King County
METRO

Peer Agency Comparison on Performance Measures

May 2016

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Peer agency comparison on performance measures

Every year, King County Metro Transit compares its performance to that of peer agencies using data from the National Transportation Database (NTD). Metro compares itself to 29 of the other largest[1] bus transit agencies in the U.S. on eight indicators. The comparisons include only the agencies' bus modes (motor bus, trolley bus, commuter bus, and rapid bus, as defined by the NTD).

The measures presented are from 2014, with comparisons to previous years. NTD annual data are not available until the end of the following year at the earliest, so the analysis is delayed by at least one year. Other challenges to peer analyses include the fact that only bus performance measures are measured, but many of the peer agencies also operate significant rail systems around which they structure their bus networks. This may affect their performance on the measures compared.

Also, it is not always clear what has been included and excluded in the NTD reports. In previous years, Metro reports included Sound Transit bus service operated by Metro. This year's analysis does not include Sound Transit service, but the composition of other agencies' reports is uncertain. That is one reason Metro uses a robust cohort of 30 peers and shows the averages among them.[2]

The key measures compared are based on service and financial statistics. Service measures are: boardings (the total number of times passengers board buses during the year), vehicle hours and vehicle miles (the hours and miles a bus travels from the time it leaves its base until it returns), and passenger miles (the total miles traveled by all passengers).

Financial measures are the total bus operating cost divided by the service statistics. Farebox recovery is the total bus fare revenue divided by operating costs.

Among its peers, Metro was one of the fastest growing agencies in boardings and passenger miles over the past 10 years, and was the fastest growing agency in terms of boardings in the years 2010-2014. The ridership increase reflects a local economy that has weathered the effects of the Great Recession better than most of Metro's peers. It also reflects Metro's focus on increasing service on some of our most productive routes, such as the RapidRide lines.

Metro was near the middle of its peers in cost-related indicators. Coming out of the recession, Metro raised fares, collected a short-term "congestion reduction charge," and took many actions to cut costs and improve efficiency in order to maintain service. As a result, expenses during this five-year period had modest growth and service levels remained stable. With the increase in ridership, Metro has one of the slowest growth rates in costs per boarding and per passenger mile during this period.

After the temporary funding was phased out and not replaced by another funding source, Metro had to make significant service reductions in September 2014. While this had a dampening impact on costs, it also had a dampening impact on the service provided in terms of bus hours and vehicle miles as well as service consumed (i.e. boardings and passenger miles).

	2014			1-year Annual Growth			5-year Annual Growth			10-year Annual Growth		
	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg
Boardings	120.1	9	118.2	2.0%	2	0.6%	2.5%	1	0.2%	2.7%	3	0.2%
Boardings per hour	33.4	10	33.8	2.2%	2	-0.2%	2.0%	6	0.5%	1.6%	2	-0.3%
Passenger miles per mile	12.0	9	10.8	2.8%	8	-5.8%	3.8%	9	1.8%	1.1%	16	1.0%
Cost per hour	$142.46	9	$129.17	2.3%	12	2.4%	3.1%	12	2.4%	2.5%	21	3.9%
Cost per mile	$11.58	10	$11.02	3.0%	10	3.0%	3.5%	14	2.9%	3.1%	22	4.4%
Cost per boarding	$4.27	11	$4.04	0.1%	25	4.5%	1.1%	18	1.9%	0.9%	28	4.1%
Cost per passenger mile	$0.96	17	$1.04	0.3%	20	3.8%	-0.2%	19	1.2%	1.9%	22	2.8%
Farebox recovery[1]	30.5%	9	27.5%	1.4%	5	-0.8%	1.1%	16	0.8%	8.2%	5	1.2%

Ranking compared to previous year:
Improving Declining No change

[1]By number of boardings.

[2]The 2014 peer comparison added Santa Clara and removed Austin, which is no longer in the top 30 by boardings.

[3]The growth is the total percentage-point growth.

Service measures

Productivity, measured as boardings per vehicle hour, is one of the key priorities for Metro service investments, along with social equity and geographic value. Metro has seen more growth in this productivity measure than many of its peer agencies. This is likely a function of two factors:

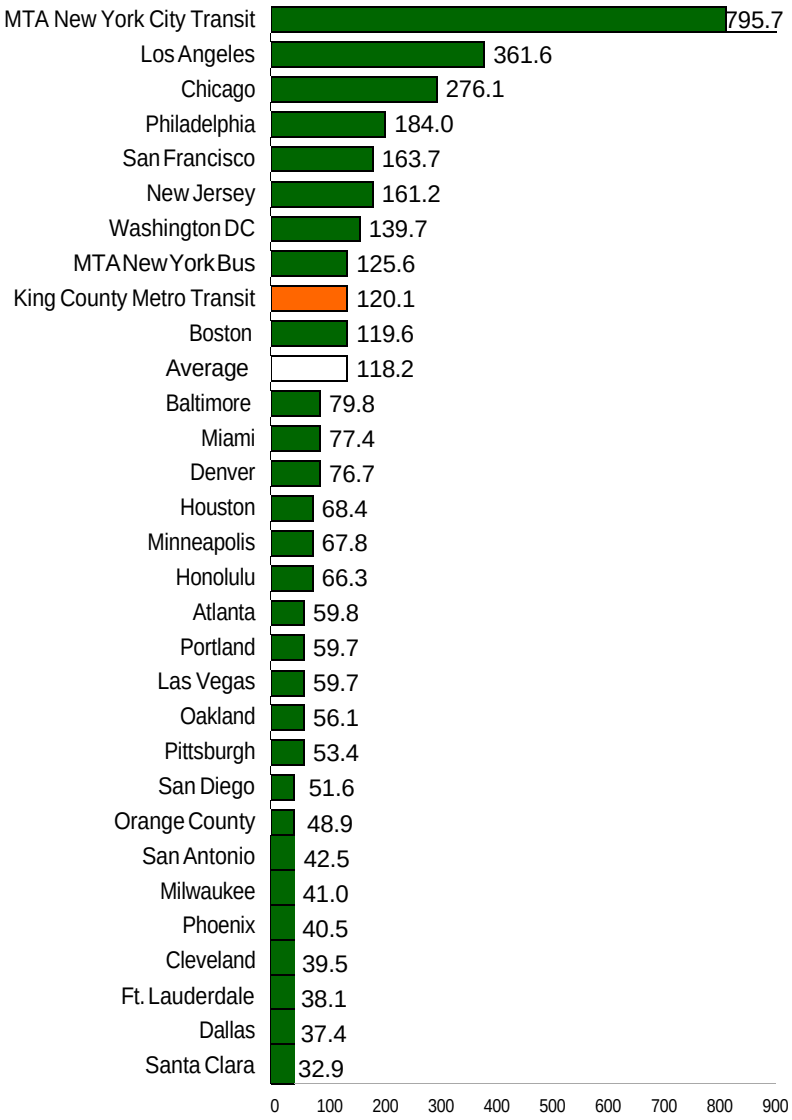
1. Metro continued to add service to productive routes and to routes that were experiencing crowding issues brought on by development and increasing population densities in key suburban areas. For example, Metro increased its investment in the busy Route 212 from Eastgate into downtown Seattle.

2. Budget-driven service reductions resulted in fewer service hours without significantly impacting the demand for Metro service. As a result, the previously noted ridership gains outweighed reductions in service hours.

Metro's productivity ratio also continues to benefit from the service guidelines that were adopted in 2011. These guidelines moved some investment from routes in east and south King County, with their lower density and productivity, to routes in denser, highly productive areas such as Seattle's urban core.

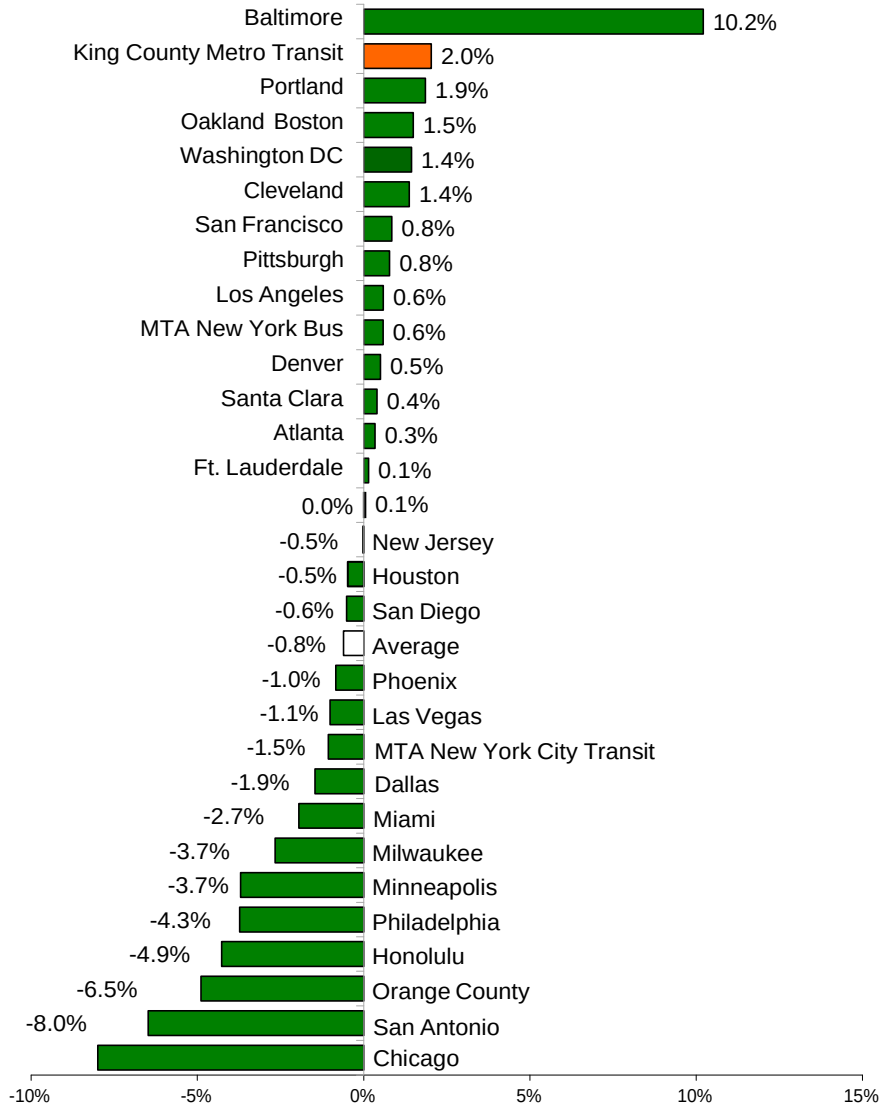
As mentioned earlier, the growth in employment over the past few years has also added significantly to boardings and thus boardings per hour. Coupled with Metro's efforts to reduce layover time, as recommended in King County's 2009 Performance Audit of Transit, these factors increased Metro's boardings per hour.

Bus Boardings 2014
(in millions)



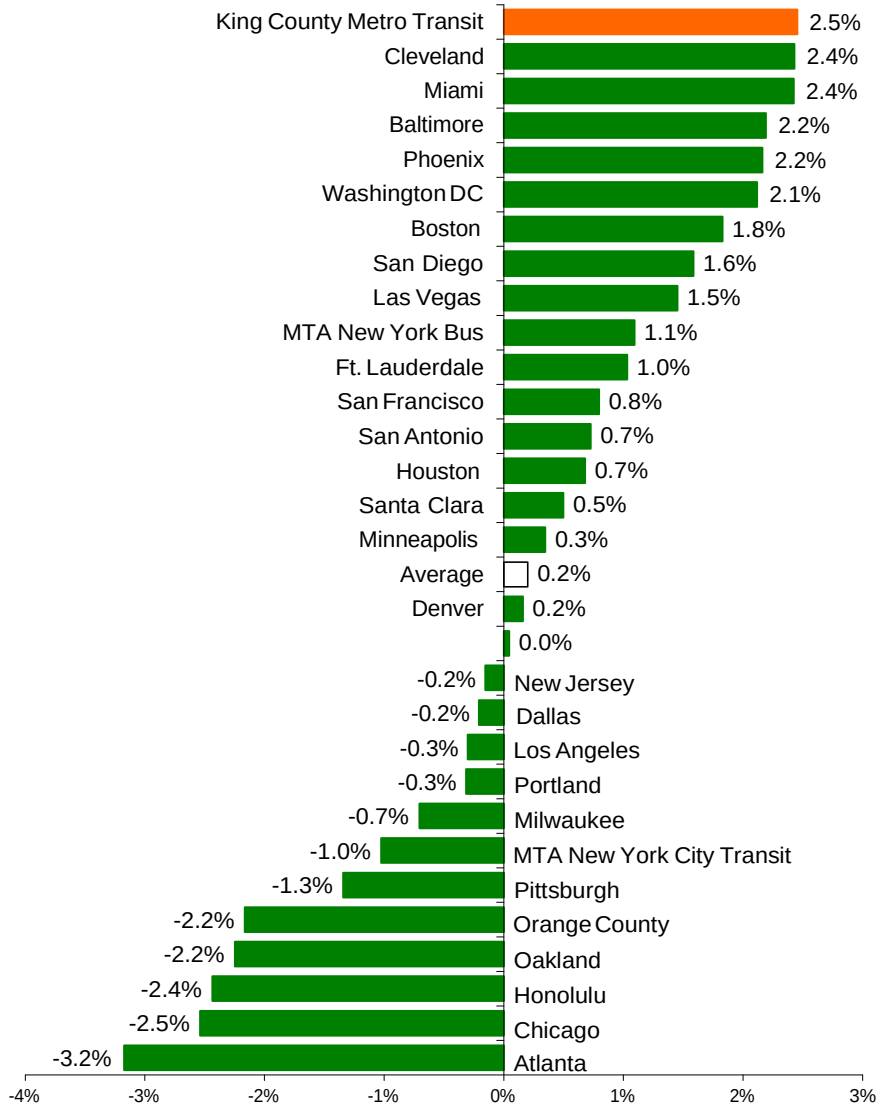
Metro had 120.1 million bus boardings in 2014 (peer rank: 9).

Bus Boardings
Percentage Change 2013–2014



One-year change: Metro boardings increased 2% in 2014 (peer rank: 2), while the peers averaged a 0.6 loss in ridership.

