Policy Study No. 244

Myths of Light-Rail Transit

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Executive Summary

Local officials in many urban areas have become smitten with the hope that "light rail" will provide the solution to urban transportation problems. This dream is based on myths, and will be rudely shattered when the realities reassert themselves. The most important of these myths are:

The Speed Myth:	***The Reality:***
Rail transit is rapid transit.	When the time needed for station access, transfer, waiting, and delay is taken into account, rail travel times are longer than the time required for the same trip by bus.
The Capacity Myth:	***The Reality:***
Rail is high-capacity transit.	Bus corridors, which consist of several parallel lines operating on urban streets, have vastly more capacity than any single rail line. Even a single-line dedicated bus right-of-way has greater carrying capacity than a light rail line. Only the most heavily used heavy rail trunk lines have greater capacity than busways, and these have significantly higher costs.
The Decongestion Myth:	***The Reality:***
Rail will decongest roads by converting automobile drivers into mass transit riders.	Rail is not a decongestant. Support for rail voiced by drivers is based on a hope that others will use rail transit and open up the road, and in fact rail riders are taken out of buses, not cars.

The Cost-Effectiveness Myth:	***The Reality:***
Rail transit is cost-effective.	Rail is economically inferior to conventional bus service.
The Urban Form Myth:	***The Reality:***
Rail promotes superior urban form.	The urban planners' idea of "superior form" — high densities of both residences and places of employment — is counter to the values of the populace. In any event, rail cannot overcome the forces pushing for decentralization.
The Low-Income Myth:	***The Reality:***
Rail transit benefits low-income people.	The switch to rail imposes heavy costs on low-income people.
The Jobs Myth:	***The Reality:***
Rail construction provides jobs.	Bus systems provide more jobs per public dollar expended, and more local employment.
The "Free Money" Myth:	***The Reality:***
Capital investment in rail will be paid for with non-local funds that cannot be used for other purposes.	While funds requested for rail must often be spent on rail, localities may seek funds for a variety of purposes and have considerable discretion over how local transportation funds are spent.

Good transit policies are within the grasp of every urban area, but they will not be found until decision-makers divest themselves of these myths and build their programs on solid reality.

Part 1

Introduction

It isn't what you don't know that ruins you; it's all the things you do know that turn out to be wrong.

—Old Adage

Local-government officials are ambitious, in the best sense of that word. They want to do good for their communities and be remembered for improving the lives of the people. Most might not say it aloud, but they occasionally think that someday there might be a plaque in the town center informing future generations of their contributions.

This laudable ambition makes them keenly interested in anything that promises to solve a continuing and mounting problem: urban transportation and road congestion. In recent years, officials have heard a strong pitch for a purported cure for this problem. It is called light-rail, and it is promoted with glitzy literature that usually combines "vision," "high-tech," and "long-term solution" all in the same paragraph. The pitch is always backed by elaborate projections, multicolor charts and graphs, consultants with imposing arrays of academic credentials, and promises of federal grants. And it is accompanied by extravagant promises about ridership, costs, and effects on traffic congestion and urban form. Not surprisingly, local officials are finding this siren song quite seductive. Fifteen cities that already possess such systems are considering major extensions, and 18 cities are considering new systems.

But the faith in light-rail transit is based on a series of myths. The truth is that light-rail systems drain off astonishing amounts of tax dollars, exacerbate automobile congestion, harm bus transportation, and undermine desirable development patterns.

For urban officials who send their communities down this track, the story will not end happily. Any monuments that get built to them will trigger a joke that circulated after the breakup of the Soviet Union: A mayor, asked why his city had left standing a statue of Stalin, answered: "So the pigeons can speak for all of us, every day." Any local official who would rather *not* be remembered in the community primarily as an appropriate target for pigeons should start digging into the facts about light-rail.

A. Origins of Urban Transit Systems

Before the time of the Civil War, urban transportation choices were simple: you walked, got on a horse, or rode in a carriage. The first urban public transportation systems, which started up before the Civil War, were horse-drawn omnibuses. By the 1880s, 100,000 horses were pulling 18,000 cars over 3,500 miles of track, nationwide.[1]

By the 1870s, cities were in the throes of a full-fledged transportation crisis. Narrow streets were jammed with wagons and carriages, and "traffic became an obsession, the overwhelming civic issue. Engravings in the illustrated periodicals portrayed this urban chaos in terms borrowed from the Apocalypse."[2] The transportation crisis was also an environmental and health crisis. The 3.5 million horses resident in urban America each produced 20 pounds of waste daily, much of which wound up on the streets or in manure pits within the city limits. The result was both indescribable stench and creation of breeding grounds for flyborne disease. Dead horses were also a serious problem. The animals were cruelly used, with an average life expectancy of two years, and New York scavengers removed 15,000 carcasses per year.[3] To all these disamenities must be added noise pollution, as thousands of iron wagon wheels scraped across cobblestones.

These limitations on people's mobility also forced heavy population densities. The ethnic neighborhoods of New York were teeming not because America lacked space but because of the high costs of transportation in both energy and time. In the New York of 1850 to 1890, over 75 percent of the population lived in crowded tenements.[4] Lack of mobility imposed other costs as well. Workers who can search for jobs only within walking distance of their homes have limited opportunities, and consumers cannot seek out variety and bargains. If a poorly stocked, high-priced corner store is the only thing within toting distance, that is where customers must buy.

Starting around 1880, three transit revolutions in succession gave American cities room to grow and breathe again. The first two—the electric streetcar and heavy-rail (subways and elevated trains)—were based on rails and made the old 19th-century cities livable again. The third was based on the automobile and created the new urban forms of the 20th century.

Heavy-rail systems, such as New York's subways or the Chicago El, are expensive to build and operate. To make economic sense, they require high population densities at both origin and destination points. These systems have always received disproportionate attention in the national media because of their importance to New York, the nation's biggest media center. In fact, from a national perspective, heavy-rail has never been of great importance. Even today, after massive infusions of federal money, only 14 heavy-rail systems are in operation. New York, Boston, Chicago, and Philadelphia were the only U.S. cities to build heavy-rail around the turn of the 20th century, when they represented cutting-edge technology and economics, and when the labor needed for the task cost about $1 per day. Later

1. Martin V. Melosi, *Garbage in the Cities: Refuse, Reform, and the Environment, 1880–1980* (Chicago: Dorsey Press, 1981), p. 25.

