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**An Examination of Recent Ridership Declines
Among the Largest U.S. Public Transit Systems**

Working Paper

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ABSTRACT

Perhaps the most disturbing trend in American public transit during the 1990s has been the alarming ridership declines among the nation's largest operators. Between 1989 and 1993, annual ridership in the nation's largest urban areas declined by 680 million passengers, almost 10 percent, while ridership in smaller cities grew by a modest 12 million. Such aggregate figures mask even more troubling ridership declines among the ten largest public transit systems in the U.S., which saw transit use plummet by almost 11 percent, or 537 million annual passengers in four years. This ridership loss nearly equaled the entire 1993 ridership of the nation's second (Chicago) and tenth (Baltimore) largest transit systems combined. In contrast to the sharp contractions on the oldest and largest systems in the U.S., other transit operators serving the same metropolitan areas as the "Top-Ten" added over 57 million annual riders, or about 7 percent between 1989 and 1993, though these gains were not enough to offset the ridership losses on the ten largest systems. This paper examines the dimensions of recent ridership losses on the nation's largest public transit systems and concludes that the ridership losses on the Top-Ten systems are due largely to two factors: (1) a cost-revenue squeeze that has forced service cutbacks on some Top-Ten systems and (2) a substantial decline in service productivity that has cut the effectiveness the service that remains. This overview section is followed by a case study of the nation's seventh largest transit system: the San Francisco Municipal Railway (Muni). This case study shows that declining revenues (both from fares and subsidies) have forced Muni to cut service, largely in the form of missed runs, and that the combined effect of decreasing service hours and declining service quality has been lost patronage. This case study also shows that Muni's financial picture is expected to worsen in the coming years, which will likely accelerate patronage losses. The recent experience

of Muni contrasts sharply with suburban transit operators in the San Francisco Bay Area, many of which have added service and riders during the early 1990s. Short of substantial increases in subsidies or substantial reductions in operating costs, the recent combined ridership losses experienced by the nation's ten largest transit systems will likely continue, and perhaps worsen, through the mid-1990s.

Keyword

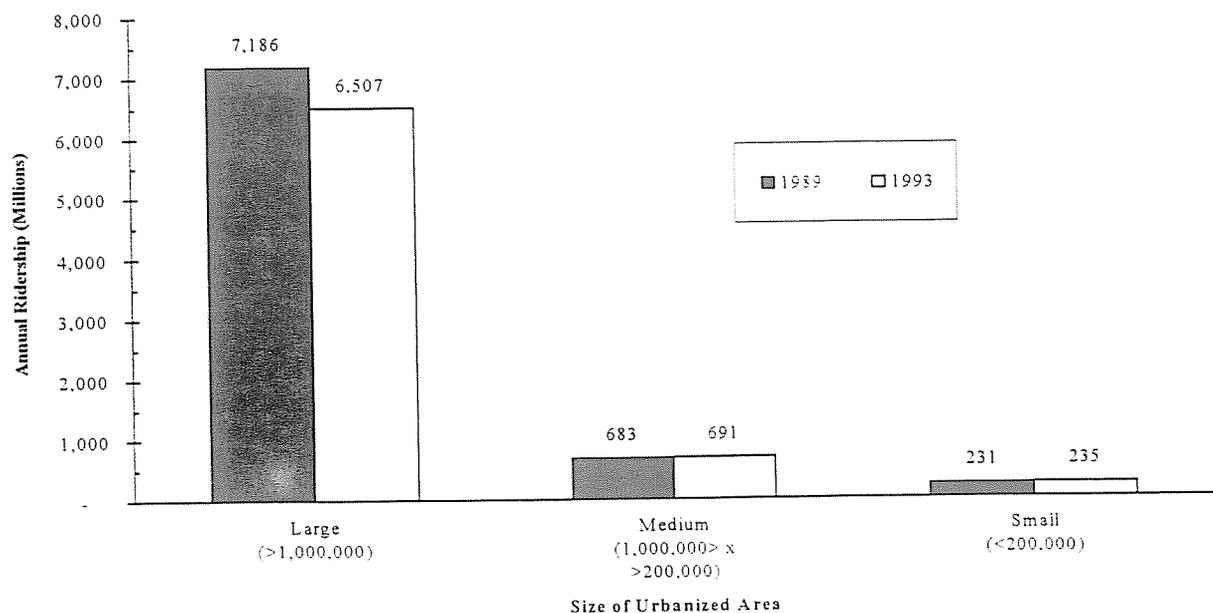
Transit ridership

Transit subsidies

Transit performance

Transit systems in the largest urbanized areas in the United States are losing riders at an alarming rate while ridership in smaller metropolitan areas is increasing slightly. Between 1989 and 1993, urban areas with populations greater than one million inhabitants have lost over 680 million annual riders while smaller areas have managed to maintain ridership levels (Figure 1).

Figure 1: Ridership Trends by Size of Urbanized Area: 1989-1993.

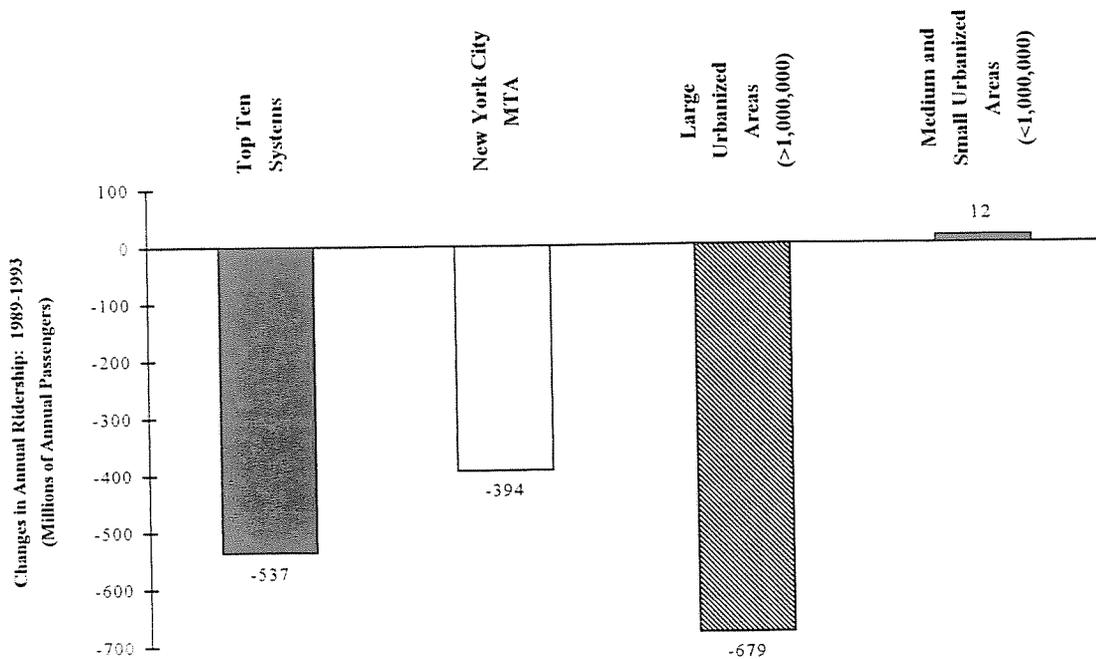


Source: U.S. Department of Transportation, 1994b.