Bus Boardings
Average Annual Percentage Change 2010–2014

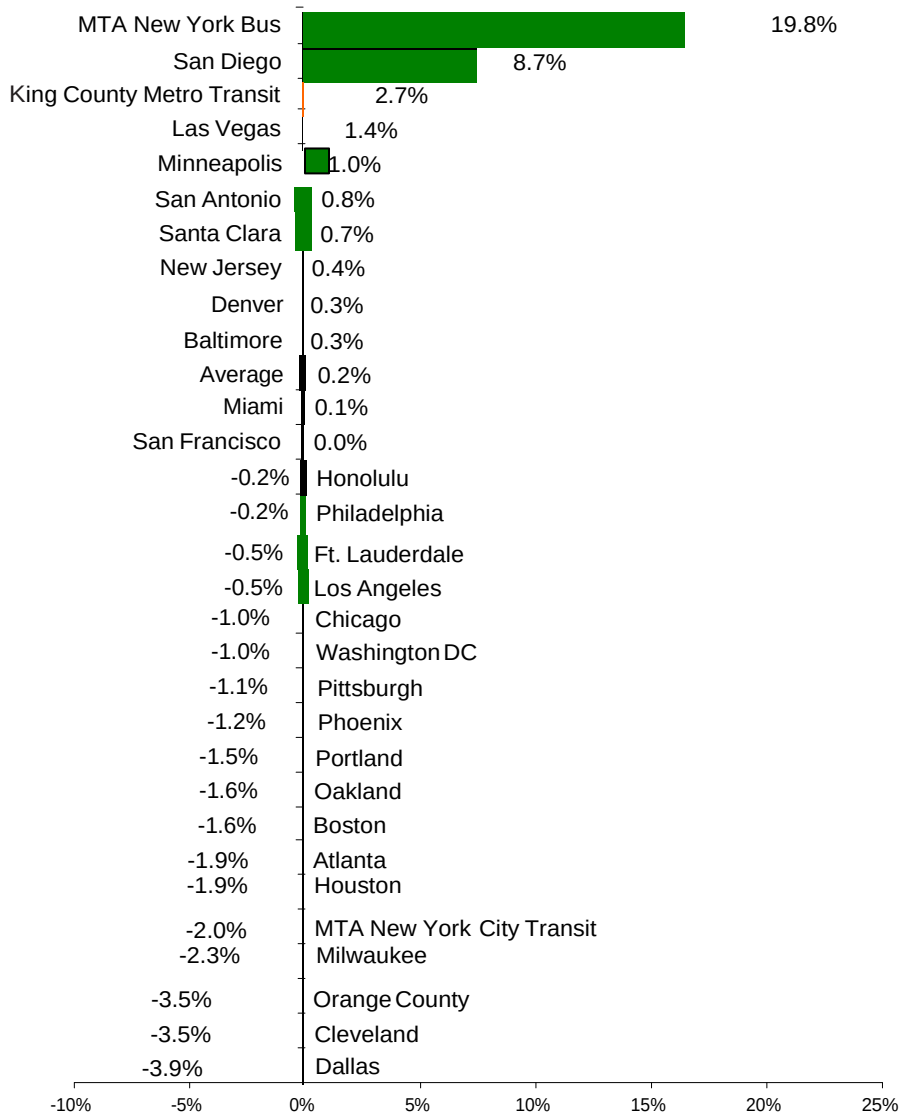


Five-year change: Metro boardings increased by a yearly average of 2.5% from 2010 to 2014 (peer rank: 1), while the peers averaged a slight increase.

Metro appears to be bucking the national trend of low growth or declining ridership brought on by low inflation and low fuel prices which make automobile operations comparably cheaper.

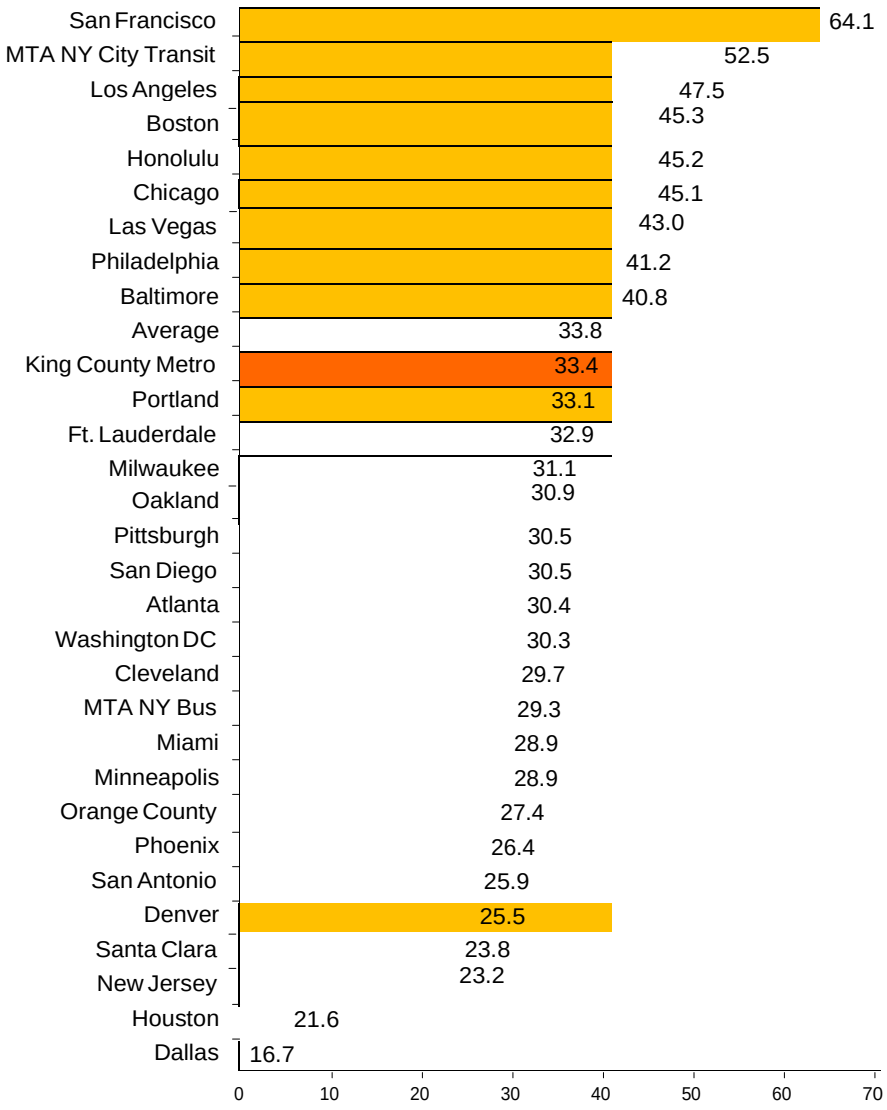
Metro likely benefits from a strong local economy, which creates a higher demand for transit commute trips. Investments in highly productive routes (such as RapidRide) have helped offset ridership losses from the budget-driven service reductions in September 2014.

Bus Boardings
Average Annual Percentage Change 2005–2014



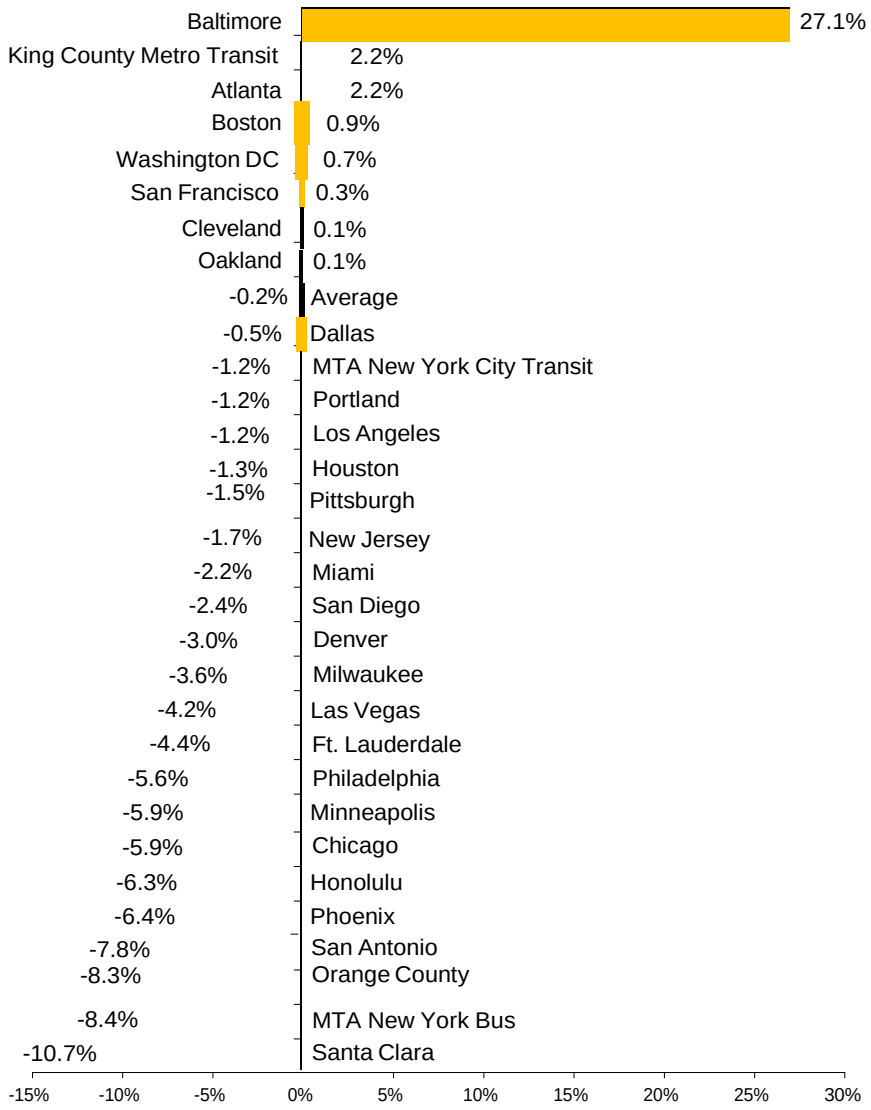
10-year change: Metro's boardings increased by a yearly average of 2.7% from 2005 to 2014 (peer rank: 3), while the peers had flat ridership.

Boardings Per Vehicle Hour 2014



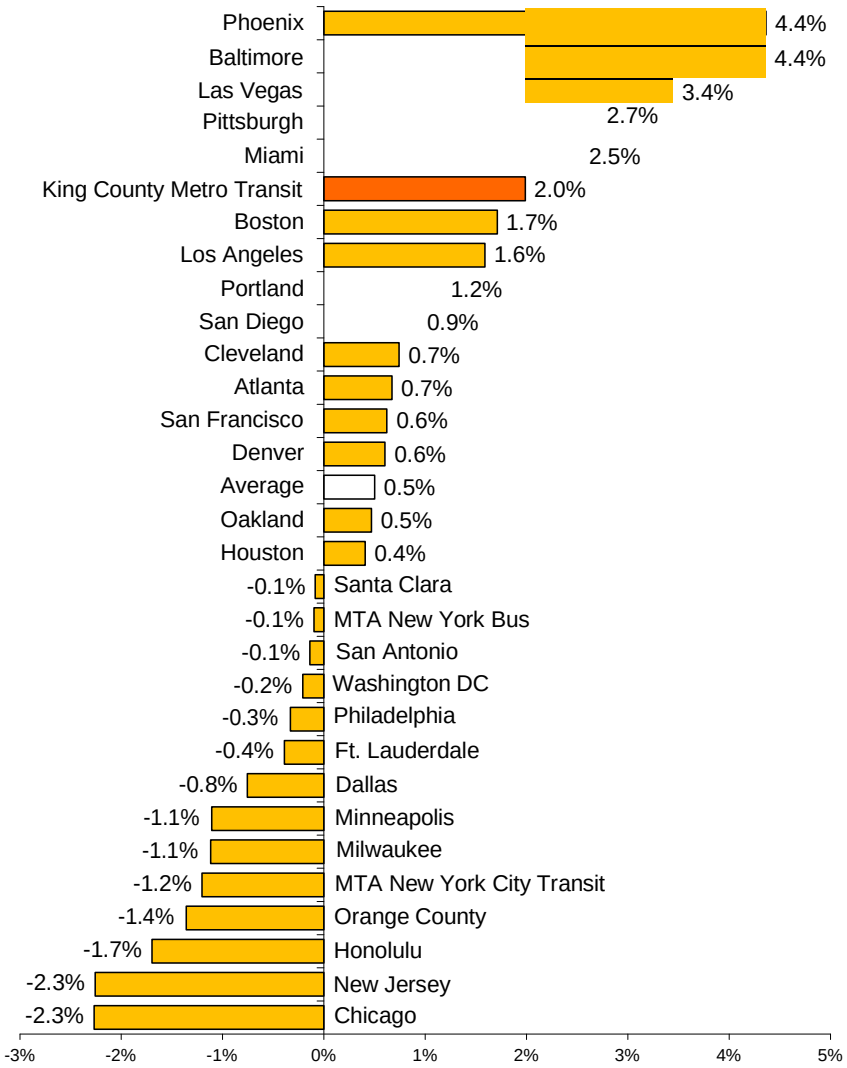
2014: Metro had 33.4 boardings per hour (peer rank: 10).