2. Benson Bobrick, *Labyrinths of Iron: Subways in History, Myth, Art, Technology, and War* (New York: Henry Holt & Co., 1981; Owl Book ed., 1994), p. 15.

3. Melosi, *Garbage in the Cities,* pp. 24–25.

4. Bobrick, *Labyrinths of Iron,* p. 210.

systems, such as those in Washington, Baltimore, Atlanta, San Francisco, and Los Angeles, were based largely on myth and nostalgia, along with federal subsidies, and are economic and aesthetic disasters.

The first electric street railway line—the trolley—was built in Cleveland in 1884, and thereafter these systems proliferated throughout urban America. These were useful indeed. Before their creation, the limits on mobility had forced commercial, industrial, and residential sections to be crammed together. The streetcar created the possibility of the radial city and the separation of uses. It still required considerable residential density, because people needed to live within walking distance of the streetcar stops, but it greatly increased the usable space within cities. The standard pattern was a downtown core for employment and major retail, with residential suburbs concentrated around the trolley line.

The trolley was a tremendous step forward in 1900, but it still constrained personal mobility in significant ways. Residences had to be concentrated near the trolley line, and the system was better for commuting to work than for errand-running, socializing, or other kinds of trips. Because of these limitations, people were ready for the next great revolution in mobility: the automobile and its cousin, the bus. Americans fell in love with the personal vehicle, with its flexibility, scheduling convenience, comfort, carrying capacity, and speed. As of 1903, 60 automobile companies had sold 11,000 vehicles. By 1930, 26.5 million cars were on the road, and the numbers kept on exploding: 32 million in 1940, 48.6 million in 1950, 200 million in 1996. There is now an average of more than two cars for each of America's 97 million households.[5]

The automobile opened up tremendous options for new urban forms. Because of the heavy investment in existing buildings, old cities retained their radial character, but their outskirts, and the newer cities of the West, grew in a different pattern. By the late 20th century, commercial and employment centers had become spaced out around the periphery, not concentrated downtown, and the majority of all commuting trips are now suburb to suburb, not suburb to city. The dominant pattern in one metropolitan area after another has become one of "edge cities," described by reporter Joel Garreau in 1991: a number of dispersed "downtowns" rather than a single large core.[6] The automobile also permitted low-density residential development, which accords with a human passion for houses with yards.

As the automobile changed the patterns of urban life, mass transit came to be dominated by buses, which have significant advantages over rail transit. They are flexible, they require no special rights of way, and they are much cheaper. However, they are subject to the delays caused by automobile congestion and are perceived by the upper and middle classes as rather downscale. The mode share of public transit of all kinds reached an apogee right after World War II and has declined steadily ever since (see Figure 1).

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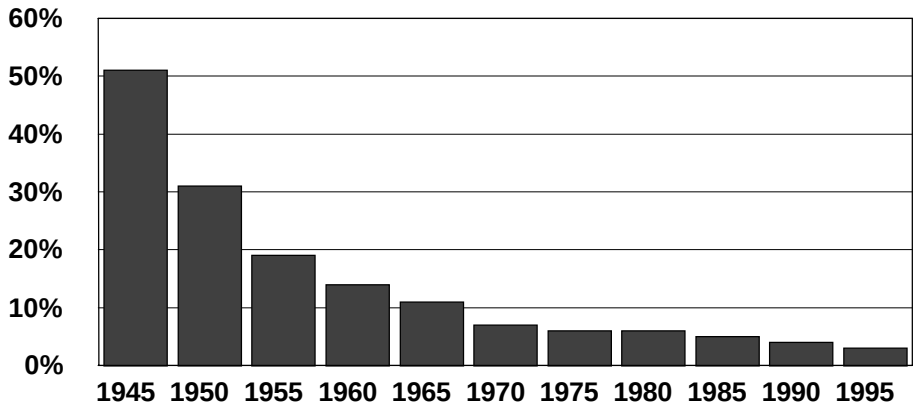
5. James D. Johnston, *Driving America: Your Car, Your Government, Your Choice* (Washington, D.C.: American Enterprise Institute, 1997), pp. 3–4.

6. Joel Garreau, *Edge City: Life on the New Frontier* (New York: Doubleday, 1991; Anchor ed., 1992), passim.

Figure 1: Transit Mode Share



Sources: *Transit Fact Book* (American Public Transit Association, various years); *Highway Statistics* (Federal Highway Administration, various years); Wendell Cox Consultancy, "U.S. Public Transport Ridership: 1970–1995," *Urban Transport Fact Book* (http://www.publicpurpose.com/utus7095.htm); and Alan Altshuler, "Changing Patterns of Policy: The Decision-Making Environment of Urban Transportation," *Public Policy* (Spring 1977), pp. 171–203.

B. Current Concerns

The success of the automobile in meeting the human desire for mobility has created a series of problems that together are perceived as an "urban transportation crisis." These problems, which are the triggers for the increasing interest and investment in urban rail systems, can be boiled down to concern over:

- road congestion and increased travel times,
- pollution,
- dispersal of population,
- the amount of land devoted to roads and parking, and
- the very idea of a metropolitan area without a dominating central core.

The myths that support the construction of expensive rail systems all revolve around beliefs that rail transit is the answer to these problems and, equally important, that bus systems are *not* the answer to the problems. The most important of these myths are that rail transit:

- is rapid;
- has a high capacity as compared to buses;
- will decongest roads;
- is cost-effective;
- promotes superior urban form;
- benefits low-income people;
- is a good way to provide jobs; and
- can be paid for by grabbing state and federal funds.

All of these are false, for the reasons detailed in the following sections.

Part 2

Myth 1: The Speed Myth

The Myth: Rail transit is rapid transit.

The Reality: When the time needed for station access, transfer, waiting, and delay is taken into account, rail travel time is longer than the time required for the same trip by bus.

