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Rail Disasters 2005:

The Impact of Rail Transit on Transit Ridership: An Update to Great Rail Disasters

By Randal O'Toole

POLICY STUDY 336

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An update to Great Rail Disasters

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Abstract

This paper reviews ridership and other transit data published by the Federal Transit Administration from 1982 through 2003, plus 2004 ridership data published by the American Public Transportation Association, to determine the long-term effects of rail transit on transit ridership. The report also uses 1982–2003 data on miles of driving in each urban area published by the Federal Highway Administration to determine changes in transit's share of regional travel. The report shows that:

- Over the past two decades, transit ridership has declined in thirteen of twenty-three U.S. regions that have rail transit;
- In four regions that have built new rail lines since 1970, transit ridership is growing, but at slower rates than before rail construction began;
- In three other regions, transit ridership is growing but not as fast as the growth in auto driving;
- In one region, transit passenger miles are growing as fast as the growth in auto driving, while in two other regions either transit trips or transit passenger miles are growing faster than the growth in auto driving.
- For comparison, the report identifies several regions with bus-only transit, including Austin, Charlotte, Las Vegas, Louisville, and Raleigh-Durham, in which transit is growing faster than auto driving.

Rail transit is promoted as a way to reduce congestion and air pollution. But it cannot do these things if rail construction causes or is accompanied by declines in overall transit ridership, or if it slows the growth in transit ridership to less than it was with a bus-only transit system.

A close review of individual cases reveals that the high cost of rail transit is often the cause of declining or slower growing transit ridership. Transit agencies often cannot afford to pay for rail's high construction costs, or to pay off the debt incurred in rail construction, without raising fares or cutting back on bus services. The high costs of Los Angeles rail construction forced service cuts that caused a 25-percent decline in transit ridership between 1985 and 1995, while the costs of debt service during a recession forced service cuts that caused a 33-percent decline in San Jose ridership between 2001 and 2004.

Nationally, the high costs of rail transit make transit increasingly inefficient. In the past decade, transit ridership has grown at less than 1 percent per year, while transit subsidies have grown by nearly 4.5 percent per year. Moreover, rail transit poses a serious equity problem: While rail lines are seen as a way of getting middle-class suburbanites out of their cars, to build them many regions have sacrificed service to low-income, inner-city neighborhoods.

The paper concludes that Congress has given transit agencies incentives to overinvest in capital-intensive projects in order to get "their share" of federal funds. Congress must fix these incentives while local transit officials must work to insure their agencies provide the most efficient service possible to their customers.

Contents

Electronic copies of *Great Rail Disasters*, *Rail Disasters 2005*, and related data and information may be downloaded from americandreamcoalition.org/rail2005.html.

Executive Summary

This update to *Great Rail Disasters*, which was published in February 2004, traces transit ridership from 1982 through 2003 in nearly all U.S. urban areas that had rail transit in 2003. It also reviews preliminary data for 2004, compares the growth of transit usage with the growth of driving in these regions, and presents an overview of the transit industry as a whole. Each transit system is given a letter grade, A through F, based on its growth in transit ridership relative to the region's growth in driving. Major findings include:

1. The eight "old rail regions"—that is, regions with rail transit throughout the twentieth century—received an average grade of F+ because all but Boston have suffered declining or stagnant transit ridership over the past two decades.
2. Fifteen "new rail regions"—that is, regions served by bus-only transit in 1970 that have built new rail lines since then—received an average grade of D– because most of them have had stagnant transit ridership or ridership growing either slower than the growth in driving or than transit grew before the region built rail lines. Only two of these regions, San Diego and Washington, received a grade higher than D.
3. In contrast, eight fast-growing regions served by buses only through 2003 received an average grade of B+ for their ability to attract new transit riders much faster than the growth in regional driving.
4. The high cost of rail transit produces two major threats to transit systems. First is when high construction costs and cost overruns force transit agencies to cut back on bus service and/or raise fares, depressing transit ridership. This is best illustrated by Los Angeles, which lost 25 percent of its transit riders when building rail transit between 1985 and 1995, but similar circumstances can be found in Portland, Sacramento, and Salt Lake City, among others. Second is when a recession reduces the tax revenues that subsidize transit, forcing transit agencies to cut transit service to avoid defaulting on rail construction bonds. This is best illustrated by San Jose, whose transit ridership dropped by a third in response to service cuts made since 2001, but similar circumstances can be found in San Diego, San Francisco, and Washington, among others.
5. Experience in cities that have built new rail transit suggests that the opening of a new rail line can produce a one-time increase in transit ridership, but does not increase—and often reduces—ridership growth. Even the one-time increase is not guaranteed and depends on the agency not being forced to cut bus service to pay for the rail construction.
6. In a few regions that have highly concentrated job centers, such as Boston and Chicago, heavy rail or commuter rail has increased transit passenger miles even if transit ridership has remained flat or declined. While this may sound like good news, in some cases it indicates that transit is serving middle-income suburbanites at the expense of cutting service to low-income inner-city residents. In any case, neither heavy rail nor commuter rail have worked in areas with dispersed jobs, such as Baltimore, Dallas, Miami, and Los Angeles.
7. Inflation-adjusted subsidies to the transit industry have grown from $20 billion per year in 1992 to nearly $31 billion in 2003. These compare with subsidies to highways of $6.6 million in 1992 growing to $15.2 billion in 2003. Yet highways produce nearly 100 times as much passenger transport plus far more freight transport than transit.
8. Transit ridership in 2004 was less than in 2001 and 2002. Even when transit ridership has been growing, it hasn't grown as fast as improvements to transit service. Achieving a 10-percent increase in ridership requires a 30-percent increase in transit service. This helps explain why subsidies to transit have grown about four times as fast as ridership.
9. The growing cost of transit is in part due to the high cost of rail transit. Although rail transit carries only 36 percent of transit trips, it consumes 66 percent of transit capital funds. Light rail is particularly wasteful, producing only 3.6 percent of transit trips yet sonsuming 12 percent of transit capital funds.

Transit's fundamental problem is that Congress has given transit agencies incentives to overspend on high-cost transit systems rather than to provide the most efficient transit service to the industry's core market of low-income and other transit-dependent people. The result is more hardship for such low-income people while transit is increasingly a subsidy to well-off suburbanites. Fixing this problem will require major changes to the federal transportation funding process.

Introduction

Urban regions across the United States increasingly see rail transit as a panacea for reducing congestion and revitalizing cities. At least three-dozen regions that currently have bus-only transit systems are contemplating building rail transit lines. In the November, 2004 voters at least five urban areas—Austin, Denver, Miami, Phoenix, and San Diego—approved construction of new or expanded rail systems.

The idea of rail transit is certainly seductive. Instead of being stuck in traffic, people can relax in fast, gleaming trains as they glide to their jobs or other destinations in downtown and other regional centers. Even if they haven't much used them for passenger travel in more than a generation, Americans have long had a romantic relationship with trains.

But government-financed projects that cost hundreds of millions or billions of dollars must do more than produce a warm feeling in the hearts of rail fans. When selling the idea of rail transit to elected officials and the public, rail advocates emphasize that rail service can increase transit ridership, attract people out of their automobiles, and reduce congestion. This report shows that, by these criteria, few rail transit projects have been successful.

- Transit ridership is declining in five out of eight regions with older rail transit systems and is flat in two others;
- In five regions with new rail transit—Atlanta, Baltimore, Buffalo, Los Angeles, and St. Louis—ridership has fallen below peak levels in the 1980s before rail construction began or when in was in the early stages;
- In at least five other new-rail regions—Dallas-Ft. Worth, Denver, Portland, Salt Lake, San Jose—transit ridership is growing, but more slowly than when the region relied on bus-only transit systems;
- Only in Boston has transit usage grown faster than the growth of driving and only in Dallas-Ft. Worth, New York, Salt Lake City, San Diego, San Francisco, and Washington have transit kept pace with the growth in driving. In Dallas-Ft. Worth and Salt Lake City, it was the bus system, not rail transit, that enabled transit to keep up with driving;
- In seven regions—Atlanta, Baltimore, Buffalo, Chicago, Los Angeles, Philadelphia, San Francisco, and St. Louis—transit trips declined from 1980s peaks while passenger miles grew. This suggests a reverse Robin-Hood effect, as transit agencies sacrificed their core base of low-income inner-city residents to capture business from relatively wealthy suburbanites.

The problem is that modern cities are far too decentralized for rail transit to work. Throughout the twentieth century, residential areas rapidly spread out into the suburbs, and jobs soon followed. Regions that have grown since World War II, such as San Jose and Phoenix, are especially unsuited to rail transit because they have no real job centers that can provide major rail destinations. With no concentrations of either housing or jobs, rail transit can only go from where people aren't to where they don't want to go. As jobs decentralize in many older rail cities, such as Chicago and Philadelphia, rail transit is failing as well.

Great Rail Disasters examined America's existing rail transit systems in 2004, looking at the effects of rail transit on transit ridership, commuting, congestion, taxes, energy usage, safety, and land use. On average, the report concluded, rail transit has reduced the livability of every region in the U.S. that has it. The taxes needed to support rail transit system are higher yet the systems often perform more poorly than bus-only systems.

In response to *Great Rail Disasters*, the Victoria Transport Policy Institute issued a report claiming that rail transit has significantly improved transit ridership and reduced congestion in many U.S. cities.[1] However, the Victoria group only looked at a fixed point in time, not at trends over time. To see how rail transit influences transit ridership over time, this update to *Great Rail Disasters* examines ridership from 1982 through 2004. These ridership statistics are graphically portrayed for nearly every U.S. region that had rail transit in 2003.

Among the regions examined in this update are eight that had rail transit for many decades prior to 1970: New York, Chicago, Boston, Philadelphia, San Francisco, Pittsburgh, Cleveland, and New Orleans. Despite—or because of—rail modernization and expansions, transit has declined in most of these regions.

The major exception is Boston, which has significantly increased commuter-rail service in the past two decades and where strict land-use regulation has tried to discourage suburbanization and decentralization of jobs. In New York, transit ridership declined by 30 percent between 1984 and 1993, but has grown since then, though not yet to 1984 levels. In San Francisco, ridership has been flat but passenger miles have grown.

In all other regions with historic rail systems, transit has been in an almost continuous decline since—and probably well before—the early 1980s.

Fifteen regions with bus-only transit systems in 1970 opened new rail lines prior to 2003. Many followed a common pattern. In the first stage, the regional transit agency implements low-cost improvements to the bus system, including reduced bus fares, increased frequencies on popular routes, and fast express bus services. These lead to rapid gains in transit ridership, in some cases doubling ridership in as little as five years.

Next, the transit agency becomes enamored with the idea of building rail transit, often claiming that this will reduce operating costs. But construction costs are high and require the transit agency to go heavily in debt. In some cases, to pay for cost overruns, the transit agencies raise bus fares and/or reduce bus service, leading to ridership declines.

In other cases service survives through the original construction, but when the next recession reduces the tax revenues that support the agency, the agency cuts transit service to avoid defaulting on its bonds, which then reduces ridership. Recessions can hurt any transit agency, but will have the most effect on one that is heavily in debt. If half of an agency's costs are debt service, a recession that reduces revenues by 10 percent will force the agency to reduce service by 20 percent.

In either case, the opening of the first rail transit line often leads to a surge in transit ridership. This is because transit agencies usually operate rail lines, especially heavy rail and light rail, at higher frequencies and faster speeds than the bus lines they replace.

