

LIGHT RAIL

Boon or Boondoggle?

By Molly D. Castelazo
and Thomas A. Garrett



LIGHT-RAIL TRANSIT SYSTEMS HAVE BECOME A COMMON FIXTURE IN MANY AMERICAN CITIES OVER THE PAST SEVERAL DECADES.¹ Proponents of light rail argue that rail transit increases community well-being by creating jobs, boosting economic development and property values, and reducing pollution and traffic congestion—all while providing drivers with an economical alternative to the automobile. Opponents counter that light-rail transit provides little of these benefits to citizens and that, even if some benefits are realized, the costs still outweigh any potential benefits to society. Whether light-rail transit is a boon or a boondoggle depends on whether the societal benefits of light rail outweigh its costs.

The Economics of Transportation Costs

The economic value that society places on light-rail transit is reflected, in part, by people's willingness to pay for it. This is true for most products and services in the economy. To make a profit and stay in business, private companies must offer a product or service whose production costs are below what consumers are willing to pay for it. The public provision of light-rail services, in contrast, costs more than consumers are willing to pay. For example, fare revenue covers only 28.2 percent of operating costs in St. Louis, 19.4 percent of costs in Baltimore and 21.4 percent of costs in Buffalo.² Nationwide, annual light-rail operating costs (\$778.3 million) far exceed fare revenue (\$226.1 million); the balance (\$552.2 million) is paid for with tax dollars. Note that these numbers refer only to operating expenses. With such large annual losses, no light-rail system could possibly recoup its construction costs, which can amount to several hundred million dollars. No privately owned system would ever be operated (or even be built) with such a dismal balance sheet.

One justification for the subsidies paid to build and operate light-rail systems is that light rail will reduce pollution and congestion from automobile traffic. However, building light rail is only a short-run solution to the problems of traffic congestion and pollution. To permanently alleviate the problems of traffic congestion and pollution, policy-makers must address the root cause of both: the inefficient pricing of roadway usage. Traffic congestion and pollution exist

because the costs of driving an automobile are artificially low. Consider the following explanation: A driver's use of the roadway imposes on him certain costs (such as the costs of fuel, time and depreciation of his automobile); the driver himself bears these costs. The driver also imposes costs on others by contributing to pollution and congestion, but the driver does not incur these costs he imposes on other drivers. (Economists term these costs externalities.) Because each driver does not bear the full cost (driver's own cost + externalities), the costs of driving are artificially low; so, each driver overuses the roadway rather than use alternative means of transportation like light rail.

To permanently reduce traffic congestion, policies must be enacted that force each driver to bear the full cost of his or her automobile usage rather than constructing costly public projects that only add to the overall inefficiency of a city's transportation system. Two methods of forcing drivers to bear the full costs of driving are to operate toll roads and to increase motor fuel taxes, with the toll or tax equal to the external cost each driver imposes on other drivers. Of these, toll roads would be more efficient, although also more difficult to administer.

The Cost of Providing Transportation to the Poor

Another justification for expenditures on light-rail systems is that they provide transportation to thousands of low-income individuals who otherwise would find their mobility quite limited. While providing public transit to the poor does produce tangible economic benefits, the following example suggests that light rail is not an efficient means of providing transportation to the poor. Specifically, the example shown in the table demonstrates that the money spent on MetroLink in St. Louis can be used to much better effect.

Based solely on dollar cost, the annual light-rail subsidies could instead be used to buy an environmentally friendly hybrid Toyota Prius every five years for each poor rider and even to pay annual maintenance costs of \$6,000. Increases in pollution would be minimal with the hybrid vehicle, and 7,700 new vehicles on the roadway would result in only a 0.5 percent increase in traffic congestion.³ And there would still be funds left over—about \$49 million per year. These funds could be given to all

other MetroLink riders (amounting to roughly \$1,045 per person per year) and be used for cab fare, bus fare, etc.

Does this example imply that light-rail subsidies to the poor should be abolished? If society obtains some intangible benefit (pride, generosity and compassion, for example) from knowing that light rail provides transportation for the poor, then the costs of light rail could be justified. However, the example in the table also provides transportation for the poor—but it is unlikely that this example would become reality. The MetroLink example demonstrates that there are ways of providing transportation to the poor that are less costly than light rail.

Instead of building light-rail systems to provide transportation for the poor, communities could expand bus service, offer more express bus routes or expand on-demand services; these would still realize the benefits of providing public transportation to the poor. Although these other forms of public transportation are also cost-inefficient compared to the automobile, fewer inefficient public transportation systems would be less costly to society.⁴

Light Rail: Concentrated Benefits and Dispersed Costs

If light rail is not cost-efficient, nor an effective way to reduce pollution and traffic congestion, nor the least costly means of providing transportation to the poor, why do voters continue to approve new taxes for the construction and expansion of light-rail systems?

One economic reason is that the benefits of light rail are highly concentrated, while the costs are widely dispersed. The direct benefits of a light-rail project can be quite large for a relatively small group of people, such as elected officials, environmental groups, labor organizations, engineering and architectural firms,

developers and regional businesses, which often campaign vigorously for the passage of light-rail funding. These groups would benefit from light rail, not from the subsidization of cars and money to all potential riders of light rail.