The trend of declining transit patronage in the largest urban markets masks an even more disturbing decline among the nation's largest transit systems operating within these areas. The ten largest systems lost 537 million annual riders between 1989 and 1993. This represents 80 percent of the total losses for all urbanized areas with populations greater than one million (Figure 2). The most pronounced losses occurred in New York City, by far the country's largest transit market. The New York City Metropolitan Transportation Authority (NYCTA), which carries

nearly a quarter of all transit trips nationwide, saw its annual boardings plummet by about 394 million.¹ This 18 percent decline exceeds the entire annual ridership of the nation's third largest transit system in Los Angeles (U.S. Department of Transportation, 1989, 1990, 1991, 1994a).

Figure 2: Ridership Trends between the Top-Ten Largest U.S. Systems and Urban Areas: 1989-1993.



Source: U.S. Department of Transportation, 1989, 1990, 1991, 1994a, 1994b.

This paper examines the dimensions of these recent ridership losses on the nation's largest public transit systems. The next section is an overview comparison of patronage, funding, and performance between the ten largest U.S. transit systems and other transit systems serving the

¹ This figure for the NYCTA is an average of the ridership levels reported to the Federal Transit Administration (FTA) for the 1988 and 1990 Section 15 reporting years. According to the FTA, the 1989 ridership data for NYCTA may reflect a reporting anomaly. Had the reported data been used, the five year decline for NYCTA would be 657 million annual passengers, a 27 percent decline.

same metropolitan areas; it details the ridership losses on the Top-Ten systems and shows that these declines are due largely to two factors: (1) a cost-revenue squeeze that has forced service cutbacks on some Top-Ten systems and (2) a substantial decline in service productivity that has cut the effectiveness of remaining service. This overview section is followed by a case study of the nation's seventh largest transit system: the San Francisco Municipal Railway (Muni). This case study shows that declining revenues (both from fares and subsidies) have forced Muni to cut service, largely in the form of missed runs. The combined effect of decreasing service hours and declining service quality at Muni has been lost patronage. This case study also shows that Muni's financial picture is expected to worsen in the coming years, which will likely accelerate patronage losses. The recent experience of Muni is then shown to contrast sharply with suburban transit operators in the San Francisco Bay Area, many of which have added riders during the early 1990s. This analysis shows that, short of substantial increases in subsidies or substantial reductions in operating costs, the recent ridership losses by the nation's ten largest transit systems will likely continue, and perhaps worsen, through the mid-1990s.

The Top-Ten Countdown

Nowhere have ridership declines been more profound than on the nation's Top-Ten largest transit systems serving the most transit-friendly environments. As a group these systems lost 537 million annual passengers, an amount representing 80 percent of the total national decline and almost equal to the total annual ridership for all medium sized cities (Table 1). Of the Top-

Ten, only Boston's MBTA gained a significant number of new riders.² The New Jersey Transit Corporation which serves many of the same markets as New York's MTA absorbed some of NYCTA's losses, but showed only modest increases while Washington D.C.'s WMATA maintained stable ridership.

Table 1: Ridership Trends on the Ten Largest U.S. Transit Systems: 1989-1993.

Transit System	1989 Total Ridership	1993 Total Ridership	Change 1989-1993	Percent Change
New York (NYCMTA)	2,192,654,398	1,798,879,235	-393,775,163	-18.0%
Chicago (RTA)	589,701,755	463,193,591	-126,508,164	-21.5%
Los Angeles (LACMTA)	411,820,000	389,640,407	-22,179,593	-5.4%
Washington, D.C. (WMATA)	352,917,497	353,277,686	360,189	0.1%
Boston (MBTA)	283,869,119	336,933,977	53,064,858	18.7%
Philadelphia (SEPTA)	367,964,795	330,004,495	-37,960,300	-10.3%
San Francisco (Muni)	236,257,283	230,322,293	-5,934,990	-2.5%
New York (NJ Transit)	223,244,154	229,332,630	6,088,476	2.7%
Atlanta (MARTA)	145,438,459	138,060,000	-7,378,459	-5.1%
Baltimore (MD MTA)	108,372,310	105,598,341	-2,773,969	-2.6%
Totals	4,912,239,770	4,375,242,655	-536,997,115	-10.9%

Note: 1989 ridership for NYCTA is the average of the total annual ridership for the 1988 and 1990 Section 15 reporting years. The actual reported annual ridership for that year is 2,455,640,961.

Source: U.S. Department of Transportation, 1989, 1990, 1991, 1994a.

² This increase in ridership has come at substantial cost. A recent study indicates that the MBTA has increased its deficits by almost 640 percent over the past 26 years in order to increase its ridership (Gomez-Ibanez 1996). Gomez-Ibanez writes that the demand for transit largely lies beyond the control of the MBTA and suggests that current spending levels cannot be sustained.