After this initial surge, however, rail ridership does not grow any faster, and often slower, than bus ridership had grown prior to rail construction. In many cases, transit ridership stops growing completely after the introduction of rail transit. In Dallas and St. Louis, the opening of additional rail lines failed to boost ridership—either attracting no new rail riders or increasing rail riders but reducing bus riders by a similar amount.

This pattern is obvious in decentralized regions that have built rail lines such as Atlanta, Salt Lake City, and San Jose. Yet a similar pattern can be seen in San Francisco and, to a lesser extent, Washington, both older regions with concentrated job centers that have built new heavy-rail lines. Although many people think Washington Metro and San Francisco BART systems are successful, the graphs show that much of the new rail ridership is offset by a reduction in bus ridership.

Even in systems with growing ridership, transit growth is rarely able to keep up with the growth in driving. Table one compares the growth of both transit trips and passenger miles with the growth of driving, showing that transit has been losing ground in most rail regions.

Table one also shows the same information for a number of fast-growing regions that, at least through 2003, had bus-only transit. In most of these regions, transit passenger miles have grown faster than driving.

Table One
Percent Growth in Driving, Transit Trips, and Transit Passenger Miles, 1983-2003

	Driving	Trips	PM
	Rail Regions		
Atlanta	153.9	18.8	60.3
Baltimore	94.5	7.7	23.5
Boston	53.6	49.1	122.8
Buffalo	75.1	-50.1	-35.0
Chicago	68.2	-19.7	0.2
Cleveland	55.8	-42.5	-44.4
Dallas-Ft. Worth	93.5	92.2	92.3
Denver	75.4	61.1	48.2
Los Angeles	64.4	26.4	34.2
Miami	115.1	67.7	83.9
New Orleans	23.6	-24.3	-26.3
New York	11.2	4.0	15.1
Philadelphia	70.1	-7.9	6.2
Pittsburgh	42.2	-23.9	-31.6
Portland	129.2	112.9	108.3
Sacramento	94.5	110.3	51.6
Salt Lake City	91.2	75.9	124.3
San Diego	101.3	136.1	103.5
San Francisco	122.5	-13.8	122.1
San Jose	64.9	33.3	41.7
Seattle	81.0	59.0	-5.0
St. Louis	90.8	-16.5	29.7
Washington	104.4	53.3	117.5
	Bus-Only Regions		
Austin	160.1	522.4	639.9
Charlotte	181.2	115.0	239.8
Eugene	58.0	72.9	23.8
Houston	80.5	73.9	111.0
Las Vegas	354.1	1,239.0	1,161.2
Louisville	61.3	8.8	70.0
Phoenix	146.6	146.1	117.9
Raleigh-Durham	239.3	430.4	923.2

Source: Driving data from Highway Statistics*, 1983 and 2003 editions, table HM-72; transit data from Federal Transit Administration National Transit Database, table 516083 for 1983; table 19 for 2003.*

Not all bus-only systems have done as well, and bus (like rail) has done particularly poorly in rust-belt or other slow-growing regions where jobs and residences are rapidly decentralizing. But, at least in fast-growing regions, this shows that well-managed bus systems can out-perform rail systems at a much lower cost.

A close look at table one reveals that, in most regions with rail transit, transit passenger miles have grown faster than transit trips, indicating the average trips are getting longer. This is most often true in regions with commuter rail and heavy rail, but rarely true in regions with just light rail. A prime example is San Francisco, where transit passenger miles increased by 122 percent but transit trips decreased by 14 percent. This is because trips on commuter rail and heavy rail tend to be much longer than bus trips, while light-rail trips are not.

This suggests that commuter and heavy rail have successfully attracted some suburbanites out of their automobiles. But in many regions the increase in passenger miles have come at a cost of losing transit trips; this probably represents a reduction in trips by central-city residents who tend to have lower incomes than suburbanites. This raises an equity question: should transit serve low-income and other people who have limited access to automobiles? Or should it attempt to attract higher-income people out of their cars?

While many rail advocates say it should do both, the experiences of many rail regions suggest that choosing the latter group leads to neglect of the former. Low-income and minority advocates in both Los Angeles and the San Francisco Bay Area have sued transit agencies or transit planners for building expensive rail service to wealthy suburbs while they let bus service to low-income neighborhoods stagnate or decline.

If growth in transit passenger miles significantly exceeds the growth in driving, transit has gained market share over the automobile. Table one shows that this has happened in only two rail regions: Boston and Salt Lake City—and most of the increase in Salt Lake City took place in the years before the light-rail line opened. In five other regions—Dallas, New York, San Diego, San Francisco, and Washington—transit has maintained its share of passenger travel. In the remaining sixteen regions, transit has lost considerable ground to the automobile.

Transit Modes

This report compares three rail-transit modes: light rail, heavy rail, and commuter rail. *Light rail* refers to modern vehicles that operate on rails that are sometimes in city streets and other times on an exclusive right of way. *Heavy rail* includes both subways and elevated lines that never operate in or intersect streets or pedestrian crossings. *Commuter rail* includes Diesel- and electric-powered trains that operate on the same tracks as freight trains or tracks recently used by freight trains. These trains rarely operate in city streets but may cross streets.

Heavy-rail trains tend to operate every 3 to 20 minutes and average 30 to 40 miles per hour. Light-rail trains typically go every 7 to 15 minutes and average 20 to 25 miles per hour. Commuter-rail trains typically operate a few times in the morning and a few times in the evening, but rarely in midday, and average 30 to 40 miles per hour. Some cities are proposing a new form of commuter rail known as *Diesel multiple units* (DMU) that are really a cross between commuter rail and light rail. Denver, for example, expects to operate DMU commuter rail every 15 to 30 minutes, or about half the frequency of light rail.

Other forms of rail transit include cable cars (now only in San Francisco), streetcars (*vintage* streetcars are tourist attractions but Portland has a streetcar that is supposed to be a legitimate form of transit), monorails, and *automated guideways*, sometimes called people movers. Seattle's monorail is mainly a tourist attraction and is not shown in the Seattle chart. Miami's automated guideway ridership is shown on the Miami chart, but automated guideways in Detroit, Jacksonville, and other cities are not included in this paper.

Buses are the main transit rival to rails. Buses have much lower capital costs and, on routes of comparable ridership, lower operating costs than most rail transit. *Local* bus routes stop five to six times per mile and typically operate every 15 to 60 minutes. *Express* bus routes typically go long distances without stops but usually operate only during rush hour. *Bus-rapid transit* is a new concept that increases frequencies and reduces the number of stops to light rail's average of once per mile or commuter rail's average of once every five miles.

Any bus can have air conditioning, padded seats, and other comfort features of rail vehicles. If frequencies and speed are similar, does rail transit have an advantage over bus-rapid transit?

Several studies say the answer to this question is "no." "There is no evident preference for rail travel over bus when quantifiable service characteristics such as travel time and cost are equal," says a 2002 article in *Transport Policy Journal*.[2] "BRT systems should be as effective as rail in generating patronage"concluded another comparison

of bus-rapid transit with light and heavy rail.[3] Bus-rapid transit is clearly a low-cost competitor to rail.

Transit Incentives

So why do so many transit agencies want to build rail transit? The answer is that the budgetary incentives built into the federal transportation funding process combined with the pork-barrel aspects of expensive transportation projects combine to favor rail even when buses can do as well or better for far less money.

When Congress first provided money for transit, it was exclusively for capital projects; cities were expected to raise the money needed for operating costs. Several cities began building rail transit when Congress allowed cities to cancel interstate freeways and spend the funds on transit.

The problem cities faced was that the funds made available by canceling a freeway might be enough to double bus service, but they wouldn't have enough money to operate all those buses. On the other hand, replacing just one bus route with a rail line would consume large amounts of capital funds without significantly increasing operating costs. Not wishing to lose any federal funds, cities chose rail transit *because of*, not in spite of, its high costs.

Once a few cities built rail transit, other regions became concerned that they weren't getting their "fair share" of federal funds. This led to the current stampede for rail transit.

Today, Congress provides some money for transit operations, but more than 75 percent still goes for capital projects. Since 82.5 percent of the money spent by transit agencies on buses in 2003 went for operations, the federal funding formula still discourages bus transit. In contrast, agencies spent $3 on light-rail capital improvements for every $1 spent on operations, exactly the proportions of federal transit funding.

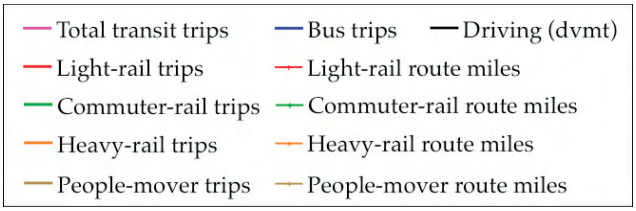
While bus-rapid transit is an attractive alternative to rails, federal rules also discourage its use. Bus-rapid transit works best if the buses can travel on uncongested lanes, but the lanes don't need to be exclusive bus lanes. High-occupancy vehicle lanes or high-occupancy/toll lanes would produce far more benefits than bus-only lanes. But federal transit rules say transit capital grants can only be spent on lanes that are used exclusively for buses. Since the costs of exclusive bus lanes can't be shared with auto and truck drivers, the only bus-rapid transit alternatives that can be considered by transit agencies are the most expensive alternatives, which makes rail appear relatively more favorable.

The pork-barrel aspects of rail transit reinforce the incentives in the federal budgeting process. Buying new buses creates few local jobs. But building new rail lines creates both construction and maintenance jobs. Transit agencies that wanted rail transit soon found allies in the railcar manufacturing, rail engineering and design, construction, and finance industries, not to mention construction unions. These allies lobby local elected officials and put up money for rail ballot measures that would never be available for ballot measures aimed solely at funding improved bus service.

Reading the Charts

While the charts in this update are all labeled, some of the lines so closely intersect that some labels for rail route miles may be omitted. To prevent confusion, the following legend is common to all charts: lines with hash marks represent route miles while plain lines represent transit trips; colors consistently indicate different forms of transit with purple representing total transit trips.

The graphs also show the growth in driving. To present driving on a similar scale to transit, it is measured in terms of millions of daily vehicle miles traveled (DVMTs). While daily miles of driving do not exactly correlate with annual transit trips, the graphs provide a good first approximation of whether transit is keeping



up with the growth in driving. The values of transit trips and daily vehicles miles of driving are read on the left-hand axis of each chart while route miles of rail are read on the right-hand axis.

This update also awards each rail system a letter grade based solely on the effects of rail transit on ridership, not on cost or other considerations:

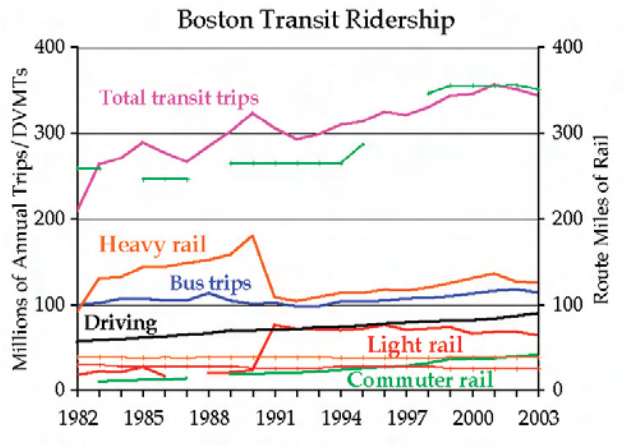
A: Ridership and passenger miles are growing faster than driving
B: Ridership or passenger miles are growing faster than driving
C: Transit passenger miles keep up with driving
D: Transit ridership growing, but slower than driving or when a bus-only system
F: Transit ridership is flat or declining

Old Rail Regions

The nation's first horsecar lines began operating in the 1850s, and cable car lines began in the 1870s. But rail transit didn't really take off until the development of the electric streetcar in about 1890. By 1920, every American city and town of any size had at least one streetcar line. But the growing popularity of the automobile led transit ridership to plummet in the 1920s, and to save money most streetcar companies converted to buses.

