July 30, 2018

Ms. Eryn Kehe
Metro
NE Grand Avenue
Portland, OR

Dear Ms. Kehe,

Cascade Policy Institute is a non-profit policy research organization based in Portland. We represent over 700 individuals, and many of them reside within the Portland metro region. We have reviewed relevant chapters of the Draft EIS for the SW Corridor Light Rail Project, and offer the following comments.

Route selection

We have no preference as to the various proposed routes. All of them suffer from the same fatal flaws, and none are likely to attract sufficient ridership to justify the enormous expense of construction.

Substantive flaws in the DEIS

According to the "Purpose and Need" statement, the purpose of the SW Corridor Project is to "directly connect Tualatin, downtown Tigard, southwest Portland, and the region's central city with light rail, high quality transit and appropriate community investments in a congested corridor to improve mobility and create the conditions that will allow communities in the corridor to achieve their land use vision."[1]

Most of this sentence is meaningless, but there is one clause that is measurable: "improve mobility." In order to accomplish that goal, Metro and TriMet must be concerned with various components of a mobility analysis, including: traffic movement through congested intersections; effects of the project on I-5 ramps; levels of service and peak-hour frequency; cost of construction; estimated travel speed of light rail trains; and forecasted ridership.

We will focus our comments on those elements of the project.

Ridership projections are not plausible

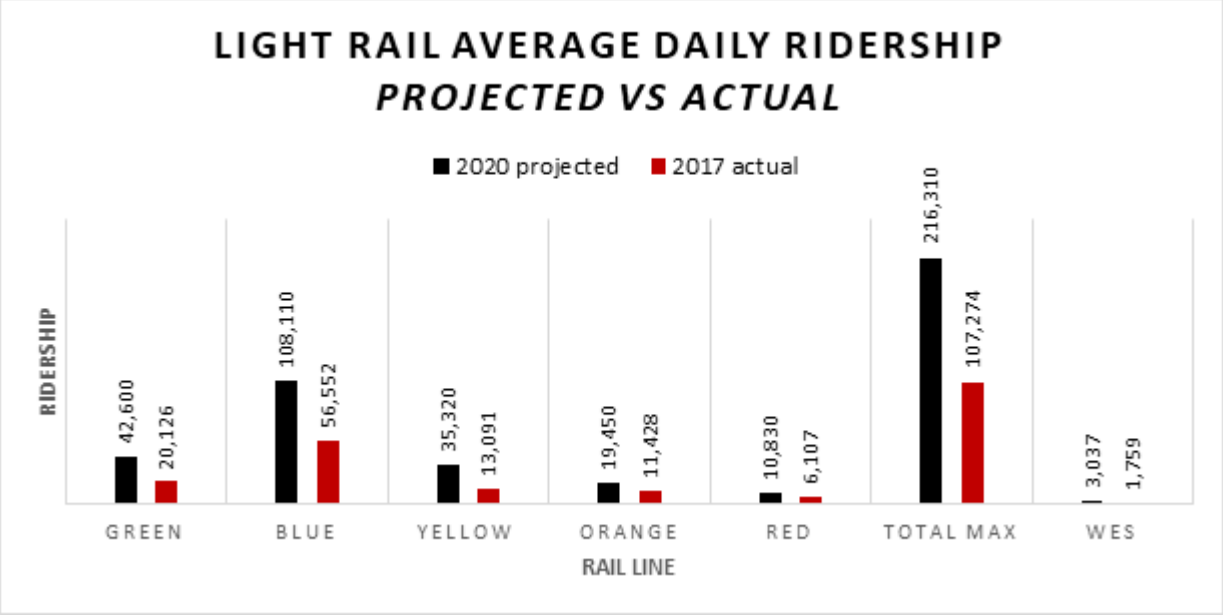
The Draft EIS builds on more than 30 years of light rail construction and operation in this region, which provides a rich empirical record that can be used to help guide the decision about whether to expand the rail system in the SW Corridor.

[1] Southwest Corridor Draft Environmental Impact Statement (DEIS) Summary, pages S-2, S-3.

In many previous projects, Metro/TriMet made MAX ridership projections for 2020. Since we are now mid-way through 2018, it's useful to re-examine those predictions and compare them with reality.

Figure 1 is a side-by-side of the 2020 average weekday daily ridership forecast for each previous rail line (including WES):

Figure 1



Sources: 2002 Green line Environmental Impact Statement, 2009 Orange line Environmental Impact Statement, TriMet 2017 monthly ridership reports. For 2020 Orange line forecast, the difference between the 2016 and 2030 forecasts were divided by 14, multiplied by 4, and then added to 2016 forecast. Additionally, due to 2003 expansion of the Red line, data was gathered from the original stops between Gateway and Portland International Airport.

As Figure 1 shows, previous EIS predictions have all been inflated. Actual ridership has never even reached 60% of projected ridership on a specific rail line; the Orange line is the closest at 59%. Total average weekday ridership is less than half the predicted ridership for MAX in 2020.

<u>EIS ridership predictions for 2035:</u> Given these consistent forecasting errors, the DEIS prediction that MAX average weekday ridership will total 317,200[2] in 2035 is not credible. Ridership would have to overcome decades of underperformance and triple between 2017 and 2035.

With all lines combined, the through light rail alternative is predicted to have 337,900 average weekday boardings (**Figure 2**). This is an increase of 174.27% within 18 years from the 2017 fiscal year's average of 123,200. To put this in perspective, average weekday light rail ridership has increased by 85.85% between fiscal year 2000 and fiscal year 2018 up till the month of May— also a span of 18 years. Four rail lines were implemented between 2000 and 2018 while the Southwest Corridor DEIS bases its estimation on the implementation of only one light rail

[2] DEIS, page 3-13.

line between 2018 and 2035. Current light rail ridership has not been increasing over recent years. Instead, weekday boarding trends have either been decreasing or plateauing as seen in **Figure 3**. This undermines the plausibility of the estimated number of weekday boardings in 2035.

