

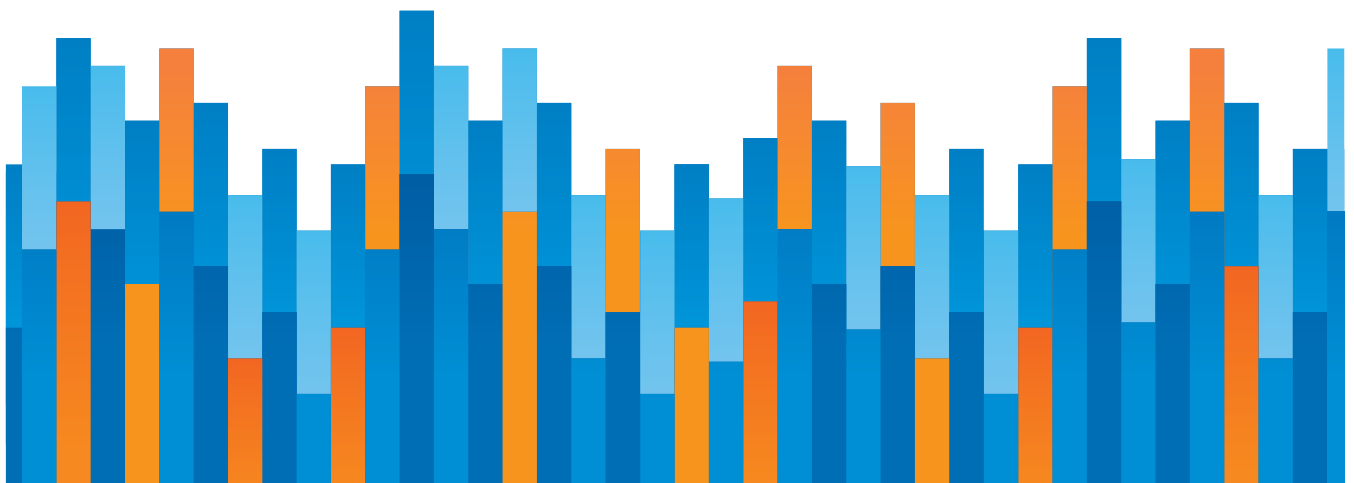


METRO'S 28 BY 2028 PLAN: A CRITICAL REVIEW

XV. METRO BUS IS VERY PRODUCTIVE AND COST EFFECTIVE, RAIL IS NOT, BUT METRO FAVORS RAIL OVER BUS

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May 2019



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INTRODUCTION

As shown in the previous Briefs, Metro has a very highly utilized and well-performing bus system. Metro and its Southern California Rapid Transit District predecessor have had the highest average bus load almost every year since the National Transit Database (NTD) time series began in 1979. Extreme overcrowding had existed on Los Angeles buses since the first fuel crisis in the 1970s. The Consent Decree (CD) in *Labor/Community Strategy Center* is what forced Metro to add service and reduce overcrowded bus conditions. By 2002, *after* Metro had been working for over six years to comply with the bus service improvements required by the CD, Metro's bus service had improved to the point that LA had only the third highest crowding of any U.S. urban bus system.¹ This brief demonstrates that, despite Metro's consistent and public claims of low bus crowding, low bus fares and high structural deficit, its light and heavy rail systems are far less cost-effective than its bus service.

COMPARED TO ITS RAIL SYSTEMS, METRO'S BUS SYSTEM IS HIGH-PERFORMING, DESPITE METRO'S CLAIMS TO THE CONTRARY

An examination of Metro's *FY14 Adopted Budget*² demonstrates the agency's preference to expand rail service and how it has misrepresented the performance of Metro bus service to support this course. **Figures 1, 3, 4, and 6** are recreated from Metro's document based on the data displayed there. **Figures 2, 5, and 7** are comparative and prepared from data for the Federal Transit Administration's (FTA) National Transit Database (NTD) 2012 reporting year, the most current data available at the time the Metro *FY14* budget was being prepared.³

METRO'S CLAIM OF A STRUCTURAL OPERATING DEFICIT IS FALSE

Figure 1, from Metro,⁴ shows a deepening Enterprise Fund Operating Deficit (the amount of taxpayer funds required to operate Metro's transit system).

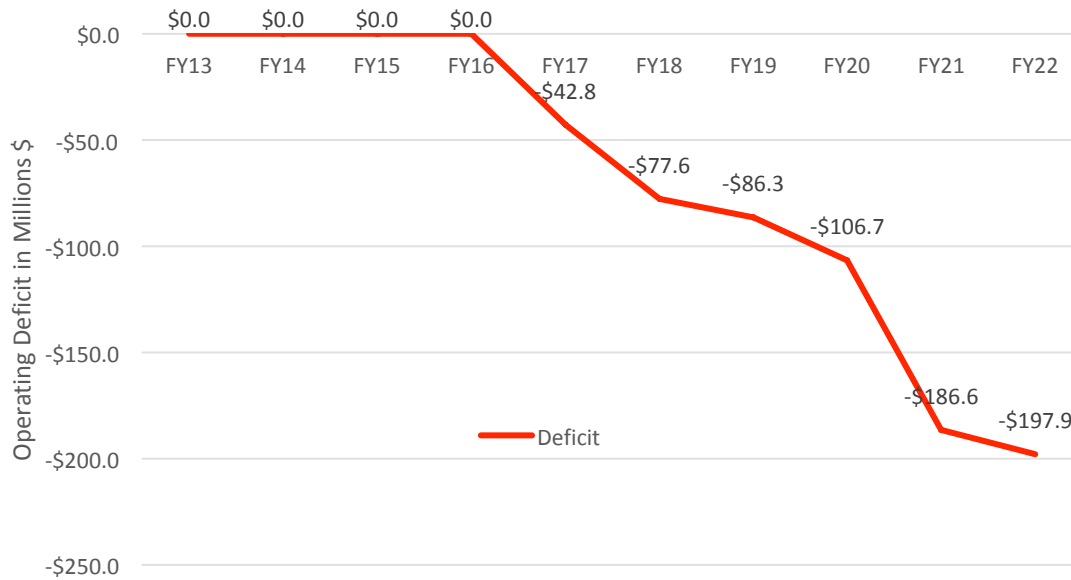
¹ U.S. Department of Transportation. Federal Transit Administration. National Transit Database (NTD), 1979-2017 reporting years. Paper reports to 1996, web site thereafter. <https://www.transit.dot.gov/ntd>

² Los Angeles Metropolitan Transportation Authority (Metro). *Adopted Budget, FY 2014*. 15-16 https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

³ NTD, 2012 reporting year.

⁴ Metro. *Adopted Budget, FY 2014*. Unnumbered table on page 15.

Figure 1: Enterprise Fund Operating Deficit: Ten-Year Forecast FY13 Adopted Thru FY22 Forecast



Source: Metro. *Adopted Budget FY 2014*.