By 1970, only eight U.S. regions still had some form of rail transit: Boston, Chicago, Cleveland, New Orleans, New York, Philadelphia, Pittsburgh, and San Francisco. While some of these are considered "rust-belt" regions, all but Pittsburgh have enjoyed a growing population over the past two decades and all have experienced significant growth in driving. Yet transit has fared poorly in all but Boston and, in the 1990s, New York.

Boston



Boston is one of the few rail regions where transit works. Transit ridership appears to have increased nearly as fast as auto driving. Moreover, a quadrupling of commuter-rail trips in the last two decades translates into a huge increase in passenger miles. While transit trips and miles of driving both grew by about 50 percent in the past two decades, transit passenger miles grew by 122 percent. (The 1991 change in heavy- and light-rail trips is due to a redefinition of Green line subways as light rail.)

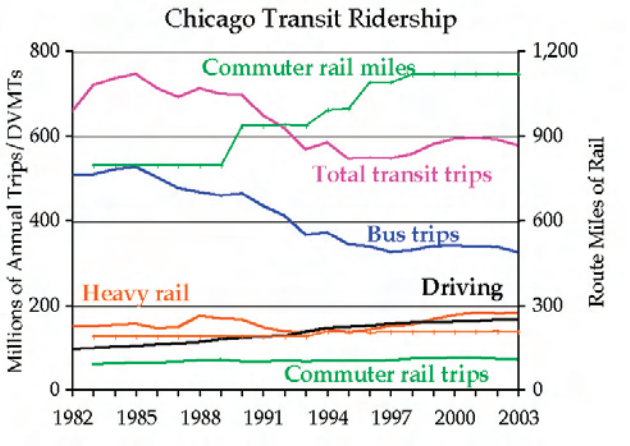
As a result, transit actually increased its share of motorized travel from 2.4 to 3.5 percent. This is largely due to the expansion of commuter-rail service; commuter-rail passenger miles quadrupled in the past two decades while other transit miles increased by only 67 percent.

Boston transit ridership grew in spite of a relatively slow rate of population growth. Or perhaps the two are related. Massachusetts has practiced various forms of growth management that have dramatically increased housing prices. According to Coldwell Banker, a "mid-level executive home" that costs $350,000 in the rest of the United States would cost well over $1 million in Boston. The National Association of Realtors says that the median price of homes sold in Boston is more than twice the median U.S. price.

The region's anti-sprawl policies have not really discouraged sprawl, and may even have encouraged some people to move further into the suburbs to find affordable housing. According to the Census Bureau, the Boston area's population density declined by 25 percent between 1990 and 2000. High housing prices have also slowed the region's population growth as employers open offices and factories in other regions more affordable to their employees. But the policies may have created enough dense job centers and dense suburbs to make transit work for suburbanites commuting to the city.

Grade: B—Transit passenger miles, but not trips, are growing faster than driving.

Chicago



Chicago is famous for its heavy-rail elevated lines and its commuter-rail service to numerous suburbs. These rail services not only have not immunized the region from rapid suburbanization, but their high cost has accelerated a decline in the region's transit ridership.

Chicago's transit ridership began a steep ten-year decline in 1985 that reduced annual transit trips by more than 26 percent. Buses lost 35 percent of their riders

and the elevated lost 13 percent. Thanks to a 25-percent increase in commuter service, commuter trips grew about 4 percent. The 11-percent loss of passenger miles was smaller than the loss in trips because commuter trips tend to be much longer than other trips. After 1995, ridership leveled off and then grew slightly through 2001 (table two). But it has declined since then, and APTA reports another small decline in 2004.

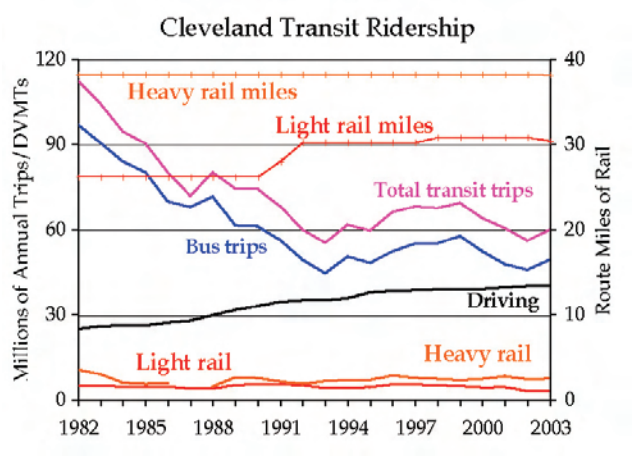
Chicago's problem is that jobs have followed people to the suburbs. The 2000 census revealed that Cooke County (in which Chicago is located) lost 18,000 jobs from 1990 while suburban counties gained 310,000. Not only did all of these new commuters take cars to work, some 38,000 commuters who usually rode transit to work in 1990 switched to autos by 2000. Rail transit is advertised as a cure to urban sprawl, but it obviously didn't help in Chicago.

Grade: F—Declining transit ridership.

Table Two
Chicago Transit, Percent Change from 1985

	1995	2003
Total transit trips	-26.8	-22.6
Bus trips	-34.7	-38.3
Heavy-rail trips	-12.9	16.5
Commuter-rail trips	4.1	10.5
Commuter-rail service	25.3	40.7

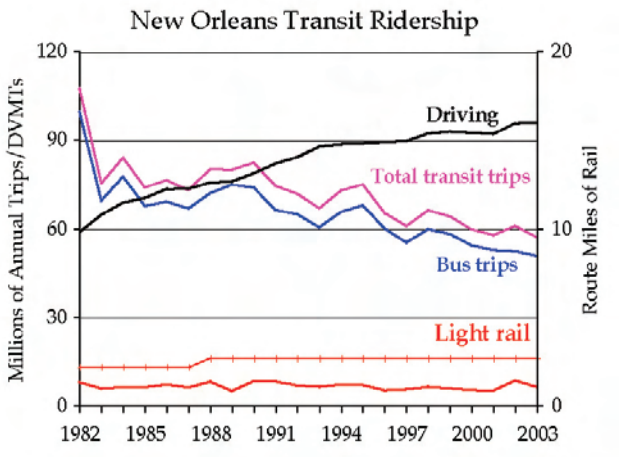
Cleveland



Cleveland modernized and slightly expanded its light-rail line in the early 1990s. But its bus ridership has fallen by half and rail ridership by more than 30 percent. Meanwhile, driving has increased by 23 percent despite a mere 7-percent increase in the population. Like Chicago, Cleveland shows that rail transit does little to prevent suburbanization.

Grade: F—Declining transit ridership.

New Orleans



New Orleans' "light-rail" is actually one of the nation's oldest operating streetcar lines, and the only one still using 1920s-era equipment. Although used mainly by tourists, the city is spending $38 million a mile expanding the system in the hope that it will "revitalize" parts of the region by bringing more tourists to those areas.

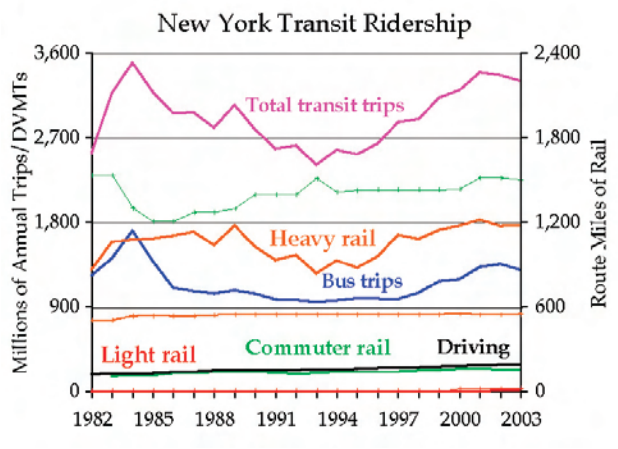
Meanwhile, bus ridership has fallen by a quarter since 1983 and by nearly half from 1982 if the numbers for that year are credible. At the same time, driving has grown by 36 percent.

The miles of driving shown in the chart correct an error in published data. According to *Highway Statistics*, the number of miles of driving on local New Orleans streets fell from 2.7 million miles per day in 1993 to under 0.5 million miles per day in 1994, without any compensating increase in any other category. This is obviously an error: either the numbers before 1994 or the numbers after 1995 are correct. The chart assumes the most recent numbers are correct and reduces the earlier figures accordingly.

The Texas Transportation Institute appears to have tried to correct this by increasing local driving in 1994 through 1997. But it did not change numbers for 1998 or later, leading to an unrealistic drop in driving in 1998. The above chart uses the Texas Transportation Institute numbers through 1993 and maintains local street driving after 1993 at 2.7 million miles per day. Given that driving on other New Orleans roads has grown by 10 percent in the past decade, this probably underestimates the growth in driving.

Grade: F—Declining transit ridership.

New York



Given that Manhattan has a population density of around 60,000 people per square mile and an employment density greater than 80,000 jobs per square mile, New York stands alone among American urban areas in its suitability for rail transit. Still, New York suffered a huge decline in both bus and subway riders in the late 1980s and early 1990s. This is likely due to the perception that city streets and subways were vulnerable to crime. Commuter-rail riders remained loyal, probably because this form of transit was considered safer.

New York transit has done phenomenally well since 1993, with ridership growing faster than driving. Part of this increase was in response to a new fare program that subway riders to transfer to buses without paying an extra fare. This increased bus trips without increasing revenues—and probably without getting many people out of their cars.

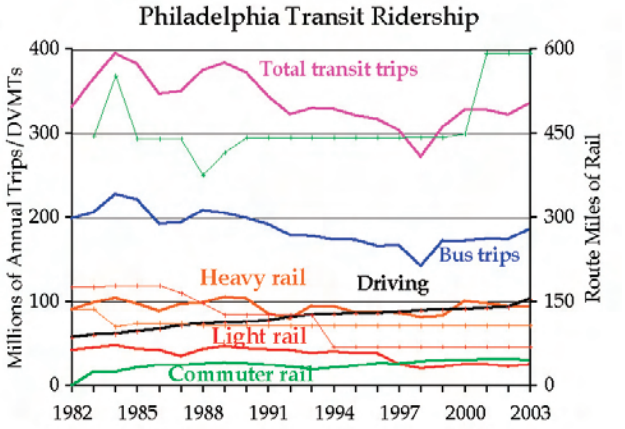
The 19-percent gain in commuter trips in the last decade is much smaller than the 36- to 40-percent gain in bus and subway trips. This suggests that once bus and subway ridership have fully recovered from their pre-crime slump, their growth will also slow.

Of course, the decline since 2001 is in response to 9/11; it is too soon to tell what the long-term consequences of this will be, but APTA's 2004 report posts a small gain for New York transit. In any case, it is clear that New York transit ridership is influenced by outside factors far more than by the number of miles of rail built by the transit agencies.