Boardings Per Vehicle Hour Percentage Change 2013–2014



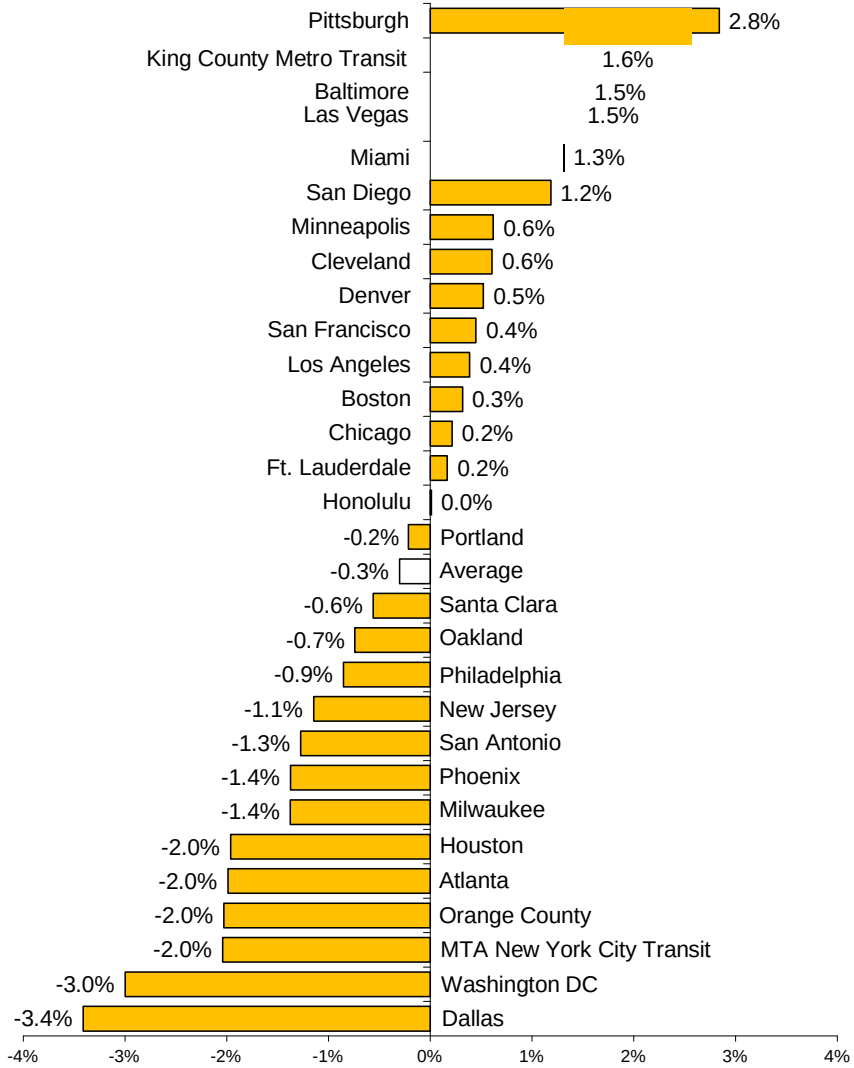
One-year change: Ridership grew 2% while hours decreased 0.1%, resulting in a net gain of 2.2% in boardings per hour (peer rank: 2). The peers averaged a decline of 0.2% in 2014.

Boardings Per Vehicle Hour
Average Annual Percentage Change 2010–2014



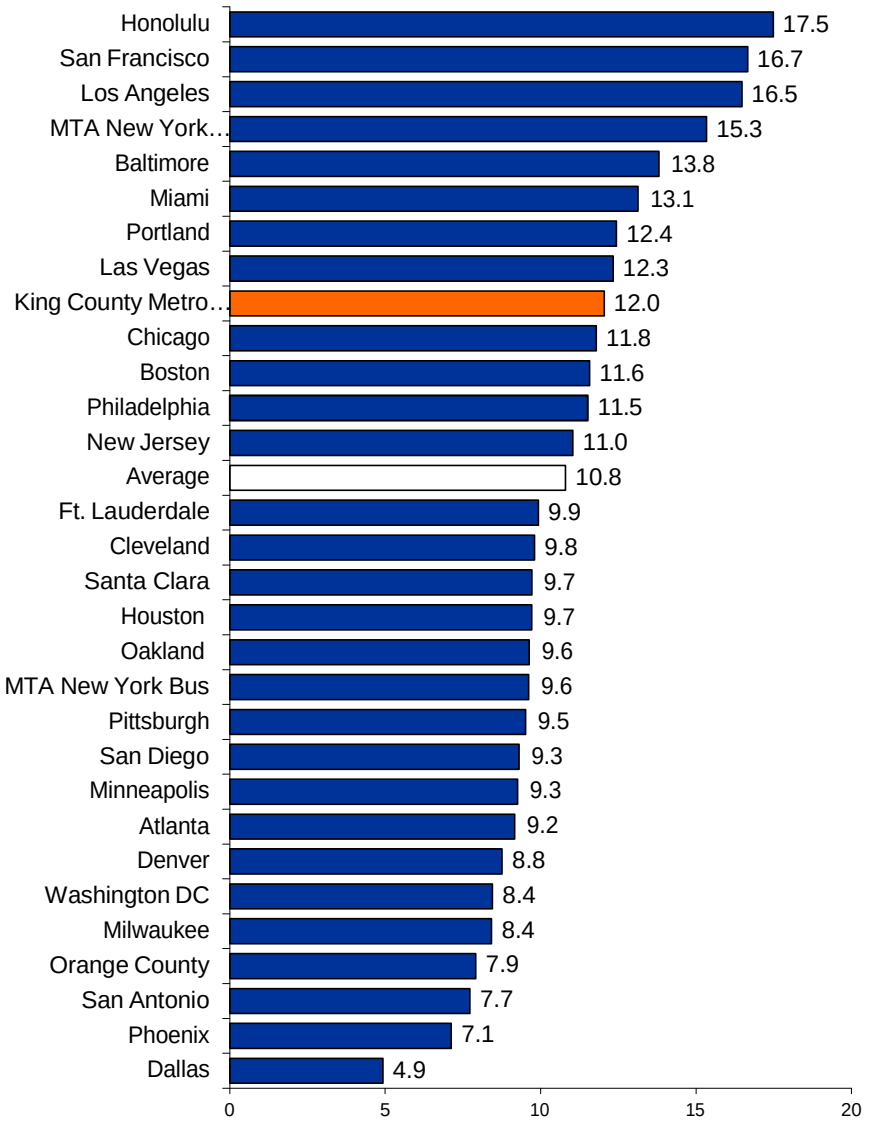
Five-year change: Metro's boardings per hour increased by a yearly average of 2% from 2010 to 2014 (peer rank: 6), while the peers averaged a 0.5% increase.

Boardings Per Vehicle Hour
Average Annual Percentage Change 2005–2014



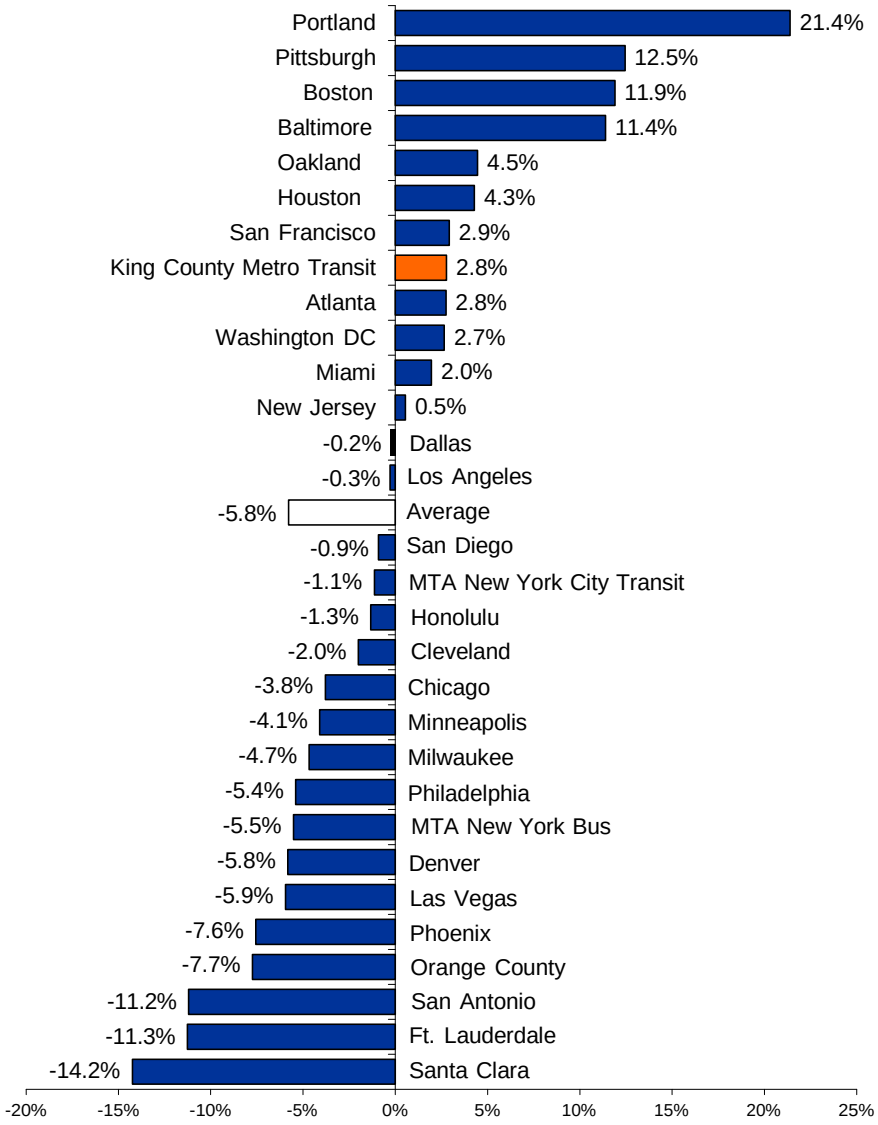
10-year change: Metro's boardings per hour increased by a yearly average of 1.6% from 2005 to 2014 (peer rank: 2). This reflects the strong long-term growth in boardings mentioned in the previous section.

Passenger Miles Per Vehicle Mile 2014



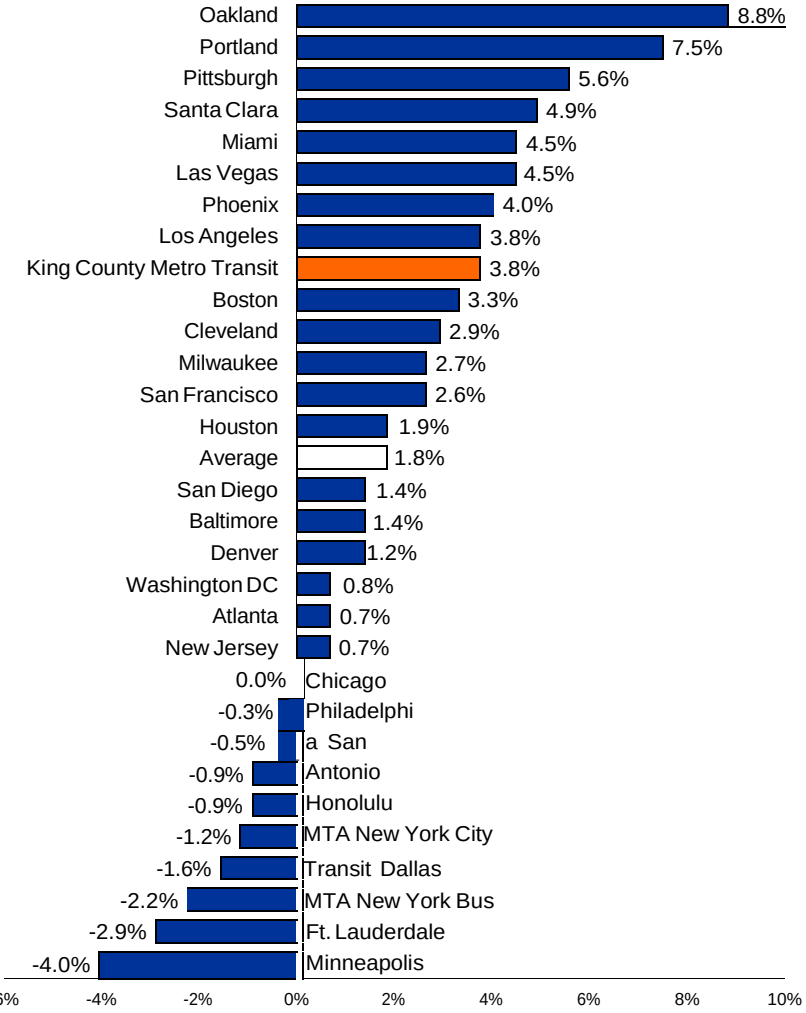
2014: Metro had 12 passenger miles per vehicle mile (peer rank: 9). This measure is really an indication of the average number of passengers that are on a bus at any particular time; the number varies significantly by route, day of week and time of day.

Passenger Miles Per Vehicle Mile Percentage Change 2013–2014



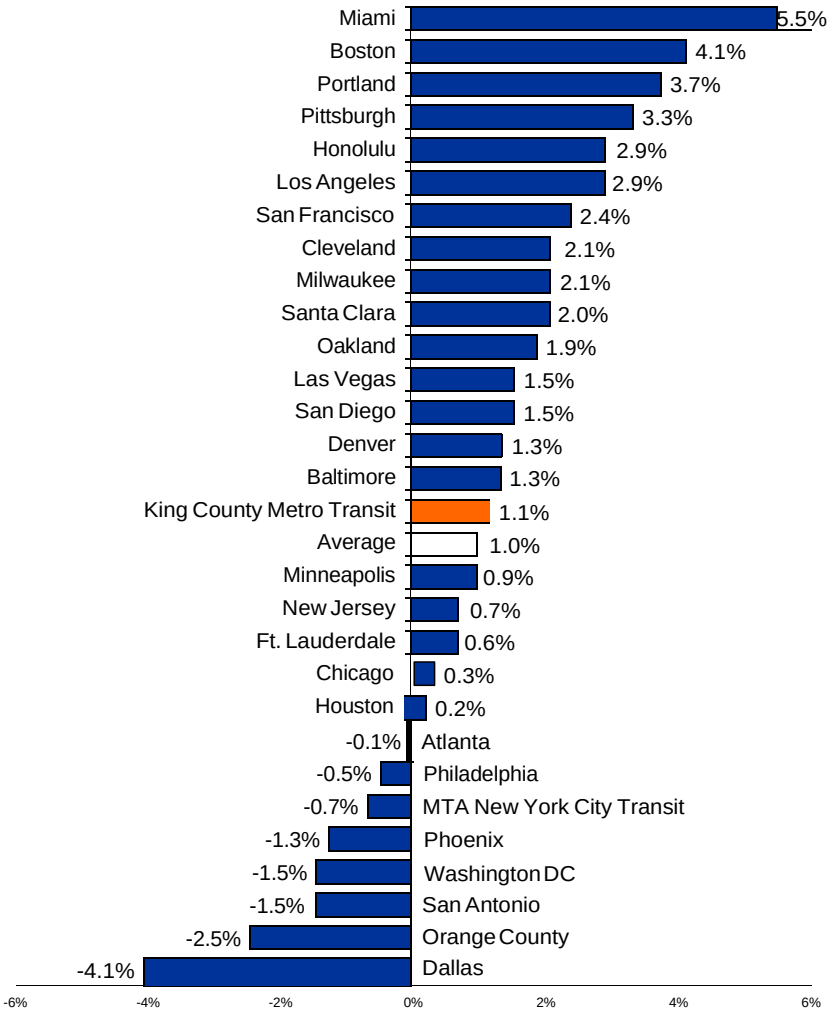
One-year change: Metro's passenger miles per vehicle mile increased 2.8% from 2013 to 2014 (peer rank: 8). Metro's vehicle miles fell in 2014 by 0.9%.