Figure 2

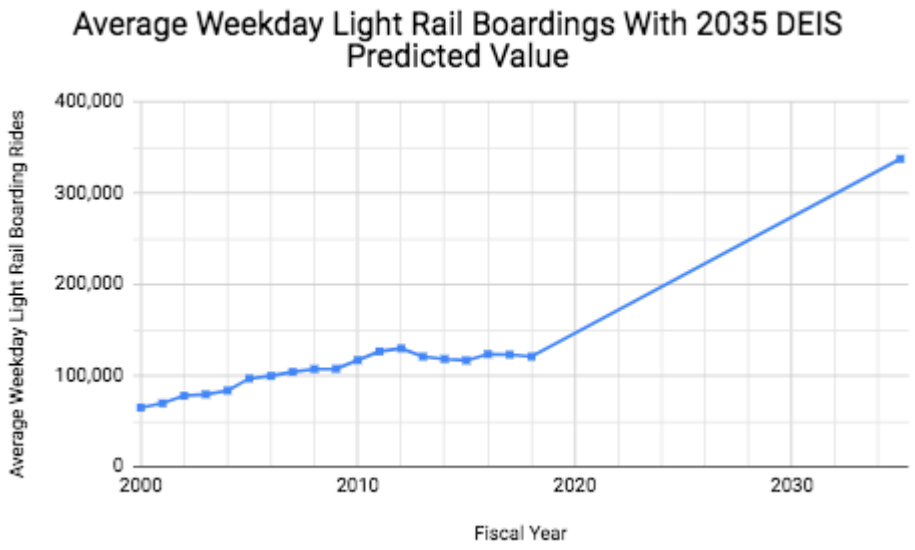
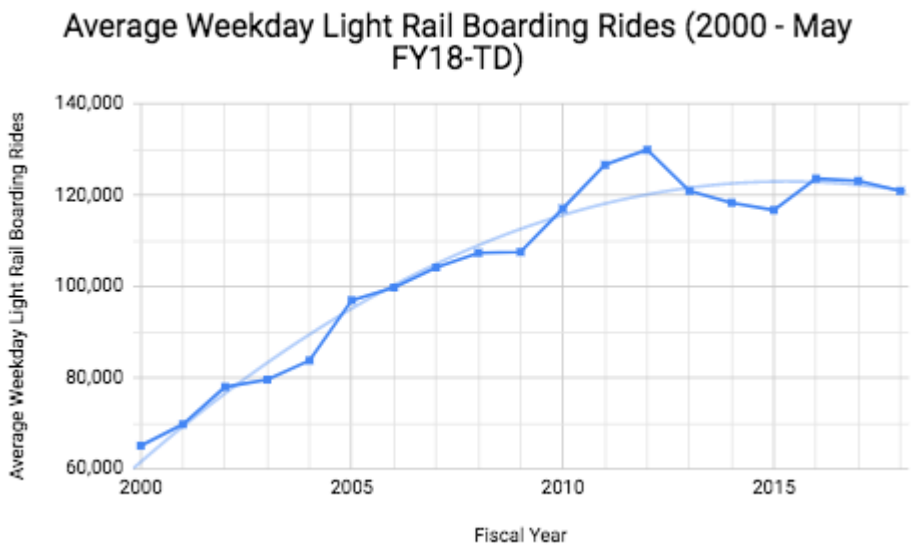
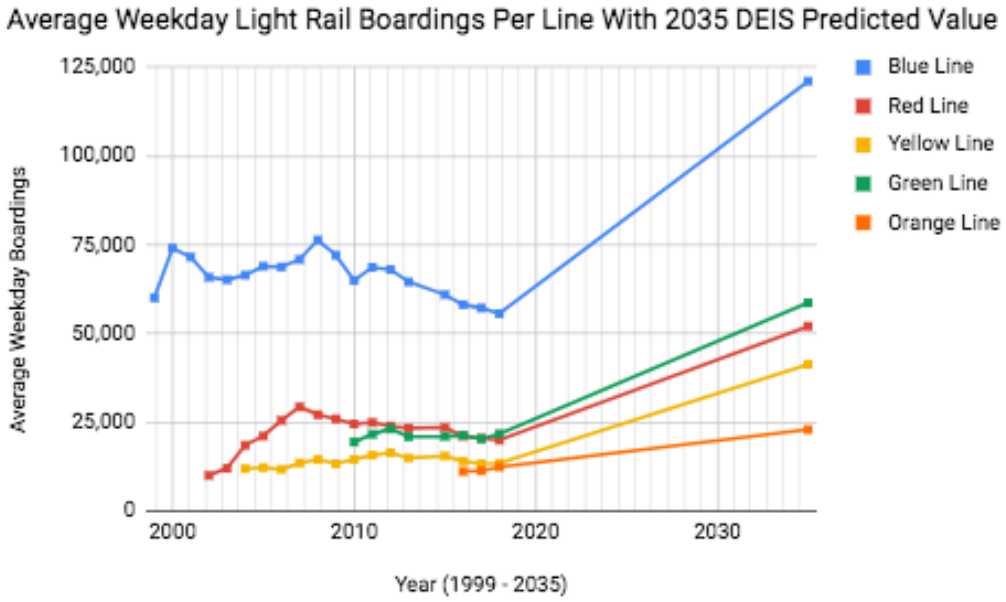


Figure 3



The DEIS predicts that weekday boardings across all lines will more than double, even though individual line trends are either decreasing or plateauing, demonstrated in **Figure 4**.

