



# The Streetcar Scam

by Randal O'Toole

## Executive Summary

The City of Milwaukee proposes to spend \$64 million building a 2-mile-long streetcar line in downtown. The city expects a mere 1,800 people a day to ride the streetcar, paying fares that will only cover about 22 percent of the \$2.65 million annual operating costs. \*

The city could provide the same service with buses at an initial cost of less than \$2 million and annual operating costs of less than half a million per year, nearly all of which would be covered by fares. But buses aren't good enough for Milwaukee, which didn't even consider buses as an alternative in its environmental assessment of the streetcar.

Why streetcars? The city says streetcars, and only streetcars, will lead to valuable economic development. Only the permanency of streetcars will lead developers to build in downtown.

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One can ask just how permanent streetcars are when Milwaukee used to have hundreds of miles of streetcar lines, all of which are long gone and replaced by buses that still run today. Despite the lack of streetcars, Milwaukee and other cities have managed to grow just fine.

But Portland, Oregon built a streetcar line in 2001, says the city, and got billions of dollars worth of new development. The reality is that Portland built a streetcar line and then gave developers nearly a billion dollars worth of subsidies, tax breaks, and other incentives to build along the line.

When Portland built a light-rail line and offered developers no subsidies, it got no new transit-oriented developments along the line. When Portland offered developers subsidies without a light rail or streetcar, it got plenty of new development. The subsidies, not the rail lines, spurred the development.

Portland officials proudly show guests the Pearl District, a former rail yard and warehouse district that has been converted to condominiums, offices, shops, and restaurants. The streetcar trundling through this district at 6.5 miles per hour hardly spurred redevelopment, which happened mainly because the city spent nearly half a billion dollars removing obsolete buildings and adding new infrastructure.

A 2008 report by the city of Portland points to 50 new developments in the Pearl District worth \$1.3 billion. But then the streetcar leaves the Pearl District and covers a similarly sized area of land in Northwest Portland. According to the 2008 report, only seven projects worth a mere

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\$17.6 million were built in this area—hardly enough to get excited about, especially since most would have been built without the streetcar anyway.

Most of Portland’s streetcar route is in a free-fare zone, so riders pay an average of less than 4 cents per ride. Milwaukee’s hope of collecting an average of 88 cents a ride from 1,800 riders per day is likely optimistic.

In any case, research has shown that rail transit rarely stimulates economic development. At best, it merely shuffles it around so that

property owners near the rail line may win at the expense of a loss in property values elsewhere.

The City of Milwaukee wants to pay for the downtown streetcar, at least in part, through tax-increment financing. This means property taxes paid on new developments along the streetcar route—taxes that would ordinarily go for schools, fire, libraries, and other urban services—will go instead to subsidize the streetcar and, no doubt, other development.

Since the new developments will continue to consume urban services without paying for them, everyone else in Milwaukee will either have to pay higher taxes or accept a lower level of urban services. Non-downtown property owners throughout Milwaukee will thus pay twice: once in higher taxes to subsidize the streetcar and once in having lower property values because the streetcar and other subsidies attracted development away from their properties.

Peter Rogoff, the head of the Federal Transit Administration, thinks too many cities are wasting taxpayers’ money on rail transit. “Paint is cheap; rails systems are extremely expensive,”

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Rogoff said in 2010. “You can entice even diehard rail riders onto a bus, if you call it a ‘special’ bus and just paint it a different color than the rest of the fleet.”

Eugene Oregon, 100 miles south of Portland, proved this by painting the buses used on one route bright green and calling the route the “EMX.” The buses saved riders no more than one minute per four-mile trip, yet more than 60 percent of the riders surveyed think they saved much more. The mere image of a fast bus more than doubled the route’s ridership.

Milwaukee could do the same if it wanted to increase transit ridership. But the city is being victimized by high-priced consultants who make promises about economic development without revealing the real costs of that development. The people of Milwaukee should firmly reject this scam.

