Transit Services in the Twin Cities Area

CHAPTER 1

This chapter provides an overview of the transit services in the seven-county metropolitan area of the Twin Cities. It addresses the following questions:

- **What types of services are currently provided in the area, how much service is provided, and how are these services financed?**
- **How do transit services in the Twin Cities area compare in terms of performance criteria, such as riders per vehicle mile of service?**
- **How have transit ridership, services, and spending in the Twin Cities area changed over the last decade?**
- **How do transit services in the Twin Cities area compare in size, financing, and performance with transit in other major metropolitan areas?**

We found that the transit system in the Twin Cities area provides less transit service and has lower ridership per capita than systems in most other metropolitan areas of similar size. Furthermore, ridership appears to be declining faster here than in other major metropolitan areas across the country. However, transit ridership in the Twin Cities is higher than might be expected based on its relatively low population density, extensive roadway system, and low degree of roadway congestion. In addition, the operating cost per rider in the Twin Cities is about average for bus systems.

BACKGROUND

About 2 to 3 percent of all trips in the Twin Cities area are made on public transit.

The Twin Cities metropolitan area is car oriented, and, in general, public transit plays only a limited role. While automobiles account for 93 percent of all trips taken in the region, public transit accounts for only 2 to 3 percent. In fact, school buses account for more trips than public transit. Nevertheless, transit is making a significant contribution in some areas and for some individuals. As of 1990, transit accounted for 5 percent of all trips between home and work and 25 percent of all trips to the central business districts of Minneapolis and St. Paul. Most importantly, transit serves people who have no other reasonable transportation

alternative available to them. About 50 percent of transit riders live in households without an automobile or do not have access to their household's automobile.[1] For these reasons, the Twin Cities area needs an efficient and effective transit system. In fact, state law sets the following transit goals for the metropolitan area:

- to provide, to the greatest feasible extent, a basic level of mobility for all people in the metropolitan area;
- to arrange to the greatest feasible extent for the provision of a comprehensive set of transit and paratransit services to meet the needs of all people in the metropolitan area;
- to cooperate with private and public transit providers to assure the most efficient and coordinated use of existing and planned transit resources; and
- to maintain public mobility in the event of emergencies or energy shortages.[2]

The Metropolitan Council is the public agency primarily responsible for transit planning, administration, and operations.

The primary player in achieving these goals is the Metropolitan Council, the regional government of the Twin Cities. It carries out planning activities, operates the region's public transit company (Metro Transit), contracts with private operators to provide additional service, and oversees the performance of all operators in the region. By law, Metro Transit provides "regular route"[3] transit service within the region's "fully developed service area" except for those regular routes which were operated on June 2, 1989 by private, for-profit operators. Figure 1.1 shows the fully developed service area, and Figure 1.2 provides a description of various transit services. Outside the fully developed service area, Metro Transit is entitled to operate regular route services it was operating on June 2, 1989.[4] Metro Transit provides over 90 percent of all transit rides in the region.

As mentioned, the Council contracts with private, for-profit operators to provide some regular route service. These operations include the Bloomington-Edina BE Line, University of Minnesota Route 52, Roseville Circulator, North Suburban Lines, West Suburban Route 55, and Stillwater's Valley Transit. In addition, the Council contracts with two private operators to provide Metro Mobility services. Metro Mobility is the region's primary paratransit service, which largely provides demand responsive services for persons who cannot use regular route transportation due to a disability or mobility limitations. The Council, as part of the Metro Mobility program, also contracts with these operators for some regularly scheduled service to and from senior centers.

The Council also works in conjunction with other governments and communities to provide transit services. In the 1980s and early 1990s, 12 suburban communities—called "opt-out communities"—replaced their Metro Transit

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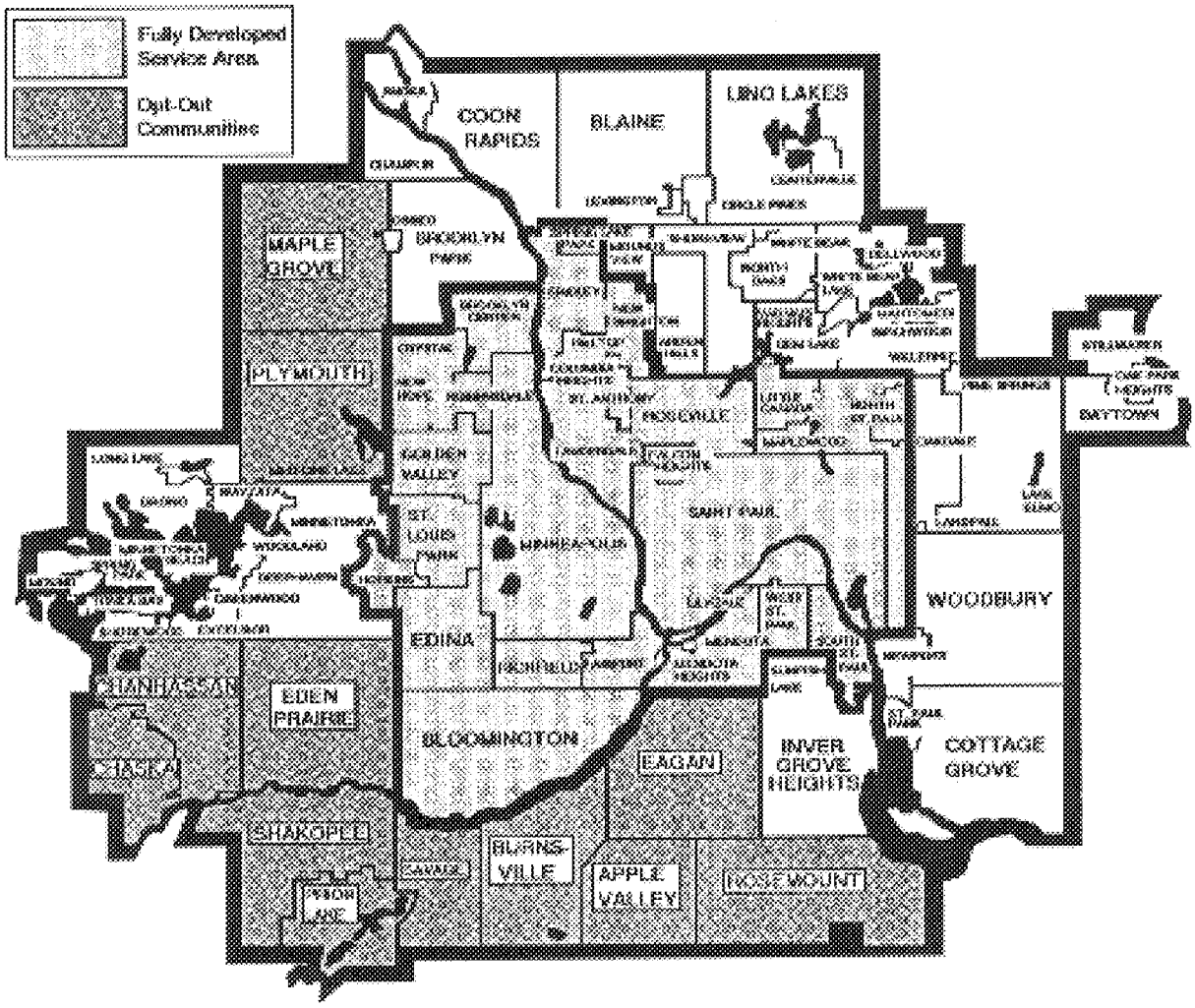
1 Metropolitan Council, *1990 Travel Behavior Inventory Summary Report*, (St. Paul, June 1994), 9, 16, & 24.

2 *Minn. Stat.* §473.371 subd. 2.

3 When providing regular route services, vehicles operate on a fixed route and schedule. These services include radial, crosstown, limited stop, and express services. Figure 1.2 provides more detail.

4 *Minn. Stat*. §473.385.

Figure 1.1: Transit Taxing District, Fully Developed Service Area, and Opt-Out Communities



Source: Program Evaluation Division.

services with their own operations. These communities felt that they were not receiving transit services commensurate with their financial contribution to regional transit. Legislation from 1980 permitted these communities to provide replacement services and receive, for transit operations, up to 90 percent of their communities' regional property levy that is dedicated for transit operations. As shown in Figure 1.1, these 12 communities operate five opt-out programs: 1) Minnesota Valley Transit Authority (Apple Valley, Burnsville, Eagan, Prior Lake, Rosemount, and Savage), 2) Southwest Metropolitan Transit Commission (Chanhassen, Chaska, and Eden Prairie, 3) Shakopee, 4) Plymouth, and 5) Maple

Figure 1.2: Descriptions of Transit Services in the Twin Cities Area

Local Radial - As part of regular route service, buses stop at most street corners, and the routes start or end at one of the two downtowns.

Local Crosstown - As part of regular route service, buses make frequent stops but do not serve one of the two downtowns.

Limited Stop - As part of regular route service, buses make limited stops along a route in order to achieve faster service to selected destinations.

Express - As part of regular route service, buses operate on controlled access roads or interstate highways for at least four miles and make limited stops.

Circulator - Buses circulate around a community, usually suburban.

Vanpool - Vans are made available for people to commute to and from work and school together.

Paratransit - Vehicles provide flexible service that does not follow a fixed route Many paratransit services are demand response/dial-a-ride services that provide door-through-door service upon request. These services are often limited to the elderly and persons with disabilities but are available to the general public in some areas.

Many types of transit services are provided in the Twin Cities area.

Grove. These systems contract with private operators and Metro Transit to provide services, including express, local routes (including circulator routes), vanpools, and demand responsive. Opt-out communities devote a large portion of their resources to express service to downtown Minneapolis and St. Paul. For example, express service accounts for 79 percent of Minnesota Valley Transit Authority's ridership.[5] (Minnesota Valley Transit Authority is the largest opt-out system and accounts for about half of all opt-out ridership.)