Grade: F—Long-term transit ridership is flat.

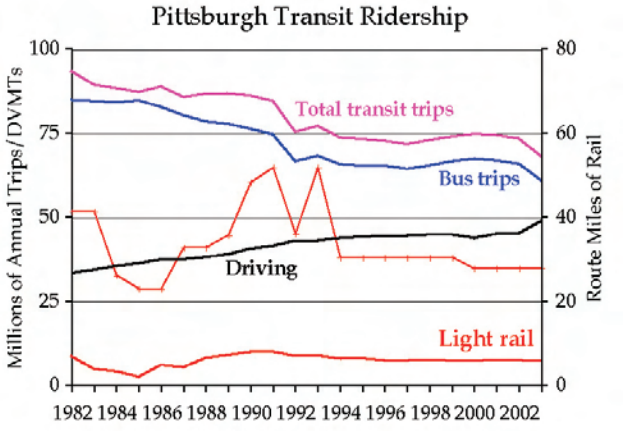
Philadelphia

Philadelphia transit has been on a downward trend for two decades, with a possible small recovery since bottoming out in 1998 due to a month-long strike. The only transit mode that carried more passengers in 2003 than 1983 was commuter rail. Bus and heavy-rail ridership are down 5 to 10 percent and light rail has lost nearly half its riders, largely due to the shrinkage of the light-rail system. Meanwhile, driving has grown by 70 percent.



Grade: F—Declining transit ridership.

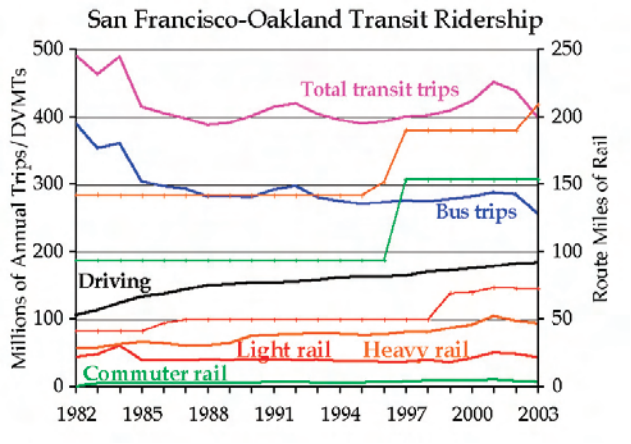
Pittsburgh



In addition to spending tens of millions of dollars per mile upgrading its streetcars into modern light-rail lines, Pittsburgh has built a number of exclusive (and expensive) busways. Yet transit ridership has steadily fallen. While rail ridership has at least remained constant in response to the modernization, bus ridership has fallen by about a quarter. The erratic fluctuations in rail route miles may reflect construction projects or may simply be an error.

Grade: F—Declining transit ridership.

San Francisco Bay Area



San Francisco had cable cars, electric streetcars, and trains to San Jose throughout the twentieth century. But the East Bay area is essentially a new rail region, as the Bay Area Rapid Transit (BART) system was built from scratch in the 1970s. BART's construction was so plagued with problems that it was accorded its own chapter in Peter Hall's book, *Great Planning Disasters*.[4] However, it now carries most rail riders and the vast majority of rail passenger miles in the region, largely because San Francisco has what may be the nation's second-largest concentration of downtown jobs.

The Federal Transit Administration considered the 1986 ridership figures submitted by Alameda-Contra Costa Transit, the region's second-largest bus operator, to be questionable and did not publish the numbers; the above chart uses the average of 1985 and 1987 numbers. Some of the numbers before 1986 may also be questionable, but they indicate that San Francisco Muni, the region's largest bus operator, lost a quarter of its bus riders in 1985 and has never recovered. While transit enjoyed a small increase in 2000 and 2001, from 2001 to 2003 total ridership declined by nearly 12 percent, and APTA reports a further decline in 2004.

Despite all the investments in rail transit, the region's transit ridership has essentially been frozen at 1987 levels for fifteen years. During the mid 1990s, the region made significant additions to the BART system, CalTrans commuter trains, and San Francisco light-rail mileage. Yet changes in ridership in response to these new services are barely perceptible.

Many transit advocacy groups, including the Bay Area Transportation and Land Use Coalition[5] and the San Francisco Chapter of the Sierra Club,[6] have come out against a proposed extension of BART to San Jose because it would take resources away from more effective but lower-cost transit services. Chris Peeples, founder of the Regional Alliance for Transit and now a member of the Alameda Contra Costa Transit Board, calls BART a "vampire" because it "sucks the lifeblood out of every transit agency with which it comes in contact."[7]

Low-income advocates have filed a lawsuit against the Metropolitan Transportation Commission, which distributes federal funds to Bay Area transit agencies, for including the multi-billion-dollar BART extension and expansion of CalTrains commuter trains in its regional transportation plan but excluding $700,000 in bus improvements to low-income neighborhoods in Richmond.[8] The lawsuit notes that the transportation commission calculated that the BART line to San Jose would cost $100 for each new rider and commuter trains would cost $26, while the Richmond bus improvements would have cost just 75 cents per new ride.

All in all, the San Francisco Bay Area offers little comfort to those who say that a comprehensive multi-modal rail transit system will significantly relieve congestion or attract people out of their cars.

Grade: F—Long-term transit ridership is declining or flat.

New Rail Regions

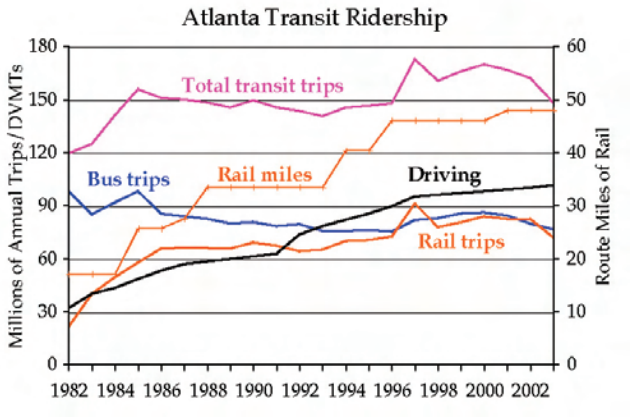
As streetcars and other forms of rail transit disappeared in the 1960s, several regions, including Atlanta, San Francisco, and Washington, began promoting the idea of replacing them with heavy-rail subway or elevated systems. Heavy rail seemed to do well in regions with dense job centers, such as San Francisco and Washington, but not so well in Atlanta and very poorly in Baltimore, Los Angeles, and Miami. As a result, the only regions planning to build new heavy-rail lines today are New York, San Francisco, and Washington.

Since light rail was expected to cost much less than heavy rail, it became the mode of choice for many cities in the late 1970s and early 1980s. Light rail could also run on existing (but heavily upgraded) railroad tracks, which usually had many grade crossings, while heavy rail's higher speeds usually demanded an exclusive right-of-way. San Diego was the first American city to open a modern light-rail line, followed by Portland, Buffalo, Sacramento, and San Jose in the 1980s and several more regions in the 1990s. Light rail is currently being planned or under construction in Charlotte and Phoenix, and dozens of other cities are talking about new light-rail lines.

Commuter rail is often seen as a relatively low-cost way of providing rail service to parts of a region that don't have light- or heavy-rail transit. This means most new commuter lines have been added to regions that already have another form of rail transit, including Dallas, Miami-Ft. Lauderdale, San Diego, and Washington. Because of limited operating hours, the actual numbers of people carried by new commuter rail lines are very low, though longer trips make the passenger miles a bit more significant. Denver, Portland, and Salt Lake City are all planning new commuter-rail lines, and Austin voters approved funding for a new commuter-rail line last November.

Atlanta

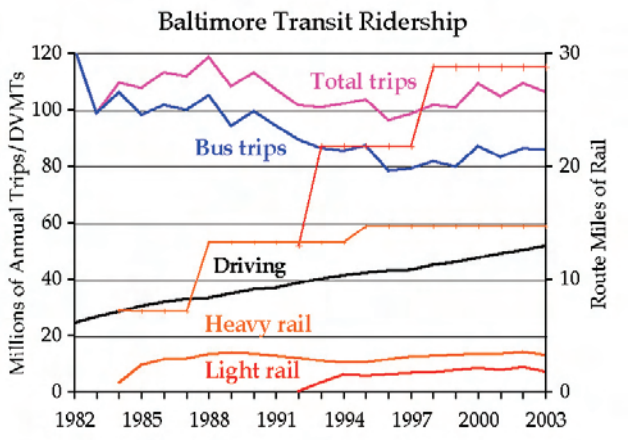
Atlanta opened its first rail line in 1979. The incremental growth of the rail system initially led to a major surge in transit ridership. However, ridership peaked in 1985 and subsequently declined slowly for about a decade. The 1996 Olympics (shown in the chart in fiscal year 1997) gave the transit system a boost, but ridership subsequently declined and by 2003 was again lower than its 1985 peak. APTA reports another half-percent decline in 2004.



Atlanta transit's anemic record more closely resembles a region in decline, such as Pittsburgh, than a growing one such as Portland. Of course, this isn't so. Over the years shown in the figure, Atlanta's population nearly doubled and annual miles of driving more than tripled. If Atlanta had invested in low-cost improvements to its bus system instead of expensive rail transit, the transit system might have kept up with this growth. Instead, it is increasingly irrelevant, having declined from 2.0 percent of motorized travel in 1983 to 1.3 percent two decades later.

Grade: F—Transit ridership is flat or declining.

Baltimore

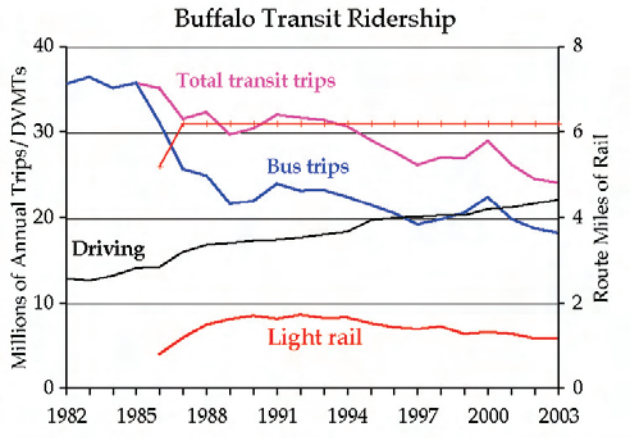


Baltimore has tried heavy rail, light rail, and commuter rail, but none have done much for the region's transit system. Maryland's transit agency estimates that 90 percent of the state's commuter rail riders are going to Washington, DC, not Baltimore, so commuter rail is included in the Washington chart.

The region opened its first heavy rail line in 1984, but rail ridership was partly offset by declines in bus ridership. Doubling the miles of heavy rail in 1988 resulted in few new rail riders. Opening a light-rail line in 1992 did little to help the system. Increasing light-rail miles by a third in 1998 resulted in few new riders. Overall, the steady decline in bus ridership more than offset any new rail riders. Baltimore's bus system carried more riders in 1982, with a much smaller population, than the bus-plus-rail system has carried anytime since.

Grade: F—Transit ridership is declining.

Buffalo



In the late 1970s and early 1980s, Buffalo anticipated rapid growth in its economy and planned an ambitious light-rail system. The growth never materialized, so after the first light-rail line opened in 1986 no further construction was contemplated. The opening of the rail line coincided with a massive decline in bus ridership.

