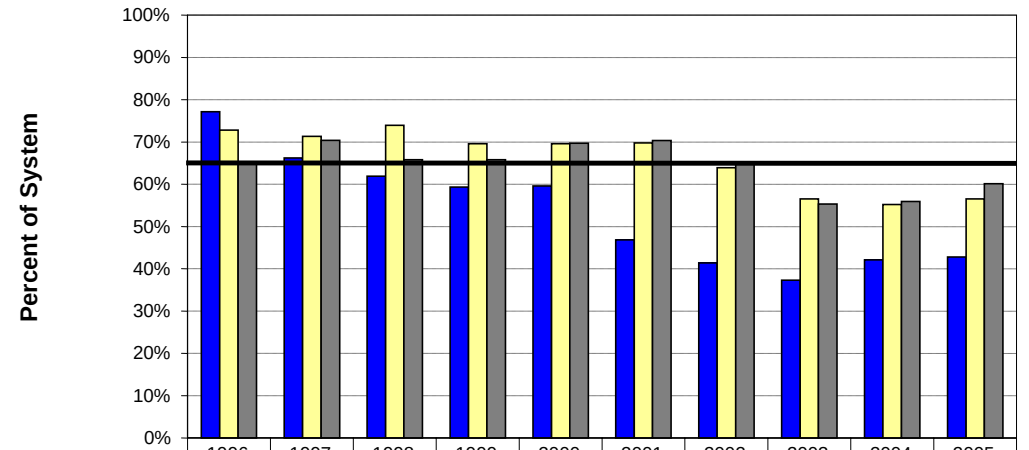
RQI in the Poor/Very Poor Category
(Principal Arterials)



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
7-County Metro Area	0.2%	0.8%	0.8%	0.8%	0.7%	1.8%	2.8%	2.8%	2.6%	3.9%
Surrounding Counties	1.9%	3.9%	1.8%	1.3%	1.7%	1.6%	2.2%	2.6%	3.0%	3.2%
Statewide	0.7%	2.4%	1.3%	1.3%	0.7%	1.5%	2.0%	2.6%	2.7%	2.6%

Source: Minnesota Department of Transportation

RQI in the Good/Very Good Category
(Non-Principal Arterials)

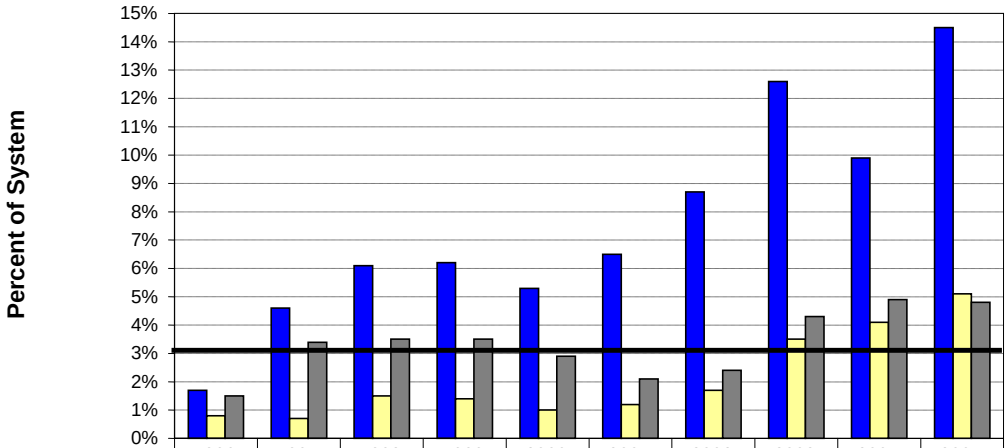


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
7-County Metro Area	77.1%	66.2%	61.9%	59.3%	59.6%	46.8%	41.4%	37.3%	42.1%	42.8%
Surrounding Counties	72.8%	71.3%	73.9%	69.6%	69.6%	69.8%	63.9%	56.5%	55.2%	56.5%
Statewide	64.9%	70.4%	65.8%	65.8%	69.7%	70.3%	64.8%	55.3%	55.9%	60.1%

Year

Source: Minnesota Department of Transportation

RQI in the Poor/Very Poor Category
(Non-Principal Arterials)



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
7-County Metro Area	1.7%	4.6%	6.1%	6.2%	5.3%	6.5%	8.7%	12.6%	9.9%	14.5%
Surrounding Counties	0.8%	0.7%	1.5%	1.4%	1.0%	1.2%	1.7%	3.5%	4.1%	5.1%
Statewide	1.5%	3.4%	3.5%	3.5%	2.9%	2.1%	2.4%	4.3%	4.9%	4.8%

Source: Minnesota Department of Transportation

Most of the region's highway system is still in generally good condition. However, the condition of the region's non-principal arterials is deteriorating rapidly. This is a cause for concern since the region's minor arterial system is expected to carry a higher volume of traffic over the next few years as more of the principal-arterial system reaches capacity. The Mn/DOT Metro District Plan is allocating resources to fully meet the pavement performance targets by the year 2014.

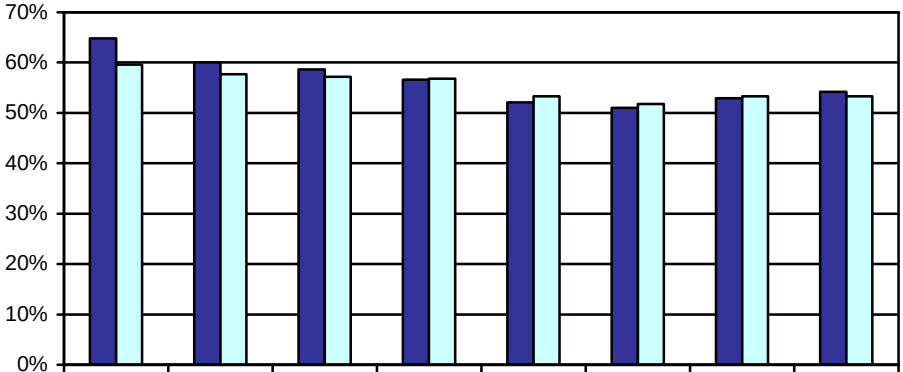
The pavement on the region's highway system is generally in good condition but has been declining between 1996 and 2005. The pavement quality on non-principal arterials in the metro region has declined the most dramatically.

Bridge Conditions

Bridges in the State Principal and Minor Arterial system have a total surface area exceeding 23 million square feet. About 90% of this area carries principal arterial highways. Mn/DOT uses a measure to assess system-wide bridge performance. The measure is the Bridge Structural Condition Rating, which is based on the National Bridge Inventory (NBI) scale from 0 to 9 and uses a combination of Condition Code and Appraisal Rating to assign a "good," "fair," or "poor" condition.

The metropolitan area's bridges do not quite meet all the targets established in Mn/DOT's State Plan. The State bridge system does meet the target for the combined "fair and poor" condition. The Mn/DOT Metro District Plan is allocating resources to fully meet the bridge performance targets by the year 2023.

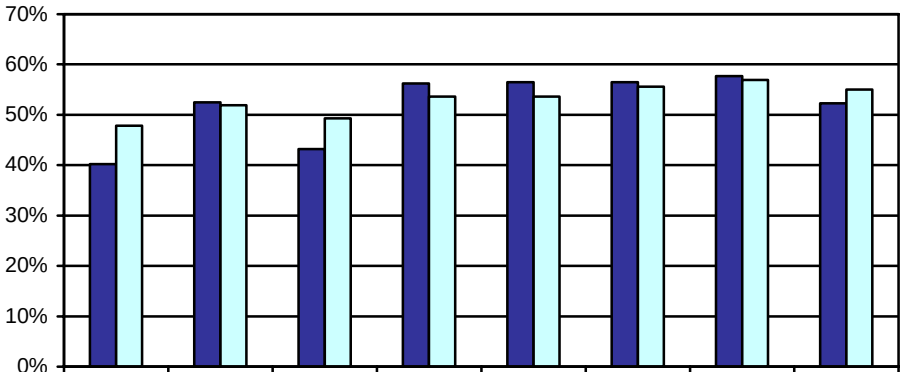
PERCENT OF BRIDGE AREA IN GOOD CATEGORY
(PRINCIPAL ARTERIALS)



	1998	1999	2000	2001	2002	2003	2004	2005
METRO	64.8%	60.0%	58.6%	56.6%	52.1%	51.0%	52.9%	54.2%
STATEWIDE	59.6%	57.7%	57.2%	56.8%	53.3%	51.8%	53.3%	53.3%

Source: Minnesota Department of Transportation

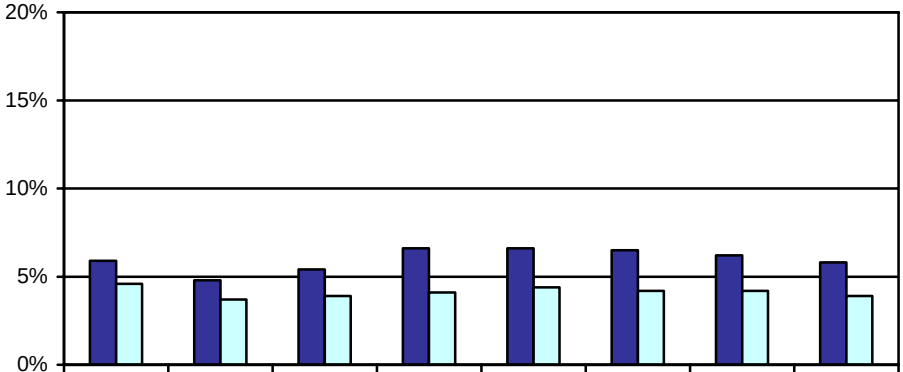
PERCENT OF BRIDGE AREA IN GOOD CATEGORY
(MINOR ARTERIALS)



	1998	1999	2000	2001	2002	2003	2004	2005
METRO	40.2%	52.5%	43.2%	56.2%	56.5%	56.5%	57.7%	52.3%
STATEWIDE	47.8%	51.9%	49.3%	53.6%	53.6%	55.6%	56.9%	55.0%

Source: Minnesota Department of Transportation

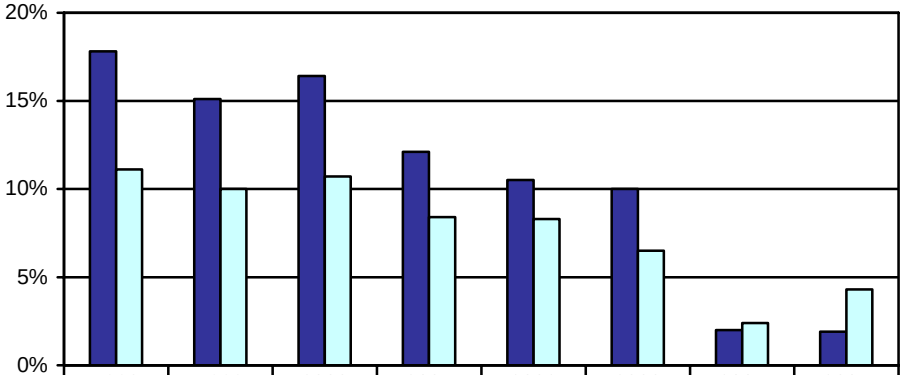
PERCENT OF BRIDGE AREA IN POOR CATEGORY (PRINCIPAL ARTERIALS)



	1998	1999	2000	2001	2002	2003	2004	2005
METRO	5.9%	4.8%	5.4%	6.6%	6.6%	6.5%	6.2%	5.8%
STATEWIDE	4.6%	3.7%	3.9%	4.1%	4.4%	4.2%	4.2%	3.9%

Source: Minnesota Department of Transportation

PERCENT OF BRIDGE AREA IN POOR CATEGORY (MINOR ARTERIALS)



	1998	1999	2000	2001	2002	2003	2004	2005
METRO	17.80%	15.10%	16.40%	12.10%	10.50%	10.00%	2.00%	1.90%
STATEWIDE	11.10%	10.00%	10.70%	8.40%	8.30%	6.50%	2.40%	4.30%

Source: Minnesota Department of Transportation

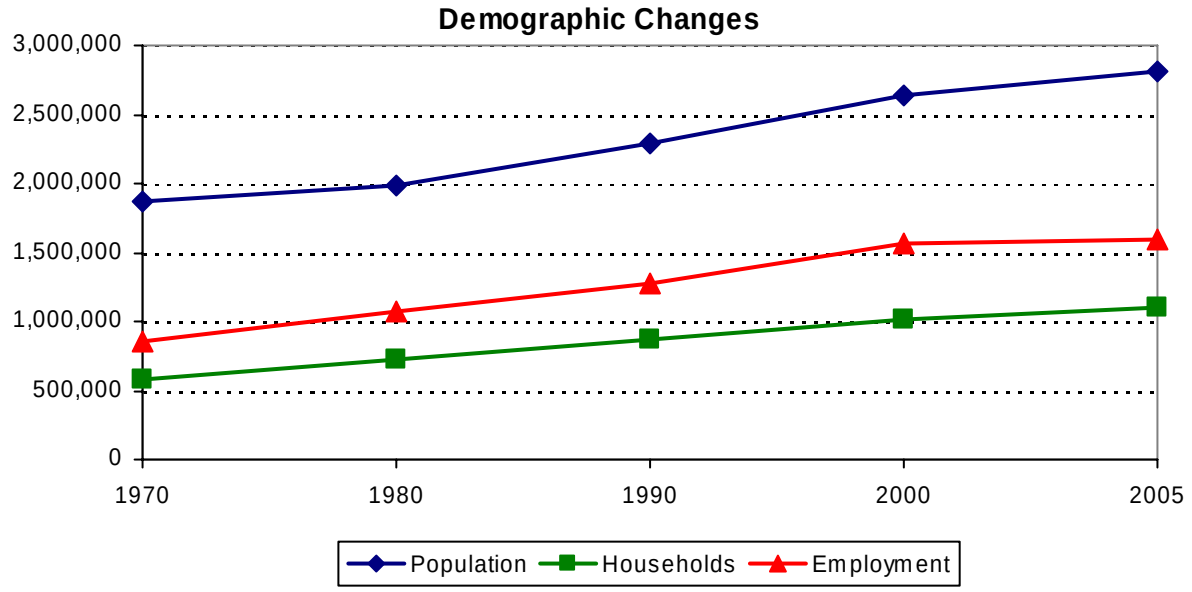
The condition of principal-arterial bridges in the region is failing to meet State targets, while minor-arterial bridges are meeting their targets. The condition of principal-arterial bridges has been deteriorating between 1998 and 2003.

Use of the Highway System

The seven-county Twin Cities region had an estimated population of 2,800,730 in 2005. This is an increase of 6% since the 2000 census. Since 1980, the seven-county region's population has increased by 41%, making it one of the fastest growing metropolitan areas in the Midwest.

Employment has grown faster than population as more people living in the area are working at jobs outside of the home. There were an estimated 1,688,160 people employed in the region in 2005. This is an increase of 8% since 2000 and an increase of 58% since 1980.

For the last several decades, average household size has been decreasing so that the total number of households in the region has grown faster than the population. There were an estimated 1,101,030 households in the region in 2005. This is an increase of about 8% since 2000 and an increase of approximately 53% since 1980.



Source: Metropolitan Council

The rapid increase in households and in the number of people working has put a great deal of pressure on the region's roadway network. More households means more housing has been constructed and more people making household-related trips. More people working in the labor force means that more people commute to work and fewer are doing household work so that more services are purchased outside of the home.

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.

Vehicle-Miles Traveled

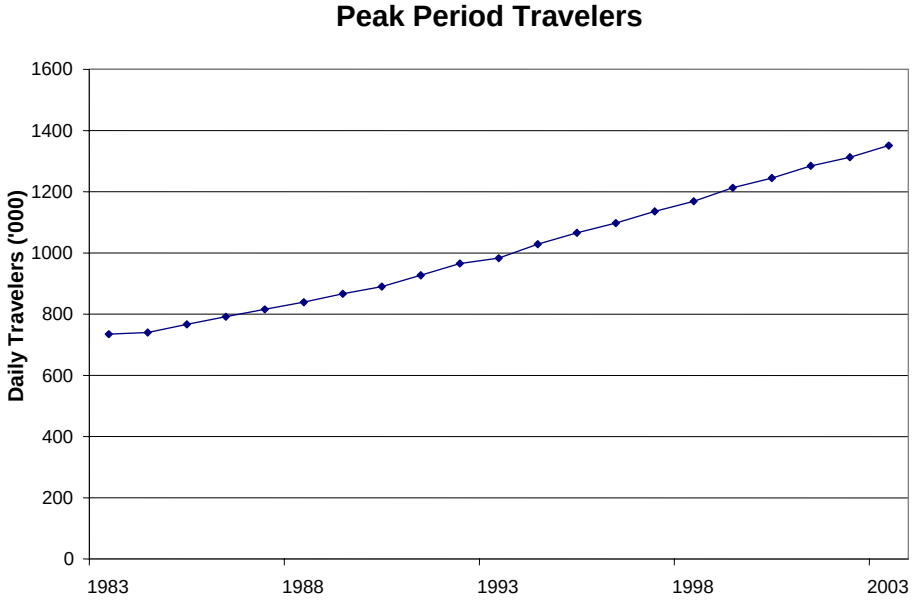
A typical measurement of road system usage is the daily vehicle-miles traveled (VMT), which is the number of miles driven by vehicles in the region. According to the Minnesota Department of Transportation, VMT has been increasing steadily in the last five years.

2004 Vehicle-Miles Traveled by Functional Class	Seven-County Metro	Nine-MN-County Commuter Shed	Total Metro Commute Area
Principal Arterial - Freeway	29,285,246	3,147,883	32,433,129
Principal Arterial - Other	8,190,093	3,787,053	11,977,146
Minor Arterial	21,160,541	3,421,313	24,581,854
Collector	5,374,083	3,110,155	8,484,238
Local Systems	8,231,690	1,523,486	9,755,176
2004 Total	72,241,652	14,989,890	87,231,542
2000 Total	68,536,417	12,827,525	81,363,942
2000 – 2004 % Change	5.4%	16.9%	7.2%

Source: Minnesota Department of Transportation

According to Mn/DOT, vehicle-miles traveled has grown significantly and at a substantially faster rate of growth in the nine-county Minnesota commuter shed than in the seven-county region. In both the seven-county region and the surrounding nine-county commute shed, freeway principal arterials carry a disproportionate amount of the vehicle traffic in the region. In the seven-county region, freeway principal arterials comprise of 5.2% of lane miles but carry 40.5% of the vehicle-miles traveled. In the nine-county commute shed, freeway principal arterials comprise of 1.6% of lane miles but carry 21% of the vehicle-miles traveled.

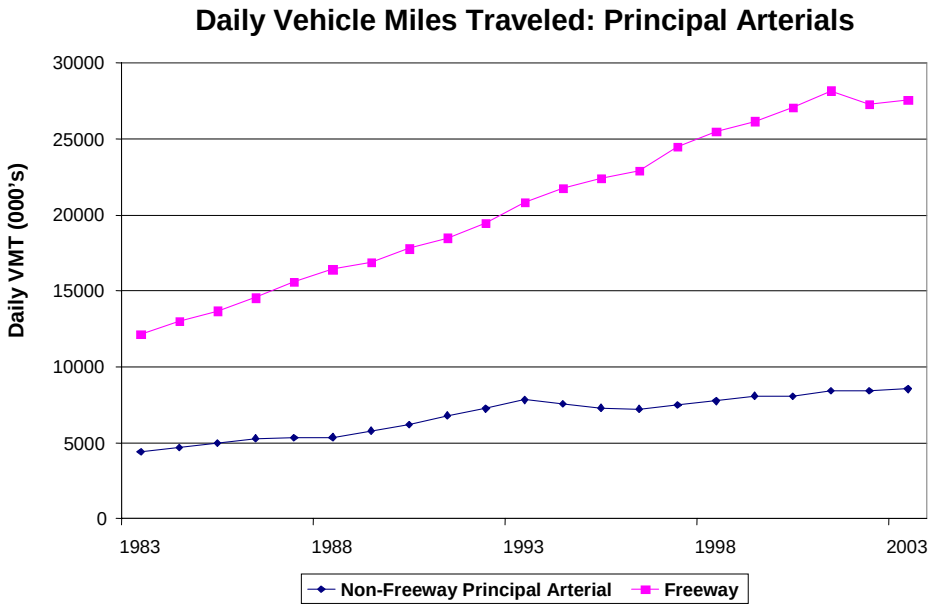
TTI data also show an increase in travel in the Twin Cities region, a trend that has never been interrupted in the last several decades. Between 1983 and 2003, the number of daily travelers on the roadways during the peak period has increased by 84%.



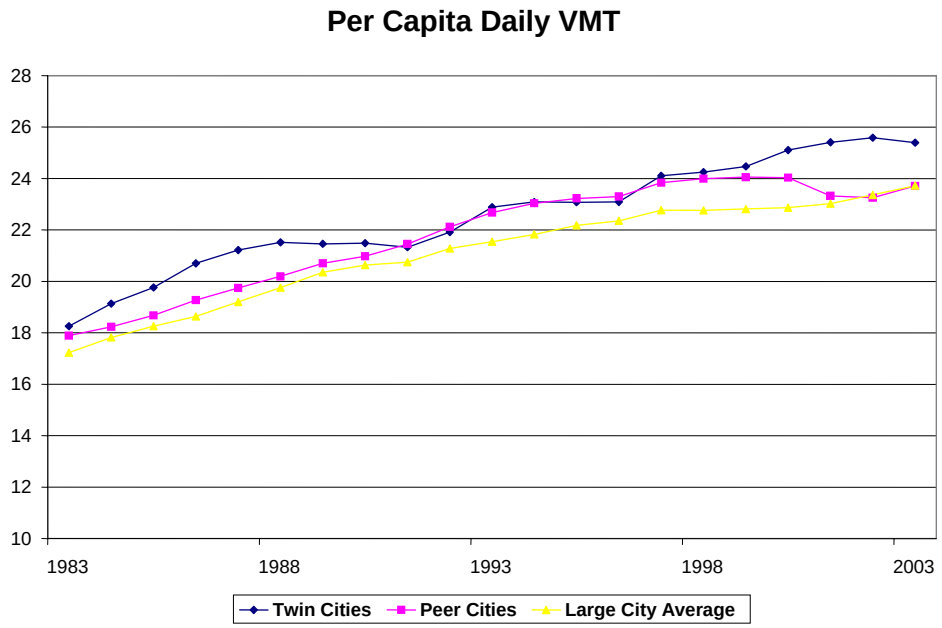
Source: TTI Urban Mobility Report

While freeway lane miles have not been expanded as much as other classes of roads in the last couple of decades, use of the freeway system has increased more than any other class of roads. In the 20 years between 1983 and 2003, daily VMT on the freeways has increased 127%, while daily VMT has increased 94% on non-freeway principal arterials and total system VMT has increased 97%. Almost all of this growth occurred during the 1980s and 1990s, as both total and per capita VMT have remained relatively constant since 2000.

Daily VMT per person has increased from 18 in 1983 to over 25 in 2003, about two miles more per day than in peer urban areas and the large cities. As the figures below show, the Twin Cities area has slowed the rate of increase in per capita VMT but many other peer cities (Seattle, Portland, Dallas) have been able to reduce per capita VMT in recent years while it continues to increase here.



Source: TTI Urban Mobility Report



Source: TTI Urban Mobility Report

The number of vehicle-miles traveled 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.

Truck Vehicle-Miles Traveled

The Minnesota Department of Transportation maintains data on daily truck (heavy commercial) miles traveled on trunk highways. Truck miles have increased steadily for the past 10 years. Between 1995 and 2004, truck miles increased 16.5% in the entire commute region. Growth in truck miles was particularly strong in the nine-county commute shed.

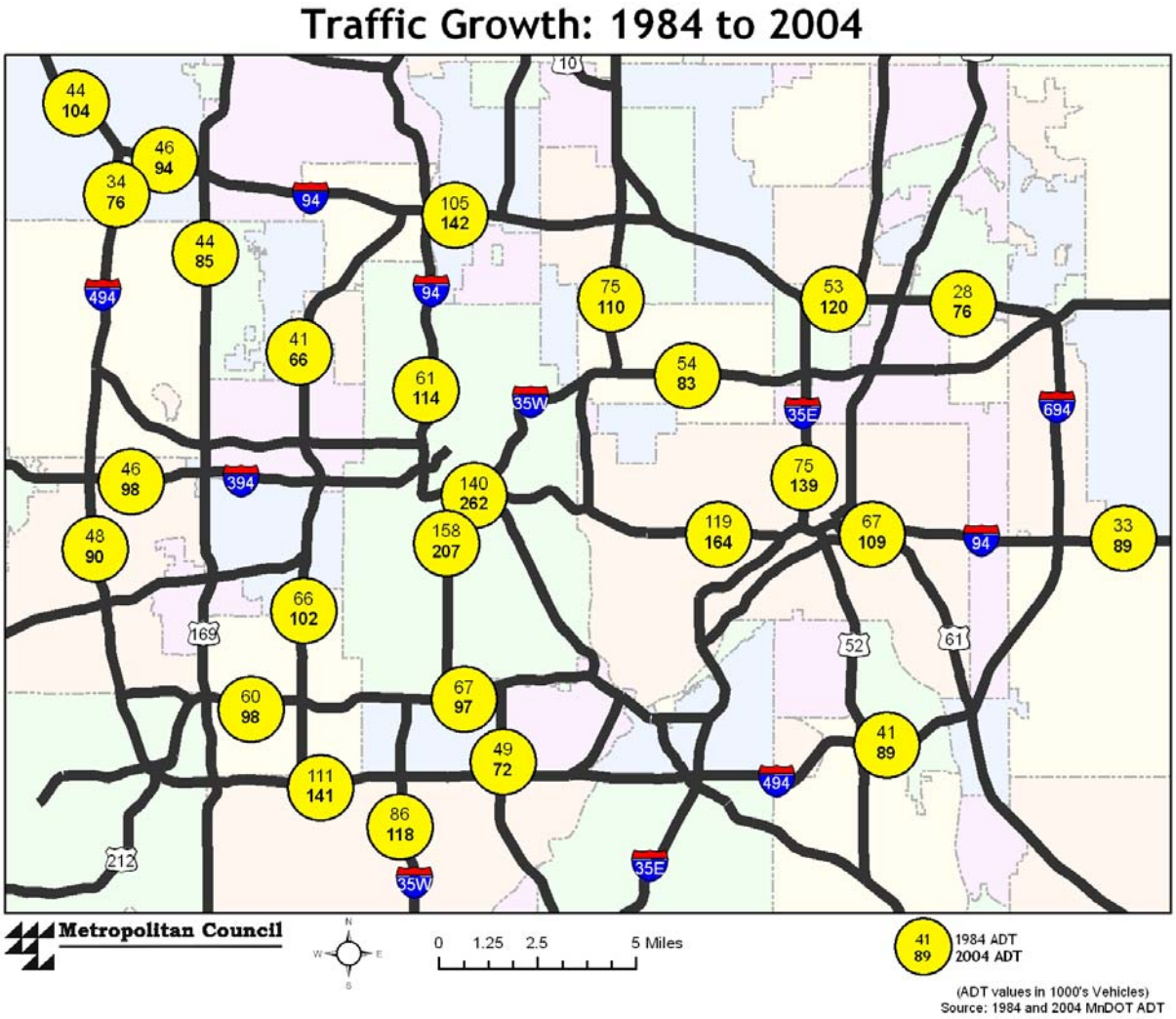
Year	Seven-County Metro	Nine-MN-County Commute Shed	Total Metro Commute Area
1995	2,051,671	610,110	2,661,781
2000	2,149,382	724,481	2,873,863
2004	2,239,322	861,067	3,100,389
Change: '95-'04	9.1%	29.1%	16.5%
Change: '00-'04	4.2%	15.9%	7.9%

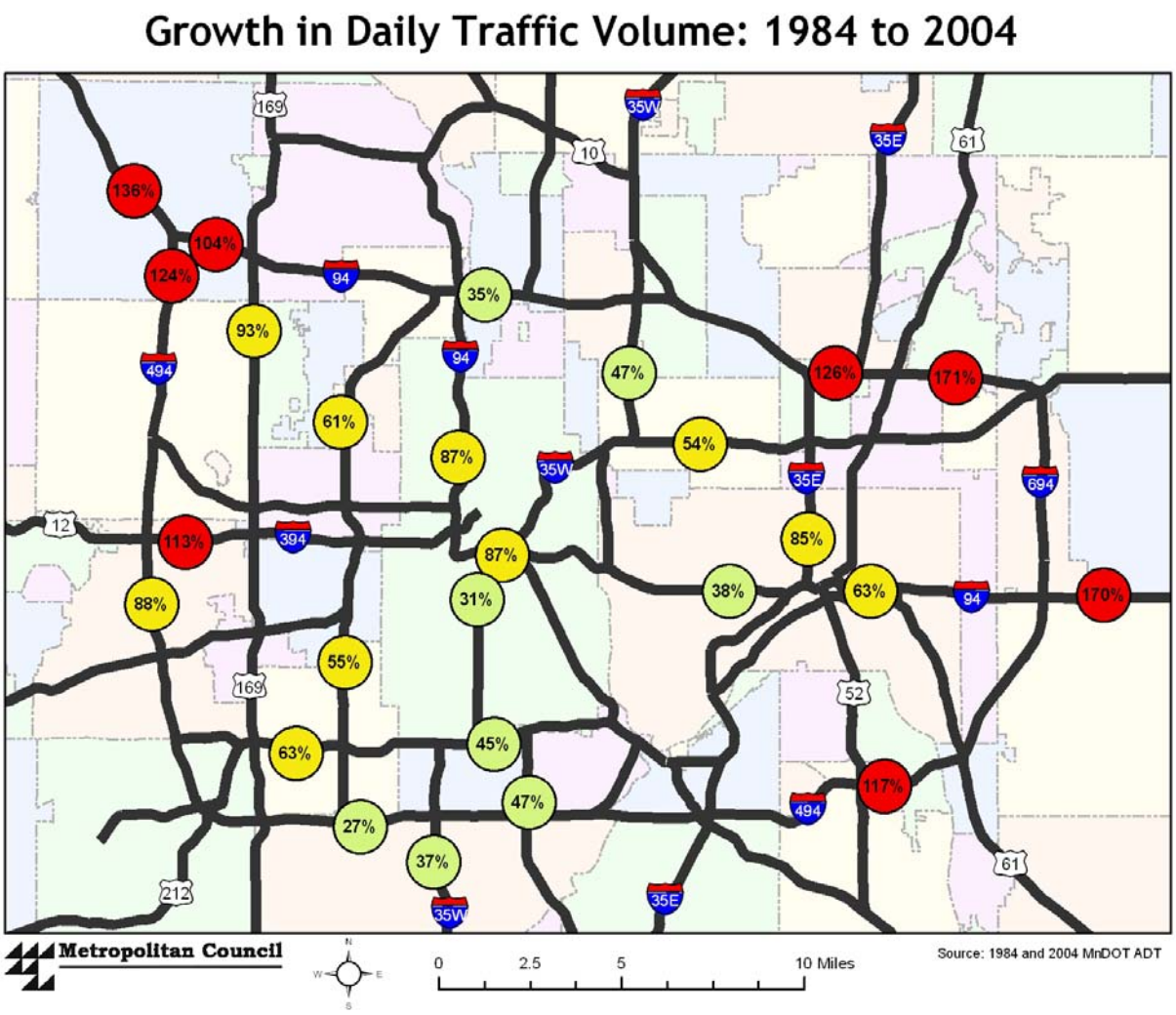
Source: Minnesota Department of Transportation

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%.

Daily Traffic on the Highway System

Average daily traffic (ADT) on the Twin Cities' highway system grew throughout the system during the last 20 years. The busiest segments of the highway system remained along I-94 and I-35, but traffic along them grew slower than the rest of the system. The fastest growing segments of the highway network were in the eastern and northwestern sections of the metropolitan area.





Crashes and Fatalities

The performance measure Mn/DOT uses to track crashes on the state highway system is the annual crash rate. The crash-rate performance target was using a baseline of 38,000 crashes per year. This understanding of trends results in a target crash rate of 0.73 crashes per million-vehicle miles (MVM) in 2023.

Target	**2009**	**2013**	**2023**
Crashes per MVM	0.96	0.88	0.73

Based on historical information, crashes on the trunk highway system have remained relatively constant. At the same time, system use has increased substantially. The increase in system use and the relatively constant number of crashes have resulted in a declining overall crash rate. The three-year average for the total crash rate on the trunk highway system has declined from 1.42 to 1.27 over the last five years continuing a long-term trend. The metropolitan area, however, has seen an increase in overall fatalities from crashes.

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.

Performance of the Highway System: Current Measures and Historical Trends

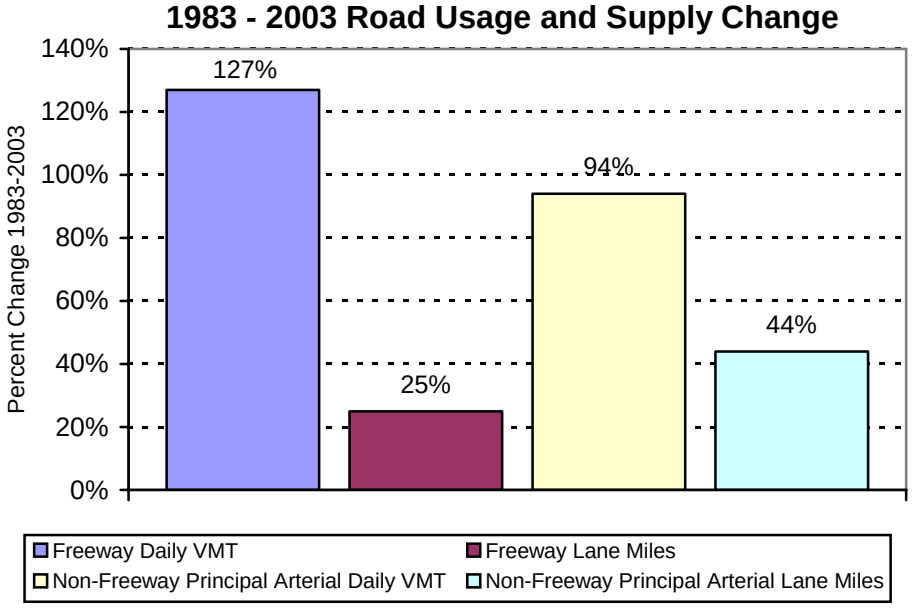
The level of congestion experienced by the traveling public has increased significantly in the last 20 years. While traffic congestion in the Twin Cities is comparable to many similar regions, the growth in congestion and its impacts on speeds and travel times are among the worst in the nation.