Finally, "small urban" and "rural" communities, within the metropolitan area, coordinate their own service. Five small urban communities with a population between 2,500 and 50,000 (Hastings, Hopkins, White Bear Lake, northeast suburban, and St. Louis Park) provide general public dial-a-ride services. Service is generally provided to community residents who have special needs but do not qualify for Metro Mobility. In addition, paratransit services are available for rural residents in the metropolitan area that do not have transportation alternatives available to them. These programs primarily serve senior citizens and persons with disabilities.

5 Minnesota Valley Transit Authority, Pie chart titled "Ridership by Type (August 1997)," October 8, 1997.

In 1996, transit in the Twin Cities area carried 66 million passengers.

In this report, we refer to the six subsystems within the metropolitan region—Metro Transit, private operators, opt-out communities, Metro Mobility, small urban systems, and rural systems. In this context, "private operators" refer to the providers that Metropolitan Council has contracted with to provide regular route service. "Private operators" does not refer to any operators providing service within the other subsystems even though some of them are private. In addition, the "rural systems" are providers operating in rural areas of the metropolitan region.

In 1996, these six subsystems provided 35 million vehicle miles and 2.6 million vehicle hours of service, carried nearly 66 million passengers, and spent about $166 million to operate. Table 1.1 provides a breakdown of these operating statistics by the six individual subsystems. Metro Transit (excluding the services that it provided to opt-out communities) provided the most transit services in the region, accounting for 64 percent of the vehicle miles of service, 63 percent of the vehicle hours of service, 92 percent of the passengers, and 76 percent of the region's transit operating spending. Opt-out communities and Metro Mobility are the two other large subsystems. The opt-out communities (including services that Metro Transit is under contract to provide them) accounted for 10 percent of the vehicle miles of service, 7 percent of the vehicle hours of service, nearly 4 percent of the passengers, and 8 percent of the region's operating spending. Even though Metro Mobility carried less than 2 percent of the passengers, it provided 15 percent of the vehicle miles and 20 percent of the vehicle hours of service and spent 10 percent of the region's operating funds. The combination of the other three subsystems carried less than 3 percent of the region's passengers.

Table 1.1: Size of the Regional System, 1996

	Vehicle Miles of Service[a]	Vehicle Hours of Service[b]	Ridership[c]	Operating Costs
Metro Transit[d]	22,293,748	1,651,455	60,448,493	$126,651,923
Private Operators	1,100,893	77,864	1,186,176	4,234,601
Opt-Out Communities	3,567,608	189,196	2,352,758	13,421,492
Metro Mobility[e]	5,119,460	511,946	1,005,886	16,212,577
Small Urban Systems	377,433	22,904	104,779	668,476
Rural Systems	2,627,891	153,236	439,366	4,709,597
Entire System	35,087,043	2,606,601	65,537,458	$165,898,666

NOTE: N/A means data is not available.

[a]Vehicle miles of service is measured in vehicle revenue miles—the number of miles vehicles drive while collecting fares.

[b]Vehicle hours of service is measured in vehicle revenue hours—the number of hours vehicles drive while collecting fares.

[c]Ridership is measured in unlinked passenger trips—the number of boardings. A trip with one transfer is two unlinked trips.

[d]Does not include its opt-out services.

[e]Vehicle miles of service is an estimate.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division.

Metro Transit carries over 90 percent of the region's transit riders.

Funds to operate these services come from a variety of sources. The federal government provides grants to state and local governments for both operating and capital spending; the state appropriates funds to the Metropolitan Council for operating spending; the Council assesses a property tax to cover operating spending and to finance bonds which cover capital spending; and county and local governments make their own financial contributions. On the top of these subsidies, transit operators generate their own revenue from operations, most of which comes from fares paid by passengers. (They generate a small amount of additional revenue from other sources, such as advertising on buses, interest, and net borrowing for transit operations.)

The Council levies its regional property tax in the Twin Cities metropolitan area. For tax purposes, the metropolitan area is divided into two parts, a transit taxing district and the remainder of the seven-county area (as shown in Figure 1.3). Communities within the transit taxing district receive three possible levels of service—(1) full peak and off-peak, (2) full peak and limited off-peak, and (3) peak only. Communities that do not receive full peak and off-peak service are subject to a lower tax rate for transit operations. The rate is reduced by 51 percent for communities receiving full peak and limited off-peak service and 77 percent for communities receiving peak only service. The pattern of reduced taxes is known as "tax feathering." (A separate tax, which has the same rate across the transit taxing district, is assessed for bond financing.) The parts of the seven-county area that are outside of the taxing district are subject to the regional levy but the rate is reduced by 90 percent.[6] Finally, legislation enacted in 1996 permits opt-out communities to levy their transit taxes locally. In the past, the Council collected the tax and returned up to 90 percent of it to communities operating replacement services. Most opt-out communities have decided to levy the tax locally.

In 1996, funding for transit operations and capital improvements in the Twin Cities area totaled $208 million.

In 1996, $208 million were made available for transit in the metropolitan region. As Table 1.2 shows, operating funds accounted for $165 million, and capital funds accounted for $43 million.[7] On the operating side, property taxes accounted for 41 percent of the funds, fare revenues accounted for 30 percent, and state appropriations accounted for 26 percent. On the capital side, the major contributors were the federal government and property taxes. While federal grants accounted for only a minimal amount of operating funds, they accounted for the majority (64 percent) of the capital funds.

REGIONAL PERFORMANCE

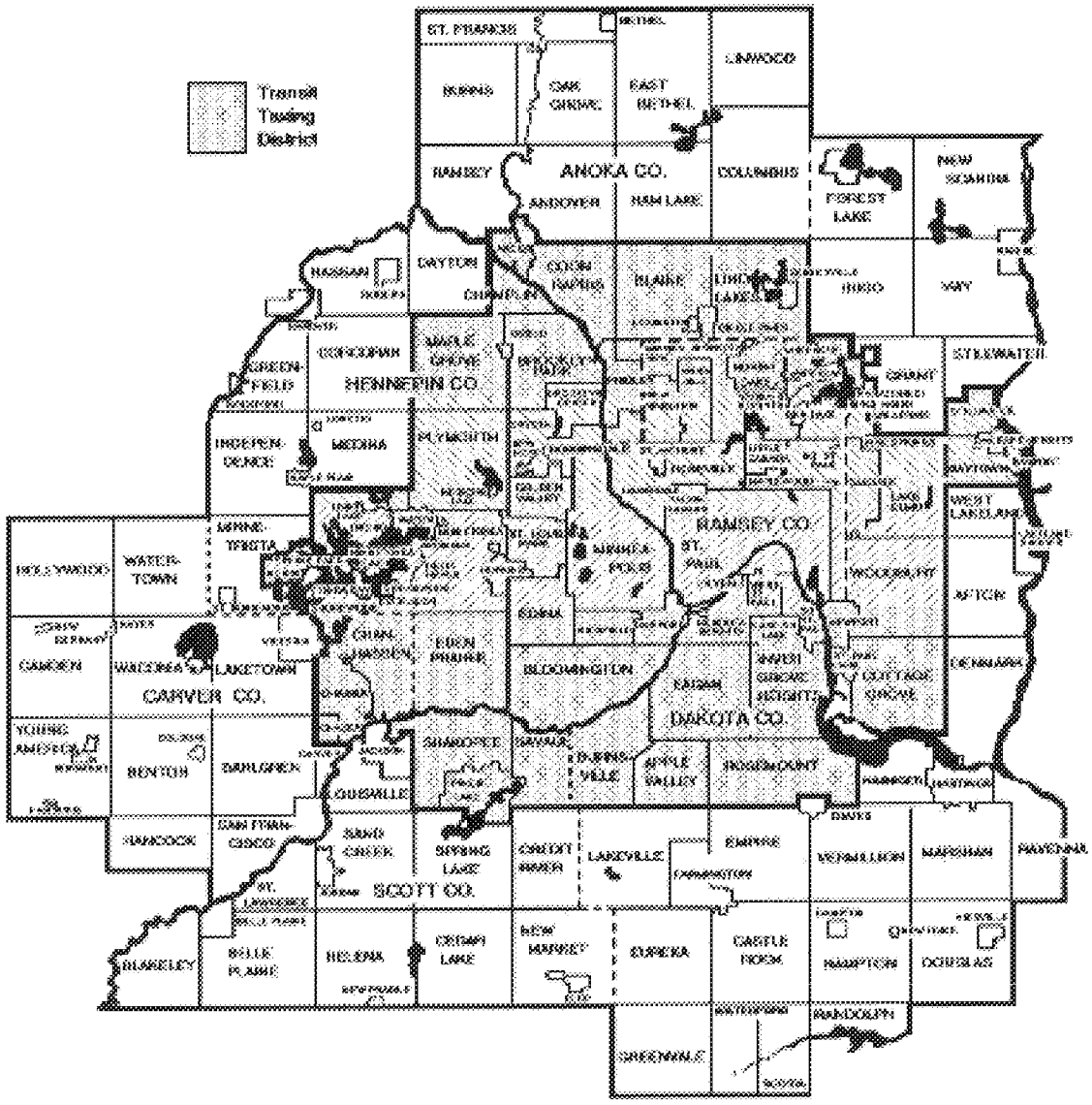
In reviewing performance, we found that:

- **Each of the region's subsystems provide a different array of services and serve very different transit markets. These factors affect the cost efficiency and effectiveness of each subsystem.**

6 *Minn. Stat.* §473.446.

7 In general, operating funds pay for the daily operation of a transit system while capital funds are used to purchase tangible property that has an expected life of greater than one year.

Figure 1.3: Seven-County Metropolitan Area and Transit Taxing District



Source: Program Evaluation Division.