## King of the Streetcar Scammers

A famous episode of the Simpsons portrays a con artist who sells the city of Springfield on the idea of building a monorail. Other cities built monorails and greatly benefitted, he says. While the Springfield monorail was under construction, Marge Simpson visited the other cities and found them to be in dire financial straits. When the Springfield monorail is completed, Homer Simpson destroys it in a crash.

The people of Springfield were lucky that they at least didn’t have to throw good money after bad by continuing to subsidize the monorail for year after year. American cities that build rail transit are not so lucky. Streetcars, in particular, cost about twice as much to operate as buses.

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Yet many cities, including Atlanta, Cincinnati, Dallas, Salt Lake City, and Tucson are building streetcars. In most of these cities, the role of the con artist was played by Charlie Hales, working for a consulting firm called HDR.

Hales learned that rail transit did not generate economic development in 1996, when he was on the Portland city council and served as the city's transportation commissioner. Portland had opened its first light-rail line a decade before and rezoned the land along that line, including many vacant parcels, for high-density, mixed-use developments, otherwise known as "transit-oriented developments."

In October of 1996, the city council held a hearing to find out what had happened in those rezoned lands. City planner Mike Saba told the commission that, "We have not seen any of the kind of development of a mid-rise, higher-density, mixed-use, mixed-income type that we would have liked to have seen" along the light-rail line. He advocated the use of property tax abatements and other subsidies to stimulate such developments.<sup>1</sup>

Developers also testified in support of the subsidies. Wayne Remboldt, who had built housing in the Portland area for several decades, testified that denser developments would not pencil out without subsidies.<sup>2</sup> Another developer, Dan Steffey, agreed, saying he could not finish a planned high-density project without a tax incentive.<sup>3</sup> Both owned land along the light-rail line that the city had zoned for higher densities, but found that the costs per unit were high and demand for high-density housing was already met by existing developments.

At the hearing, Portland transportation commissioner Charlie Hales observed, "We are in the hottest real estate market in the country," yet city planning maps revealed that "most of those sites [along the light-rail line] are still vacant." "It is a myth to think the market will take care of development along transit corridors," he added, at least the kind of dense development that planners such as Fregonese and Saba were seeking.<sup>4</sup>

Portland eventually gave hundreds of millions of dollars in subsidies to developers along its light-rail lines, including tax abatements; land sales at below-market prices; waivers of permit fees and system development charges that would otherwise average more than \$12,000 per dwelling unit; and taxpayer-funded infrastructure development. Even as city commissioner Hales promoted subsidies to developments along the light rail, he was also promoting construction of a downtown streetcar line, campaigning for his position on a promise of building such a line in 1996.<sup>5</sup>

When the streetcar line opened in 2001, the city used tax-increment financing to provide hundreds of millions of dollars of subsidies to developers along the route. The streetcar initially connected two urban-renewal districts: the River District (more popularly known as the Pearl District) and the South Park Blocks. In 2006, the line was extended into a third district, North Macadam (sometimes confusingly known as the South Waterfront District). A major extension to the streetcar that is now under construction connects three other districts: Downtown Waterfront, Convention Center, and Central Eastside.

TIF essentially allows cities to use the taxes paid on new developments—taxes that would otherwise go for schools, fire, libraries, and other urban services—to subsidize those developments. By 2010, Portland had sold \$725 million worth of bonds that would be repaid out of property taxes on new developments in the River, South Park Blocks, and North Macadam districts, and used the revenues from those bonds to subsidize developments along the original streetcar line.

About \$21 million of this money helped pay for streetcar construction, while the rest went for other infrastructure improvements such as the removal of obsolete structures and installation of parks and other infrastructure. The city has also sold \$110 million worth of bonds to subsidize developments in the three urban renewal districts that are crossed by the extension

that is now under construction, and has the authority to sell another \$325 million worth of bonds in those districts.<sup>6</sup>

The waiver of at least \$12,000 in fees per dwelling unit for many of the 10,200 housing units that have been built near the existing streetcar line adds tens of millions more in subsidies to the area. According to tax assessors, hundreds of those housing units have also been exempted from property taxes for ten years, providing an effective subsidy of at least \$25 million more.