For many years, Metro used the label “structural deficit” to refer to the shortfall between what was required to operate the bus and rail system and the actual funds available. Metro presented this value to justify increasing fares, reducing bus service levels or both. Metro’s “Fiscal Year 2005 Revenue Performance Report” to the Board includes the statement:

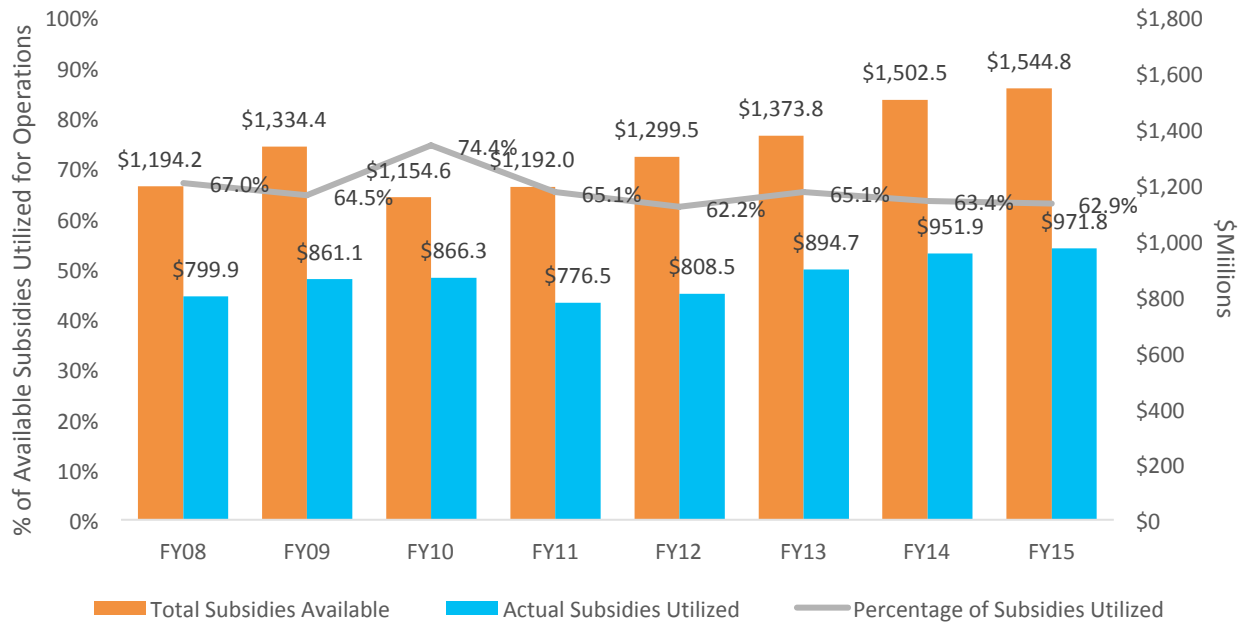
*One alternative is to raise fares to a level that would compensate for the passenger revenue deficit. ... Another alternative is to reduce service to a level that will balance for the **structural deficit** (emphasis added) for FY05.⁵*

In contrast, **Figure 2⁶** shows that there has never been a shortage of funds that Metro could use for transit operations. Metro has control of flexible funds that may be used for either operations or capital, at the agency’s discretion. Metro consistently wants to maximize the use of its flexible funds for capital projects, and has. As indicated in its budget, capital spending is Metro’s biggest priority. Capital spending largely represents new rail projects.

⁵ Metro Finance and Budget Committee. November 18, 2004. 2. http://media.metro.net/board/Items/2004/11_November/20041118%20Item22F&B.pdf

⁶ Authors’ analysis of data from Metro, *Adopted Budgets, FY08-FY14* and *Proposed Budget, FY1*. <https://www.metro.net/about/financebudget/financial-information/#budget>

Figure 2: Funding Available for MTA Operations Subsidies and Percent Utilized



Source: Authors’ calculations from data in Metro budget documents.

METRO’S FOCUS ON UNLINKED TRIP FARES IS MISLEADING

In **Figure 3**,⁷ Metro states that, “Metro’s fares are among the lowest of any major transit agency in the world.” The figure shows Metro’s full adult cash fare of \$1.50. Yet using the fare per unlinked passenger trip, not the fare per linked trip, doesn’t tell the whole story. For example, if a transit passenger first boards a bus and then transfers to light rail, this is two unlinked trips—one each for bus and light rail—and one linked trip. Compared to the U.S. national average of 1.51 unlinked trips per linked trip⁸ (1.51:1), Metro has a very high ratio of unlinked to linked trips, 2.38:1.⁹ This is a conservative value. Some Metro surveys reported over 3:1.¹⁰

⁷ Metro. *Adopted Budget FY 2014*. “Figure A: Metro’s fares are among the lowest of any major transit agency in the world.” 15. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

⁸ American Public Transit Association. *A Profile of Public Transportation Passenger Demographics and Travel Characteristics*. May 2007. Table 23. http://www.apta.com/resources/statistics/Documents/transit_passenger_characteristics_text_5_29_2007.pdf

⁹ Metro. Metro Research Data Center (RDC). *Bus Results Survey of Spring 2005*. <https://www.metro.net/news/research/>

¹⁰ *Ibid.* System Results, Spring 2005; Rail Results, Spring 2005.

Figure 3: Metro’s Fares Are Among the Lowest of Any Major Transit Agency in the World



Source: Metro. *Adopted Budget FY 2014*.

In any event, **Figure 3’s** focus on unlinked trips obscures the implication that Metro has an unusually high transfer ratio, so unlinked trips is only part of the story. Without the transfer ratios of the other transit operators presented in Metro’s comparison, contrasting Metro’s fares to other agencies is an apples-to-oranges comparison. On average Metro’s riders must make 1.576 times ($2.38 / 1.51$) = 1.576 times as many unlinked trips as other U.S. transit users as a whole. This puts Metro’s relative fare per linked trip at $1.576 \times \$1.50 = \2.36 , which is greater than \$2.25, the highest U.S. fare Metro shows in **Figure 3**.

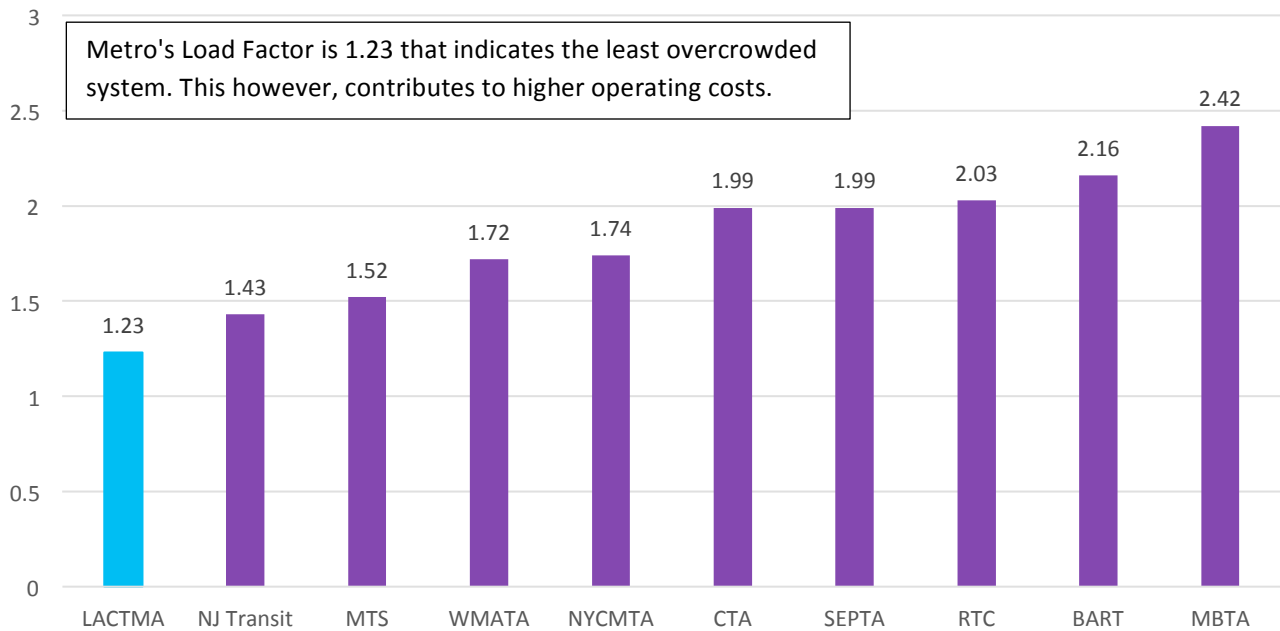
METRO MISREPORTS LOAD FACTORS

Load factors are conventionally expressed as a percentage of the seated load. Planning load factors are metrics for an operational target that should not be exceeded in most cases. For example, in **Figure 4**, Metro’s 1.23 factor means that the maximum number of passengers on board should be no more than 123% of the number of seats; e.g., for a 40-seat bus, the calculation would be $40 \times 1.23 = 49.2$.

