Cascade Policy Institute
OREGON

A Review of Metro's Regional Passenger Rail Futures Study

By
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INTRODUCTION

In 2024, the Oregon legislature directed Metro to study the Portland area's 200 miles of freight rail corridors as potential regional passenger or commuter-rail lines. Metro's study found that regional rail has "high operating costs," would often require "significant infrastructure improvements," that many of the rail lines are already congested with more than 30 trains a day, less than 20 percent of the land in the corridors has "high ridership generating land uses," and that "some corridors" are not going to attract many riders.[1]

Despite these negative findings, Metro didn't rule out regional passenger rail, instead calling the rail lines "a potentially underutilized passenger mobility resource."[2] Metro recommended that policy makers "consider connections to areas outside of the Portland region" such as Salem, "prioritize projects with key near-term opportunities," and "build ridership . . . to prepare for passenger rail." Metro also recommended that the region consider "a MAX tunnel through downtown," "replacing the Steel Bridge," and "increasing density" along potential rail corridors.[3]

Metro appears to be recommending against regional passenger rail at the moment but proposes activities aimed at creating a future when such rail lines will make more sense. In doing so, Metro betrays a flawed understanding of the characteristics of rail transportation as applied to a modern urban area such as Portland.

RAIL VS. BUS

A table on page 2 of Metro's study lists "travel modes and their service coverage by trip type." The travel modes listed include buses, rail, and airplanes. The service coverage includes local, regional, and megaregion. While airplanes are not currently a contender for local and regional travel, the table claims that both buses and rail can serve all three. Oddly, automobiles and trucks aren't listed even though they provide more than 95 percent of passenger and freight service within the region.

Choosing between buses and trains requires asking two questions: what can rail do that buses can't do? and what can buses do that rail can't do?

The answer to the first question is simple. Trains can do two things that buses can't do. First, a single train can hold more people than a single bus. As will be shown below, however, that doesn't mean that a rail corridor can move more people than a bus corridor. Second, rail can cost a lot more money than buses. While buses usually share infrastructure with trucks, cars, and other vehicles, passenger rail requires either dedicated infrastructure or, if shared with freight rail, needs costly improvements and maintenance that freight rail doesn't need.

The list of things that buses can do that rail can't is much longer. First, buses can use any of the 160 miles of freeways and 7,400 miles of other roads and streets in the Portland urban area while rail vehicles can only run on the approximately 275 miles of rail lines in the region.

Second, buses are far more flexible than rail in the short run, the long run, and geographically. *Short-run flexibility* means buses can deal with accidents or natural disasters by driving around them, while a rail accident or damage to tracks can shut down an entire rail line. *Long-run flexibility* means buses can quickly respond to economic changes by increasing or reducing frequencies or adding new routes, while rail requires years of planning and construction. *Geographic flexibility* means buses can branch away from major corridors to serve many local neighborhoods, while branches on rail lines are rare because they are so expensive. Buses can also go up steeper grades and around tighter curves than a regional rail line. All these factors mean that reliance on buses makes a region far more resilient to economic and physical changes than a reliance on passenger rail.

Third, buses are scalable, meaning they can serve corridors with very low demand by running, say, one bus an hour, corridors with very high demand by running hundreds of buses an hour, and anything in between for about the same cost per seat-mile. In comparison, the start-up cost for rail is extremely high and, once a rail line's capacity is reached, the cost of adding new capacity is also high, as exemplified by Metro's suggestion for building a light-rail tunnel in downtown Portland.

Fourth, in most cases buses can run with virtually no infrastructure dedicated solely to their use except for parking strips for loading and unloading passengers. While buses in high-use corridors may benefit from dedicated bus lanes, such lanes are truly needed only in a few very high-density urban areas. While Portland's downtown bus mall has dedicated bus lanes, in most of Portland's other heaviest-use corridors, something like high-occupancy vehicle (HOV) lanes or high-occupancy/toll (HOT) lanes would provide sufficient room for buses while allowing other vehicles without slowing traffic due to congestion.

Fifth, buses are operationally efficient. In 2024, Portland and/or TriMet spent $2.10 per seat-mile running the Westside Express, $1.25 per seat-mile running streetcars,

51¢ per seat-mile running light rail, and 49¢ per seat-mile running buses (table 1). These numbers change somewhat when standing room is counted but considering that passenger loads on Portland transit vehicles average only about 20 percent of the number of seats on those vehicles, standing room is not particularly relevant when considering efficiency. While a single bus driver can only move a small number of people compared with a train driver, buses using lanes shared with other traffic don't require expensive infrastructure maintenance and capital replacement every few years.