The costs of light rail, while large in aggregate, are often small when spread over the tax-paying population. (The cost of light rail in St. Louis totals about \$6 per taxpayer annually). A large group of taxpayers facing relatively minimal costs can be persuaded to vote for light rail based on benefits shaped by the interested minority, such as helping the poor, reducing congestion and pollution, and fostering development. Even if these benefits are exaggerated and the taxpayer realizes the cost-ineffectiveness of light rail, it is probably not worth the \$6 for that person to spend significant time lobbying against light rail.

Conclusion

Proponents of light rail argue that it will create jobs, foster economic development and boost property values. While there is some academic evidence of these benefits, it is important to realize that they are not free to society—light rail is kept afloat by taxpayer-funded subsidies that amount to hundreds of millions of dollars each year.

Concentrated benefits and dispersed costs are one economic reason for the existence of inefficient public projects. The many who stand to lose will lose only a little, whereas the few who stand to gain will gain a lot. Of course, if other public projects exist where overall costs outweigh benefits, then \$6 a year per project could add up to quite a hefty boondoggler's bill.

Molly D. Castelazo is a research associate and Thomas A. Garrett is a senior economist, both at the Federal Reserve Bank of St. Louis.

ENDNOTES

- There are three types of regional rail transit: heavy rail, commuter rail and light rail. Heavy and commuter rail typically require the construction of subways and elevated tracks and platforms. Light rail usually follows old rail lines, is much cheaper to construct and does not share track space with commercial trains. See Garrett (2004) for a more detailed description. Also see Zaretsky (1994) for more discussion of light rail.
- See Garrett (2004), Table 3.
- The total number of registered vehicles in St. Louis City, St. Louis County and St. Clair County (the most populated areas of the St. Louis metro area) is about 1.4 million. Adding 7,700 to this number results in about a 0.5 percent increase in the number of registered vehicles on the roadways.
- Operating cost per-passenger-mile for an automobile is \$0.414 compared to \$0.544 for light rail. These data are from the National Transit Database, 2002, and from the Federal Highway Administration, 2001.

REFERENCES

- American Automobile Association, *Your Driving Costs*, 2001. See www.cta.oml.gov/data/tedb22/Spreadsheets/Table5_12.xls.
- "A New Way to Grow," *Citizens for Modern Transit*. See www.cmt-stl.org.
- Garrett, Thomas A. "Light Rail Transit in America: Policy Issues and Prospects for Economic Development," Unpublished Manuscript, Federal Reserve Bank of St. Louis, Research Department, 2004.
- Federal Highway Administration, *Highway Statistics 2001*. See www.fhwa.dot.gov/ohim/hs01/index.htm.
- Federal Transit Administration, National Transit Database, 2002. See www.ntdprogram.com/NTD/ntdhome.nsf/Docs/NTDPublications?OpenDocument.
- Zaretsky, Adam M. "Riding the Rails: A Look at Rail Transit." Federal Reserve Bank of St. Louis *The Regional Economist*, October 1994, pp. 4-9.

COST COMPARISON: LIGHT RAIL SUBSIDIES FOR POOR VS. NEW CARS FOR POOR

1	Annual subsidy to MetroLink ^a	\$133,043,678	
2	Number of poor MetroLink riders (riders without cars) ^b	7,700	
3	12 monthly payments for hybrid Toyota Prius costing \$20,000 assuming 8% interest, \$0 down, for 60 months ^c	\$4,866.36	
4	Annual cost of operating a car ^d	\$6,000	
5	Total payment to poor riders	\$83,670,972	((3) + (4)) x 7,700
6	Funds remaining after car payment	\$49,372,706	(1) - (5)
7	Annual per-rider transfer possible to all other MetroLink riders	\$1,043.82	(6)/47,300

- a** This figure is equal to the total (operating + capital) subsidy to MetroLink in 2001 from local, state and federal sources (\$105,203,678) plus the opportunity cost of the \$348 million federal grant to pay for MetroLink construction. Assuming an 8 percent annual rate of interest, the annual opportunity cost amounts to \$27.84 million. Subsidy data are from the National Transit Database, 2002, and federal grant information is from www.metrostlouis.org/InsideMetro/insidemetrolink.asp.
- b** Computed using data from "A New Way to Grow," page 2, www.cmt-stl.org. Daily ridership on MetroLink is roughly 55,000. The analysis makes the assumption that all MetroLink riders without cars are considered poor (about 14 percent of all riders). There is evidence in support of this assumption. Roughly 30 percent of MetroLink riders earn less than \$25,000 a year (Citizens for Modern Transit, page 5). According to the 2004 Federal Poverty Guidelines (<http://aspe.hhs.gov/poverty/04poverty.shtml>), a family of two earning less than \$12,490 is considered poor. The average family size in the United States is 2.5 persons. Thus, of the 30 percent of MetroLink riders making less than \$25,000 a year, on average roughly half (15 percent) are officially poor, which is close to the 14 percent approximation used in the table.
- c** www.automotive.com/toyota/11/prius.
- d** Data are estimated from American Automobile Association, 2001.