Table 1.3 provides various performance statistics for the subsystems. Metro Transit (excluding the services that it provides opt-out communities) was the most expensive subsystem in terms of operating cost per vehicle mile and hour of

Table 1.2: Financing Sources, 1996

	Operating Funds		Capital Funds	
	Dollars	Percentage of Total	Dollars	Percentage of Total
Federal Grants	$ 473,227	0.3%	$27,512,000	63.8%
State Appropriations and Grants	43,063,748	26.1	0	0.0
Regional Funds[a]	67,795,151	41.1	15,000,000	34.8
County and Local Contributions	1,495,242	0.9	0	0.0
Fares	50,114,110	30.4	0	0.0
Other Revenues	2,099,317	1.3	602,000	1.4
Total	$165,040,795	100.0%	$43,114,000	100.0%

[a]Regional operating funds come from regional property taxes while regional capital funds come from regional bond proceeds that are financed by regional property taxes.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division.

service.[8] According to Metropolitan Council staff, the higher cost was largely a result of higher pay and more restrictive work rules for Metro Transit drivers. For example, Metro Transit was limited in what duties it could require drivers to perform in addition to driving a bus. However, Metro Transit's ridership per vehicle mile and hour of service were twice as high as any of the other subsystems because its routes were concentrated in the urban core with its higher population density. This high ridership more than offset the high operating costs per mile and hour of service, making Metro Transit the most efficient subsystem in terms of operating cost per rider.

Operating costs per vehicle mile and hour of service for private operators and opt-out communities were lower than Metro Transit but were higher than the paratransit services provided by Metro Mobility and small urban and rural systems. Paratransit services were the least expensive to provide because they only required small buses, vans, or cars and, in some cases, used volunteer drivers. However, paratransit systems had the lowest ridership per vehicle mile and hour of service which resulted in a high cost per rider. Paratransit systems, by their nature, provide a very individualized service which limits their ability to generate high ridership per vehicle mile or hour of service.

8 The operating costs for private operators and some Metro Mobility, rural, and small urban services include depreciation of vehicles that private, for profit operators provide to each of these subsystems while the costs of the other services do not include depreciation. A better comparison would exclude depreciation from the cost of all services. Based on the data that the Met Council provided us, we were only able to eliminate depreciation from the operating costs of the opt-out communities. Specifically, we excluded public vehicle credits and private vehicle payments from operating costs and operating funds for 1993 through 1996. Prior to 1993, opt-out communities did not separately report these depreciation factors to the Met Council. Therefore, operating costs prior to 1993 include depreciation. Based on the data from opt-out communities, we estimate that depreciation accounts for 10 to 20 percent of operating costs when it is included.

Table 1.3: Performance of the Regional System, 1996

	Riders per Vehicle Mile	Riders per Vehicle Hour	Operating Cost per Vehicle Mile	Operating Cost per Vehicle Hour	Operating Cost per Rider
Metro Transit[a]	2.71	36.60	$5.68	$76.69	$2.10
Private Operators	1.08	15.23	3.85	54.38	3.57
Opt-Out Communities	0.66	12.44	3.76	70.94	5.70
Metro Mobility[b]	0.20	1.96	3.17	31.67	16.12
Small Urban Systems	0.28	4.57	1.77	29.19	6.38
Rural Systems	0.17	2.87	1.79	30.73	10.72
Entire System	1.87	25.14	4.73	$63.65	$2.53

[a]Does not include its opt-out services.

[b]Vehicle miles are an estimate.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division.

As Table 1.4 indicates, wide variation exists in the importance of fare and non-fare operating funds in financing transit operations in the Twin Cities area. While Metro Transit received 35 percent of its operating funds from fares, Metro Mobility received only 10 percent. While the fares collected by Metro Transit averaged 72 cents per rider, fares collected by Metro Mobility averaged $1.64 per rider. Finally, while non-fare operating funds received by Metro Transit averaged $1.36 per rider, non-fare operating funds received by Metro Mobility averaged $14.47. (As Table 1.2 showed, subsidies from government entities made up nearly all of the non-fare operating funds.)

The metropolitan region's fare policy caused some of this variation. Currently, the base fare for all bus services, regardless of which subsystem provides it, is 90 cents per trip. The fare increases 10 cents if the rider pays with cash rather

Table 1.4: Fare and Non-Fare Operating Funds, 1996

	Fare Revenue as a Percentage of Operating Funds	Fare Revenue per Rider	Non-Fare Operating Funds per Rider
Metro Transit[a]	34.8%	$0.72	$ 1.36
Private Operators	16.4	0.58	2.99
Opt-Out Communities	24.2	1.38	4.33
Metro Mobility	10.2	1.64	14.47
Small Urban Systems	19.8	1.26	5.12
Rural Systems	13.4	1.44	9.28
Entire System	30.4%	$0.76	$ 1.75

[a]Does not include its opt-out services.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division.

than using a convenience fare card, another 50 cents if the rider takes an express bus, and another 50 cents if the trip is during peak commuting hours.[9] Therefore, the maximum fare is $2.00. Paratransit services have a different fare policy. Metro Mobility charges $2.00 during the base period and $2.50 during the peak.[10] The fares for paratransit services in the metro region provided by small urban and rural communities range from 50 cents to $6.00.

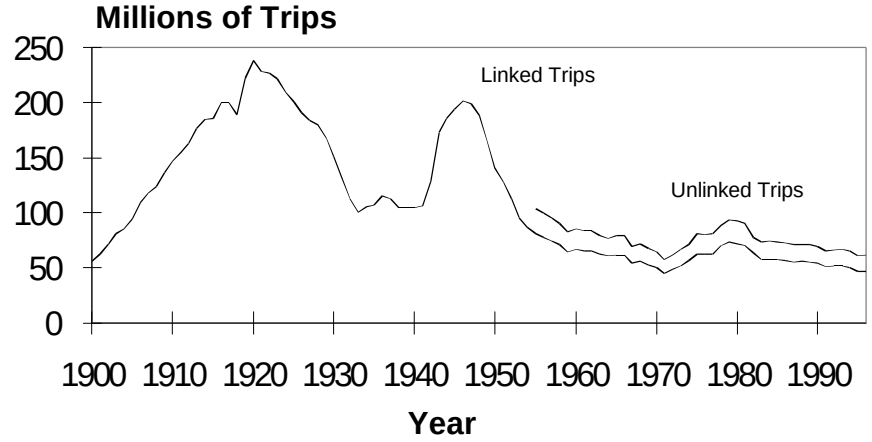
The cost and performance of transit services explain the rest of the variation in the relative importance of fare and non-fare operating funds in transit financing. For example, even though Metro Transit services had a high cost per vehicle mile of service and its fare revenue per rider was relatively low, Metro Transit had a low subsidy per rider because its routes generated so many more riders per vehicle mile of service than other services in the region. The additional fare revenues resulting from the higher ridership more than offset the relatively high cost per vehicle mile of service and low fare revenues per rider.

REGIONAL TRENDS

Transit ridership has declined for many years. Ridership increased temporarily during World War II and the energy crises of the 1970s.

We examined the trends in transit over the last decade in the context of what has happened to transit in the Twin Cities area over the last century. Figure 1.4

Figure 1.4: Metro Transit Ridership, 1900-96



NOTE: A trip from origin to destination is a linked trip. Each leg of a linked trip is an unlinked trip. For example, a bus trip which involves one transfer is counted as two unlinked trips.

SOURCE: Unpublished data from the Metropolitan Council and Metro Transit.

9 Fare revenue per rider for the region is less than the fare charged for a trip from origin to destination because of discount and free trips and transfers. Passengers are not charged for a transfer trip.

10 Fares for paratransit services covered under the Americans with Disabilities Act cannot be more than two times the fare charged for regular route service.

displays transit ridership for Metro Transit and its predecessors since 1900. Ridership grew very rapidly from 1900 to 1920 with the development of the street car system. Ridership started to drop around 1920, and this decline continued with the economic depression in the late 1920s and 1930s. World War II caused a brief boom in transit ridership, due to gasoline rationing. Since then, ridership has generally been in decline. By 1955, the street car system was no longer operating. During the 1950s and 1960s, the country experienced an economic boom, the interstate highway system was under construction, and an increasing number of people bought cars and moved to the suburbs. Between 1971 and 1979, gasoline shortages caused high gasoline prices, and transit ridership increased. Since 1979, ridership has been in decline. As Table 1.5 shows, the decline in ridership is much more striking when viewed in per capita terms. In 1920, the Twin Cities area had 314 annual linked trips per capita.[11] On average, every person in the area was taking transit almost once a day. By 1990, per capita trips were down to 24.

Table 1.5: Transit Ridership per Capita in the Seven-County Twin Cities Area

Year	Linked Trips[a]	Population	Linked Trips per Capita
1900	56,284,102	492,439	114
1910	147,216,473	653,175	225
1920	238,631,992	759,318	314
1930	151,424,528	913,318	166
1940	104,313,619	1,000,558	104
1950	140,441,387	1,185,694	118
1960	67,201,682	1,525,297	44
1970	50,556,756	1,874,612	27
1980	72,068,665	1,986,823	36
1990	54,399,068	2,283,975	24

NOTE: A trip from origin to destination is a linked trip. Each leg of a linked trip, between transfers, is a separate unlinked trip. For example, a bus trip which involves one transfer is counted as two unlinked trips.

[a]Trips provided by Metro Transit (including its opt-out services) and its predecessors.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council and Metro Transit.

Over the last decade, transit spending has increased while ridership has declined.

Transit is playing a smaller and smaller role in the lives of people living in the Twin Cities area, and transit providers are finding it difficult to attract riders. When we examined trends in the size of the system over the last decade, we found that:

- **Between 1987 and 1996, overall ridership declined 10 percent despite an 11 percent increase in operating spending in inflation-adjusted dollars.**

11 Transit ridership can be measured in linked or unlinked trips. A trip from origin to destination is a linked trip. Each leg of a linked trip, between transfers, is a separate unlinked trip. If a person travels by bus from his or her home to work and makes one transfer during the trip, the single linked trip is counted as two unlinked trips.

In short, greater spending and increased service did not lead to increased ridership in the region. Table 1.6 shows some key statistics on the size of the system.

Even though the overall use of transit is declining in the Twin Cities area, ridership for all the subsystems except for Metro Transit increased by between 1 percent (small urban systems) and 673 percent (opt-out communities). In comparison, Metro Transit's ridership declined by 14 percent. The increases in the other subsystems occurred as they experienced a dramatic increase in their

In the last 10 years, transit ridership has declined despite large increases in some suburban systems.