Finally, although a single train can hold more people than a single bus, a bus corridor can move more people per hour than almost any rail corridor. That's because, for safety reasons, rail lines are typically limited to around eight to at most 33 trains an hour, while one lane of a street or highway can move hundreds of buses per hour. The increased frequency of buses offsets the greater capacity of a single train, though it should be noted that there is not now nor will ever likely to be a corridor in the Portland area where ridership demand justifies a truly high-capacity transit line.

BUS VS. RAIL CAPACITIES

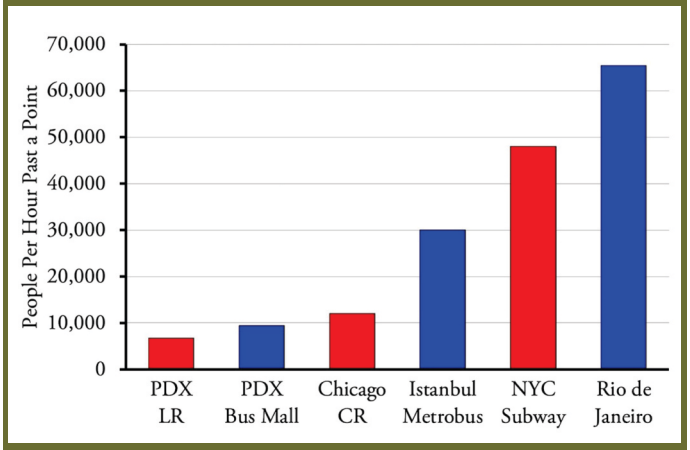
Metro frequently mislabels rail transit as "high-capacity transit," so the question of bus and rail capacities deserves a more detailed examination.[4] Trains can hold a lot of people, but rail corridors are not necessarily high-capacity corridors. In fact, some forms of rail transit have very low capacities to move people and even the highest capacity rail lines can't move as many people per hour as a high-capacity busway.

Rail advocates often claim that a single rail line can move more people than a multi-lane freeway. This claim is usually based on the biased assumption that every car on the freeway holds just one occupant while trains are completely full. A more objective capacity analysis would compare full automobiles with full trains.

A freeway lane can move about 2,000 cars or other light vehicles per hour. The average car has five seats, which would mean the lane can move 10,000 people per hour. But minivans typically have seven and full-sized vans may have 15 seats, which work out to 14,000 to 30,000 people per hour.

A freeway lane's capacity is highest when it serves as a busway. TriMet's average bus has 39 seats and standing room for 17 more. Double-decker buses have room for about 100 people while articulate buses can carry 115.[5] The Lincoln Tunnel between New Jersey and Manhattan has an exclusive bus lane that carries more than 750 buses per hour and is estimated to have a capacity of more than 1,200 buses per hour.[6] Twelve hundred buses times 56 people per bus is more than 67,000 people per hour. Make them double-decker or articulated buses and the capacity leaps to 120,000 to 138,000 people per hour.

Figure 1: Transit Route Capacities



For any kind of rail transit (shown in red), it is possible to design a bus system (shown in blue) that can move more people per hour. Source: See notes 3 through 10.

Table 1: TriMet Operating Costs by Transit Mode

	Seats	Standing Room	Average Load	Cost Per Seat-Mile	Cost/Seat + Stdg-Room-Mile
Bus	39	17	7	0.49	0.34
Light Rail	67	100	14	0.51	0.20
Streetcar	30	112	9	1.25	0.27
WES	73	98	12	2.10	0.90

TriMet buses have the lowest operating costs per seat-mile. While standing room does become important during rush hours, on average transit vehicles fill only about 20 percent of their seats, so cost/seat-mile is most relevant. Source: 2024 National Transit Database.

When calculated in this way, no rail lines can come close to the capacity of a single lane busway, much less multiple lanes. It's worth noting that buses on a freeway can also have higher average speeds than most rail transit systems.

Portland's light-rail cars have an average of 67 seats and are rated to carry up to 100 standees (though it is doubtful that Portlanders would tolerate such "crush" crowding). To keep trains from blocking streets, the length of light-rail trains is limited by the length of the shortest city blocks on their routes. Since downtown Portland has city blocks that are 200 feet long and TriMet light-rail cars are 90 feet long, trains can be no more than two cars long. For safety reasons, a single light-rail stop can serve only 20 trains per hour.