Various researchers define congestion differently. This report uses the Texas Transportation Institute's Urban Mobility study because it provides information that can be compared with other regions. However, the TTI measures used in this report are not the only measures available. The Minnesota Department of Transportation uses a different set of performance measures that are also referred to in this report. However, all measures show that increases in vehicle-miles traveled over time, together with slower highway capacity growth, have led to an increase in Twin Cities congestion.

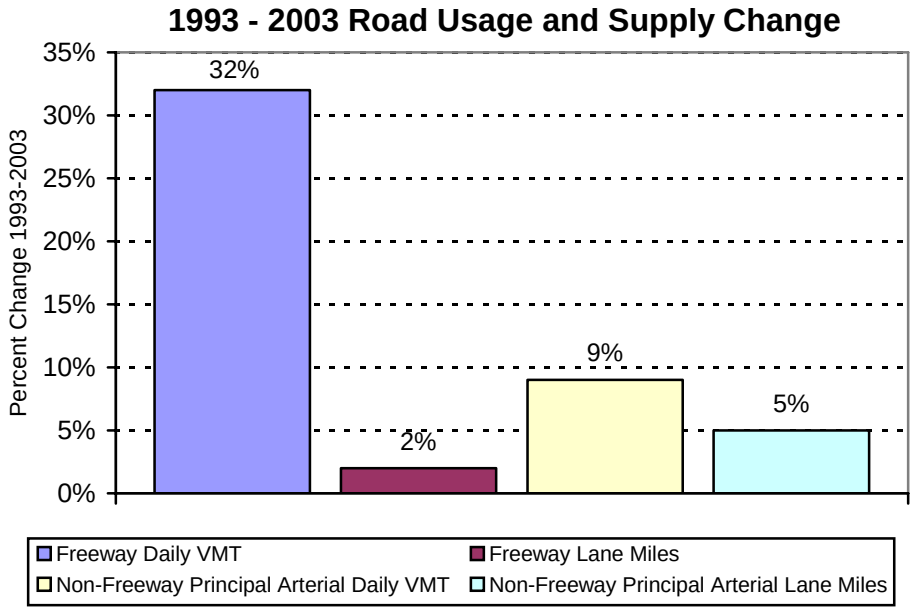
Growth in Roadway Use

Between 1983 and 2003, the number of freeway lane-miles grew 25% and that of non-freeway principal arterial lane miles grew 44%. Vehicle-miles traveled on these roads have increased much faster than the system has expanded. The major expansion of the highway system in the 1980s provided capacity to absorb the growth in VMT for the past 20-25 years. Highways are typically planned for a 20-25-year long-range horizon. In the metro area, that horizon is currently being reached and, consequently, the highway system is reaching its planned capacity. As highways reach their capacity, delays increase more rapidly with small increases in VMT than highways not yet at capacity.

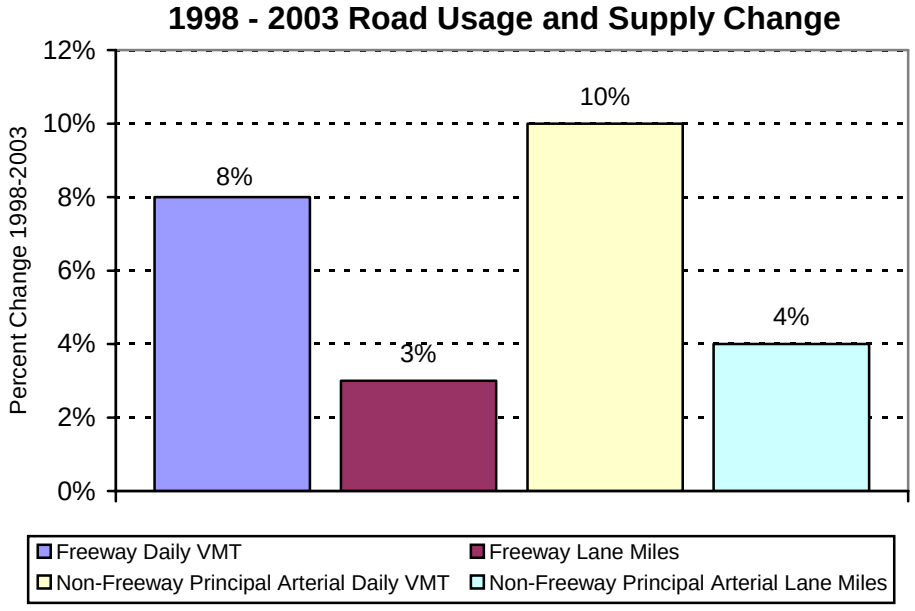
This discrepancy between the level of growth in the regional highway system and the growth of travel on the system has only increased in the last decade.



Source: TTI Urban Mobility Report



Source: TTI Urban Mobility Report



Source: TTI Urban Mobility Report

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 use of the existing highway network.

Vehicle Occupancy

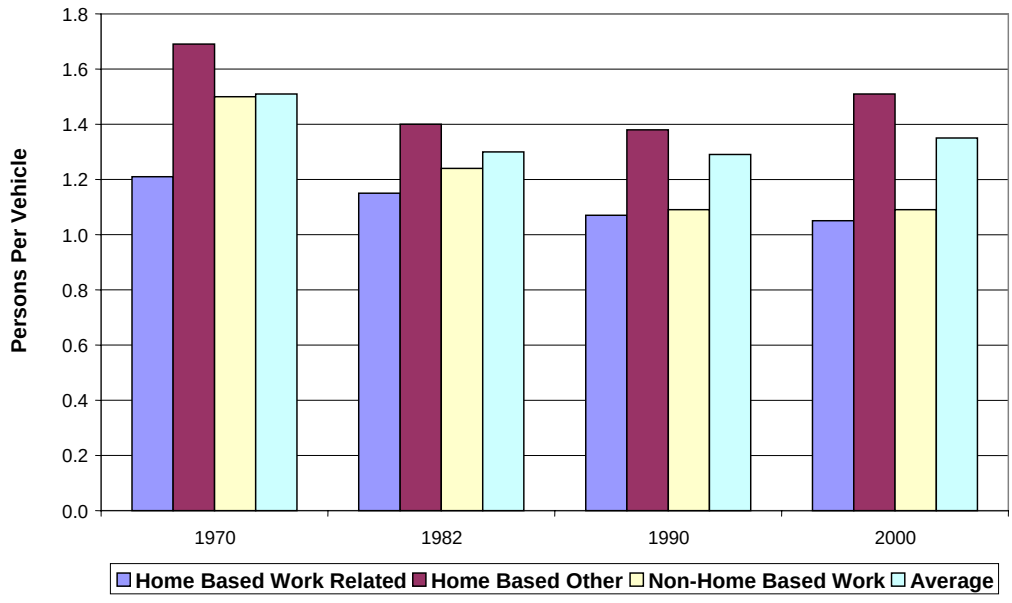
Increases in employment, decreases in household size and increases in the overall population of the region have driven the growth in the demand on the highway system. However, another reason that vehicle-miles traveled has increased is that the average number of people in a vehicle declined.

Vehicle occupancy declined steadily in the years preceding the 1980s. During the 1980s, vehicle occupancy remained practically unchanged. The 1990s saw a reversal of this trend with more people making non-work trips in vehicles with more than one person. Work-trip vehicle occupancy peaked in 1970 at 1.19 passengers per vehicle and has steadily declined to the point where it was just 1.05 in 2000. This is in part because the dispersion of work sites has made car-pooling more difficult as well as the decline of household size. The Twin Cities regional travel demand model of the Metropolitan Council predicts average vehicle occupancy to increase modestly in the next 25 years.

Trip Purpose	1970	1982	1990	2000	*2030*
Home Based Work Related	1.21	1.15	1.07	1.05	*1.10*
Home Based Other	1.69	1.40	1.38	1.51	*1.55*
Non-Home Based Work	1.50	1.24	1.09	1.09	*1.16*
Average	**1.51**	**1.30**	**1.29**	**1.35**	***1.52***

Source: Metropolitan Council

Average Vehicle Occupancy by Trip Purpose

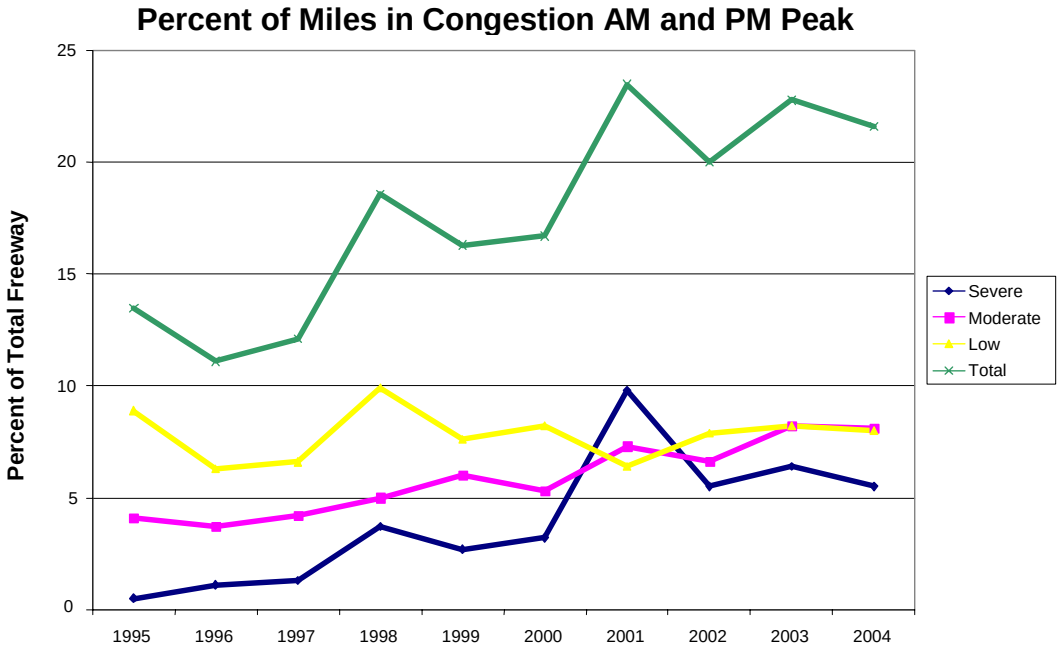


Source: Metropolitan Council

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.

Congestion

In assessing the performance of the freeway system, Mn/DOT has embedded detectors that measure speed of traffic. Free-flow conditions are speeds above 45 miles per hour and speeds below that are deemed congested. Mn/DOT calculates the percentage of miles on the freeway system that operate at speeds lower than this for any length of time. Tracking trends in congestion over time is difficult using the Mn/DOT data since the data-collection methods have been altered at various points prior to 2002 and because the usage of detectors has been expanding over time. The data shows the same trend, however, as the TTI data with congestion increasing considerably during the 1990s and leveling off somewhat during the early 2000s.

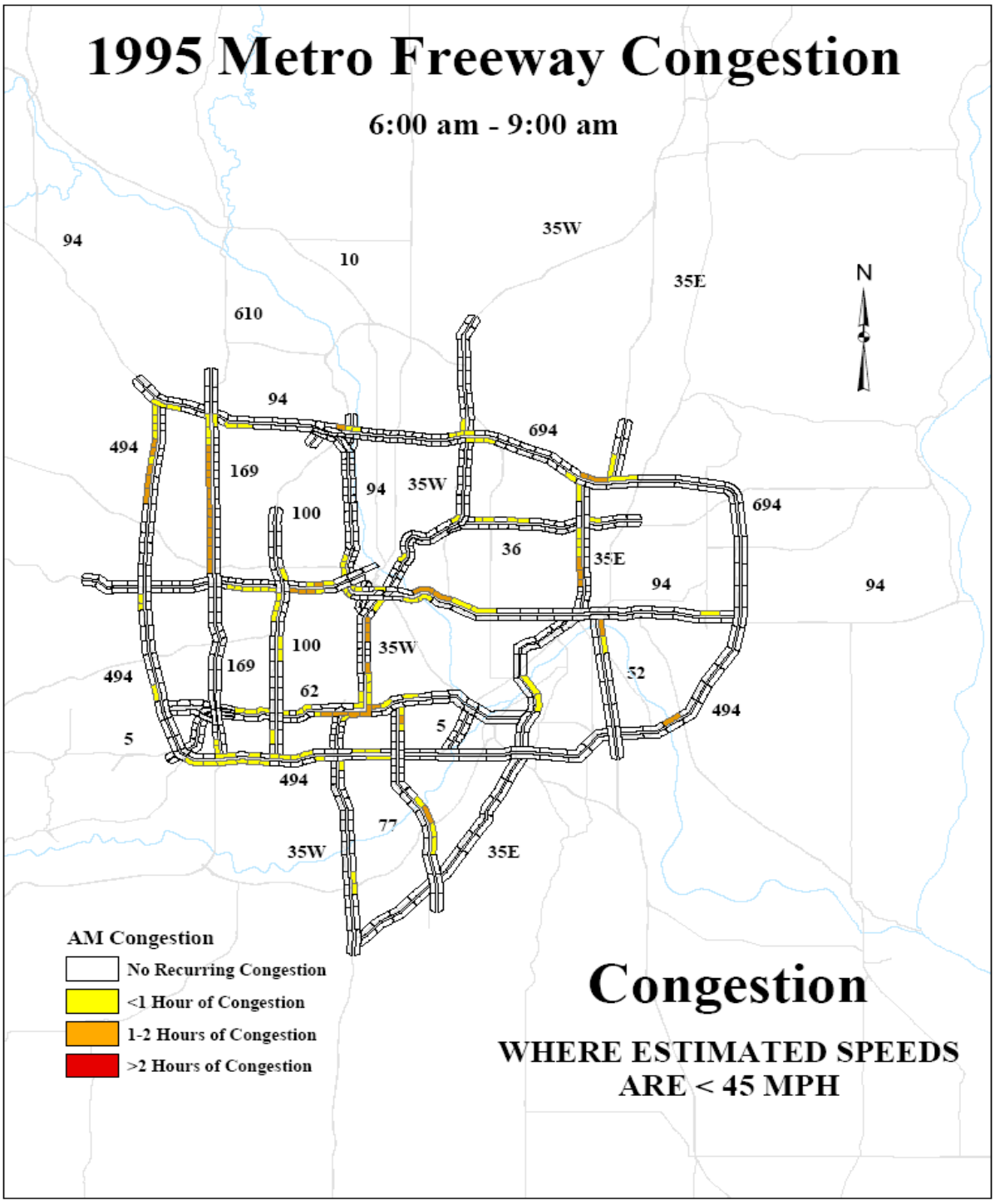


Source: Minnesota Department of Transportation

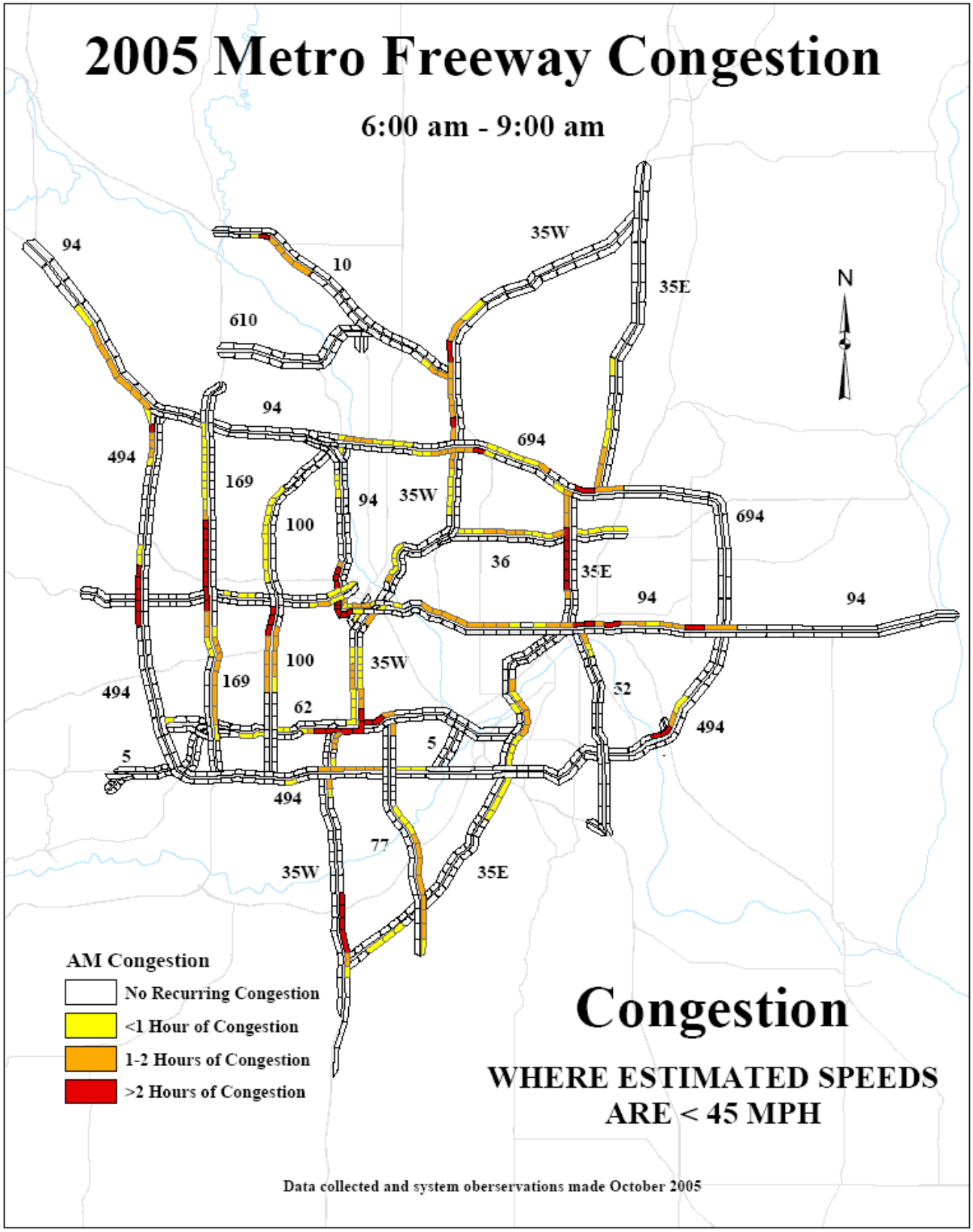
Peak Congestion

Since 1995, the% of congested freeways miles during AM and PM peak periods has increased. The following maps indicated the areas where increased congestion has occurred.

AM Peak Congestion 1995 vs. 2005

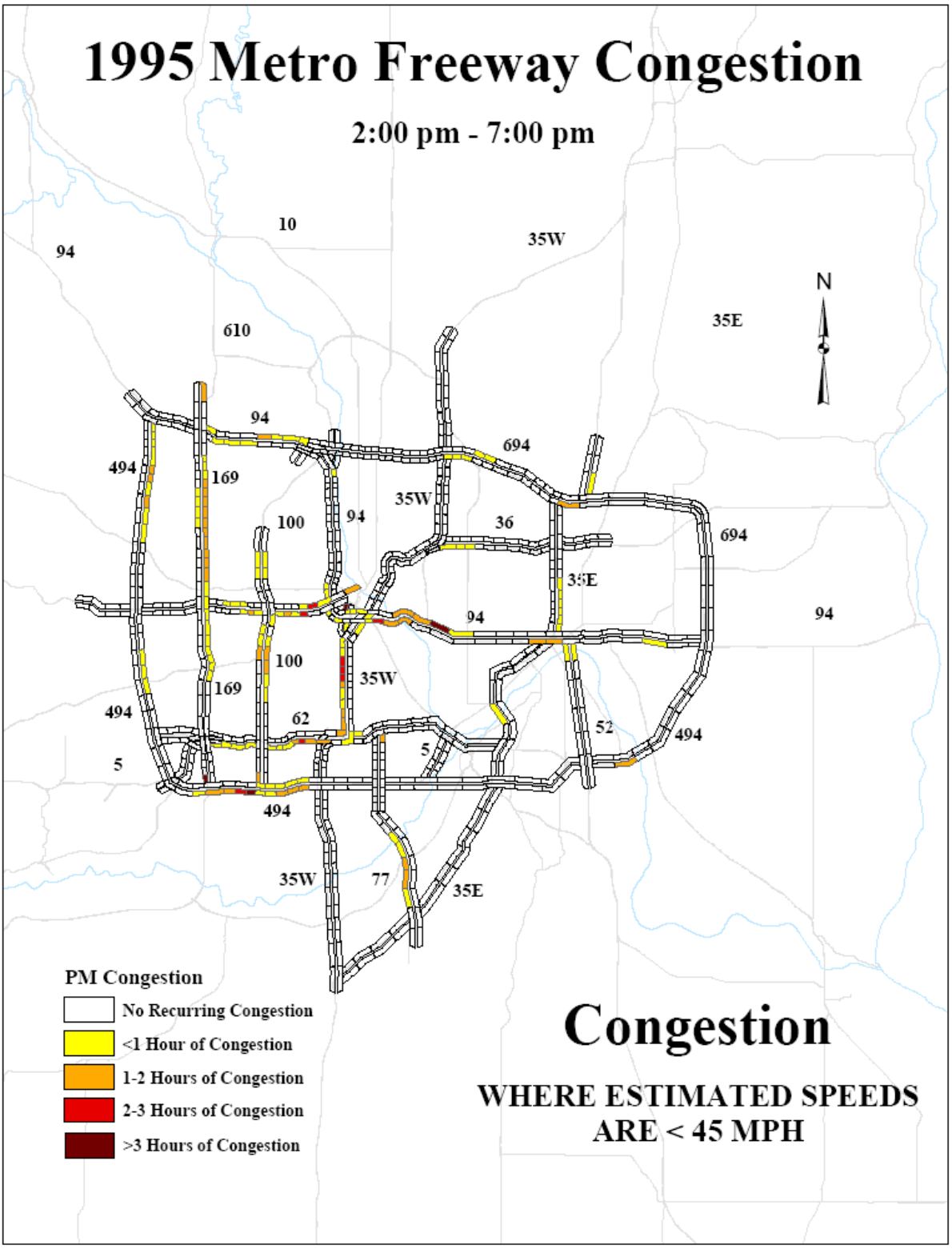


Source: Minnesota Department of Transportation

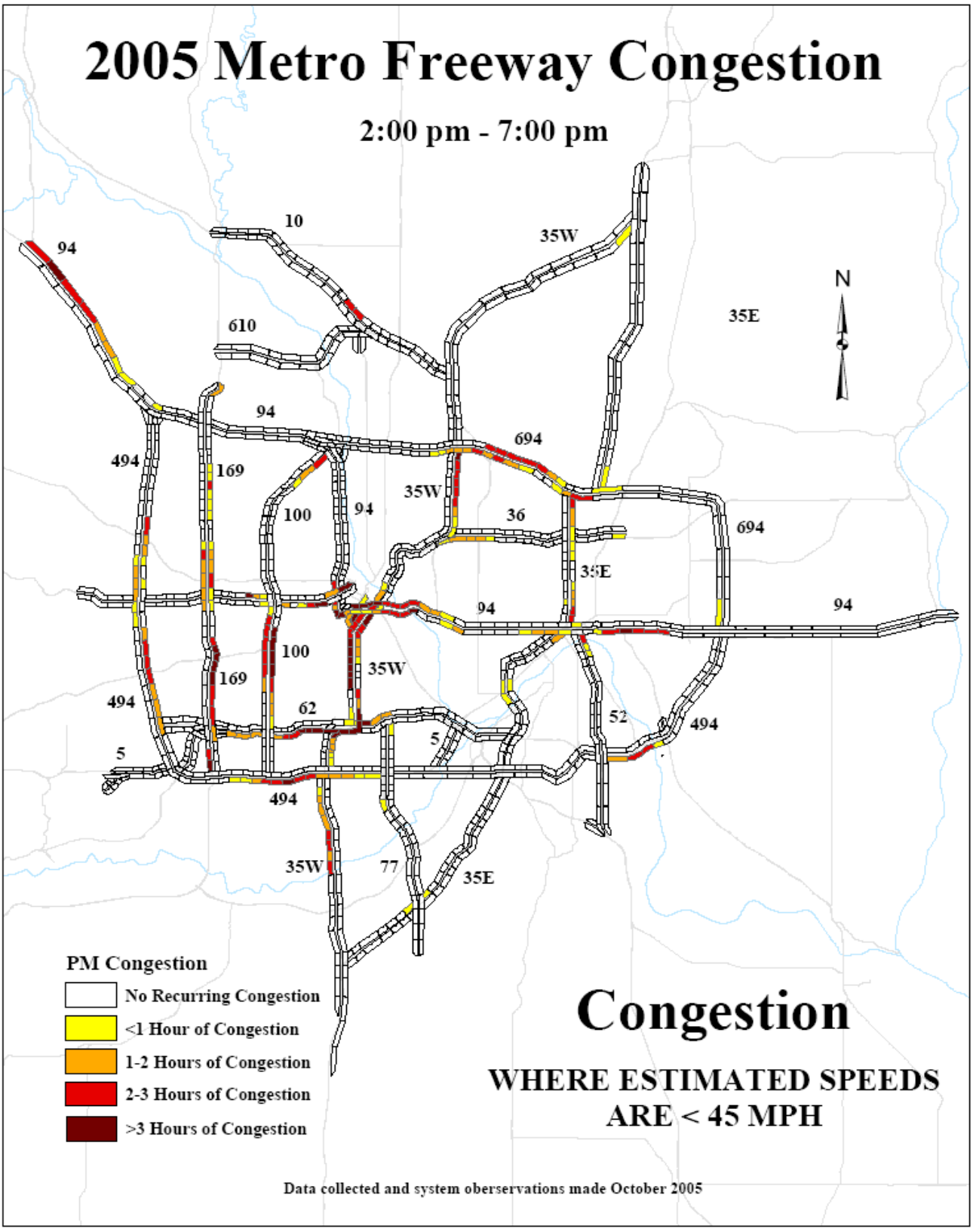


Source: Minnesota Department of Transportation

PM Peak Congestion 1995 vs. 2005



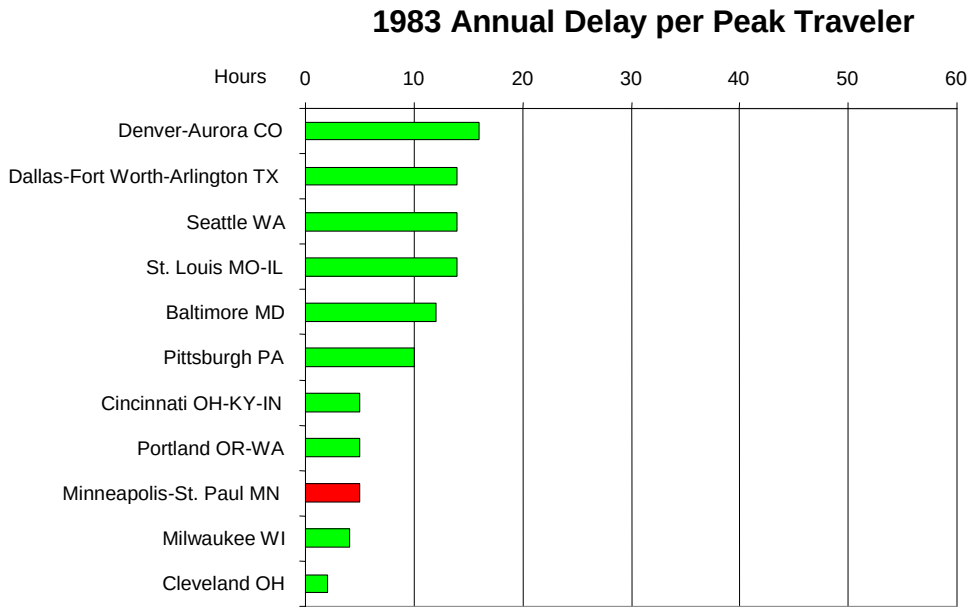
Source: Minnesota Department of Transportation



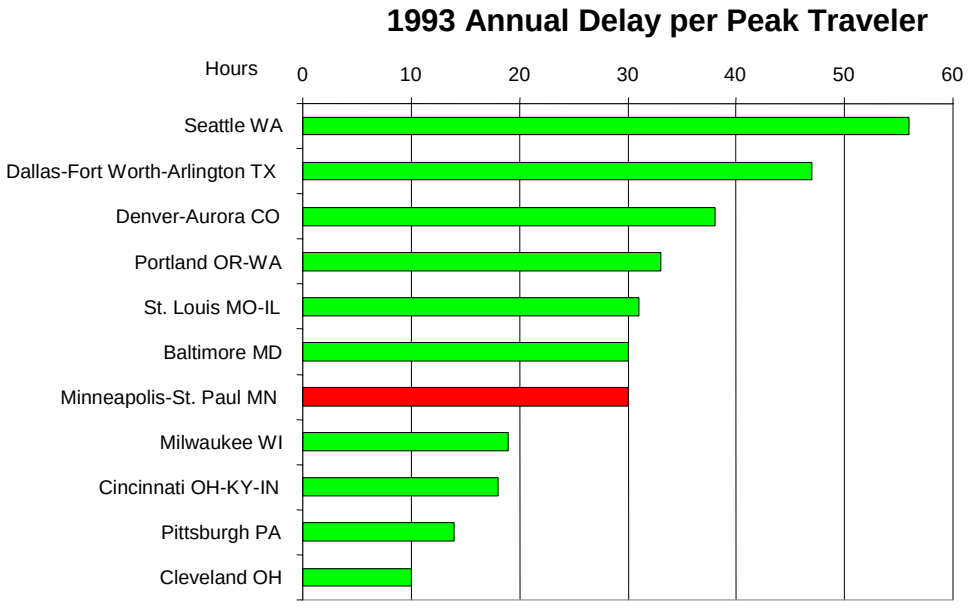
Source: Minnesota Department of Transportation

Traveler's Time Spent in Delay

More important than the number of miles of congestion is the amount of time spent in congestion. In 2003, the average Twin Cities traveler spent 43 hours delayed in traffic. Among the 10 peer urban areas, the Twin Cities went from ninth in 1983 to fifth in 2003 in terms of hours of delay per capita

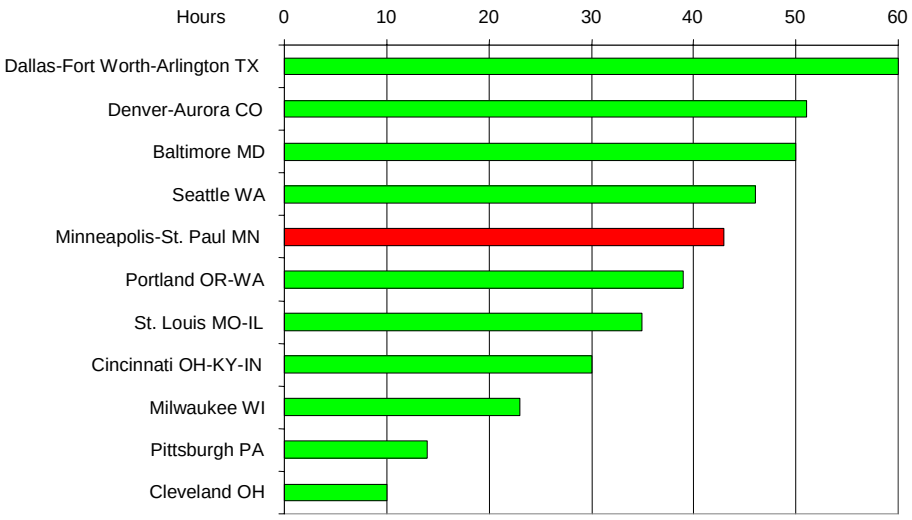


Source: TTI Urban Mobility Report



Source: TTI Urban Mobility Report

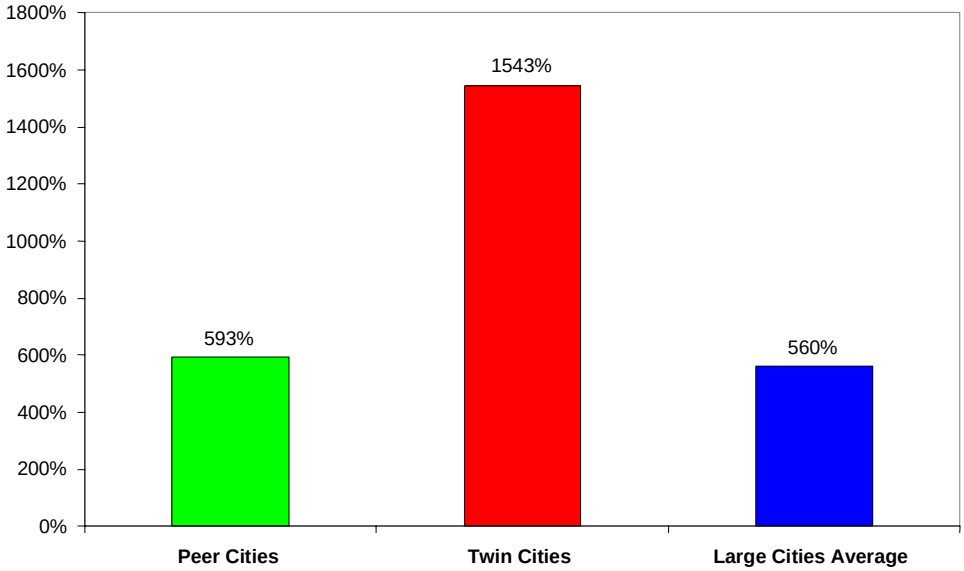
2003 Annual Delay per Peak



Source: TTI Urban Mobility Report

Between 1983 and 2003, per capita delay in the Twin Cities increased by more than 1500% whereas the peer city and large city averages increased by just over 500%. Put in other words, growth in the delay per traveler in the Twin Cities was three times the average growth in delay for both large cities and peer urban areas.