Table 1.6: Change in Size of the Regional System, 1987 to 1996

	Ridership	Real Operating Costs	Vehicle Miles
Metro Transit[a]	-14.4%	-4.8%	5.5%
Private Operators	118.9	83.5	60.7
Opt-Out Communities	673.1	450.6	454.8
Metro Mobility	5.6	70.1	N/A
Small Urban Systems	0.5	50.1	64.7
Rural Systems	98.6	181.9	N/A
Entire System	-9.9%	11.0%	N/A

NOTE: N/A means data is not available.

[a]Does not include its opt-out services.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division. Dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investments that was provided by the Minnesota Department of Finance.

operating budgets and level of service. Their operating budgets increased by 50 to 451 percent and their vehicle miles of service (where data is available) increased by 61 to 455 percent. In comparison, Metro Transit experienced a 5 percent decline in its operating budget and a 6 percent increase in its vehicles miles. As a result of these changes,

- **The mix of services provided in the Twin Cities area changed significantly over the past decade.**

Metro Transit's share of total transit ridership dropped from 97 percent in 1987 to 92 percent in 1996, and its share of total operating spending dropped from 89 percent to 76 percent.

The relative decline of Metro Transit is partially explained by the fact that opt-out communities and private operators acquired some of their routes between 1987 and 1991. For example, opt-out communities that started up their replacement services between 1987 and 1991 acquired Metro Transit routes operating in their jurisdictions. (In some cases, they contracted with Metro Transit to continue providing the service.) Furthermore, private operators acquired some Metro Transit routes, such as University of Minnesota Route 52 in 1989. Metro Transit

lost some of its ridership, spending, and service due to the reallocation of these routes. In addition, the growth in services provided by opt-out communities and private operators is artificially inflated by these acquisitions. They did not create all of their new services, they acquired some existing service from Metro Transit.

The growth in service provided by private operators and opt-out communities is significantly different if one examines the period between 1991 and 1996, when route acquisitions rarely occurred. Ridership and operating spending in constant dollars for private operators did not increase; they declined by 10 percent and 5 percent respectively. However, the opt-out communities did experience a significant increase during this period; it was just less dramatic than the increase between 1987 and 1996. Their ridership, operating spending in constant dollars, and vehicle miles increased by 53 percent, 69 percent, and 102 percent respectively. The increase in service since 1991 occurred as the opt-out communities brought their transit spending more in line with their property tax contributions and as more communities had their property taxes become unfeathered in response to service improvements.

Metro Mobility grew sharply between 1987 and 1990. Since then, both spending and ridership have declined.

The growth in Metro Mobility was concentrated between 1987 and 1990. Expressed in 1996 dollars, operating spending climbed from $9.5 million in 1987 to $19.4 million in 1990. Since then, spending in constant dollars has leveled off and declined slightly, falling to $16.2 million in 1996. Ridership climbed from 950,000 riders in 1987 to 1.6 million in 1990, then fell back to 1.0 million by 1996. When asked about the large drop in ridership since 1990, staff at the Metropolitan Council stated that they suspect that the ridership figures for the early 1990s were inflated by the operators. Contract payments to Metro Mobility operators used to be based on the number of rides that they provided.

In addition, Metro Mobility experienced a significant disruption of service in October of 1993. To keep the system up and running, Governor Carlson called out the National Guard to drive the vehicles. Several factors caused the disruption. Metro Mobility was feeling the effects of a budget that was no longer growing; enactment of the Americans with Disabilities Act (ADA) put new requirements on the system; several operators were in financial trouble and had difficulty providing enough drivers to meet their responsibilities; and the firm that was contracted with to provide reservation, scheduling, and dispatch services was using software that did not work properly. The Metropolitan Council has since stabilized the situation.

Still, Metro Mobility provides more rides than similar services in other large cities.

Even though Metro Mobility experienced operating difficulties and lost riders over the last several years, it still provides a lot of service compared to paratransit agencies in other metropolitan regions. We examined paratransit services in 6 other regions—Boston, Dallas, Houston, Miami, Pittsburgh, and Seattle.[12] Only Pittsburgh provided more riders on a per capita basis in 1995. The Twin Cities area made a commitment to paratransit service before the federal government passed ADA. In fact, staff at the Metropolitan Council point out that Metro Mobility's services in some respects exceeded the requirements of ADA when it

12 We analyzed data from Metropolitan Council's Transportation Division; Access Services Incorporated (Los Angeles' paratransit operator), Table titled "Comparative Performance ASI - Other Large ADA Paratransit Services;" and Federal Transit Administration, *Data Tables For the 1995 National Transit Database Report Year*, Table 26.

was enacted into law. Facing financial constraints, the Council has been reducing some aspects of Metro Mobility service.

In examining financing trends, we found that:

- **Between 1991 and 1996, a growing share of funds to operate the region's transit system came from the state.**

As Table 1.7 for shows, between 1991 and 1996, the state's contribution increased by 64 percent from $26.2 million in 1991 (expressed in 1996 dollars) to $43.1 million in 1996.[13] This increase more than offset the reduction in federal operating assistance and "other revenues." Federal operating funds dropped by 95 percent from $8.5 million in 1991 (expressed in 1996 dollars) to $0.5 million in 1996.[14] "Other revenues" declined by 75 percent from $8.3 million in 1991 (expressed in 1996 dollars) to $2.1 million in 1996. Despite growth in state appropriations and regional property taxes, the metropolitan area was more reliant on fares in 1996 than it was in 1992. The percentage of total operating funds coming from fares increased by 6.2 percent.[15] As Table 1.8 shows, fare revenue per rider increased in constant dollars by 19.7 percent while non-fare operating funds per rider (mostly government subsidies) increased in constant dollars by 9.9 percent.

Trends in capital funding are harder to assess because the funding level (expressed in 1996 dollars) fluctuates widely from year to year. For example, in 1990 capital

While federal operating support declined, real growth in state funding, regional property taxes, and fares caused an increase in operating funds over the last decade.

Table 1.7: Change in Operating Funding, by Source, 1991 to 1996

	1991[a]	1996	Real Change
Federal Grants	$ 8,519,006	$ 473,227	-94.5%
State Appropriations and Grants	26,201,449	43,063,748	64.4
Regional Property Taxes	63,796,328	67,795,151	6.3
County and Local Contributions	1,233,077	1,495,242	21.3
Fares	43,874,216	50,114,110	14.2
Other Revenues	8,312,944	2,099,317	-74.8
Total	$151,937,020	$165,040,795	8.6%

[a]These figures are expressed in 1996 dollars.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division. Dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investments that was provided by the Minnesota Department of Finance.

13 Our analysis of financing trends is limited to the 1991 to 1996 period because of missing data.

14 The federal government's contribution to transit operations was especially low in 1996. In 1995, it was $4 million, and in 1997, it should increase to nearly $6 million. In any event, the federal contribution is declining.

15 Missing data limits our analysis to the 1992 to 1996 period.

Table 1.8: Change in Fare and Non-Fare Operating Funds, 1992 to 1996

	Real Fare Revenue per Rider	Real Non-Fare Operating Funds per Rider
Entire System	19.7%	9.9%

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division. Dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investments that was provided by the Minnesota Department of Finance.

funding was $59.0 million while two years later it had dropped to only $8.1 million. In fact, capital funding in 1996 ($43.1 million) is not very different than the level in 1988 ($40.8 million). Based on nine years of data, we cannot decipher a trend in capital funding in total or from any of the sources.

In looking at performance trends, we found that:

- **The decline in ridership from 1987 to 1996 led to a decline in the overall performance of the system.**

Bus ridership per vehicle mile of service has declined 25 percent over the last decade.

The bus system (Metro Transit, private operators, and opt-out communities) became a lot less effective in generating riders per vehicle mile of service.[16] Table 1.9 shows some trends in key performance indicators. During this period, ridership per vehicle mile of service decreased by 25 percent. This trend affected the cost efficiency of the system. Even though bus services became cheaper to provide per mile of service (operating cost per vehicle mile of service dropped in constant dollars by 13 percent), these costs were spread over fewer riders. As a result, the remaining passengers became more expensive to serve (operating cost per rider increased in constant dollars by 17 percent.) During this period, operating costs per rider for the entire system (bus and paratransit) increased in constant dollars by 23 percent.

NATIONAL COMPARISONS

In this section, we examine how transit operations in the Twin Cities area compare with transit systems across the country. Specifically, we answer the following questions:

- **Does the Twin Cities area have a larger or smaller system compared to other areas?**

16 We call Metro Transit, private operators, and opt out communities the bus system and Metro Mobility and small urban and rural systems the paratransit system. This categorization is a generalization. For example, the opt-out communities mostly provide bus service but provide some paratransit services.

Table 1.9: Change in Performance of the Regional System, 1987 to 1996

	Riders per Vehicle Mile	Real Operating Cost per Vehicle Mile	Real Operating Cost per Rider
Bus System[a]	-25.4%	-12.7%	17.0%
Entire System[b]	N/A	N/A	23.3

NOTE: N/A means data is not available.

[a]Bus system means Metro Transit, private operators, and opt-out communities. It excludes para-transit services.

[b]Bus and paratransit systems.

SOURCE: Program Evaluation Division analysis of unpublished data from the Metropolitan Council's Transportation Division. Dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investments that was provided by the Minnesota Department of Finance.

- **How does the area's financing system compare with others?**
- **Is the area's system performing better or worse than those other systems?**
- **Are the trends experienced in the Twin Cities area the same or different than those experienced elsewhere?**

Answering these questions will shed additional light onto the Twin Cities area's transit system.

Methodology

We compiled data for the 32 urbanized areas in the country with a 1990 population between 900,000 and 4 million from the Federal Transit Administration's (FTA) National Transit Database.[17] (The Twin Cities urbanized area had an estimated population of 2.1 million in 1990 and was the 9th largest in population of the 32 urbanized areas.) For each urbanized area, we aggregated all the transit agencies that report to the FTA and are located in that area.[18] Figure A.1 in Appendix A provides a list of all 32 urbanized areas and their transit

17 In general, the U.S. Bureau of the Census defines an urbanized area as a place with a minimum of 50,000 people and includes all contiguous territory with a population density of at least 1,000 people per square mile. Our comparison group excludes the four largest urbanized areas in the country—New York, Los Angeles, Chicago, and Philadelphia.