Based on these numbers, Portland's light-rail lines can move 20 two-car trains per hour carrying 167 people per car for a total of 6,680 people per hour— less than a freeway lane filled with five-passenger automobiles and less than a tenth of the freeway lane filled with buses. Calculated the same way, Portland's streetcars can move 2,660 people per hour. Notice that if a light-rail line branches, each branch can carry only a portion of the trains on the trunk line and so the branch capacities are commensurately lower.

Light rail can move more people per hour in cities with longer blocks than in Portland. One reason Metro wants to tunnel under downtown may be to avoid those short city blocks and increase light-rail capacities. But the longest light-rail trains in any U.S. system are just four cars long, making them capable of moving only about 13,360 people per hour, a small fraction of the number buses can carry on a freeway lane.

It is worth noting that the "light" in light rail refers not to weight but to capacity. The American Public Transit Association's transit glossary defines light rail as "an electric railway with a light volume traffic capacity."[7] Calling it "high-capacity transit" is simply deceptive. If light rail really means "low-capacity transit," then streetcars are "super-low-capacity transit."

Buses don't need freeways to move more people than light rail. Portland's downtown bus mall was designed to maximize throughput by locating two bus stops on every block and having buses "skip" stops, stopping only once every other block. Each stop can support 42 buses per hour, which means the mall itself can support 168 buses per hour.[8] That many buses, times 56 passengers per bus, works out to more than 9,400 people per hour, about 40 percent more than Portland's light rail.

This number could increase to 16,000 people per hour using double-decker buses or 19,000 people per hour using articulated buses. Ironically, construction of low-capacity light-rail tracks on the bus mall reduced the capacity of the mall to move people.

Heavy-rail trains such as San Francisco BART, the Washington Metro, and the New York City subway can move more people than light rail, but still not as many as buses. Because heavy-rail trains are not slowed down by cross traffic, a single heavy-rail station can serve more trains per hour than light rail, typically around 24 to 33. Subway cars carry roughly as many people as light-rail cars, though the number depends on the length of the car. Train lengths are determined by platform lengths and extending platforms can be very expensive.

The BART system can move 24 trains per hour, but the agency wants to spend $3.5 billion installing new signals that will increase this to 30 trains per hour.[9] Its cars are rated to hold 113 people, and its platforms are ten cars long. At 24 trains per hour, a BART line can move about 27,000 people per hour, increasing to 34,000 if frequencies are increased to 30 per hour.

The Washington Metro system can move 26 trains per hour, but its platforms only allow eight-car trains.[10] Metro railcars have more seats than BART, yet it claims its cars can carry three times as many standees. This is unlikely as its rail cars are only five feet longer (75 vs. 70) than BART cars. Based on Metro's numbers, its rail lines can move more than 46,000 people per hour, but about 35,000 is more believable.

Most lines of the New York City subway can move 24 trains per hour, but some have been upgraded at a cost of close to $1 billion per line to allow up to 33 trains per hour.[11] Most New York subway platforms can serve ten cars, but only if the cars are shorter than those used on the BART and Washington Metro system. While most lines have lower capacities, the highest capacity line can move about 48,000 people per hour, which is the highest capacity of any rail transit line in America.

Aside from the Lincoln Tunnel exclusive bus lane, there are several bus systems around the world that can move as many or more people than heavy-rail lines. The Istanbul Metrobus system has a current capacity of about 30,000 people per hour. This could be increased by using double-articulated buses that can carry 80 percent more passengers than existing buses, boosting the corridor's capacity to 54,000 people per hour.[12] Bogota's bus-rapid transit system can move 49,000 people per hour.[13] Rio de Janeiro has the highest capacity bus rapid transit line in the world, capable of moving 65,400 people per hour.[14]

Note that bus route capacities can be increased using low-cost methods such as introducing skip stops to allow more buses to use a single street; reducing the number of seats per bus, thereby allowing more standing room; and increasing the size of buses, such as by using articulated buses or double-decker buses. By comparison, increasing the capacity of a rail line by, for example, building a light-rail

tunnel, extending rail platforms, or improving signaling systems to increase train frequencies can be extremely costly.

The capacity of a regional-rail line contemplated in Metro's rail study would not be much greater than a light-rail system capable of running four-car trains. The highest-capacity commuter-rail line in the United States is the Long Island Railroad, which runs as many as 26 trains per hour with each train carrying as many as 1,500 people for a capacity of about 39,000 people per hour. While a few commuter-rail lines in Germany and Japan have higher capacities, neither those lines nor the Long Island Railroad also support freight trains.