In **Figure 4**,¹¹ Metro states that, “Metro’s load factor is 1.23 that indicates (sic) the least overcrowded system. This, however, contributes to higher operating costs.”

¹¹ Metro. *Adopted Budget FY 2014*. “Figure B: Metro’s Load Factor is the lowest among peer agencies in the U.S.” 16. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

Figure 4: Metro’s Load Factor Is the Lowest Among Peer Agencies in the U.S.



Source: Metro. *Adopted Budget FY 2014*.

Figure 4 appears to present passenger loading *planning standards*, which are planning targets used for the level of service based on anticipated passenger loads. Since Metro is multi-modal, any aggregate, system-wide load factor would have to account for all of Metro’s modes. Yet none of Metro’s load standards is 123%. The Metro bus load factor standard was 130% of seated load.¹² For rail, the load factors were 175% for light rail and 230% for heavy rail.¹³ Buses are designed for lower standing loads because they have narrow aisles and fewer doors, and the stairs at bus doors cut into standing room. The value shown for Metro of 123% could be some nonstandard, aggregate measure, but since Metro is multi-modal, any aggregate, system-wide load factor would have to account for all of Metro’s modes. There is no way to combine load factors of 130%, 175%, and 230% to produce a combined overall factor of 123%.

Load factors are operating *targets*, and actual vehicle loads may be different. In Metro’s case, these standards are aspirational. Metro’s actual passenger averages are very different, as shown in **Figure 5**. Actual vehicle loads are what impact cost-effectiveness, and what are important to the quality of riders’ experiences.

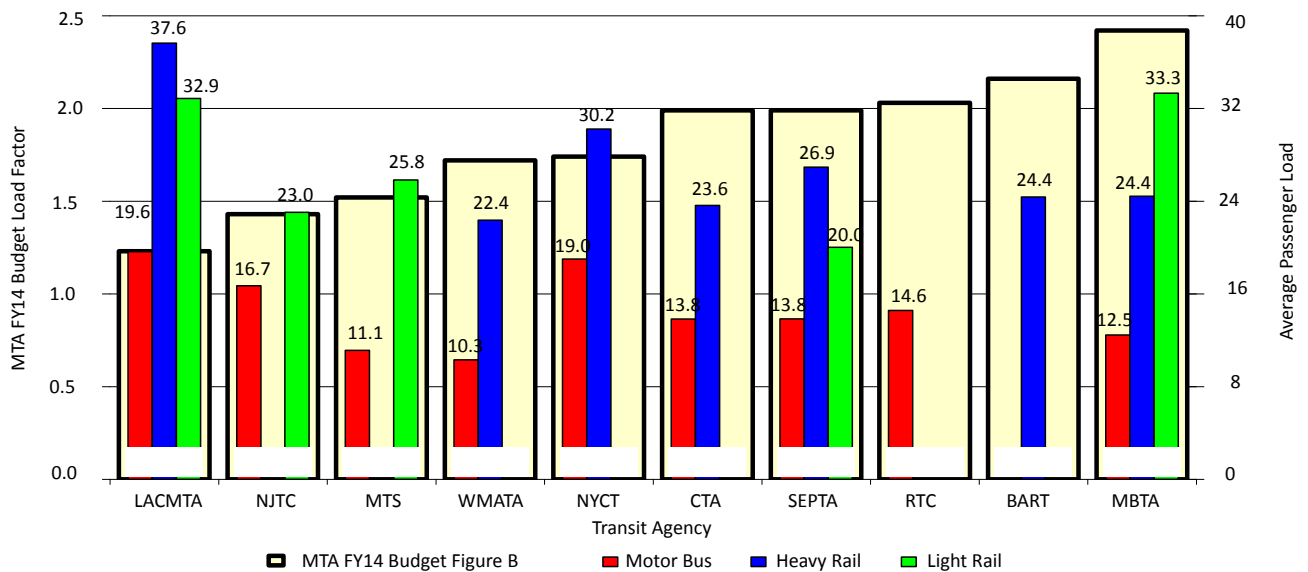
In **Figure 5**, passenger load factor targets appear as the value at the base of each agency’s set of bars. In its *FY14 Adopted Budget*, Metro reported that its load factor is the *lowest* of the agencies shown,

¹² Metro. “Bus Service Guidelines.” <http://www.metro.net/about/metro-service-changes/bus-service-guidelines/>

¹³ Metro. “Rail Service Guidelines.” <http://www.metro.net/about/metro-service-changes/rail-service-guidelines/>

which cannot be reconciled to Metro’s adopted load factors. The reality is that MTA’s *actual* bus, heavy rail, and light rail load factors exceed every value in Metro’s peer group (except for Massachusetts Bay Transportation Authority light rail passenger load of 33.3). Overall, Metro has *the highest vehicle loads*, and the higher the passenger load, the lower the cost allocated to each passenger.

Figure 5: Metro FY4 Adopted Budget and FY12 Actual Load Factors



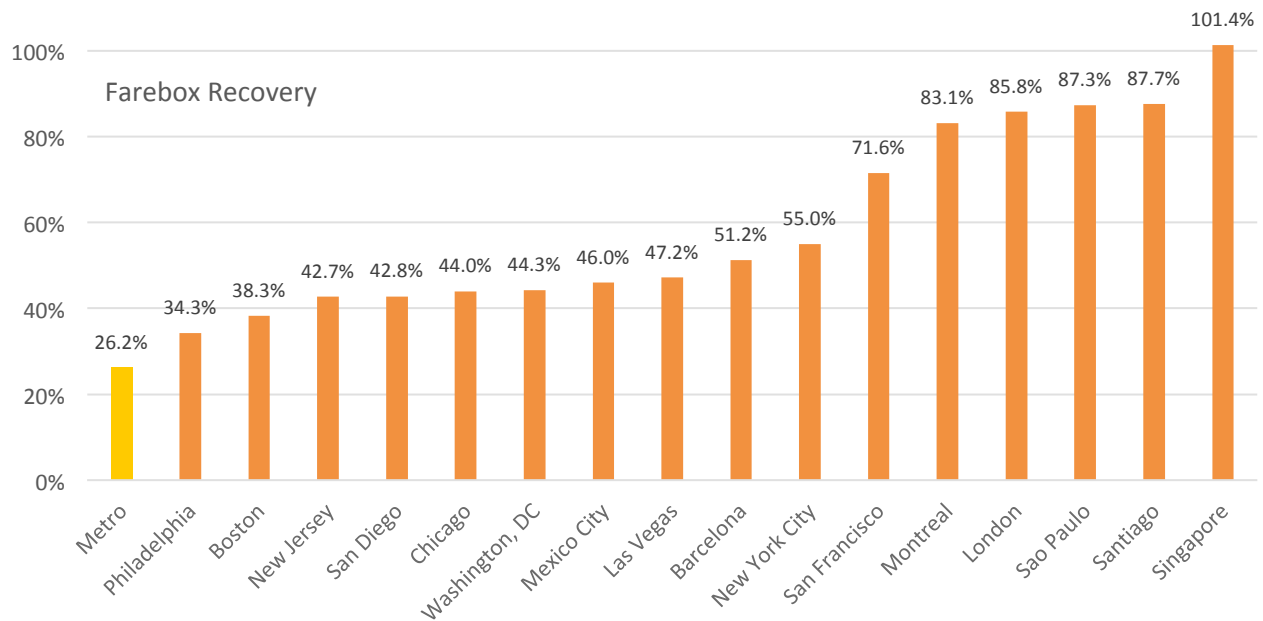
Source: Metro. *Adopted Budget FY14*. Budget Load Factor. National Transit Database for Individual Average Load.