18 The service area for some agencies cover more than the urbanized area that we examined. In some cases, the service area even includes an additional urbanized area, which inflates the amount of service being provided in the urbanized area that we examined. Furthermore, when one transit agency contracts with another to provide services, the resulting services are sometimes reported twice. When double counting occurred, we made the necessary adjustments to correct for it.

agencies. According to FTA staff, their database captures the vast majority of transit services in each urbanized area; however not all transit agencies report to the FTA. In fact, in the Twin Cities area, only Metro Transit (including the services it provided to opt-out communities) reports to the FTA. In order to provide a more complete picture, we report both the Metro Transit data from the FTA and the region-wide data from the Metropolitan Council in our comparisons. Furthermore, many of the comparisons that we make in this report are in per capita terms. We estimated urbanized area populations for non-census years using growth rates for an urbanized area's corresponding metropolitan statistical area (MSA) or primary metropolitan statistical area(s) (PSMA).[19]

Finally, when making our comparisons, we note which urbanized areas have rail and which do not.[20] Areas that provide rail service made a large capital investment to achieve operational efficiencies. The best way to compare the cost of transit services would be to include both operating and capital costs. Unfortunately, adequate national data on capital spending are not available. Existing data do not permit capital spending to be amortized over the life of a project. As a result, we can only compare operating costs but provide separate data for areas with and without rail.

Size

In 1995, the Twin Cities area had below average ridership per capita compared to other large urbanized areas.

When comparing the size of transit systems, we found that:

- **Transit ridership per capita in the Twin Cities area was lower than the average for comparable metropolitan areas. Ridership was consistent with the amount of transit service and spending that was occurring.**

Ridership, service, and operating spending on a per capita basis for Metro Transit was between 35 and 40 percent lower than the average for the comparison group in 1995. However, it is important to examine how Metro Transit ranked relative to the comparison group because half of all ridership in the comparison was from just 5 urbanized areas and only 10 areas had above average ridership. As Table 1.10 shows, of the 32 urbanized areas, Metro Transit ranked 18th highest in ridership per capita while it ranked 23rd in vehicle miles and hours of service per capita and 19th highest in spending per capita. Even though per capita ridership in the Twin Cities area was well below the average, it ranked near the middle. Boston, San Francisco, and Washington ranked the highest in ridership, each carrying more than 100 annual riders per capita. Table 1.11 provides transit data for each of the 32 urbanized areas. Some of the other urbanized areas with large systems in per capita terms included Atlanta, Baltimore, New Orleans, Portland, and Seattle. All of these areas annually provided more than 50 rides per capita while Metro Transit provided about 27 riders per capita. However, with respect to

19 The U.S. Bureau of the Census defines an MSA as a city with at least 50,000 people and all the counties which have 50 percent of their population in that city's urbanized area. Other counties are included in an MSA if they meet the requirements of metropolitan character and commuting to the central counties. In certain cases, a MSA is broken down into it component pieces called PMSAs.

20 An area is designated as having rail if any form of rail (including automated guideway, cable car, commuter rail, heavy rail, incline plane, light rail, or monorail) was operating in 1995, the last year for which complete data is available.

Table 1.10: Size of Transit Systems in Comparison Areas, 1995

	Riders per Capita	Vehicle Miles per Capita	Vehicle Hours per Capita	Operating Cost per Capita
Average of 32 Urbanized Areas	43.0	16.5	1.1	$92.2
Average of 12 Non-Rail Areas	21.1	11.9	0.8	47.0
Average of 20 Rail Areas	54.2	18.9	1.2	115.4
Metro Transit[a]	27.4	10.3	0.7	$56.1
Rank within 32 Urbanized Areas	18th Highest	23rd Highest	23rd Highest	19th Highest
Rank within 12 Non-Rail Areas	3rd Highest	6th Highest	6th Highest	4th Highest
All Systems in the Twin Cities Area	29.0	N/A	1.2	$71.9
Rank within 32 Urbanized Areas	17th Highest	N/A	14th Highest	15th Highest
Rank within 12 Non-Rail Areas	3rd Highest	N/A	3rd Highest	2nd Highest

NOTE: N/A means data is not available.

[a]Includes its opt-out services.

SOURCE: Program Evaluation Division analysis of transit operating data from Federal Transit Administration, *Data Tables for the 1995 National Transit Database Report Year*, Tables 11 and 26 and from unpublished data from the Metropolitan Council's Transportation Division. The population estimates for urbanized areas were developed by the Program Evaluation Division.

the 12 areas without rail, Metro Transit was above average. Only Milwaukee and San Antonio provided more rides per capita than the Twin Cities.

In 1995, Metro Transit experienced a strike which suspended service for about three weeks. Therefore, the amount of service provided in 1995 was lower than it would have otherwise been. Measuring the effect of the strike is difficult. While ridership, service, and operating spending in constant dollars dropped by 7 percent for Metro Transit in the year of the strike, ridership, service, and spending in constant dollars only rebounded by 1 or 2 percent the following year. With or without the strike, the level of service has been reduced.

Despite below average ridership per capita, a relatively high number of commuters in the Twin Cities area took transit to work in 1990. As Table 1.12 shows, we found that:

- **The Twin Cities area was just below average in the percent of people who took transit to work in 1990 and ranked 9th highest of 29 MSAs.**[21]

It is interesting to note that even though Atlanta annually provided twice as many rides per capita as Metro Transit (59 vs 27) in 1995 and Portland annually provided nearly twice as many (53 vs 27), a lower percentage of people took transit to work in the Atlanta area, with its extensive heavy rail subway system, than in the Twin Cities area (4.7 percent vs. 5.3 percent) in 1990 and nearly the same percentage of people took transit to work in the Portland area, with its highly acclaimed light rail system, as in the Twin Cities area (5.4 percent vs. 5.3 percent). Table 1.13 provides commuting data for the 29 MSAs. The fact that the

21 These MSAs correspond to 29 of the 32 urbanized areas that are in our comparison group.

FTA data is from 1995 and the commuting data is from 1990 explains some of the discrepancy with respect to Portland but not Atlanta. In 1990, Portland's per capita ridership was only about 50 percent higher than the Twin Cities, rather than

Table 1.11: Size of Transit Systems, 1995 Data for All 32 Urbanized Areas

	Riders per Capita		Vehicle Miles per Capita		Operating Cost per Capita	
Urbanized Area	Number	Rank	Number	Rank	Dollars	Rank
Atlanta	58.6	5	20.3	8	$ 85.2	13
Baltimore	55.5	7	17.3	12	119.4	6
Boston	115.7	1	26.9	3	204.2	3
Buffalo	30.6	15	9.9	24	67.3	15
Cincinnati*	22.2	21	11.7	21	49.8	24
Cleveland	34.7	14	15.8	13	105.5	8
Columbus*	17.5	25	8.7	27	45.5	25
Dallas*	16.4	27	12.5	19	53.3	21
Denver	39.2	12	18.3	11	88.3	12
Detroit	18.4	24	7.6	29	45.3	26
Ft. Lauderdale	19.8	23	12.1	20	53.3	20
Houston*	24.8	20	14.0	15	56.8	18
Indianapolis*	11.1	28	7.2	31	26.3	31
Kansas City*	11.0	29	6.8	32	30.6	28
Miami	40.7	11	19.2	10	97.1	10
Milwaukee*	46.8	9	19.2	9	81.2	14
New Orleans	74.1	4	14.3	14	95.0	11
Norfolk*	10.3	32	7.5	30	22.6	32
Phoenix*	16.6	26	8.5	28	27.5	30
Pittsburgh	45.7	10	24.0	6	119.8	5
Portland	52.8	8	21.9	7	116.0	7
Riverside*	10.9	30	9.8	25	31.2	27
Sacramento	20.2	22	9.3	26	50.8	23
Saint Louis	26.5	19	13.6	17	57.9	17
San Antonio*	38.9	13	25.0	5	65.3	16
San Diego	28.5	17	13.4	18	53.2	22
San Francisco	105.9	2	32.6	1	216.2	1
San Jose	30.2	16	13.7	16	99.5	9
Seattle	56.7	6	27.9	2	209.0	2
Tampa Bay	10.8	31	10.7	22	28.8	29
Twin Cities-Metro Transit* [&a]	**27.4**	**18**	**10.3**	**23**	**56.1**	**19**
Washington	103.1	3	25.5	4	198.3	4
All Systems in the Twin Cities Area *	**29.0**	**17**	**N/A**	**N/A**	**$ 71.9**	**15**

NOTE: N/A means data is not available.

*Urbanized area without rail in 1995.

[a]Includes its opt-out services.

SOURCE: Program Evaluation Division analysis of transit operating data from Federal Transit Administration, *Data Tables for the 1995 National Transit Database Report Year*, Tables 11 and 26 and from unpublished data from the Metropolitan Council's Transportation Division. The population estimates for urbanized areas were developed by the Program Evaluation Division.

Table 1.12: Commuting to Work in Metropolitan Statistical Areas, 1990

	Percentage of Morning Work Commutes Taken on Transit
Average of 29 MSAs	5.5%
Average of 11 MSAs without Rail	3.2
Average of 18 MSAs with Rail	6.5
Twin Cities MSA	5.3%
Rank within 29 MSAs	9th Highest of 29
Rank within 11 MSAs without Rail	The Highest of 11

NOTE: Fort Lauderdale, Riverside, and San Jose are not included in the comparison because data was not available.

NOTE: Transit includes bus, subway/rail, and taxi.

SOURCE: Program Evaluation Division Analysis of data from the Federal Highway Administration, *Journey-To-Work Trends in the United States and its Major Metropolitan Areas*, FHWA-PL-012 (November 1993).

In 1990, the Twin Cities ranked 9th out of 29 metropolitan areas in the share of commuters using transit.

nearly twice as high. Atlanta's per capita ridership was twice as high in 1990 and 1995.