The highest capacity regional rail lines in the United States that also share the tracks with freight trains are in Chicago. Metra runs as many as ten trains per hour on lines that have few freight trains, but lines with lots of freight trains such as Chicago-Aurora or Chicago-Harvard are limited to eight trains per hour. Each train can carry about 1,500 people, which means busy freight lines might be able to also move 12,000 people per hour.

On one hand, there is no regional rail corridor in the Portland area that would attract anywhere close to 12,000 riders per hour. On the other hand, even if there was, there is no reason to go to the expense of building or improving infrastructure to support regional rail when buses can move far more people at a far lower cost.

WHY RAIL DOESN'T WORK

When people see a seemingly empty rail line next to a congested highway, they often think, "If only there were a passenger train on that rail line, the freeway would be less congested." Americans have a fascination with and nostalgia for rail transit that greatly exaggerates its potential benefits in a modern urban area.

Freight railroads today carry most of their goods in large volumes from one point to another point: grain from elevators to ports; containers from ports to large inland urban areas; coal from mines to power plants; oil from fields to refineries. Smaller quantities of goods that go from thousands of origins to thousands of destinations are mostly shipped by truck. Even when they are shipped by rail, doing so requires assembling the goods at one point, shipping them to another point, then transferring them to trucks for the final journey. This can add days to the trip; extra time people are unwilling to accept in their travels.

Urban travelers don't all go from one point to another; they go from thousands of origins to thousands of destinations. The tri-county area has about 758,000 homes in hundreds of neighborhoods. People leaving those homes to work, school, shop, socialize, or play have tens of thousands of potential destinations. More rail lines going to downtown Portland aren't going to help as rail lines are not only expensive, they are also an ineffective way of moving people in a modern, decentralized urban area.

Rail lines rarely relieve congestion. They aren't even predicted to do so. San Francisco's BART has much higher capacities than a regional rail line, yet the environmental impact statement for the BART line to San Jose found that it would take an average of just 59 cars an hour off nearby freeways during rush hour. With the rail line, increased congestion near station areas more than offset any reductions in congestion elsewhere.[15]

Rail's main limitation is that trains can only go where the rails are. Metro suggests that regional rail stations would be located two to five miles apart. More stations mean slower average speeds, making trains less attractive to riders. Fewer stations mean fewer people will have both origins and destinations near train stations.

Generously assuming one train station every three miles, a 200-mile rail system would have about 67 stations. Metro assumed that people within a half mile of a train station would find that station accessible.[16] One-half-mile circles around 67 stations equals about 52 square miles, which is only about 13 percent of the land in Oregon's share of the urban area. Assuming housing and other origins/destinations are equally distributed across the region, only about 1.7 percent of trips could potentially be taken by regional rail.

Of course, housing is not equally distributed across the region: Metro admits that only 19 percent of land within a half mile of freight rail corridors has "high ridership generating land uses."[17] Even if it were equally distributed, the actual share of trips that might take regional rail would be much lower than 1.7 percent as people will have many reasons to prefer to drive, including faster average speeds, door-to-door service, flexibility to reach multiple destinations in one outing, and lower costs if two or more people travel together.

Metro's own preliminary demand analysis found that an average of just 13 percent of workers who live in Portland-area rail corridors both live and work within a half mile of potential rail stations.[18] Many of these people still wouldn't take a regional train to work for all of the reasons listed above: driving is faster, provides door-to-door service, can reach multiple destinations, and saves money if two or more people travel together.

As a part of the regional rail study, Metro did a "peer analysis" of other supposedly regional rail lines, including lines in thirteen urban areas including Portland's own Westside Express (table 2). Most of these urban areas are in

the same size class as Portland, but they aren't true regional rail systems as Metro defines them. Eight of the thirteen have just one commuter-rail line. Some of these lines also did not share tracks with freight trains.[19]

Metro's analysis listed service levels, capital costs, and operating costs per rider and per passenger-mile. The average cost per passenger, Metro found, was $31. The average cost for systems that share tracks with freight trains was $36. The paper noted that it can take years to get commuter trains running even on existing tracks and that there have been serious difficulties in scheduling and conflicts between freight and passenger trains.[20]

Metro's peer analysis did not assess whether regional or commuter rail service made a serious contribution to regional mobility. If trains did not carry a large percentage of travelers, they could not significantly reduce congestion or produce the other benefits claimed for regional rail. The rail lines included in Metro's peer review analysis carried less than 0.4 percent of commuters in 2019, declining to 0.2 percent in 2024 (table 2). They also carried just 0.2 percent of total motorized passenger travel in 2019 declining to 0.1 percent in 2024.