These aren't the only subsidies to property developers along the streetcar line. The Portland Development Commission, which oversees Portland urban-renewal projects, gets only about half its budget from TIF. The rest comes from city general funds, federal grants, rentals and property sales, and other sources.<sup>7</sup> In addition, developers in Portland's urban-renewal districts enjoy a streamlined project approval process. In total, then, the city provided close to a billion dollars in subsidies to property developers along the existing streetcar line on top of the \$103 million cost of the streetcar itself.

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The Pearl District, for example, was previously a railroad yard and warehouse district. The city sold \$436 million of TIF bonds and used the proceeds to remove obsolete structures, effectively turning the brown field into a green field. Then the city built new parks, parking garages, and other infrastructure—infrastructure that developers would normally pay for themselves.

Developers eagerly responded to these subsidies, transforming the area into mid-rise condos, apartments, offices, shops, and restaurants. Similarly, the South Waterfront District was an industrial area that—with the help of \$218 million worth of TIF bonds—developers transformed into high-rise offices and apartments.

The South Park Blocks urban-renewal district received only \$71 million of TIF subsidies. But it is the home of Portland State University, which happened to spend \$357 million on new classroom and office buildings. It would have built these with or without the streetcar, but streetcar advocates still count them among the developments stimulated by the streetcar.

Some idea of the comparative influence on developers of subsidies vs. streetcars can be gained by comparing development in the Pearl District with development in Northwest Portland outside of the Pearl District. (The rest of the streetcar route, including the South Park Blocks and North Macadam areas, are in Southwest Portland.) About the same area of land is located within two blocks of the Northwest Portland streetcar inside and outside of the Pearl District. A 2008 report by the city of Portland on development supposedly stimulated by the streetcar reveals a huge difference between these two areas.

Inside the Pearl District, the report listed some 50 projects collectively worth more than \$1.3 billion, or an average of more than \$26 million per project. But in Northwest Portland outside of the Pearl District, the report identified just seven projects collectively worth about

\$17.6 million, or about \$2.5 million each.<sup>8</sup> In other words, the subsidies inside the Pearl District contributed to 75 times as much private investment as the streetcar alone did outside the Pearl District.

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Of the seven projects outside the Pearl District, one was a fitness center that closed after just five years. Another was a condominium completed two years before the streetcar opened, raising the question of whether the streetcar had anything to do with the decision to build that project.<sup>9</sup> This makes it apparent that developers were, for the most part, following the subsidies, not the streetcar.

In order to subsidize streetcars and transit-oriented developments, Portland is letting its most valuable asset—its 5,000-mile street network—crumble. A recent inventory found that more than a quarter of the city’s major roads and nearly half of neighborhood streets are in “poor” or “very poor” shape, and at least 60 miles of streets have never been paved at all. Yet the city has deferred plans to repave any rutted streets until at least 2017. While Portland’s light-rail lines are built by the region’s transit agency, the city builds the streetcar lines, and it has made a conscious decision to put streetcars and bike paths ahead of street maintenance.<sup>10</sup>

Nor has the streetcar or rail transit in general improved Portland’s transit system. In addition to the streetcar, by 2010 Portland had opened a total of five light-rail lines extending outward from downtown Portland plus a commuter-rail line. The rail lines were so expensive that the city’s transit agency was forced to cut bus service, resulting in a significant drop in transit’s

share of travel. In 1980, before building any rail, 9.8 percent of Portland-area commuters took transit to work. By 2010, this had fallen to just 7.1 percent.<sup>11</sup>

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These rail lines have made little progress in improving downtown jobs. Between 2001, when the streetcar opened, and 2010, the Portland area’s population grew by 14 percent, yet downtown jobs grew by a mere 0.3 percent. The influx of new housing in the Pearl District led to more people walking and cycling to downtown jobs, but the number of people taking transit to downtown jobs declined by 15 percent.<sup>12</sup>

Despite these failings, which Portland officials never mention, Commissioner Hales was liberally rewarded for providing subsidies to developers. In 2000, a well-funded critic of Portland’s light rail and streetcars challenged Hales’ reelection for city commissioner. Hales simply called developers and rail contractors and quickly raised far more money than his opponent, enabling him to win reelection.<sup>13</sup> Yet, in 2002, Hales quit his seat on the city council in the middle of his term to take a job with HDR, an engineering firm that, among other things, designs streetcar lines.<sup>14</sup> (Hales is currently running for mayor of Portland in the 2012 election and subsidized developers are among the largest contributors to his campaign.)