Passenger Miles Per Vehicle Mile
Average Annual Percentage Change 2010–2014



Five-year change: Strong ridership growth from 2012 to 2014 helped stem the five-year trend of falling passenger miles per vehicle mile. From 2010 to 2014, this ratio increased at an average annual rate of 3.8% (peer rank: 9). The change in passenger miles reflects changes in both ridership and trip length, while vehicle miles reflects service levels. Since vehicle miles in 2014 were nearly identical to those in 2010, the improvement in this measure came primarily from the increase in passenger miles that resulted from the closure of the downtown Seattle Ride Free Area, a source of numerous short trips, and from increased employment and longer commute trips.

Passenger Miles Per Vehicle Mile
Average Annual Percentage Change 2005–2014



10-year change: Over 10 years, Metro's passenger miles per vehicle mile increased at an annual rate of 1.1% (peer rank: 16), slightly better than the peer average of 1%.

Financial measures

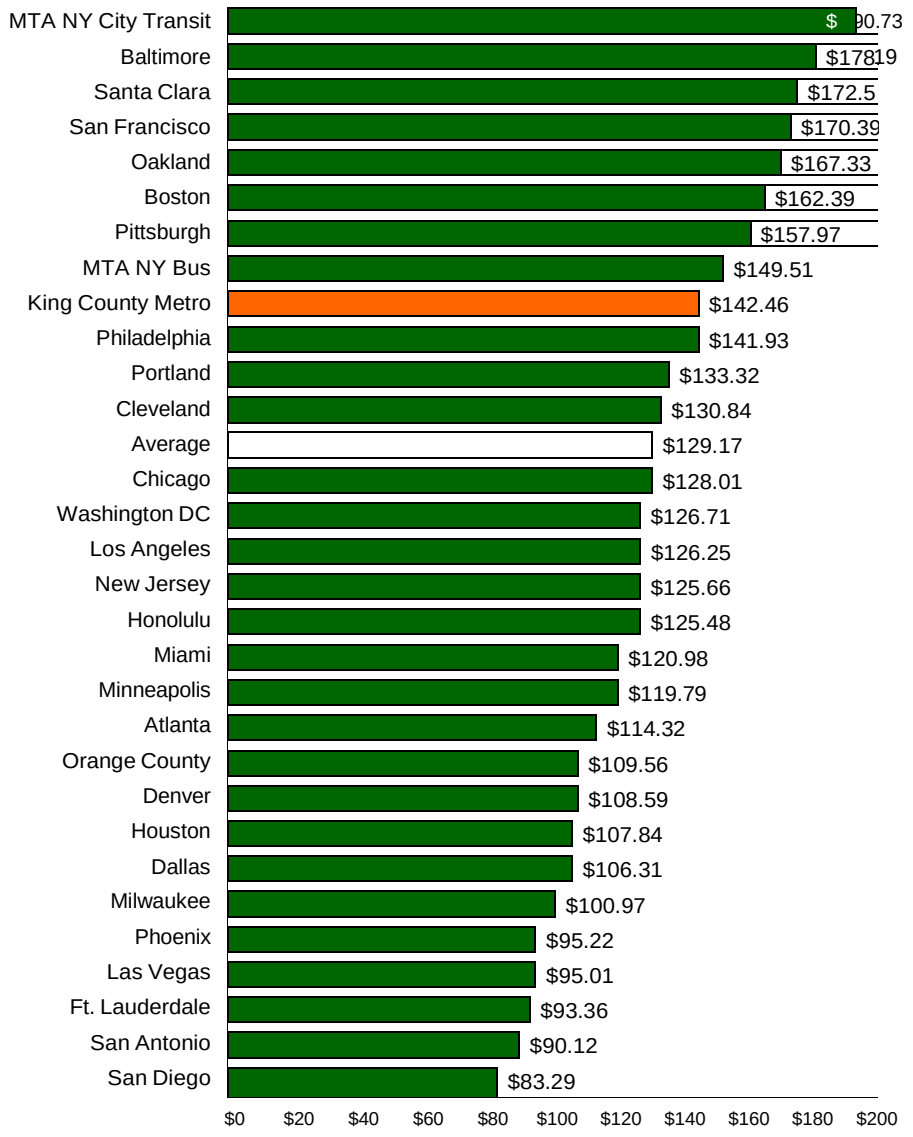
The cost of operating transit service tends to fall into two categories:

1. The direct costs of putting buses on the road, such as fuel or power (for trolley buses), vehicle maintenance, driver wages and insurance. Direct costs total about 70% of the cost of operating bus service.
2. Indirect cost (about 30% of total operating costs) are for things such as information technology, safety and security, administrative services and maintenance of transit-related facilities.

Metro has a couple of other costs that other transit agencies do not have. Because Metro is part of a large, general-purpose government, it pays for support that is provided by other county agencies. In addition, Metro maintains and operates the Downtown Seattle Transit Tunnel. While adding to Metro's total costs, this facility also supports efficient operation and quality of service in the busy Seattle core, reducing the number of service hours needed and providing the added benefit of reducing congestion on Seattle's crowded streets. Both of these costs fall into the indirect cost category.

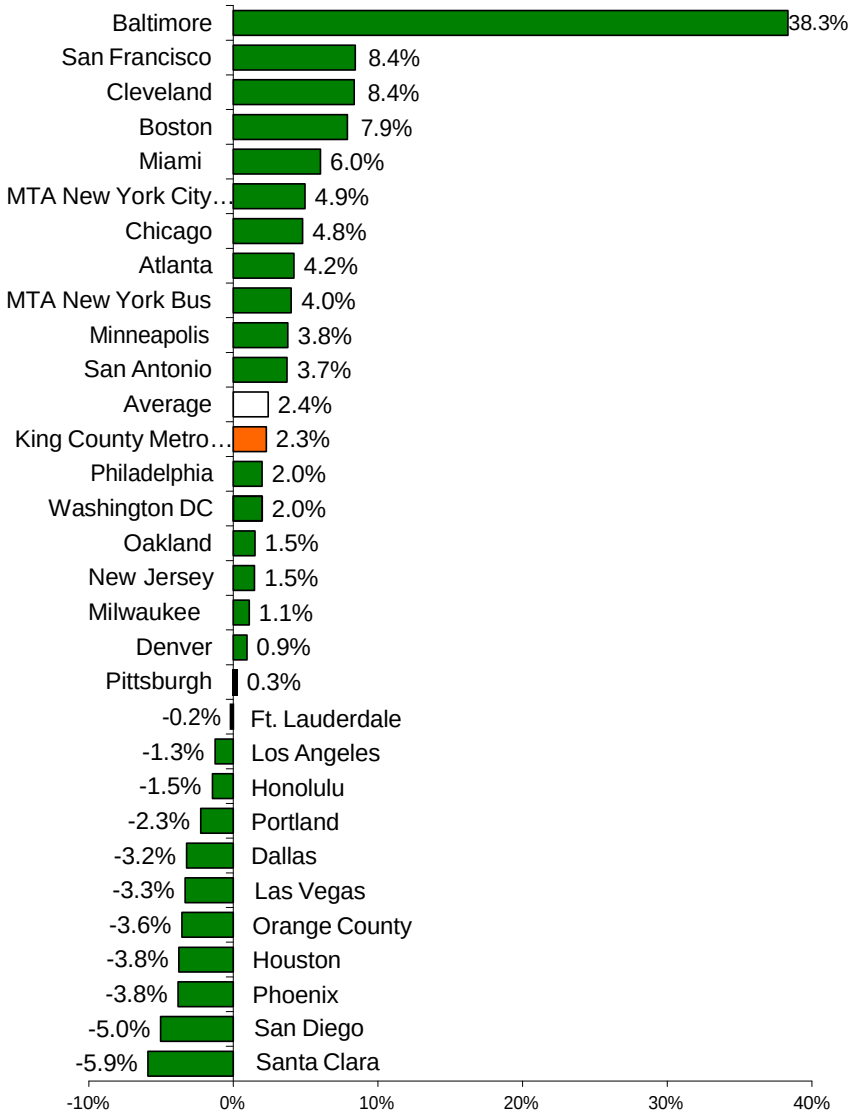
Metro also relies on a broad array of vehicle sizes and types to operate its service. This fleet mix can have a significant influence on operating cost. Large articulated buses allow Metro to carry more passengers during periods of high demand. Electricity-powered trolleybuses minimize pollution, operate more quietly, and are well-suited for climbing the steep hills of Seattle. However, articulated buses and trolleybuses tend to be more expensive to run on a per-hour and per-mile basis.

Operating Cost Per Vehicle Hour 2014



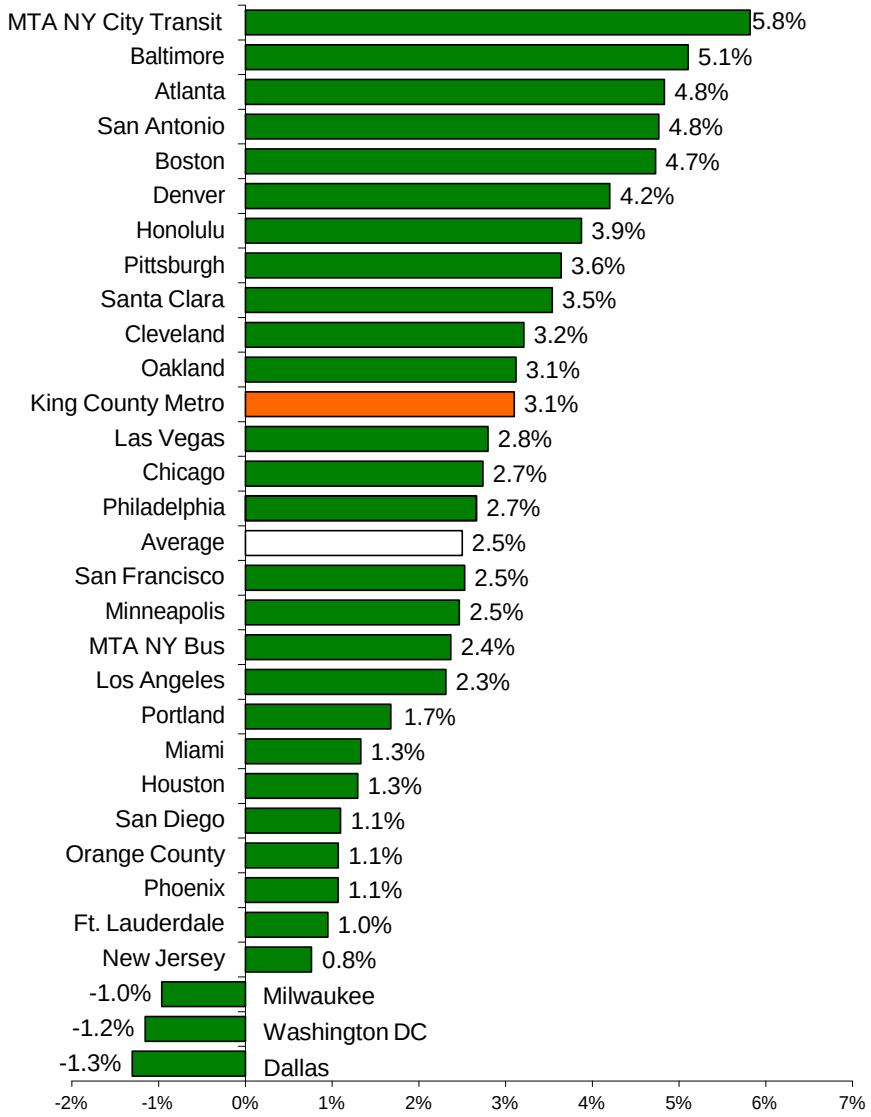
2014: Metro's operating cost per hour was $142.46 (peer rank: 9th most expensive).

Operating Cost Per Vehicle Hour
Percentage Change 2013–2014

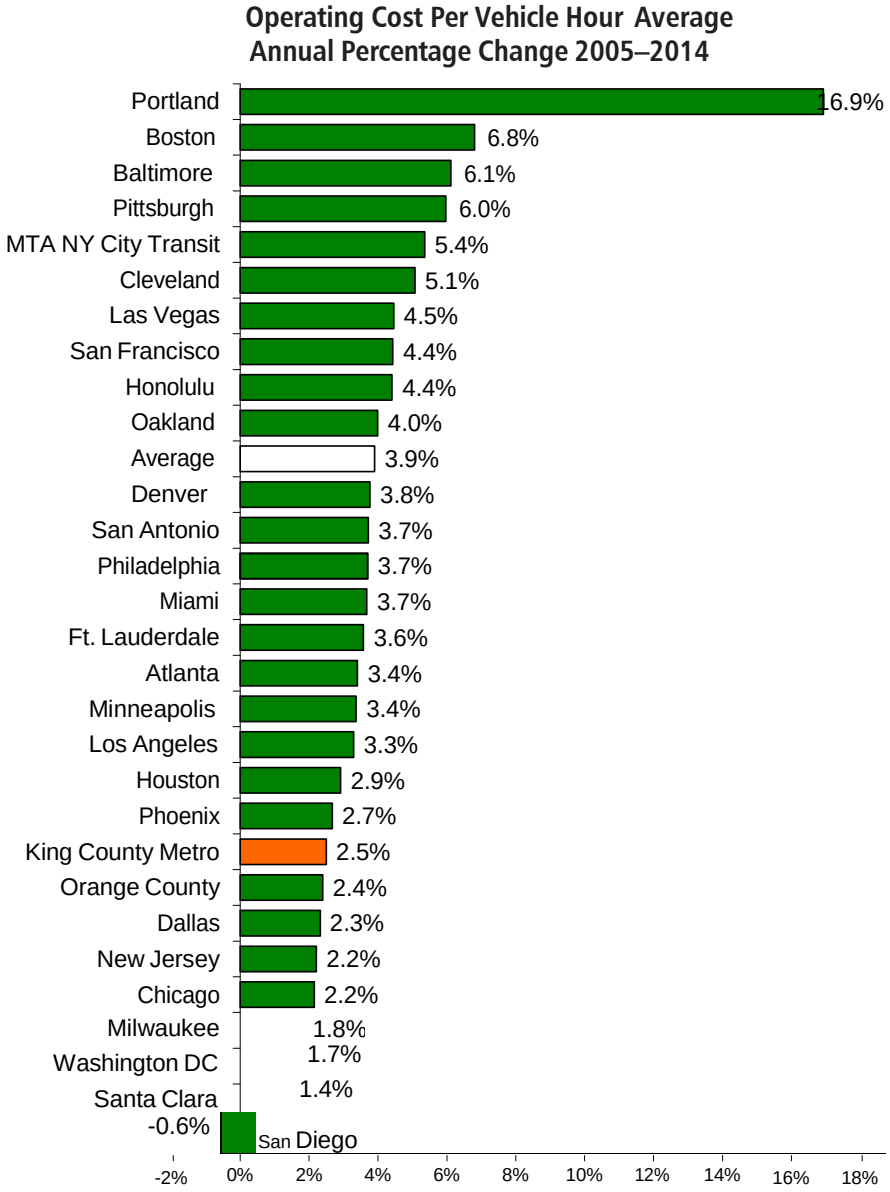


One-year change: From 2013 to 2014, Metro's operating cost per hour increased 2.3%, which kept it below the average growth of its peers (peer rank: 12). Metro's focus on controlling costs continued in 2014, resulting in another year-to-year change showing a slower growth rate than the previous year.