For comparison, I've also included six urban areas that have more than 300 miles of commuter-rail lines. Four of these, Boston, Chicago, New York, and Philadelphia, have extensive enough rail networks that they could be called true regional rail systems, and not merely commuter systems.

For all the hundreds of miles of regional rail lines in these larger urban areas, commuter rail accounted for 3 to 4 percent of 2019 commuting only in Chicago and New York, both of which fell below 3 percent in 2024. New York is the only urban area whose regional rail system accounted for more than 3 percent of total travel, and Chicago the only other one that was more than 1 percent of travel.

New York City has 29,000 people per square mile and nearly 2 million workers in lower Manhattan. Chicago has 12,000 people per square mile and before the pandemic had more than 570,000 downtown jobs. The city of Portland has less than 5,000 people per square mile and under 100,000 downtown jobs. There is no chance that Metro could ever develop New York- or Chicago-like job and population concentrations in Portland.

Table 2: Regional Rail Share of Commuting and Motorized Travel

		Commuting		Motorized Passenger-Miles	
	Route Miles	2019	2024	2019	2024
Metro's Peer Rail Systems					
Albuquerque	50	0.1%	0.1%	0.3%	0.3%
Austin	33	0.1%	0.0%	0.0%	0.0%
Dallas	38	0.2%	0.1%	0.0%	0.0%
Denver	42	0.2%	0.1%	0.3%	0.0%
Miami	80	0.2%	0.2%	0.0%	0.1%
Minneapolis	35	0.1%	0.0%	0.0%	0.0%
Nashville	16	0.2%	0.0%	0.0%	0.0%
Orlando	47	0.1%	0.0%	0.1%	0.1%
Portland	15	0.3%	0.1%	0.0%	0.0%
Salt Lake City	54	0.5%	0.6%	0.8%	0.7%
San Diego	53	0.1%	0.1%	0.1%	0.1%
San Francisco	79	2.0%	1.1%	0.9%	0.4%
Seattle	79	0.6%	0.3%	0.3%	0.1%
Average of Peers		0.4%	0.2%	0.2%	0.1%
Large Regional Rail Systems					
Boston	321	2.8%	1.9%	0.9%	1.0%
Chicago	617	3.5%	2.5%	1.3%	0.8%
Los Angeles	364	0.2%	0.1%	0.2%	0.1%
New York	1,153	3.8%	2.8%	3.9%	3.3%
Philadelphia	310	2.2%	1.5%	0.9%	0.5%
Washington	335	1.1%	0.4%	0.6%	0.3%

Source: Route miles and commuter-rail passenger miles are from 2019 and 2024 National Transit Databases. Motorized passenger miles are the sum of transit passenger miles from the National Transit Database and average daily vehicle miles from table HM-72 of the Federal Highway Administration's 2019 and 2024 Highway Statistics times 365 times average auto occupancies. Commuting shares are from 2019 and 2024 American Community Surveys, table B08301.

Of the above cities, Portland is most like Denver: a moderately dense urban area with a slightly denser central city with a moderate number of downtown jobs. Denver has four electric-powered regional rail lines that operate all day, not just during rush hours, yet carry an insignificant number of people. This makes it clear that developing a high-cost, low-use regional rail system in the Portland area will attract too few riders to relieve traffic congestion or produce any of the other benefits imagined for it.

NINETEENTH-CENTURY SOLUTIONS DON'T WORK IN TWENTY-FIRST-CENTURY CITIES

In addition to ignoring the economics of rail transportation, Metro fails to recognize that the nature of cities has changed since Portland's transit system was first developed in the 1890s and early 1900s. Whereas in 1900 most urban jobs were in downtowns and could be served by a hub-and-spoke transit system centered on downtown, today most jobs are scattered across the entire urban area.

Immediately prior to the pandemic, downtown Portland contained only about 9 percent of the Portland area's jobs. Yet TriMet's route system remains focused on downtown. This worked for downtown employees, carrying close to 30 percent of workers going to downtown jobs. However, it didn't work for others as less than 5 percent of workers in the rest of the urban area commuted by transit.[21] Not everyone riding transit is commuting to work, but Portland transit is just as ineffective at reaching non-work destinations outside of downtown.