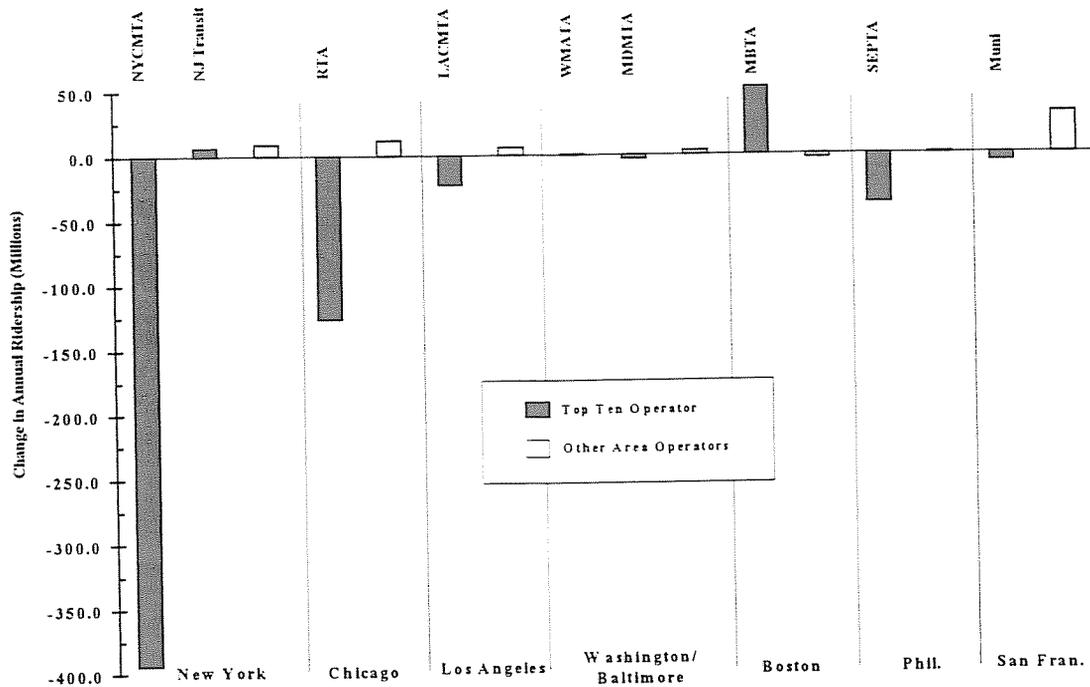
In contrast to the Top-Ten, however, a sample of other transit systems operating in the same metropolitan areas as the Top-Ten increased their ridership by nearly 7 percent during the five-year period (Table 2 and Figure 3). No operators other than MARTA served the Atlanta area in both 1989 and 1993 so no comparative statistics can be used. Nonetheless, only those operators serving the Boston metropolitan area lost a significant number of riders relative to the MBTA. In the aggregate, the gains by the regional peers were not large enough to absorb the losses sustained by the Top-Ten.

Table 2: Ridership Trends for Other Operators in the Same Consolidated Metropolitan Statistical Areas (CMSAs) as the Top-Ten: 1989-1993.

Consolidated Metropolitan Statistical Area	Number of Operators	1989 Total Ridership	1993 Total Ridership	Change 1989 - 1993	Percent Change
New York	31	381,490,472	390,119,857	8,629,385	2.3%
Chicago	14	96,742,686	108,573,477	11,830,791	12.2%
Los Angeles	20	117,807,903	123,715,855	5,907,952	5.0%
Washington, D.C./Baltimore	5	15,719,131	18,282,673	2,563,542	16.3%
Boston	10	20,809,144	17,820,547	-2,988,597	-14.4%
Philadelphia	5	15,968,905	16,196,366	227,461	1.4%
San Francisco	12	210,111,451	241,173,263	31,061,812	14.8%
Atlanta	0	n/a	n/a	n/a	n/a
Totals		858,649,692	915,882,038	57,232,346	6.7%

Source: U.S. Department of Transportation, 1990, 1994a.

Figure 3: Changes in Ridership between Top-Ten Systems and Other Area Operators: 1989-1993.



Furthermore, these declines on the Top-Ten are in contrast to population trends in these regions. Between 1990 and 1993 the Census Bureau estimates that every consolidated metropolitan statistical area served by the Top-Ten either maintained a stable population or added residents (Table 3). Atlanta, which experienced the largest growth in population during the five year period, lost over 5 percent of its transit riders.

Table 3: Population Trends in Consolidated Metropolitan Statistical Areas Served by the Top-Ten Transit Systems: 1990-1993.

Consolidated Metropolitan Statistical Area	Population 1990	Population July 1993	Change 1990-1993	Percent
New York	17,830,586	18,019,828	189,242	1.1%
Chicago	8,239,820	8,467,342	227,522	2.8%
Los Angeles	14,531,529	15,212,081	680,552	4.7%
Washington, D.C./Baltimore	6,726,395	6,978,398	252,003	3.7%
Boston	5,685,763	5,699,223	13,460	0.2%
Philadelphia/New Jersey	5,893,019	5,940,989	47,970	0.8%
San Francisco/San Jose	6,249,881	6,470,000	220,119	3.5%
Atlanta	2,959,500	3,228,739	269,239	9.1%

Source: U.S. Bureau of the Census 1996.

Why have the nation's most venerable transit systems operating in the most favorable markets lost so many riders in recent years? And why, in dramatic contrast, have the thousands of newer, smaller systems, nearly all of which operate in low-density, auto-oriented cities and towns, actually added riders over the past five years? While the factors affecting ridership on each transit system are unique in many respects, two factors appear principally responsible. First, a cost-revenue squeeze has forced service cutbacks on some Top-Ten systems. Second, service productivity has declined substantially for the remaining service on the nation's largest transit systems.

Cost-Revenue Squeeze

The most obvious cause for the shift in ridership from the ten largest transit systems has been the shift in service between the few largest and many smaller systems. Collectively, the

Top-Ten have cut service by over 600,000 annual hours (Table 4) while nationwide vehicle revenue hours of service increased by 11.2 million hours (U.S. Department of Transportation, 1994b). These cuts were led by the nation's two largest systems, which cut over 2.7 million hours of service. In New York City, the undisputed transit capital of the United States, the NYCTA cut more than 1.9 million hours. Despite this overall service contraction, only four of the Top-Ten have reduced service. Of the six operators adding service, Boston, Washington, and New Jersey Transit have shown stable or increasing ridership over the last five years. The remaining three operators adding service -- Los Angeles, Atlanta, and Baltimore -- have experienced ridership losses between 1989 and 1993.

Table 4: Service Hour Trends of the Top-Ten Transit Systems: 1989-1993.

Transit System	1989 Total Service Hours	1993 Total Service Hours	Change 1989-1993	Percent Change
New York (NYCMTA)	29,372,650	27,422,694	-1,949,956	-6.6%
Chicago (RTA)	9,568,502	8,711,094	-857,408	-9.0%
Los Angeles (LACMTA)	6,861,503	6,884,863	23,360	0.3%
Washington, D.C. (WMATA)	4,266,245	4,788,638	522,393	12.2%
Boston (MBTA)	3,544,462	4,538,107	993,645	28.0%
Philadelphia (SEPTA)	5,830,023	5,434,884	-395,139	-6.8%
San Francisco (Muni)	3,075,095	2,981,369	-93,726	-3.0%
New York (NJ Transit)	6,538,092	7,575,982	1,037,890	15.9%
Atlanta (MARTA)	2,616,069	2,685,519	69,450	2.7%
Baltimore (MD MTA)	2,170,136	2,216,144	46,008	2.1%
Totals	73,842,777	73,239,294	-603,483	-0.8%

Source: U.S. Department of Transportation, 1990, 1994a.