Change in Annual Delay per Traveler
1983-2003

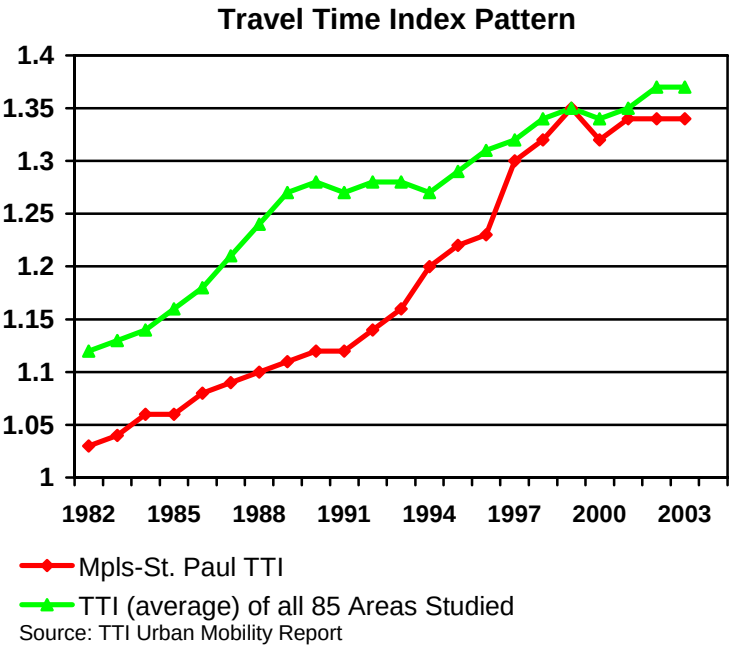


Source: TTI Urban Mobility Report

Twin Cities residents spent more time in delay than residents of peer urban areas or large cities (on average). Growth in delay per traveler was nearly 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.

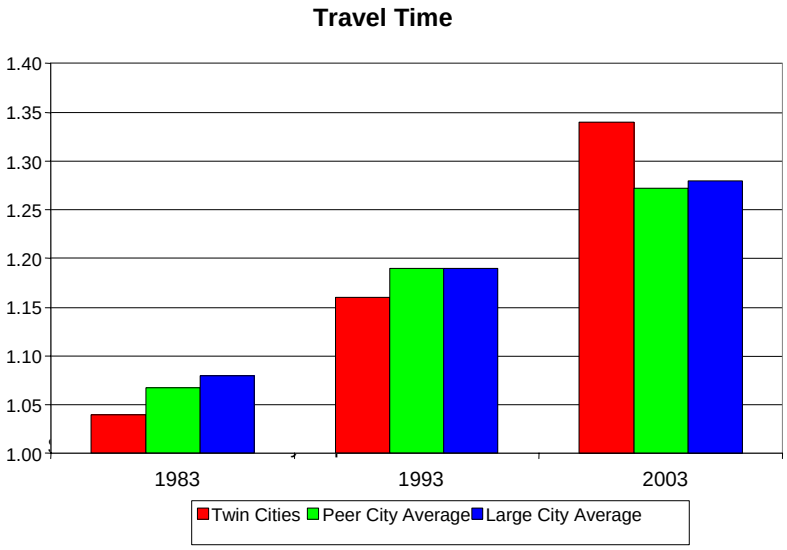
Congestion Impact on Travel Time

Another measure of congestion is the time it takes to make trips under congested conditions versus the time it would take under free-flow conditions. The Travel Time Index (TTI) is used to assess these impacts. The Travel Time Index measures the amount of additional time that a trip takes because of congestion. A TTI of 1.30 indicates that it takes 30% longer to make a trip in the peak period than in off-peak conditions, when the motorist could travel at free-flow speeds.



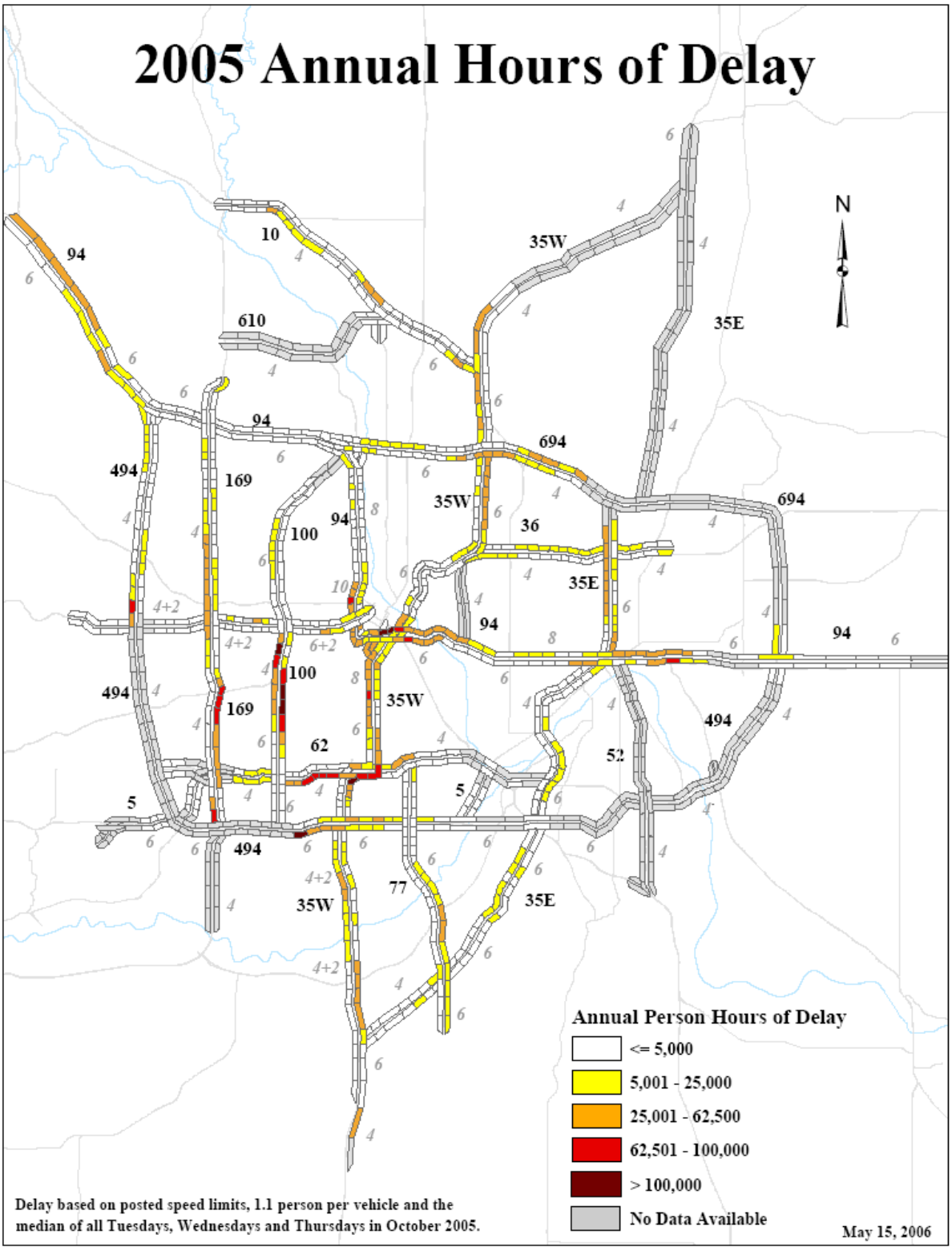
Source: TTI Urban Mobility Report

The Travel Time Index for the Twin Cities urban area was 1.34 in 2003, up from 1.04 in 1983. The average for the region's peer cities was 1.27 and 1.28 for large cities.



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 it has been much 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 comparable cities.

In 2005, the annual hours of delay in the Twin Cities were concentrated in the southwest metro but significant levels of delay were observed on I-94, I-35W north of Minneapolis and I-35E north of Saint Paul.



Source: Minnesota Department of Transportation

Current Highway Management Programs

HOV Lanes

One strategy to improve the highway system is to make carpooling, transit and other high-occupant vehicle modes more appealing. To this end, the region currently operates one High-Occupancy Vehicle (HOV) lane facility for the exclusive use of buses, carpools and motorcycles as well as one demand-sensitive High-Occupancy Toll (HOT) lane with preference still given to buses, carpools and motorcycles. One is located on I-394 (HOT) and the other on I-35W between Burnsville and Bloomington (HOV). The I-394 lane was an HOV lane and converted to a HOT lane in 2005. The following tables describe HOV usage on I-394 after the MnPass HOT lane went into effect on May 16 and HOV usage on I-35W at the Minnesota River in the Peak Period in the second quarter of 2005.

I-394 HOT Lane	Penn to Dunwoody AM EB	Penn to Dunwoody PM WB	Louisiana Avenue AM EB	Winnetka Avenue PM WB
Vehicles Moved				
HOV-Lane Total	3,739	4,089	2,367	2,670
tolled (MnPass)	568	578	423	451
HOV Per Lane	1,870	2,045	2,367	2,670
Mixed-Use Lane Total	15,101	15,908	10,961	12,437
Mixed-Use Per Lane	5,034	5,303	5,481	6,219
People Moved				
HOV-Lane Total	10,521	10,864	6,578	6,827
HOV Per Lane	5,261	5,432	6,578	6,827
Mixed-Use Lane Total	15,350	16,835	11,509	13,702
Mixed-Use Per Lane	5,117	5,611	5,755	6,851
2005 % Using HOV Lane	41%	39%	36%	33%
2001 % Using HOV Lane	37%	37%	36%	34%
HOV % of Lane Capacity	40%	40%	33%	33%

Source: Minnesota Department of Transportation

I-35W HOV Lane	AM Northbound	PM Southbound
Vehicles Moved		
HOV-Lane Total	1,940	3,259
HOV Per Lane	1,940	3,259
Mixed-Use Lane Total	12,220	11,734
Mixed-Use Per Lane	6,110	5,867
People Moved		
HOV-Lane Total	4,879	6,705
HOV Per Lane	4,879	6,705
Mixed-Use Lane Total	12,572	12,978
Mixed-Use Per Lane	6,286	6,489
2005 % Using HOV Lane	28%	34%
2001 % Using HOV Lane	26%	34%
HOV % of Lane Capacity	33%	33%

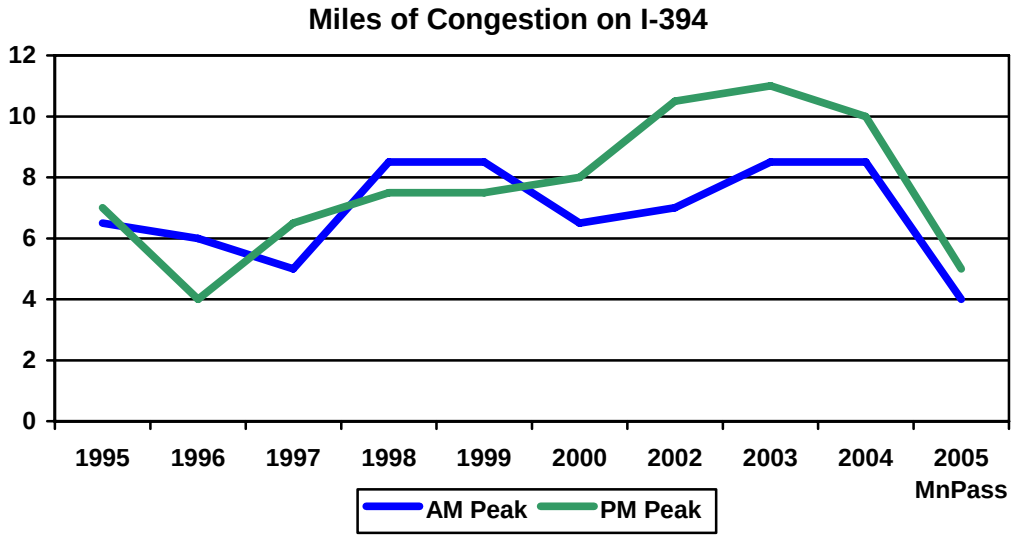
Source: Minnesota Department of Transportation

Traffic on these two corridors has not increased measurably between 2001 and 2005 and use of the HOV lanes has remained relatively constant. The HOV lanes carry slightly fewer persons per lane than the mixed-use lanes, but do so with far fewer vehicles per lane, indicating that there is still plenty of capacity for more travelers using the HOV lanes.

MnPass HOT Lane

In 2005, Mn/DOT opened the region's first High-Occupancy Toll (HOT) Lane on I-394 between Wayzata and Downtown Minneapolis. The idea behind the HOT lane is to allow single occupant vehicles (SOV) to use an underutilized HOV lane for a fluctuating price depending on the level of demand and congestion on the corridor. HOVs can still use the lane at no cost and the traffic continues to flow freely because the price of using the lane for SOVs adjusts to demand in order to maintain free-flowing traffic.

While it is too early to assess the impact of the HOT lane on the I-394 corridor completely, early reports from Mn/DOT indicate that the addition of the lane has decreased the number of miles of congestion on I-394. It has done this by essentially increasing the capacity for traffic along I-394.



Source: Minnesota Department of Transportation

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.

Ramp Metering

The Minnesota Department of Transportation uses around 430 ramp meters to manage approximately 210 miles of freeways in the Twin Cities metropolitan area so that they move more smoothly and maintain high-average speeds throughout the system. In 2000, Mn/DOT conducted a study of the effectiveness of the ramp meters in the region involving the shutdown of the ramp-meter system. The study reported the following summary of the annual benefits of ramp metering:

- **Traffic Volumes and Throughput:** After the meters were turned off, there was an average of a 9% traffic-volume reduction on freeways and no significant traffic-volume change on parallel arterials included in the study. Also during peak-traffic conditions, freeway mainline throughput declined by an average of 14% in the "without meters" condition.

- **Travel Time*:*** Without meters, the decline in travel speeds on freeway facilities more than offsets the elimination of ramp delays. This results in annual system-wide savings of 25,121 hours of travel time with meters.

- **Travel-Time Reliability:** Without ramp metering, freeway travel time is almost twice as unpredictable as with ramp metering. The ramp metering system produces an annual reduction of 2.6 million hours of unexpected delay.

- **Safety:** In the absence of metering and after accounting for seasonal variations, peak-period crashes on previously metered freeways and ramps increased by 26%. Ramp metering results in annual savings of 1,041 crashes or approximately four crashes per day.

- **Emissions:** Ramp metering results in net annual savings of 1,160 tons of emissions.

- **Fuel Consumption:** Ramp metering results in an annual increase of 5.5 million gallons of fuel consumed. This was the only criteria category that worsened by ramp metering.

- **Benefit/Cost Analysis:** Ramp metering results in annual savings of approximately $40 million to the Twin Cities traveling public. The benefits of ramp metering out-weigh the costs by a significant margin and result in a net benefit of $32 to $37 million per year. The benefit/cost ratio indicates that benefits are approximately five times greater than the cost of entire congestion management system and over 15 times greater than the cost of the ramp metering system alone.

Performance of the Highway System: Future Highway Improvements and Expansions

Mn/DOT makes investments in improving the performance of the regional highway system. The first priority for investment is pavement reconstruction and bridge replacement. This activity keeps the existing system in working order. Second, Mn/DOT dedicates available resources toward highway system management and expansion as described in the Metropolitan Council's *Transportation Policy Plan*. The Highway Plan in the TPP includes three priorities in order of importance:

1. Preservation of the Existing Highway System
2. Management of the Highway System for Capacity and Safety
    a. Hazard-elimination and capacity-safety projects
    b. Access management
    c. Intersection improvements
    d. Signal timing
    e. Freeway-management strategies such as metering ramps, ramp-meter bypasses, bus-only shoulders, video surveillance and providing travel information
    f. Various investments to add capacity or improve safety through Intelligent Transportation Systems
    g. Construction of isolated interchanges and auxiliary lanes of less than on mile in length
    h. Tolling of existing lanes
3. Expansion of the Metropolitan Highway System

These priorities in the TPP guide the solicitation for federal funding for projects to be included in the Transportation Improvement Program (TIP). The TIP is updated every two years and covers three years of projects. A number of major highway projects are under construction or are entirely or partially in the 2005-2008 TIP. The following tables list the major improvement and expansion projects currently under way or included in the 2005-2008 TIP and projects prioritized in the 2030 long-range *Transportation Policy Plan*.

Major Highway Projects Under Way or Included in the 2005-2008 Transportation Improvement Program

Project Highway and Bridge	Cost Estimates (000s)	Current program years	Assumed year open to traffic	Project Description
1. TH 12	$60,000	2003	2006	Construct new limited access 2-lane highway between Wayzata Blvd. to CR 6 in Orono. Parallel to existing TH 12.
2. I-35E, from TH 13 to Shepard Rd.	$33,000	2002	2005	Replace and expand Miss. River Bridge. Project let.
3. I-35W, HOV lane, from 66th St. to 42nd St.	$206,000	2006	2010	Reconstruct TH 62 and I-35W and add the HOV lane. Stage 1 (I-494 to 60th St.). Contracts let 4/99
4. TH 36, St. Croix Bridge	$5,000			New 4-lane bridge and approaches. Negotiation process under way. Request for high-priority funding has been made
5. TH 55, Hiawatha Av.	$129,000	2003	2004	Reconstruct the 4-lane arterial from Crosstown to I-94.
6. TH 100, from Glenwood Av. to CSAH 152	$146,000	2003	2004	Construction underway to rebuild as 6-lane freeway.
7. I-494/TH 61 interchange, TH 61/local access	$250,000	2002	2009	Replace and widen I-494 bridge, reconstruct interchange, reconstruct TH 61. Provide local access.
8. I-94, from Weaver Lake Rd. to Humboldt Av.	$80,000	2001	2005	Reconstruct, add general-use 3rd lane from Hemlock to Brooklyn Blvd.
9. I-94 from McKnight to TH 120	$11,000	2005	2007	3rd lane, bridge widening from Ruth St. to Ramsey Co. line
10. I-494 from TH 5 to TH 100	$74,000	2003	2005	Add 3rd lane. First contract let.
11. TH 610 from TH 169 to CR 130	$26,750	2004	2005	Continue construction of new 4-lane freeway on new alignment.
12. TH 169 from Minnesota River to Valley View Road	$104,000	2005	2008	Reconstruct 3 intersections as interchanges and reconstruct interchange with I-494.
13. I-494 from TH 212 to TH 55	$130,000	2004	2006	Widen I-494 to 6 lanes.
14. TH 212 from CSAH 4 to ¾ mile west of CSAH 147	$259,000	2004	2006	Construct new 4 lane freeway on new alignment
15. I-694 from west to east Junction I-35E (unweave the weave)	$137,000	2004	2007	Reconstruct and add lanes to eliminate bottleneck
TH 169 so. of CSAH 81 to No. of CSAH 109	$41,580	2007	2009	Construct interchange bridge.
TOTAL	$1,692,330			

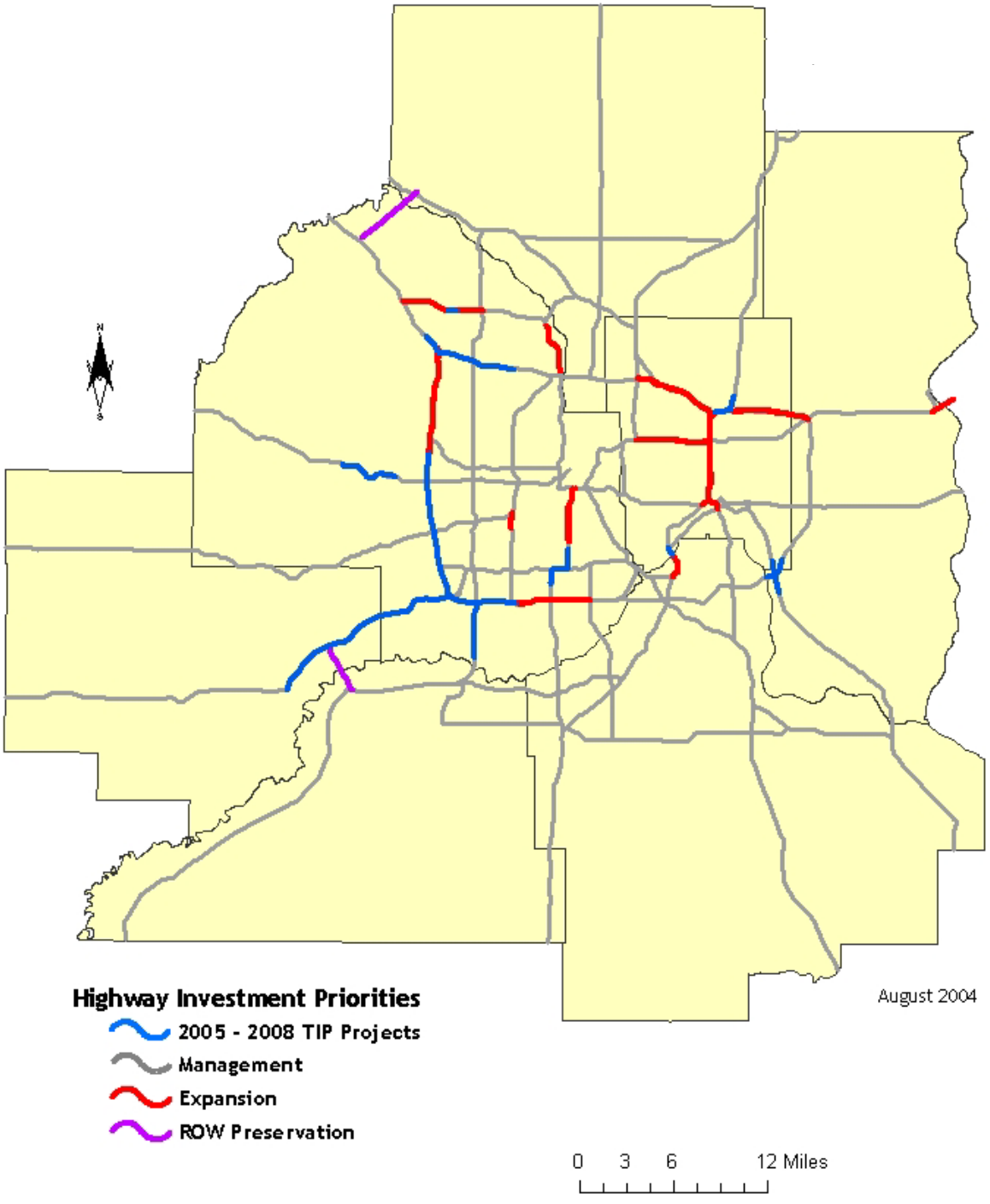
Source: *2030 Transportation Policy Plan*

Planned Metropolitan Highway System Expansion Projects: 2009-2030

Highway	From	To	Length (miles)	Total (millions)	Recommended Facility Improvement
I-35E	TH 110	TH 5	2.3	39	Bridge under construction. Add 3rd Lane.
I-35E**	I-94	I-694	5.6	197	Add 3rd and 4th lane. Connect Phalen Corridor. Reconstruct Cayuga Bridge.
I-35W**	46th St.	I-94	5.3	309	Add HOV/ transit-priority lane and Lake Street interchange.
I-494	TH 55	I-94	5.5	176	Add 3rd lane.
I-494	TH 77	TH 100	5.1	628	Build in accordance with EIS completed in 1997.
I-694**	I-35W	W. Jct. I-35E	5.6	180	Add 3rd lane.
I-694	E Jct.I-35E	TH 36	5.5	86	Add 3rd lane.
TH 36 St. Croix Bridge*			1.0	201	New 4-lane bridge and mitigation
TH 36**	I-35W	I-35E	5.3	118	Add 3rd lane.
TH 41	TH 169	TH 212	3.0	10	Preserve right-of-way after alignment is defined.
New Miss. River Crossing	TH 10	I-94 or TH 610	2.0	10	Preserve right-of-way after alignment is defined.
TH 100**	36th St.	Cedar Lake Rd.	1.0	104	Add 3rd lane.
TH 252	73rd Av.	TH 610	2.9	127	Convert to 4-lane freeway.
TH 610	CR 130	I-94	5.0	148	Complete 4-lane freeway.
TOTAL			46.8	$2,322	

Source: *2030 Transportation Policy Plan*

2030 Constrained Metropolitan Highway System Plan Investment Priorities

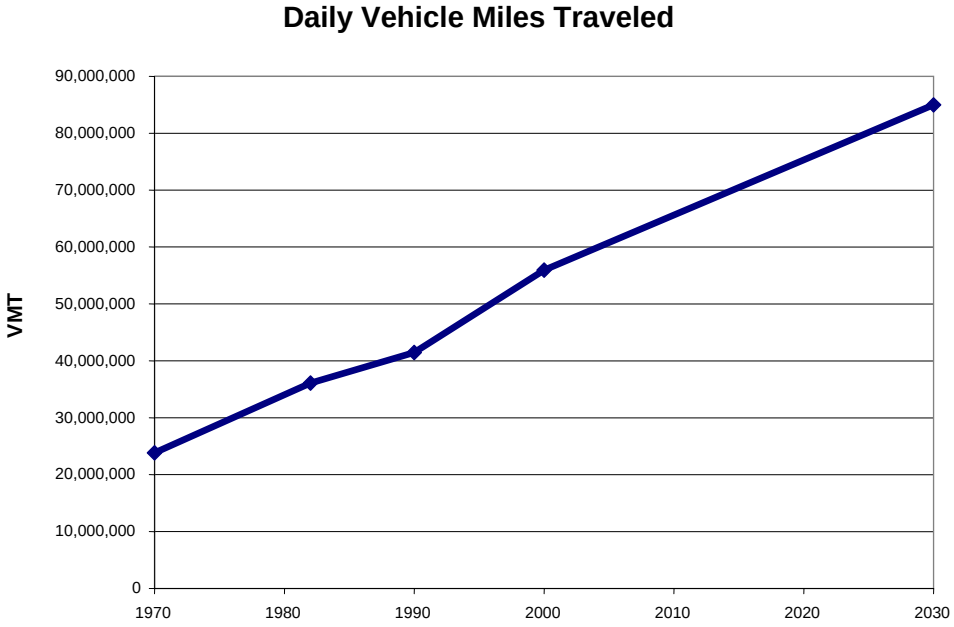


Source: *2030 Transportation Policy Plan*

Performance of the Highway System: Future Congestion

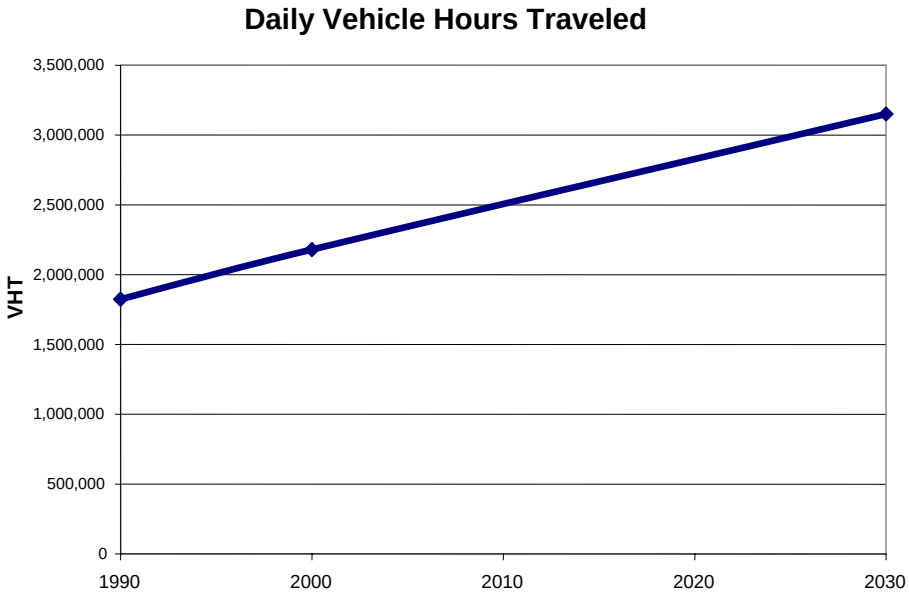
The Metropolitan Council's regional travel-demand forecast model allows projections of future conditions and assessment of future road improvements included in the fiscally constrained long-range plan. Assumptions in the model include population and employment growth, as well as highway system improvements discussed above.

Vehicle-miles traveled (VMT) increased 140% from 1970 to 2000, from 24 to 57 million VMT. If current trends in land use and transportation in the region continue under the fiscally constrained plan scenario in the *2030 Transportation Policy Plan*, VMT is expected to continue to increase to over 80 million vehicle-miles daily by the year 2030, an increase of 52% over the 2000 VMT. This means that under the current plan, per capita VMT is expected to remain relatively constant.



Source: Metropolitan Council, TBI Home Interview Survey and 2030 Regional Travel Demand Model

If trends in land use and transportation in the region continue along with network improvements under the fiscally constrained scenario of the *2030 Transportation Policy Plan*, vehicle-hours traveled (VHT), is expected to grow to over 3 million hours of vehicle travel daily by 2030, an increase of 45% from 2000.



Source: Metropolitan Council, TBI Home Interview Survey and 2030 Regional Travel Demand Model

Regional travel-demand models predict total daily vehicle-miles traveled 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*.

Performance of the Highway System: Conclusions

Through the decade of the 1980s, traffic growth and its impacts on congestion, travel time and speeds grew but at a manageable rate. For all measurement criteria, this region was below the average both for the 11 peers and for large cities. This changed, however, in the 1990s. By 1999, the rate of change for all of the measurement criteria for the Minneapolis-Saint Paul urban area had increased faster than our peers and the large-area average. Furthermore, the measurement values placed the region in a worse condition than each of those two averages. Since 1999, the congestion rate appears to have stabilized somewhat but this may be due to the slowing economy of the early 2000s and not indicative of a long-term trend.

Traffic and its impacts in the region are growing faster than the increases in road and transit capacity can serve, thus resulting in worsening conditions for the traveling public. Furthermore, model results indicate that this trend is expected to continue into the future given the assumed funding levels for road and transit improvements, making worsening congestion almost a certainty.

Many factors that create congestion actually come from positive trends in the region. The Twin Cities has experienced healthy economic growth over the last 20 years, bringing with it new residents, new jobs and more income, all of which drive up the demand for travel. The peer urban areas that have seen the smallest increases in congestion over the last 20 years are also those urban areas that have had the most difficult time economically. In many ways, congestion is a byproduct of a successful metropolitan region, so some levels of congestion are to be expected. The purpose of managing the transportation network better is to enhance the ability of

Twin Cities residents, workers and visitors to access the things they need. By themselves, measures of congestion do not reflect how well the system is working.

Addressing the problem of congestion is an extraordinarily complicated and expensive project. It involves increasing the capacity of the transportation system while reducing future demand on the system where possible. Expanding highway capacity can be accomplished by adding lanes to existing freeways. It can also be accomplished by adding transit-only and HOV lanes in dedicated rights-of-way along highway corridors and by managing the highway system better, such as with meters at on-ramps on freeways, adding toll lanes and employing access management on arterials. HOV lanes and transitways also can reduce the demand on the system by reducing the growth in the number of vehicles that need to use the system to carry an increasing number of travelers. Another critical piece of addressing this issue is connecting land-use decisions to transportation investments. The region has had a trend of becoming much larger and less dense over the last few decades. This has only begun to reverse itself over the last several years. Land-use decisions with the purpose of reducing per capita VMT would also help reduce the growth in congestion.

The challenge, therefore, is to maintain an acceptable level or slow the growth of congestion before it becomes a hindrance to further economic growth and quality of life. In addition, there is a challenge to provide more alternatives to commuting alone during peak periods so that the burden of congestion can be avoided for many trips. These goals lay the foundation for the investment strategies outlined in the region’s long-range transportation plan, which will determine investment priorities for future available funding.

This analysis clearly indicates increases in travel demand will greatly outpace the increase in the region’s current transportation plans. This will only result in more congestion on the arterials and local streets, exacerbating the current trend.