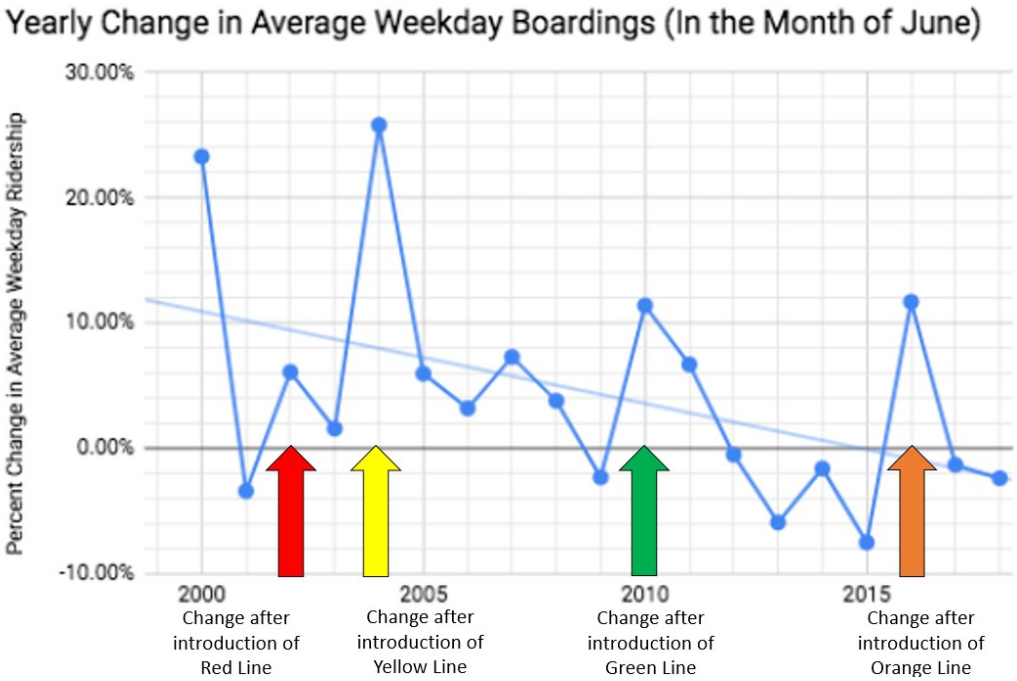
Figure 4



*Year 2003, 2005, 2015 use the month of July
*Did not have access to data from 2014. Plotted null values.

The percent yearly change (**Figure 5**) in weekday ridership has been decreasing from year to year, and recently has been dipping into the negative percentage range, which demonstrates a decrease in boardings. A pattern has developed which shows percent change drastically increasing the year after a new line opened. After that initial first year the percent change tends to decrease up until the implementation of the next line. When a new light rail line is introduced, its percent increase in boardings is marginal - new light rail lines are adding fewer new riders.

Figure 5



Light rail ridership is not increasing. It is steadily decreasing, and the number of new riders each new line attracts is shrinking. Based upon these patterns, the Southwest Corridor project will only temporarily increase ridership.

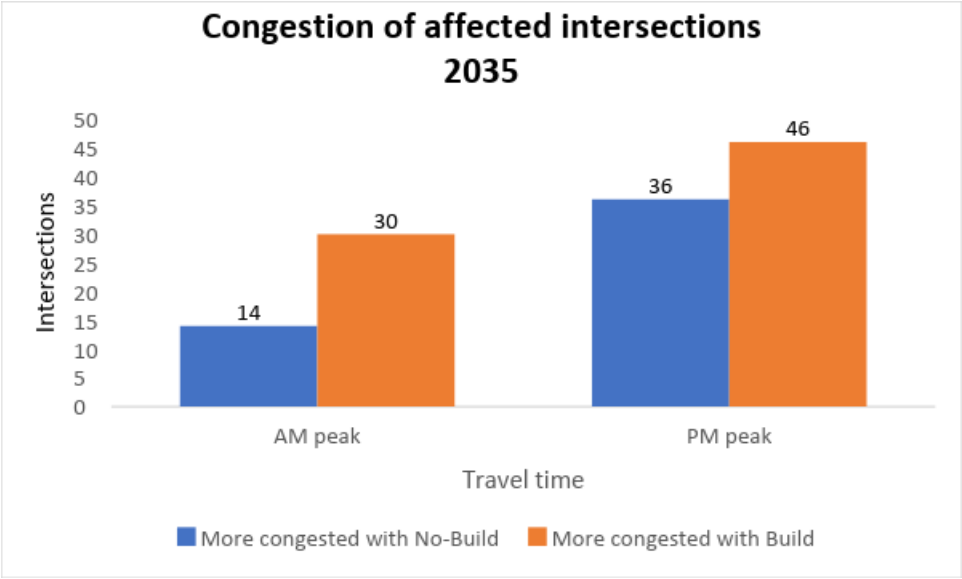
If this project is to move forward, the Final EIS must have a defensible ridership forecast that accounts for the consistent over-estimation of boardings on every single TriMet rail line to date.

<u>Traffic Congestion</u>

Reducing traffic congestion is one of the claimed benefits of this project, and the DEIS addresses likely congestion at relevant intersections and I-5 ramps.[3] AM and PM peak periods were studied, with 44 affected intersections during the AM peak and 85 affected intersections during the PM peak being measured. V/c scores for each vehicle direction were given; by adding them together we can see the overall estimated congestion for each intersection under both the No-Build and Build alternatives. The results are in **Figure 6**:

[3] DEIS Attachment B – Transportation Impacts Results Report, Part 8 (Appendices L through Q); DEIS Attachment B – Transportation Impacts Results Report, Part 11 (Appendices S through CC).

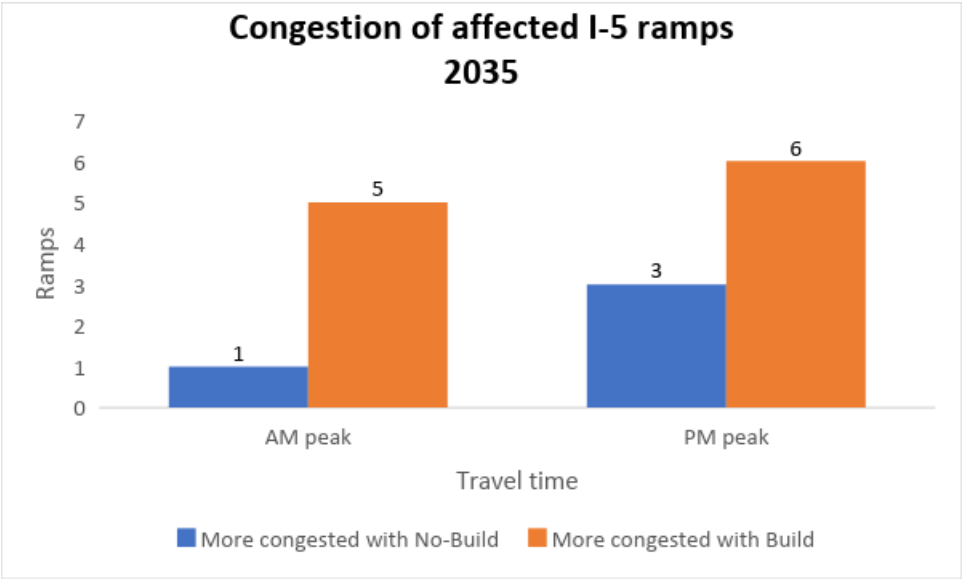
Figure 6



Sources are in footnote 3. Note: there were three ties present in PM peak intersections, which are excluded from the graph.