Operating Cost Per Vehicle Hour
Average Annual Percentage Change 2010–2014



Five-year change: Metro's has sought to control costs over the past five years with the annual growth in expenses averaging about 3% during this period. On a cost per hour basis, however, Metro is slightly above the average of its peers due in large part to the limited growth in hours resulting from the September 2014 service reductions.

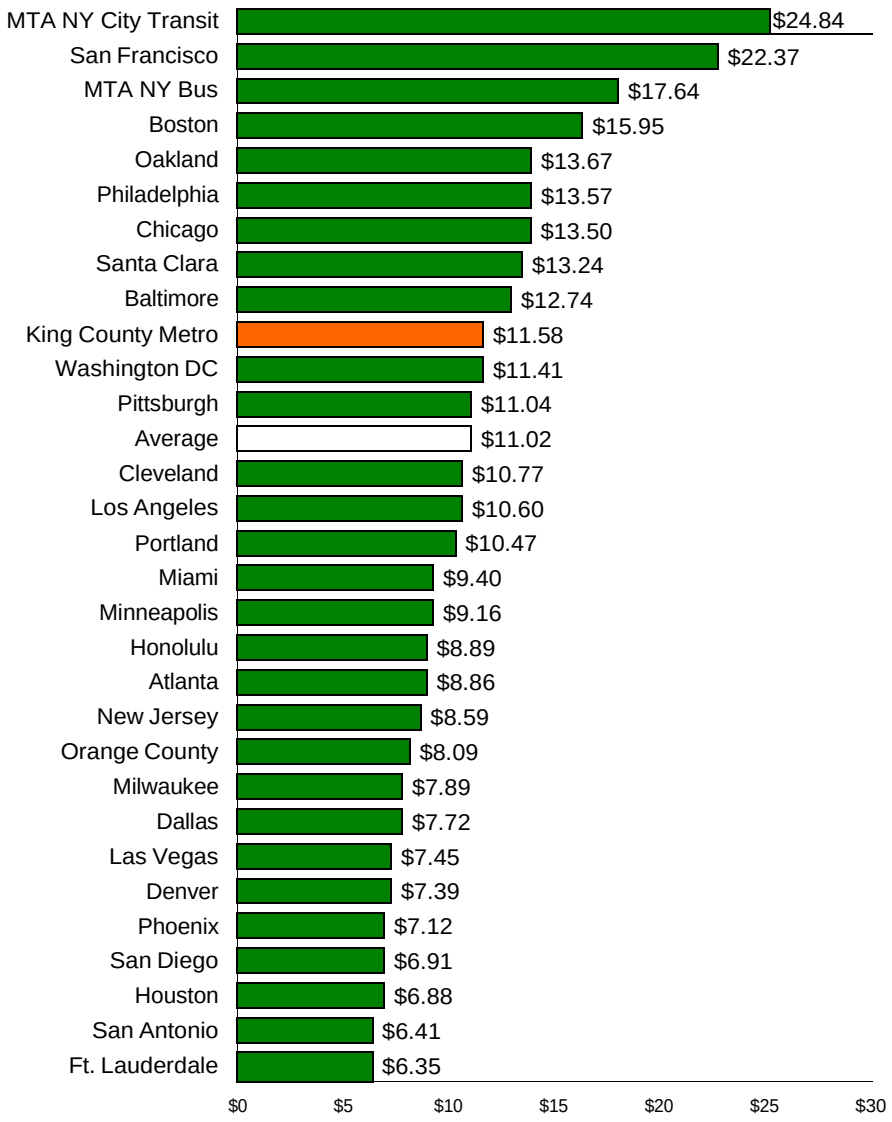


10-year change: Metro saw rosier results over a 10-year period with an average annual percentage growth in cost per hour of 2.5% (peer rank: 21), well below the peer average. While the growth in expenses averaged 4% annually during this time, the growth in hours topped 10%.

Metro's operating costs per vehicle mile (shown on the next page) are affected by the geography and topography of Metro's service area. Puget Sound, Lake Washington and Lake Sammamish limit the street network, causing increased traffic congestion, and the region has steep hills along key travel corridors. Together, these factors slow the travel speeds of Metro's buses. Since many costs accrue regardless of distance traveled (i.e. driver wages), slower travel times mean higher costs per mile.

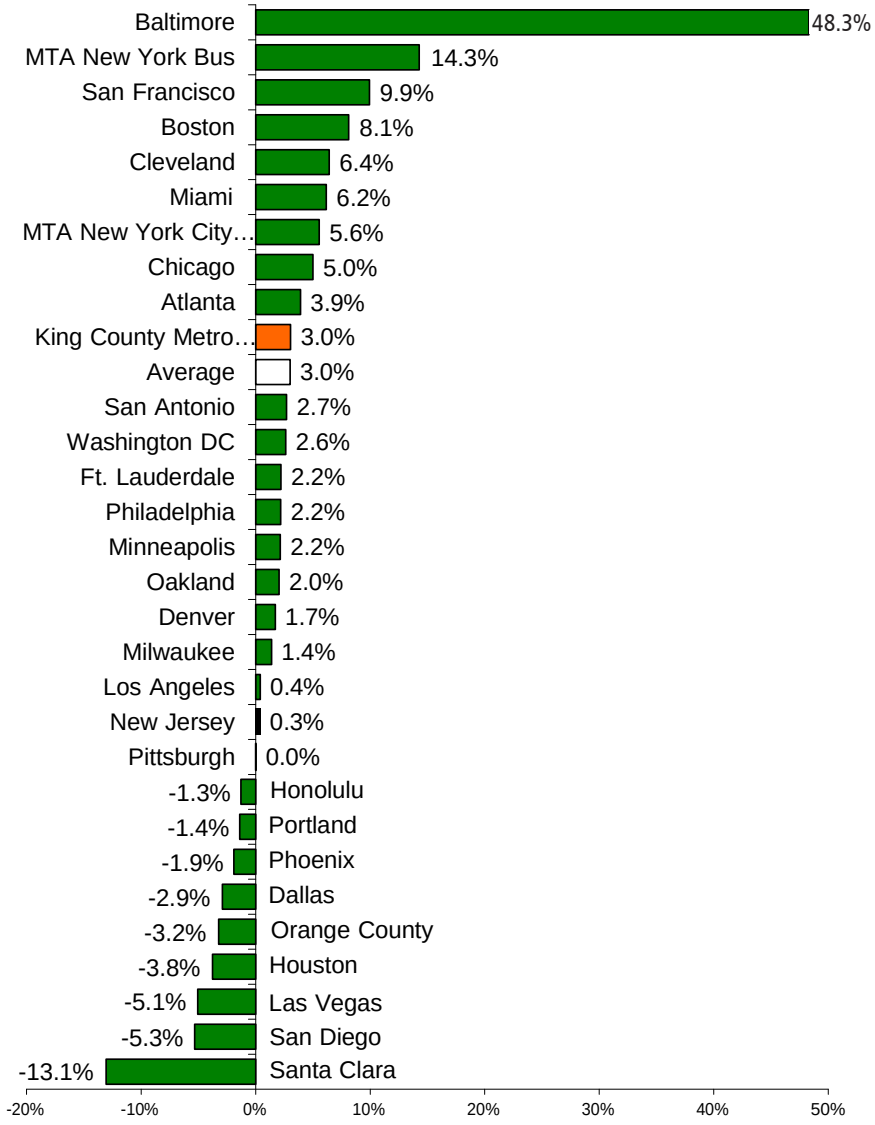
It's no surprise that service in other congested cities (New York, Chicago, Baltimore) and in other cities that have similar geographical constraints (San Francisco) is more expensive per mile. Cities without these constraints (Dallas, Las Vegas, Phoenix) are among the least expensive to operate.

Operating Cost Per Vehicle Mile 2014



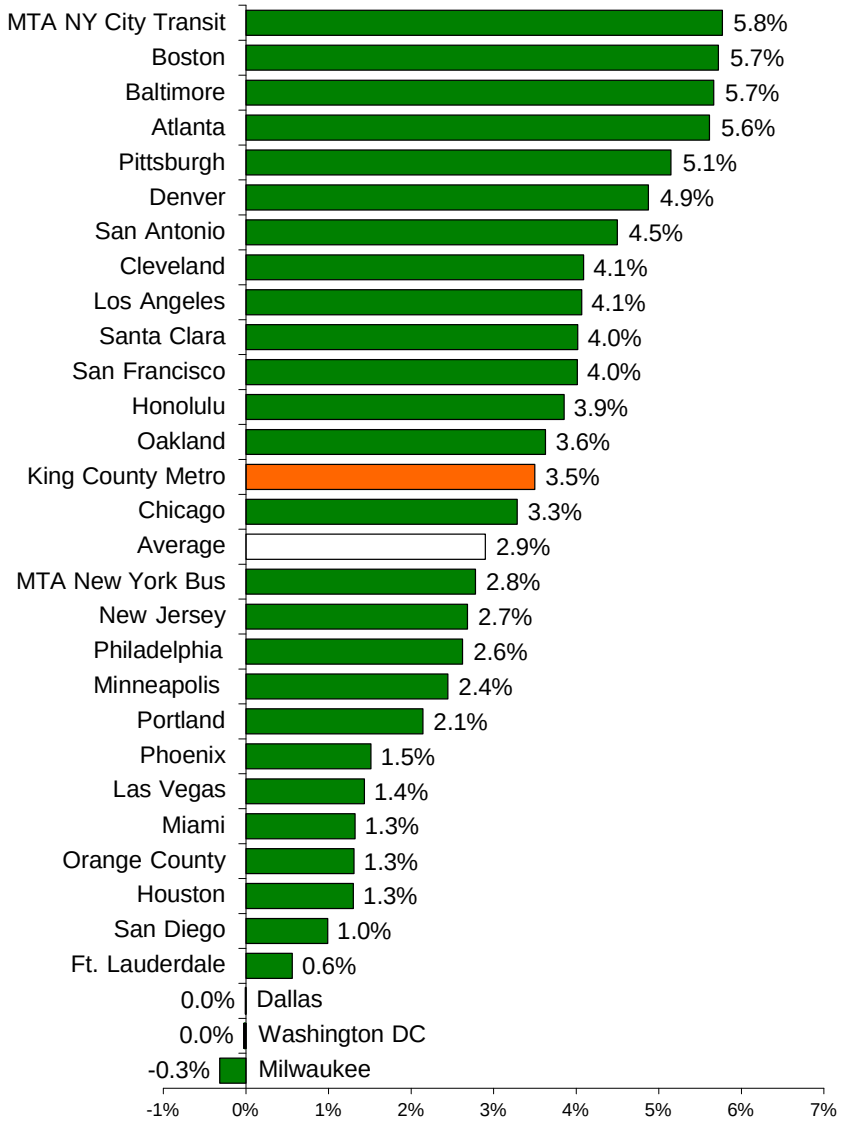
2014: Metro's operating cost per vehicle mile was $11.58 (peer rank: 10).

Operating Cost Per Vehicle Mile Percentage Change 2013–2014



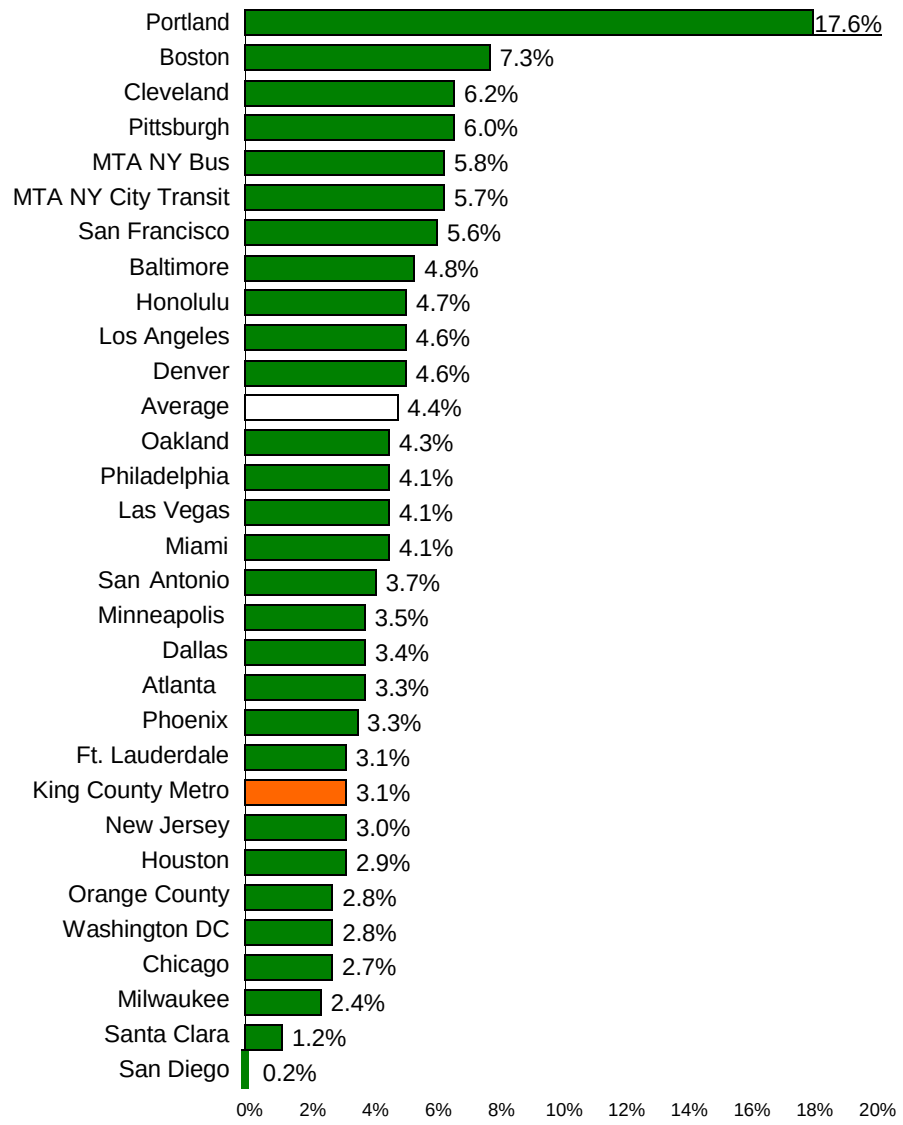
One-year change: Metro's operating cost per vehicle mile increased 3% in 2014 (peer rank: 10). Metro's miles decreased by 0.9% and vehicle hours decreased by 0.1%, so cost per mile decreased more than cost per hour.