> Local officials are caught up in the romantic image of the speeding train. In the words of one: "[Riders] can just go over and get on a light rail car. I mean, they're—*whoosh*—gone." Or another: "If I were on the Ventura Freeway—or you—driving, and you saw a train go by at 65 mph, filled with smiling air-cooled faces, tomorrow you're going to take the train."[7]

The image is not the reality. The average speed of the light-rail Blue Line in Los Angeles is 21 miles per hour, not 65, and the heavy-rail Red Line moves at 24 miles per hour.[8] Also, estimates of rail speed uniformly ignore the time required for the patron to get to the station and wait. Many patrons must walk to a bus stop, wait, take the bus to the train station, walk to the train, wait, travel at 24 mph, perhaps walk to another bus, wait, and take this bus to near their final destination, and then walk.

Studies in Los Angeles have shown that overall travel times on rail transit are longer than the same trips on the old bus routes, by factors of up to 100 percent.[9] A Reason Foundation analysis of commuter-rail notes: "After Metrolink service began in 1992, the [Los Angeles County Metropolitan Transit Authority (MTA)] staff was unable to find a single case in which it is faster to complete a trip in the MTA service area by taking Metrolink. . . . . Bus trips also had significantly lower fares, required fewer transfers, and had shorter headways. Buses operated for longer periods of the day and on weekends and holidays, and

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7. Jonathan E. D. Richmond, "The Mythical Conception of Rail Transit in Los Angeles," *Journal of Architectural and Planning Research* (forthcoming), [Internet: http://www.the-tech.mit.edu/~richmond/professional/professional.html]

8. Thomas A. Rubin and James E. Moore II, "Ten Transit Myths: Misperceptions About Rail Transit in Los Angeles and the Nation," Reason Public Policy Institute, Policy Study No. 218, November 1996 (part 2 of a series on the Los Angeles County Metropolitan Transit Authority [LACMTA]), pp. 8–9, 11 (table 3). The authors derived the figure for Blue Line speed from LACMTA, "Blue Line Ridecheck, October 1993, Peak Hour/Peak Direction (7:00–8:00 am Northbound) Load by Line Segment." The figure for Red Line speed is from Edward Shikada, "For the Record: A Practical Approach to Providing Mobility for All Los Angeles County," LACMTA, Los Angeles, May 1994 (a response to Peter Gordon and Harry Richardson, "Counterplan for Transportation in Southern California: Spend Less, Serve More"), p. 2.

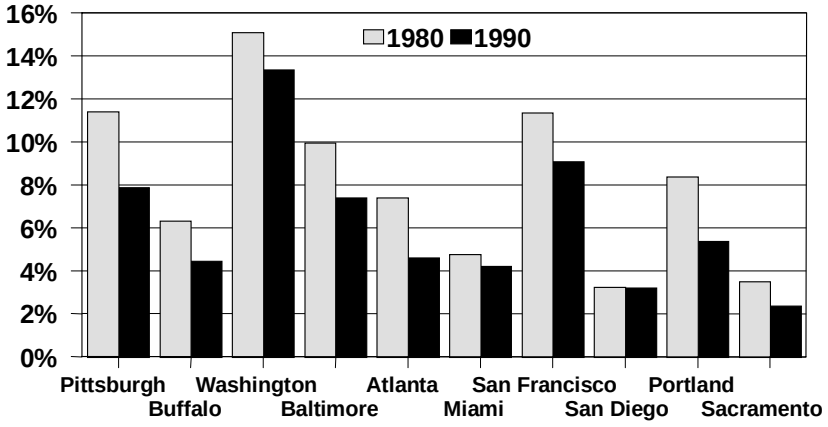
9. Rubin and Moore, "Ten Transit Myths," p. 9.

offered more convenient access."[10] Metrolink is commuter-rail over a long distance, where any speed advantage of rail should be the greatest, which means that the losses in time imposed when a light-rail system replaces a preexisting bus network used for short trips will be even greater.

This result of converting a transit system from buses to rail—increases in most travel times—is inevitable when the problem is analyzed closely. Suppose that a large number of commuters travel each day from the north side of town to downtown. In most cities, several radial streets will run from the downtown to different segments of the north side. A traveler gets to the nearest radial by foot, kiss-and-ride, or feeder bus, then travels directly. Now, suppose a rail line is built. Because rail is expensive, the north side will be served by only one line, not by a whole series of them. Few of the commuters can walk to it, and the drop-off point is no longer convenient for other household members. So most people must take a feeder bus sideways across town, then go down the rail line, and then take a bus across town again. Even if the rail segment is faster than a bus, the time lost on the sideways trips cannot be made up.

Given the choice, most of these riders would prefer to continue to take the bus. But the local transit authority, having invested millions or even billions of dollars in a rail system, cannot allow this. So the buses no longer run down the radials, and the travelers are forced to go to the rail line. Because their trips now take longer, some decide to drive their cars. So while the rail system looks crowded because it is now handling the traffic that used to be spread over multiple bus routes, total transit patronage may actually decline.[11] In fact, all but one of the 10 cities that added light-rail or heavy-rail systems in the 1970s and 1980s saw their transit market share decline during the 1980s (see Figure 2). An investment of billions of dollars in urban rail transit makes everyone worse off.

Figure 2: Falling Market Share: Fraction of Commuters Using Public Transportation in New Rail Cities



Source: 1980 and 1990 U.S. Census.

10. Rubin and Moore, "Ten Transit Myths," p. 10.

11. Rubin and Moore, "Ten Transit Myths," p. 6. Buffalo, Sacramento, and Miami all lost net system patronage after rail facilities were added.

Part 3

Myth 2: The Capacity Myth

The Myth: Rail transit is high-capacity transit.

The Reality: Bus corridors have more capacity than any single rail line.

Proponents of rail transit make statements such as: "There is not enough room on the streets of [any city] to accommodate all the buses that would be needed to carry the passengers served by a single rail line."

Such statements are untrue.