CHAPTER 7: TRANSIT SYSTEM

Characteristics of the Transit System

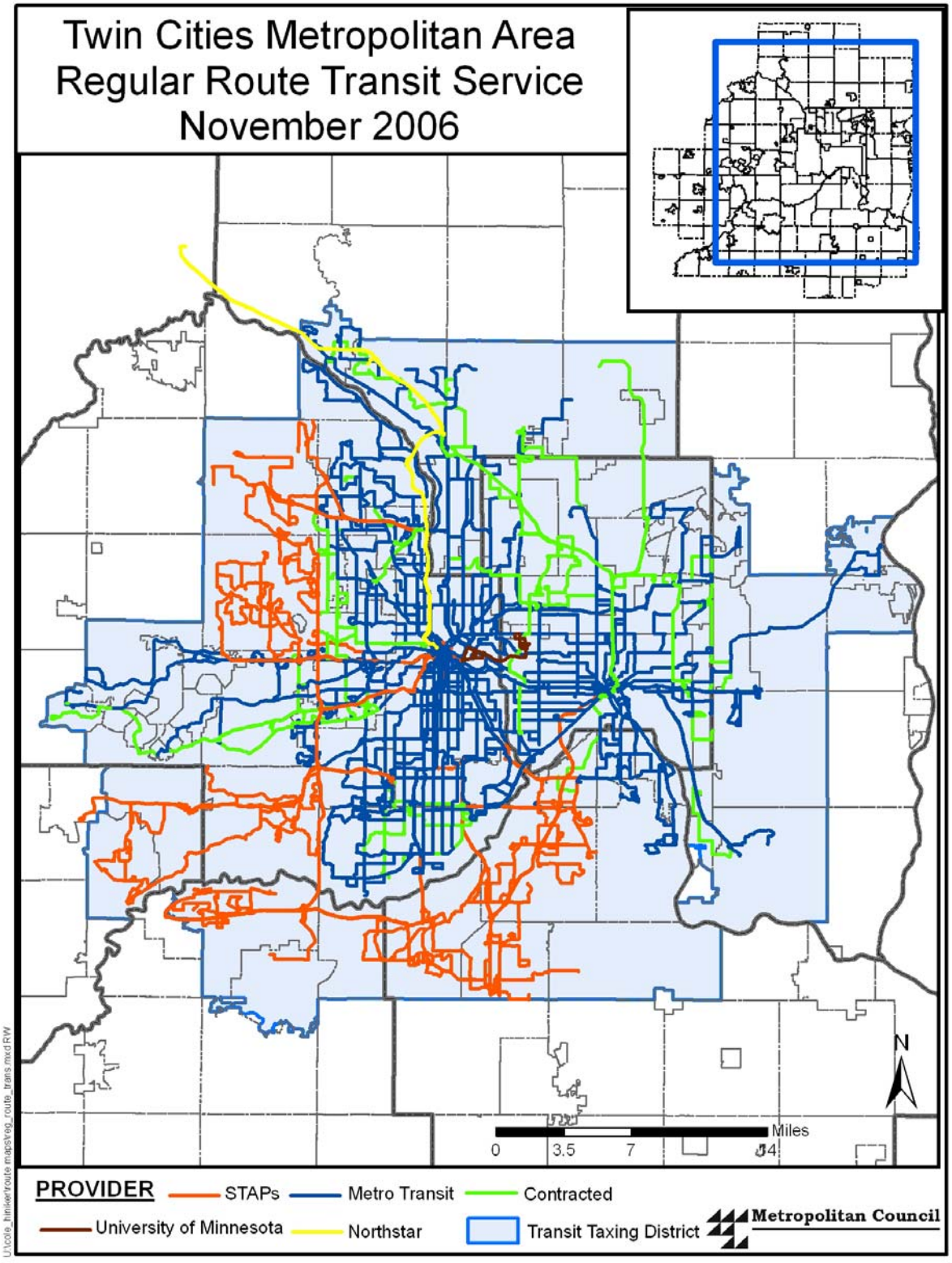
Two types of transit service are provided by the regional transit system: regular-route service and dial-a-ride.

Regular-route service is service provided on a repetitive, fixed-schedule along a specific route with vehicles stopping to pick up and deliver passengers to specific locations. Each fixed-route trip serves the same origins and destinations. In the Twin Cities, this includes both bus service and light-rail transit.

There are 207 bus routes and one light-rail route. Of these:

- Metro Transit operates 118 total bus routes: 46 express, 63 local and 9 routes provided under contract on behalf of other organizations.
- Private providers operate 89 bus routes: 36 express and 53 local

Dial-a-ride service does not follow a fixed route. Passengers board and arrive at prearranged times at any location within the system's service area. The Twin Cities has ADA service, special-transportation services, and general-public dial-a-ride service. The ADA service is required by the federal Americans with Disabilities Act.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Twin Cities Transit Programs

Regular-Route Service

- Metropolitan Council - Metro Transit Bus: Metro Transit is the largest direct provider of regular-route transit service in the Twin Cities region. Scheduled bus service is provided on 46 express, 63 local, and 9 contract routes. Service is provided directly with Metro Transit resources.

- Metropolitan Council – Metro Transit Rail: Metro Transit began operating the region's first light-rail line, the Hiawatha Line, in 2004.

- Opt-Out Communities: Twelve communities, known as "opt-outs", have chosen to provide their own transit service. Opt-outs provide both regular-route and dial-a-ride programs. Two consortiums have been created, Minnesota Valley Transit Authority (MVTA) comprising Eagan, Burnsville, Apple Valley, Rosemont and Savage; and the Southwest Metro Transit Commission (SMTC) consisting of Eden Prairie, Chaska and Chanhassen. Maple Grove, Plymouth, Shakopee and Prior Lake provide and manage their own transit service. All opt-outs provide transit service through contracts.

- Metropolitan Council – Metropolitan Transportation Services (MTS): Contracted Regular-Route Service**:** This is regular-route service provided under twelve contracts with private, governmental and nonprofit organizations. These contracts include express and local service and include a mix of bus sizes from small cutaway buses to 40-foot transit buses.

- Northstar Commuter Coach: This service, started in 2001, mimics the planned Northstar Commuter Rail line route. The service is operated by the Northstar Corridor Development Authority (NCDA) through a contract with Laidlaw. The route starts in Elk River, serves a park-and-ride in Coon Rapids and then ends in downtown Minneapolis. The route will be discontinued once the commuter rail line becomes operational.

Dial-a-Ride Service

- Metropolitan Council – MTS: MTS provides three dial-a-ride programs.

    - Metro Mobility: This paratransit service is provided as required by ADA to persons whose disabilities prevent them from using the regular-route transit system. These services are provided through contracts with two private companies, two private nonprofit entities and two local government units.
    - Community-Based Programs: These are dial-a-ride programs provided through 18 contracts with private, nonprofit and governmental agencies. These programs primarily serve the elderly and persons with disabilities. They also provide a base level of transit service in rural areas that are not served with regular-route service.
    - VanGo!: The Council contracts with a company to provide vehicles for vanpools. Vanpools are made up of 5 to 15 people commuting to and from work together on a regular basis. VanGo! routes must not duplicate the Twin Cities public transit system. Some vanpools originate from outside the seven-county area. The Council currently has 59 vanpools.

Transit Ridership Statistics

The following statistics are derived from the 2005 Transit Customer Survey:

Bus Ridership

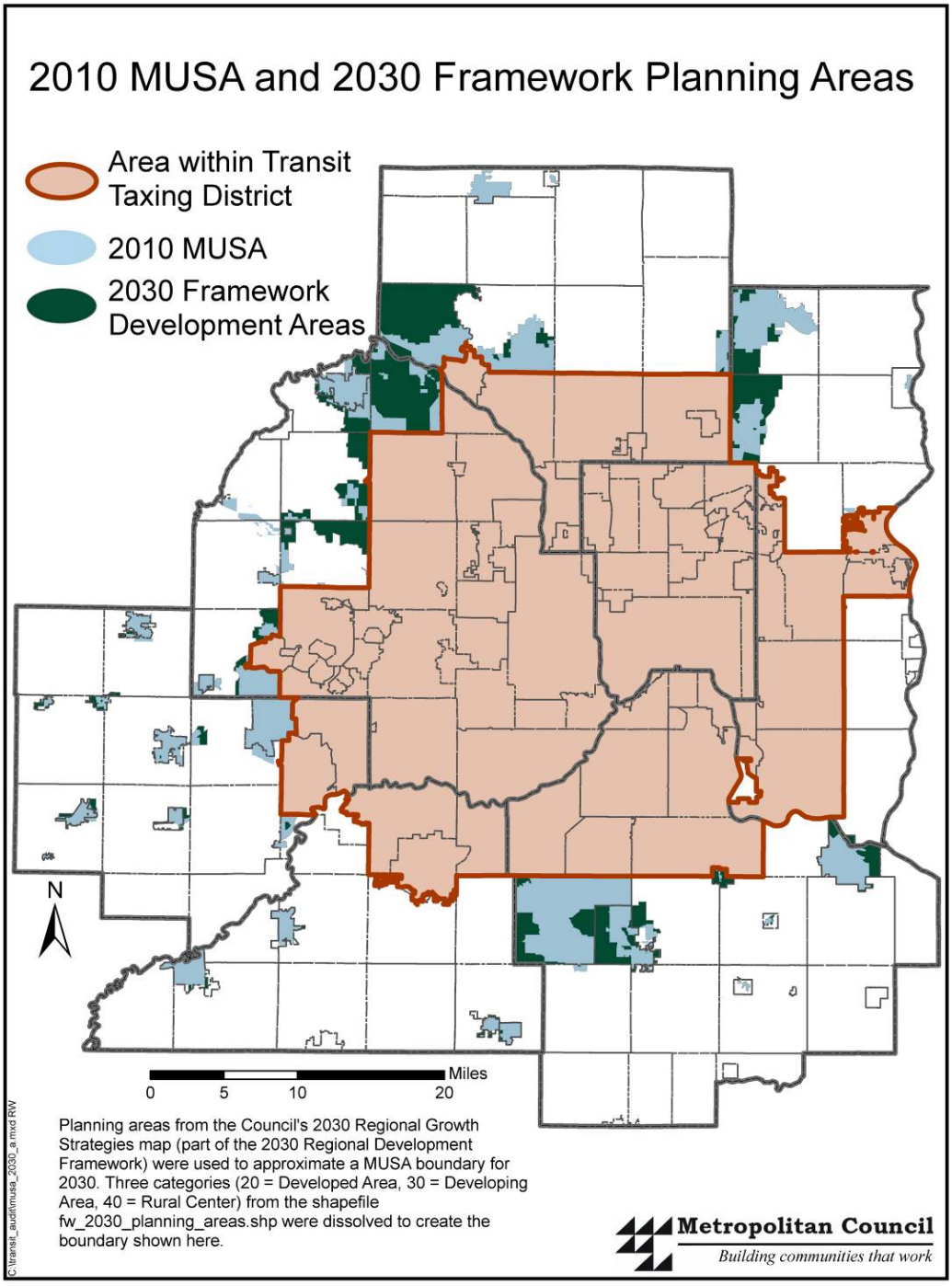
- Transit serves most of the region; 39% of riders come from suburban communities and 61% from urban communities.
- Transit plays a major role in the economy by bringing people to and from work. The majority of bus riders (78%) are going to or from work.
- Transit offers mobility choice; 81% of riders had other alternatives for taking this particular trip yet they chose to ride the bus; 19% of riders did not have other alternatives.
- Transit riders come from all income levels; 22% of bus riders had a family income level under $20,000 and 22% had a family income over $70,000.
- Transit provided mobility for persons whose physical abilities may be declining; 18% of users are age 55 or older.

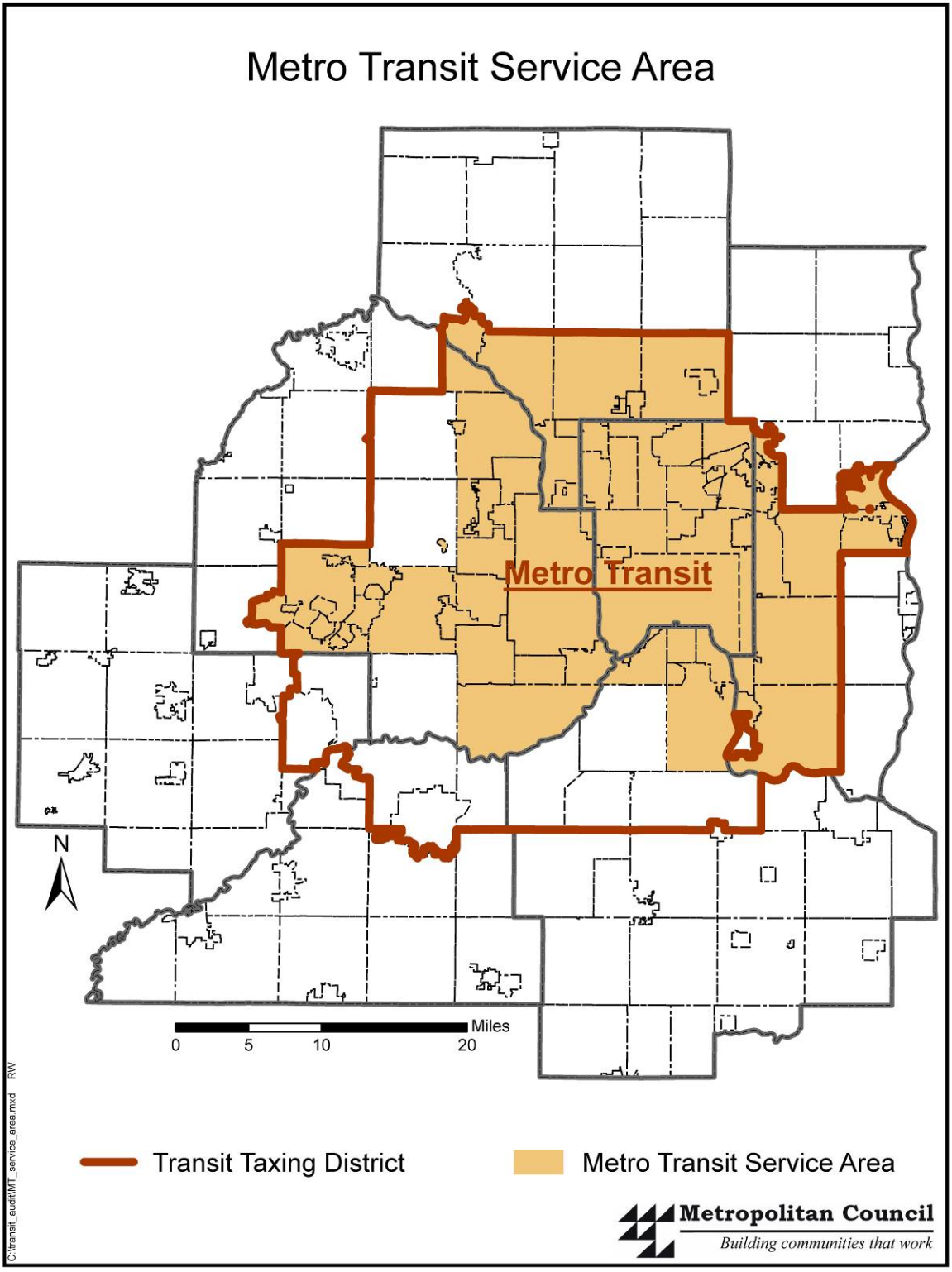
Train Ridership

- Like the bus system, light rail plays a major role in the economy by bringing people to and from work. The majority of riders (77%) are going to or from work.
- Light-rail transit offers mobility choice; 91% of riders had other alternatives for taking this particular trip yet they chose to ride the train; 9% of riders did not have other alternatives.
- Rail transit riders come from all income levels; 15% had an income level under $20,000 and 38% had a family income over $70,000.
- Rail transit provided mobility for persons whose physical abilities may be declining; 19% of users are age 55 or older.
- Forty-five percent drove to a park and ride to get to the train station; 42% also bused, walked, or biked to the train station.
- More than half would drive alone to their destination if the train were unavailable; 18% would take the bus. Others would not make the trip.
- Fifty-two percent are new transit users.

Transit Service Area

The Transit Taxing District is the area within the seven-county metro area where the Metropolitan Council levies property taxes to fund the transit capital program. As such, this is also the area of regular-route transit service provided by the Metropolitan Council. Outside of this area but within the seven counties, only dial-a-ride transit service is provided. The exceptions are vanpool service and the Northstar Commuter Coach, both which extend outside of the seven counties.

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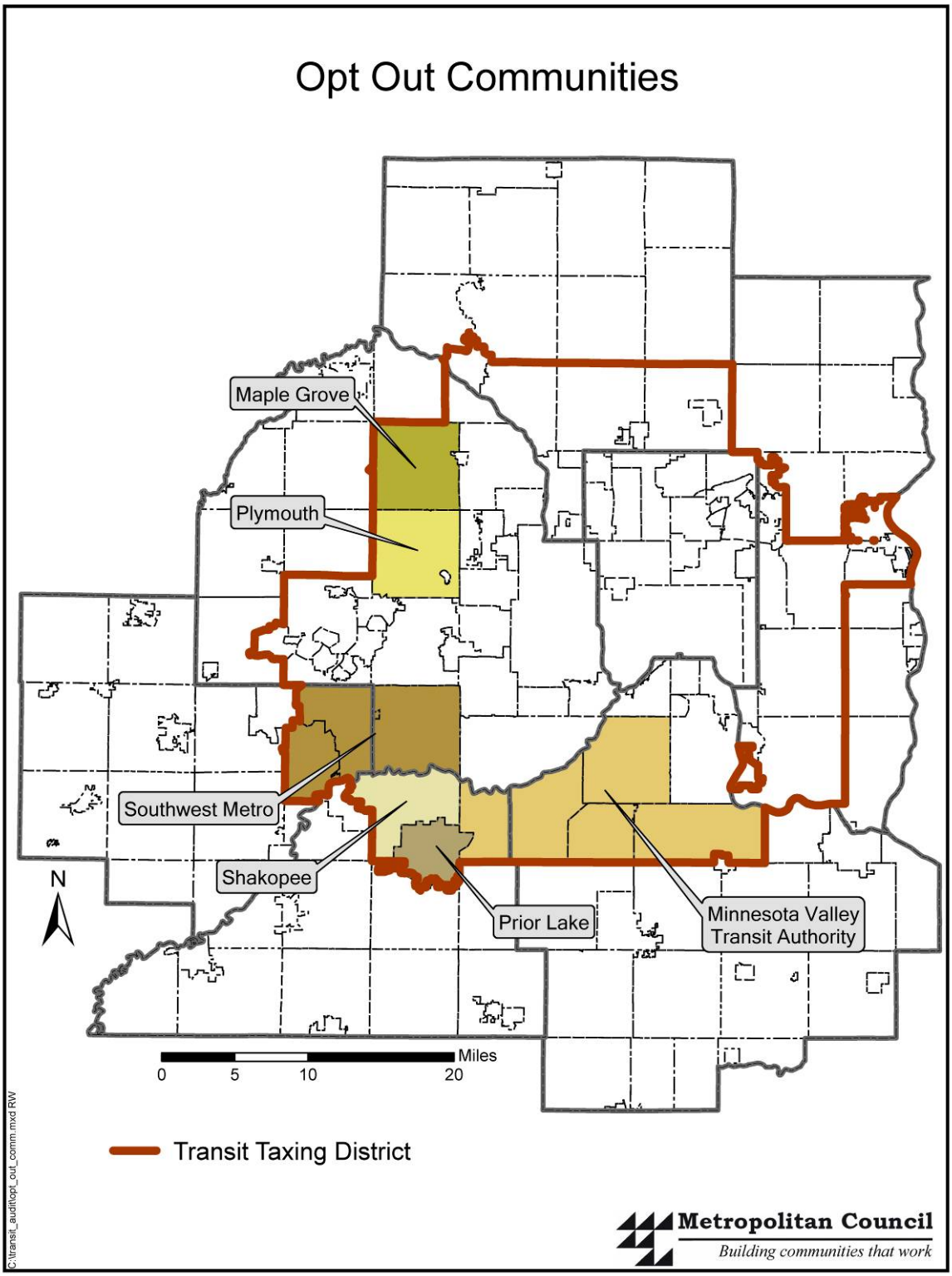
Opt Out Communities
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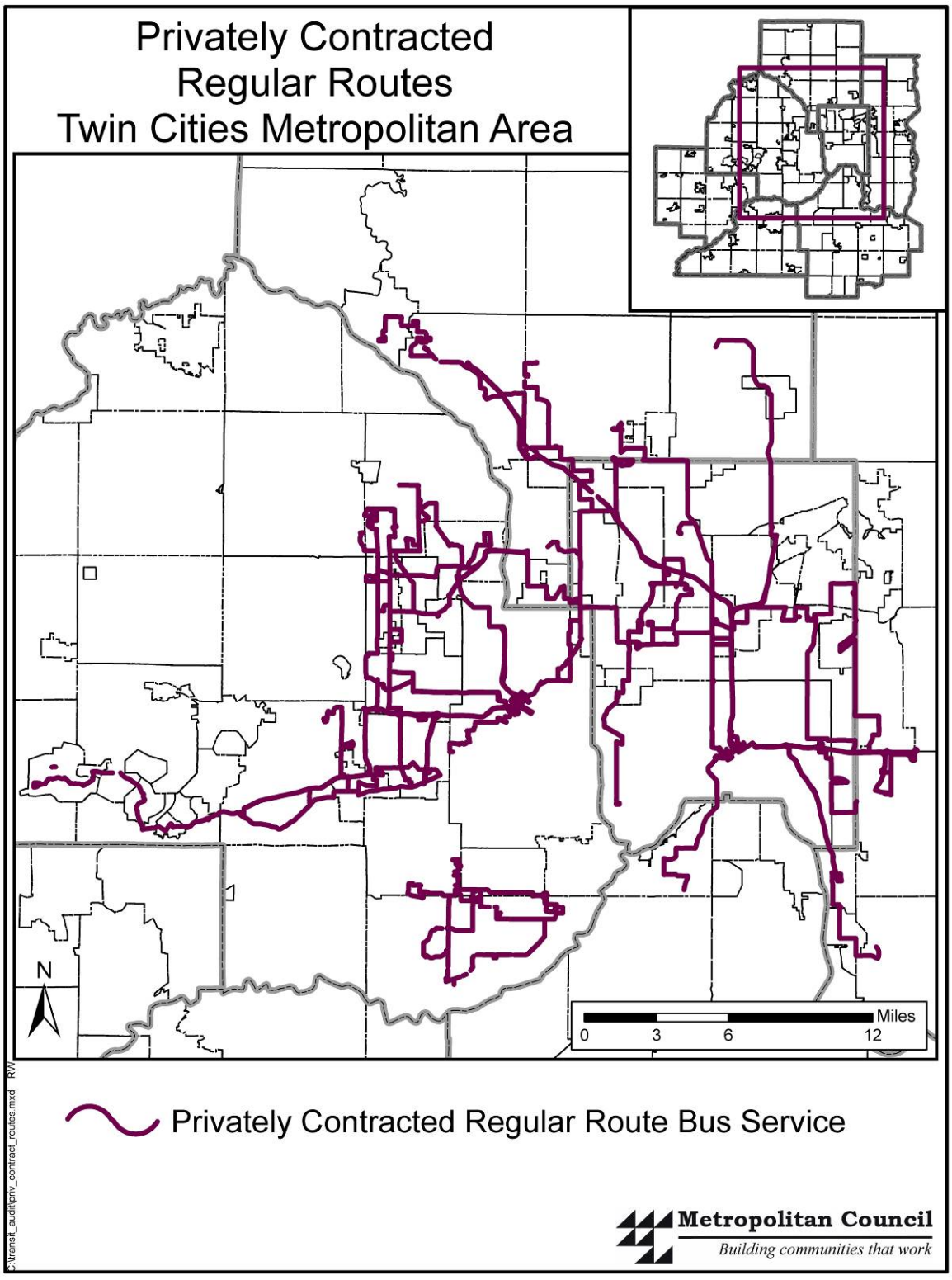
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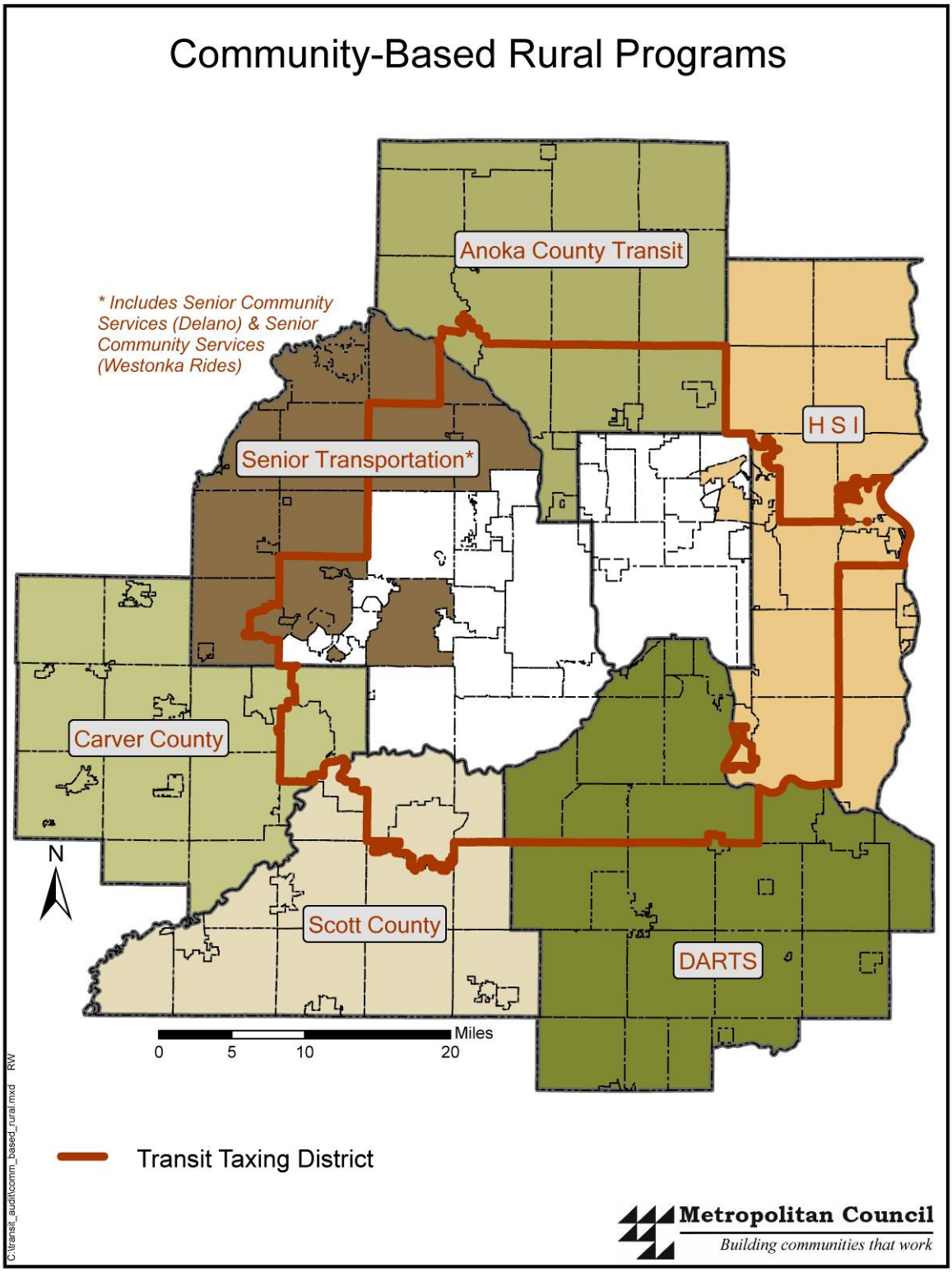
Metropolitan Council
Building communities that work


Community-Based Rural Programs
* Includes Senior Community Services (Delano) & Senior Community Services (Westonka Rides)
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Scott County
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Building communities that work
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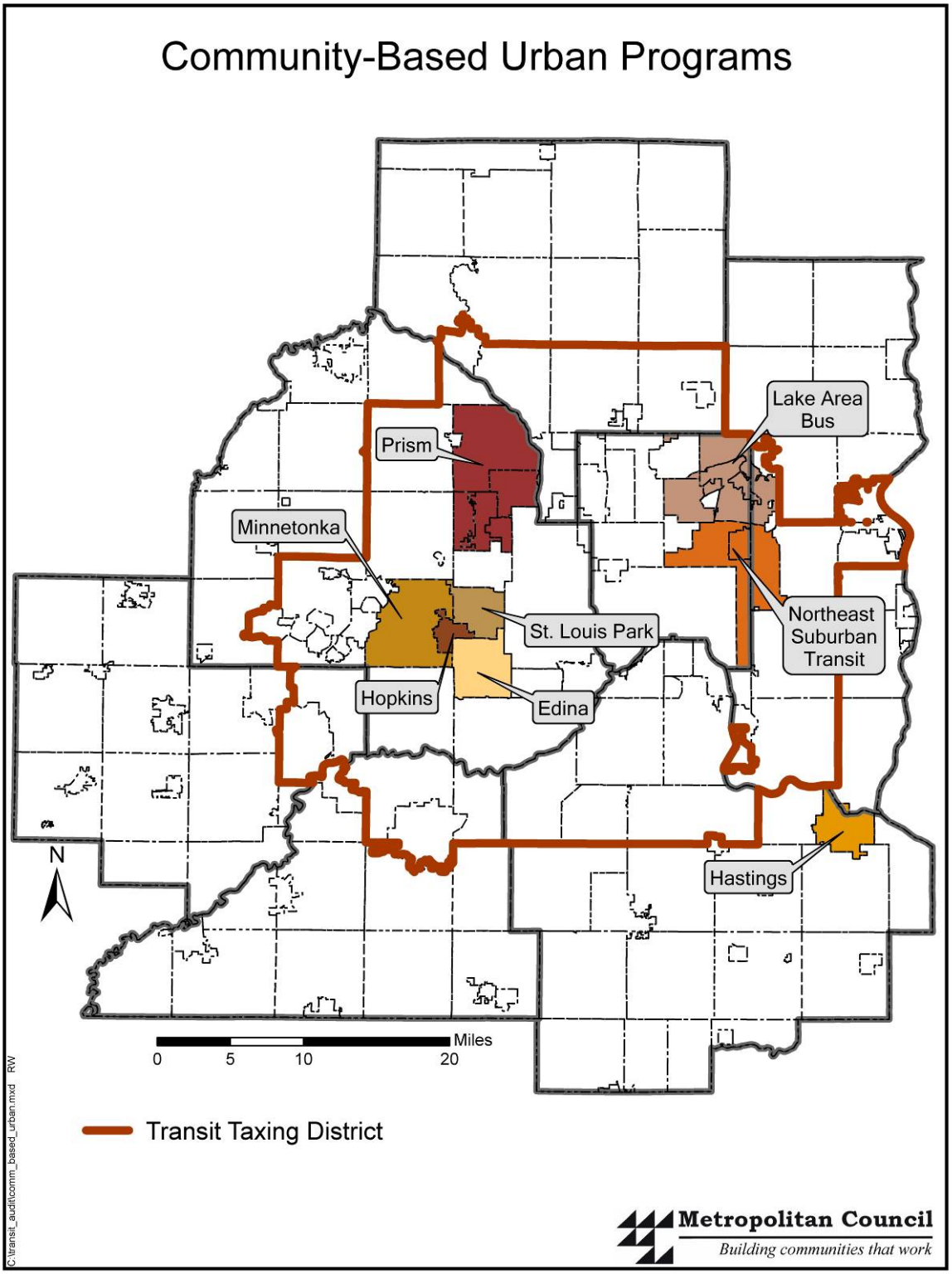
Community-Based Urban Programs
Lake Area Bus
Prism
Minnetonka
St. Louis Park
Northeast Suburban Transit
Hopkins
Edina
Hastings
N
Miles
0
5
10
20
Transit Taxing District
Metropolitan Council
Building communities that work
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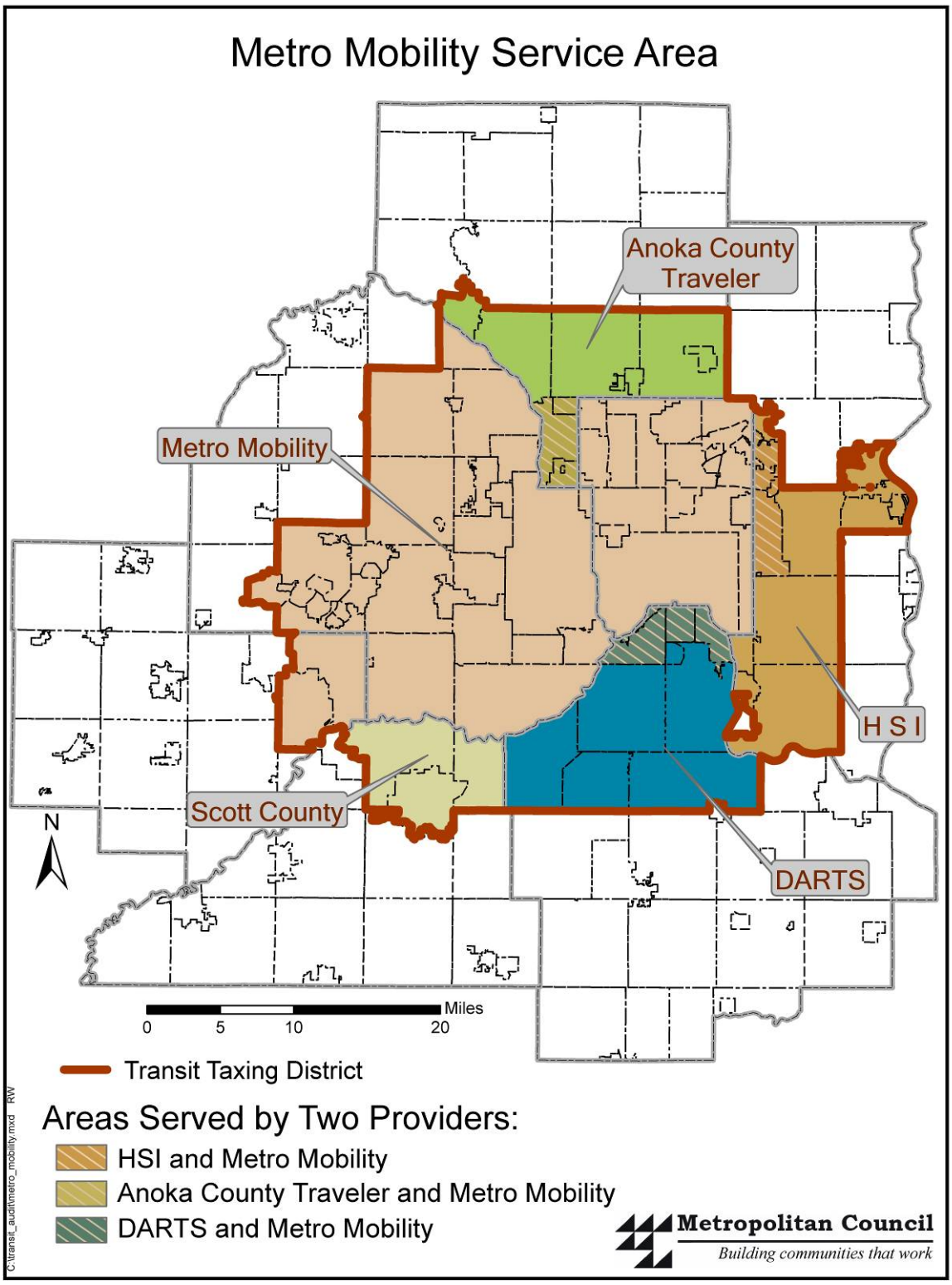
Metro Mobility Service Area
Anoka County Traveler
Metro Mobility
H S I
Scott County
DARTS
N
Miles
0
5
10
20
Transit Taxing District
Areas Served by Two Providers:
HSI and Metro Mobility
Anoka County Traveler and Metro Mobility
DARTS and Metro Mobility
Metropolitan Council
Building communities that work
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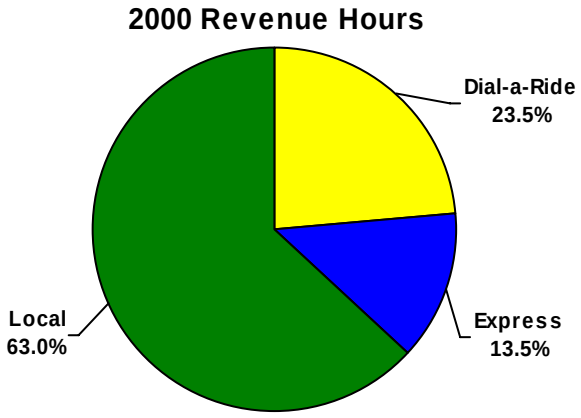
Service by Type

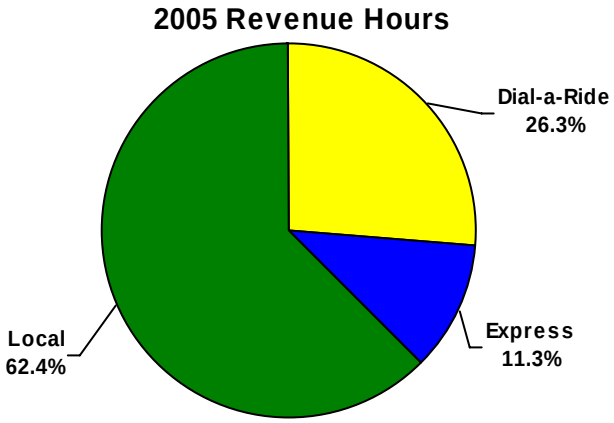
When discussing transit performance in the recent years, it is important to note that a bus driver strike occurring in 2004 stopped Metro Transit service for 44 days. As a result, 2004 performance numbers do not reflect usual operational characteristics. Only bus drivers were on strike but some costs were still incurred without any service. Thus, this report uses 2003 and 2005 statistics when available and when making comparisons to peer urban areas.