Outside of downtown, the region has a dozen economic centers, sometimes called *edge cities*, with 10,000 or more jobs (table 3). I identified these using the most recent census transportation planning package, which is based on surveys taken during the years 2017 through 2021.[22] Because part of the definition of an edge city is a district with more jobs than residents, I first noted census tracts that have more jobs than residents and then added any others that had more than 3,000 jobs regardless of the number of residents. Economic centers consist of contiguous groups of such census tracts. As shown in table 3, these job centers are poorly served by transit, especially the ones not located adjacent to downtown.

Table 3: Major Economic Centers in the Tri-County Area

Economic Center	Population	Jobs	Transit Commuters
Downtown	15,570	61,920	26.3%
Hillsboro	22,291	43,890	2.5%
Airport	8,861	43,820	4.0%
Beaverton	15,207	34,560	4.0%
Central Eastside	10,407	31,615	9.8%
Tualatin	24,104	30,740	1.8%
Northwest Portland	13,037	29,585	11.3%
Sunset Corridor	22,065	26,120	3.2%
Tigard	9,758	23,220	4.4%
Sullivans Gulch/Lloyds	11,349	16,465	10.0%
Marquam Hill	4,704	15,810	19.0%
Port of Portland	6,208	15,390	3.5%
Wilsonville	13,076	10,835	1.2%
Sellwood	7,322	8,750	4.5%
Milwaukie	4,941	7,635	1.1%
Lake Oswego	4,623	7,075	0.6%
Mall 205	10,938	7,055	5.1%
Gresham	6,295	5,625	6.1%

Transit works moderately well for people going downtown, is marginal for going to places adjacent to downtown including the Central Eastside, Northwest Portland, Sullivans Gulch, and Marquam Hill, and works poorly everywhere else. Transit percentages are based on work locations, not home locations. Source: Census Transportation Planning Package for 2017-2021, tables B01003, B202100, and B202105.

With more than 30,000 jobs, Tualatin is one of the largest job centers outside of downtown Portland. Transit carried only 1.8 percent of them to work. Light rail offers only a little help. Hillsboro and the area around the Portland airport each had about 44,000 workers and both are on light-rail lines, yet only 2.5 percent of Hillsboro workers and 4.0 percent of airport-area workers commuted by transit. Transit also did poorly for smaller job centers on a light-rail line such as Gresham (4.0 percent) and Milwaukie (1.1 percent).[23] Wilsonville is at the end of the Westside Express, but only 1.2 percent of workers there commuted by transit.

Economic centers have shifted since the data in the above table were gathered. The latest figures indicate that 35 percent of downtown Portland offices are vacant and vacancies are rising, which may mean that downtown today has fewer jobs than Hillsboro or the airport. Suburban vacancies, meanwhile, are less than 18 percent and falling, suggesting that the movement of downtown jobs to the suburbs has accelerated.[24]

Between 2019 and 2024, the number of Portland-area employees working at home increased by 170 percent. Because downtown employees were among the most likely to become remote workers, this had an outsized impact on transit commuting. While the number of people commuting by automobile dropped by 6 percent, the number commuting by transit fell by 46 percent.[25] This is one more indication that there is a huge disconnect between the transit services offered by TriMet and the travel habits of Portland-area residents, one that won't be fixed with a regional rail network that doesn't go to places Portlanders want to go.

Despite these trends, Metro's regional rail study makes an explicit assumption that it can redesign the Portland urban area to make it more suitable for regional passenger trains. The study's first recommendation is to "Ensure demand for regional passenger service through a strategic long-term vision backed by funding, regional land use planning, and a comprehensive multimodal network." It would do this partly by "increasing density" along rail corridors, even though there is little indication that more people want to live in high-density housing or that increasing densities will dramatically increase transit ridership.

Metro has been promoting dense "transit-oriented developments" at least since the 1990s, yet its efforts have had little impact on transit ridership. Including the Portland streetcar, TriMet bus plus rail ridership peaked in 2011 and declined by more than 5 percent between then and 2019. It then fell another 32 percent between 2019 and 2025. Ridership in 2025 was only half a percent greater than in 2024, so unless downtown Portland makes a dramatic recovery, ridership is not likely to do much better in the foreseeable future.[26]

Dense housing makes a negligible contribution to transit ridership because most of the people living in such housing do not regularly travel to destinations along the transit line near their homes. As the Cascade Policy Institute has previously demonstrated, the share of people living in these dense developments who take transit to work is not significantly greater than in the rest of the urban area.[27]

Even if density helped promote transit, the question must be asked: why should people design their lives around transit, living in higher-density housing than they would prefer, just to increase ridership on a transportation that is inferior to driving in almost all respects? Why shouldn't transit instead be designed around the way people actually live in a modern urban area?