Working for HDR, Hales persuaded Atlanta, Cincinnati, Salt Lake City, Tucson, and several other cities to apply for federal grants to build streetcars as an economic development tool, using Portland as an example. “The \$55 million streetcar line has sparked more than \$1.5 billion (and growing) in new development,” claimed Hales in 2006, without mentioning the

hundreds of millions of dollars worth of other subsidies, all of which he voted for and some of which he himself proposed to supplement the streetcar line.<sup>15</sup>

Prepared with the help of HDR, the applications for federal grants relied almost exclusively on the economic development benefits to justify the projects. Economic development (measured by a projected increase in land values near the streetcar line) accounts for 71 to 95 percent of the benefits for five streetcar lines, four of which received TIGER grants and are currently under construction (table one). In every case, the economic development benefits alone are greater than the costs. Without the economic development benefits, the costs of all of the lines would be greater than all of the remaining benefits.

**Table One**

Projected Benefits and Costs of New Streetcar Lines

City	Total Benefits	Econ. Dev. Benefits	Econ. Dev. Percent	Total Costs
Atlanta	167.8	159.3	95%	65.5
Cincinnati	240.0	211.3	88%	169.0
Kansas City	316.7	251.4	79%	157.0
Salt Lake City	89.1	63.6	71%	62.2
Tucson	414.3	293.2	77%	166.3

*All of these projections were made by HDR on behalf of the cities applying for federal stimulus funds.*

*Sources: "Atlanta Streetcar TIGER II Funding Application Project Narrative," City of Atlanta, 2010, p. 12;*

*"Cincinnati Streetcar TIGER II Application," State of Ohio, 2010, pp. 14–15; "Kansas City Downtown Streetcar TIGER IV Grant Application," City of Kansas City, 2012, p. 21; "Sugar House Streetcar TIGER*

*II Discretionary Grant Program: Economic Analysis Supplementary Documentation," HDR, 2010, pp. 20–*

*21; "Tucson Modern Streetcar Project TIGER Application," City of Tucson, 2009, p. 17.*

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Even to the extent that a streetcar, by itself, can enhance the value of nearby properties, it is likely that such an enhancement is at the expense of other property owners in the region. Researchers have repeatedly shown that the use of government subsidies to improve one district or neighborhood have zero net benefits for an urban area as a whole.<sup>16</sup> Some research even shows that cities that subsidize economic development actually grow slower than those that don't.<sup>17</sup> Thus, rather than being a genuine social benefit, any increase in property values due to a streetcar are merely a transfer of wealth from property owners away from the streetcar to those nearby.

For rail transit in particular, research has found that rail's effect on economic development is also a zero-sum game. Rail transit does not lead urban areas to grow faster; instead, at most it shuffles growth around from one part of an urban area to another.<sup>18</sup> The rail transit lines that have had the greatest such shuffling effects, including the Washington MetroRail and San Francisco BART systems, carry hundreds of thousands of people a day.

A streetcar line that moves only a few thousand riders a day is not likely to have a similar effect. Even if it could, there is no reason why property owners throughout a region should pay higher taxes to support a project that will reduce (or slow the growth of) their own property values while it exclusively benefits a few property owners in one neighborhood or business district.

Milwaukee proposes to at least partly pay for the proposed streetcar line by taxing the increased property values along the route. Such "value-capture" taxes include tax-increment financing and special assessment districts that charge property owners for improvements in their neighborhoods. Such taxes are supposedly a sort of "user fee" to help pay for those transportation facilities. While this sounds reasonable to some, in fact this idea is absurd, especially when applied to transit projects such as a proposed streetcar line.