METRO BUS HAS A FAR HIGHER FAREBOX RECOVERY RATIO THAN METRO RAIL COMPARED TO U.S. TRANSIT OPERATOR PEERS

A transit system’s “farebox recovery ratio” is the share of operating costs recovered from passenger fares. Generally speaking, the more a transit system pays for itself through fares, the lower the share of costs that have to be covered by taxpayers. In **Figure 6**,¹⁴ Metro compares its farebox recovery ratio to other agencies, stating, “Metro’s fares cover the lowest percentage of operating cost of any major transit agency in the world.”

¹⁴ Metro. *Adopted FY 2014*. “Figure C: Metro’s fares cover the lowest percent of operating cost of any major transit agency in the world.” 16. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

Figure 6: Metro’s Fares Cover the Lowest Percentage of Operating Cost of Any Major Transit Agency in the World

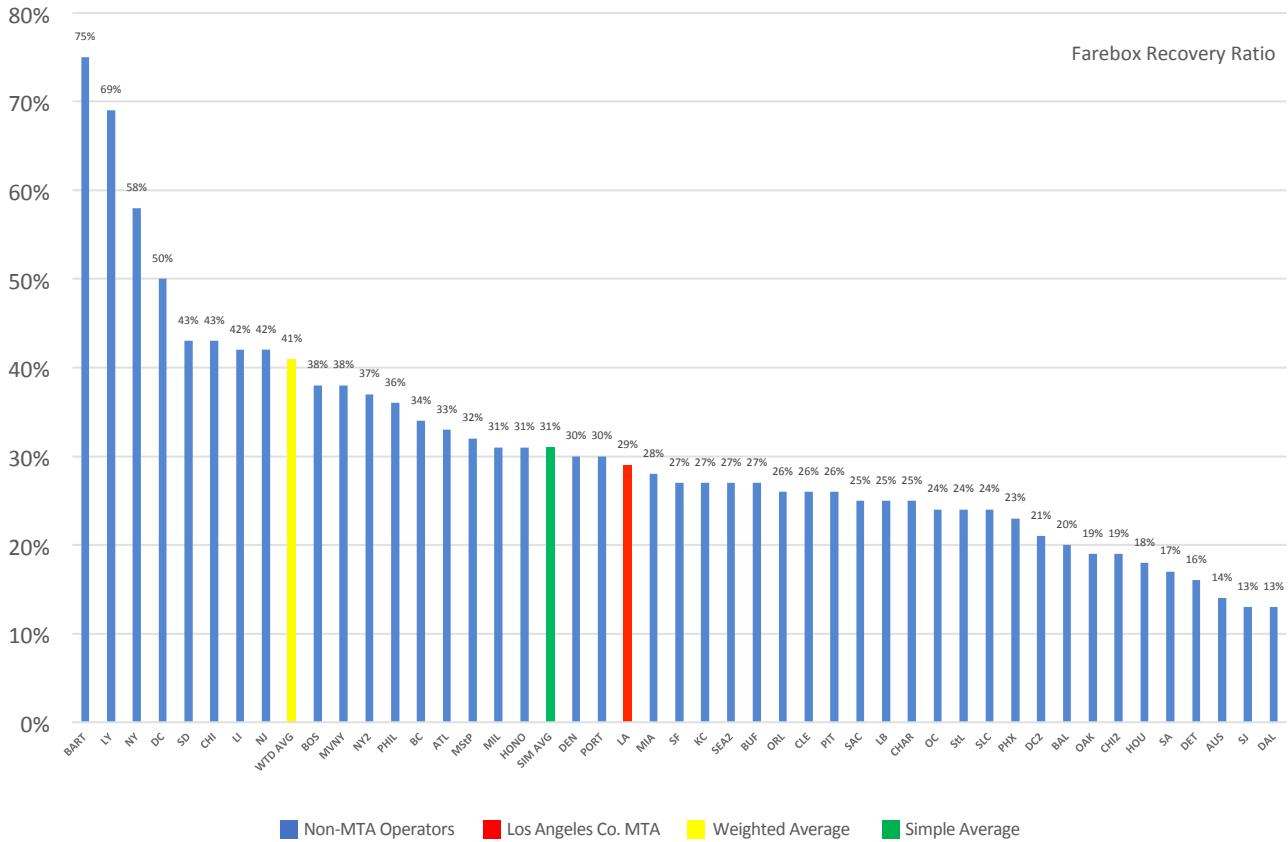


Source: Metro. *Adopted Budget FY 2014.*

In contrast, **Figure 7¹⁵** provides the 2012 farebox recovery ratios for 45 of the top 50 U.S. transit operators in the FTA’s National Transit Database (NTD). The five top-50 agencies not included in **Figure 7** are mainly large commuter rail operators that don’t operate any significant bus or other rail service. Of the 45 that operate bus, heavy rail, and/or light rail transit service, Metro’s total farebox recovery ratio was the 20th highest, exceeding that of 25 transit systems—including Austin, Baltimore, Buffalo, Charlotte, Cleveland, suburban Chicago (multiple-county agency), Dallas, Detroit, Houston, Long Beach, Miami, Oakland, Orange County, Orlando, Phoenix, Pittsburgh, Sacramento, Saint Louis, Salt Lake City, San Antonio, San Francisco (which is shown in **Figure 6** with a higher farebox recovery ratio than Metro), San Jose, Seattle (King County), suburban Seattle, and suburban Washington DC (Montgomery County, MD). Metro’s farebox recovery ratio is not the “... lowest percentage of operating cost of any major agency in the world.” On the contrary, Metro’s farebox recovery ratio is representative of the industry, and above the median.

¹⁵ Figures 7-14, inclusive. Authors’ calculations from data from National Transit Database 2012. http://www.ntdprogram.gov/ntdprogram/pubs/top_profiles/2012/Transit%20Profiles%20Top%2050%20Agencies.pdf

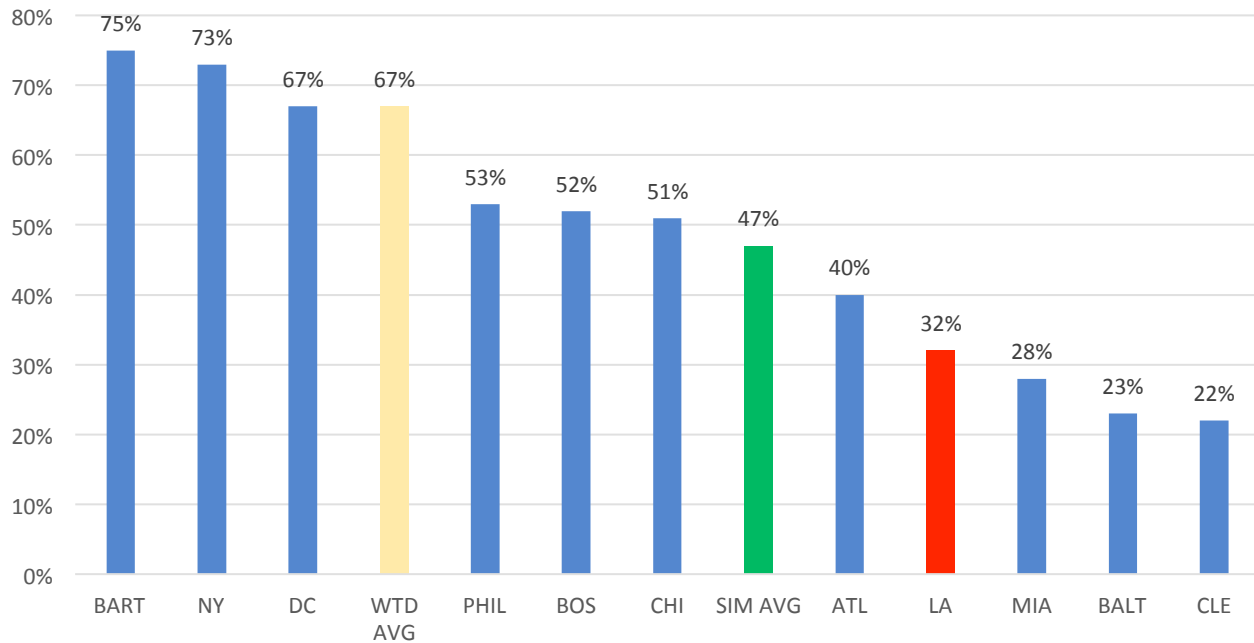
**Figure 7: FTA “Top 45” Transit Operators
Bus + Heavy Rail + Light Rail Farebox Recovery Ratio**



Source: National Transit Database.