In the first place, the correct comparison is not between a single rail line and a single street. It is between a single rail line and the several parallel streets that constitute a bus *corridor*. The corridor usually has greater capacity than the rail line, and it is more convenient for passengers as well. Even a single-line dedicated bus right-of-way has greater carrying capacity than a light-rail line. Only the most heavily used heavy-rail trunk lines have greater capacity than busways, and these have significantly higher costs.

Furthermore, the myth is not true in its own terms. A study in Los Angeles found that buses rather easily matched the capacity of the Blue Line, which has by far the highest average passenger load of all U.S. light-rail lines, and may have the highest peak passenger load.[12] It would take only 103 buses in local service or 57 in freeway express service to match the carrying capacity provided by the 20 rail cars needed to provide one hour's service. Furthermore, the cost of the buses would be a fraction of the cost of rail, because the buses' share of the road cost is a fraction of the cost of rail right-of-way, and buses cost about $300,000 a piece, versus $3 million for each light-rail car.[13]

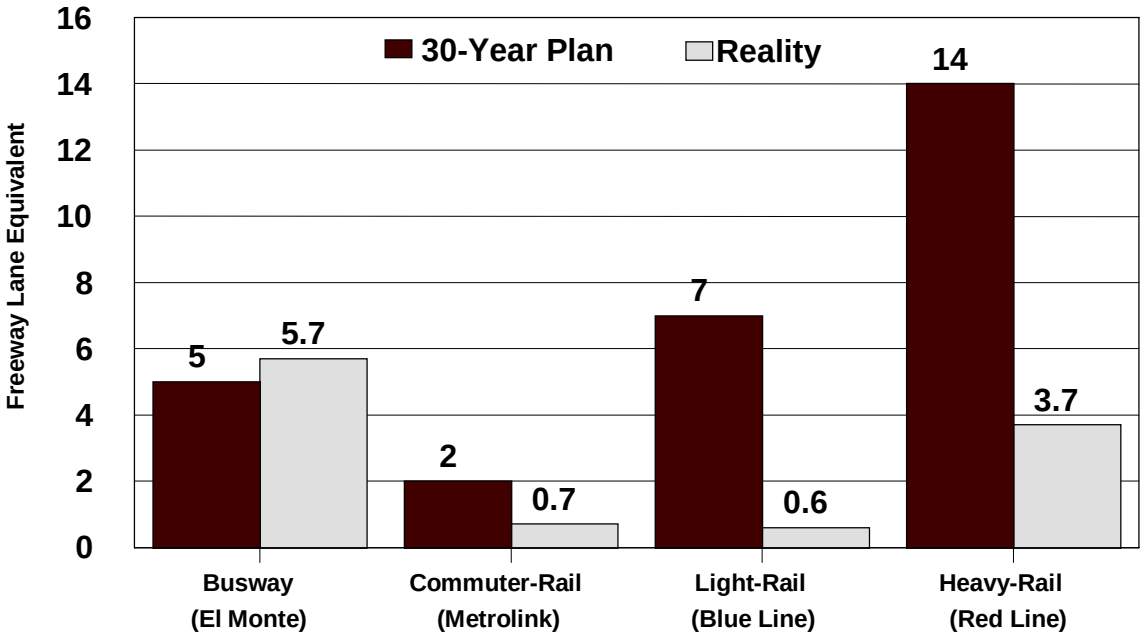
Another study conducted in Los Angeles found that its one operational busway has three times the capacity of its best light-rail line (see Table 1). The same study found that if busways are opened up to use by three-person carpools, they can provide nearly six times the capacity of a freeway lane—which exceeds even the performance of some heavy-rail lines (see Figure 3).[14]

12. Rubin and Moore, "Ten Transit Myths," p. 11.

13. Rubin and Moore, "Ten Transit Myths," p. 12.

14. Thomas A. Rubin and James E. Moore II, "Better Transportation Alternatives for Los Angeles," Reason Public Policy Institute, Policy Study No. 232, September 1997, p. 12.

Figure 3: Capacity Comparison LACMTA 30-Year Plan vs. Reality



Source: Thomas A. Rubin and James E. Moore, "Rubber Tire Transit: A Viable Alternative to Rail," Reason Public Policy Institute Policy Study No. 230, August 1997.

Table 1: Peak-Hour Ridership in Los Angeles: Busway and Light-Rail

	El Monte Busway: Actual	Blue Line: Actual
Buses or Trains per Hour (Peak Direction)	49	10
Cars per Bus or Train	1	2
Average Load per Car (passengers)	31.2	62.6
Average Operating Speed (mph)	52	21
Passenger Miles per Hour	79,498	26,305

Source: Thomas A. Rubin and James E. Moore II, "Better Transportation Alternatives for Los Angeles," Reason Public Policy Institute, Policy Study No. 232, September 1997, p. 12.

Note: The busway figures are based only on buses using the right-of-way. This busway also accommodates carpools of three or more people, giving it a total throughput of 292,986 passenger miles per hour, or approximately 10 times that of the Blue Line.

Part 4

Myth 3: The Decongestion Myth

The Myth: Rail transit will decongest roads by converting automobile users into users of mass transit.

The Reality: Rail transit is not a decongestant. Drivers' support for rail transit is based on a hope that other drivers will use rail transit and open up the road; in fact, the majority of rail riders are taken out of buses, not cars.

Proponents of rail say that automobile users support construction of light-rail lines. They buttress the point with surveys of drivers in which the respondents endorse rail construction and with election results in which people approve special-purpose taxes. These results are represented as evidence that drivers are eager to ride the rails.

The surveys and election results are real, but the conclusion is wrong. Drivers are indeed enthusiastic about rail lines, but only because they think that many others will ride the transit and leave the road clear for the driver. An endorsement of transit construction is a vote for an open road, free of all those pesky other drivers.

The misinterpretation of the reasons for public support of transit systems also produces serious overestimates of likely ridership, which leads to disastrous economic forecasts. In the late 1970s, District of Columbia officials predicted that their $10 billion, 92-mile heavy-rail system would boast an annual ridership of 323 million. As of 1995, with the system nearly completed, ridership was 159 million.[15] In Portland, Oregon, transportation planners said that a light-rail line would be built in three years for $135 million and would carry nearly 60,000 people per day after 10 years; in fact, the line took four years and $210 million to build, and it carried only 27,000 people per day after 10 years.[16] And a 1990 U.S. Department of Transportation report found that overall, heavy-rail systems have ridership shortfalls averaging 35 percent of their forecasts, and light-rail systems have shortfalls of a stunning 65 percent.[17]

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15. Amanda Ripley, "Missing the Bus," *Washington City Paper,* vol. 18, no. 3, January 23–29, 1998, p. 31.