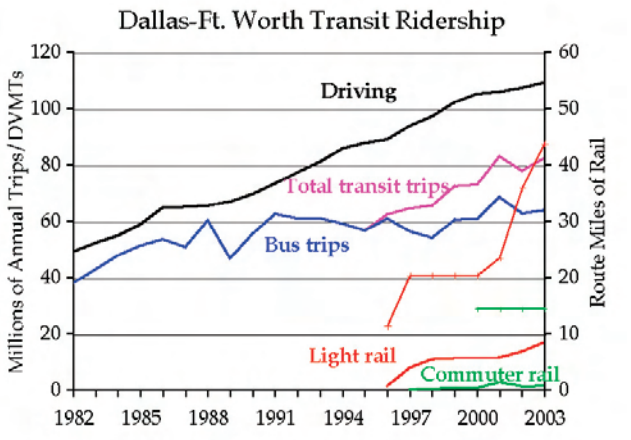
This decline may be due to suburbanization, but it might have been unnecessary. While Buffalo's population did not grow during these years, neither did it decline. Annual driving increased by 70 percent. Transit might have kept pace with this increase if it not spent too much money on the rail line.

Grade: F—Transit ridership is declining.

Dallas-Ft. Worth

Dallas opened its first light-rail line in 1996 and began commuter rail service between Dallas and Ft. Worth in 1997. The number of travelers carried by commuter rail is insignificant, but at first glance light-rail appears to be a success.

A more careful look reveals that the main growth in transit ridership in the past decade has been in bus riders, not rail riders. Opening of the light-rail line led to a decline in bus riders that almost equaled the increase in rail riders. After 1998, bus ridership increased but rail ridership was flat. Opening of a new light-rail line in 2001-2003 led to a small increase in rail ridership that was mostly offset by a decline in bus riders.



The miles of driving in the Texas Transportation Institute database contained an error similar to that for New Orleans: daily driving on local streets is supposed to have dropped from 15 million miles in 2000 to less than 4 million miles in 2001. Since Atlanta, which is slightly smaller than Dallas-Ft. Worth, reports 17 million miles of daily driving on local streets, it is likely that the earlier number is correct.

The above chart adjusts the data by assuming 15 million miles of daily driving on local streets each year after 2000. The alternative, reducing miles of driving before 2000, wouldn't change the shape of the graph, only its height. Either way slightly underestimates the growth in driving after 2000.

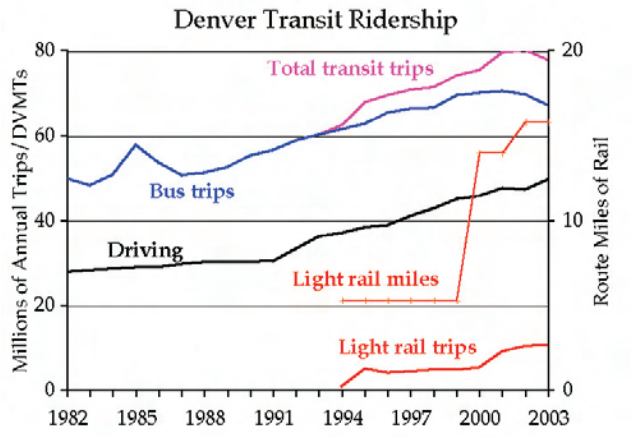
Grade: D—Transit ridership is growing, but even before the current recession it was growing slower than bus-only ridership grew before 1988.

Denver

Denver's bus ridership has been slowly growing since 1987. The opening of a downtown light-rail line in 1994 seemed to slightly increase this growth, but the increase may be mainly due to the forced transfer of bus riders to the rail cars — since each transfer is counted as one more transit trip.

In 1999, the line was extended to one of Denver's suburbs. Denver's transit agency says that about a third of the riders on this line are not former bus riders.

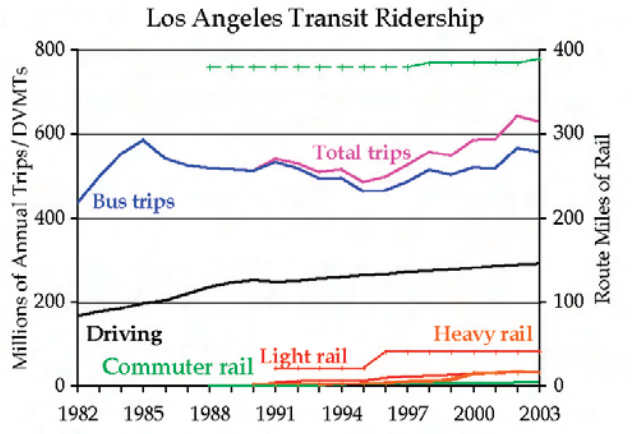
However, the total increase in riders was smaller, possibly because transit riders were lost due to rerouting of formerly direct suburb-to-downtown bus routes to rail feeder routes made transit inconvenient for some people. While the chart indicates an overall increase in transit ridership after the new line opened, the recession beginning in 2002 led to a decline in ridership.



Not counting the decline in 2003, transit ridership grew by 60 percent since 1982. In this same period of time, the region's auto driving has grown by 70 percent.

Grade: D—Ridership is growing (at least before the recession), but slower than driving.

Los Angeles



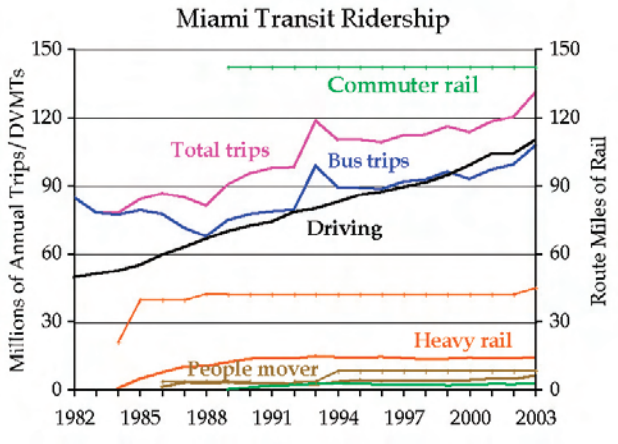
As it leads in so many other things, Los Angeles led the nation in modern rail transit disasters. In 1982, Los Angeles's transit agency adopted a low 50-cent fare, leading to a whopping 40-percent increase in ridership in just three years at a minimal cost to taxpayers. But in 1985, the agency started increasing fares and cutting bus services to pay for the cost overruns associated with the agency's ambitious rail construction plans. Over the next decade this caused a 25-percent loss in ridership.

A bus-riders' union of low-income black and Hispanic transit riders represented by the NAACP sued the agency for discrimination because it was neglecting bus service to low-income neighborhoods in favor of rail lines that more typically served white, middle-class neighborhoods. This led to a consent decree in which the agency agreed to restore bus service, which in turn forced a cut back in the agency's rail plans. The resulting improvements in bus service have not completely satisfied the bus-riders' union, but they have helped recover bus ridership.

The consent decree resulting from the bus riders' union lawsuit went into effect in 1997, requiring restored bus service and leading the agency to cut back its rail plans. Since then, bus ridership has nearly returned to its 1985 levels. The subsidy required to add each new bus rider was a bit more than $1 compared to the $20-plus cost per new rail rider.

Grade: F—Ridership would be far greater today if Los Angeles had maintained its bus-only system.

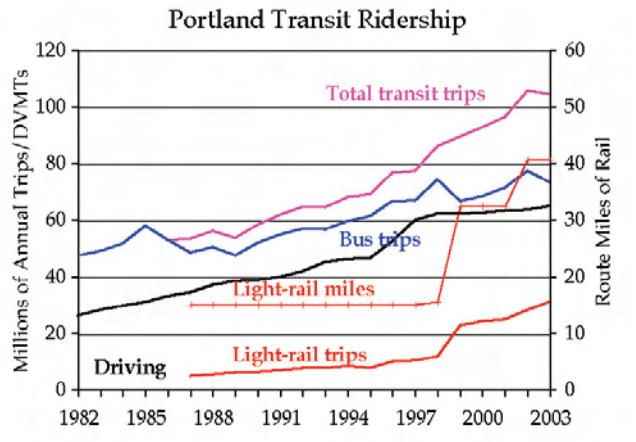
Miami-Ft. Lauderdale



In the early 1980s, Miami invested in an expensive heavy-rail line and an expensive and even less-used people mover. Later in the decade, Ft. Lauderdale started a commuter-rail service. None of the rail services has attracted many riders, but bus ridership has grown. Bus use declined in the early 1980s, possibly due to service cuts or fare increases while transit agencies focused on rail transit. But since 1988, the growth in bus ridership has almost equaled the growth in auto driving.

Grade: D—Ridership is growing, but not as fast as driving—and almost all of the growth is in buses.

Portland



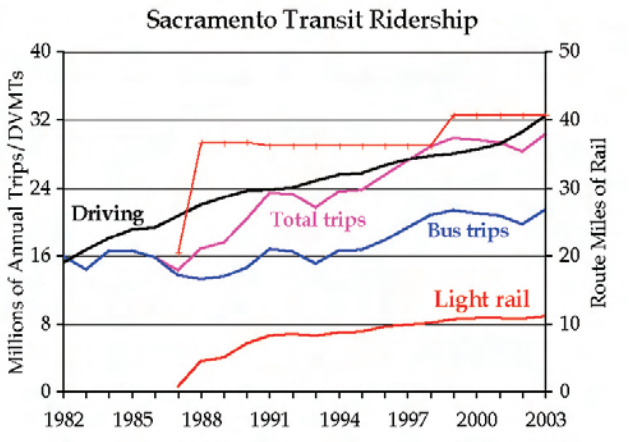
Portland has attracted attention as a model for smart-growth planning and light-rail transit. From a ridership point of view—that is, ignoring cost—this attention appears well-deserved. Since the first light-rail line opened in 1986, transit ridership has kept pace with driving, both nearly doubling. Transit passenger miles have actually grown by more than 150 percent, meaning transit's share of motorized travel has increased from 1.8 to 2.3 percent.

The only problem with this story is that transit's share of travel was greater, at 2.6 percent, in 1982 before the transit agency raised fares and cut bus service to help pay for rail cost overruns. Portland's powerful congressional delegation, led by Senator Mark Hatfield, who chaired the Senate Appropriations Committee in the late 1980s, spared the region from any worries about cost overruns when it built its second light-rail line. A good thing, too: its cost ballooned from an original projection of $240 million to nearly $1 billion.

In 1998, Portlanders voted not to increase their property taxes to pay for more light-rail lines, following similar votes by Oregon in 1996 and Vancouver, Washington in 1995. The city continues to build them by finding ways of locally funding construction that don't require voter approval. The most recent lines have not been as successful as the first two; early reports on one that opened in 2004 indicate that it carries fewer people than the bus route it replaced.

Grade: D—Ridership is growing, but not as fast as driving or as fast as bus ridership grew before rail construction began.

Sacramento



The opening of Sacramento's first light-rail line was accompanied by a major dip in bus ridership, leading US Department of Transportation research Don Pickrell to conclude that the costs of building rail had cost Sacramento more transit riders than it gained. After Pickrell's report was published in 1989, however, transit ridership quickly grew, then tapered off in the early 1990s California recession.