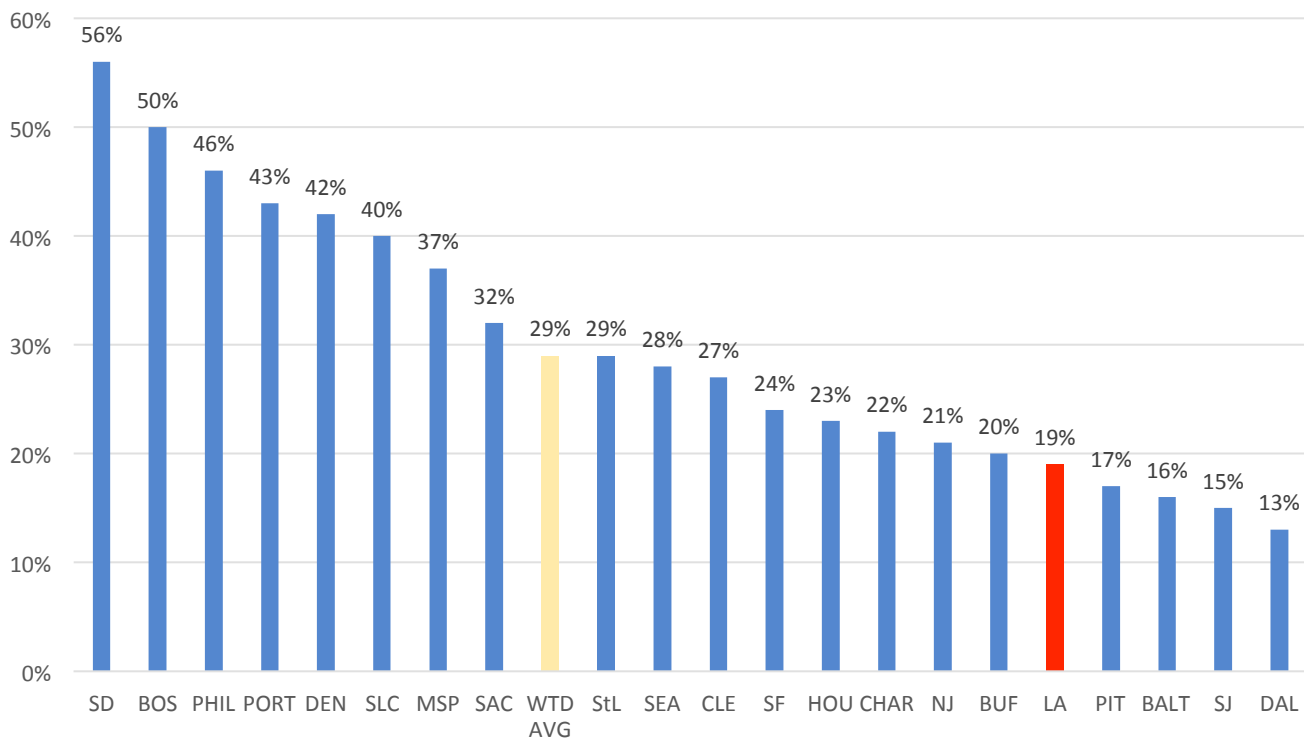
Figures 8, 9, and 10 summarize Metro’s 2012 farebox recovery performance for heavy rail, light rail, and bus, respectively. Metro’s heavy rail farebox recovery ratio was the fourth lowest in the U.S., only exceeding the ratios of the three systems most widely regarded as industry failures: Miami, Baltimore, and Cleveland. Metro’s light rail farebox recovery ratio also ranks near the bottom, far below the simple and weighted averages for its national peers group. In short, Metro’s rail operation underperforms relative to national norms.

Figure 8: FTA “Top 50” Heavy Rail Operators (11) Farebox Recovery Ratio



Source: National Transit Database.

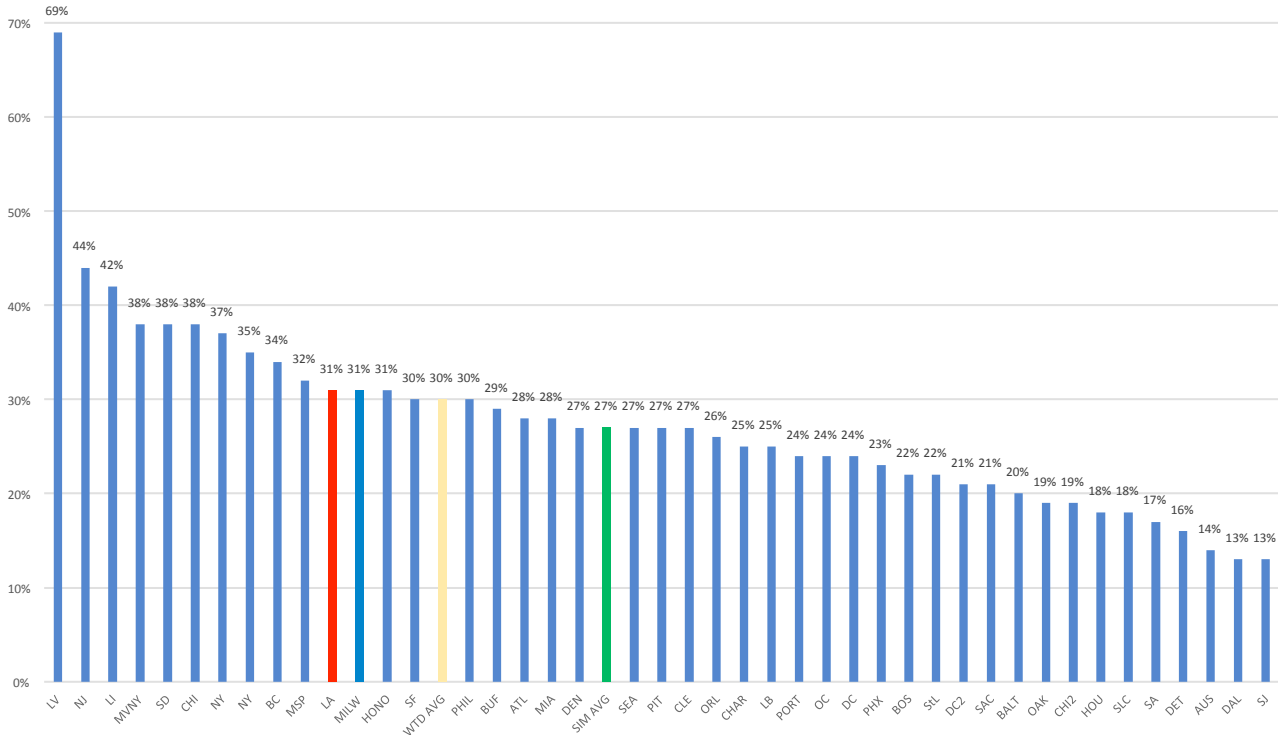
Figure 9: FTA “Top 45” Light Rail Operators (21) Farebox Recovery Ratio



Source: National Transit Database.

In contrast, Metro’s farebox recovery ratio for bus is 11th highest of 43. Los Angeles bus performs competitively relative to national norms. It is well above the median and average values for U.S. systems. Overall, Metro’s bus operations are doing very well compared to its U.S. industry peers; it is Metro’s heavy rail and light rail operations that are dragging down Metro’s overall performance.