Contrary to claims made by the project's proponents, the Southwest Corridor Light Rail Project is expected to ***increase*** overall traffic congestion for both AM and PM peak travel periods. In addition, the same pattern is exhibited in the expected the congestion of I-5 on/off ramps, shown in **Figure 7**:

Figure 7



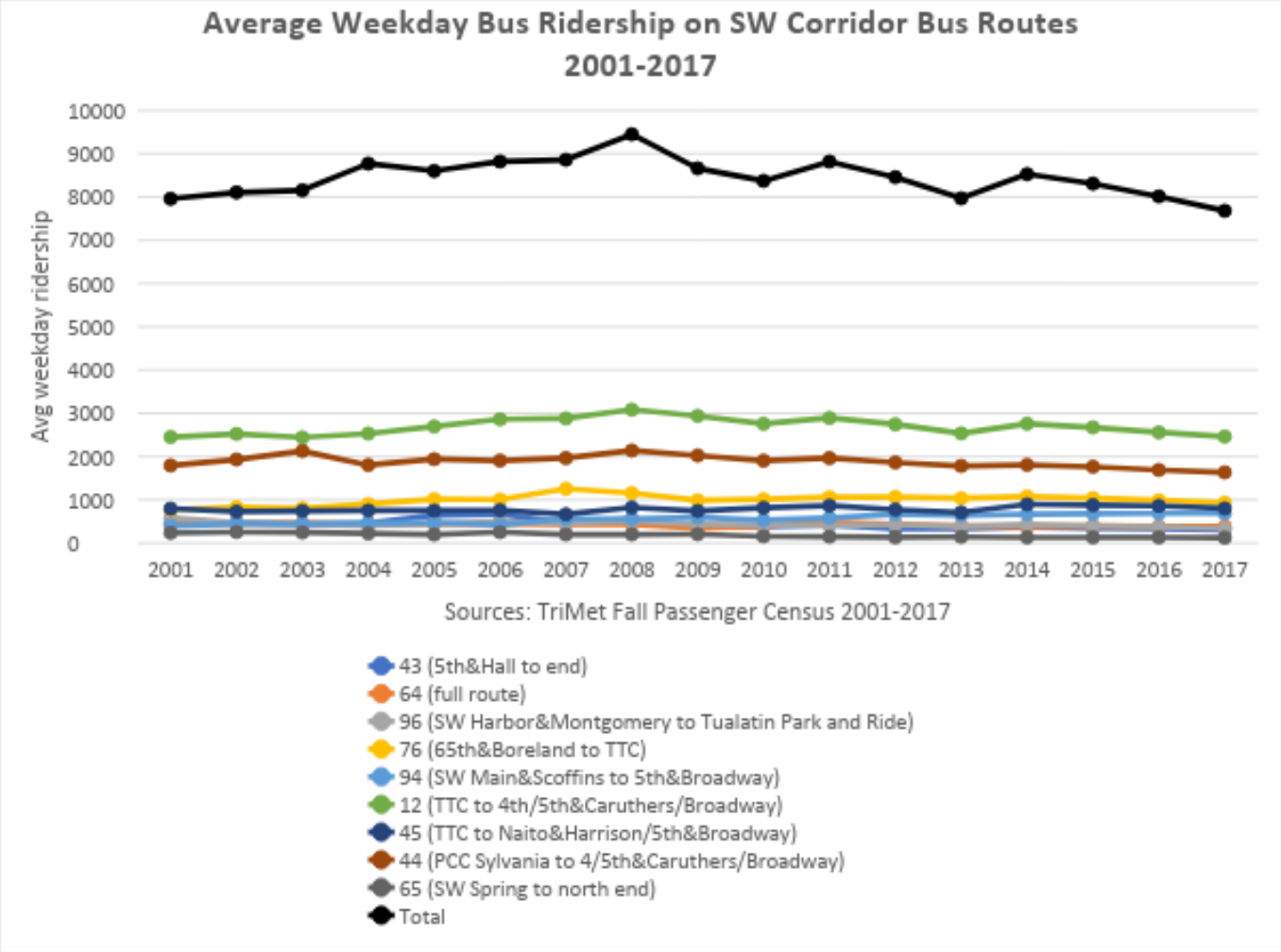
Sources in footnote 3.

While the AM peak will be affected by a greater quantity of congested intersections under the Build alternative, both AM and PM peak times will be more congested than they would have been without the project.

SW Corridor transit ridership

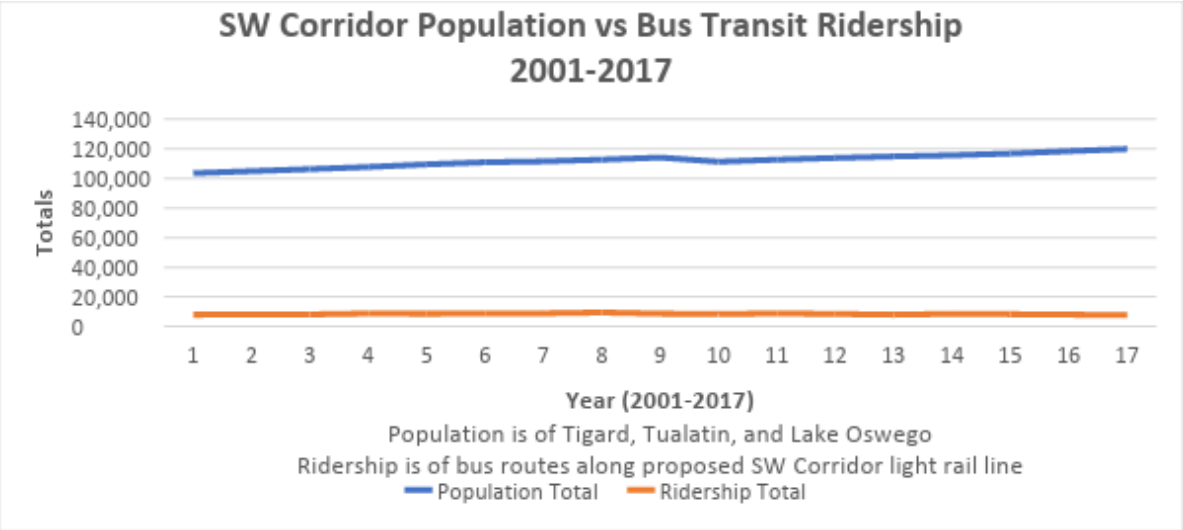
Present transit ridership trends within the Southwest Corridor suggest that ridership on a new rail line will be low. Nine bus routes service the same route as the proposed light rail line; seven cover the entire route, while two cover fragments of it. As the predictions look 17 years into the future, it would be wise to look at trends 17 years into the past. Since 2001, bus ridership along these routes has decreased, as seen in **Figure 8**:

Figure 8



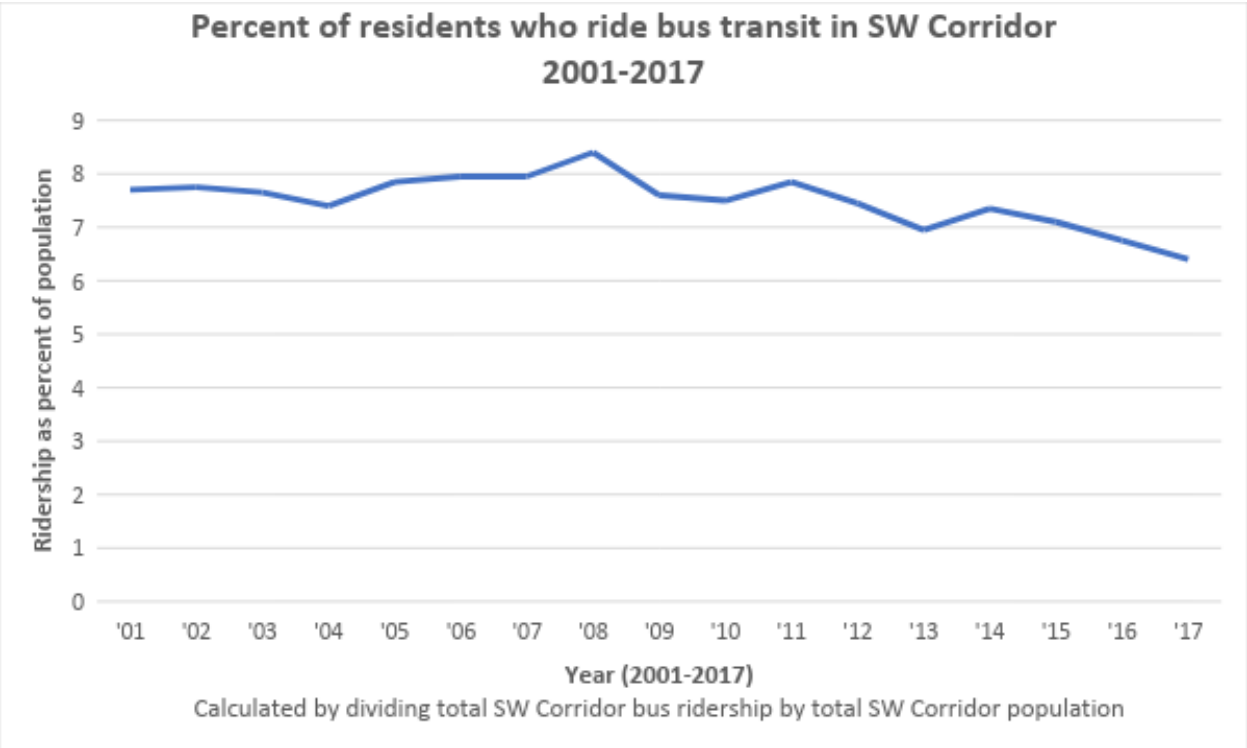
While showing a downtrend in bus ridership, this graph does not account for population increases along the Southwest Corridor. The populations of Tualatin, Tigard, and Lake Oswego all increased by 16% from 2001-2017, shown in **Figure 9**:

Figure 9



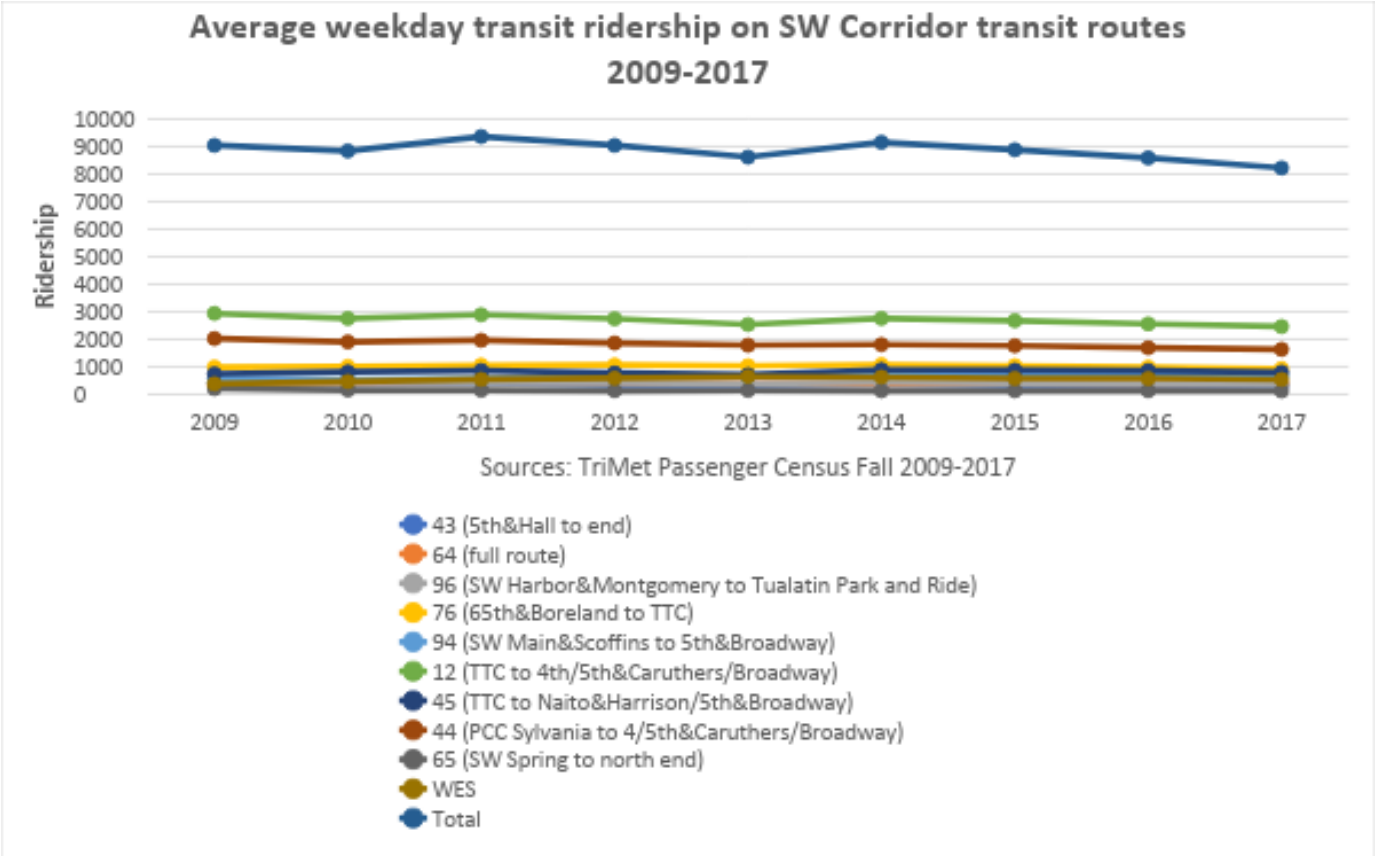
Thus, bus transit ridership measured as a proportion of the relevant population was bleaker, seen in **Figure 10**:

Figure 10



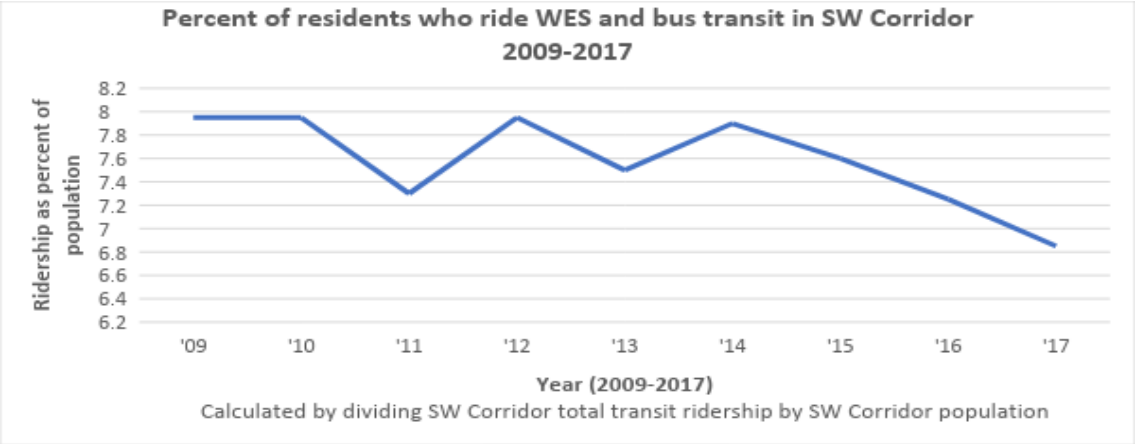
It could be objected that bus transit is not the only type of available transit in the Southwest Corridor – part of the WES route runs between Tualatin and Tigard, and some of these riders could use the proposed light rail in the future. **Figure 11** illustrates combined ridership of both WES and bus routes in the Southwest Corridor, beginning with the WES opening in 2009.

Figure 11



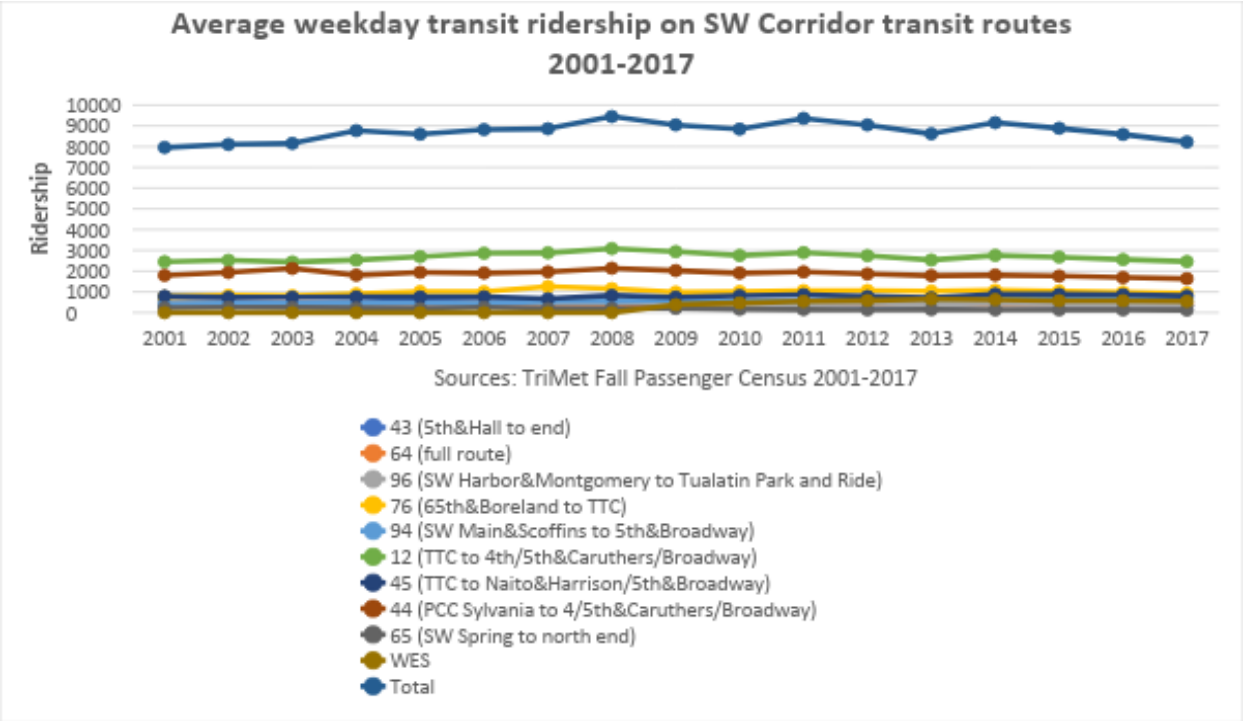
Only three out of ten routes increased ridership during this period (bus routes 64, 45, WES). As shown, overall ridership decreased. Again, this does not account for the population increase in the attendant locations. Even including WES, total transit ridership as a proportion of population has decreased (**Figure 12**):