Two factors explain the remaining discrepancy in the FTA and commuting data. First, the FTA data, unlike the commuting data, overstates transit ridership and causes problems with comparisons when transit systems have different transfer rates. The FTA measures ridership in unlinked trips (i.e. transit boardings) rather than linked trips. As a result, transit agencies that report to the FTA count each commuter trip from home to work as two unlinked trips if the commuter transfers from a bus to another bus or to a rail system. Harvard economist John F. Kain provides evidence that the introduction of Atlanta's subway system increased the system's transfer rate (unlinked trips minus linked trips/linked trips) from 29 to 99 percent. This occurred as MARTA, Atlanta's primary transit operator, started introducing rail, redesigning many of its radial bus routes, and creating a feeder bus network for the rail system. According to Kain, the introduction of rail artificially inflated Atlanta's ridership by forcing people to transfer from bus to rail rather than taking a single bus ride.[22] Ridership inflation, to the extent found in Atlanta, is not occurring in the Twin Cities area. Metro Transit's transfer rate has remained relatively constant over the last couple of decades, generally remaining between 27 percent and 29 percent. (However, the rate started to increase in 1994, reaching 33 percent in 1996.) Even though the FTA data indicates that Atlanta's per capita ridership was twice as high as the Twin Cities in 1990, Atlanta's per capita ridership was only 30 to 40 percent higher after adjusting for transfer rates. We did not obtain transfer data for Portland, but Portland, with its light rail system, may also have a higher transfer rate than the Twin Cities.

22 John F. Cain, "Cost-Effective Alternative to Atlanta's Rail Rapid Transit System," *Journal of Transport Economics and Policy* XXXI, no. 1 (January 1997): 26-28.

Table 1.13: Commuting to Work in Metropolitan Statistical Areas, 1990 Data for 29 of the 32 Comparison Areas

	Percentage of Morning Work Commutes Taken on Transit	
Metropolitan Area	Percent	Rank
Atlanta	4.7%	11
Baltimore	7.7	5
Boston	10.6	2
Buffalo	4.7	12
Cincinnati*	3.7	18
Cleveland	4.6	13
Columbus*	2.7	21
Dallas*	2.4	24
Denver	4.3	15
Detroit	2.4	22
Ft.Lauderdale	N/A	N/A
Houston*	3.8	16
Indianapolis*	2.1	28
Kansas City*	2.1	26
Miami	4.4	14
Milwaukee*	4.9	10
New Orleans	7.3	6
Norfolk*	2.2	25
Phoenix*	2.1	27
Pittsburgh	8.0	4
Portland	5.4	8
Riverside*	N/A	N/A
Sacramento	2.4	23
Saint Louis	3.0	20
San Antonio*	3.7	17
San Diego	3.3	19
San Francisco	9.3	3
San Jose	N/A	N/A
Seattle	6.3	7
Tampa Bay	1.5	29
Twin Cities*	**5.3**	**9**
Washington	13.7	1

NOTE: N/A means data is not available.

NOTE: Transit includes bus, subway/rail, and taxi.

*Urbanized area without rail in 1995.

SOURCE: Program Evaluation Division Analysis of data from the Federal Highway Administration, *Journey-To-Work Trends in the United States and its Major Metropolitan Areas*, FHWA-PL-012 (November 1993).

The fact that Metro Transit focuses its resources on the peak commuting hours explains the remaining difference in the FTA and commuting data. In transit jargon, Metro Transit has a very high "peak-to-base ratio"—the number of vehicles used during the peak commuting periods relative to the number used during the midday. In 1995, Metro Transit's peak-to-base ratio was 2.74 while

Atlanta's and Portland's were respectively 1.85 and 1.77.[23] As a result, Metro Transit has relatively higher commuting ridership than ridership in general. To a greater extent than the Twin Cities area, people in Portland and Atlanta use transit for purposes other than commuting to and from work.

Low population density and an extensive roadway system work against transit in the Twin Cities area.

Regardless of which set of ridership data we examined, we found that:

- **Transit ridership in the Twin Cities ranked fairly high considering the area's relatively low population density as well as several other factors which make the area automobile-friendly.**

Even though, the Twin Cities area ranked 29th out of 32 urbanized areas in population density, it ranked higher in ridership, 18th in riders per capita and 9th (out of 29 MSAs) in the percentage of people taking transit to work. Table 1.14 provides summary data on population density. Low population density increases the cost of providing transit. Vehicles have to travel farther and longer to pick up riders. The only way to support service in low density areas is to have relatively high fares or high subsidies; however, a high fare will discourage people from using the service. It is interesting to note that the 12 urbanized areas without rail service all ranked in the bottom 17 in population density. The economics of

Table 1.14: The Transit Environment

	1990 Population Density of the Urbanized Area[a]	1995 Roadway Miles per 1,000 People in the Urbanized Area	1990 Automobiles per Household in the Metropolitan Statistical Area[b]	1994 Cost of Roadway Congestion per Person of Driving Age in the Urbanized Area[c]
Average of Comparison Areas	2,784	3.73	1.66	$625
Twin Cities Area	1,956	4.62	1.74	$360
Twin Cities' Rank	29th Highest of 32	6th Highest of 32	8th Highest of 29	25th Highest of 31

NOTE: The comparison regions are the 32 urbanized areas or their corresponding metropolitan statistical area unless otherwise specified.

[a]People per square mile.

[b]Fort Lauderdale, Riverside, and San Jose are not included in the comparison because data was not available.

[c]Buffalo is not included in the comparison because data was not available.

SOURCE: Program Evaluation Division analysis of various data sources. Density data are from U.S. Bureau of the Census, *1990 Census of Population and Housing: Summary of Population and Housing Characteristics*, 1990 CPH-1-1 (March 1992), Table 8. Roadway mile data are from Federal Highway Administration, *Highway Statistics 1995*, FHWA-PL-96-017 (November 1996), Table HM-72. The vehicle and household data are from Federal Highway Administration, *Journey-To-Work Trends in the United States and its Major Metropolitan Areas,* FHWA-PL-012 (November 1993). Congestion data are from Texas Transportation Institute, "Table 12. Estimated Unit Costs of Congestion in 1994," WWW document, URL http://tti.tamu.edu/mobility, (November 4, 1997). The population estimates for urbanized areas were developed by the Program Evaluation Division.

23 Program Evaluation Division analysis of data from Federal Transit Administration, *Data Tables For the 1995 National Transit Database Report Year*, Table 28. Unlike Tables 1.18 and A.3, the comparison made here applies to all forms of transit operating in these three urbanized areas. Purchased services are excluded.

providing rail service in a thinly settled area may have inhibited these areas from providing rail service; however, it has not precluded some thinly settled areas from doing so. Both Atlanta and Pittsburgh have rail and ranked in the bottom 6 in population density of the 32 urbanized areas. Table 1.15 provides data on density and other characteristics for each of the 32 urbanized areas.

In addition to having a low population density, the Twin Cities area is relatively "automobile friendly." As shown in Table 1.14, the area had the 6th highest number of roadway miles per capita, the 8th highest number of vehicles per household, and the 25th highest cost of roadway congestion per person of driving

Table 1.15: Transit Environment in Comparison Areas

	1990 Population Density in the Urbanized Area[a]		1995 Roadway Miles per 1,000 People in the Urbanized Area		1990 Automobiles per Household in the Metropolitan Statistical Area		1994 Cost of Roadway Congestion per Person of Driving Age in the Urbanized Area	
Metropolitan Region	Number	Rank	Number	Rank	Number	Rank	Dollars	Rank
Atlanta	1,898	31	4.80	4	1.80	2	$800	7
Baltimore	3,190	12	3.28	24	1.57	23	460	15
Boston	3,114	13	3.13	25	1.54	24	660	11
Buffalo	3,343	8	4.14	8	1.47	27	N/A	N/A
Cincinnati*	2,370	25	4.11	11	1.69	13	310	27
Cleveland	2,638	19	3.28	23	1.62	21	260	28
Columbus*	2,741	16	3.36	22	1.71	11	320	26
Dallas*	2,216	26	5.07	2	1.74	7	747	10
Denver	3,309	9	3.87	16	1.77	4	580	12
Detroit	3,303	10	3.43	20	1.66	17	820	6
Ft. Lauderdale	3,785	5	3.02	27	N/A	N/A	380	23
Houston*	2,465	23	4.76	5	1.65	19	890	4
Indianapolis*	1,951	30	4.09	12	1.71	12	250	30
Kansas City*	1,674	32	5.52	1	1.72	10	230	31
Miami	5,429	1	2.79	28	1.49	26	760	8
Milwaukee*	2,395	24	3.98	15	1.59	22	260	29
New Orleans	3,851	4	3.10	26	1.41	29	410	20
Norfolk*	1,994	28	3.78	17	1.68	14	440	16
Phoenix*	2,707	17	4.08	13	1.65	18	550	13
Pittsburgh	2,157	27	5.03	3	1.45	28	380	24
Portland	3,021	14	4.16	7	1.75	5	510	14
Riverside*	2,543	22	3.53	19	N/A	N/A	1,100	1
Sacramento	3,285	11	3.37	21	1.78	3	430	18
Saint Louis	2,673	18	4.01	14	1.66	16	440	17
San Antonio*	2,578	21	4.13	9	1.63	20	420	19
San Diego	3,403	7	2.38	32	1.75	6	390	22
San Francisco	4,152	3	2.45	31	1.73	9	960	3
San Jose	4,241	2	2.70	30	N/A	N/A	750	9
Seattle	2,967	15	3.68	18	1.81	1	870	5
Tampa Bay	2,630	20	4.11	10	1.52	25	400	21
Twin Cities*	**1,956**	**29**	**4.62**	**6**	**1.74**	**8**	**360**	**25**
Washington	3,560	6	2.77	29	1.67	15	1,030	2

NOTE: N/A means data is not available.

*Urbanized area without rail in 1995.

[a]People per square mile.

SOURCE: Program Evaluation Division analysis of various data sources. Density data are from U.S. Bureau of the Census, *1990 Census of Population and Housing: Summary of Population and Housing Characteristics*, 1990 CPH-1-1 (March 1992), Table 8. Roadway mile data are from Federal Highway Administration, *Highway Statistics 1995*, FHWA-PL-96-017 (November 1996), Table HM-72. The vehicle and household data are from Federal Highway Administration, *Journey-To-Work Trends in the United States and its Major Metropolitan Areas*, FHWA-PL-012 (November 1993). Congestion data are from Texas Transportation Institute, "Table 12. Estimated Unit Costs of Congestion in 1994," WWW document, URL http://tti.tamu.edu/mobility, (November 4, 1997). The population estimates for urbanized areas were developed by the Program Evaluation Division.

age.[24] The area has a lot of roads and cars and relatively low congestion. It is difficult for transit to compete for travelers when it is relatively easy to get around by car.