Figure 10: FTA “Top 45” Bus Operators (43) Farebox Recovery Ratio



Source: National Transit Database.

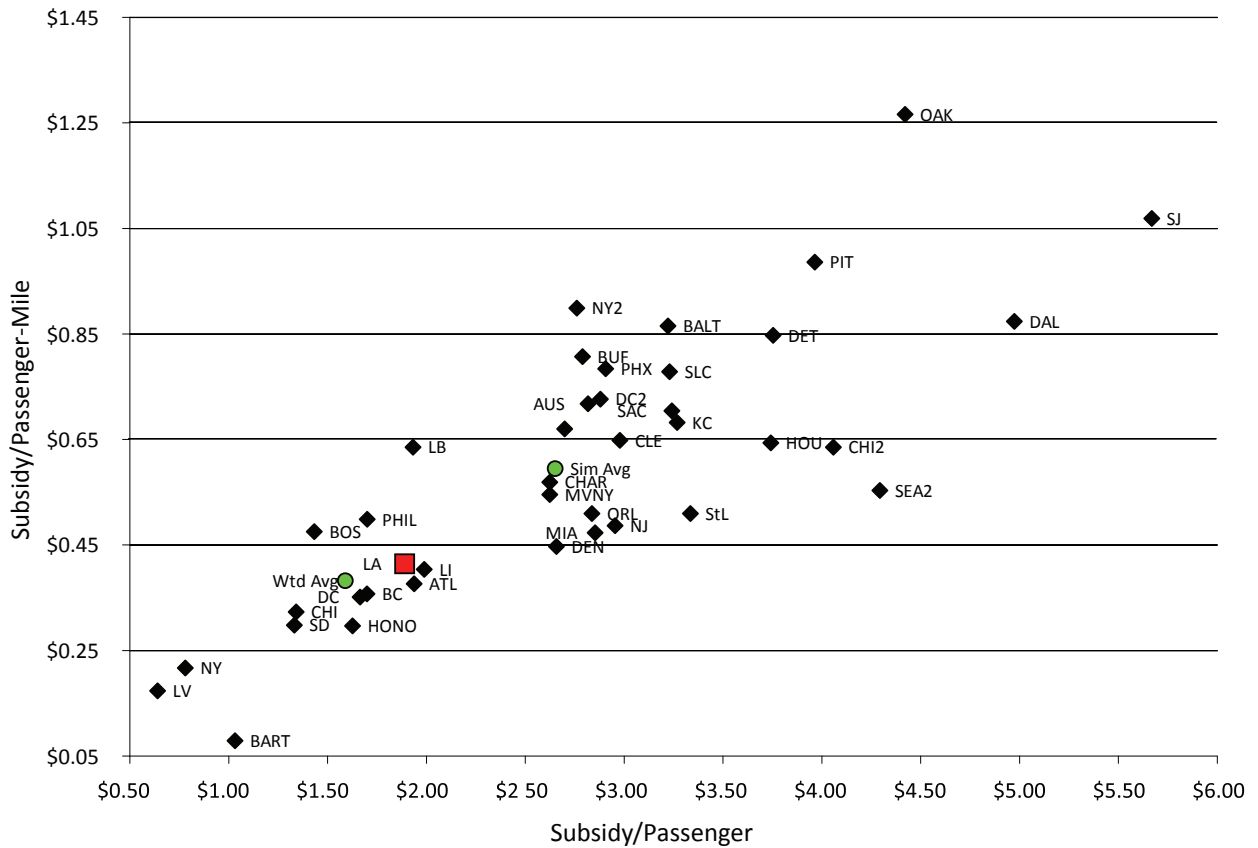
BETTER METRICS: SUBSIDIES PER PASSENGER AND PER PASSENGER-MILE

The farebox recovery ratio is an important and widely used transit performance metric; however, by itself, the metric can be misleading. For example, a low-cost operator may have a low farebox recovery ratio, but the taxpayer subsidy per passenger or passenger-mile might still be lower than those for higher cost transit operators with higher farebox recovery ratios. The objective is to operate a transit system that delivers the most value, typically measured in terms of ridership, in exchange for scarce taxpayer funds. Low subsidies are more important than high farebox recovery ratios, in part because they mean delivery of more service.

The best comparison combines taxpayer subsidies per passenger *and* per passenger-mile. **Figures 11, 12, 13, and 14** summarize subsidies per passenger versus subsidies per passenger-mile for U.S. transit

systems overall, and separately for the heavy rail, light rail, and bus modes, respectively. In each case, the best performing systems have coordinates closest to the origin in the lower left-hand corner of the graph.

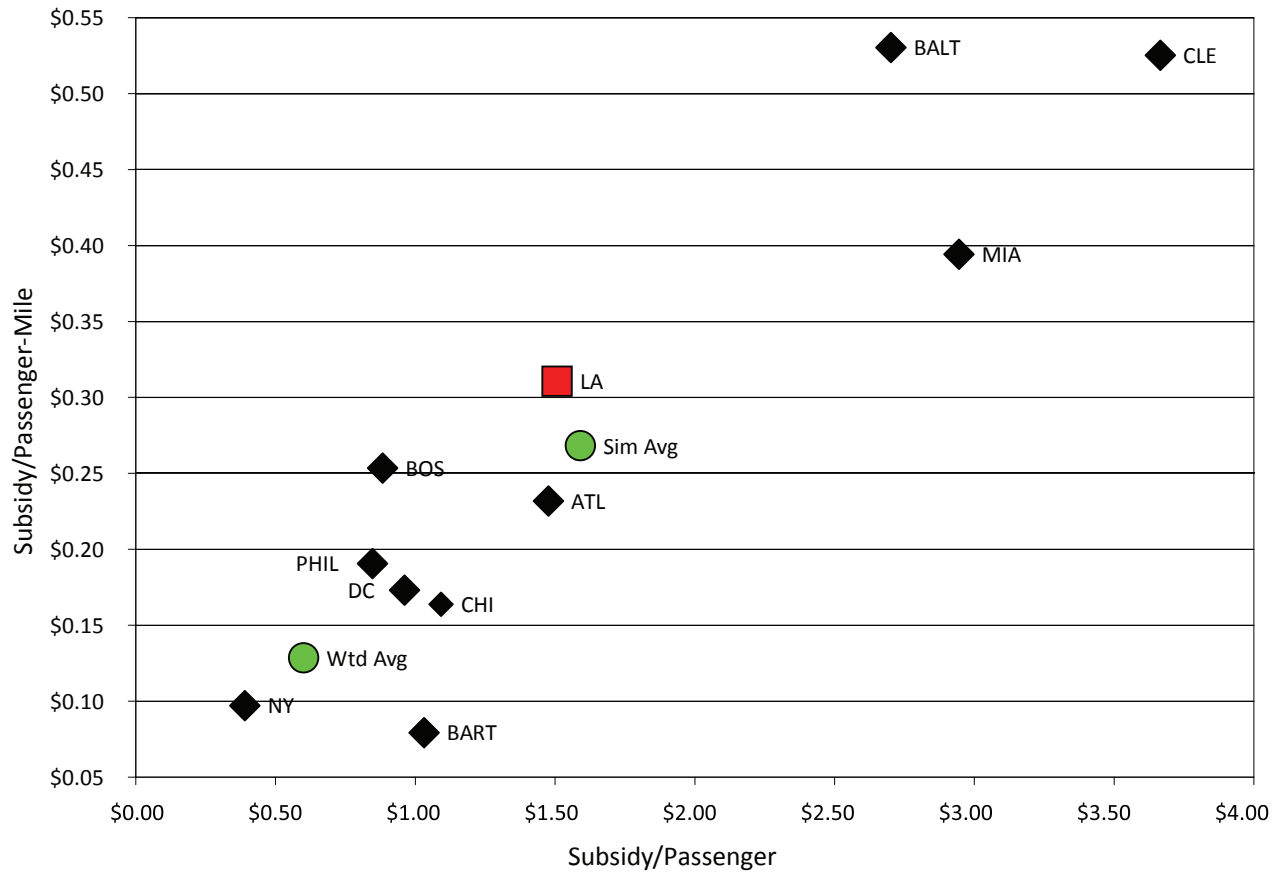
Figure 11: FTA “Top 45” Transit Operators Subsidy/Passenger and Passenger-Mile



Source: National Transit Database.