Transportation projects only truly produce economic growth when they provide transportation that is less expensive, faster, and/or more convenient than what was previously available. Such projects result in new travel that would not have otherwise taken place, and that travel produces economic benefits such as more productive workers, lower-cost consumer goods, and access to better housing.

The Interstate Highway System increased the value of properties that it served. But it did so by massively increasing personal mobility. The average American today travels about 4,000 miles a year on interstates, all of which is new travel (the average American travels about 15,000 miles a year total by auto today, compared with just 7,000 miles a year in 1960, before most interstates were built, so the 4,000 miles on interstates is all new travel). However, the interstates did not need to rely on “value-capture” since they were paid for more directly by users in the form of gas taxes and tolls.

Streetcars cannot produce similar economic benefits, being expensive, slow, and inflexible. Streetcar proponents are proud that most streetcar riders do not represent new travel but instead are drawn from other forms of travel, such as buses or cars, that are, in fact, less expensive. By substituting slow, expensive travel for faster, inexpensive travel, streetcars are a drag on any urban area that has them. Even if streetcars increase the value of properties adjacent to the line, they do so at the expense of property values elsewhere. Such value-capture taxes therefore become a tax on all property owners in the urban area.

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If streetcars were truly worthwhile, the people who ride them would gladly pay all of the costs of building, operating, and maintaining the lines. But, given a choice between paying \$5 to \$10 for a single streetcar ride and \$2 or \$3 for a bus ride, few people will choose the streetcar. Asking others to pay based on some mythical “value capture” is simply one more deception from the streetcar industry.

## **Other Alleged Streetcar Benefits**

Aside from the economic development benefits, streetcar advocates claim that streetcars have higher capacities; lower operating costs; lower energy consumption; and less air pollution than buses. A close look at streetcars in Portland and other cities reveals that the reverse is true.

**Capacity:** Portland streetcars are 66 feet long and look like they can carry far more people than a typical 40-foot bus. In fact, the streetcars have far fewer seats than most buses—31 seats on the Portland streetcar vs. 39 to 43 seats on a 40-foot bus. Where the streetcars have more capacity is in their standing room: the Portland streetcar is supposed to have “crush capacity” standing room for 103 people, compared with 17 to 20 on a 40-foot bus. (Because Americans are not likely to accept crush conditions, actual standing room capacity on a streetcar is closer to about 50 people.)<sup>19</sup>

Buses, however, aren’t limited to 40 seats. Las Vegas’ transit agency has 130 double-decker buses with 85 seats that are also rated to carry 97 standees (though would carry far fewer in actual practice).<sup>20</sup> Similar buses but with an open top provide tours in Washington, DC, San Francisco, and several other cities. These buses cost about \$750,000, which is more than a 40-seat bus but far less than a streetcar.

Everett, Washington’s transit agency uses slightly smaller double-deck buses with 77 seats. Though these buses have more seats than the 60-foot articulated buses many cities use, they

take up no more roadway space and are no more difficult to maneuver than a 40-passenger bus.<sup>21</sup> Cities that truly need more capacity than 40-seat buses and want to provide distinctive service to particular districts could use buses like these at a far lower cost than building streetcars.

Capacity per vehicle, however, isn't the true measure of a transit line's capacity. Instead, what counts is the capacity per hour. For safety reasons, streetcars cannot operate closely together; Portland's system allows no more than 20 railcars or trains per hour.<sup>22</sup> If every railcar is loaded with 134 passengers, the streetcar line can move 2,680 people per hour.

In contrast, a single bus stop can serve up to 42 buses per hour, and Portland's downtown area features staggered bus stops that allow 160 buses per hour.<sup>23</sup> At 40 seats per bus, that allows a throughput of 6,400 people per hour, more than twice the streetcar line without requiring anyone to stand. Counting only seats, the double-decker buses can move 13,600 people per hour, five times as many as a streetcar line.