16. Thoreau Institute, "Why Metropolitan Planning Doesn't Work," Oak Grove, Oreg., October 15, 1996, p. 3. [Internet: http://www.ti.org/sa16.html]

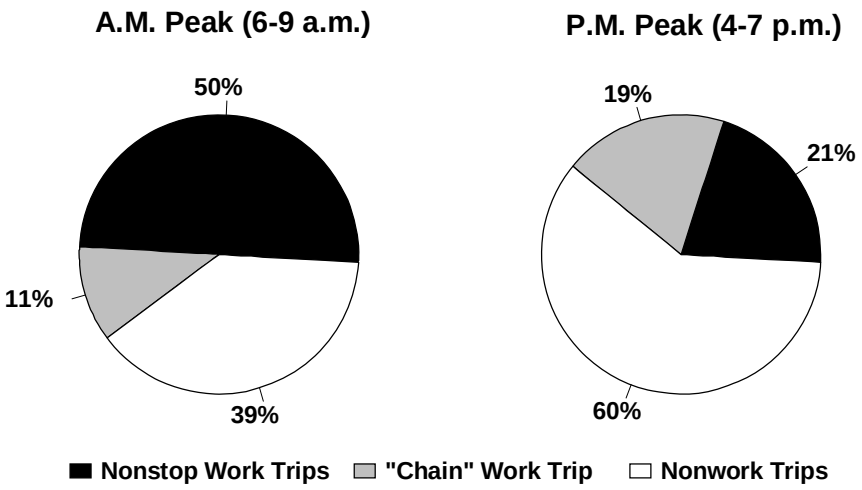
17. Charles H. Pickerell, "Urban Rail Transit Projects: Forecast vs. Actual Ridership and Costs," Urban Mass Transit Administration report, U.S. Department of Transportation, Washington, D.C., 1990.

These shortfalls in ridership are not well known to the public or to municipal officials. They are obscured by a practice reminiscent of the bait-and-switch tactics used by fast-talking retailers.[18] Optimistic ridership forecasts are used when a project is first under consideration. Then, after the funding is obtained and the construction is well under way, the forecasts are revised downward drastically. After operation begins, the transit authority happily announces that ridership "exceeds forecasts," without noting that this refers to the second, revised forecast, not to the original predictions used in selling the project.

Because traffic congestion is greatest at the beginning and end of normal working hours, it is easy to jump to the conclusion that all the cars on the road during these rush hours are making journeys to or from work. This conclusion leads to the belief that building transit systems that run along the main commuting corridors will automatically relieve the congestion. But this conclusion does not follow. Rush-hour commuting is important, obviously, but it is not nearly as dominant as most people assume. In the D.C. area, 75 percent of all automobile trips involve errands—taking the kids to school, going to the doctor, or performing the other multiple errands of every family.[19] Nationwide, 39 percent of morning rush-hour trips and 60 percent of afternoon rush-hour trips are not work-related (see Figure 4).

Given the current realities of transit service, these errand trips will be taken by car by everyone except people who cannot afford to buy one. A report on the D.C. bus system cited the common experience of an inner-city mother who takes two buses to drop her child off at day care, then a third one to work. The trip takes an hour and a half.[20]

Figure 4: A.M. and P.M. Commuting Trips



Source: 1990 NPTS data.

18. John F. Kain, "Deception in Dallas: Strategic Misrepresentation in Rail Transit Promotion and Evaluation," *Journal of the American Planning Association,* vol. 56, no. 2 (Spring 1990), pp. 184–96.

19. Editorial, *Washington Post,* January 25, 1998, p. C6.

20. Ripley, "Missing the Bus," pp. 32–33.

It is also a mistake to assume that there are identifiable "commuting corridors" that accommodate most of the job-related trips. Increasingly, people live in one suburb and work in another; they do not go from a suburb down a corridor to a central downtown.[21] In the five-county Los Angeles metropolitan area, districts with job densities greater than 12,500 per square mile account for only 17 percent of all jobs, and even these are spread over 19 different centers. The remaining 83 percent of the jobs are dispersed throughout the area.[22]

Reporter Joel Garreau's book *Edge City* documents this trend nationwide by examining the proportion of office space inside and outside the central business district (CBD) for 13 U.S. cities and four foreign ones. In the United States, only New Orleans and Pittsburgh had dominant CBDs, with 69 percent and 66 percent of the office space in their respective areas. In the other U.S. cities, the CBD's share ranged from 24 percent in Tampa to 33 percent in Denver to 49 percent in Philadelphia.[23] And this, of course, takes into account only *office* space; it does not take into account industrial or commercial employment, where the CBD share is even lower. The "commuting corridors" concept, which assumes a downtown employment core surrounded by suburbs, is hopelessly out of date.

The assumption that rail transit can decongest roads rests on another erroneous assumption. Even in an old-style radial city, with employment concentrated in a CBD, rail transit makes sense only if residential areas also have high population densities. Otherwise, commuters must get in their cars, drive to a station, park, walk, wait, and entrain. Many of them, once in their cars, will find it more convenient to keep going. Very few U.S. cities have residential densities sufficient to make rail transit a viable option.

If rail transit does not draw passengers from autos, where do they come from? The answer is clear: from buses. A 1996 Los Angeles study found that 63 percent of rail passengers had switched from the bus. Another 6 percent used to be driven by others, 6 percent had walked, and 4 percent were taking trips they would not have taken but for the rail line. Only 21 percent were riding instead of driving alone.[24]

Can drivers be lured onto rail transit, abandoning their cars? Surely, for some trips. If a station exists within walking distance of a potential rider's home, she has nothing to carry, the weather is good, the transit is cheap, fast, frequent, and round-the-clock, no transfers are required, and the station at the other end is within walking distance of her destination, then even a hard-core driver might be amenable to switching. Unfortunately the percentage of urban trips meeting this list of criteria is minuscule. In Portland, for example, only 1 percent of the population lives within walking distance of a light-rail station.[25] Transit experts Stephen Mueller and Dennis Polhill say that experience from numerous cities shows that only about 5 percent of commuters who are bound for the downtown area actually regularly use a light-rail system once it is built.[26]

Part 5

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21. Alan Pisarski, "Commuting in America II," Washington, D.C.: Eno Transportation Foundation, 1996.