ANATOMY OF A FAILURE: WESTSIDE EXPRESS

TriMet currently operates one leg of a potential future regional rail system: the Westside Express Service (WES). In a background memo prepared for the rail futures study, Metro says that "WES was considered successful for a few years."[28] That's a generously unrealistic view of the project.

The background memo doesn't mention that the line's initial construction cost 91 percent more than projected ($162 million vs. $85 million).[29] The memo admits that ridership was lower than projected, but excuses that by saying, "most transit project forecasts conducted during the 2000s were higher than actual conditions."[30] The memo doesn't say by how much actual ridership fell short of forecasts, but according to the Federal Transit Administration, the original forecast was for 2,400 trips per day in the first year and actual ridership was only half that. The Federal Transit Administration also says that operating costs were about $1 million or 17 percent more per year higher than projected, which is also not mentioned in Metro's memo.[31]

Far from a success, ridership on WES never reached the 2,400 trips per day predicted for the first year. The closest it came was in 2014 when it carried just over 2,000 trips per day. Ridership fell after that and by 2019 it carried less than 1,500 trips per day.

In 2024, WES was the third-most-expensive commuter-rail line in the country in terms of cost per rider. While the average commuter-rail operation cost $24 per rider and earned fares of $6 per trip, for a net cost to taxpayers of $18 per trip, WES cost taxpayers $98 per trip. The only two that were more expensive were Connecticut Rail ($167/trip) and Minnesota's *NorthStar* ($118/trip).[32] The *NorthStar* train was such a poor performer that Minnesota stopped operating it in January 2026. TriMet is unlikely to stop operating WES before 2060 no matter how poorly it performs because it foolishly committed itself to a 50-year contract to maintain the rail line used by WES and owned by

Portland & Westerneven if the train stops operating.

Unfortunately, rail transit projects across the country have been beset by underestimated capital and operating costs and overestimated ridership. Rail programs in Austin, Denver, Honolulu, and numerous other cities remain uncompleted because the agencies ran out of money. Seattle says that its light-rail construction program is up to $30 billion over budget, a massive number by any measure.[33]

Metro's cavalier dismissal of the ridership overestimates as something that happens to "most transit project forecasts" and its failure to mention the cost overruns at all suggests that it considers such huge mistakes to be so routine that they aren't worth mentioning. Not surprisingly, the estimates it has generated for regional rail are likely to produce similar cost overruns.

THE HIGH COSTS OF REGIONAL RAIL

As part of its regional rail study, Metro hired Sorin Garber & Associates and the Burgel Rail Group to assess the rail line from Beaverton to Clackamas via Tigard, Lake Oswego, and Milwaukie. The analysis estimated that it would cost $75 million to upgrade these tracks for passenger service.[34]

This is amazingly optimistic for several reasons. First, the bridge across the Willamette River between Lake Oswego and Milwaukie is rated at 10 miles per hour and part of the approach to the bridge recently suffered a fire. It is virtually certain that this bridge would have to be completely replaced to make the line suitable for regional rail.

The bridge is 80 percent the length of Tilikum Crossing, Portland's light-rail bridge, which cost $135 million in 2015. Construction costs have doubled since that bridge was built.[35] A new bridge at Lake Oswego is therefore likely to cost at least $200 million, almost three times Metro's estimated cost of upgrading the total line, plus whatever construction cost inflation takes place between now and when it would be built.

The cost estimate did not include the cost of real estate for stations and other facilities. Costs that were included were based on estimates made in 1997. "To account for inflation," says the report, "a 2.5%/year factor was considered for the years 1997 to 2025, which results in a doubling of costs over that period."[36] But the analysts writing the report had to know that transportation construction costs have risen by 12 percent per year since 2020 and have more than tripled since 2003.[37] A doubling since 1997 is nowhere near adequate.

Assumptions such as a claim that an ancient bridge will be adequate for passenger rail or costs are rising at just 2.5 percent per year are examples of *optimism bias*, in which planners consciously or subconsciously choose the most optimistic numbers when estimating costs and ridership.

One analyst of megaprojects argues that such bias is more conscious than unconscious and that planners making these estimates are actually engaging in "strategic misrepresentation, that is, lying" to get political buy-in for the projects.[38] Metro engages in such strategic misrepresentation when it ignores the cost overruns from previous projects and glosses over optimistic assumptions about costs of regional rail projects.