Figure 12



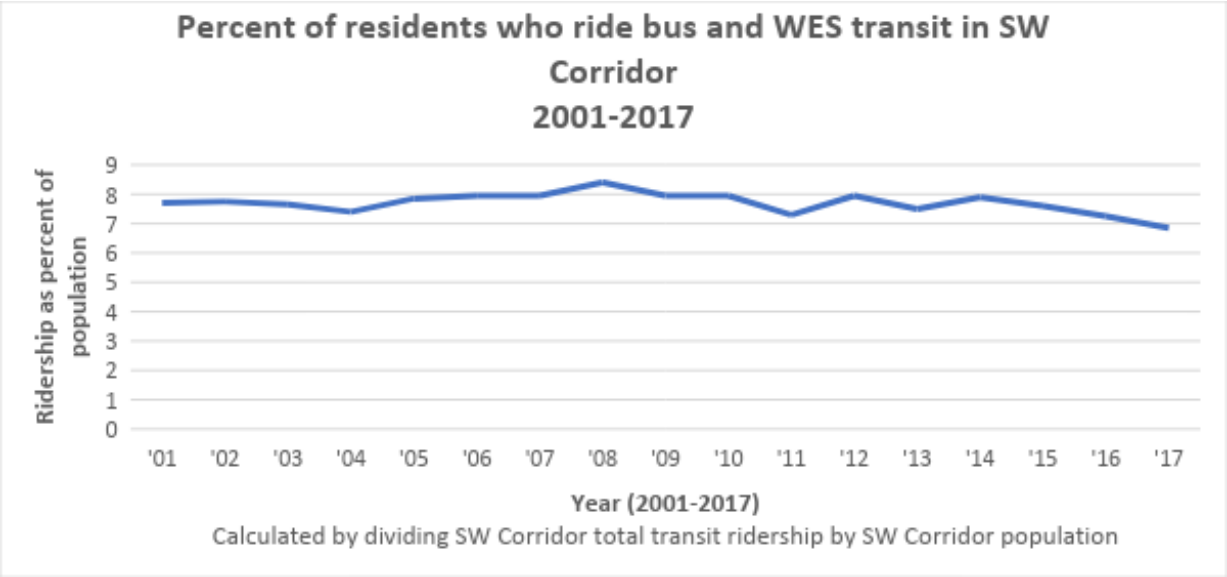
The only increase in any of these measurements is the 2001-2017 total transit ridership, as evidenced by **Figure 13**:

Figure 13



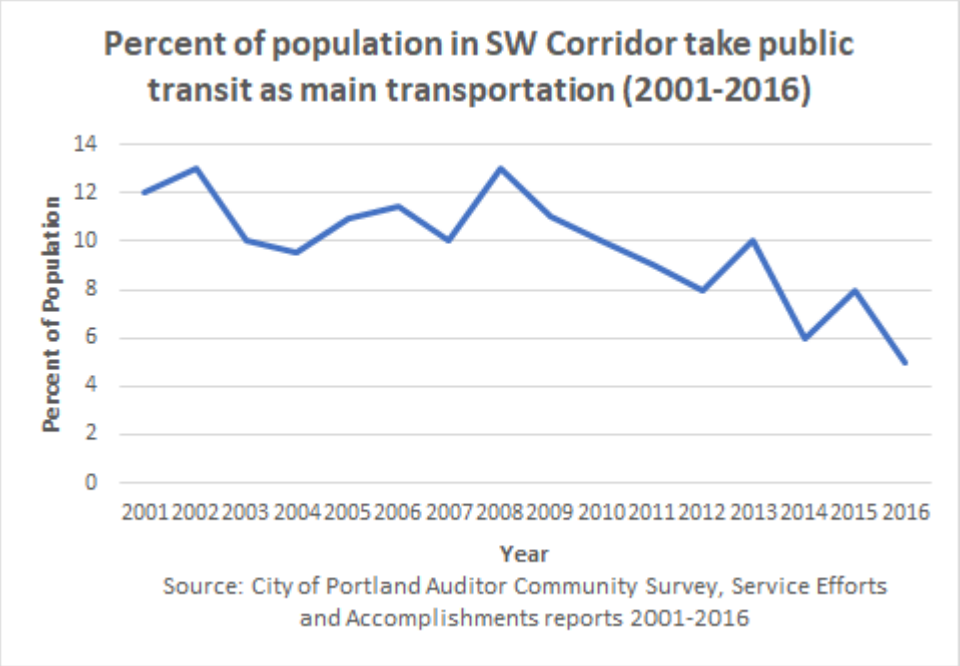
Even here, the overall increase is owed to the fact that total ridership from 2009-2017 did not decline as quickly as it increased from 2001-2008. The overall increase (+3.3%) was still outpaced by population growth, which yet again led to a decrease in transit ridership proportional to population, seen in **Figure 14**:

Figure 14



Another way to calculate transit ridership in the Southwest Corridor is to conduct telephone surveys. For several decades the City of Portland Auditor conducted such surveys annually, known as the Community Survey and Service Efforts and Accomplishments reports (these were discontinued after 2016 for cost reasons). Those surveys recorded a steady decline in the percent of individuals in the Southwest Corridor who self-reported public transit as their main mode of transportation, as seen in **Figure 15**:

Figure 15



According to the 2010 US Census, the average household size for each city along the Southwest Corridor (Tualatin, Tigard, Lake Oswego) was between 2.29 and 2.6 with 70-81% of households comprised of three or fewer people. Thus the decrease in ridership proportional to the population cannot be attributed to newly arrived families with several young children (who would not take public transit).