Considerable disagreement exists on the causes of urban sprawl and low density settlement patterns. Some people argue that government policy decisions, such as zoning laws, parking policies, gas tax levels, and the provision of transit, greatly affect settlement patterns. Under this point of view, a low population density should not deter the Twin Cities area from expanding transit services and introducing rail because the lack of an extensive transit system contributed to the area's settlement pattern. Furthermore, with government policies that support transit oriented development, additional transit services (including rail) could create the population density needed to support the system. A contrary point of view contends that consumer preference, income, geography, and time (i.e. when a city or section of a city developed), not government policies, are the major factors affecting settlement patterns. The transportation and planning literature is full of articles and studies that address this debate.[25] While the issue has very important policy implications for transit, it is beyond the scope of this report.

Financing

When examining transit financing in our comparison group of 32 urbanized areas, we found that:

- **The Twin Cities transit system had a higher than average share of operating funds coming from dedicated taxes and an usually large share of these dedicated funds were from property taxes.**

In 1995, 45 percent of Metro Transit's operating funds came from dedicated property taxes.

As Table 1.16 shows, about 45 percent of Metro Transit's operating funds came from property taxes, the sole dedicated funding source for the region. On average, the 31 urbanized areas (data are missing for Indianapolis) received about 32 percent of their operating funds from dedicated taxes. Income and sales taxes were the predominant source of dedicated taxes for the other systems. In fact, no other system was as reliant on property taxes as the Twin Cities. Buffalo was the closest with 8 percent of its operating funds coming from property taxes. Table A.1 in Appendix A provides dedicated tax data for each of the 31 urbanized areas.

We also found that:

- **Transit fares in the Twin Cities area were relatively high compared to other areas without rail.**

24 Cost of roadway congestion is based on the dollar value of time waiting in traffic and consuming extra fuel.

25 Alan Black, *Urban Mass Transportation Planning* (New York: McGraw-Hill, Inc., 1995), 232-253; and Office of Technology Assessment, *Saving Energy in U.S. Transportation*, OTA-ET1-589 (Washington D.C., June 1994), 210-211. These sources provide nice summaries of the debate.

Table 1.16: Taxes Dedicated for Transit in Comparison Areas, 1995

	Dedicated Taxes as a Percentage of Operating Funds	Dedicated Property Taxes as a Percentage of Operating Funds
Average of 31 Urbanized Areas	32%	2%
Average of 11 Non-Rail Areas	53	6
Average of 20 Rail Areas	28	1
Metro Transit[a]	45%	45%
All Systems in the Twin Cities Area	43%	43%

NOTE: Detailed revenue data for Indianapolis was not available for 1995.

[a]Including its opt-out services.

SOURCE: Program Evaluation Division analysis of transit operating data from Federal Transit Administration, *Data Tables for the 1995 National Transit Database Report Year*, Tables 1, 2, 3, and 4 and from unpublished data from the Metropolitan Council's Transportation Division.

In 1995, Metro Transit's fare revenue per rider was 65 cents, compared to an average of 55 cents in non-rail urbanized areas.

As Table 1.17 shows, in 1995, fare revenue per rider was 65 cents for Metro Transit (including its opt-out services), just below the average for the 32 urbanized areas.[26] However, the average for the areas without rail was only 55 cents. Fare collections per rider were higher for rail systems. By their nature, rail systems provide a better ride, and riders are willing to pay more for this service. Furthermore, fare revenue per rider for Metro Transit increased in 1996, from 65 cents to 74 cents. Unfortunately, we do not have national data for 1996. Table A.2 in Appendix A provides fare data for each of the 32 urbanized areas. The FTA data also suggests that transit operators in the Twin Cites area received lower than average government subsidies per rider. However, because the FTA data for the Twin Cities area does not include paratransit and other high subsidy services that are reported by at least some of the other urbanized areas, it is unclear how the Twin Cities area ranked in terms of non-fare operating funds per rider. While Metro Transit had below average non-fare operating funds per rider, the region as a whole was above average.

Performance

When examining performance of transit systems in our comparison group, we found that:

- **Operating cost per rider in the Twin Cities area was about average for bus services.**

26 We made an adjustment to the data Metro Transit reported to the FTA. Metro Transit categories contract payments from opt-out communities as fare revenue in addition to the fares that its collects from passengers. We recategorized these contract payments as non-fare operating funds.

Table 1.17: Fare and Non-Fare Operating Funds in Comparison Areas, 1995

	Fare Revenue per Rider	Fare Revenue as a Percentage Operating Funds	Non-Fare Operating Funds per Rider	Non-Fare Operating Funds per Capita
Average of 32 Urbanized Areas	$0.66	29.4%	$1.60	$68.60
Average of 12 Non-Rail Areas	0.55	23.8	1.76	37.10
Average of 20 Rail Areas	0.69	30.5	1.56	84.90
Metro Transit[a]	$0.65	31.6%	$1.41	$38.60
Rank within 32 Urbanized Areas	13th Highest	10th Highest	24th Highest	22nd Highest
Rank within 12 Non-Rail Areas	3rd Highest	3rd Highest	9th Highest	6th Highest
All Systems in the Twin Cities Area	$0.67	27.1%	$1.79	$52.02
Rank within 32 Urbanized Areas	13th Highest	15th Highest	14th Highest	16th Highest
Rank within 12 Non-Rail Areas	3rd Highest	4th Highest	5th Highest	3rd Highest

[a]Including its opt-out services. Metro Transit categorizes contract payments from opt-out communities as fares, we recategorized them as non-fare operating funds.

SOURCE: Program Evaluation Division analysis of transit operating data from Federal Transit Administration, *Data Tables for the 1995 National Transit Database Report Year*, Tables 1 and 26 and from unpublished data from the Metropolitan Council's Transportation Division. The population estimates for urbanized areas were developed by the Program Evaluation Division.

We limited our analysis of performance to bus services only. Different forms of transit (commuter rail, light rail, bus, demand responsive, etc.) have very different operating characteristics and serve different transit markets. A transit system's performance as a whole depends not only on how efficiently or effectively it is operating but on the mix of services that it provides. In addition, even though we provide data on bus services for areas with rail, comparing the Twin Cities area to areas without rail is a more objective analysis. Bus operations in areas with rail are generally relegated to less productive routes. However, areas with rail generally have higher population densities than areas without it. The higher population density may make their less productive routes more productive than the best routes in areas without rail.

The operating cost per bus rider in the Twin Cities area was about average.

As Table 1.18 shows, Metro Transit's operating cost per rider was just below the average for areas without rail, but if other bus systems in the Twin Cities area (private operators and opt-out communities) are included, operating cost per rider was 5 percent above average in the Twin Cities area. However, with respect to operating cost per vehicle mile of service, Metro Transit was 19 percent higher than average while the whole bus system in the Twin Cities area was 13 percent higher than average. No matter which set of data is used (the FTA or region-wide), operating cost per rider in the Twin Cities area was closer to the average than was operating cost per vehicle mile of service. Metro Transit's high peak-to-base ratio explains part of this pattern. Metro Transit employs enough drivers to provide a lot of service during the commuting hours but has too many drivers for the rest of the day when the amount of service is reduced. As a result, Metro Transit has high operating costs relative to the vehicle miles of service that it provides. On the other hand, Metro Transit has high ridership per vehicle mile of

Table 1.18: Performance of Bus Operations in Comparison Areas, 1995

	Operating Cost per Rider	Operating Cost per Vehicle Mile	Operating Cost per Vehicle Hour	Peak to Base Ratio[a]	Riders per Vehicle Mile	Riders per Vehicle Hour
Average of 32 Urbanized Areas	$2.10	$5.52	$74.44	1.97	2.63	35.41
Average of 12 Non-Rail Areas	2.02	4.59	64.55	2.07	2.23	31.35
Average of 20 Rail Area	2.12	5.90	78.24	1.93	2.79	36.96
Metro Transit[b]	$2.05	$5.46	$75.79	2.74	2.67	36.99
Rank within 32 Urbanized Areas	21st Highest	14th Highest	14th Highest	The Highest	10th Highest	8th Highest
Rank within 12 Non-Rail Areas	9th Highest	2nd Highest	2nd Highest	The Highest	3rd Highest	3rd Highest
All Bus Systems in the Twin Cities Area[c]	$2.17	$5.19	$74.78	N/A	2.39	34.42
Rank within 32 Urbanized Areas	17th Highest	16th Highest	14th Highest	N/A	15th Highest	11th Highest
Rank within 12 Non-Rail Areas	7th Highest	2nd Highest	2nd Highest	N/A	3rd Highest	3rd Highest

NOTE: N/A means data is not available.

[a]Directly operated services only. Excludes purchased services.

[b]Includes its opt-out services.

[c]Bus systems are Metro Transit, private operators, and opt-out communities.

SOURCE: Program Evaluation Division analysis of transit operating data from Federal Transit Administration, *Data Tables for the 1995 National Transit Database Report Year*, Tables 11, 26, and 28 and from unpublished data from the Metropolitan Council's Transportation Division.

service which results in relatively lower operating costs per rider. The high ridership per vehicle mile largely occurs because Metro Transit focuses its resources on the most productive hours of the day, peak commuting hours. Table A.3 in Appendix A provides performance data for each of the 32 urbanized areas.