***Operating cost:*** Streetcar advocates claim lower operating costs, apparently based on the logic that one streetcar driver can move 134 people while one bus driver can move only 57 people. But operating a transit system requires more than just hiring drivers. Actual reported costs reveal that streetcars are far more expensive to operate than buses.

Portland streetcar schedules call for about 504 8-mile round trips each week, or about 210,000 vehicle miles per year.<sup>24</sup> An annual operating costs of \$5.5 million works out to more than \$26 per vehicle mile. By comparison, TriMet spends about \$11 per revenue mile operating its buses. The average streetcar would have to attract more than twice as many passengers as the average bus for the streetcar to have lower per-passenger operating costs, but there is no reason to think that a bus operating the same route and schedule as a streetcar would attract less than half as many riders.

According to Hales, the average Portland streetcar rider travels about three-quarters of a mile.<sup>25</sup> Given 4 million riders and \$5.4 million in operating costs, this means 2009 operating costs averaged \$1.79 per passenger mile. By comparison, TriMet spent an average of 91 cents per passenger mile operating buses in 2009, and this average would be even lower for a downtown bus that carried more than the average number of bus riders. (TriMet buses carried an average of 9.6 passenger miles per vehicle revenue mile while—at 0.75 miles per trip—the streetcar carried 14.5 in 2009.)

This difference in operating costs is not peculiar to Portland. New Orleans has the nation's most extensive streetcar network, and it spends just over \$25 per vehicle mile on operations, while it spends less than \$14 per vehicle mile operating its buses. Other cities that have downtown or other local streetcars—Kenosha, Little Rock, Memphis, Seattle, Tacoma, and Tampa—spend an average of \$21 per vehicle mile running their streetcars compared with an average of \$10 per vehicle mile running their buses.

The Milwaukee transit system currently spends an average of \$8.57 per vehicle-revenue mile operating transit buses.<sup>26</sup> The proposed Milwaukee streetcar schedule of one streetcar every 10 to 15 minutes would require about 50,000 vehicle miles of operations a year. At \$8.57, that's an annual operating cost of less than \$450,000 a year, just 17 percent of the estimated cost of operating the Milwaukee streetcar. Fares projected for the Milwaukee streetcar of \$590,000 would more than cover this cost.

**Buses could cover the proposed Milwaukee streetcar route for just 17% of the estimated cost.**

Operating costs are not the only costs that need to be considered. Rail transit lines require much more maintenance than buses, which share highway infrastructure with autos and trucks. The biggest maintenance expenses take place 25 to 30 years after the rail line is built, when

vehicles, tracks, and electrical equipment begins to wear out. Except for New Orleans, none of the streetcar systems in America are that old, and New Orleans' numbers are influenced by the work required after Hurricane Katrina. Evidence from other rail systems, such as the Washington MetroRail, indicates that periodic maintenance costs are a significant fraction—at least 50 to 100 percent—of the original construction costs. The Department of Transportation requires cities applying for streetcar grants to project costs only 20 years ahead, allowing them to ignore the long-term maintenance costs.

Of course, streetcar capital costs are also much higher than bus costs. The Portland streetcar system currently operates with ten cars that cost an average of about \$3.5 million each. Even if twice as many buses were needed to provide comparable service, and even if those buses were outfitted with custom features such as leather seats and on-board WiFi, they would cost a total of less than \$10 million, or less than 10 percent of the capital cost of the streetcar line.

Parsons Brinckerhoff compared Austin's streetcar plans with a system of buses that would provide identical service. As shown in the table below, the total capital costs of the bus alternative is less than 14 percent of the streetcar alternative. By any measure—capital costs, operating costs, maintenance costs—streetcars are far more expensive than buses. Note that the engineering costs of the streetcar are at least ten times greater than for buses, which would naturally lead engineering firms such as Parsons Brinckerhoff and HDR to subtly promote streetcars over buses.