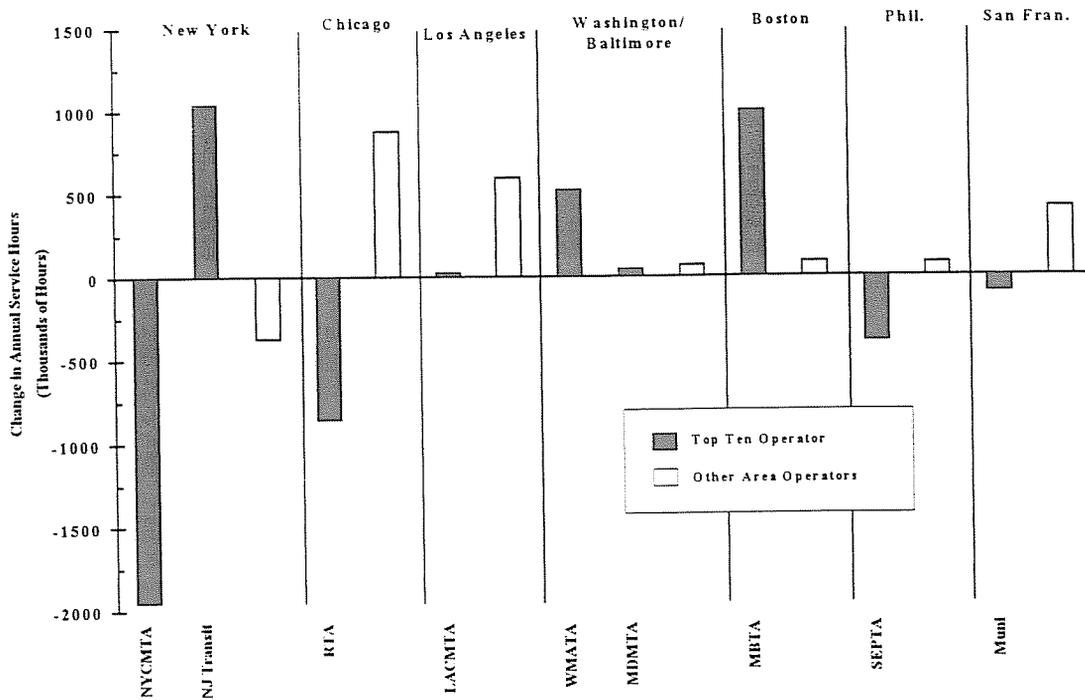
Countering the losses by the Top-Ten, other operators serving these same metropolitan areas added around 1.7 million hours of service which represents nearly 15 percent of the total hours added nationwide over the five year period (Table 5) (U.S. Department of Transportation, 1990, 1994a, 1994b). These changes are compared with the changes for the Top-Ten in Figure 4. Only those operators in the New York metropolitan area (excluding the NYCTA) reduced service with most of these losses occurring among operators serving Manhattan, Jamaica, and the Bronx. Sixty-seven percent of this loss was attributable solely to cuts in service on the Long Island Railroad (LIRR), a subsidiary of NYCTA (U.S. Department of Transportation, 1990, 1994a).

Table 5: Service Hour Trends of Other Transit Systems Operating in the Same Consolidated Metropolitan Statistical Areas (CMSAs) as the Top-Ten: 1989-1993

Consolidated Metropolitan Statistical Area	Number of Operators	1989 Total Service Hours	1993 Total Service Hours	Change 1989 - 1993	Percent Change
New York	31	8,504,080	8,129,674	-374,406	-4.4%
Chicago	14	2,029,683	2,903,753	874,070	43.1%
Los Angeles	20	3,870,355	4,464,569	594,214	15.4%
Washington, D.C./Baltimore	5	488,533	554,796	66,263	13.6%
Boston	10	1,031,293	1,117,194	85,901	8.3%
Philadelphia/New Jersey	5	356,180	435,938	79,758	22.4%
San Francisco	12	6,135,389	6,543,181	407,792	6.6%
Atlanta	0	n/a	n/a	n/a	n/a
Totals		22,415,513	24,149,105	1,733,592	7.7%

Source: U.S. Department of Transportation, 1990, 1994a.

Figure 4: Changes in Service Hours between Top-Ten Systems and Other Area Operators: 1989-1993.



The reasons behind the service cutbacks on the largest systems are fairly straightforward; revenues on the ten largest systems have lagged behind the rate of inflation over the past five years, while costs on these systems have increased faster than inflation (Table 6). The result is a cost-revenue squeeze that has forced periodic service cutbacks on most large systems.

The largest transit systems are much more expensive to operate than smaller systems. In 1993, the median cost per revenue service hour for the Top-Ten was \$96.59 while other operators serving the same metropolitan areas averaged only \$55.11 per service hour. This gap between the Top-Ten and companion operators increased between 1989 and 1993. Of the Top-Ten, only NYCTA reduced expenses over the five year period. The remaining nine systems had cost increases above the rate of inflation, while directly generated revenues from fares and other

services declined by half relative to inflation. Although the other operators serving these same metropolitan areas showed an absolute decline in revenues, they also held cost increases to just over 6 percent, well below inflation between 1989 and 1993.

Table 6: Trends in Transit Operating Costs: 1989-1993.