In addition to regular-route and dial-a-ride service, another way of classifying transit service is by the type of service:

Local: fixed-route radial and cross-town bus routes that typically stop every couple of blocks or when flagged down.
Express Service: routes that travel non-stop on highways for four or more miles.
Dial-a-Ride: service where passengers board and arrive at pre-arranged times at any location within the system's service area. These programs include service in cities or counties that have chosen to provide this service, and the region's ADA and senior paratransit service, Metro Mobility.

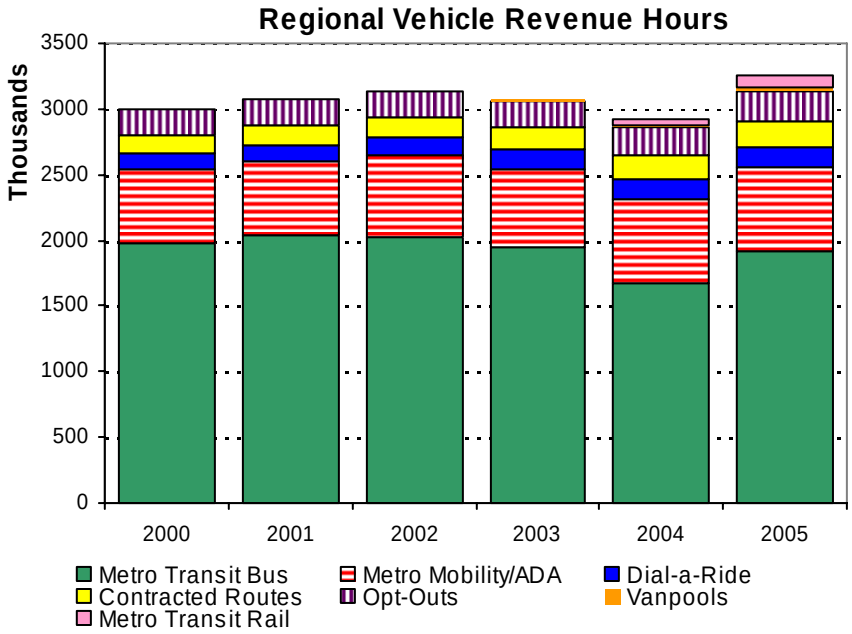
Revenue hours are the number of hours that buses are in service to the public. Almost two-thirds of Twin Cities transit service is local service. There have been only small adjustments in the distribution of various service types since 2000.





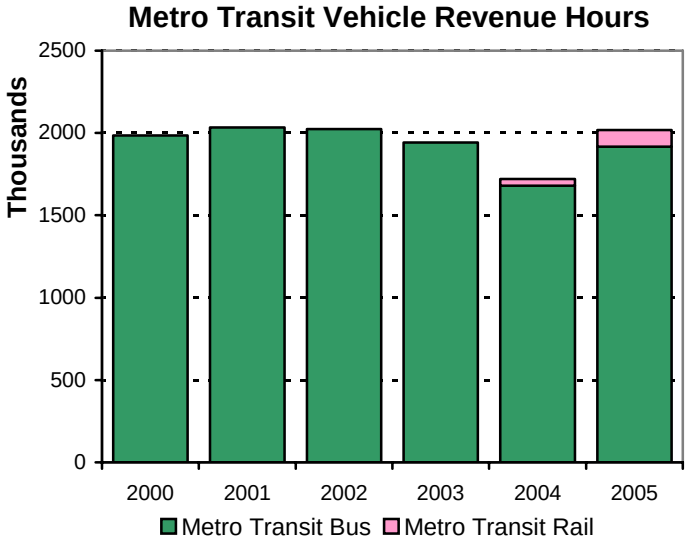
Service by Revenue Hours

Revenue hours are one way of measuring the amount of transit service that is available to the public. From 2000 to 2005, the number of revenue hours in the region increased 9%.



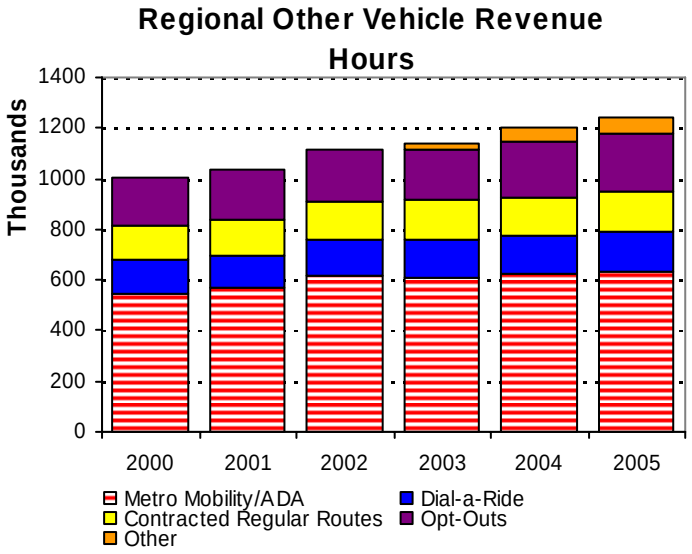
NTD (2005 Tentative as of July, 2006)

Metro Transit service hours have increased 1.7% between 2000 and 2005. Metro Transit bus revenue hours have decreased 3.4% since 2000. In 2004, light-rail service was added, the primary factor in Metro Transit's increase in revenue hours in 2005. Numbers in 2004, even with light rail, were abnormally low because of a transit driver strike.



NTD (2005 Tentative as of July, 2006)

Other regional programs, minus Metro Transit, have increased 22.7% between 2000 and 2005. There are several reasons for this. Metro Mobility/ADA services had an increase of 15.5% in its revenue hours to meet increased demand while achieving the requirements of the ADA. Northstar Commuter Coach began as a new service to the region in 2001. The University of Minnesota adjusted their inter-campus shuttle service to qualify as a general-public transit service in 2004. Vanpool programs began in 2003. Three new dial-a-ride programs were added: Edina, Osseo and PRISM. In addition, the opt-out programs have had increased funding over this period.



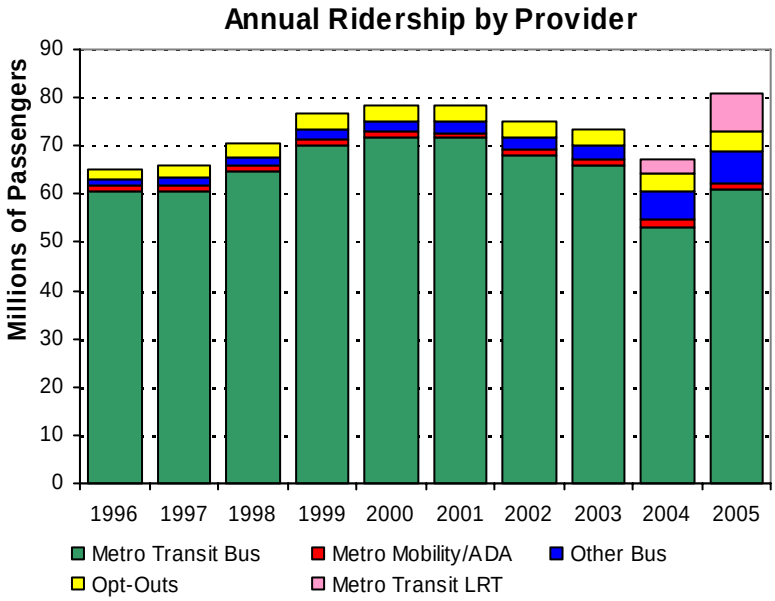
NTD (2005 Tentative as of July, 2006)

These types of services carry different numbers of passengers per hour of service. Efficiencies are highest in urban locations where population and job densities are the highest and where the highest numbers of transit-dependent populations live. Express service has the next highest efficiency, as riders typically gather at a park-and-ride location. Suburban local has the next highest efficiency, much lower than urban local service due to the lower densities of population, jobs and persons who are dependent on transit. Dial-a-ride service has the lowest productivity due to the point-to-point nature of the service. General dial-a-ride service is also provided in rural areas, where transit ridership is low.

Service efficiency depends on the type of service and area served. Local service in denser urban areas generates more passengers than local service in less dense suburban areas. Express service is less efficient due to its longer trip lengths. Dial-a-ride service is least efficient due to the point-to-point nature of its service.

Ridership

Annual transit ridership in the seven-county metro area increased 24.3% from 1996 to 2005, largely as a result of the addition of rail transit and increased non-Metro Transit services. Metro Transit bus ridership has dropped with fare increases and route cuts. A significant drop in ridership during 2004 was the result of a 44-day strike.



NTD (2005 Tentative as of July, 2006)

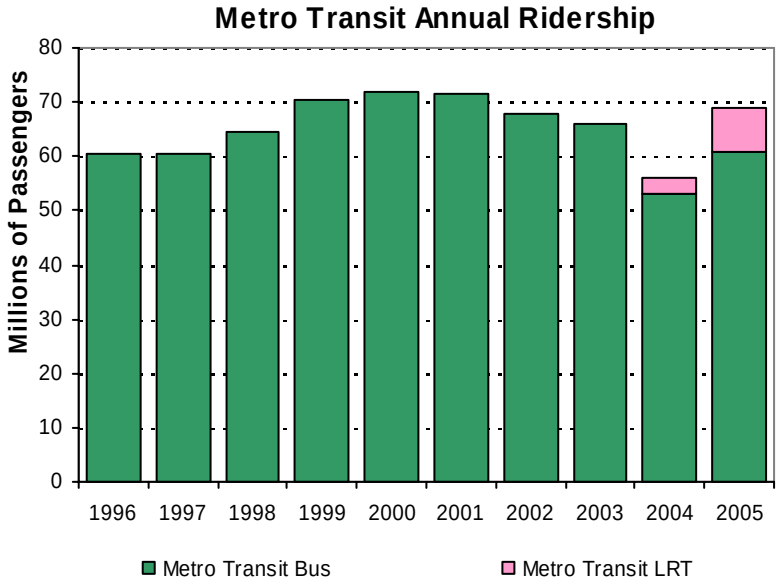
Twin Cities Ridership	1996	1997	1998	1999	2000	2001
Opt-Outs	2,319,129	2,446,142	2,687,314	3,020,546	3,172,107	3,354,228
Contracted	857,069	1,240,096	1,528,923	1,723,089	1,768104	1,839,157
Community	366,463	388,161	367,123	361,245	403,270	395,886
VanGo	-	-	-	-	-	83,660
Metro Mobility/ADA	1,174,493	1,197,052	1,183,579	1,164,861	1,201,969	1,210,589
Metro Transit Rail	-	-	-	-	-	-
Metro Transit Bus	60,448,421	60,623,266	64,643,921	70,276,774	71,839,850	71,622,144
Metro Transit	**60,448,421**	**60,623,266**	**64,643,921**	**70,276,774**	**71,839,850**	**71,622,144**
Northstar	-	-	-	-	-	-
Regional Total	**65,165,575**	**65,894,717**	**70,410,860**	**76,546,515**	**78,385,300**	**78,505,664**

Twin Cities Ridership	2002	2003	2004	2005	1996-2005	2000-2005
Opt-Outs	3,329,225	3,393,625	3,532,883	4,187,994	80.6%	32.0%
Contracted	1,850,111	1,895,354	1,706,242	2,080,010	137.9%	15.3%
Community	442,763	513,185	497,873	461,436	37.0%	24.5%
VanGo	102,882	103,120	130,693	131,192	-	-
Metro Mobility/ADA	1,313,953	1,289,906	1,340,440	1,281,684	9.1%	6.5%
Metro Transit Rail	-	-	2,938,777	7,901,668	-	-
Metro Transit Bus	67,994,256	65,955,804	53,224,192	60,970,826	0.9%	(15.1%)
Metro Transit	**67,994,256**	**65,955,804**	**56,162,969**	**68,872,494**	**13.9%**	**(4.1%)**
Northstar	121,109	144,277	173,782	180,235	-	-
U of M Service	-	-	3,577,329	3,796,240	-	-
Regional Total	**75,154,399**	**73,295,271**	**67,122,211**	**80,991,285**	**24.3%**	**3.3%**

The region has seen a renewed growth in transit ridership in 2005 with increased investments in new service.

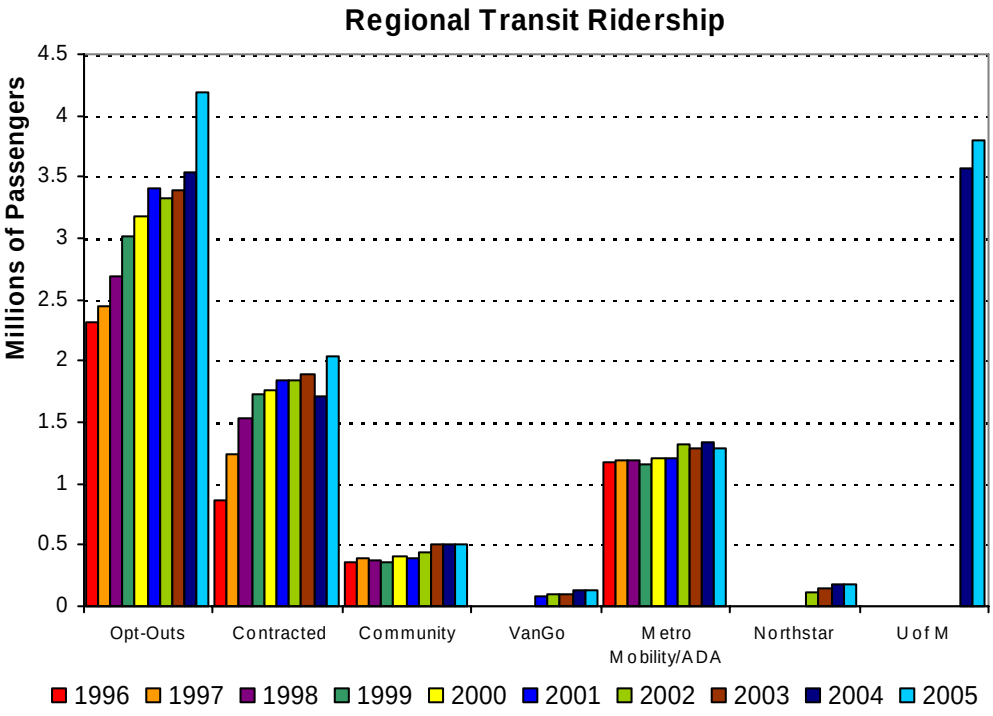
Ridership by provider

After a substantial drop due to a strike in 2004, ridership totals increased in 2005. This was boosted by having one full year of operations of the Hiawatha Light Rail. Metro Transit bus ridership has been declining since 2000 after several years of growth. This can largely be attributed to service cuts and fare increases in 2001, 2003 and 2005; as well as riders shifting from bus to light rail. Overall, Metro Transit ridership is up 13.9% since 1996.



NTD (2005 Tentative as of July, 2006)

Other parts of the transit system have shown growth. Opt-out service has grown 80.6% and contracted regular-route service 137.9% since 1996. There have been a number of factors in this growth. Opt-outs have been reallocating service from local to express service, using higher-capacity buses, building large park-and-rides with attractive levels of service and implementing service changes to attract ridership. In addition, population in these areas has continued to increase and congestion is worsening. Contracted routes have grown largely with the addition of new services.



NTD (2005 Tentative as of July, 2006)

Community-based dial-a-ride programs operate in rural areas and a selected number of cities. They have seen a 37% growth over the last 10 years. A portion of this growth is due to the addition of new programs. Edina, Osseo and PRISM programs were added and some routes shifted from regular route to dial-a-ride. In addition, there has been tightening of Metro Mobility eligibility criteria during this period, shifting some ridership from ADA service to general-public service, which has resulted in increased ridership figures for the community programs. Population in many of these areas is increasing, also adding to demand.

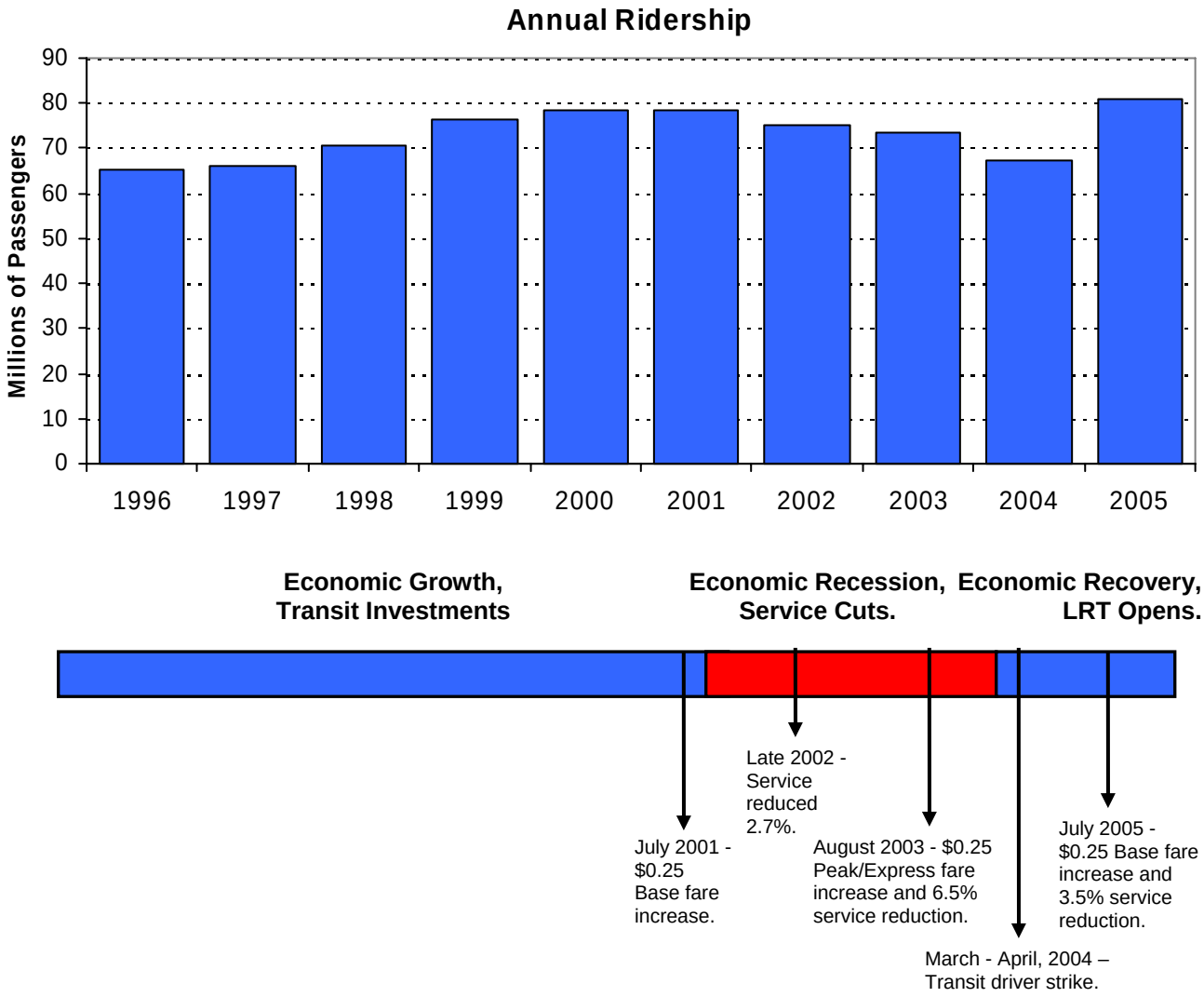
Metro Mobility/ADA has increased ridership 9.1% over the last 10 years. This increase was due, in part, to increases in service levels to meet ADA requirements and due, in part, to increases in the number of persons with disabilities. At the same time, all vehicles in the bus fleet in the region have been made accessible to persons with disabilities, providing an alternative to the Metro Mobility program. This has reduced the rate of growth for the Metro Mobility program.

Three new transit programs have been introduced during the last 10 years. Northstar Commuter Coach was created to build ridership prior to opening the Northstar Commuter Rail. Ridership increased 48.7% from 2002 to 2005. The bus service is to be discontinued when the commuter rail service begins. The VanGo! program provides service with vans driven by commuters. Ridership has increased 56.8% since the program's inception in 2001. In addition to these new services, the University of Minnesota inter-campus shuttle began reporting as a general-public transit service in 2004 after adjusting their service delivery requirements and converting some of its existing service to general-public transit service.

The pattern of change in transit ridership has been reflective of societal changes and system operating changes:

- Throughout the mid- and late-1990s, transit ridership was growing steadily, primarily because of a strong economy but also with increased investment in public transit in the region.
- Almost 80% of transit ridership consists of people going to and from work. In late 2001, the economy went into a recession and when employment declines as it did in 2001, transit ridership also declines.
- Fare increases in 2001, 2003 and 2005 and service reductions in 2002 and 2003 adversely affected transit ridership.
- The most significant ridership drop was in 2004 primarily due to a 44-day bus driver strike.
- The recovery from the 2004 strike came along with an economic recovery that began in 2005. Despite another fare increase and service reduction in 2005, ridership numbers increased for the regional system.
- Another reason for the large increase in ridership in 2005 was the addition of a full year of light-rail service, which accounted for roughly 10% of the entire region's ridership. Light rail has attracted a large amount of new transit riders.
- Significant increases in the attractiveness of service in opt-out communities have brought about more transit ridership as well. Extensive park-and-ride facilities, newer coach buses and focused services are all a part of this increasing attractiveness.

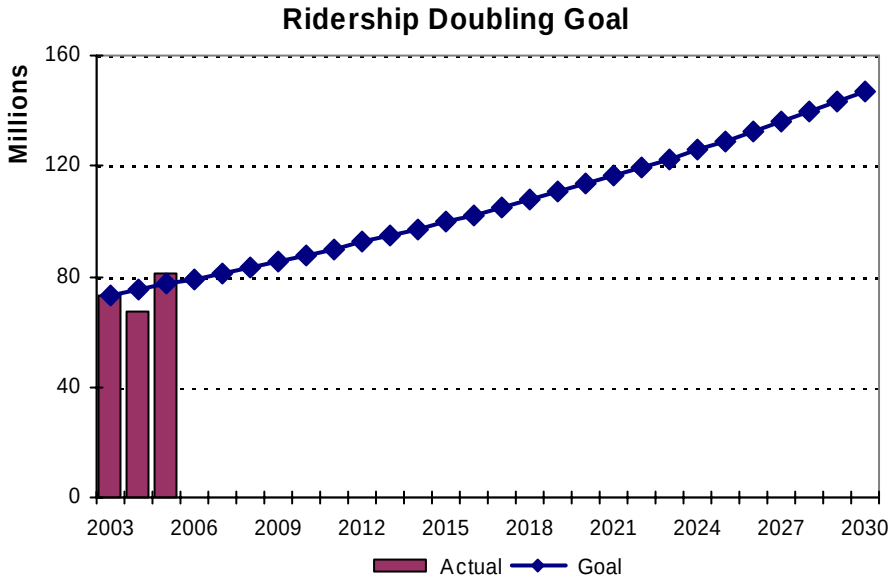
The impacts of these various changes can be seen graphically below:



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 MTS-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.

Progress towards Doubling Ridership by 2030

In 2004, the Metropolitan Council adopted the goal of doubling overall transit ridership by 2030. At the end of the year 2005, the Council was slightly above this goal. In 2004, a transit worker strike reduced ridership substantially.

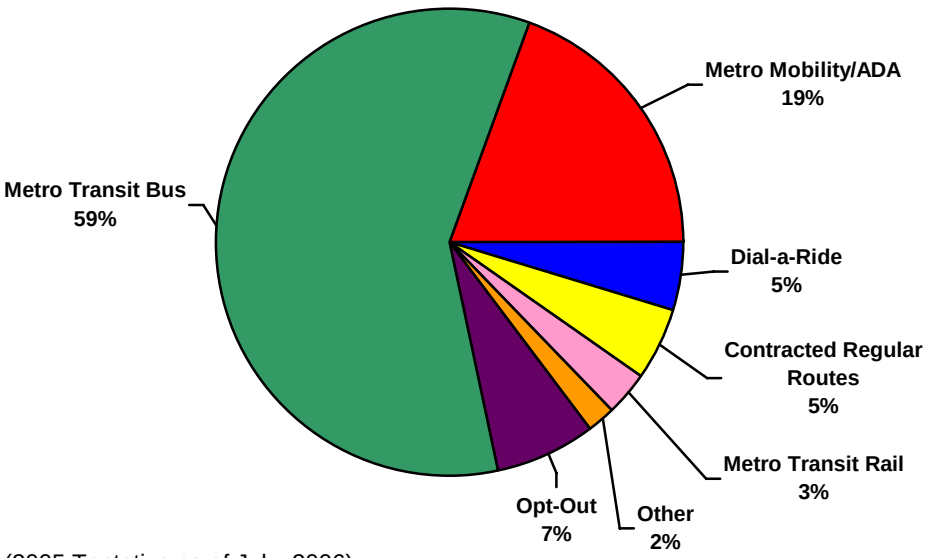


In 2004, the Metropolitan Council set the goal of doubling overall transit ridership by 2030. With a baseline year of 2003, the Metropolitan Council was slightly above the goal at the end of 2005.

Performance Among Various Regional Providers and Services

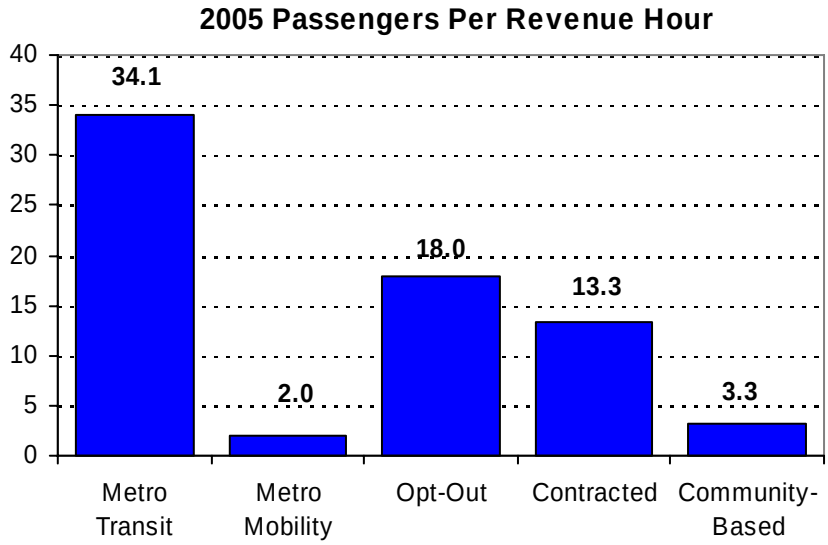
Metro Transit provides 62% of the transit service in the region, including rail. Metro Mobility is the second-largest provider, providing about 19% of service.

2005 Revenue Hours by Provider



NTD (2005 Tentative as of July, 2006)

Passenger productivity varies among the various types of providers. This is a reflection of their different operating environments and programs. Passenger productivity is affected by factors such as geographic markets (density of development), trip length (longer passenger trips do not "turn over" their passenger loads as quickly) and type of service. For example, dial-a-ride service serves fewer passengers per hour than regular-route service because of the point-to-point nature of dial-a-ride service. Express service serves fewer passengers per hour because most of it is a one-way service.



NTD (2005 Tentative as of July, 2006)

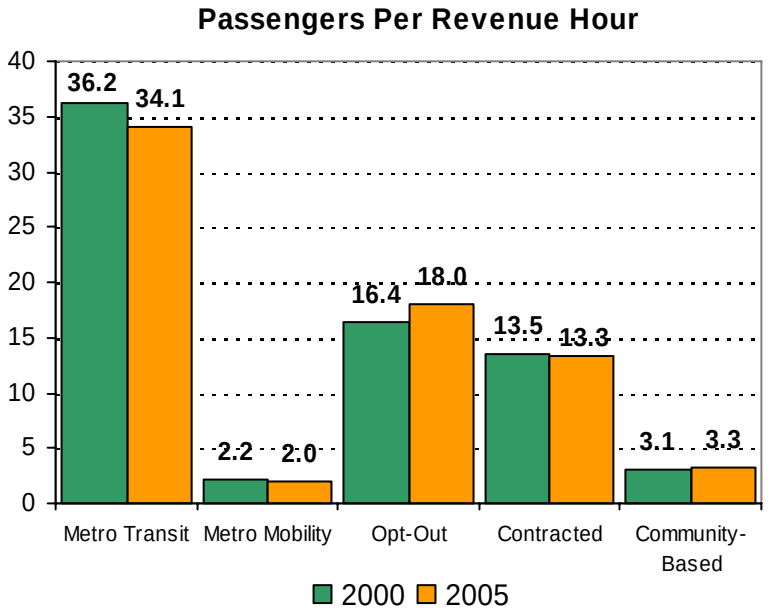
- Metro Transit provides transit service in the core-urban area, the highest-density service area, and thus it has the most efficient service in the region. In addition, it also provides by far the highest percentage of urban-local service, with 85.9% of its service hours being urban-local service. This is the most efficient service to provide.
- In contrast, 51.1% of contracted routes are suburban-local routes, which serve much lower density areas and produce fewer passengers per hour. In addition, 27.8% of contract routes are express routes.
- Opt-out communities provide no urban-local service but they provide a higher percentage of express service than contracted services. Because of this, their productivity falls somewhere between Metro Transit and contracted service levels.
- Metro Mobility and Community-based programs are dial-a-ride programs. These point-to-point programs provide more customer service but less efficient trips from the provider perspective. Because of the nature of these programs, their passenger productivity is substantially less than regular-route services.

From 2000 to 2005, the largest primary carrier in the region, Metro Transit, saw a 5.8% decrease in passengers per revenue hour. A 44-day strike of transit bus drivers resulted in a slow recovery period for ridership in 2004 and fare increases in 2001 and 2003 resulted in decreased ridership.

Opt-out service became more efficient since 2005 with the addition of services, large park-and-rides and more express service.