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## Table Two

### Austin Bus vs. Streetcar Costs

	Streetcar	Bus
Vehicles	\$31.7	\$13.5
Training	1.0	0.0
Maintenance facility	6.1	0.0
Track	66.2	0.0
Street improvements	0.0	12.3
Utility relocation	42.3	0.0
Engineering/management	35.2	3.5
Total	\$210.4	\$29.3

*Source: Parsons Brinckerhoff, "Future Connections Study, Central Austin Circulator: Alternatives Evaluation," Capital Metropolitan Transportation Authority, Austin, 2006, appendix G.*

Using buses on the proposed Milwaukee streetcar route would also cost proportionately less than streetcars. Tuscon and Portland are paying \$4 million apiece for streetcars.<sup>27</sup> By comparison, double-decker buses with nearly three times as many seats as streetcars cost less than \$750,000 each. Luxurious single-decker buses cost less than \$500,000 and reasonably comfortable buses with a pseudo-trolley appearance cost less than \$400,000. That means five buses could easily substitute for the five proposed streetcars for less than \$2 million.

**Energy costs:** Transit agencies report energy costs by mode to the FTA, but the FTA considers light rail and streetcars to be the same mode. This means the energy required to operate the Portland streetcar is not separately reported from Portland light rail. However, the other streetcar systems in the 2010 database—Kenosha, Little Rock, Memphis, New Orleans, Seattle, Tacoma, and Tampa—required an average of 4,164 British Thermal Units (BTUs) per passenger mile. This compares with a 2010 average of 4,040 BTUs per passenger mile for transit buses<sup>28</sup> and a 2009 average of 3,540 BTUs per passenger mile for automobiles.<sup>29</sup>

This does not count the large energy cost of constructing a streetcar line. Portland has not estimated the energy cost of constructing its streetcar lines, but the environmental impact statement for the 5.8-mile North Interstate line estimated that construction would use 3.9 trillion BTUs, or about 670 billion BTUs per route mile.<sup>30</sup> Light-rail stations are more elaborate than streetcar stations, but like the streetcar, most of this light-rail line operates in city streets rather than being elevated or in a subway as are some other light-rail lines. So this energy cost might be typical for or only a little higher than streetcar construction costs. Even if streetcar operations did save a little energy, that savings would be swamped by the energy cost of construction.

Researchers at the University of California at Berkeley have estimated the complete life-cycle energy costs of rail and highway transportation. While they did not specifically study streetcars, they found on average that the life-cycle costs of rail transit are about 250 percent of the operating costs, while the life-cycle costs of road transportation—car or bus—are only about 160 percent of operating costs.<sup>31</sup> This is because highways are much more heavily used than rail transit lines, so each traveler shares the energy costs of construction with far more other users.

***Air pollution:*** More than three-fourths of the energy in Oregon comes from hydroelectric dams or other non-polluting sources, so the electric-powered streetcar is cleaner than most buses.<sup>32</sup> In most states, however, the vast majority of electricity comes from fossil fuels, and thus air emissions are comparable to or greater than buses or autos.

In 2010, generating the power for Portland's light rail (including the streetcar) resulted in 54 grams of carbon dioxide emissions per passenger mile. This compares with 245 grams for the average TriMet bus and 290 grams for the average transit bus nationwide. However, producing the electricity required to power the Memphis streetcar generated 966 grams per passenger mile, and the Kenosha streetcar was even worse at 2,005 grams per passenger mile.

Cities that wish to apply non-polluting sources of electricity to public transit would do better with trolley buses than streetcars. Since transit is such a minor part of most cities' transportation systems, growing cities would do even better applying non-polluting electricity to traditional home, office, and industrial uses while relying on improvements in auto efficiencies to reduce transportation emissions.

***Rail vs. bus:*** Rail transit proponents rely heavily on a myth that many people will ride railcars who won't ride buses. They use the term "quality transit" as a euphemism for rail transit, implying that buses are not quality transit. Apparently, "livability" not only means you don't have to have a car, but you don't have to lower yourself by taking a bus either. Taxpayers are supposed to cater to such snobs by providing them with rail alternatives that cost many times more than buses.