Operating Cost Per Vehicle Mile Average Annual Percentage Change 2010–2014



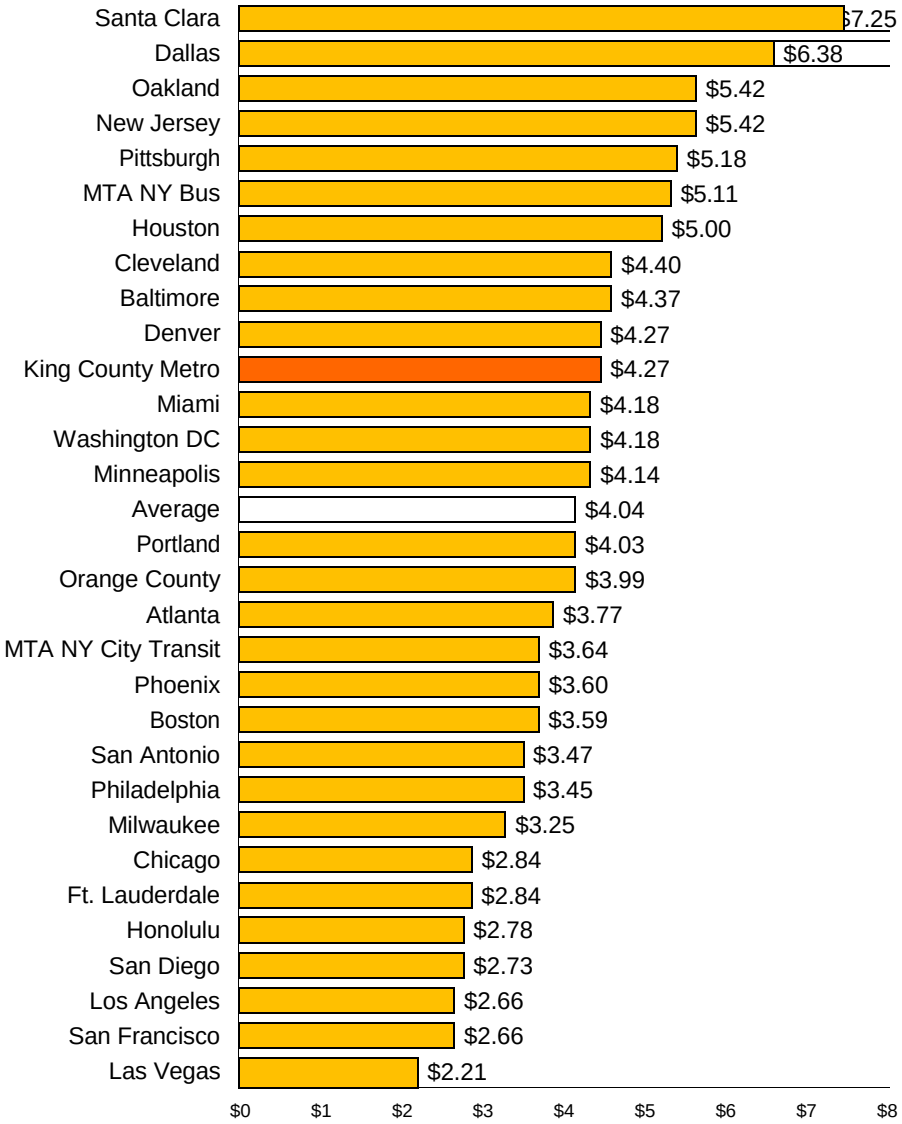
Five-year change: Metro's average annual growth was 3.5% over five years (peer rank: 14). As with the operating cost per hour measure, Metro cost containment efforts were overshadowed by the lack of five-year growth in vehicle miles, primarily as a result of the 2014 service reductions.

Operating Cost Per Vehicle Mile Average Annual Percentage Change 2005–2014



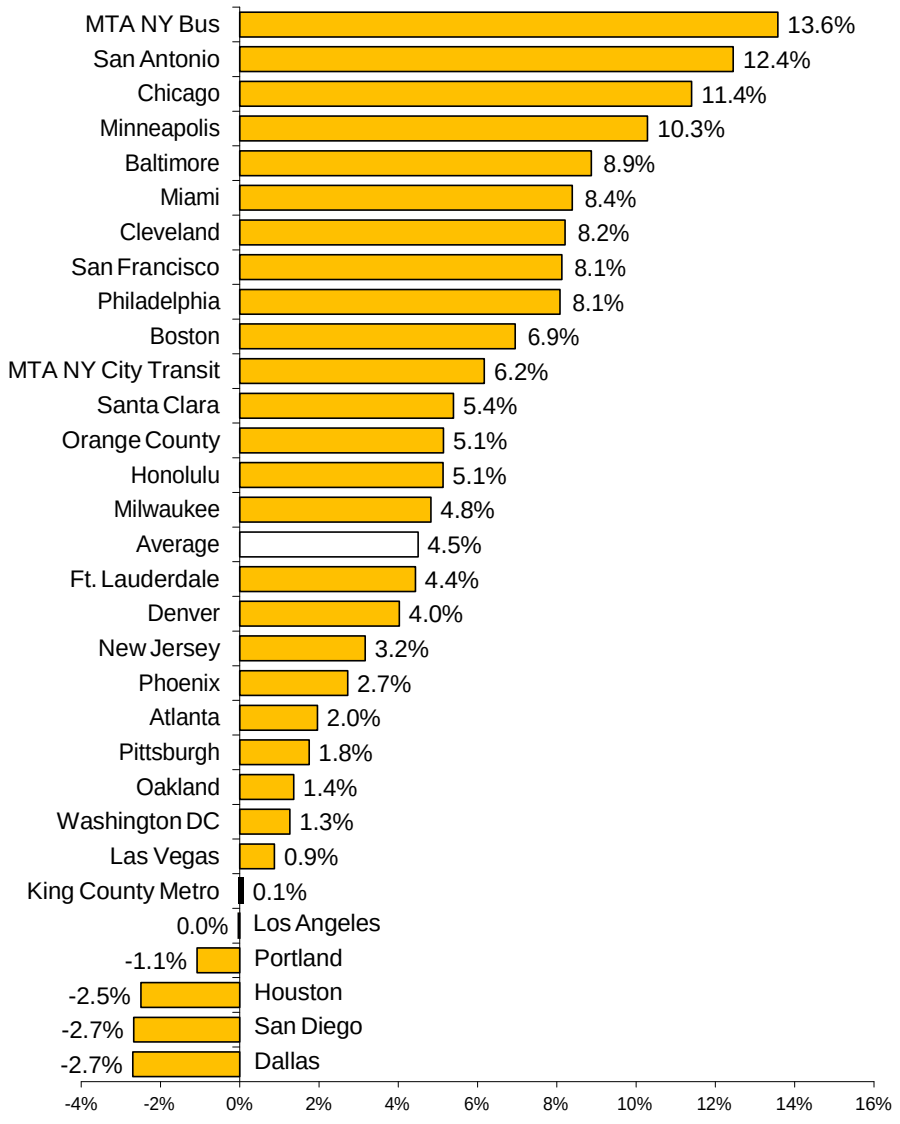
10-year change: Metro's average annual growth in cost per mile was 3.1% (peer rank: 22), much lower than the peer average of 4.4%.

Operating Cost Per Boarding 2014



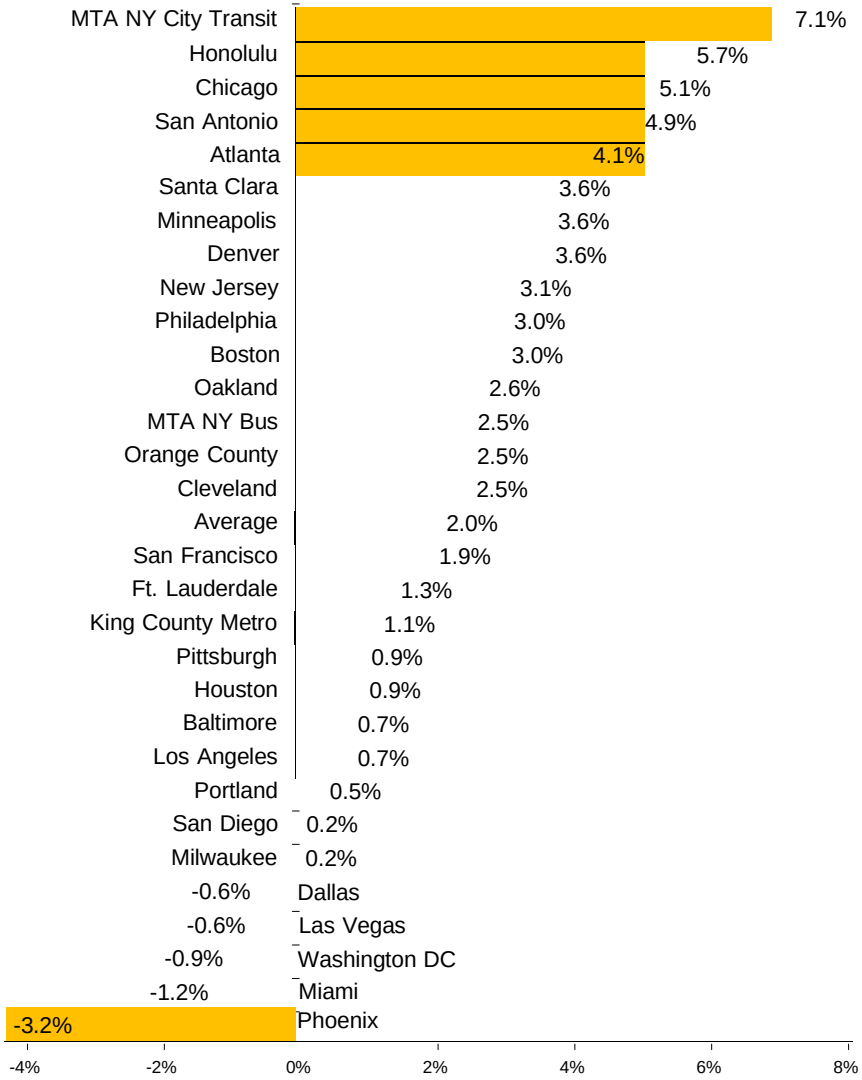
2014: Metro's operating cost per boarding was $4.27 (peer rank: 11). Many of the issues that make Metro's cost high on per-hour and per-mile measures also drive Metro's relatively high cost per boarding, including trip length, fleet mix, and vehicle speed. As Metro's productivity continues to grow, cost per boarding will fall.

Operating Cost Per Boarding Percentage Change 2013–2014



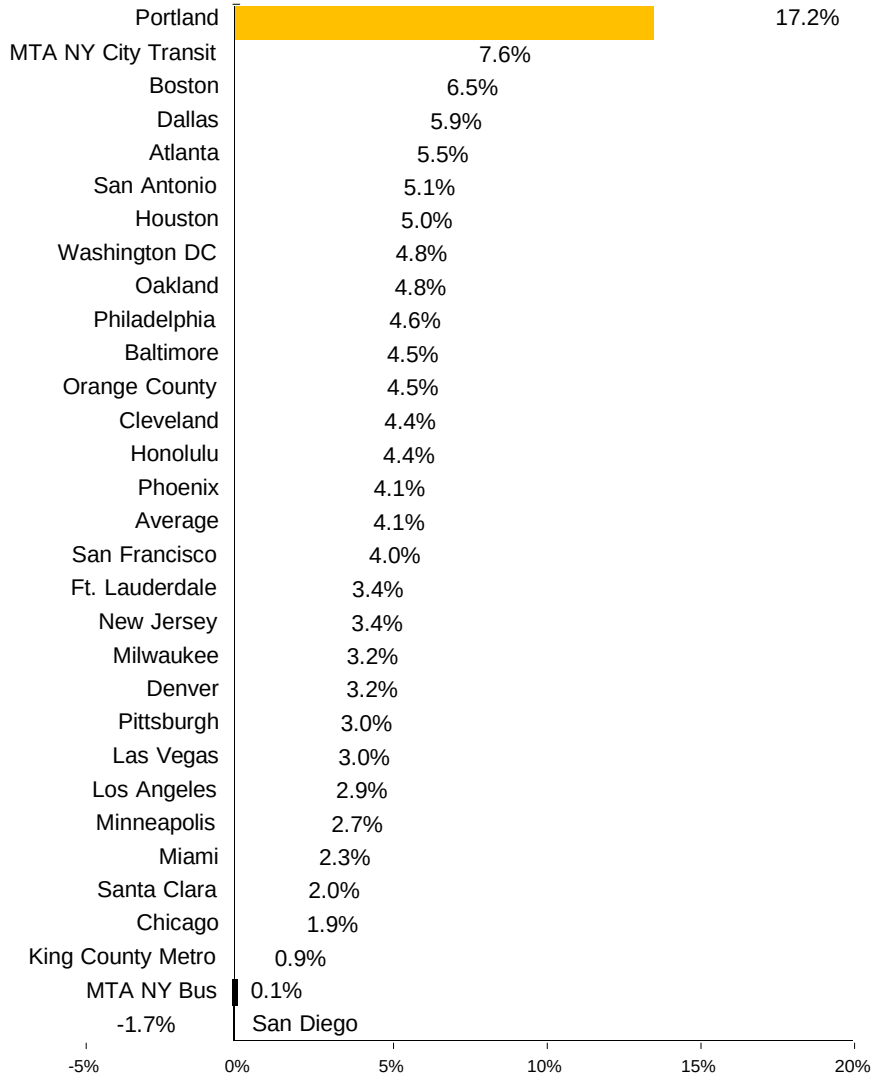
One-year change: Operating cost and boardings grew at similar rates from 2013 to 2014, causing the ratio to increase by only 0.1% and leaving the cost growth rate well below many of Metro's peers (peer rank: 25).