Overall, Metro’s performance is notably better than the median of its national peer group, 10th lowest of the 45 on both metrics, with only eight operators beating it on both measures. This relatively high level of performance is particularly impressive because Metro operates in Los Angeles County, one of the highest cost areas in the U.S., and the data in **Figures 11-14** are not adjusted to account for cost-of-living.

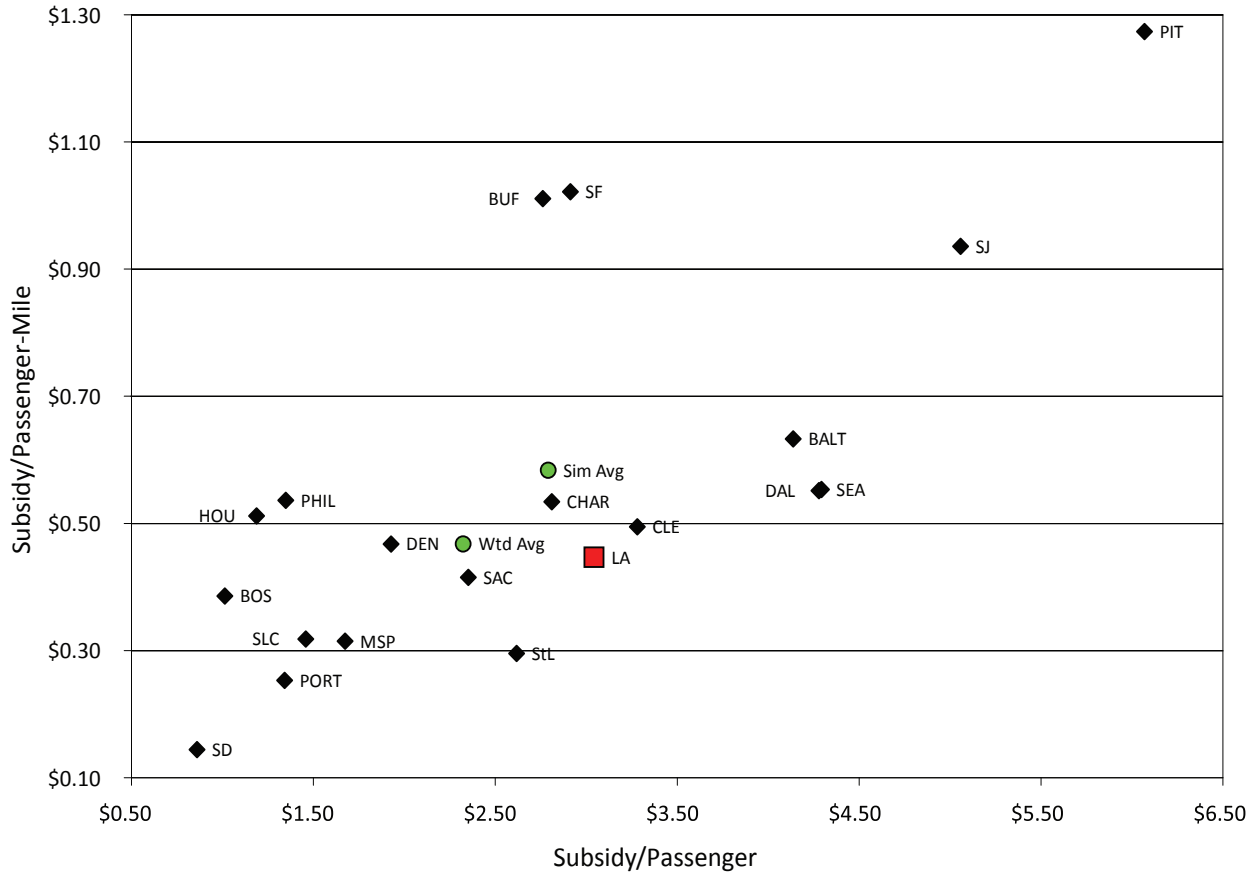
Figure 12: FTA “Top 45” Heavy Rail Operators (11): Subsidy/Passenger And Passenger-Mile



Source: National Transit Database.

Disaggregating by mode, Metro heavy rail does poorly, once again outperforming only the three long-standing U.S. low performers.

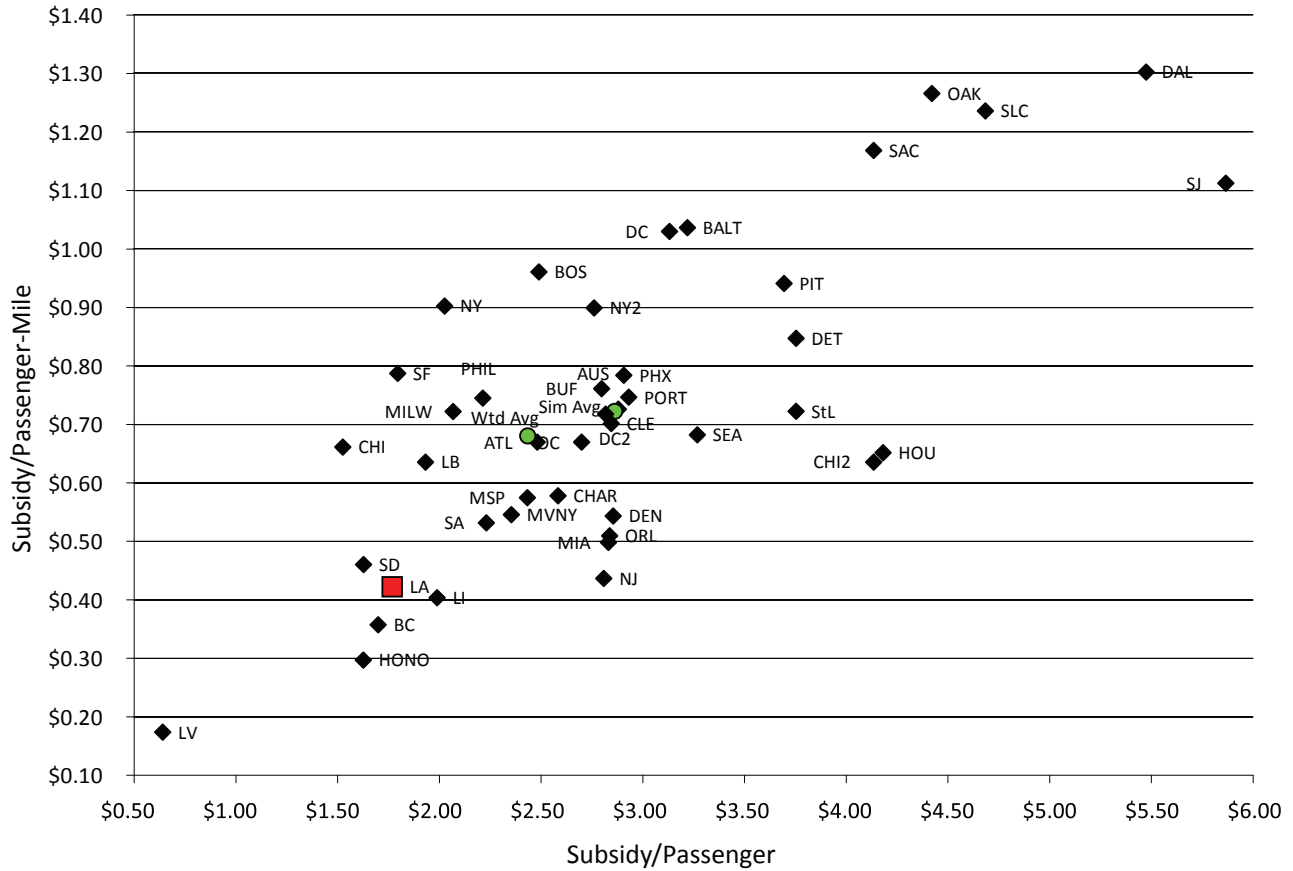
**Figure 13: FTA “Top 45” Light Rail Operators (21)
Subsidy / Passenger And Passenger-Mile**



Source: National Transit Database.