Trends

In order, to determine if the trends in transit service, financing, and performance that the Twin Cities area experienced are similar to the trends experienced elsewhere, we examined eight years of data. Our analysis is limited to 23 urbanized areas, 13 with rail and 10 without. The University of North Carolina's Center of Interdisciplinary Transportation Studies at Charlotte has compiled data from 1988 to 1995 from the FTA's National Transit Database.[27] However, the data are limited to the largest transit agency for each city. To keep our comparisons of the urbanized areas as representative as possible, we limited the analysis to only those urbanized areas where the largest agency carries at least 90 percent of the passengers in the urbanized area.[28]

27 David T. Hartgen and Mark W. Horner, *Comparative Performance of Major U.S. Bus Transit Systems: 1988-1995 (Fourth Annual Report)* (Charlotte, NC: University of North Carolina Charlotte, May 30, 1997), Volume II: Data.

28 In cases where an urbanized area contains two major cities and each has its own transit operator, we combined the two operators. This situation occurs in Dallas/Forth Worth and Portland/Vancouver.

When we compared trends in the level of service that was provided, we found that:

- **Even though other transit systems were struggling to maintain ridership, the loss of ridership was worse in the Twin Cities area than in most other places.**

Metro Transit's per capita ridership declined by 22 percent between 1988 and 1995, compared with a decline of about 6 percent elsewhere.

As Table 1.19 shows, between 1988 and 1995, Metro Transit's per capita ridership declined by 22 percent while the average decline for the 23 areas was only 6 percent. While other systems were maintaining their per capita operating spending and significantly increasing per capita vehicle miles, Metro Transit was not. Metro Transit's reduced service may have contributed to the loss of riders. Obviously, the 1995 strike contributed to the lower levels; however, as described earlier, ridership, service, and spending in constant dollars did not significantly rebound in 1996, the year following the strike.

Of the 23 urbanized areas that we examined, nine areas did not experience a drop in per capita ridership between 1988 and 1995—Boston, Denver, Miami, Phoenix, Portland, Sacramento, Saint Louis, San Antonio, and San Jose. Table A.4 in Appendix A provides trend data on the size of transit services in each of the 23 urbanized areas. It is difficult to know exactly why these urbanized areas were able to maintain per capita ridership without a detailed study of each. Rail may have been a contributing factor. Seven of the nine systems had rail—only Phoenix and San Antonio did not. However, as explained earlier, the introduction of rail may artificially inflate ridership. In fact, six of these seven areas with rail introduced a new form of rail during or right before this period—Denver in 1994, Miami in 1984, Portland in 1986, Sacramento in 1987, Saint Louis in 1993, and San Jose in 1987. While introducing rail should boost ridership, it is impossible to tell how much ridership actually increased using data on unlinked trips. An

Table 1.19: Change in Size of Transit Systems in Comparison Areas, 1988 to 1995

	Riders per Capita	Real Operating Cost per Capita	Vehicle Miles per Capita
Average of 23 Urbanized Areas	-6.4%	1.2%	10.4%
Average of 10 Non-Rail Areas	-12.3	-0.6	17.7
Average of 13 Rail Areas	-3.6	2.8	8.1
Metro Transit[a]	-22.3%	-6.4%	-3.6%
All Systems in the Twin Cities Area	-20.5%	1.7%	N/A

NOTE: N/A means data is not available.

[a]Includes its opt-out services.

SOURCE: Program Evaluation Division analysis of transit operating data from David T. Hartgen and Mark W. Horner, *Comparative Performance of Major US Bus Transit Systems: 1988-1995 (Volume II: Data)*, (Charlotte, NC: University of North Carolina at Charlotte, 1997) and from unpublished data from the Metropolitan Council's Transportation Division. Population estimates for urbanized areas were developed by the Program Evaluation Division. The dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investment that was provided by the Minnesota Department of Finance.

increase in unlinked trips may only reflect an increase in transfers rather than an actual increase in ridership.

An expanding system can also explain growing ridership. San Antonio and Boston—two of the three remaining systems—experienced the largest increase in per capita service of all 23 areas. Boston increased vehicle miles of service by 55 percent, and San Antonio increased it by 56 percent. Phoenix—the remaining area—is an anomaly. It increased its per capita ridership by 42 percent (the largest increase of all 23 urbanized areas) but only increased its per capita service by 19 percent. In addition, it does not have rail. Phoenix did have the second biggest reduction in fare revenue per rider of all 23 urbanized areas and the biggest increase in riders per vehicle mile of service. Lower fares entice more people to use transit.

As described earlier in the report, the growth in transit in the Twin Cities area has occurred outside of Metro Transit. Considering all transit operations, the region maintained spending and service in constant dollars and per capita terms. Nevertheless, per capita ridership still declined at a rapid pace, a 21 percent decline. Thus, each vehicle mile of service that the region provided in 1995 carried fewer riders than in prior years.

Metro Transit increased its fare revenue per rider by 16 percent between 1988 and 1995.

When comparing trends in transit financing, we found that:

- **Metro Transit's fare revenue per rider in inflation-adjusted dollars increased faster than fares in other urbanized areas.**

As Table 1.20 shows, Metro Transit increased its fare revenue per rider by 16 percent between 1988 and 1995 while the 10 urbanized areas without rail, on average, increased their fare revenue per rider by 6 percent. Nevertheless, fares became a declining share of Metro Transit's total operating funds during this period because non-fare operating funds per rider increased even faster. However, as described earlier in the report, Metro Transit had particularly low fare revenues per rider in 1995 compared to 1996. In fact, fare revenues per rider increased faster than non-fare operating funds between 1992 and 1996, as Table 1.8 showed. Table A.5 in Appendix A provides trend data on fare revenues for each of the 23 urbanized areas.

When we examined trends in transit performance, we found that:

- **Between, 1988 and 1995, Metro Transit's bus ridership per vehicle mile of service declined by 17 percent, compared with a 10 percent decline for urbanized areas without rail.**

Table 1.21 displays trends in some key performance indicators. Just like previous comparisons of performance, we focused our analysis on bus operations in urbanized areas without rail. Even though Metro Transit's 17 percent decline was bigger than the average decline, Metro Transit only had only the fifth largest decline among the 10 areas. The strong performance of Phoenix, which experienced a 48 percent increase, significantly offset the weaker performance in other cities. Table A.6 in Appendix A provides trend data on bus performance for each of the 23 urbanized areas.

Table 1.20: Change in Fare and Non-Fare Operating Funds in Comparison Areas, 1988 to 1995

	Real Fare Revenue per Rider	Real Non-Fare Operating Funds Per Rider
Average of 23 Urbanized Areas	11.7%	1.6%
Average of 10 Non-Rail Areas	6.4	10.3
Average of 13 Rail Areas	12.8	-1.0
Metro Transit[a]	15.8%	19.7%
All Systems in the Twin Cities Area	N/A	N/A

NOTE: N/A means data is not available.

[a]Including its opt out services. Operating funds reported by the University of North Carolina (UNC) at Charlotte were significantly different than the funds that the Met Council said were reported to the National Transit Database. We replaced the UNC data with the Met Council data. In addition, we adjusted the fare data for Metro Transit. Metro Transit categorizes contract payments from opt-out communities as fare revenue, we recategorized these payments as non-fare operating funds.

SOURCE: Program Evaluation Division analysis of transit operating data from David T. Hartgen and Mark W. Horner, *Comparative Performance of Major US Bus Transit Systems: 1988-1995 (Volume II: Data)*, (Charlotte, NC: University of North Carolina at Charlotte, 1997) and from unpublished data from the Metropolitan Council's Transportation Division. The dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investment that was provided by the Minnesota Department of Finance.

Metro Transit has experienced a higher than average loss of bus riders per mile of service.

The higher than average loss of bus riders per vehicle mile of service decreased the cost effectiveness of Metro Transit's service. As Table 1.21 shows, the cost of providing each vehicle mile of service held steady in inflation-adjusted dollars for Metro Transit and the operators in the other areas, but Metro Transit's operating cost per rider increased a lot faster—18 percent compared to 8 percent. Even though Metro Transit operated its buses at a lower cost per vehicle mile in 1995 than earlier years, it had to drive farther and longer to generate ridership. As a result, the cost per rider increased. This pattern is worse if the other bus operators (private operators and opt-out communities) in the region are included. While the cost of providing bus services declined by 9 percent, the cost of carrying each passenger increased by 22 percent. This occurred because ridership per vehicle mile of service declined by nearly 26 percent.

SUMMARY

National data indicate that the Twin Cities area has below average transit ridership per capita when compared with other metropolitan areas of similar size. In addition, transit ridership appears to be declining faster here than in most other large metropolitan areas across the country.

However, transit ridership in the Twin Cities area ranks higher than one might expect based on the area's characteristics. The Twin Cities area has more roads and automobiles per capita than most metropolitan areas and relatively low levels

Metro Transit's performance has declined in comparison to bus operations in other areas.

Table 1.21: Change in Performance of Bus Operations in Comparison Areas, 1988 to 1995

	Riders per Vehicle Mile	Real Operating Cost per Vehicle Mile	Real Operating Cost per Rider
Average of 23 Urbanized Areas	-6.2%	2.1%	6.8%
Average of 10 Non-Rail Areas	-9.5	-2.2	7.5
Average of 13 Rail Areas	-4.0	4.9	6.4
Metro Transit[a]	-17.0%	-1.7%	18.4%
All Bus Systems in the Twin Cities Area[b]	-25.8%	-9.2%	22.4%

NOTE: Averages are unweighted.

[a]Including its opt-out services.

[b]Bus system means Metro Transit, private operators, and opt-out communities. It excludes para-transit services.

SOURCE: Program Evaluation Division analysis of transit operating data from David T. Hartgen and Mark W. Horner, *Comparative Performance of Major US Bus Transit Systems: 1988-1995 (Volume II: Data)*, (Charlotte, NC: University of North Carolina at Charlotte, 1997) and from unpublished data from the Metropolitan Council's Transportation Division. The dollar figures were converted to constant dollars using a chain-type price index for state and local government expenditures and gross investment that was provided by the Minnesota Department of Finance.

of roadway congestion. In addition, the Twin Cities has relatively high transit fares which discourages the use of transit and a low population density which makes it more difficult to provide efficient and effective transit services.

Despite these barriers, the Twin Cities area ranked in the top one-third of metropolitan areas in the percentage of commuters using transit in 1990. In addition, even though operating cost per bus rider in the Twin Cities area increased faster than average in comparison to other areas, it was about average in 1995.