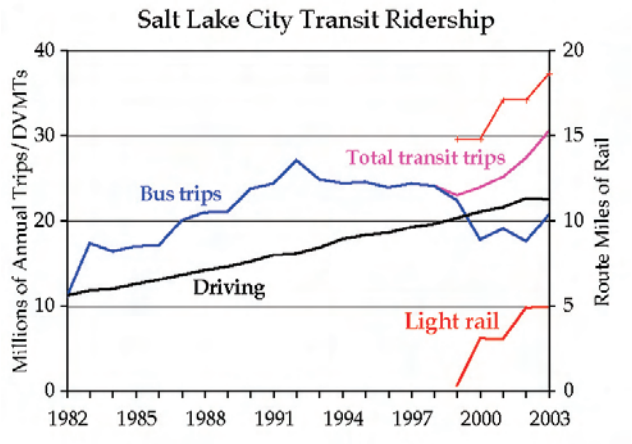
As the economy recovered in the late 1990s, bus ridership started growing again, but not rail ridership. Even the opening of an extension of the light-rail line in 1999 did little for rail ridership, and after that year ridership slumped again. Meanwhile, driving grew at about the same pace throughout this period regardless of boom or bust.

Grade: D—Ridership is growing, but passenger miles fail to keep up with the growth in driving.

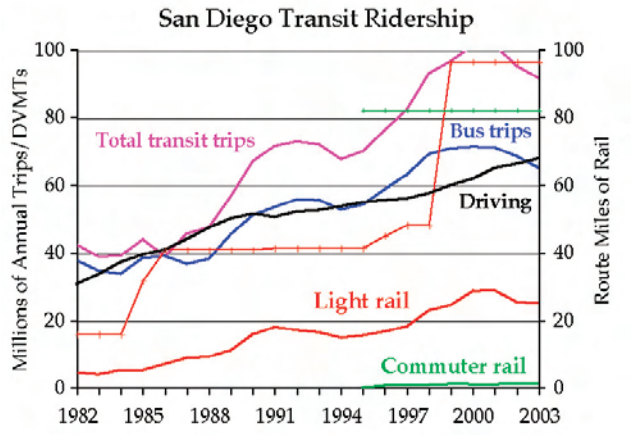
Salt Lake City

Before 1992, Salt Lake bus ridership was growing faster than driving. Transit's share of motorized travel grew from just under 1 percent in 1982 to 1.4 percent in 1992. As construction began on the region's first light-rail line, however, bus ridership plummeted. By 1999, when that line opened, transit's share of travel was below 0.8 percent. Since then it has partly recovered, standing at 1.1 percent in 2003.

Grade: D—Ridership is growing, but not as fast as bus ridership was growing before rail planning and construction began in the early 1990s.



San Diego



San Diego started the modern light-rail era by building a light-rail line to the Mexican border using an existing rail line. Even after inflation, that line remains one of the least costly rail-transit lines built in the U.S. since 1960. More recent San Diego lines cost more and carry fewer riders and the region's commuter line carries a negligible number of passengers.

On average, driving and transit ridership have grown at the same rate. But in boom periods, San Diego's transit ridership has grown faster than local driving, while in bust periods—such as the early 1990s and early 2000s—ridership has declined while driving continues to grow. Also notable is the fact that bus ridership has grown faster during the growth periods than light-rail ridership.

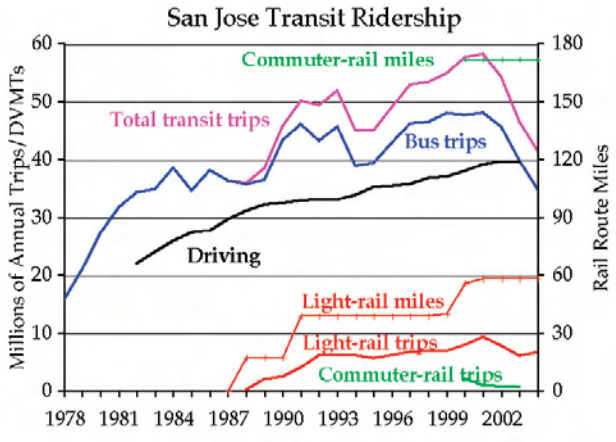
It is likely that transit declines during recessions are partly due to cutbacks in transit service. Those cutbacks would not have to be as severe if the transit agencies weren't saddled with the debt incurred to build the rail lines. Without that debt, transit might possibly have grown faster than driving.

Grade: B—Ridership, but not passenger miles, is growing faster than driving.

San Jose

Great Rail Disasters concluded that San Jose had the nation's worst-performing light-rail line in 2002, and its performance worsened in 2003. Bus ridership in 2003 was 13 percent and light-rail ridership was 22 percent lower than 2002. While light-rail ridership rebounded by 10 percent in 2004, bus ridership lost another 12 percent. In addition to showing 2004, this chart goes back to 1978, showing the rapid growth in bus ridership before the region started building light rail.

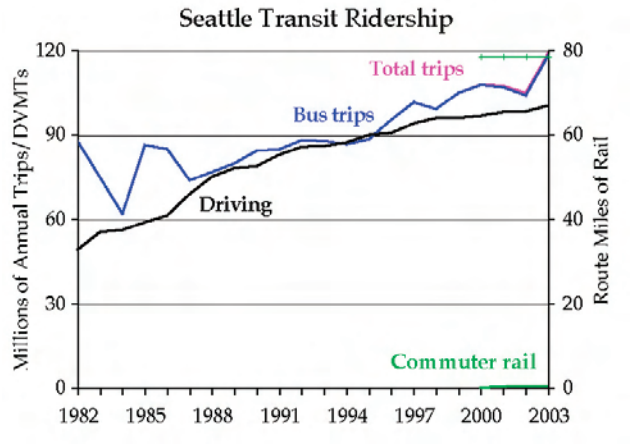
San Jose's problem is simple: The transit agency borrowed money to pay for light-rail construction. When the recession began, San Jose employment dropped by 17 percent. More important, the sales tax revenues that supported the agency declined, giving the agency a choice between defaulting on its bonds or cutting transit service. Rather than default, it made huge cuts in service. These cuts contributed to the 33-percent decline in ridership.



The region made low-cost improvements to the bus system in the late 1970s and early 1980s, leading to a rapid growth in ridership. Growth leveled off when the transit agency started building light rail in the mid 1980s. The opening of the rail line led to a brief increase in ridership, but it fell during the 1990s recession. Opening a new line in 2000 led to a small increase in rail ridership, but ridership crashed in the 2002 recession.

Grade: F—Long-term ridership is flat or declining due to the high cost of rail construction.

Seattle

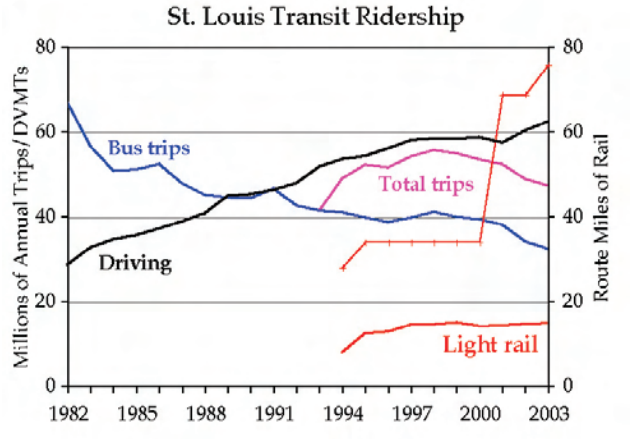


Seattle transit ridership grew fairly rapidly as a bus-only system, keeping up with the growth in driving during the late 1980s and even exceeding that growth in the late 1990s. In 1998, Seattle voters approved a measure to add commuter rail and light rail to the mix. Commuter rail trains that started operating in 2000 are getting far fewer riders than anticipated.

While the cost of these rail lines hasn't depressed bus ridership yet, the light rail has suffered high cost overruns and, if built, will be the most expensive light-rail line ever constructed. Seattle also approved a new monorail that is also having financial problems.

Grade: Tentatively F—Rail has done nothing to significantly improve transit ridership and its high costs are likely to create serious problems in the future.

St. Louis



The population of the city of St. Louis has declined by more than any other major U.S. city, and this decline has continued through every U.S. census since 1950. But the region has grown as people moved to the suburbs. The decentralization of jobs and housing led to a continuing decline in transit ridership.

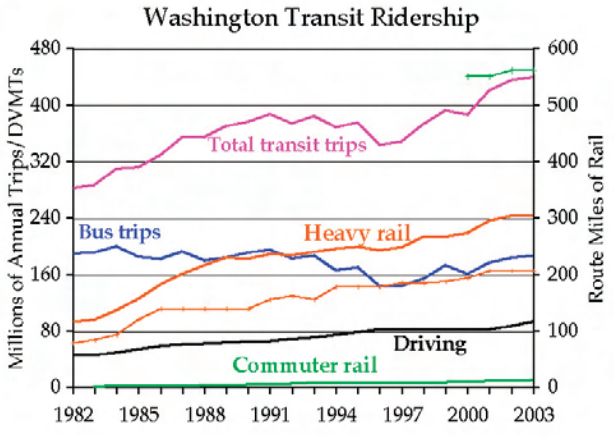
The opening of a light-rail line in 1994 at first seemed to reverse this decline. The rail line attracted lots of riders without taking too many away from the bus system. But ridership peaked in 1998 and has declined since then.

Not even the 2001 opening of a light-rail line that doubled the miles of rail service could reverse this decline. The new line resulted in more passenger miles of rail but no more riders; meanwhile, bus passenger miles declined to compensate for the increase in rail miles. By 2003, light-rail ridership on the new and original rail lines was less than 1997 ridership on the original line alone.

Grade: F—Transit ridership is declining.

Washington, DC

Tourists love Washington's 103-mile Metro rail system, which first started operating in 1976 and was incrementally expanded until its completion in 2001. Yet it isn't clear that it has done much for the region's traffic. Early lines attracted new transit riders without eating into bus ridership, but from 1987 to 1996 declines in bus ridership matched increases in rail riders.



Bus ridership has done better since 1996, but the rail system faces enormous problems. The federal government largely paid for the rail system. Now, railcars, escalators, elevators, and other equipment are wearing out and the region has no funding to replace them. Metro officials are talking up the idea of a transit sales tax but the problems of imposing a tax on portions of two states and the District of Columbia may be insurmountable.

Grade: C—Passenger miles have kept up with driving.

2004 Rail Regions

Three previously bus-only regions—Houston, Minneapolis-St. Paul, and Trenton—opened new light-rail lines in 2004. The results would be hilarious if they weren't so sad.

Houston

Houston began testing a 7.5-mile light-rail line between downtown and Reliant Stadium in late 2003, and opened it to the public on New Years Day 2004. During the test period, light-rail vehicles were involved in five collisions with automobiles, followed by 67 more during its first full year of revenue operation. Critics observed that this was ten times the national average and dubbed the line the "wham-bam tram."[9]

Houston's transit agency blames most of the crashes on the auto drivers, but none would have happened unless the agency had put 100,000-pound vehicles in the street. The first fatality took place on May 10, 2005 when the driver's side of an automobile was slammed by a light-rail car. The auto ran a red light, but critics observed that the time between red in one direction and green in the other was very short and that a bus or other vehicle could have stopped more quickly and/or swerved to avoid the accident. Supporting this view was the fact that a similar, though not fatal, accident occurred at the very same intersection just two days later.