Operating Cost Per Boarding
Average Annual Percentage Change 2010–2014



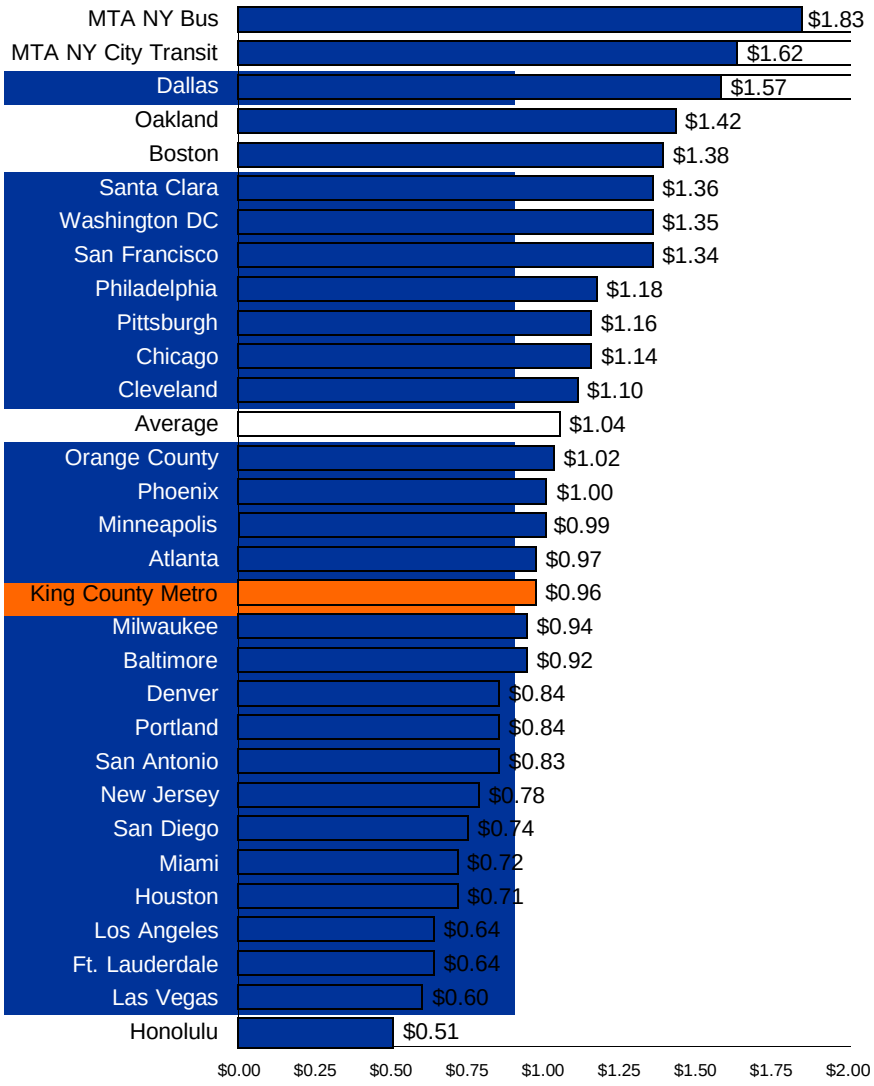
Five-year change: The recent flattening of growth in Metro's operating cost coupled with its growth in boardings during this period resulted in Metro falling below many of its peers in average annual growth over five years, up 1.1% (peer rank: 18—the further down the chart, the better).

Operating Cost Per Boarding
Average Annual Percentage Change 2005–2014



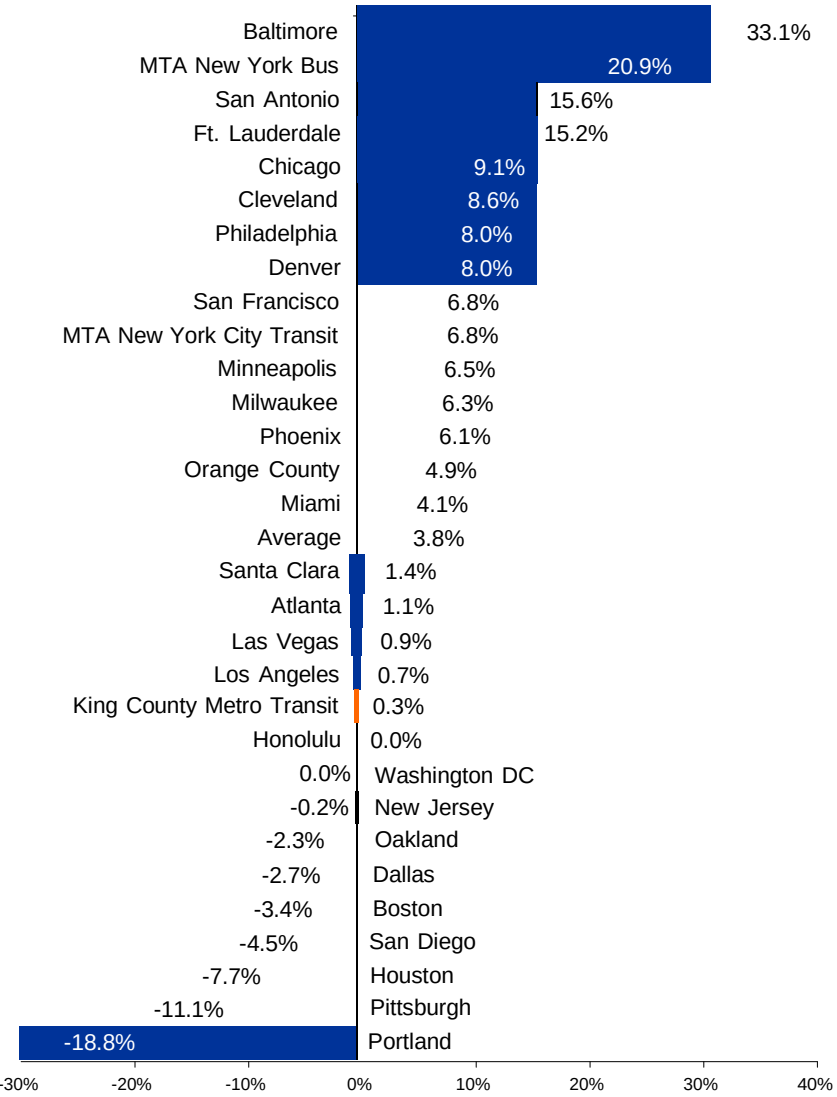
10-year change: As with five-year growth, Metro's average annual growth in cost per boarding of 0.9% over the past 10 years remains low compared to its peers (peer rank: 28), and significantly below the average of 4.1%.

Operating Cost Per Passenger Mile 2014



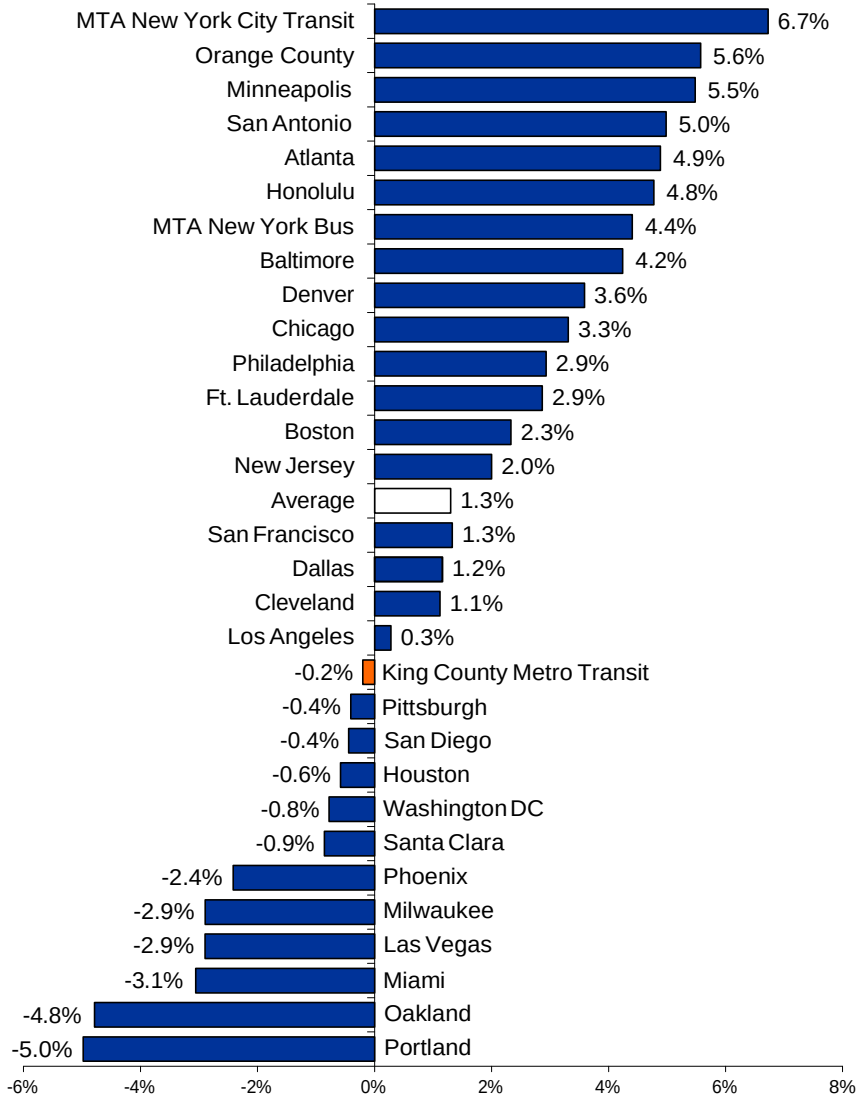
2014: Metro's operating cost per passenger mile was $0.96 in 2014 (peer rank: 17), below the peer average of $1.04. One of the impacts of the geographical constraints noted previously is that narrower corridors tend to extend trip lengths as activity centers and housing are spread over further distances. As a result, Metro tends to accumulate a greater number of passenger miles per boarding than most of its peers, so the operating cost per passenger mile tends to be lower than its peers.

Operating Cost Per Passenger Mile Percentage Change 2013–2014



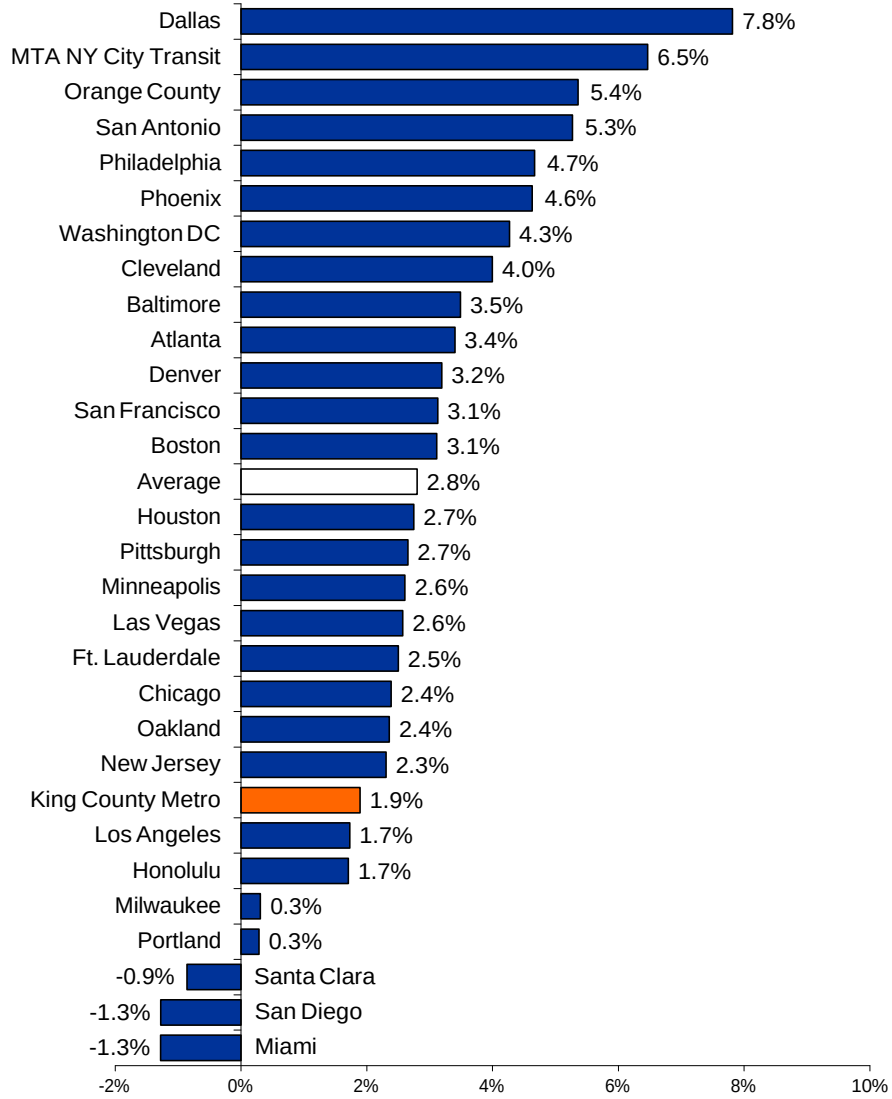
One-year change: Metro's operating cost per passenger mile fell 0.3% from 2013 to 2014 (peer rank: 20). This compares to a peer average of 3.8% growth in cost per passenger mile.