22. Rubin and Moore, "Ten Transit Myths," p. 18.

23. Garreau, *Edge City*, p. 439.

24. Los Angeles County Metropolitan Transit Authority, "The Metro Green Line Turns One," news release, August 12, 1996, cited in Richmond, "Mythical Conception."

25. Peter Gordon and Harry W. Richardson, "Why Sprawl Is Good," Cascade Policy Institute, Portland, Oreg., 1997, p. 1. [Internet: http://www.cascadepolicy.org/growth/gordon.htm]

26. Stephen R. Mueller and Dennis Polhill, "Stop that Train: RTD's Light Rail Boondoggle is on a Fast Track for Disaster," Independence Issue Paper 2-94, Independence Institute, Golden, Colo., March 8, 1994, p. 1. [Internet: http://www.i2i.org]

Myth 4: The Cost-Effectiveness Myth

<u>The Myth</u>: Rail transit is cost-effective.

<u>The Reality</u>: Rail transit is economically inferior to conventional bus service.

An important analysis of the costs of rail systems was published by the U.S. Department of Transportation (DOT) in 1990. It found that the average cost per one-way passenger trip on recently built light-rail systems was $9.44. For heavy-rail systems, the cost was $9.85.[27]

As is required for sound economic analysis, these figures include the cost of constructing the facilities, amortized over time, as well as operating costs. Advocates of rail transit sometimes obfuscate the issue by citing cost figures that include operating costs but exclude the cost of construction. If a private corporation tried to use such accounting, its officers would wind up in jail. Calculating transit costs without including the cost of construction is like an individual calculating the costs of owning an automobile by adding up his gas and oil charges while ignoring both the purchase price and the interest on his purchase loan.

The Los Angeles rail system was not included in the DOT study, because it was not operating at the time. A later study found that costs per one-way trip in Los Angeles were even higher than the costs in the cities studied by the DOT. As of 1993, the cost per trip on the light-rail Blue Line was $11.90; on the heavy-rail Red Line, it was $26.83; and on the commuter-rail Metrolink, it was a whopping $40.09.[28] This Los Angeles study is particularly valuable because it compares rail costs and bus costs on the same system, finding the cost per passenger on the Los Angeles bus system to be $1.79. Nor does rail transit look better when judged on the basis of passenger miles instead of passengers. Los Angeles light-rail passengers are subsidized to the tune of $1.26 per passenger mile, while the subsidy for bus passengers is $0.23 per passenger mile.[29]

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27. Rubin and Moore, "Ten Transit Myths," p. 1, using data provided in Pickerell, "Urban Rail Transit Projects." The Pickerell study expressed values in terms of 1988 dollars. The numbers used are updated 1992 dollars to simplify comparisons with later data. A discount rate of 10 percent was used. The cities covered by the study were: Light-Rail: Buffalo, Pittsburgh, Portland, Sacramento; Heavy-Rail: Washington, Baltimore, Miami.

28. Rubin and Moore, "Ten Transit Myths," p. 4. These costs are actually understated because the LACMTA does not include some costs that, under standard accounting practices, should be included, such as capitalized interest charges during construction and some general and administrative costs.

29. Rubin and Moore, "Ten Transit Myths," pp. 3–4. The figure for bus passengers includes an allowance for the costs of highways. It was calculated on the basis of the cost of the El Monte busway; thus, it overstates the highway costs for buses that share city streets with automobiles.

Part 6

Myth 5: The Urban-Form Myth

The Myth: Rail transit promotes superior urban form.

The Reality: Urban planners' idea of "superior form"—high densities of both residences and places of employment—is counter to most people's values. In any event, rail transit cannot overcome the forces pushing for decentralization.

As the high costs and low benefits of rail transit have become increasingly apparent, even to those most reluctant to accept the data, some prorail forces have shifted their ground. They have changed their emphasis away from quantifiable effects and turned to qualitative arguments about superior urban form and unmeasured benefits that are claimed to result from transit-oriented development.[30]

This myth breaks down into two issues. First, what is the desired form, and why is it regarded as superior? Second, does rail transit actually create that form?

The first of these questions is easily answerable. Urban planners have gotten carried away by the idea that high population density is a good thing. They favor multifamily housing and small lots for those individual houses that are permitted. They also favor compact retail and business areas. Their ideal is a community in which people walk to both work and shopping.

The logical question is: why do planners think these things? People who lived in the congested tenements of New York City in the 19th century did not think it was heaven. High-density living and working has some advantages, and some people like it a lot. It also has some serious disadvantages, and some people dislike it intensely. Some people are in the middle; they would like to have neighborhood shops within walking distance, but they recognize that this form is not compatible with the low prices, large selection, and low transaction costs that result from supermarkets, malls, and discount stores. Because they place high value on conserving their resources of money and time, they choose—rationally—the less-dense form.

Planners are also obsessed with the idea that "sprawl" is evil, that an urban area should use as little land as possible. Portland, Oregon, which has placed a legal boundary on growth, has become the planners'

30. Rubin and Moore, "Ten Transit Myths," p. 2.

ideal. Again, the question is: why? The United States is blessed with ample land. All of our urbanized land covers only about 2.6 percent of the area of the lower 48 states.[31] Occasionally, one hears jeremiads that the nation is "running out of farmland," but these concerns border on the ludicrous. The nation has a surfeit of farmland.[32] About 5 percent of the area of the lower 48 states, twice as much as the land devoted to urban development, is good farmland that is not used to grow crops; it is used as pasture or forest or simply lies fallow.[33] If the pejorative word "sprawl" is dropped, and the neutral term "dispersal of population" used instead, it becomes difficult to understand why the planners are so against it.