The reality is that transit riders are attracted mainly by frequencies and speeds, factors that are not intrinsic to rail. Most light-rail lines operate between four and eight times an hour throughout the day, while most bus routes operate just two to four times an hour. Most rail lines other than streetcars stop only about once every mile, allowing them to run faster than buses that often stop five or six times every mile. The higher frequencies and faster speeds resulting from fewer stops—either of which can be duplicated by buses—are what attracts riders to rail, not the fact that the vehicles have steel wheels instead of rubber tires.

Private intercity bus companies such as Bolt Bus have shown that buses can offer a high-quality service, with leather seats, on-board WiFi, and power outlets for laptops and other electronics. Such buses operate in numerous corridors in competition with Amtrak, with virtually no subsidies, often offering more frequent service at lower cost than the trains.<sup>33</sup> In a few corridors, companies such as LimoLiner offer first-class services with more spacious seats, on-board meals, and videos.<sup>34</sup>

Commuter companies such as the Hampton Jitney and Bauer's Wi-Drive provide luxury buses with leather seats, on-board coffee and snacks, and other services.<sup>35</sup> Private tour bus companies, such as Big Bus Tours, operate for-profit circulator buses in Las Vegas, Miami, Philadelphia, San Francisco, Washington, and other cities.<sup>36</sup> These private companies, which share road costs with autos and trucks but otherwise require minimal private infrastructure, are moving in the opposite direction from transit agencies and city governments infatuated with rail transit, with its high infrastructure costs.

Streetcar proponents also claim that developers respond to the fact that a streetcar line is “permanent,” while a bus route can change. As University of Minnesota transportation engineer David Levinson points out, the fact that most streetcars that existed a century ago have been torn up “belies their permanence. Yet on almost every former streetcar route, today we see continued bus transit service indicating that it is the service that is permanent if the demand is there.”<sup>37</sup>

In fact, most transit lines carry so few people that they are, at best, ignored by developers. Some developers actually count transit as a negative, not a positive, factor in their location decisions, saying that it can bring in vandals, burglars, and other criminals.

Not even Peter Rogoff, the Obama administration's person in charge of the Federal Transit Administration, believes that railcars are better at attracting riders than buses. Rogoff was stunned by a 2010 FTA report revealing that America's transit systems—meaning, mainly, the rail transit systems—are suffering from a \$78 billion maintenance backlog. He concluded that it “isn't responsible” for transit agencies to seek to build more rail transit when they can't even afford to maintain the rail lines they have.<sup>38</sup>

“Paint is cheap; rails systems are extremely expensive,” Rogoff said in a speech in 2010. While many people like trains, he continued, “it turns out you can entice even diehard rail riders onto a bus, if you call it a ‘special’ bus and just paint it a different color than the rest of the fleet.”

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One way of improving bus service, bus-rapid transit, “is a fine fit for a lot more communities than are seriously considering it,” Rogoff added.<sup>39</sup> The same can be said for downtown circulators, the bus-equivalent of streetcars.

## Conclusions

The plan to build a streetcar line in downtown Milwaukee is a pure and simple scam. The only beneficiaries will be the engineering and construction firms who design and build the line. Downtown landowners and developers will benefit only if the city decides to throw hundreds of millions of dollars of additional subsidies to development along the line.

Everyone else in Milwaukee will pay. They will either have to pay higher taxes or accept a lower level of urban services to make up for the costs of providing urban services in the TIF districts. They will also pay in the form of lower property values due to developments that might have taken place elsewhere being attracted to the TIF districts.

Streetcars are a long-obsolete technology. Milwaukee and other cities that wish to revitalize neighborhoods and business districts would do better to invest in modern transportation, including repairing their streets, installing the latest traffic signal coordination systems, and improving safety for all travelers.

\* - These operating costs are only part of the overall cost equation in Milwaukee. Media reports suggest that the cost to relocate various utility facilities would be at least \$55 million, nearly doubling the overall costs of the project. While the question if it is appropriate to force utility rate payers outside the city of Milwaukee to pay this cost, and if city of Milwaukee

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property taxpayers shouldered the full \$119 million cost of the project it would significantly increase the cost of the project, these costs are not a part of this analysis because of pending petition before the Wisconsin Public Service Commission.

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