Operating Cost Per Passenger Mile Average Annual Percentage Change 2010–2014



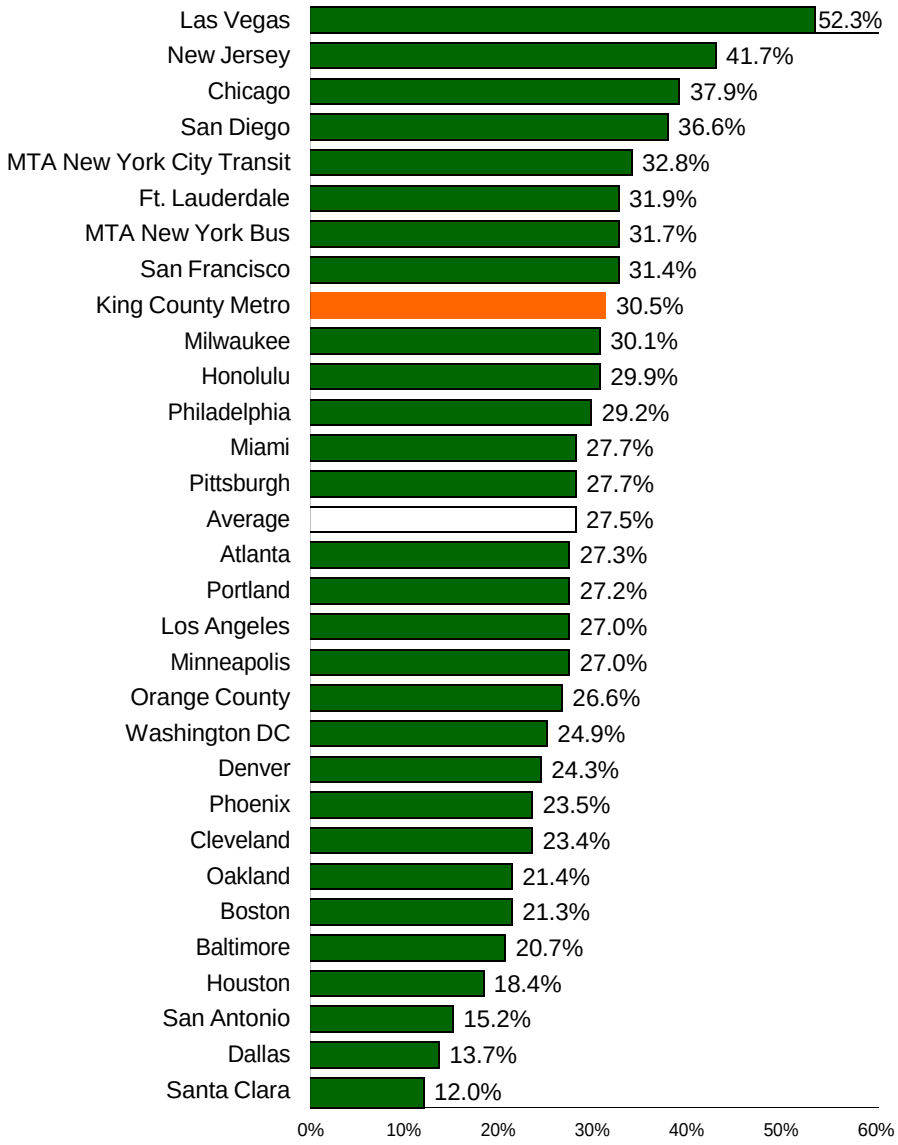
Five-year change: The recent reduction in operating cost per passenger mile lowered Metro's average annual growth to -0.2% over five years, putting it just below the average among its peers (peer rank: 19). Previous reductions in passenger miles and average trip length were erased in 2014, with passenger miles showing growth from almost 459 million in 2010 to nearly 533 million in 2014.

Operating Cost Per Passenger Mile Average Annual Percentage Change 2005–2014



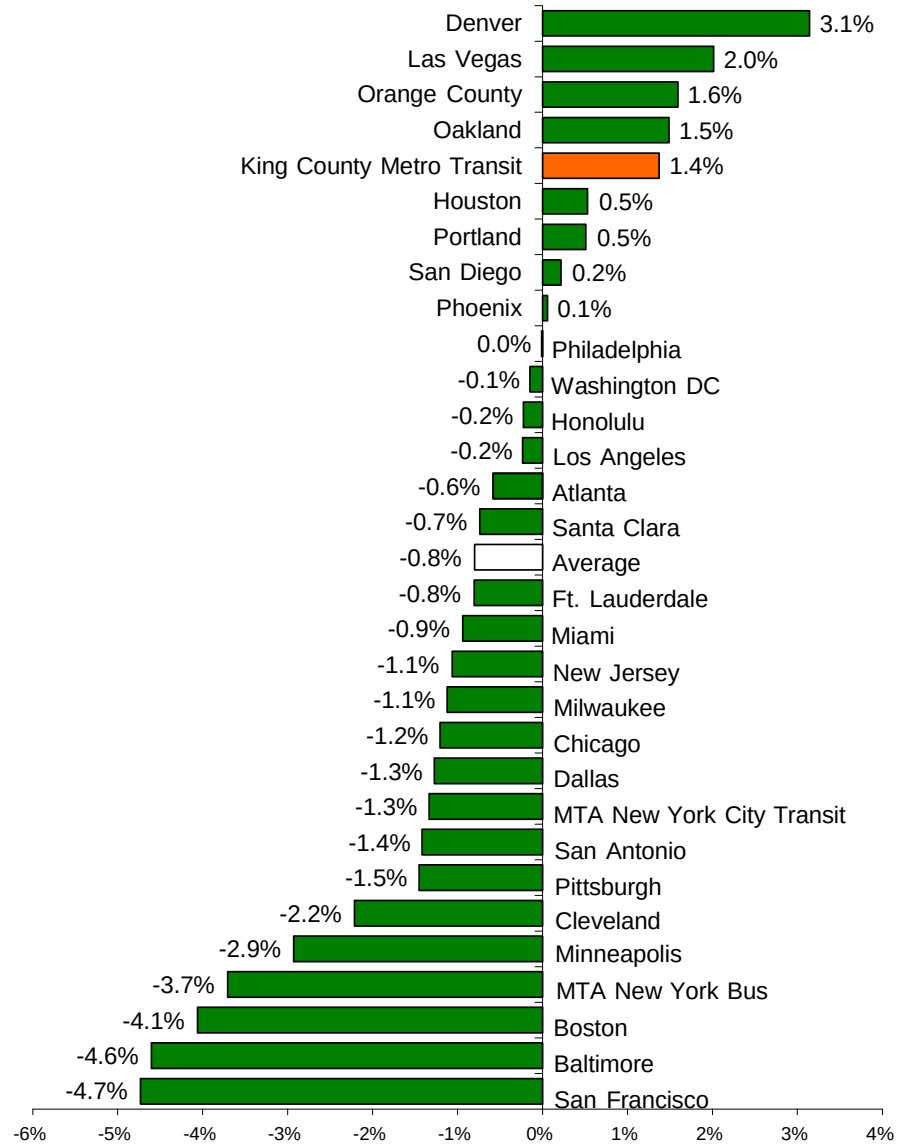
10-year change: Metro's average annual growth in cost per passenger mile over 10 years was 1.9% (peer rank: 22), less than the average of 2.8%. As with the other cost metrics, the cost containment discussed earlier benefits Metro's performance on this metric over five- and 10-year periods.

Farebox Recovery 2014



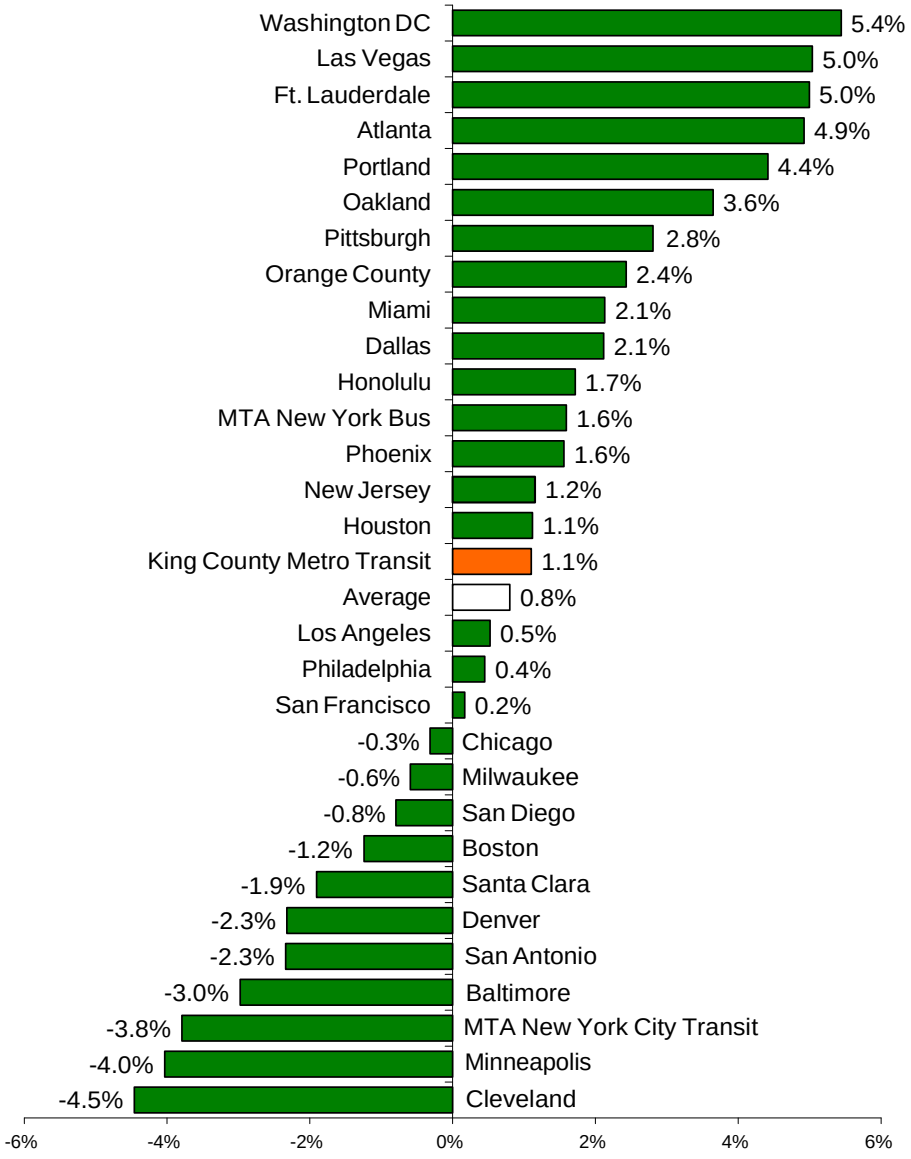
2014: Metro's revenue from sales tax, its primary source of funding, fell as a result of the Great Recession and took a number of years to recover. To replace a portion of the lost revenue, Metro raised fares each year from 2009 through 2011, driving farebox recovery (bus fare revenue divided by bus operating cost) to 30.5% (peer rank: 9).

Farebox Recovery Difference 2013–2014



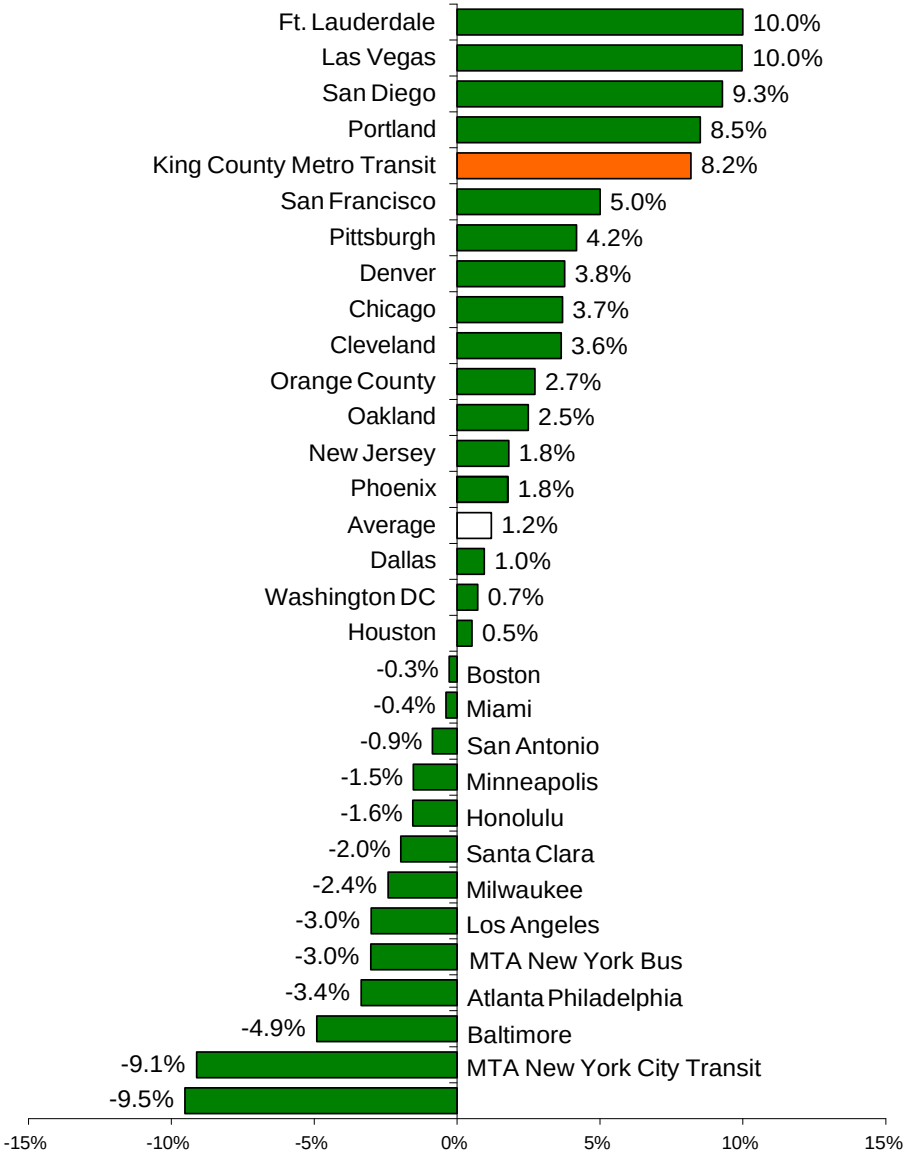
One-year change: With no fare increase in 2014, and increases in ridership and operating expenses being roughly equal, Metro's farebox recovery rate grew 1.4 percentage points in 2014 (peer rank: 5).

Farebox Recovery Difference 2010–2014



Five-year change: Farebox recovery increased by a total of 3.4 percentage points over five years (peer rank: 11). This increase is due primarily to fare increases that brought in more revenue during the first few years of this time period.

Farebox Recovery Difference 2005–2014



10-year change: Farebox recovery increased by a total of 8.8 percentage points over 10 years (peer rank: 4). This was driven by ridership increases and fare increases.


King County
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