The impacts of the Portland growth boundary are already being felt. Housing prices are rising, to the detriment of newcomers, and open spaces within the city are being filled in, to the detriment of all. Portlanders are giving up usable, valuable close-in green space to prevent development in outlying areas that most residents never see.[34] It is the equivalent of New York City turning Central Park into a housing development so as to avoid the need to build homes in rural New Jersey.

It is fortunate that the high-density utopia of the planners is not really desirable, because rail transit has no chance of producing it. High density runs counter to the realities of urban economics. The high-rise buildings necessary to produce high densities are expensive to build. The expense makes sense only if transportation costs are high enough to dominate the extra construction costs. This is simply not true in contemporary America. A business can locate in the suburbs, cut its construction costs, and reduce its employees' transportation costs. Furthermore, technological development is working against the high densities necessary for rail transit. Existing trends toward dispersal have been fostered by electrification, radio and telephonic communication, and the development of trucking and highway systems. These trends are being reinforced by the widespread use of computers and telecommunications, which are increasing society's capacities for effective interaction among people who are distant from each other. All these forces reduce the incentives for concentrated settlement patterns.

Given these basic economic forces, it is not possible for rail transit to produce the planners' vision of a high-density utopia. This is all to the good, because the vision does not correspond to the desires of the majority of Americans. Any public official listening to a pitch for rail transit and the concomitant need for high density should keep in mind an image from a few years ago: news photos showing the demolition of the Pruitt-Igoe public housing project in St. Louis. Massive, expensive public housing projects were once the planners' version of urban utopia. They did not work. In fact, they turned into hideous jungles of dysfunction that could be cured only with dynamite. The planners, of course, never had to live in them or cope with the consequences. They just invented new visions of utopia.

The Pruitt-Igoe experience is hardly unique. A recent *Washington Post* headline read: "New Generation of City Planners Rethinks '60s-Era Waterside Mall."[35] The story began: "Nearly 30 years

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31. Thoreau Institute, "The Coming War on the Automobile," Oak Grove, Oreg., undated, p. 6. [Internet: http://www.ti.org/autowar.html]

32. James Riggle, "Mandarins and Money: Taking Private Land for Private Interests: The Agenda and Policies of the American Farmland Trust," Competitive Enterprise Institute, Washington, D.C., forthcoming.

33. Thoreau Institute, "Coming War," p. 6.

34. Randal O'Toole, "Coming Soon to a City Near You," Thoreau Institute, Oak Grove, Oreg., undated, pp. 1–2. [Internet: http://www.ti.org/lvsun.html]

35. David Montgomery, "New Generation of City Planners Rethinks '60s-Era Waterside Mall," *Washington Post,* March 11, 1998, p. B10.

ago, the best minds in urban planning decreed that a giant retail and office complex should be erected," and then described some of the unpleasant consequences of this decision. The bulk of the article was devoted to the new and expensive ideas of today's "best minds in urban planning," most of which seem to be that the old expensive ideas were all wrong.

The "best minds in urban planning" now have a vision of expensive rail transit facilities. When these are shown to be mistakes, the planners will again walk away, while the communities who served as the laboratory rats for their experiments are stuck with the bill.

Part 7

Myth 6: The Rail-Serves-the-Poor Myth

The Myth: Rail transit benefits low-income people.

The Reality: The switch to rail transit imposes heavy costs on low-income people.

Low-income transit users are captives. They have no alternatives to public transit, no matter how low the quality or how high the cost of service. In contrast, middle- and upper-income travelers are optional riders (or, as they are often called in the literature, "choice" riders). They have alternatives, especially the automobile, and will not tolerate the conditions that often confront low-income riders. The usage patterns of this group are also different from the patterns of low-income riders. The latter make many short trips on public transit. They go to the grocery store, the doctor, social calls, and so on. Optional riders, even those eager to make the journey to work by rail transit, tend to use their cars for these other errands.

Rail systems, even at their inefficient best, cater to the commutes of the wealthier segments of the communities. In doing so, they create route patterns that are poorly adapted to the needs of the low-income users. As noted before, rail transit forces everyone to make a long sideways trip to reach a trunk line designed for commuting to a downtown, a pattern that can make what was once a short bus ride to a nearby doctor into an hour-and-a-half ordeal.

Transit systems also strip resources from the bus systems that serve the needs of the low-income riders, because available funds must be funneled into fulfilling the extravagant promises made to satisfy the middle- and upper-class constituency that advocates rail systems. As a result, the buses grow older and shabbier, headways become less frequent, and mechanical breakdowns increase. So, in addition to its effect of distorting bus route patterns in ways that increase the burdens on the less-affluent segment of the populace—the segment that has no option except to use public transit—rail construction results in a degradation of the bus service that remains. This sacrifice of the vital interests of lower-income people to subsidize the urban upper classes is morally unjustifiable.

A court of law in Los Angeles also thinks that draining money from buses to subsidize rail transit is legally unjustifiable. In 1996, a federal judge ruled that the Metropolitan Transit Authority's program of steering subsidies into rail rather than bus transportation discriminated against the low-income and largely minority population that depends on the buses. The MTA is now operating under a consent decree designed to ensure fair treatment for the bus riders.

Part 8

Myth 7: The Jobs Myth

<u>The Myth</u>: Rail transit construction is a good way to provide jobs.

<u>The Reality</u>: Bus systems provide more jobs per public dollar expended, and more local employment.

The Los Angeles transit authority found that rail construction creates one person-year of employment for each $414,793 of taxpayer money. Rail operation produces one year of employment for every $88,253 in subsidies. Bus operation creates one job for each $65,737 in public subsidy.[36]

Furthermore, the jobs created by bus service are local. So are the jobs created by other bus operating expenditures, such as parts, fuel services, rent, and so on. In contrast, many of the jobs created by rail construction are located far away; most rail cars, for example, come from Japan, Italy, and Germany, not from U.S. sources. Most U.S. cities will have similar experiences—rail construction may boost some city's economy, but it will not be their own.