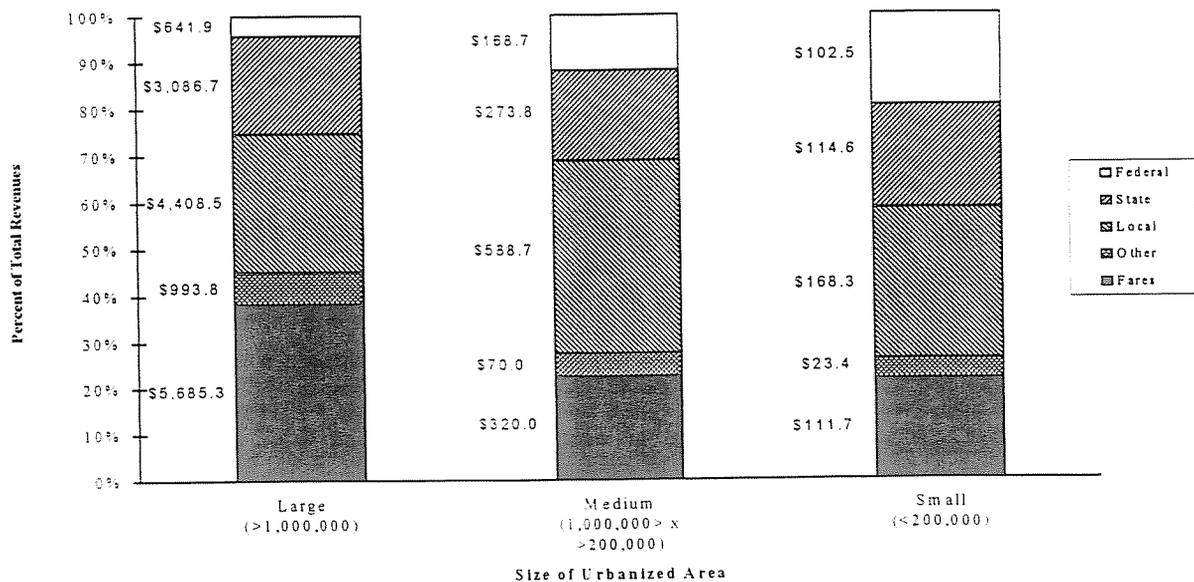
	New York MTA	Remaining Top Nine	Other Operators
Operating Expenses/Revenue Hour	-0.6%	17.2%	6.3%
Directly Generated Revenues/Revenue Hour	17.0%	8.9%	-2.4%
Consumer Price Index	16.5%	16.5%	16.5%

Source: U.S. Department of Transportation, 1989, 1990, 1991, 1994a.

The largest systems in the most heavily populated urban areas receive most of their operating revenues from fares while smaller systems rely more on local and other sources (Figure 5). Outside of the NYCTA, which increased fare revenues during this period, other large systems lost revenues from fares. The only operators of the Top-Ten to add service during this five-year period -- Los Angeles, Baltimore, and Atlanta -- have all made major shifts from fare revenues to local subsidies to support operating expenses. In Los Angeles, directly generated revenues as a percent of total revenues dropped by 25 percent over the five year period while Baltimore experienced an 18 percent drop. Only Atlanta's MARTA increased its fare revenues as a percentage of total revenues, but by just 2.7 percent (U.S. Department of Transportation, 1990, 1994a). In Los Angeles, a one-half cent increase in the local sales tax has been the principal

replacement source for lost operating revenues along with a slight increase in state funding, while Baltimore has turned to increased state financing. In both these cases, these revenues have been used to expand service via rail expansion projects. It is telling that the LACMTA's subsidy per revenue hour increased by over 50 percent in five years, while Baltimore's rose 83 percent (U.S. Department of Transportation, 1990, 1994a).

Figure 5: 1993 Operating Funding: Total Expenditures in Millions of Dollars and as a Percent of Total Revenues.



Source: United States Department of Transportation, 1994b.

As these operators have experienced declining revenues from passenger fares, many have turned to local and state revenues. Federal support for transit has been declining in real terms since 1980 and there is little hope for a reversal in this trend. Moreover, Figure 5 shows that this support is based on distribution formulas that favor smaller metropolitan areas which tend to have proportionally fewer transit users. Passengers in small urban areas are subsidized by federal

operating support at an average of \$0.44 per ride, over four times the per passenger operating subsidy of larger urban areas (U.S. Department of Transportation, 1994b).

State operating funding for transit has increased over the past five years to make up for losses in federal subsidies. However, as with federal subsidies, state funding is subject to policies and distribution formulas that may not favor the largest operators. For example, California's Transportation Development Act (TDA) follows a strict return-to-source funding allocation formula resulting in substantial subsidies for less heavily patronized suburban systems compared to larger urban systems operating in transit rich environments. As a result of these policies, some small suburban operators in California receive over five times the per passenger TDA subsidy of larger, more service productive central city operators (Taylor 1991).

Declining Service Productivity

Cuts in service accounted for less than 10 percent of the ridership losses on the Top-Ten systems between 1989 and 1993. Far more important was the drop in service productivity on the largest systems. The decline in transit productivity is a nationwide phenomenon, having dropped over 14 percent between 1989 and 1993. These declines have occurred principally among the ten largest systems as shown in Table 7 (U.S. Department of Transportation, 1990, 1994a, 1994b). Of the Top-Ten only San Francisco's Muni has managed to maintain stable productivity during this time. This overall decline of 11 percent is twice the rate of all the remaining systems in the United States (U.S. Department of Transportation, 1994b). To put this productivity loss in perspective, the loss of 7 passengers per revenue vehicle hour by the Top-Ten systems in just five years is nearly a quarter of the 30 passengers carried per hour on the other transit systems

reporting operating data to the Federal Transit Administration in 1993 (U.S. Department of Transportation, 1994b).

Table 7: Productivity Trends of the Ten Largest Transit Systems: 1989-1993.

Transit System	1989 Boardings per Service Hour	1993 Boardings per Service Hour	Change 1989-1993	Percent Change
New York (NYCMTA)	74.6	65.6	-9.1	-12.1%
Chicago (RTA)	61.6	53.2	-8.5	-13.7%
Los Angeles (LACMTA)	60.0	56.6	-3.4	-5.7%
Washington, D.C. (WMATA)	82.7	73.8	-8.9	-10.8%
Boston (MBTA)	80.1	74.2	-5.8	-7.3%
Philadelphia (SEPTA)	63.1	60.7	-2.4	-3.8%
San Francisco (Muni)	76.8	77.3	0.4	0.6%
New York (NJ Transit)	34.1	30.3	-3.9	-11.3%
Atlanta (MARTA)	55.6	51.4	-4.2	-7.5%
Baltimore (MD MTA)	49.9	47.6	-2.3	-4.6%
Totals	66.5	59.7	-6.8	-10.2%

Source: U.S. Department of Transportation, 1989, 1990, 1991, 1994a.

The cost-revenue squeeze and substantial declines in service productivity have combined to decimate ridership on the nation's ten largest systems. These ridership losses, in turn, have swamped the modest increases in ridership and productivity on the other 5,000 plus systems in the United States. This loss of ridership is the first sustained, multi-year decline since the advent of federal operating support in the early 1970s, and represents a significant departure from nearly two decades of modest, sustained ridership growth.

Why have costs continued to rise on the nation's largest transit systems? And, more importantly, why has service productivity continued to decline in the nation's most transit-friendly cities? To examine these questions, the next sections examine one of the Top-Ten systems -- the San Francisco Municipal Railway -- in some detail.