As noted in table one, Houston's transit system did very well when it was a bus-only system. Early results from the light rail are not positive. The rail line got a big boost in its first month due to Houston's hosting of the Superbowl at Reliant Stadium, though ironically NFL security did not allow the light-rail cars to approach the stadium on Superbowl Sunday.

Despite this boost in ridership on Superbowl weekend, the annual report of Houston's transit agency indicates that overall ridership declined from 97.7 million in 2003 to 96.4 million in 2004.[10] Early reports indicate that ridership continues to decline in 2005, partly because the transit agency is reducing bus frequencies and eliminating "poorly performing" bus routes.

Tentative grade: F—Declining transit ridership.

Minneapolis-St. Paul

When Minneapolis planned its Hiawatha light-rail line, paralleling Hiawatha Avenue (state highway 55), rail supporters promised that it would "reduce traffic along Highway 55 to a significant degree."[11] Yet when the line opened in June 2004, auto drivers on Hiawatha immediately noticed a huge *increase* in congestion.

While signals on Hiawatha had previously been coordinated to allow smooth progression of traffic, the new arrangement gave the light-rail line signal priority over autos. While the line did not cross Hiawatha itself, it crossed numerous Hiawatha cross streets, which led the signals on those streets to interrupt the normal cycle of signals on Hiawatha. This added 20 or more minutes to the trips of people driving on Hiawatha.[12]

Although the state tried to fix the problem,[13] by December it had given up, with officials admitting traffic on Hiawatha would never be the same. A Federal Highway Administration report blamed the problem on poor planning. "More time, effort and money should have been allocated to ensuring that [signals] operate as efficiently as possible before committing to construction," said the report.[14]

"This is not a sinister plot to make traffic as miserable as possible and move everybody onto the train," said an official with the state Department of Transportation, which both built the rail line and maintains highway 55.[15] He would soon be proven wrong.

Documents uncovered by a member of the legislature revealed that the state had been aware of the problem early in the planning stages and that it did nothing about it because it wanted to "give an advantage to transit." In 1999, the state decided to give the trains priority over traffic signals even though a consultant warned that this would severely disrupt traffic. This was necessary, said a state engineer, because "transit had to have an advantage" over autos. Since 1999 the Federal Transit Administration is requiring that all new light-rail lines give trains priority at traffic signals, thus promising to expand this problem to other regions.[16]

Opening of the light-rail line was delayed by a debilitating transit strike that shut down the system for more than six weeks. The strike was caused when the transit agency asked employees to accept changes to their contract needed to make rail construction bonds marketable.

After it finally opened, the Hiawatha light rail carried 2.9 million riders in its first six months. However, in the same period the bus system carried 2.6 million fewer riders.[17] The small difference is at least partly accounted for by increased transfers between bus and rail.

Tentative grade: F—Stagnant transit ridership.

Trenton

The billion-dollar South Jersey light-rail line, connecting the 34 miles between Trenton and Camden, opened after some delay in March, 2004. Originally projected to carry 11,200 trips a day, this number was cautiously revised downward to 5,900 per day by New Jersey Transit officials who were aware that this was likely to be the worst-performing light-rail line in the country.

So officials expressed satisfaction in August that ridership had reached 5,600 trips per day. Yet this is well below the ridership on other light-rail lines, most of which are much shorter than 34 miles long. Cleveland's 31-mile light-rail line, for example, carries 10,000 trips per day, and it has the lowest total ridership of any modern light-rail line in the U.S. On a per-mile basis, San Jose's light rail is the worst performer, yet it carries 26,000 rides per day on 58 miles—more than twice the riders on less than twice the miles.

Light-rail systems in Sacramento, Baltimore, Salt Lake City, and Denver have fewer route miles than South Jersey yet all carry between 28,000 and 35,000 rides per day. With about the same number of miles as South Jersey, San Francisco's light-rail system carries 160,000 rides per day. Boston, the national champ, carries 246,000 rides per day on just 26 route miles. Unless the South Jersey light rail significantly improves, it will take the crown of worst-performing light-rail line from San Jose.

Even the executive director of New Jersey Transit, George Warrington (who took the job after construction began on the South Jersey line), expects the line to fail. "This project is a poster child for how not to plan and make decisions about a transit investment," says Warrington. "The dots don't connect when you have a $1 billion transportation project that doesn't solve a transportation problem."[18]

Tentative grade: F—Minimal transit ridership.

Grading the Transit Systems

As noted on page 9, the grades in table three are based solely on the growth of transit ridership and/or transit passenger miles relative to the growth in driving and, in the case of new rail regions, the growth in transit before rail construction began.

The old rail regions averaged an F+ grade, as all but Boston scored an F because their long-term transit ridership has been flat or declining. The new rail regions did a little better, scoring an average D–. Of the new rail regions, only San Diego and Washington scored better than a D.

By comparison, eight regions that relied solely on bus transit through 2003 scored an average of B+. In most of these regions, transit passenger miles grew far faster than driving, while in the remainder transit was at least able to keep up with driving.

Admittedly, not all bus-only systems performed as well. But most of those that did poorly were in slow-growing regions in the Midwest or Northeast. Jobs in these regions were once fairly centralized, but as they decentralized transit lost its ability to move large numbers of commuters. For example, transit's share of total Pittsburgh travel declined from 2.7 percent in 1983 to 1.4 percent in 2003.

Many if not most bus-only systems in fast-growing regions did much better. These regions were already decentralized, so transit is starting from a much smaller base. For example, between 1983 and 2003 transit more than doubled its share of travel in Austin, but since transit's 1983 share was only 0.4 percent, transit's 2003 share of 1.0 percent is still less than Pittsburgh's share.

Rail advocates point to transit's higher market shares in regions such as Pittsburgh as evidence of the success of rail. But these high shares only reflect the historic job concentrations in those regions. What counts is the long-term trends, and those trends show that transit is stagnant or declining in almost all rail regions while it is growing in many bus-only regions.

While transit cannot stop the decentralization of jobs in once-centralized regions, it can increase its share of travel in fast-growing regions if only because the growth means there will be some increase in job concentrations. Buses are the best way to serve such decentralized regions because they can rapidly respond to changes in travel and the economy. Since most cities that are considering building rail lines are in fast-growing regions, they would do best staying with bus-only transit systems.

Table Three
Grading Transit Systems Based on Growth in Transit Relative to Growth in Driving

Old Rail Regions	
Boston	B
Chicago	F
Cleveland	F
New Orleans	F
New York	F
Philadelphia	F
Pittsburgh	F
San Francisco	F
Average	F+
New Rail Regions	
Atlanta	F
Baltimore	F
Buffalo	F
Dallas-Ft. Worth	D
Denver	D
Los Angeles	F
Miami	D
Portland	D
Sacramento	D
Salt Lake City	D
San Diego	B
San Jose	F
Seattle	F
St. Louis	F
Washington	C
Average	D-
2004 Rail Regions (tentative grades)	
Houston	F
Minneapolis-St. Paul	F
Trenton	F
Average	F
2003 Bus-Only Regions	
Austin	A
Charlotte	B
Eugene	B
Houston	B
Las Vegas	A
Louisville	C
Phoenix	C
Raleigh-Durham	A
Average	B+

Transit's Overall Record

The American Public Transportation Association (APTA) released its 2004 ridership statistics on March 29 with a press release bragging that transit trips increased by 2.11 percent over 2003, which it claimed was more than the increase in highway travel.[19] As the chief lobbying arm of the transit industry, APTA would naturally put transit numbers in the most positive possible light. A more realistic assessment can be gained from APTA's own recently released *Public Transportation Fact Book.*[20]

First, APTA didn't mention that transit attracted fewer riders in 2004 than in 2001 or 2002. As table 8 of the *Fact Book* shows, 2003 ridership was 2.25 percent lower than in 2001.[21] The 2.11-percent increase from 2003 to 2004 failed to make up for this decline.

Second, in claiming that transit ridership is growing faster than highway travel, APTA counts all highways. But transit only serves urban areas, so it should be compared against urban highways. *Highway Statistics*, an annual report published by the U.S. Department of Transportation, shows that urban driving is growing much faster than rural driving.[22] Because of the rapid growth in urban driving, transit passenger miles grew slower than urban auto passenger miles in all but six of the past twenty-four years, the last exception being 2001.[23] Since 1980, transit's has lost more than 40 percent of its share of urban motorized travel.

Light-Rail Trips Per Vehicle Mile Fall 27%

"The largest increase of ridership in 2004 was in light rail," says APTA, "which showed an 8.2 percent increase from 2003."[24] Yet light-rail ridership didn't increase because light rail is popular with transit riders. Instead, it increased because numerous cities, including Houston, Minneapolis, Trenton, Portland, San Jose, New Orleans, and Sacramento, opened new or expanded light-rail lines while they reduced parallel bus services.

Table Four
Transit Trips Per Vehicle Mile

	Trips Per Vehicle Mile		Percent
	1990	2003	Change
Bus	2.7	2.4	-12
Commuter rail	1.5	1.4	-7
Heavy rail	4.4	4.2	-3
Light rail	7.2	5.3	-27

Source: APTA Fact Book*, tables 8 and 19.*

When light-rail ridership is compared against light-rail service, a more dismal picture emerges. From 1990 to 2003, a 166-percent increase in light-rail service was required to obtain a 93-percent gain in light-rail riders.[25] As a result, the number of passengers carried for every vehicle mile fell from 7.2 to just 5.3. Table four shows that all transit modes suffered declining passengers per vehicle mile, but none was as dramatic as for light rail.

Subsidies Growing Faster than Ridership

Between 1990 and 2000, the transit industry achieved a 6.4 percent increase in ridership (the year 2000 is used to avoid the effects of the current recession).[26] But to do so it had to increase vehicle miles of transit service by 25.9 percent, almost exactly three times as much. In other words, to gain a small increase in ridership transit agencies must provide a much larger increase in service.

Naturally, this means costs per passenger mile have increased. After adjusting for inflation to 2003 dollars, transit's operating subsidy (operating cost minus fares) per passenger mile increased by 14 percent from 1992 to 2003.[27] Meanwhile, capital investments per passenger mile increased by 67 percent, which means that the total subsidy per passenger mile grew from less than 50 cents in 1992 to 65 cents in 2003.[28] For comparison, highway subsidies average about a third of a penny per passenger mile—and less when freight is included.

Table Five
Share of 2003 Riders and Capital Costs by Mode

	Riders	Capital Costs
Bus	60.4	29.6
Trolley Bus	1.1	0.9
Demand Response	1.2	1.5
Commuter Rail	4.3	21.2
Heavy Rail	28.4	32.6
Light Rail	3.6	12.0
Other	1.0	2.2

Source: APTA Fact Book*, tables 8 and 52.*

Capital subsidies are particularly high for rail transit. The three main forms of rail transit consumed nearly two thirds of the transit industry's capital funding in 2003 yet produced just over a third of the ridership (table five). Transit agencies say they will make up rail's high capital costs through operational savings, but on comparable routes buses cost less to operate than most rails. Moreover, rail transit imposes high debt obligations and high future costs of maintaining and replacing the

largely exclusive rail infrastructure.

To be fair, you wouldn't expect immediate increases in ridership from capital investments made this year. But the federal, state, and local governments have been flushing billions of dollars down the transit toilet each year and getting little in return. After adjusting for inflation, annual capital and operating subsidies increased from under $20 billion in 1992 to more than $30 billion in 2003.