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36. Rubin and Moore, "Ten Transit Myths," p. 13, citing Los Angeles County Metropolitan Transit Authority, "Executive Report: Rail Program Status," September 1994, p. ii; and Los Angeles County Metropolitan Transit Authority, "Fiscal Year 1996–1997 Budget," 1996, p. 31.

Part 9

Myth 8: The Federal-and-State-Money Myth

The Myth: Capital investment in rail transit will be paid for with nonlocal funds that cannot be used for other purposes.

The Reality: Although funds requested for rail transit often must be spent for that purpose, localities may seek funds for a variety of purposes and have considerable discretion over how local transportation funds are spent.

The gist of this argument is that some pots of money earmarked for rail construction are available from federal and state governments and that, therefore, a locality should build a rail system to get on the gravy train.

There are two rejoinders to this. The first is that some federal and state funds are less restricted than transit advocates would have you believe. Most important, federal Section 3 funds can be used for bus purchases as well as for rail construction.

The second is that the pursuit of supposedly "free" federal or state funds is a fool's quest. As Rubin and Moore found out in the case of Los Angeles, rail transit can be 10 to 13 times as expensive as bus service in terms of total capital cost per unit of transit service provided.[37] Urban officials with experience in these matters estimate that nonflexible federal funds might be procured to cover no more than 50 percent of budgeted capital costs of rail projects, and a lower proportion of actual costs. (And, as noted earlier, all rail projects incur substantial cost overruns.) On the other hand, federal funds can be obtained to pay for 80 percent of the capital acquisition costs of bus transit.

When these numbers are combined, the bottom line is that the rail option is 20 times as costly as bus service in terms of its demand on local capital funds.[38]

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37. Rubin and Moore, "Better Transportation Alternatives for Los Angeles," Table 1, p. 1.

38. Rubin and Moore, "Ten Transit Myths," p. 21.

Part 10

Conclusion: Making Sense of Transit Policy

A final argument for rail is that "nothing else works," or "there are no alternatives." This is simply untrue. The essentials of a good transit policy are obvious to anyone who studies the problem with an objective eye and a respect for facts.

The first step is to approach transit as a business, and the first rule of any business is to look at what your customers want. The low-income, transit-dependent people who constitute the base of ridership want the obvious: frequent and reliable service; longer service hours; multiple and convenient lines; express routes for long distances; good information; and a high level of security. So start by giving it to them. To those who say that the city cannot afford it, the answer is easy: For a tiny percentage of the money you are willing to fritter away on rail transit, you could gold-plate every bus, red-carpet every bus stop, and provide airline-style steward service en route.

Good service will bring out latent demand among the basic ridership group, but there is, of course, a limit. The next target should be those optional riders who can be attracted to bus service most easily by improvements in service and facilities. These improvements—plus such innovations as intersuburb service, reserved lanes on freeways, and dedicated busways—offer great potential to increase patronage from optional riders.

The real measure of the poor management that characterizes public transit systems is not the number of families who want an automobile. A car is highly desirable, and every family will buy one as soon as possible. The problem is the number of families who are buying not just one car, but a second, a third, and a fourth. Automobiles are expensive. Many of these families would certainly rather have one car for general needs and rely on public transit for many of the family's trips. The fact that they are willing to incur the huge costs of extra cars is powerful proof of the failure of transit managers to keep in touch with the needs of their customers.

Besides improving bus transit to make it competitive with automobile use, two other steps are necessary to create a sound urban transit system. Both are designed to reintroduce market solutions:

1. Automobile users do not pay the full costs of the roads it takes to service them during peak hours, or of the pollution and congestion costs that each driver imposes on others. For 30 years, economists have been urging the virtues of congestion pricing, which means that drivers would pay

a variable toll for road use according to time of day or degree of congestion.[39] The revolution in technology is making this option increasingly feasible by means of nonstop electronic toll collection, and urban officials should pursue it assiduously.

2. Competition must be reintroduced into transit. One reason for the decline of transit is its usual organization as a government or government-enforced monopoly. Low-income people, in particular, are victimized by this because they have nowhere else to turn. The healthy winds of competition should blow, allowing entrepreneurs who want to meet people's needs to design and implement systems of shuttles, jitneys, or bus lines to meet them.[40]

In the end, good transit policies are within the reach of every urban official. But they are not to be found in the realm of high-tech glitz. A local official confronted with the pitch for light-rail should go to the nearest video store and rent a hit movie of 1962 called *The Music Man*. It features a fast-talking "Professor Harold Hill" who alternately cajoles and scares the citizens of River City into financing expensive instruments for an unnecessary marching band by spinning yarns about all the wonderful things a band will do for their children. The scheme is a scam, naturally, and the professor plans to run off with the money.

The professor is back, and this time he is not selling anything as cheap as a marching band or working only one city at a time. He is selling multimillion-dollar urban light-rail systems, and he has gone national. *The Music Man*, being made by Hollywood, ended happily. The professor fell in love, stayed in town, and taught the students to play in tune. The light-rail story, being made in the real world, will not end happily. The instruments will not be delivered, and the professor will not stick around. It is the local officials who will remain. So remember the pigeons.

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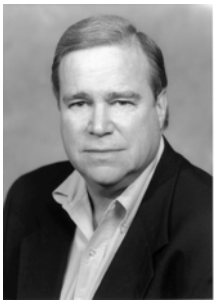
39. Committee for Study of Urban Congestion Pricing, *Curbing Gridlock: Peak-Period Fees to Relieve Traffic Congestion*, (Transportation Research Board, National Research Council, Washington, D.C.: National Academy Press, 1994).

40. Charles A. Love (ed.), *Urban Transit: The Private Challenge to Public Transportation* (San Francisco: Pacific Research Intitute, 1985).

Part 11

About the Author: James V. DeLong



James V. DeLong is a writer, consultant, and lawyer in Washington, D.C., concentrating on property rights and environmental issues. His book, *Property Matters: How Property Rights Are Under Assault — And Why You Should Care*, was published by the Free Press in March 1997. He is a Contributing Editor of *Reason*, an Adjunct Scholar of the Competitive Enterprise Institute, and he writes often for scholarly, professional, and popular publications.

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