It is worth noting that the entire route of the Beaverton-Clackamas line considered in the Garber-Burgel memo is paralleled by a freeway except that it goes through Oregon City instead of Milwaukie. Although it is not a route that particularly makes sense, buses could travel on that freeway at more than 50 miles per hour most of the day—all day if one of the freeway lanes were changed to a HOV or HOT lane. A regional rail line on this route is a high-cost solution to a problem that doesn't really exist.

MISSING: PERSONAL CHOICE

Perhaps the biggest thing missing from Metro's regional rail futures study is any concern about the personal preferences of Portland-area residents and travelers. The vast majority of Portland-area residents prefer or aspire to live in a single-family home, yet Metro is determined to build high-density apartments throughout the region. The vast majority of Portland-area travelers find an automobile to be the most convenient and economical form of travel, yet Metro's goal is to get people out of their cars and onto trains that are slower, more expensive, don't go where people want to go, and in many cases use more energy and emit more greenhouse gases per passenger-mile than the average car.

Metro's implicit assumption that there is a large demand for rail transit and transit in general is simply wrong. "Passenger rail provides older adults, people with disabilities, and those who don't own a car with more affordable, alternative options for getting around the region," claims Metro.[39] Most people with disabilities already have access to door-to-door paratransit service and don't need passenger rail. Older adults tend to hang on to their cars for as long as possible and, once they give them up, may also be able to use paratransit.

As for people without cars, there just aren't that many. More than 92 percent of households in the Portland area have cars.[40] More than 96 percent of employed people have at least one car in their household. Of those that don't, less than a third commute by transit, showing that TriMet's route system doesn't even work for two-thirds of people who have no cars. More than 20 percent of people who don't own cars

nevertheless drive alone to work, mainly in vehicles supplied by their employer. Except for the taxes they have to pay for it, transit is simply not a factor in the lives of most Portland-area residents.

Nor will passenger rail provide a "more affordable, alternative option." Anything can appear to be affordable if it is subsidized enough, but that doesn't make it a good idea. The average fare collected in 2024 for the Westside Express was 58 cents, which sounds quite affordable. But taxpayers had to pay $98 per ride in operating costs to make that option affordable. Buses could have done the same for far less money.

WHAT TO DO INSTEAD OF REGIONAL RAIL

Regional rail was not a good solution before the pandemic, and it is an especially poor solution now that downtown has been hollowed out and more than 20 percent of the region's employees—many of whom were former transit riders—are working at home. To serve people going from numerous potential origins to numerous potential destinations, Metro and TriMet need to stop thinking in terms of a single downtown hub and follow the example of airlines that have multiple hubs with non-stop planes from every hub to every other hub and local planes radiating away from each hub.

In a previous paper, I've proposed that TriMet's route map be redrawn to create a polycentric transit system.[41] Eight or nine primary transit centers would be located near freeways that are close to major economic centers. Frequent buses would run non-stop from every primary transit center to every other primary transit center. Operating these buses at freeway speeds would transit more competitive with the automobile for trips across the urban area. Local buses would radiate away from every primary transit center to connect to all corners of the urban area.

To keep the buses moving even during the most congested periods of the day, the region could create an HOV- or HOT-lane network that would be designed to never become congested. HOV lanes can remain uncongested by allowing only vehicles with two, three, or more occupants to use the lane, depending on traffic. HOT lanes can remain uncongested by raising tolls for single-occupancy vehicles during heavily trafficked periods of the day. Such HOV and HOT lanes do not require a lot of new infrastructure: HOT lanes on I-15 in Salt Lake City are separated from other traffic only by a painted double line.

HOV and HOT lanes are not essential to make a polycentric transit system work, but they would have the virtue of increasing the capacity of the region's freeway network, as freeway lanes at 55 miles per hour can move twice as many vehicles per hour as lanes moving at 20 miles per hour.[42] Public understanding of this fact would increase acceptance of HOV or HOT lanes. Fixing Portland's freeway network is beyond the scope of this study. The point is that low-cost improvements to Portland's transit system that focus on buses could do far more to increase transit ridership than a high-cost regional rail system or costly expansions of Portland's light-rail network and do so without trying to force Portlanders into living in high-density housing rather than the single-family homes they prefer.

Metro's regional rail futures study appears designed to provide one more excuse for Metro to increase population densities along transit corridors and in the urban area as a whole. As I've shown in a previous paper, this policy is making housing less affordable and denying people their preference for single-family homes without producing any substantial benefits.[43] Metro should stop planning for a future that will never take place and instead plan for a future in which people actually want to live.

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