Contracted services include a variety of types of buses. Because this type of service is continually evolving in the manner in which it is delivered, passengers per revenue hour can vary, dramatically from year to year. Again, fare increases have adversely affected these services as well.

Community-based programs are becoming more established and efficient. As a result, their passengers per revenue hour have leveled off and actually increased slightly from 2000 to 2005.



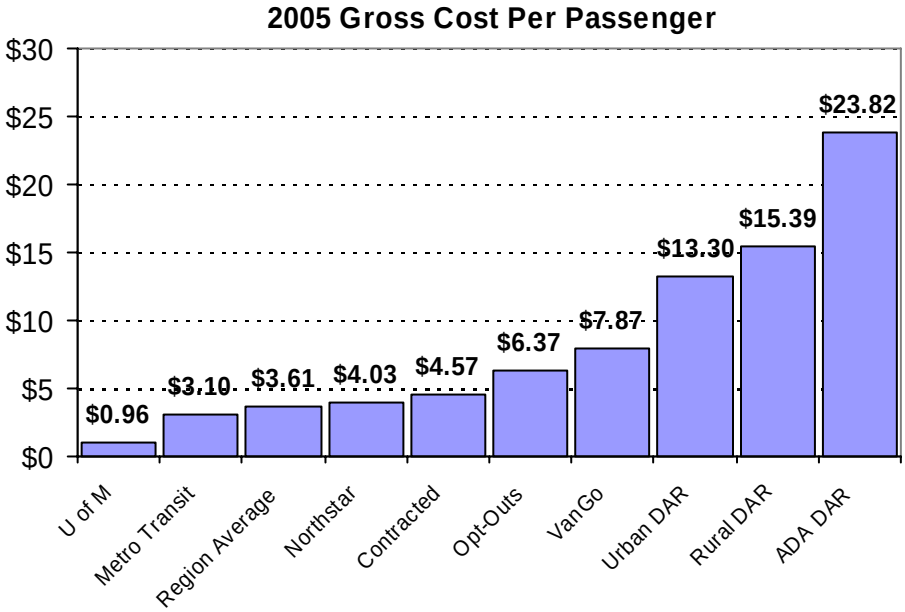
NTD (2005 Tentative as of July, 2006)

With the inclusion of ADA accessibility on all regular Metro Transit routes, Metro Mobility has been able to focus on those riders in most need of assistance. Trip denials have dropped from almost 6% in early 2000 to as low as 0.3% in 2005. The riders that Metro Mobility has lost with accessible regular routes, it has gained by increasing availability through more revenue hours. This has resulted in a decrease in passengers per revenue hour.

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

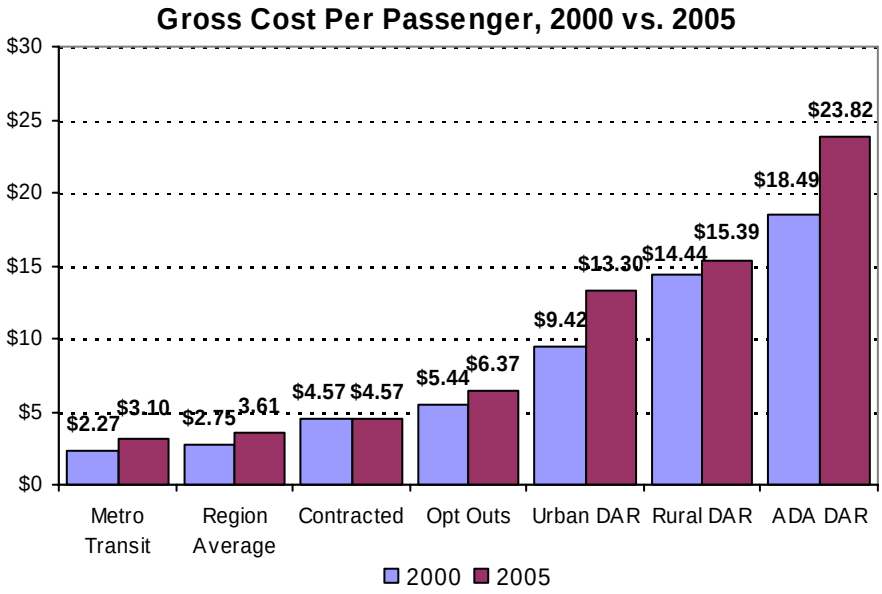
Variations in passenger productivity translate into varying unit costs for the different types of transit service. On a cost-per-passenger basis, services that carry more passengers per hour have a lower gross cost per passenger than those that carry fewer. In addition, dial-a-ride programs, due to their point-to-point nature, are more expensive than regular-route service on a per passenger basis. Opt-out and contracted services provide service almost completely in suburban areas, which have a lower density of passengers and a higher percentage of express service. The University of Minnesota service is a very specialized, high-demand service in a densely populated area.



NTD (2005 Tentative as of July, 2006)

Costs per passenger vary depending on the type of service and the areas served.

Gross cost per passenger for all parts of the system have increased from 2000 to 2005 at a rate more than double that of inflation. The Consumer Price Index increased 2.25% per year from 2000 to 2005 while the gross cost per passenger grew more rapidly at 5.21% per year. The rising cost of fuel is the main contributor to this drastic change.



NTD (2005 Tentative as of July, 2006)

Gross cost per passenger increased from 2000 to 2005 faster than increases in the Consumer Price Index because of rising fuel costs.

Peer Transit Systems

The area's performance can be assessed, in part, through a comparison to transit systems in regions comparable to those in the Twin Cities. Eleven peer regions were identified as part of the 2001 Transportation Audit and for the 2003 Transit System Performance Audit. This group was selected based on comparability of urban area characteristics, such as population, transit system size and modes, and highway-system development. The comparisons include all of the transit services in each region, including dial-a-ride and rail but excluding ferry service, for a total regional perspective.

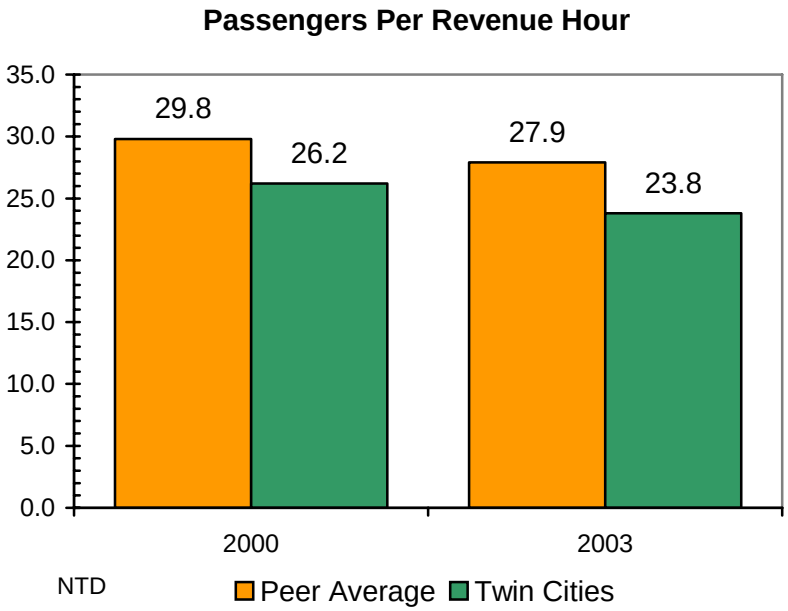
Nine of eleven peer transit systems operate some form of rail. Houston and the Twin Cities are the only two areas to have added rail service since 1997. The passenger, cost, revenue and services statistics for all modes operated by the peer systems are compared to the seven-county totals, not solely Metro Transit.

Peer regions used in the Transit Audit include:

Baltimore
Cincinnati
Cleveland
Dallas
Denver
Houston
Milwaukee
Pittsburgh
Portland
Seattle
St. Louis

Passengers Per Revenue Hour

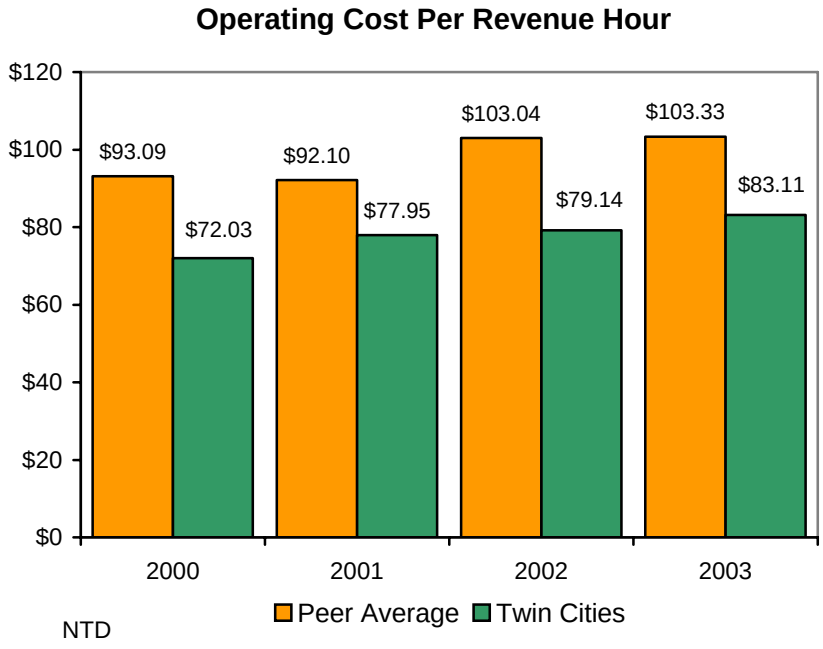
One measure of productivity is passengers per revenue hour. From 2000 to 2003, passengers per revenue hour decreased 6% for peer systems and 9% for Twin Cities systems overall. Among the systems compared, the Twin Cities had the eighth-highest passengers per revenue hour in 2003 compared to the sixth highest in 2000. Even though passengers per revenue hour decreased on average, the Twin Cities systems decreased slightly more than average. One factor in the lower productivity is that the Twin Cities charges higher fares than most other regions, creating a larger disincentive to use transit.



From 2000 to 2003, passengers per revenue hour decreased more in the Twin Cities than the peer average.

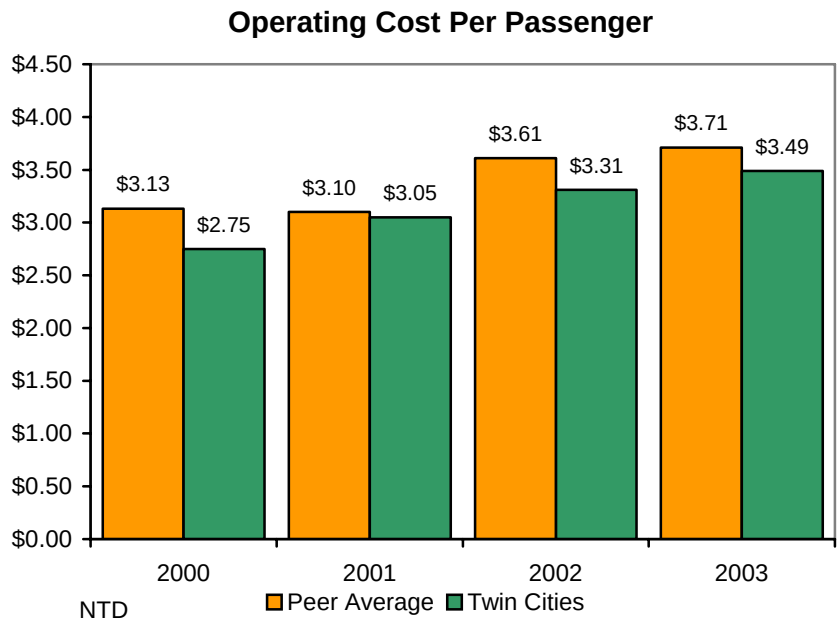
Operating Costs

Cost efficiency can be assessed by two measures: operating costs per revenue hour and operating cost per passenger. From 2000 to 2003, operating cost per revenue hour for peer systems increased 11% while they increased 15% for Twin Cities systems. Operating cost per revenue hour is increasing at a slightly higher rate in the Twin Cities compared to the average of its peer systems. However, the Twin Cities cost to provide service was 20% less than the peer average on a cost per hour of service basis.



The Twin Cities cost to provide service was 20% less expensive than the peer average.

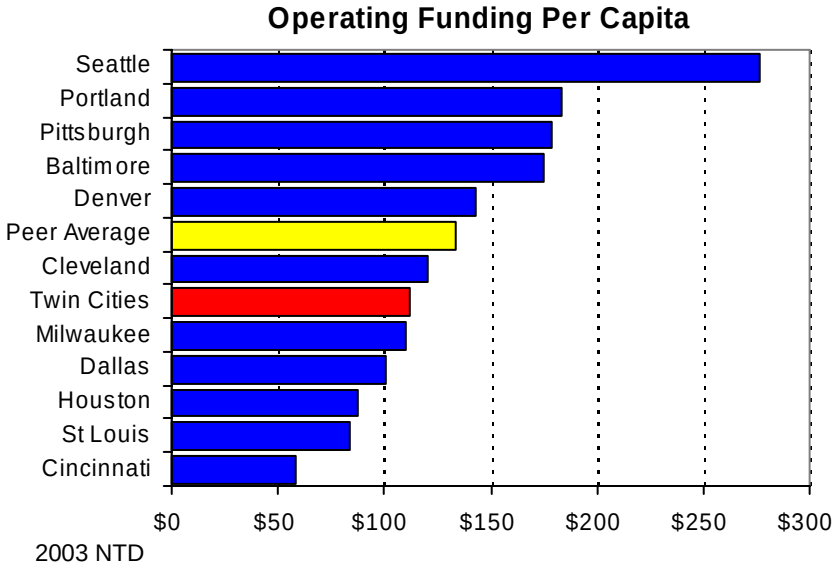
In terms of operating cost per passenger, the Twin Cities costs were 8% lower than peer systems in 2003. From 2000 to 2003, the rate of increase for the Twin Cities (27%) was higher than the peer average (19%). The Twin Cities operating cost per passenger grew at a fairly steady rate versus the peer average.



Twin Cities operating cost per passenger was slightly less than the peer average but growing at a faster rate.

Sources of Operating Revenue

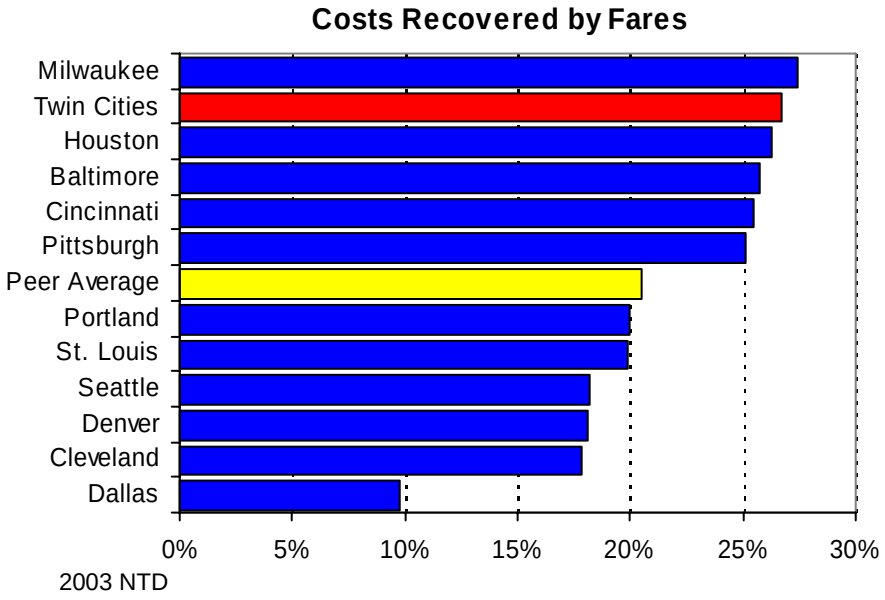
Overall, Twin Cities' total operating funding per capita is 16% lower when compared to peer systems.



Twin Cities' total operating funding per capita is 16% lower than the average for its peers or $21.24 less per capita than the average for its peers. The region would have to spend over $50 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.

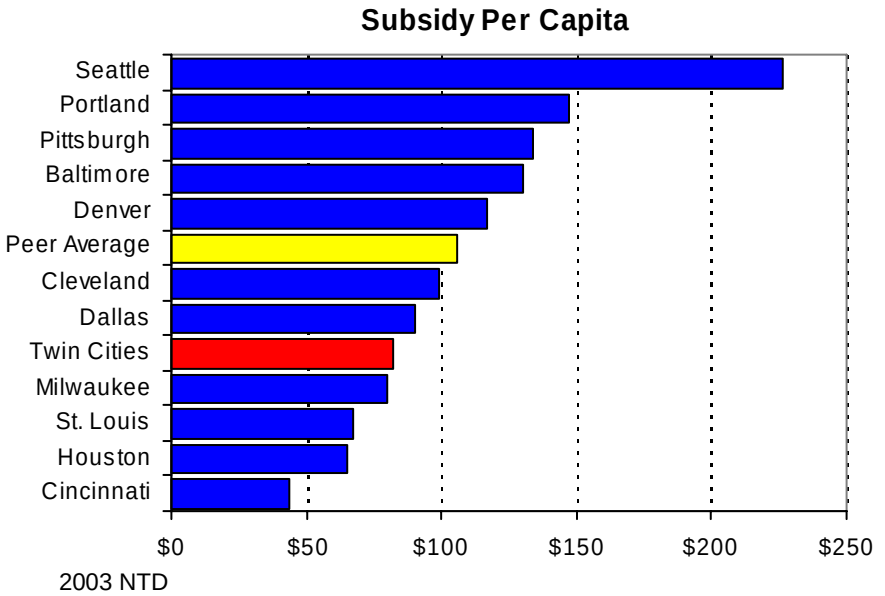
The Twin Cities area is second among peers in the percentage of costs that are recovered from fares. Fare recovery is 27%, higher than the average for the peers of 21%.

Transit use is sensitive to cost; the higher the cost to ride, the lower the transit use. Because of this, the level of fares has a direct impact on transit usage. As fares goes up, transit use goes down so even though recovery costs may go up, the overall system suffers.



The Twin Cities is 30% higher in fare recovery percentage than the peer average.

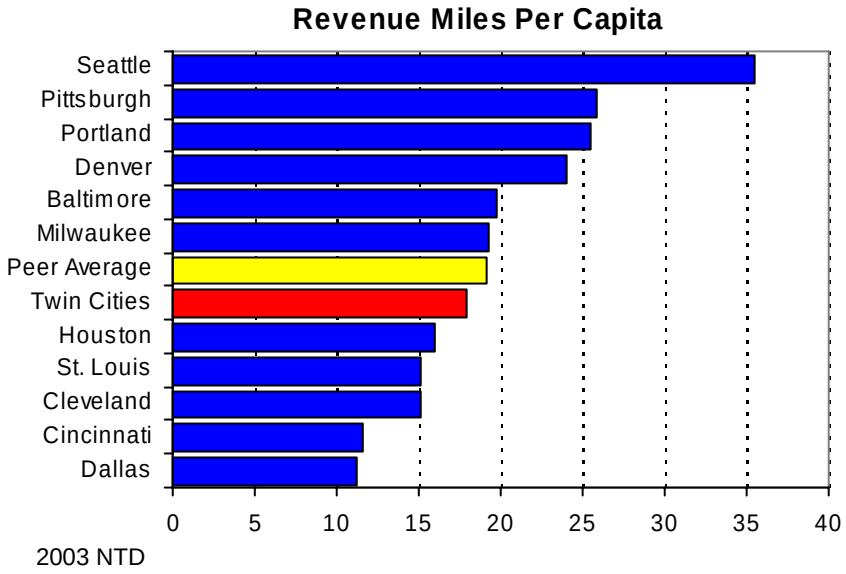
Net government subsidy per capita is the cost made up by government sources after user revenues are deducted. Twin Cites subsidies are 23% lower than the average for the peers.



Twin Cities subsidies per capita are 23% lower than average for its peers.

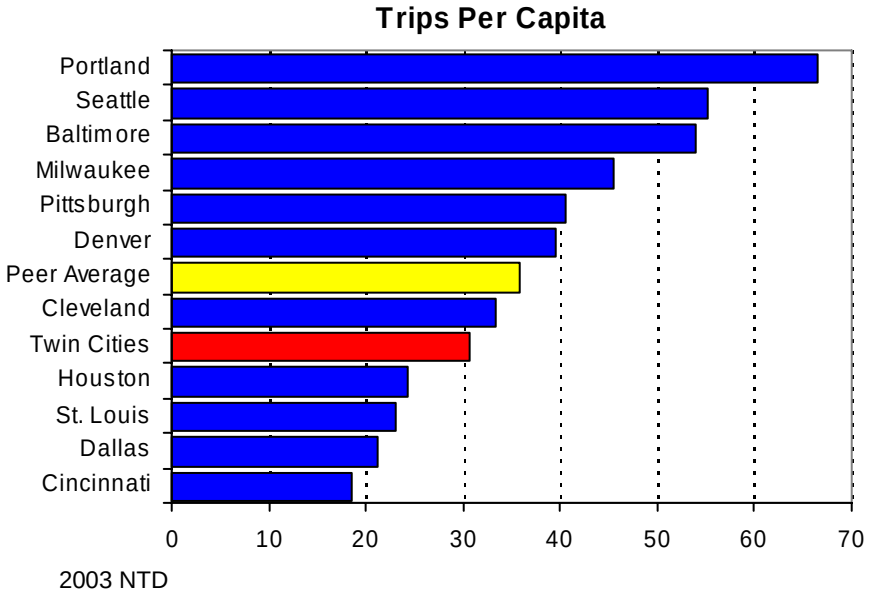
Transit Service Per Capita

The amount of transit service that can be provided is directly linked to funding levels and the efficiency of the system providing service. The Twin Cities has less than the median level of service per capita following cuts in service and decreases in funding per capita.



The Twin Cities has a lower number of trips per capita (14.5%) than the peer average. Several factors already cited contribute to this:

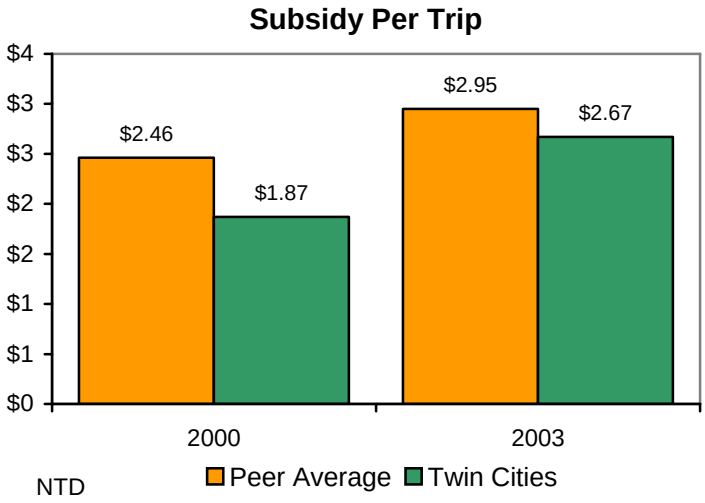
- Higher-than-average fares
- Lower density
- Lower service miles per capita



The Twin Cities provides a lower number of rides per capita than its peer systems.

Subsidy Per Passenger

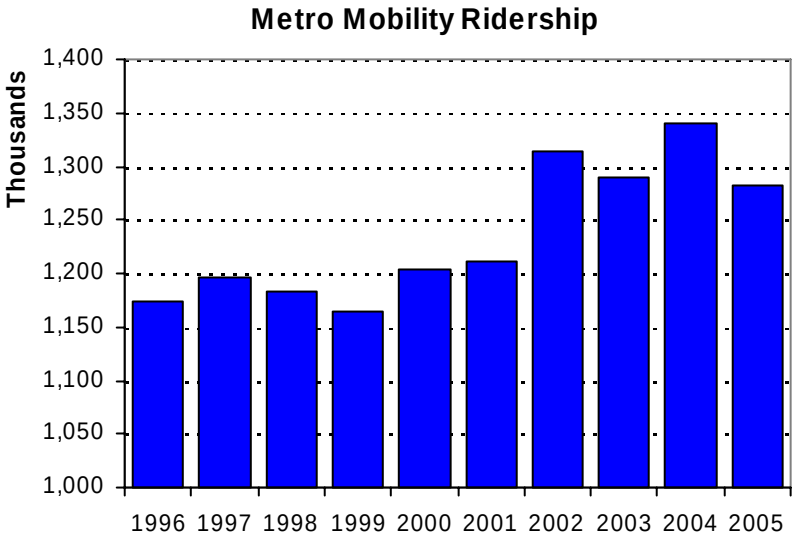
Passenger subsidy costs are increasing in the Twin Cities area faster than the peer average. From 2000 to 2003, subsidy cost per passenger for peer systems increased 20% while they increased 43% for Twin Cities systems overall. Nonetheless, in 2003, the Twin Cities subsidy per passenger was 9% lower than the peer average.



Metro Mobility/ADA Ridership

Metro Mobility riders must be ADA-paratransit eligible and have gone through a certification process to use Metro Mobility. There are approximately 16,000 certified riders in the region, typically with 12,000 active riders.

Ridership for Metro Mobility has increased 9% over the last 10 years. A recent drop in ridership may be attributed to having a regular route fleet that is 100% accessible to persons with disabilities.



NTD (2005 Tentative as of July, 2006)

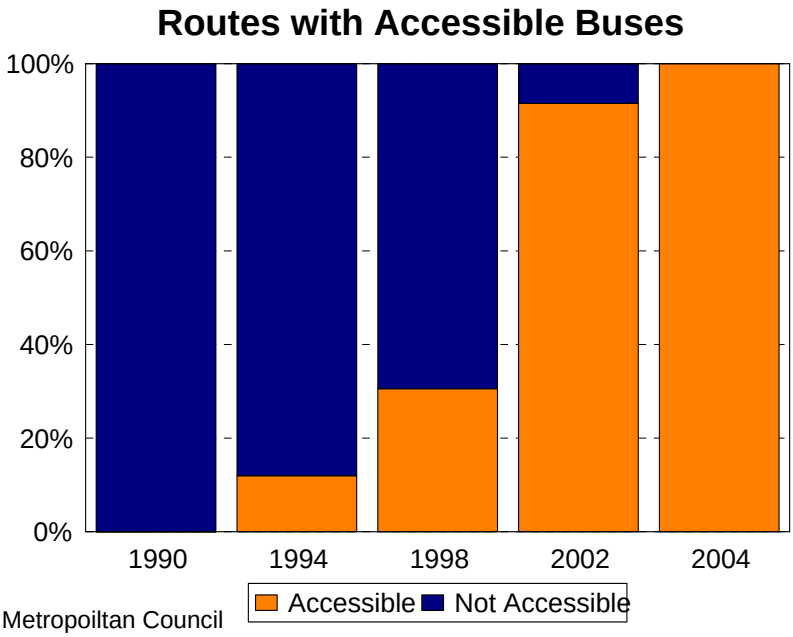
Metro Mobility Ridership Profiles

Of the people riding Metro Mobility:

- 17% are over 80 years old, 29% between 60 and 80, and 59% less than 60 years old.
- 39% live alone and 39% live with family.
- 20% of trips are for medical purposes, 45% to get to work and 5% for shopping

Accessible Regular-Route Service

In 1990, the region adopted a policy that all buses would be accessible to persons with disabilities. Since that time, the region has purchased vehicles with lifts, with the goal of having all vehicles accessible by 2004. This has occurred, with 100% of buses in the region being equipped with lifts or ramps.



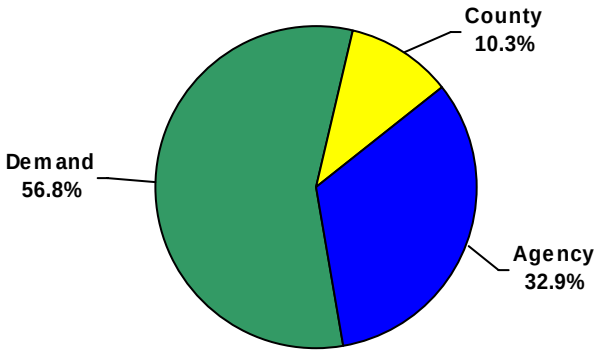
Metropoiltan Council

By 2004, all regular-route buses in the region were fully accessible.

Types of ADA Service

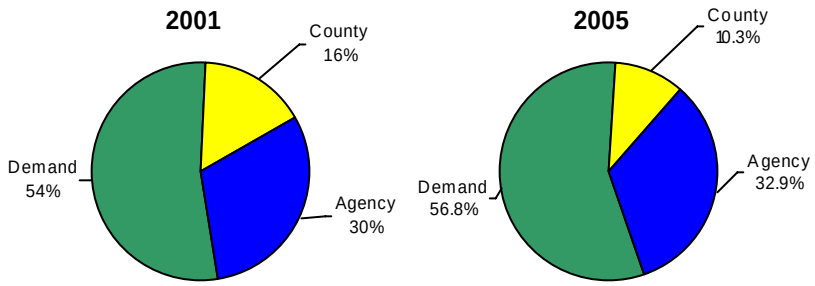
There are three basic types of services provided by Metro Mobility. Demand services enable individuals to call in and schedule an individual trip. These trips are provided directly by the two Metro Mobility service providers. Three county programs also provide ADA rides. These three are Dakota County (DARTS), Anoka County (Anoka County Traveler) and Washington County (HSI). The third kind of service is agency service. Agency services take advantage of several persons going to one destination to gain efficiencies.

2005 ADA Revenue Hours



NTD (2005 Tentative as of July, 2006)

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 that 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.



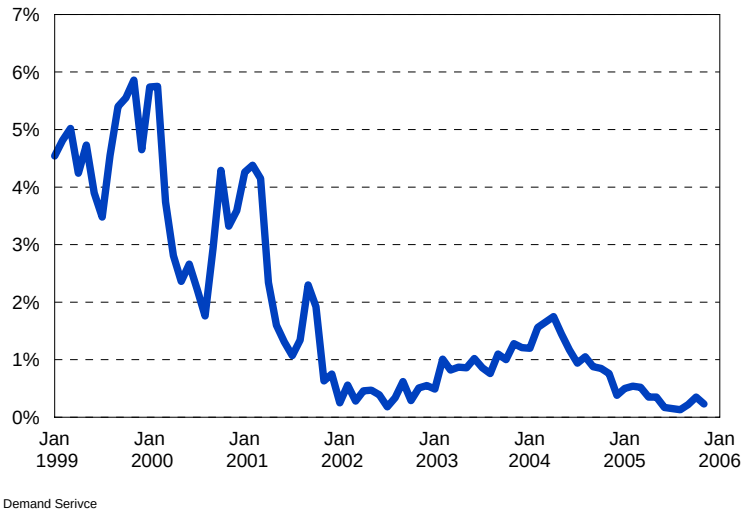
NTD (2005 Tentative as of July, 2006)

Grouping trips with a common destination is more efficient than brining 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.

Metro Mobility Trip Denials

There are two reasons why a request for a Metro Mobility trip may be denied. The first is that the trip or individual is not eligible for ADA service. This can be because the person is not ADA certified, the trip is not within the geographical boundaries of the Metro Mobility service area, or not within the time boundaries of ADA service. These types of trip denials are called non-capacity denials. The second reason that a trip request may be denied is that there are not vehicles available to provide the service. These types of denials are called trip denials due to capacity. From 1999 to 2006, the percent of trips denied due to capacity declined by 96%.

Metro Mobility Trip Denials Due to Capacity



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 capacity. From 1999 to 2006, the number of trips denied due to capacity declined by 96%.

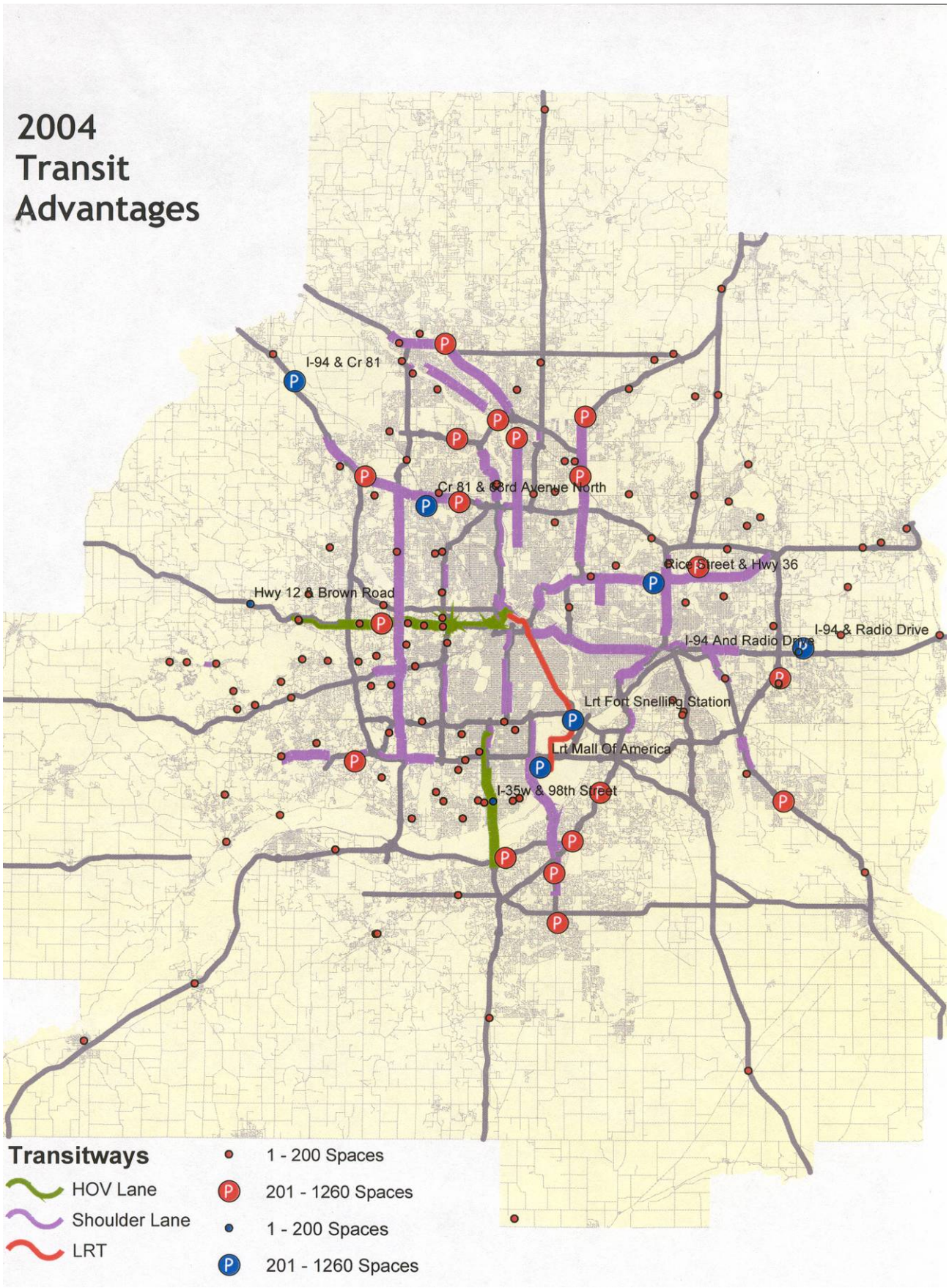
Transit Advantages

In cooperation with Mn/DOT, counties and cites, Metro Transit has created numerous transit advantages throughout the metro area that free buses from traffic congestion. Perhaps the most important have been bus-only shoulders that permit buses to bypass congestion by driving on the road shoulder. The result is higher speeds and greater reliability for transit.