THE CASE OF THE SAN FRANCISCO MUNICIPAL RAILWAY

The nine-county San Francisco Bay Area is served by twenty-three transit operators which provide local and commuter service by motor bus, trolley bus, light rail, heavy rail and ferry vessels. The largest operator, in terms of fleet size, operating budget, and passengers carried is the San Francisco Municipal Railway (Muni). Muni operates exclusively within the boundaries of the City and County of San Francisco, and thus has more of an urban focus than any of the region's other operators.³

Muni operates four fixed-route modes: motor buses, trolley buses, light rail vehicles, and cable cars, with a total fleet of just over one thousand vehicles. All residential locations within San Francisco are within 1/4 mile of a Muni route during the daytime. Four rail extension projects are under construction; two will replace existing bus service and two will serve new developments south of the central business district.

In terms of service levels and ridership, Muni has fared better in recent years than several other Top-Ten transit systems, especially New York and Chicago. Muni has fared better, however, due largely to passage of a local transportation sales tax in the late 1980s and to

³ AC Transit, the other operator with a large segment of urban ridership, has a combined mission of serving local travelers in the cities of Oakland, Berkeley, and Richmond, and express bus commuters to San Francisco.

increasing support from the San Francisco general fund. Despite these increases, Muni has been plagued by high costs, deteriorating service quality, and declining ridership - problems plaguing nearly all Top-Ten transit systems during the 1990s.

Ridership Trends on Muni

Because of its compact geography (49 square miles) and high population density, San Francisco is an ideal setting for an effective transit system. As such, Muni carries approximately half of the unlinked passenger trips on transit in the Bay Area, though San Francisco has only 12 percent of the region's residential population. A large number of the City's 723,000 residents, as well as a significant number of the 1.5 million people that commute to San Francisco for work, ride the Muni system every day. Muni has the highest per capita ridership of any major transit system in the country with 303.8 annual boardings per service area population during the 1993-94 fiscal year (Metropolitan Transportation Commission, 1995b).

Despite its significant share of the Bay Area transit market, ridership on Muni has been declining in recent years. Muni reported a total of 219 million passenger boardings in during the 1994 fiscal year, down 8.4 percent from the 239 million boardings reported during the 1991 fiscal year (San Francisco Municipal Railway, 1995; U.S. Department of Transportation, 1990). A number of factors appear to have contributed to the loss of riders. First, the number of vehicle service hours operated by Muni has declined. The light rail mode had the largest decline in service hours provided; Muni operated 11.5 percent fewer light rail hours in fiscal year 1994 than it did in fiscal year 1990.

More telling than the total hours operated has been the decline in service quality,

particularly service reliability. In April 1995 Muni was able to provide only 95% of its scheduled service, as measured by morning vehicle pull-outs. This very high pull-out failure rate was compounded by mechanical failures by vehicles providing revenue service. The current situation has deteriorated significantly since fiscal year 1992, when Muni missed 2.1% of its total scheduled service hours. Currently, service is missed for one of two reasons: either due to an insufficient number of available drivers and to a lack of operable vehicles. In the Light Rail Division, for example, the number of vehicles available for service has recently been as low as 75 out of a total fleet of 128 (Metropolitan Transportation Commission, 1995). And such unreliable service has clearly depressed ridership demand. Further, on-going administrative staff cutbacks -- many vacant planning and management positions have gone unfilled in recent years -- precludes Muni from systematically collecting or evaluating on-time performance data.

Muni's service reliability problems have been worsening for a number of reasons. First, there are not adequate revenues to support the level of service currently offered in published timetables. This fact has been acknowledged by the San Francisco Public Transportation Commission, Muni's direct governing board, whose adopted budget provides funding for only 95% of scheduled services. Muni has not revised its routes, schedules, and timetables, however, because of political pressure to maintain service levels; in the current political climate the *de facto* cuts are preferable to official cuts. To bring published service offerings in line with reality would require Muni to prepare an environmental impact report; to date, the San Francisco Public Transportation Commission has sought to avoid going through this cumbersome and politically charged exercise (Metropolitan Transportation Commission, 1995a).

The second factor hampering Muni's service reliability is the condition of its rolling stock.

Muni has received special dispensation from the Federal Transit Administration to replace its light rail fleet before it has reached the end of its scheduled useful life because of chronic mechanical problems and the unavailability of spare parts. Even with this special dispensation, however, Muni will not be able to fully replace its problem-plagued light rail fleet until at least 1999 (San Francisco Municipal Railway, 1995).

The performance of the trolley bus fleet, most of which is currently operating beyond the end of its scheduled replacement life, has deteriorated significantly in recent years; between fiscal year 1992 and fiscal year 1994 the number of miles between roadcalls for the trolley fleet dropped 69 percent. Muni has a total of \$32 million in approved grants for trolley coach replacement dating from fiscal year 1992, yet the shorthanded planning and administrative staff have yet to seek bids for replacement vehicles (Metropolitan Transportation Commission, 1995). The situation with the motor bus fleet is similarly dire. At one point in early 1995, 20 percent of Muni's entire diesel fleet was unavailable for service due to structural and mechanical flaws in the vehicles.

Finally, the introduction of new service on rail projects currently under construction has the potential to exacerbate the problems with service reliability. Some new operating funds will be available from a local transportation sales tax, but not enough to fully cover the incremental operating cost of the new service, meaning that existing service will probably be cut to finance rail service expansion.

The Funding Picture

Much of the explanation for Muni's declining service levels, reliability, and ridership can be found in an evaluation of Muni's revenues. Muni's operating costs are among the highest in the nation, but revenues from both fares and subsidies are lagging well behind the rate of inflation during the 1990s despite the advent of a local transportation sales tax and generous contributions from the San Francisco general fund.

As with nearly all public transit systems, Muni has experienced a steady erosion of federal operating support in recent years. Between fiscal year 1990 and fiscal year 1994 Muni's federal Section 9 operating support dropped 26 percent in constant dollars, and now accounts for just 2 percent of overall revenues. While more stable than federal operating support, local, regional, and state subsidies to Muni declined as well; in real terms, these combined subsidies have shrunk by 4 percent since the 1990 fiscal year (U.S. Department of Transportation, 1991, 1992, 1993, 1994b).

While nearly all U.S. transit systems have received less federal operating support in recent years, Muni has experienced a proportionally greater decline in federal operating subsidies than has its sister systems in the San Francisco Bay Area, due primarily to the growth and expansion of eligible suburban transit operators. The overall federal Section 9 operating apportionment to San Francisco Bay Area transit systems has fallen by about 10 percent in real terms since 1990, compared to a near 25 percent drop for Muni.