Total subsidies over this twelve-year period exceeded $278 billion, of which $121 billion were spent on capital projects. Two-thirds of that amount was for rail projects. Yet in this time period, total transit ridership increased by a mere 11 percent. In other words, transit subsidies are growing by nearly 4 percent per year, but ridership is growing less than 1 percent per year.

Transit Subsidies Twice Highway Subsidies

Transit's $30.9 billion subsidy in 2003 was more than twice the subsidy to highways. According to table HF-10 of the 2003 Highway Statistics, federal, state, and local governments spent $36 billion in non-highway user fees on highways.[29] But this was mostly offset by the diversion of nearly $21 billion of highway fees to mass transit and other non-highway purposes.[30] The result is a net highway subsidy of $15.2 billion. Though this is less than half the transit subsidy, highways carried 96 times as many passenger miles of travel as transit, not to mention far more freight ton-miles.[31]

It is notable that APTA's press release didn't say anything about "balanced transportation funding." Any balancing would require moving money from transit to highways.

Taking a Wrong Turn

APTA's press release notes that it has "more than 1,500 member organizations including public transportation systems; planning, design, construction and finance firms; product and service providers; academic institutions, and state associations and departments of transportation." This list does not include transit riders, but does include "planning, design, construction and finance firms" that make billions of dollars building rail transit.

Thanks to lobbying by APTA and its pork-oriented members, American transit has taken a wrong turn. Instead of serving its core market of low-income and other transit-dependent people, the industry focused on glitzy rail lines (and, more recently, exclusive busways) aimed at attracting a few suburban auto drivers out of their cars.

APTA's agency-by-agency transit data reveals the huge problems rail projects have caused for transit riders in many regions.[32]

- Light rail put San Jose's transit agency in such dire financial straights that it drastically cut service, leading to a 33-percent ridership drop since 2000;
- St. Louis doubled its miles of light rail in 2001, and extended it another 10 percent in 2003. Yet its 2004 light-rail ridership was 2 percent less than in 1998 and bus ridership was 22 percent less.
- Between 2000 and 2003, Dallas more than doubled its miles of light rail. This gained 5.2 million new rail riders a year—but lost 8.3 million bus riders.
- In 1998, Baltimore expanded its light-rail mileage by a third, but two years later ridership was virtually unchanged, and since then has declined 9 percent.
- When Minneapolis opened a new light-rail line in mid-2004, it also cut bus service. By the end of the year, total transit ridership was almost unchanged from the same period if 2003.

Rail advocates often call rail skeptics "anti-transit." These examples show that the real anti-transit people are those who want to divert scarce transit resources into wasteful rail projects.

Expensive and Dangerous

APTA says its "members serve the public interest by providing safe, efficient and economical public transportation."[33] But light- and commuter-rail transit are both expensive and dangerous. Table six, which is based on APTA's *Fact Book*, shows that these forms of transit kill far more people, per billion passenger miles carried, than buses or roads.

Table Six
Fatalities Per Billion Passenger Miles

Mode	Fatality Rate
Bus	4.7
Heavy Rail	6.3
Commuter Rail	10.9
Light Rail	14.2
Urban interstates	3.4
All urban roads	5.8

Source: Transit numbers for 1993-2002 from APTA Fact Book, tables 8 & 42; road numbers from Highway Statistics 2003*, tables VM-1 and FI-20*

Incidentally, Houston's new light-rail line, which has been involved in 88 accidents in its short life, caused its first fatality on May 10. Though the transit agency blamed it on the automobile driver, rail skeptics noted that the intersection allows only 1.5 seconds between the red light and the clear signal for the light rail and that the light rail was involved in another accident at the very same intersection just two days later.

Defining Success

A major problem with rail transit is that rail advocates have set an extremely low standard for success. They are satisfied if a few people find rail transit to be a convenient way to travel. They don't worry about whether rail transit actually increases overall transit ridership, reduces congestion, or cleans up the air, or does any of these things more cost effectively than some other form of transit or transportation.

When rail supporters in Burlington, Vermont, proposed a commuter-rail line, the state legislature agreed to fund the line for an eighteen-month trial and to continue funds only if the line actually reduced congestion and air pollution. When the line failed to meet its goals, the state terminated it.

If a federally funded project is terminated, however, Congress requires the local agency to reimburse the federal government for all of the federal funds invested in the project. This effectively forcloses the option of terminating failed projects, and—since no one likes to admit they wasted taxpayer dollars—forces transit agencies to claim success no matter how bad the results.

Since rail advocates sell their projects to the public based on their supposed ability to reduce congestion, this paper has used such rigorous tests of success as *Is transit ridership growing faster than auto driving?* and *Is transit ridership growing faster after rail construction than before*? No reasonable person can argue that an expensive rail project was successful if it reduces overall transit ridership or even it if leads to ridership growth but at a sloer rate than ridership was growing or could grow with low-cost improvements to the region's bus system.

An even more rigorous test would be cost effectivenes: Is the transit investment, or any transportation investment, the lowest-cost way of reducing congestion (measured in personal hours of delay) while maintaining safety? In other words, how many dollars does any given project cost to save people one hour of delay? A few rail projects may be able to pass these sorts of tests. But most that have been built in the last thirty years would not.

In addition to—or in lieu of—reducing congestion, some people argue that rail transit will promote economic development. But a report prepared by University of California planning Professor Robert Cervero and Parsons-Brinckerhoff consultant Samuel Seskin for the Federal Transit Administration concludes that "urban rail transit investments rarely 'create' new growth, but more typically redistribute growth that would have taken place without the investment." The report added that "the greatest land-use changes have occurred downtown."[34] In other words, rail transit promotes downtowns at the expense of other parts of a region. As the Cascade Policy Institute has shown, so-called transit-oriented developments along rail lines usually require heavy subsidies beyond the rail subsidies, and in any case only work if they have plenty of parking.[35]

Now More Than Ever — What?

"Now more than ever," says APTA's President William Millar, "it is urgent that Congress pass a long-term, well-funded and fully guaranteed transportation bill that meets the increased public demand for public transportation."[36]

The truth is that Congress has been overfunding the wrong kind of public transit for decades. As described in the chapter on transit modes, misincentives in the congressional funding process encouraged transit agencies to turn away from their core markets and focus on expensive rail transit to suburbs with low transit potential. This in turn created a huge lobby of "planning, design, construction and finance firms" that promotes expensive transit to the long-term detriment of transit riders.

The good news is that the Bush administration has taken a first step towards correcting the course of the transit industry, recommending that any projects that cost more than $20 per "hour of transportation user benefit" not be funded. This would eliminate many weak projects, including an extension of BART to San Jose and Portland's Wilsonville-to-Beaverton commuter rail line. Predictably, APTA opposes using cost-effectiveness as a criterion for funding transit projects.[37]

Now more than ever, before high-cost, low-benefit investments in wasteful transit projects destroy more urban transit systems, Congress needs to rethink its funding process. This means encouraging transit agencies to find ways to serve their customers as effectively and efficiently as possible and taking away incentives to divert limited transit resources to wasteful rail projects.

Data Sources and Reliability

The data used to make the tables and charts in this report can be downloaded from americandreamcoalition.org/rail2005.html. All of these data come from four main sources:

- Federal Transit Administration (FTA) reports (most recently known as the National Transit Database) listing ridership, capital and operational spending, and other data for individual transit agencies by transit mode from 1982 through 2003;
- The American Public Transportation Association's (APTA) transit ridership report for 2004 and other recent years;
- APTA's 2005 Public Transportation Fact Book, which has cost, revenue, ridership, and other data by transit mode from 1990 through 2003;
- The Texas Transportation Institute's (TTI) data set listing daily vehicle miles traveled, miles of highway, and other information for about 85 urban areas from 1982 through 2003.

Most of these data are reasonably reliable, though there are individual problems. The FTA reports are based on numbers provided to the FTA by transit agencies and so depend on the accuracy of agency reports. Especially in the 1980s, some of these numbers are questionable and are sometimes identified as such by the FTA. For example, San Jose's Altamont Commuter Express, reported 2.1 million trips in its first year, but the FTA called this questionable. Since the express reported only 0.9 million trips in its second year and even fewer in later years, it is likely that the 2.1 million was an overestimate.

While agency cost data are likely to be reliable, ridership and passenger mile data are just estimates. Since many riders pay for transit using monthly passes, agencies do not record every single boarding, especially for light rail. Instead, they may monitor a few vehicle trips each week and estimate total ridership based on these trips. A few of the more questionable numbers include Boston's light-rail reports for 1994 and San Francisco bus numbers from 1982 through 1986. But most of the numbers that the FTA considered questionable are passenger miles, not trips, and so don't change the charts in this paper.

One problem with the data is that commuter rail is missing from the 1982 report. For this reason, table one, which compares changes in the last two decades, uses numbers for 1983 rather than 1982.

Many regions are served by more than one transit agency. The charts display ridership for all transit agencies that are reported by the FTA in each region.

APTA's ridership reports differ slightly from FTA reports in two ways. First, APTA's numbers are based on calendar years, while FTA numbers are based on fiscal years. More important, APTA reports are often missing many smaller—and a few large—transit agencies, apparently because they are not members of APTA. For this reason, APTA data are only comparable to FTA data in regions that have transit agencies that are included in both sets.

Even in these cases, there are differences that can only be explained by assuming that some data reports are erroneous. Since agencies report to APTA first and FTA after several months, the FTA data are probably more reliable.

Most of the information in the APTA *Fact Book* is taken from the FTA annual reports. Similarly, the information in the TTI database is taken from the Federal Highway Administration's *Highway Statistics*, tables HM-71 and HM-72. This report uses the APTA and TTI data because they are more accessible than the original data. In addition, *Highway Statistics* did not include urban area data before 1989.

If there are flaws in the FTA data, *Highway Statistics* may be even less reliable. The numbers in this annual report are provided to the Federal Highway Administration by state highway departments. They in turn base their estimates on highway counters, so these estimates are less than precise. But the trends they report are probably reliable. The least accurate numbers are for local streets, which usually are not even measured with counters.

One problem is that the land area of most urban areas is growing every year, but this isn't always reflected in *Highway Statistics*. For example, the reported land area of the Portland urban area remained the same in 1982 through 1984, then grew by a large amount in 1985. It also remained constant in 1987 through 1989 and 1997 through 1999. For this reason, populations and densities reported in *Highway Statistics* may be less reliable and are not used in this paper.

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About Rail Disasters 2005

Can rail transit reduce congestion and restore urban areas? *Great Rail Disasters* (americandreamcoalition.org/1-2004.pdf), published in 2004, found that rail transit had not reduced congestion or air pollution, and that it was both financially wasteful and, in the case of light rail and commuter rail, dangerous to auto drivers and pedestrians.

Using newly available data, this *Rail Disasters 2005* grades rail transit systems based on their ability to increase overall transit ridership in their urban areas. To score an A, both transit ridership and transit passenger miles must be growing faster than driving, while F means that transit is stagnant or declining. The report shows that, of twenty-three urban areas that had rail transit in 2003, only three score better than a D. In contrast, numerous regions with bus-only transit scored As and Bs. Regions that truly want to incresae transit ridership should focus on low-cost bus improvements, not expensive rail lines.

The author of *Rail Disasters 2005*, Randal O'Toole, is an environmental economist who has studied urban growth and transportation for more than a decade. In its review of O'Toole's book, *The Vanishing Automobile and Other Urban Myths*, the American Planning Association calls O'Toole "an articulate skeptic" who "can back up his claims."

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