With respect to light rail, Metro’s performance is toward the middle of the national cohort, better than the averages on subsidy/passenger-mile, worse on subsidy/passenger, but better than Metro’s heavy rail performance.

Figure 14: FTA “Top 45” Bus Operators (43) Subsidy / Passenger and Passenger-Mile



Source: National Transit Database.

Metro bus is a very high performer, with only three bus operators lower with respect to both subsidy per passenger and subsidy per passenger-mile.

METRO MISREPRESENTS BUS PERFORMANCE TO THE MEDIA

To promote its case for rail, Metro has understated rail costs and overstated benefits while misrepresenting its bus as underperforming.

Consider the following quotation from the then-Metro CEO in a cover story on Metro in *Mass Transit* magazine:¹⁶

All day long, our system is operating at 3 to 4 percent capacity, seat miles to passenger miles, ... Adding more buses to a route that's operating at an average speed of 9 miles an hour isn't going to do anything. People who need to ride it are already riding it; we're not picking up more people.

On a 40-passenger bus, a seated load of 3%-4% would be an average passenger load of 1.2-1.6. At the time the *Mass Transit* story was published, the latest NTD data available was for the 2002 reporting year, for which Metro reported an average bus passenger load of 16.5,¹⁷ or 41.25% utilization—over 10 times what Metro's then-CEO is quoted as reporting.

From FY04, the year before the misleading *Mass Transit* article was published, through FY07, the last year of the Consent Decree, Metro heavy and light rail ridership increased by 11.8 million boardings combined, while bus ridership increased by 48.1 million¹⁸ boardings, over four times as much. Metro bus *was* "picking up more people."

METRO UNDERFUNDS THE BUS SYSTEM, SPENDING DISPROPORTIONATELY ON RAIL

Metro has spent or budgeted \$19.6 billion for new passenger rail projects through the Purple Line Phase 1.¹⁹ Add in the Purple Line Phase 2 at \$2.4 billion,²⁰ and Phase 3 at \$3.2 billion,²¹ and Metro has spent or budgeted over \$25 billion (FY19 dollars) on rail expansion since Metro reached its all-time ridership high in FY85. Despite these expenditures, Metro's total ridership has been dropping steadily ever since. The sole exception to this trend consists of the Consent Decree years ending in FY07, a period during which a legal challenge forced Metro to spend attention and money on bus passengers,

¹⁶ Lundquist, Lori. (Ed.) "A Matter of Decree: Los Angeles County Metropolitan Transportation Authority – What happens when the very people who use your service team up to become your agency's most dangerous opponent?" *Mass Transit* magazine, Spring 2005.

¹⁷ Authors' calculations from National Transit Database 2002. <https://www.transit.dot.gov/ntd/data-product/2002-annual-database-service>

¹⁸ NTD "Profiles" for cited years.

¹⁹ Rubin, Thomas A. "Is the *Los Angeles Times* Article, 'Billions Spent, But Fewer People Are Using Public Transportation in Southern California,' Misleading? 13. <http://demographia.com/db-rubin-la-transit.pdf>

²⁰ Metro. *FY19 Adopted Budget*. 57.

²¹ Metro. "A Primer on Purple Line Section 3 Project Funding." *The Source*. March 13, 2019. <https://thesource.metro.net/2019/03/13/a-primer-on-purple-line-section-3-project-funding-hint-its-complicated/>

and ridership increased by 132 million (36%). Once the Consent Decree expired, ridership began to drop again, and Metro has never offered a credible plan to increase ridership, or stop the long-term ridership decline.

Table 1 provides a snapshot of Metro’s current rail system expenditures. The agency’s rail system is budgeted to carry 30% of Metro total bus and rail boardings in the current fiscal year. However, Metro is budgeting 41% of total bus and rail operating subsidies and capital renewal expenditures on rail, or 37% more than rail’s boarding percentage. Bus, in contrast, gets 16% less funding compared to bus’s boarding percentage. When capital expansion costs are taken into account, Metro is devoting 68% of its total subsidies to rail. If Metro had not been underspending on bus service for decades, bus ridership would have been higher, and these ratios would have been even worse for rail.

Table 1: Metro Bus and Rail Operating and Financial Statistics					
Description	Bus		Rail		Total Values (millions)
	Values (millions)	Percentage of Total	Values (millions)	Percentage of Total	
Boardings ²²	262	70%	111	30%	373
Passenger-miles ²³	1,160	61%	733	39%	1,893
Operating Expenses ²⁴	1,225	69%	\$542	31%	1,767
Less: Operating Revenues ²⁵	(251)	74%	(87)	26%	(338)
Operating Subsidy	974	68%	455	32%	1,429
State of Good Repair ²⁶	161	32%	339	68%	500
Total Subsidies for Existing Assets	1,135	59%	794	41%	1,929
New Construction/Expansion ²⁷	17	1%	1,703	99%	1,720
Total Subsidies	\$1,152	32%	\$2,497	68%	\$3,649

Source: Metro. *Adopted Budget FY 2019*.

Metro claims a structural operating deficit, which it considers solving by reducing bus service and increasing bus fares, when bus is the highest performing, most cost-effective transit type it has. A well-managed business keeps its best performing missions and reduces or closes its worst performing

²² Metro, *Adopted Budget FY 2019*. 51.
http://media.metro.net/about_us/finance/images/fy19_adopted_budget.pdf

²³ Ibid.

²⁴ Ibid. 34.

²⁵ Ibid.

²⁶ Ibid. 60-63.

²⁷ Ibid. 56-57.

ones. If bus service were expanded and configured to serve Los Angeles residents' unmet transportation demand rather than to feed captive riders to Metro's rail lines, it would perform even better.

Passenger rail can be a wise investment in some situations, but building new urban rail lines is a very expensive way to move travelers, and a highly cost ineffective option for Los Angeles. Metro's over-emphasis on rail expansion at the expense of cost-effective bus service has wasted billions of taxpayer dollars and created major urban mobility problems. If Metro implements the current *28 by 2028 Plan*, L.A. transit service will continue to deteriorate. If Metro wants to best serve transit customers in the region, it will focus first on bus service improvements—not expensive rail lines that take decades to implement.

CONCLUSIONS

1. Metro bus is very highly utilized and very cost-effective relative to national norms.
2. Metro rail is below average to poor compared to its peers in terms of cost-effectiveness. Metro's heavy rail and light rail substantially reduce Metro's aggregate performance with respect to farebox recovery and subsidies per passenger and passenger-mile.
3. An examination of operating costs, operating subsidies, and utilization make it clear that Metro bus has a long-term and great advantage over Metro rail across most or all important measures. Metro's focus on rail capital projects ignores this reality.
4. Despite bus's demonstrated cost-effectiveness and high utilization, Metro's budgetary prioritization of rail capital projects indicates an intent to find more money to fund new rail lines. If the agency proceeds, it will come at the cost of transit utilization.
5. If Metro implements the current *28 by 2028 Plan*, with its emphasis on new rail lines at the expense of bus service, billions of dollars more will be spent and overall L.A. transit service will continue to deteriorate.