Although public transit managers and policy boards are understandably anxious to preserve any and all funding for their services, federal operating assistance is no longer a significant part of Muni's operating budget, accounting for just over 2 percent of total revenue.

By comparison, California's Transportation Development Act (TDA) is the nation's

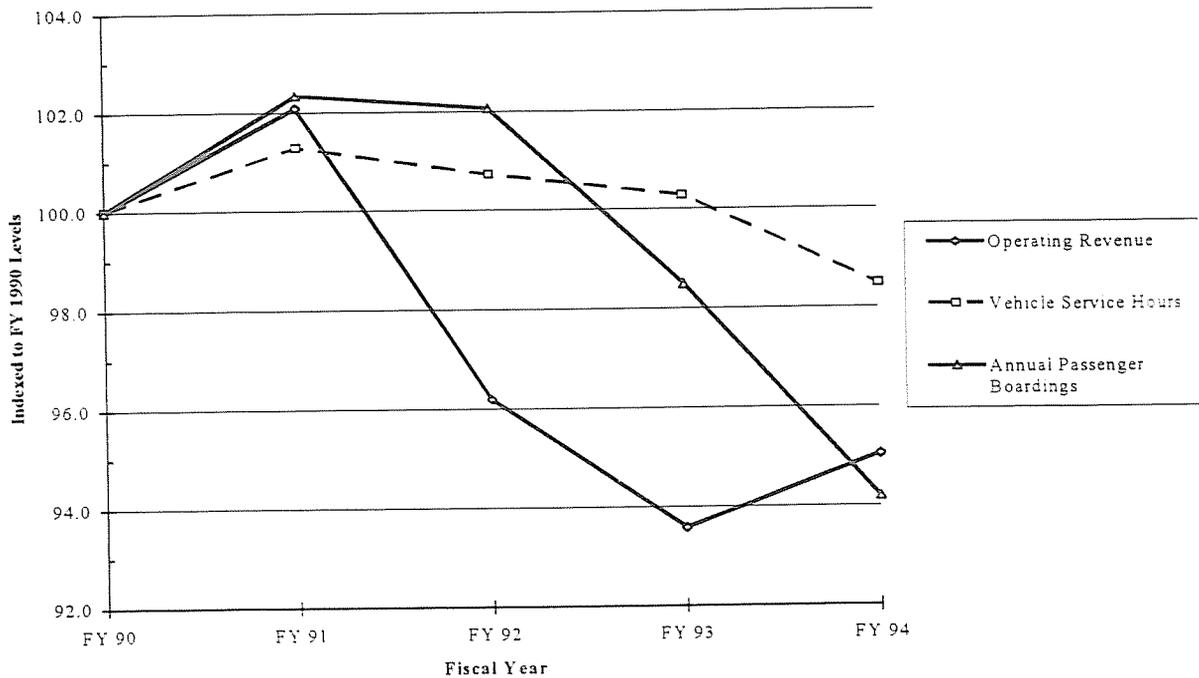
largest non-federal public transit subsidy program and provides Muni with nearly 10 percent of its operating revenue (and over 80 percent of total revenue for some suburban Bay Area operators). Far more important than either federal or state support for Muni is local support from the City and County of San Francisco. Local subsidies to Muni run in excess of \$100 million annually from general funds and parking fees and fines, and cover nearly half of all costs. This local subsidy of Muni is far greater, both in absolute terms and relatively, than for any of the other 22 Bay Area operators. Operating income, comprised mostly of fares, accounts for about one-third of Muni's operating revenue.⁴

The predictable result of declining real revenues and stable, high costs has been deteriorating service levels and quality, which in turn have caused Muni's ridership to fall. Figure 6 indexes the trends of operating revenue, vehicle service hours, and patronage since the 1990 fiscal year; it shows that ridership has declined more rapidly than vehicle service hours over the past four years. This is due to declining service effectiveness; since fiscal year 1992, the average number of passengers per revenue vehicle hour on Muni has declined from 82 to 77, a 6 percent decline. This declining service productivity mirrors the overall trend among the top trend transit systems noted above. In the case of Muni, these productivity declines are most likely due to the significant deterioration of service quality and reliability outlined in the previous sub-section; at

⁴ Base fares have increased on Muni, but over the past five years these increases have not paced the inflation rate as measured by the Bay Area Consumer Price Index. It is interesting to note, however, that fare revenue (and average fare per boarding) on Muni has been increasing in real terms while ridership has been declining. Muni officials report a significant decline in monthly pass sales over the past two years, which has increased the net fare paid per boarding irrespective of the base fare. A number of transit systems around the U.S. have reported anecdotal evidence that low-income riders are purchasing fewer discounted monthly unlimited ride passes because of the high up-front costs of the passes and the risk associated with losing the pass or having it stolen.

least 1 in 20 service runs were missed during the 1994 fiscal year.

Figure 6: Trends in Revenue, Service Hours, and Passenger Boardings on San Francisco Muni: 1990-1994.



Source: Metropolitan Transportation Commission, 1995a.

Perhaps most sobering is that Muni's financial picture continues to worsen. While inflation-adjusted revenues fell 6 percent in the four years between fiscal year 1990 and fiscal year 1994, Table 8 shows that inflation-adjusted revenues are expected to decline by 8 percent in the two years between fiscal year 1994 and fiscal year 1996. This continued erosion of revenues will mean more service cutbacks, more missed runs, less reliable service, and, in all likelihood, an increasing erosion of patronage.

**Table 8: Operating Budget Trends for the San Francisco Municipal
Railway.**

(Thousands of 1993 Dollars)	Actual 1993-94	Estimated 1994-95	Proposed 1995-96	Absolute Change 1994-96	Percent Change
INCOME	\$94,951	\$86,389	\$80,999	-\$13,952	-14.7%
Federal	\$6,649	\$5,497	\$4,712	-\$1,937	-29.1%
State/Regional	\$46,686	\$41,650	\$44,263	-\$2,423	-5.2%
Local	\$122,673	\$126,922	\$118,979	-\$3,694	-3.0%
SUBSIDIES	\$176,008	\$174,070	\$167,954	-\$8,054	-4.6%
TOTAL REVENUES	\$270,959	\$260,419	\$248,954	-\$22,005	-8.1%
TOTAL EXPENSES	\$270,959	\$260,419	\$248,954	-\$22,005	-8.1%

Note: All data are given in 1993 dollars assuming an annual inflation rate of 5% beyond 1994.
Source: Metropolitan Transportation Commission, 1995b.