The first one opened in 1991. At the end of 2004, there were 223 miles of bus-only shoulders, far more than in any other metro area. Typically, 15-25 miles are added each year. Almost all express buses use at least one segment of shoulder lanes. Some express routes use up to five.

There are 88 HOV ramp-meter bypasses, most built during the last 10 years. Metro Transit has the use of seven exclusive bus lanes in downtown Minneapolis and four in downtown St. Paul. The most prominent feature in downtown Minneapolis is Nicollet Mall. Nicollet Mall is a pedestrian street that allows one lane of traffic in each direction for buses, taxis and emergency vehicles. There are several locations where buses have special turning privileges, which permit them to bypass traffic at crowded intersections.

There were 19,900 park-and-ride spaces available on 125 facilities in 2005, plus nearly 13,000 proposed spaces. From 1999 to 2004, nearly 8,900 spaces were added to the system, a growth of over 91%. A study of park-and-ride facilities in late 2004 determined the park-and-ride-utilization rate to be 68% on average for the region.


2004
Transit
Advantages
I-94 & Cr 81
Cr 81 & 63rd Avenue North
Rice Street & Hwy 36
Hwy 12 & Brown Road
I-94 & Radio Drive
I-94 And Radio Drive
Lrt Fort Snelling Station
Lrt Mall Of America
I-35w & 98th Street
Transitways
HOV Lane
Shoulder Lane
LRT
1 - 200 Spaces
201 - 1260 Spaces
1 - 200 Spaces
201 - 1260 Spaces

CHAPTER 8: FREIGHT/INTERMODAL SYSTEM

Minnesota businesses compete globally. The ease or difficulty of shipping freight directly affects the competitiveness of the region's businesses. This section provides a summary of freight performance for the Twin Cities metropolitan area, focusing on the major modal systems (truck, rail, water and air).

Other transportation systems described in this audit are assessed primarily on how they function within the Twin Cities metropolitan area. However, the freight system is not just internal to the region; it also includes freight flows to, from and through the region, within the state and to national and international markets.

Freight movement or "freight mobility" has changed significantly over the past several decades. In the past, freight movement was viewed by businesses as a non-value-added but necessary activity. In today's e-commerce and "just-in-time" delivery society, improving logistics efficiency has become a major value-added strategy. The time that goods spend in transit represents a real cost to business and inefficiencies in the transportation system directly affect the profitability of businesses.

In addition, the efficiency of a location's ability to ship freight is a major factor in businesses decision to locate or expand in the region. Emerging capacity constraints in the logistics systems serving certain markets can reduce on-time reliability. A reduction in reliability of on-time service affects the ability of shippers to meet their customer's logistic service demands. The problem is serious enough to cause some businesses to reassess their just-in-time strategy and distribution networks.

In May 2005, Mn/DOT adopted its first *Minnesota Statewide Freight Plan*. The multi-modal plan identifies significant freight system trends, needs and issues. It provides a framework that includes recommended freight policies, strategies and performance measures to guide investment decision-making.

Developing a regional agenda for investments and improvements in the freight system requires effective ongoing communication and collaboration with the industry. For example, the public sector tends to view the freight system in terms of capital investments. This allows government to identify, program and fund specific infrastructure projects. The private sector's view is to make the most efficient use of the supply chain. The supply chain consists of those elements of the logistics system that go beyond the physical infrastructure (access and capacity) to encompass competitive carriers, dispatch function, support facilities and warehousing, local distributors, inventory and in-transit tracking and order systems. Improved interaction of these elements is needed to meet the demands of shippers and consumers in the drive to improve regional competitiveness. However, many critical elements of the supply chain are not directly influenced by the public sector.

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.

Developing Performance Measures

Freight mobility can be measured and analyzed in terms of freight flows and logistic patterns by industry. An understanding of the economic development significance of freight flows is necessary to determine important transportation corridors, principal goods markets, potential for modal diversion, corridor improvement needs and ports, terminals and other freight facility improvement needs. Each mode, as part of a multi-modal freight system, must change to remain competitive in response to the evolving business logistics needs.

Developing a reasonable number of appropriate performance measures and obtaining data, particularly data from the private sector, will continue to be difficult because of the proprietary nature of the necessary data. This is a national issue experienced by metropolitan planning organizations and others seeking to identify investments in the regional transportation system to address freight mobility needs. Due to national security concerns, the gathering of national, state and regional freight data is challenging, as routine industry reports are more difficult to access.

One of the challenges of developing performance measures for freight is defining performance measures that reflect the concerns of the business community and freight forwarders who rely on the transportation system. With the advent of “just-in-time” deliveries, the past practice of warehousing inventory has been reduced significantly or shifted from a manufacturer to a transportation intermediary. Suppliers must provide their product to their customers consistently on time, on budget and on demand. However, as the supply chain continues to be stressed by decreasing capacity in the transportation system, some suppliers are following a strategy of “almost-just-in-time” by reverting to maintaining some inventories.

Another challenge is accessing critical data sources on regional, state and national freight movement by time, mode, location (routing, origins and destination), value and tonnage. The availability and accuracy of the data usually drives what is measured rather than what freight system attributes should be measured and benchmarked to track performance. The business community considers much freight information proprietary information, making data collection difficult.

Freight-flow data for the year 2000 used in this section of the audit was purchased from Reebie Associates, a private provider of regional, state and national data on freight commodity flows. The data is considered as still current. Reebie used a sample national database of freight waybills that is applied to each U.S. Department of Commerce Bureau of Economic Analysis (BEA) region by tons and value by truck or rail. Other sources as noted were used to derive the data for air and water modes. The 15 counties in the Minneapolis/St. Paul BEA closely correspond to the 19-county audit study area defined in state statute and include the seven-county metropolitan area.

The Metropolitan Council will use appropriate regional freight performance measures in future transportation audits based on those development by Mn/DOT as listed in the *Statewide Freight Plan*. Performance measures are listed for trucking, rail, waterways, air cargo and intermodal facilities. The web site address for the *Statewide Freight Plan* is www.dot.state.mn.us/ofrw/statewideplan.html. An executive summary of the *Statewide Freight Plan* can be viewed at www.dot.state.mn.us/ofrw/pdf/mn_sfp%20exec_sum.pdf.

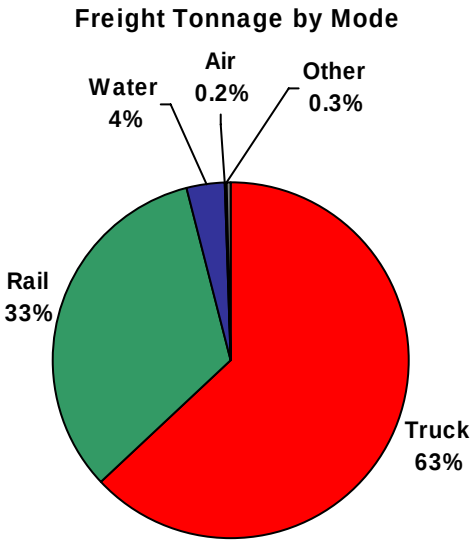
The challenge of evaluating the needs and effectiveness of the freight system is to establish measures that are useful and acceptable to both the private and public sectors and to secure adequate data for analysis.

Freight and Goods Movement System

The region's transportation system is part of an inland port system that functions through a network of airports, water, rail and truck terminals linked by the highway, waterway, air and rail systems. These modes provide connections along corridors to major inland and international freight gateways. Chicago and Kansas City are inland gateways while Seattle, San Francisco, Long Beach, Houston, Detroit and Duluth are international gateways. The NAFTA corridor between Laredo and Winnipeg is linked to the Twin Cities by I-94, I-29 and I-35.

A wide range of transportation services are available to support these functions. These include logistics companies, custom brokers, insurance, banking, domestic and international freight forwarders, foreign trade zones and other businesses that facilitate freight transportation.

In terms of total freight tonnage by mode, 63% of freight carried in 2000 was by truck, followed by rail at 33%, water at 3.5% and air at 0.2%. The value of freight moved by truck was $192 billion and by rail was $64 billion.



Source: Mn/DOT

Overall System Function

The editors of Expansion Magazine and Transportation & Distribution Magazine developed a *2005 Most Logistics-Friendly Cities in the U.S.* that rated over 362 cities to measure how "logistics friendly" they were. The ten factors evaluated were

- Industry Climate
- Work Force
- Road Infrastructure/ Spending
- Road Density/Congestion/Safety
- Road Conditions
- Interstate Highways
- Taxes and Fees
- Railroads
- Water Ports
- Air Service.

Information available from the U.S. Bureau of Economic Analysis and Census Bureau by metropolitan statistical Areas and Primary Metropolitan Statistical Areas were used in the comparison among cities.

The Twin Cites was rated seventh of 362 cities (see Table 8-1). Each of the metro areas ranked in the top ten scored well in at least three of the four transportation modes: roads, rail, air and water. These MSA's generally had a broad range of logistics-supporting infrastructure in place, as well as a plentiful and well-trained work force with a wide variety of transportation and logistics-related skills.

The Twin Cities ranked well in the *Interstate Highway, Transportation/Distribution Industry Climate, Road Conditions, Railroads and Water Ports* categories but rated in the bottom third in the *Road Infrastructure/Spending* and *Road Density/Congestion/Safety* categories.

Five of the peer metropolitan areas identified (Baltimore, Cincinnati, Cleveland, Pittsburgh and St. Louis) are in the top 50 communities listed. Compared to its peer urban areas, the Twin Cities had the second-highest ranking overall, but was not consistently ranked above others in all transportation-related factors. In 2001, in a similar survey, the Twin Cities was ranked ninth out of 100 cities surveyed.

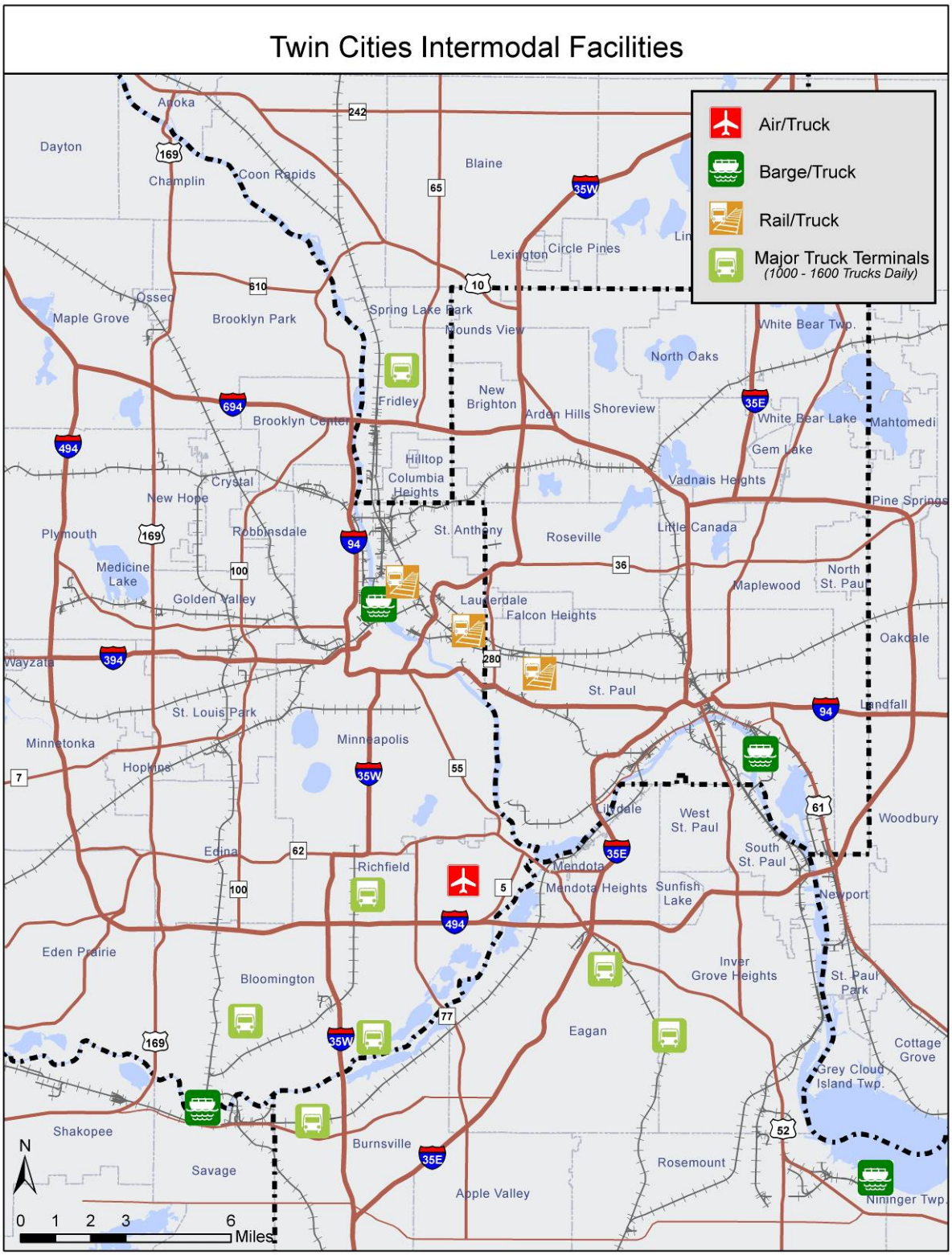
Table 8-1
2005 The Most Logistics-Friendly Cities in the U.S.
Ranking of Twin Cities Area and Peer Cities

Metropolitan Area	Overall Metro Final	T&D Industry	Work Force-Labor	Road Infra-structure	Road D/C/S	Road Condition	Taxes & Fees	Railroad	Water-borne Commerce	Air Commerce	Interstate Highway
(362 Metro Areas Ranked)	*Nation. Rank*	*Metro*	*Metro*	*Metro*	*Metro*	*State*	*State*	*State*	*Metro*	*Metro*	*Metro*
Minneapolis-St. Paul	7	13	96	213	291	18	169	18	41	25	5
Cleveland	4	24	46	120	112	186	241	17	31	38	5
Cincinnati	19	28	68	185	234	185	157	34	37	28	15
St. Louis	6	12	1	202	264	179	177	5	21	27	5
Dallas	21	8	90	145	279	134	90	7	178	9	4
Baltimore	13	19	30	118	241	277	220	34	16	22	3
Pittsburgh	18	25	99	84	82	342	340	4	14	10	23
Portland	37	18	89	212	289	220	336	10	20	32	36
Seattle	22	14	78	72	247	241	310	15	13	18	52
Denver	39	21	71	104	296	220	229	63	178	15	15
Milwaukee	44	33	24	241	335	53	352	63	52	44	36

Source: Expansion Management and Logistics Today, a Penton Publication, www.logisticstoday.com/displayStory.asp?nID=7495

Measured in terms of its 2001 “Logistics Quotient”, the Twin Cities ranked 9th among the 100 metropolitan areas examined and first overall among its peers cities.

Figure 8 –1: Twin Cities Intermodal Facilities



Motor Carriers

Description of the System

The Minnesota Department of Transportation (Mn/DOT) has identified a high- and medium-priority system of interregional highway corridors that connect the state's major regional trade centers to the Twin Cities region. These corridors including I-35E, I-35W, I-94, Trunk Highways 169, 212, 10, 36 and 52, which are all linked to the I-494 and I-694 beltway. The regional principal and minor arterial road network connects these corridors to freight terminals at the MSP Airport; the river port facilities in Savage, St. Paul and Minneapolis; railroad truck/rail intermodal facilities in St. Paul and Minneapolis; truck freight distribution centers; and major manufacturing facilities. Within the region, freight moves primarily by trucks using the regional highway system. Investments in these corridors are based on their performance as measured by travel time (speed), travel time reliability and safety.

Effectiveness

In 2000, 91 million tons of freight flowed in and out the region by truck to domestic and international markets. An additional 3.4 million tons was shipped by truck/rail intermodal as containerized freight. Within the Twin Cities BEA, 37 million tons of freight was carried by truck. (This mode of containerized freight transport is discussed in the section on rail freight.) The total tons shipped had an estimated value of $192 billion. Another 50 million tons of freight shipped by truck and rail flow through the state without stopping. The *Minnesota Statewide Freight Plan* forecasts truck travel to increase over 70% by 2020.

Within the region, 468 highway miles are designated on the National Truck Network for use by long combination trucks. Seventy-four miles are designed as part of the Minnesota Twin-Trailer Network and 304 miles are designated as part of the 10-ton system.

Congestion affects the efficiency of freight mobility in the region as well as ease of access to freight terminals. The specific impacts of congestion on the movement of freight are difficult to quantify given the lack of detailed regional freight flow data. A regional truck travel forecast model was developed in 2004 to analyze truck travel on the regional highway system. A Mn/DOT study will be completed to identify critical highway connections to major clusters of regional freight facilities.

Lacking specific data, the extent of congestion, as measured by annual vehicles-miles traveled (VMT) and its rate of increase, are used as a surrogate for freight mobility in the region. The level of congestion on the regional highway system is discussed in a previous section of this report. In 1992, total regional VMT was 11 billion with a heavy commercial VMT of 0.7 billion (6% of the total). By 2000, total annual VMT increased 26% to 14.7 billion and heavy commercial VMT increased by 10% to 0.8 billion, or 5% of the total VMT. As a percentage of total VMT, heavy commercial truck VMT has declined over the past decade, in part due to the faster rate of increase in auto VMT.

In 2004, heavy-duty commercial vehicles traveled 2,239,222 miles daily. The daily mileage was recorded on the seven-county highway system.

Figure 8-2 shows the major and minor national routes used by trucks for domestic and international freight to and from the region. The heavier lines indicate relative volumes of tonnage. These lines clearly indicate the importance of the corridors between Minnesota and Chicago, the ports of Seattle, Long Beach, Houston, New Orleans and New York. (The map was generated by the Federal Highway Administration using Reebie freight flow data.) Several of the corridors extend into Canada, to Winnipeg and the port of Montreal. The map illustrates the national network of freight corridors that function as a system of arteries and capillaries linking the Twin Cities metropolitan area with other national and international trade regions. Not shown is the flow of truck freight that travels through the region and state without stopping.

Figure 8-3 shows the segments of the metropolitan highway system that carries the bulk of the daily regional heavy commercial truck traffic. Based on 1998 data, the highest concentration of traffic is in the I-35W corridor between the Minneapolis downtown and portions of I-494 on either side of its intersection with I-35W, affecting approximately 10 miles of the interstate system. This corridor is also one of the region's most congested during peak periods. East -west through truck traffic typically follows the I-94/I-694 corridor through the region. The distribution of the volumes by corridor remained relatively unchanged in 2004.

The focal point for motor carrier freight planning should be on the increases in VMT and congestion in the Twin Cities. If congestion continues to increase at current rates, the freight system in the region will be adversely affected by congestion. Motor carrier freight represents a large majority of freight traffic in the system but congestion will affect schedules, costs and competitive advantage versus other regions in the Upper Midwest.

In 2000, 91 million tons of freight flowed in and out the region by truck to domestic and international markets. Within the Twin Cities 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 tons shipped had an estimated value of $192 billion. This represents 63% of the total regional freight tonnage.

Figure 8-2: Heavy Commercial Vehicle ADT Volumes

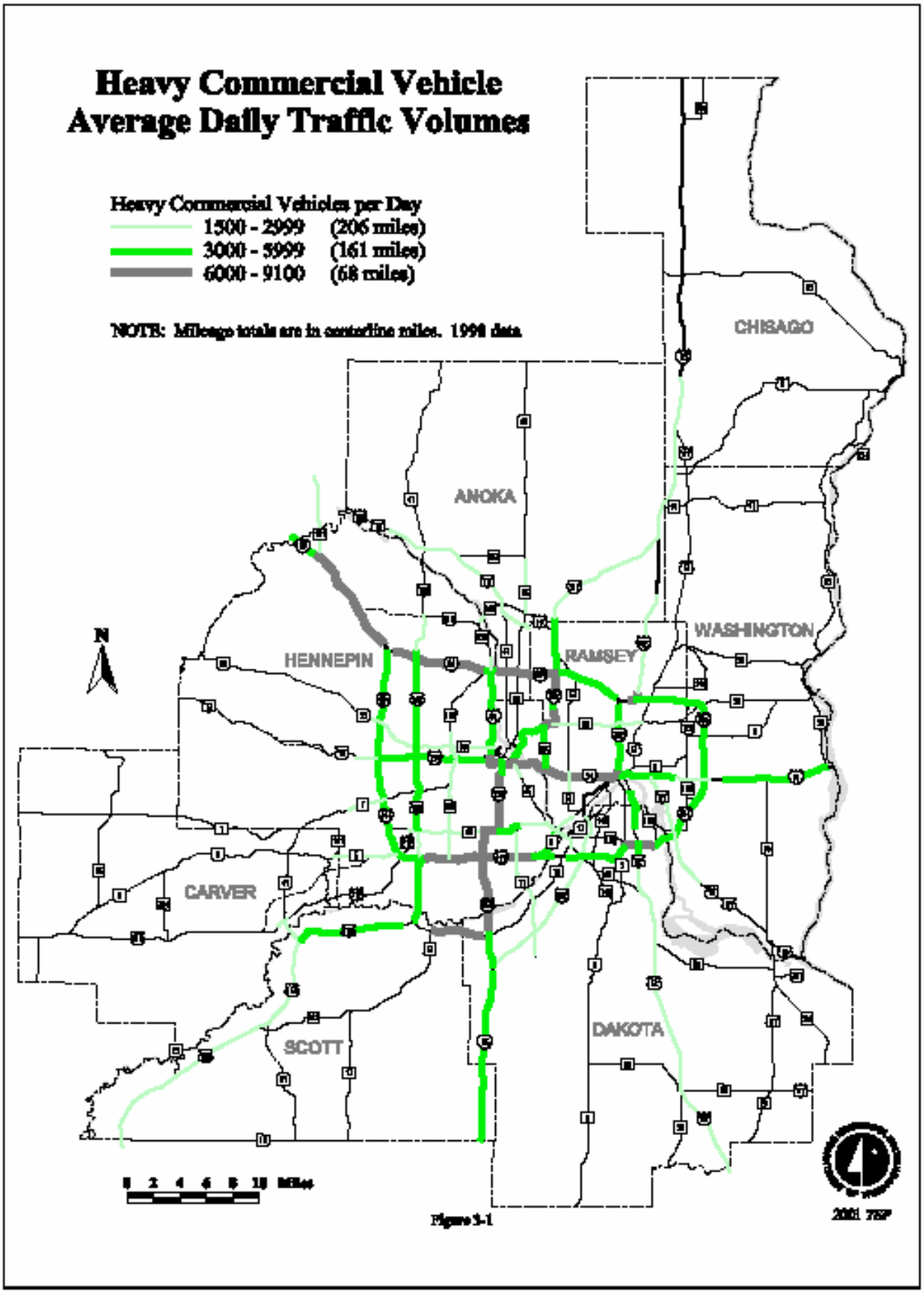


Figure 8-3: Designated Truck Networks

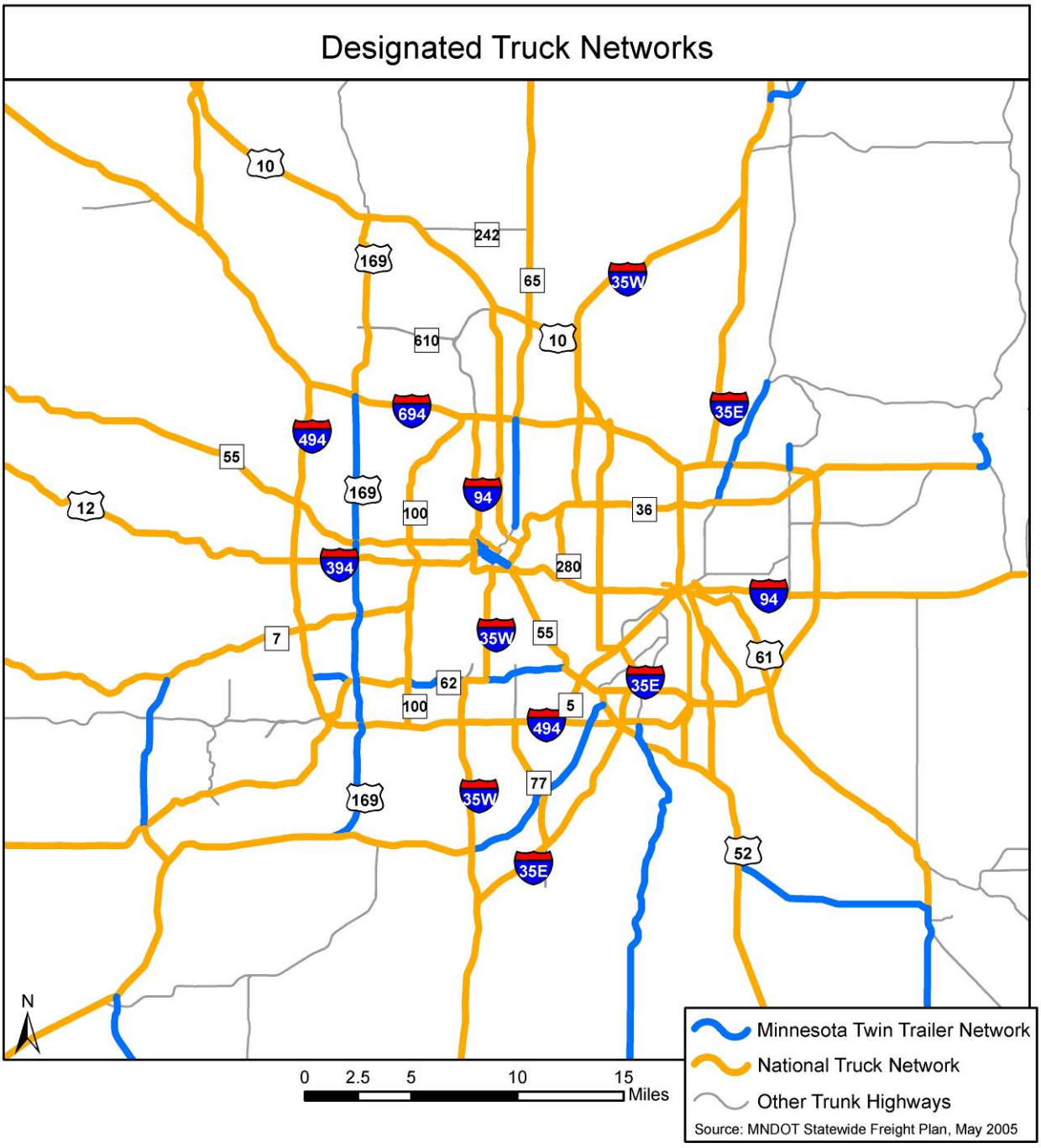
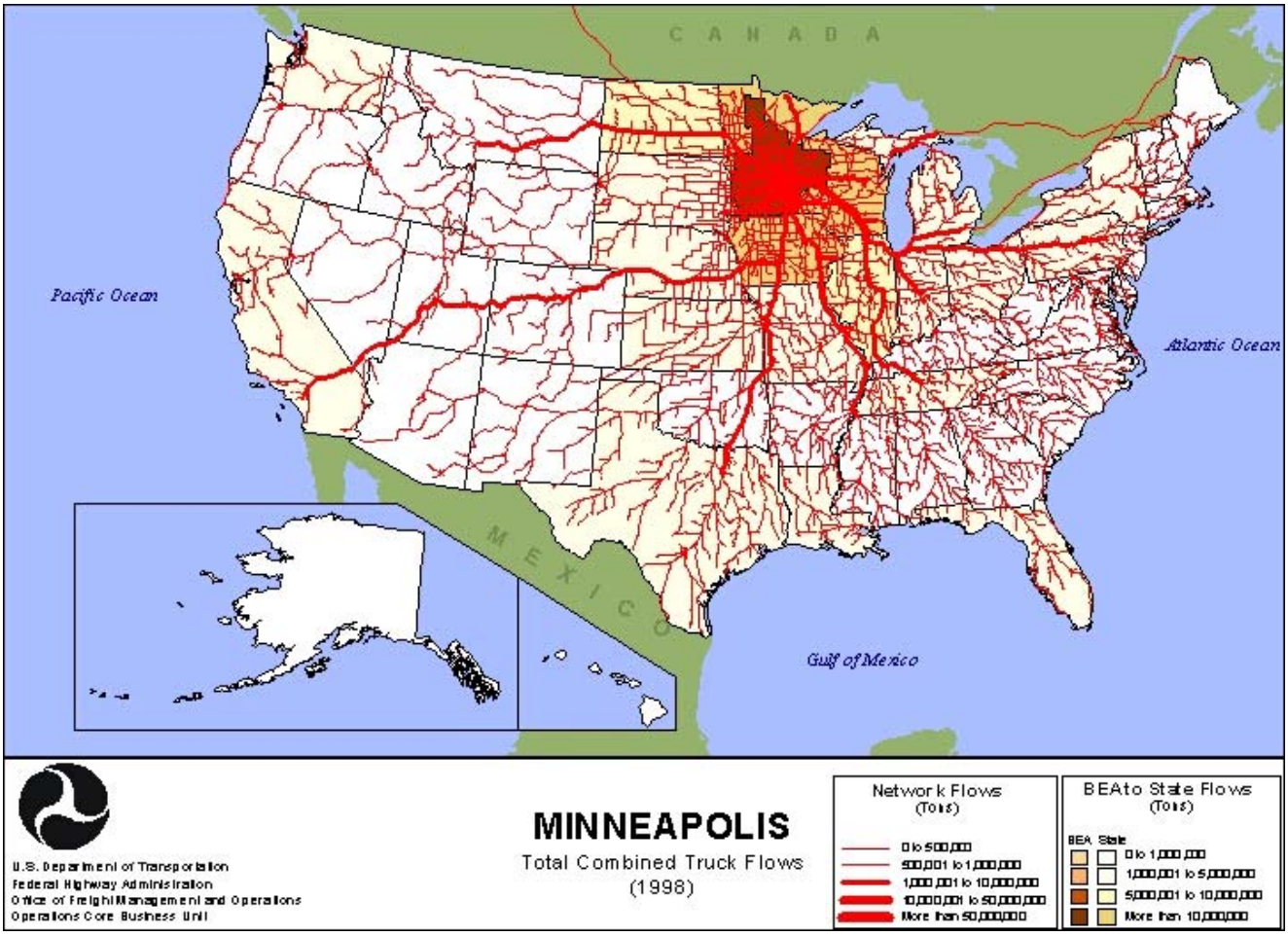


Figure 8-4: National Truck Freight Flows to/from Twin Cities Area

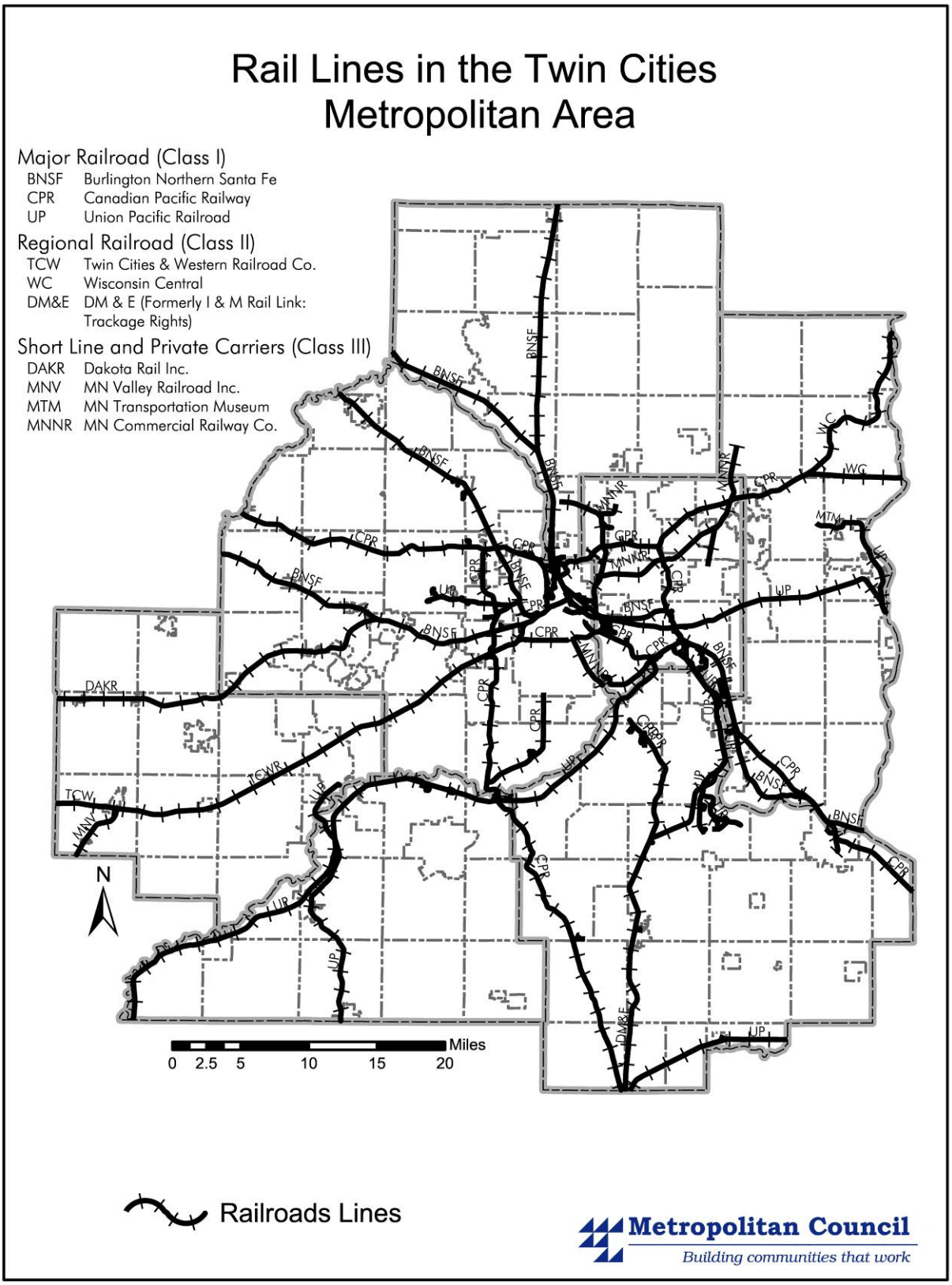


Railroads

DESCRIPTION OF SYSTEM

Through a series of mergers during the last decade, the number of Class I railroads in operation has been reduced to six in the nation. The region is served by three of the remaining Class I railroads (CP Rail, Burlington Northern Santa Fe and Union Pacific) and three Class II regional railroads (the Wisconsin Central and the Twin Cities & Western and DM&E). The Wisconsin Central was recently purchased by the Canadian National Railroad. Figure 8-4 below shows the location of rail lines in the region. Class I railroads are defined by the Surface Transportation Board (STB) as railroads with an annual operating revenue of $285.5 million in 1999. Regional railroads are classified by the STB as having more than 350 miles of line and annual operating revenues of $40 million.