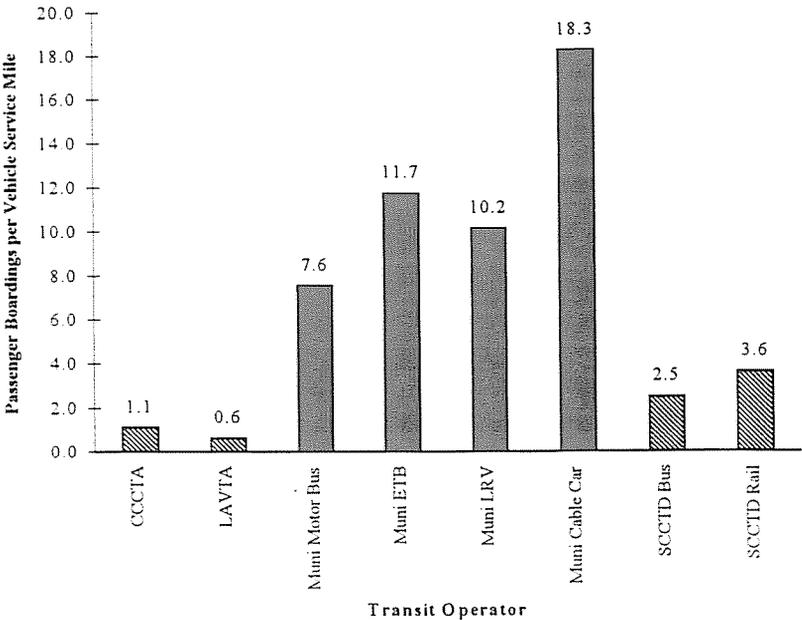
Revenues, Vehicle Hours, and Ridership: The Experience of Other Bay Area Operators

In contrast to the steady declines in service and patronage at Muni, several other Bay Area transit operators have fared far better in recent years. Many of these systems have expanded service and added passengers during the period that Muni has cut service and lost riders. And, like the aggregate analysis of the Top-Ten systems cited above, the ridership gains by the suburban Bay Area systems have failed to offset the ridership losses on Muni.

For the purposes of comparison, Muni is juxtaposed in this section with three other San Francisco Bay Area transit operators: the Santa Clara County Transit District ("County Transit") centered around the region's most populous city, San Jose; the Central Contra Costa Transit Authority ("The County Connection") serving the northeastern suburbs of Contra Costa County; and the Livermore Amador Valley Transit Authority ("Wheels") serving suburban Alameda County. These three comparison systems are similar to Muni in that they primarily offer local

service, with feeder service to rail transit stations; but they do so in much lower density, suburban settings. Not surprisingly, Muni service, regardless of mode, is far more effective than its suburban counterparts; Figure 7 shows that all four modes operated by Muni substantially outperform the bus and rail service on the suburban systems.

Figure 7: Service Effectiveness on Muni and Comparison Suburban Systems



Source: Metropolitan Transportation Commission, 1995a; U.S. Department of Transportation, 1991, 1992, 1993, 1994c.

While Muni's ridership has been declining since 1990, ridership levels of the comparison systems have either remained stable or have increased. Between fiscal year 1990 and fiscal year 1993, the total number of unlinked trips on Wheels increased 17%, from 694,000 to 811,000, on County Transit the increase was 14%, from 46 million to 52 million, while The County

Connection added 50,000 annual riders for a 1.2% increase. During this same period, Muni ridership declined 3.9% from 239 million to 230 million, and then dropped another 10 million in 1994 to 220 million (Metropolitan Transportation Commission, 1995a; U.S. Department of Transportation, 1991, 1992, 1993, 1994c).

The reasons for rising suburban transit ridership in the Bay Area with a concomitant decline in central city ridership is due largely to relative changes in revenues and service during the early 1990s. Table 9 compares the relative changes in operating revenues, vehicle service hours, and ridership for Muni and each of the comparison systems. Both Wheels and The County Connection increased operating budgets, expanded service, and added riders during the early 1990s. County Transit operates over 500 vehicles and is one of the largest suburban transit systems in the U.S. County Transit has managed to add riders in recent years despite an inflation-adjusted 18 percent decrease in operating revenues, due largely to cuts in low-productivity bus service (the system-wide farebox recovery rate was below 12 percent in fiscal year 1993) and a tripling of service hours on the comparatively well-patronized light rail service over the four year period.

Table 9: Revenue, Service, and Ridership Trends on Comparable Bay Area Transit Systems.

Transit System	Operating Revenue (1993\$)	Revenue Vehicle Hours	Annual Ridership
San Francisco Muni	-6.0%	-1.3%	-3.9%
The County Connection (CCCTA)	5.2%	17.8%	1.2%
Wheels (LAVTA)	24.3%	8.7%	16.9%
County Transit (SCCTD)	-17.9%	-1.0%	13.8%

Source: U.S. Department of Transportation, 1991, 1992, 1993, 1994c.

CONCLUSION

While Muni's ridership losses have been small when compared those in New York or Chicago, they are accelerating. Muni's ridership in fiscal year 1994 was 10 million less than in the previous year, and data for the 1995 fiscal year indicate that there were further declines. If operating revenues continue to shrink in real terms, as is currently projected, Muni will experience accelerating ridership declines through the mid-1990s. Suburban transit systems will continue to lay claim to increasing shares of transit funding, and significant decreases in Muni operating costs are very unlikely. Muni's labor costs are far higher than its suburban counterparts but, despite declining service levels and quality, a significant restructuring of Muni's costs would be very difficult politically. The current labor contract, for example, sets driver wages at the average wages paid by the highest wage and second highest wage transit systems in the country, which insures that Muni will remain among the highest-cost U.S. systems.

While the operating environments, organizational structure, and funding picture for each of the Top-Ten systems is unique, the ridership losses at San Francisco Muni are representative of the overall declines among the nation's largest transit systems. And while this case study of Muni cannot be generalized to other operators, it does show how high and rising costs in concert with flat or declining revenues have combined to erode big city transit ridership in the early 1990s. These ridership declines result from a worsening cost-revenue squeeze and declining service productivity that, in the case of Muni, are likely related to seriously eroding service quality. The unfortunate result is that the nation's few transit-friendly cities, with population and employment densities sufficient to support significant shares of transit ridership, are in a serious state of decline; a decline that more than offsets ridership gains by many smaller, less service productive

transit systems around the country. And, short of substantial subsidy increases and/or substantial decreases in operating costs, the "Top-Ten Countdown" for large urban transit operators will likely continue into the foreseeable future.

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