Figure 8-5: Twin Cities Rail Lines



The Class I railroads serving the region have rebounded and provided good intermodal container service in an east/west corridor from the Pacific Northwest through Chicago and Detroit with connections to the eastern seaboard. Some of the lines abandoned in the 1970s and 1980s have remained in operation by the formation of regional railroads connecting the Class I railroads with niche commodity markets in rural Minnesota and Wisconsin.

The Class I railroads provide service in corridors connecting the region with the Chicago rail hub and its connections with the eastern seaboard lines, south to Mexico through Texas, and west to the major California ports and the ports in the Pacific Northwest. CP Rail provides connections to the ports of Montreal and Vancouver.

Figure 8-5 illustrates the rail connections between Minnesota and indicates the volumes of freight flows in tons. The dominance of the northwest corridor between Chicago and the port of Seattle through the Twin Cities is very evident. The loop between the Wyoming Powder River Basin and the Twin Cities is due to the significant amount of low-sulfur coal that flows through the Twin Cities carried primarily by the BNSF and UP railroads to the Port of Duluth for export to markets to the east.

Figure 8-6: Volume of Rail Freight Flows

EFFECTIVENESS

In 2000, a total of 62 million tons of freight was moved in and out of the region by rail with a total value of $53 billion. Table 8-2 provides a breakdown of the track ratings in allowable speeds for metro and non-metro segments of the rail system in the state. Higher train speeds are a general indicator of better overall track condition. Approximately 42% of the metro trackage is rated for speed at 40 - 60 mph for freight and 60 - 79 mph for passenger trains.

Table 8-2
Class and Train Speed

FRA Track Class	Freight Train Speed (mph)	Passenger Train Speed (mph)	Metro Mileage Estimate	
Class 1 Track	10	15	201	36.9%
Class 2 Track	25	30	114	21.0%
Class 3 Track	40	60	157	28.9%
Class 4 Track	60	79	72	13.2%
Total			544	100.0%

Mn/DOT Office of Freight and Commercial Vehicle Operations -2005

At-grade rail-highway crossings can contribute to traffic bottlenecks, depending on their location. Maximum safety and elimination of traffic impediments can only be obtained by constructing a grade-separated crossing. Oftentimes, the justification for a railroad grade separation is based more on traffic flow and vehicle delay concerns rather than solely on safety concerns. For example, the need for the construction of a new interchange and rail overpass on T.H. 52 in Rosemount has been justified by the high volume of truck traffic, its function as an interregional corridor and at-grade rail crossing safety issues.

Construction of railroad grade separations are typically funded through a shared-cost negotiated between the local road authority and the railroad. Federal regulations limit railroad participation to approximately 5% of the cost of the bridge structure and approaches.

The number of at-grade rail crossings with high-exposure ratings and high-hazard ratings increased from 2001 to 2005. This growth is likely attributable to increased vehicle traffic rather than increased train volumes.

Table 8-3
Conditions at At-Grade Rail-Highway Crossings (2005)

	Statewide	Metro District*
Number of at-grade crossings	4,432	736
Number of crossings with exposure rating greater than 300,000, indicating high level of auto-train activity	38	15
Hazard rating > 150, indicating a higher likelihood of auto/train conflict (Mn/DOT)	222	62

Mn/DOT Office of Freight and Commercial Vehicle Operations *Seven-county Twin Cities area.

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 District from 80 in 2000 to 62 in 2005.

INTERMODAL TERMINAL USAGE

Container service is a rapidly expanding freight equipment technology used for both domestic and overseas freight movement. It uses a variety of modes such as rail, truck and ships to transport goods in containers.

Container service to the region is concentrated in the northwest rail corridor between Chicago and Seattle. The other significant corridor is between the Twin Cities and Montreal, through Chicago and Detroit.

There are two intermodal terminals in the region that have containerized freight. One terminal, operated by the CP Rail System, is located in northeast Minneapolis. The approximately 25-acre facility in the old Soo Line Shoreham Yard historically averages approximately 30% of the regional container traffic. The 50-acre BNSF facility is located at Pierce Butler Road and Snelling Avenue in St. Paul and handles the remaining 70% of containerized traffic. Both facilities are physically constrained.

The railroads are bounded by commercial and residential neighborhoods. These limit their ability to expand their terminal operations and, therefore, potentially limit their capacity for intermodal-rail service.

Pickup and delivery of containers to customers are done by truck. Terminal access routes in the metro region are along trunk highways through commercial and residential areas.

Container freight volumes are measured in terms of "lifts," a count of the number of operations to load and unload containers to and from specially designed railroad cars. Average turnaround time at the terminals is 10-30 minutes. Annual lifts can be expected to vary from year to year depending on the health of the economy.

Table 8-4
Annual Container Lifts Twin Cities Terminals

Year	BNSF Terminal	CPRS Terminal
Annual Avg. Lift Capacity	*195,000 Containers*	*85,000 Containers*
1997	180,000	71,200
1999	163,842	83,440
2000	163,866	87,235
2001	165,175	74,828
2003	185,000	79,240
2004	210,000	88,240
2005	216,000	106,360

2005 BNSF and CP Railroads annual reports of terminal lifts

In the mid-90s, a public/partnership was formed between the Metropolitan Council, Mn/DOT and the Class I railroads (the BNSF, CP Rail System and the UP) to prepare a series of studies that assessed future capacity needs for container terminals in the Twin Cities. These studies concluded that the existing terminals would be reaching their design capacity around 2005. The recommended solution was to consolidate existing terminal facilities in a new facility that could be expanded as needed to meet future demand. However, no agreement was reached on the location for the facility and the process was terminated.

Meanwhile, potential new markets identified in studies for more container service through Kansas City to the West Coast remain untested. During the interim, the railroads have implemented strategies to rationalize their service and make continued improvements to increase efficiencies in operations.

Continued capacity limitations will restrict long-term growth of container services in the region. They will restrict Minnesota's ability to cost-effectively move containers carrying goods to and from national and international markets.

The existing two 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 Freight

Air Freight System Description

Air freight in the metro area is handled almost exclusively through facilities at the Minneapolis/St. Paul International Airport (MSP) and nearly all is transported on passenger airplanes. Current airfreight-handling facilities are being moved to new facilities currently under construction, the result of construction of a new north-south runway. Although the new facilities will help to improve service, it is not expected to change the freight-forwarding pattern in the near term.

Air Freight System Performance Measures

Air cargo traffic through MSP has decreased from 370,000 metric tons in 2000 to 283,000 metric tons in 2005, a drop of 23%. By comparison, during this five-year period, the amount of cargo that moved through the air in North America declined approximately 17%. The shift to domestic trucking is the primary reason to explain this historic decline. After 9/11, the restrictions on air cargo caused a modal shift to trucking. The improvement of truck service levels coupled with already existing cost advantages enabled a temporary decline in traffic to become more permanent. While only 1% or less of the total cargo moved in the region (based on weight) goes by air, those shipments reflect economic strength far beyond their size. Globally, over 40% of the value of world trade now goes by air. Many communities strongly promote air cargo development as a means to enhance their ability to attract high-tech industries that prefer to ship their products by air.

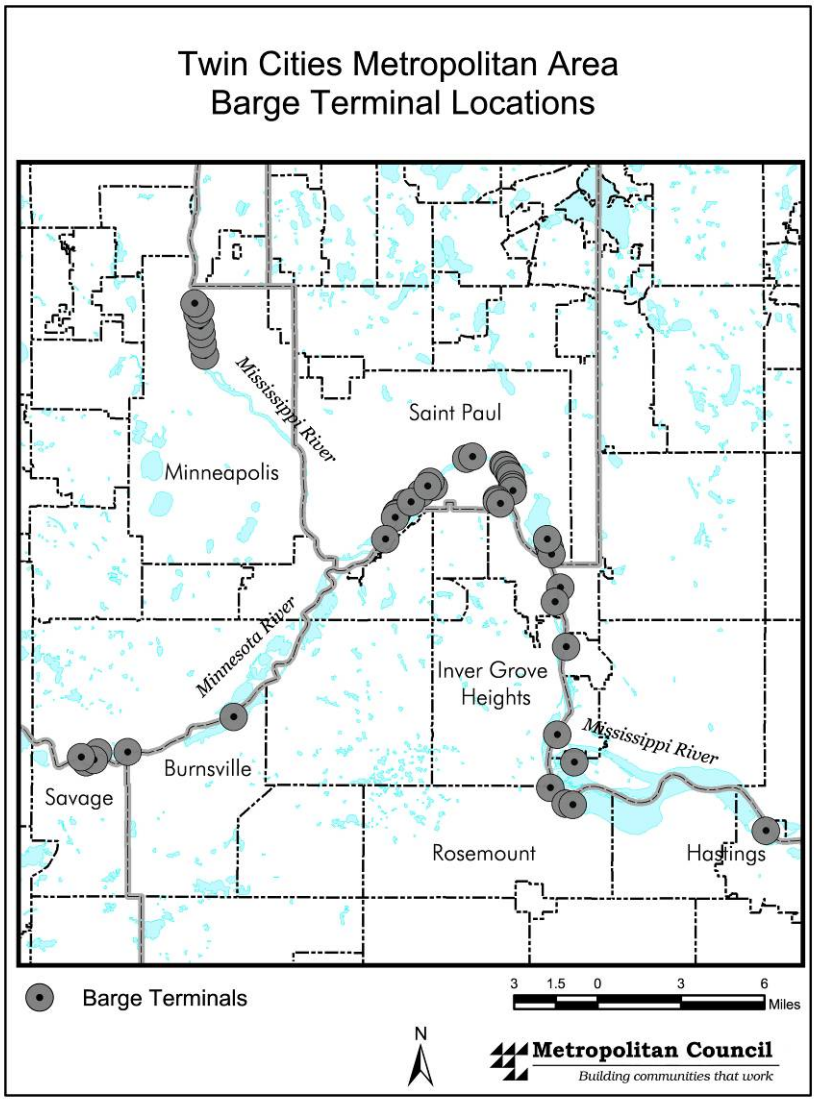
While domestic air cargo needs are well served at MSP, almost 90% of all international air cargo in the region moves by truck to Chicago and other gateways. International air freight represents 20-25% of the total amount of air freight in the Twin Cities market. The dominance of air freight service through Chicago is attributed to the availability of more destinations, capacity and lower prices. The diversion of air cargo to other airports represents an economic threat to the area because global industries increasingly demand shorter delivery times. MSP has been exploring options to increase direct international service. Operational improvements, including the potential development of an off-airport regional distribution center, are also being considered.

Air cargo traffic through the Minneapolis-St. Paul International Airport declined 23% during the past five years, while the industry declined by 17%. MSP competes with Chicago for air freight traffic generated by the region.

Waterway Commercial Navigation

WATERWAYS DESCRIPTION

Figure 8-7: Barge Terminal Locations



Commercial navigation operates along the Mississippi and Minnesota Rivers where a nine-foot channel is maintained by the U.S. Corps of Engineers. These waterways provide the region with a vital, low-cost transportation link for the shipment of commodities to the nation's heartland and to foreign markets. The terminals in the region provide a transfer point for shippers and consignees beyond the local area extending to the central northern states and Canada. Commodities are transferred between truck and rail modes at 43 terminals in the metro area. These terminals are clustered in the ports of Minneapolis, St. Paul, Savage and Pine Bend in Dakota County. In addition to the 43 active terminals, there are also four inactive terminals in the Twin Cities port system.

The system contains the northernmost segments of 10,778 miles of inland waterways. The primary destination is the Port of New Orleans. Here, commodities are trans-loaded between barge and ocean-going vessels. The Twin Cities Ports are at the head of navigation for the Mississippi River system. The locking capacity in the lower reaches of the river navigation system is the ultimate constraint to the amount of river barge traffic that can flow in and out of the port.

The major elements of the Twin Cities barge transportation system are the river terminals (where barge cargo is transferred to rail and truck modes), local industry services, line-haul towing between river ports, and government services and facilities.

Most of the terminals are affiliated with a single company that either handles its own cargo or provides limited contract services to outside customers. Six terminals are open to the public. Five of the six terminals handle a variety of cargo, including general cargo, grain, coal and other

dry and liquid bulk commodities. One of the terminals, Port Broadway, processes only direct transfers for grains and oil seeds.

Barges are stored at specified locations along the river in barge-fleeting areas. The areas are also used to break down tows of barges for delivery to terminals and assemble tows of barges to be line-hauled to other port locations such as New Orleans.

A 1989 study of *The Economic Impact of Commercial Navigation*, prepared by the Metropolitan Council, found that barge-fleeting areas have sufficient capacity to handle forecasted growth in barge traffic to the year 2010. Some segments of the barge fleeting areas, however, may reach capacity along the Minnesota River if market conditions change demand. In 1984, demand for grain to be transported on the river created peak demands that exceeded available barge fleeting capacity.

Commercial river navigation is the primary mode to move commodities such as grain from the Twin Cities port to international markets. At current levels of growth, capacity at the existing 43 terminals is projected to be sufficient until 2010.

Several factors may affect the adequacy of future terminal capacity. Plans to redevelop shoreline in Minneapolis and St. Paul may create pressures to begin a phase-out of existing terminals in this stretch of the river after 2010. Whether this terminal capacity will be relocated or whether this problem accelerates the use of other available capacity in the port is uncertain.

Continued inadequate highway access to the terminals in the Port of Savage may restrict their operation during peak periods when grain is shipped by truck to barge and rail cars for shipments to markets. The grain is delivered by trucks. Grain-truck traffic during this peak period creates bottlenecks along the segment of TH 13 through the City of Savage as trucks queue to be off-loaded at one of the four grain terminals. A corridor study has identified needed highway improvements to remove the bottleneck.

The market also plays a major role as to the timing of the bottlenecks created by peak grain-truck deliveries. Farmers often try to manage the price they receive for their products by storing and not shipping their grain if the prevailing price of grain at the time of harvest is not acceptable. The 2005 Hurricane Katrina demonstrated how restricted and reduced delivery of farm products to the market place can affect market prices.

Highway-access limitations serving the terminals at the Port of Savage are part of the near-term capacity issues that need to be addressed.

WATERWAY SYSTEM PERFORMANCE MEASURES

Waterway system performance is best measured by tonnage of freight shipped by barge. Between 1995 and 1999, total tonnage shipped through the Twin Cities locks (Upper St. Anthony Lock through Lock & Dam #2 at Hastings) increased approximately 20% to 2,069,000 tons. This growth occurred after a continuous decline in traffic in the late 1980s and early 1990s.

The use of the river waterway system for commercial navigation in the Twin Cities (defined as the segment of the Mississippi River upstream from Lock and Dam # 2 in Hastings, including portion of the Minnesota River where the Corp of Engineers maintains a nine-foot channel) is cyclical. The waterway system is currently experiencing a series of down cycles.
The number of barges processed between 1990 and 2000 decreased by 21%, indicating a potential decrease in the use of the waterway system in the transport of bulk commodities. However, a program to rehabilitate the waterway system has also affected usage of the waterway and resulted in delays of barge tows at locks on the lower segment of the river during that period. In addition, larger barges are being used

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%.

Total tonnage of commodities moved on the Mississippi River from Minnesota to markets downstream and brought into the state by barge is shown on Tables 8-6 and 8-7. Annual tonnages for sand and gravel, fertilizer, salt and cement have remained constant; the movement of grains has declined significantly. The reduction in annual tonnage from 2002 to 2005 was approximately 48%.

Prevailing market forces of lower grain prices and increases in the cost of shipping by barge in 2005 illustrates how conditions external to the Twin Cities affect the movement of commodities on barges. In the fall of 2005, the price of grain had fallen to levels where farmers have stored their grain on the ground when elevator capacity was not available. Farmers who are able to do so will withhold their grain from the market until there are more favorable prices.

Hurricane Katrina also damaged a number of barges in New Orleans and grain handling facilities. As result, there were shortages of empty barges on the river during the fall peak period and this created a spike in the cost of moving grain on the river. Faced with this price spike, farmers and grain elevator operators often chose alternative modes that offered lower logistics cost, such as rail, to move their grain to customers.

Table 8-5
Total Twin Cities River Ports Inbound and Outbound Tonnage

	2002	2003	2004	2005
Inbound	5,768,844	5,385,546	5,965,138	5,249,088
Outbound	7,355,195	5,944,258	4,405,546	3,928,603
Total	13,124,039	11,329,804	10,370,685	9,177,691

Table 8-6
Major Products Moved on the River in Minnesota - Inbound

Products	2002	2003	2004	2005
Sand & Gravel	3,098,700	2,997,424	3,238,528	2,938,811
Fertilizer	1,258,724	1,208,580	1,207,505	1,084,211
Salt	701,150	531,647	739,917	856,420
Cement	570,900	312,200	695,696	697,287
Coal	236,297	295,606	270,453	283,105
Caustic Soda	109,309	105,749	*	113,839
Slag	*	*	210,722	139,498
Steel	*	*	104,026	*

***** Data unavailable

Table 8-7
Major Products Moved on the River in Minnesota - Outbound

Products	2002	2003	2004	2005
Grain	9,524,831	7,542,000	5,073,821	4,973,417
Petroleum	104,299	138,107	128,493	291,615
Pet. Coke	160,717	150,486	198,168	160,928
Scrap Iron	117,928	107,252	173,468	160,001
Potash	435,450	463,400	447,000	153,000
Asphalt	183,839	205,484	154,891	72,988

WATERWAY LOCK PERFORMANCE

The Corps of Engineers maintains a nine-foot channel for commercial river navigation Minneapolis and to the Port of Savage. Five locks of the Upper Mississippi waterway system serve the channel and the region.

Barge traffic data is provided for four of the locks. Capacity utilization of the locks is a measure of demand relative to the maximum throughput of the locks. It varies from a low of 19% to a high of 43% and remains unchanged from the 1997 Corps of Engineers performance audit. Lockage transit times have remained the same as well.

Total tonnage data provided by the Corps and shown in Table 8-5 differs from the tonnage data shown in Table 8-8. The Corps' data is based on information provided by the operator of the barge to the Corps lockmaster at the time the barge is transitioning through the lock. The Mn/DOT data shown in Tables 8-6 and 8-7 is collected by Mn/DOT through contacts with shippers directly.

Table 8-8
Annual Tonnage through the Twin Cities Locks

Year	Upper St. Anthony Falls	Lower St. Anthony Falls	Lock And Dam #1 (Ford Dam in St. Paul)	Lock And Dam #2 (Hastings)
2000	2,238,564	2,237,267	2,257,182	10,860,047
2001	1,826,375	1,814,488	1,829,855	8,583,954
2002	2,042,700	2,041,840	2,045,895	10,574,988
2003	1,992,747	1,930,812	1,958,970	8,861,479
2004	1,494,539	1,483,317	1,510,040	7,828,603
2005	1,154,000	1,158,096	1,159,356	7,291,721

Corp of Engineers – St. Paul District

Table 8-9
Annual Lockage Delays through the Twin Cities Locks

Year	Upper St. Anthony Falls	Lower St. Anthony Falls	Lock And Dam #1 (Ford Dam in St. Paul)	Lock And Dam #2 (Hastings)
2001	1	0	0	2
2002	0	0	0	0
2003	0	0	1	1
2004	0	0	0	1
2005	4	0	0	1

Corp of Engineers – St. Paul District

Table 9-0
Percent Utilization of the Twin Cities Locks

Year	Upper St. Anthony Falls	Lower St. Anthony Falls	Lock And Dam #1 (Ford Dam in St. Paul)	Lock And Dam #2 (Hastings)
2001	16.1%	16.1%	16.1%	28.6%
2002	13.5	13.5	17.7	38.0
2003	19.2	19.2	23.3	35.6
2004	13.2	13.2	20.6	32.7
2005	12.3	12.3	20.1	32.4

Corp of Engineers – St. Paul District

Table 9-1
Average Lockage Time (minutes) Through the Twin Cities Locks

Year	Upper St. Anthony Falls	Lower St. Anthony Falls	Lock And Dam #1 (Ford Dam in St. Paul)	Lock And Dam #2 (Hastings)
2001	22 min.	24 min.	21 min.	29 min.
2002	19	23	23	29
2003	20	22	23	29
2004	20	22	24	28
2005	20	22	24	28

Corp of Engineers – St. Paul District

CHAPTER 9: REGIONAL BIKEWAY SYSTEM

Bikeway Policies

The Metropolitan Council supports the development and maintenance of efficient bicycle and pedestrian travel systems as integral pieces of the region's transportation network. Increased bicycle commuting will not, in itself, solve the region's transportation problems, but it is part of a package of solutions and one piece in the overall transportation picture. Bicycle facilities also provide a very popular and essential component of the recreational infrastructure of the region.

The bicycle is especially important as a mode to access other means of travel, such as transit. Because of short average trip lengths, nationally about two miles for bikes, most of the facilities for these modes in the region have traditionally been planned for and constructed at the local and county level. More recently, there has been a push for developing an effective bicycle transportation network at the regional level. Mn/DOT, the Metropolitan Council and county and city public works departments are near completion of an effort to identify the existing regional bicycling facilities network. The region will subsequently plan recommendations for projects that complete or enhance that network.

Since 1991, the region has made an effort to direct a significant level of federal transportation funds to special facilities for bicycles, not only as freestanding projects but also as part of larger roadway constructions. Current funding criteria under the Metropolitan Council's and Transportation Advisory Board's regional solicitation process recognize that "travel on foot and by bicycle…are critical to transit-friendly land uses which are more compact and mixed in their development patterns. The pedestrian and bicyclist both support and are supported by this development pattern." Bicycle facilities are federally funded as stand-alone Surface Transportation Program bikeway projects and Transportation Enhancement projects, and as components of highway construction, reconstruction or transit capital projects. Across all funding categories, prioritizing criteria give those projects that support other modes of transportation – such as bicycling – a greater chance of selection for funding than projects that do not provide such integration of modes. These federal funds have allowed construction of many new bicycle facilities.

Bikeway Facilities

The Metropolitan Council has identified 170 miles of regional trails and 101 miles of state trails open to the public. To date, however, other trail facilities and all of the region's on-road bicycle facilities have not been inventoried comprehensively and consistently. One of the past difficulties has been reaching an agreement on a classification scheme for on-road facilities. However, as stated previously, the Metropolitan Council is participating in a nearly complete effort to map and inventory both on-road and off-road bicycle facilities using common criteria across the region. Cities, counties and park agencies with maintenance jurisdiction over the facilities have designated the bike routes that fit the agreed-upon criteria. The product of this effort will be a base bicycle-transportation system map that incorporates both types of facilities and can be used to identify bicycle system needs within future planning efforts at both the regional and local level.

Since 1991, the region has directed more than $76 million in federal funds to freestanding bicycle and pedestrian facility projects.

Bikeway Utilization

While no system-wide utilization surveys or counts have been conducted to date in the region, some metropolitan area counties and communities – Minneapolis, for example – conduct counts on components of their trail systems. Conducting counts, especially on on-road facilities, is a difficult and costly task. Regional and national travel behavior studies can be analyzed to provide a surrogate measure for bikeway usage.

In 2001, the Metropolitan Council completed a Travel Behavior Inventory study (TBI) examining trip modes not included in the 1990 TBI, including bicycle trips. Survey data for the seven-county metropolitan area indicates about 180,000 trips were made by bicycling. Short bicycle trips and transit-access trips are typically under-represented in personal travel surveys, so this information will be especially useful for monitoring and forecasting growth in bicycle trips. 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.

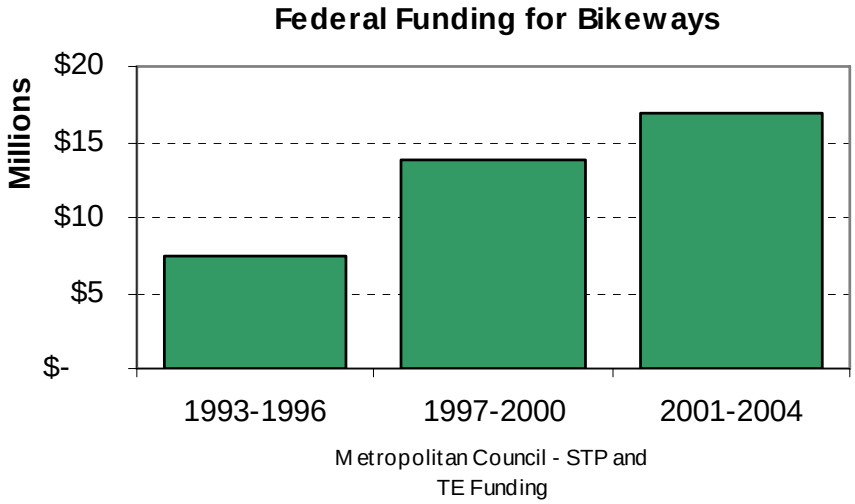
Census data suggests that the metropolitan area's investment in bikeway facilities has helped produce one of the nation's leading bicycle commuting populations. According to the 2000 Census Transportation Planning Package, a daily average of 6,675 journey-to-work trips – 0.5% of all journey-to-work trips – are made via bicycle in the seven-county metropolitan area. Based on the 2000 Census Supplemental Survey, Minneapolis is the top-ranked large city in the country for bicycle commuting, with a 2.63% mode share, or an average of 5,366 people riding to work each day on a bicycle. In comparison, warm-weather cities Sacramento, California, and Portland, Oregon, rank number two and three nationally with 2.59% and 2.55% bicycle mode shares, respectively.

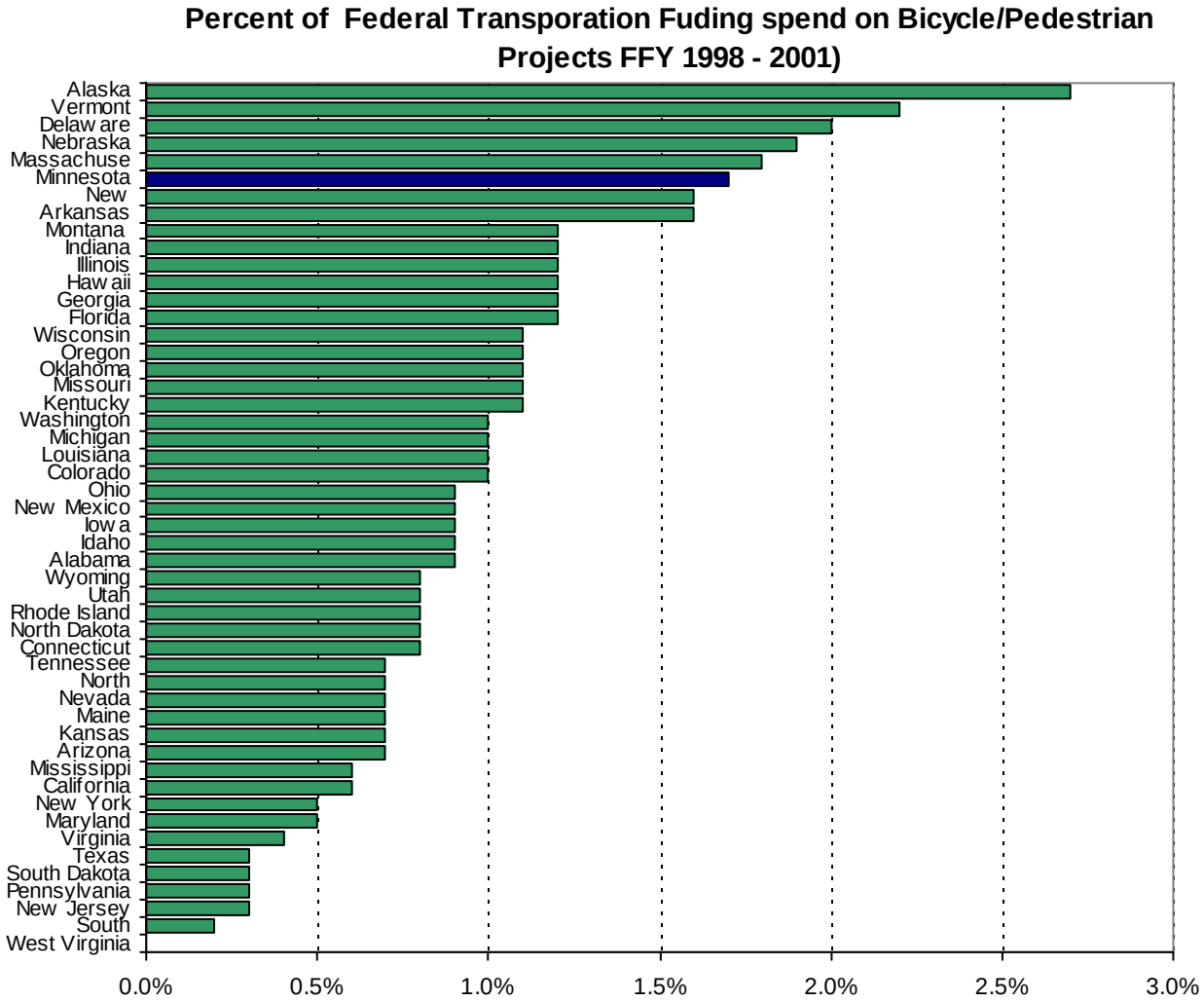
Planning for Bikeways

Cities and counties in the seven-county metropolitan region recognize the need for bicycle facilities. Most urban and suburban comprehensive plans adopted by the Metropolitan Council include a bicycle facility plan and/or bikeway map. No bikeway project will be funded through the regional transportation project selection process unless it is included in or consistent with the policies of a state or regional plan, a city or county comprehensive plan found to be consistent with Metropolitan Council plans, or an adopted capital improvement program. Most of the communities whose plans lack a bikeways component are located outside the urban area, where bikeway facilities are less common.

Federal Funding for Bikeways

The amount of federal funds spent on freestanding trail and on-road bikeway facilities projects has been increasing. Continued federal emphasis on multiple modes of transportation has resulted in an increase in the region's spending on bikeways of approximately 23% over the previous funding cycle





Source: Surface Transportation Policy Partnership

Conclusions

It can be concluded, based on the data collected to date on bicycling, that usage of the system increases as funding increases. This is an important concept because bicycling is a significant candidate to replace some of the 50% of all car trips that are five miles or less, especially considering the national average bicycle trip is around two miles. Much like public transit, bicycling often has to compete with the car unless separate right-of way is provided. Bikeways, bike lanes and off-street paths are viable options for improving the attractiveness of biking as a viable transportation option. In addition, coordinating with other forms of transportation, such as bike lockers at transit centers, will present an even more attractive option for potential bicyclist.

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.