There are viable ways to work towards the desired goals of the Southwest Corridor Project without adding light rail. Bus ridership increased from 2001-2008. Population increased by 8% while overall bus ridership increased by 18%, indicating that increased bus access can in fact provide the desired transit options. Increased bus service, whether through more buses, expanded operating times, or additional express service, would also cost far less than $2.5 billion.

Further, this cost-effective option would create less traffic congestion than building the proposed rail line.

Underestimated Capital Costs

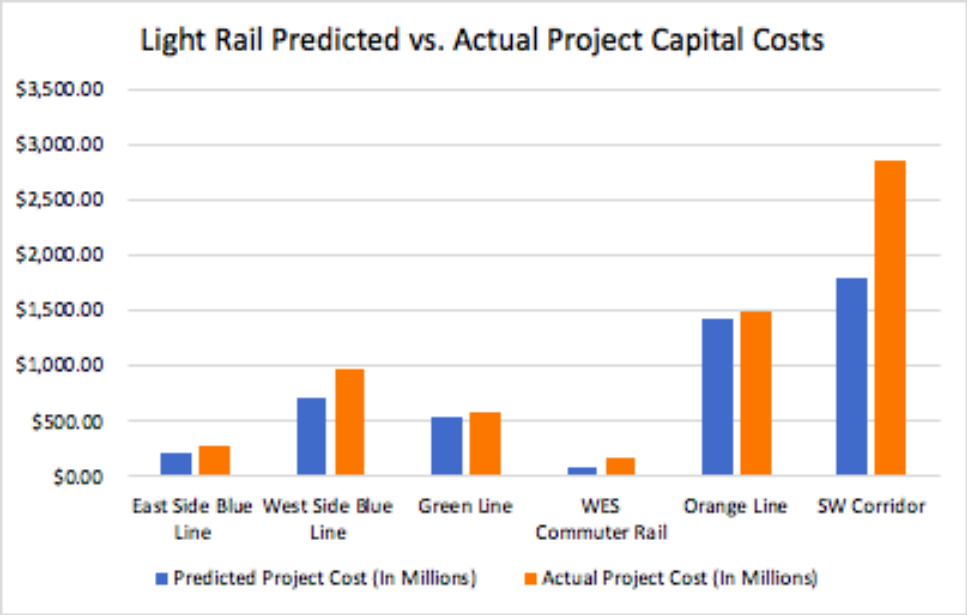
Table S-5, "Estimated Project Capital and Operating Costs" in Section S.8 "Evaluation of Alternatives" estimates the total capital cost range of the full corridor project to be between $2.64 and $2.86 billion dollars in year-of-expenditure (2024) dollars. Past light rail projects have consistently underestimated costs in the projects' DEIS, SDEIS, or FEIS (**Figure 16**). The eastside blue line, westside blue line, green line, WES commuter rail, and orange line all demonstrate this.

The predicted capital cost of the Southwest Corridor project has already been increased by a billion dollars, from $1.8 billion in 2016 to its current prediction in 2018. If the pattern of higher actual capital costs on light rail projects continues, then the Southwest Corridor project capital cost will continue to increase throughout this process.

This is a problem that has plagued light rail construction for many decades, both in Portland and elsewhere. As noted by Dr. Don Pickrell in his classic study from 1989, "capital costs that differ markedly from their anticipated level can substantially increase the financial burden on the government program and agency funding the project, resulting in postponement or cancellation of other projects competing for its support."[4]

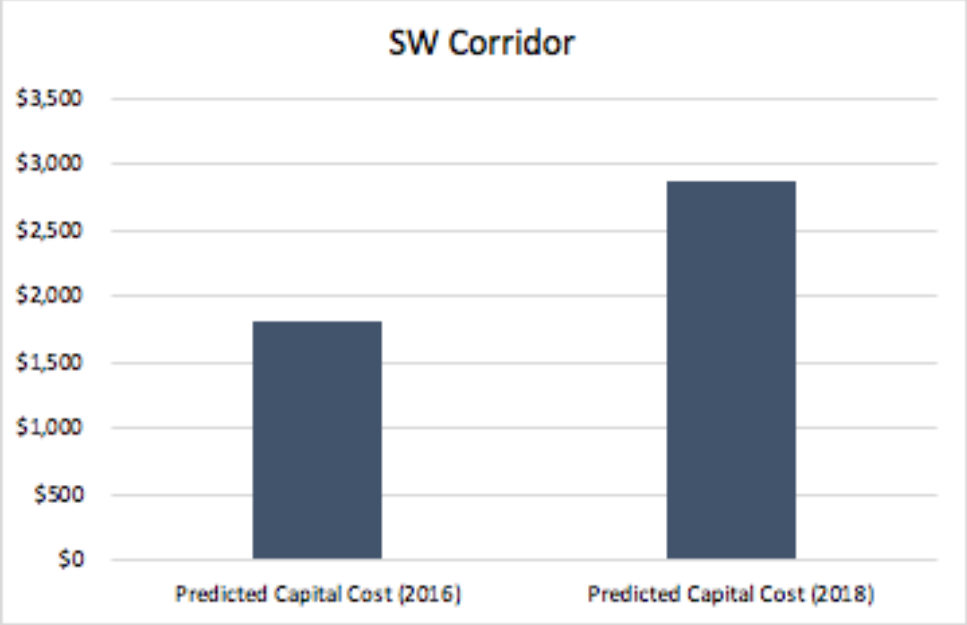
[4] Dr. Don Pickrell, "Urban Rail Transit Projects: Forecast Versus Actual Ridership and Costs", Urban Mass Transportation Administration, October 1989, vi.

Figure 16



The estimated cost in 2016 for the Southwest Corridor project was 1.8 billion dollars. In 2018, the DEIS increased that estimate to $2.64 - $2.86 billion. This is an increase of $1.06 billion within a two year timespan. (**Figure 17**). Metro claims the earlier estimate was based on 2016 dollars instead of 2024 dollars and has less detail, which is why it was lower. This raises the question of how 10 years of inflation increases the price by over $1 billion.

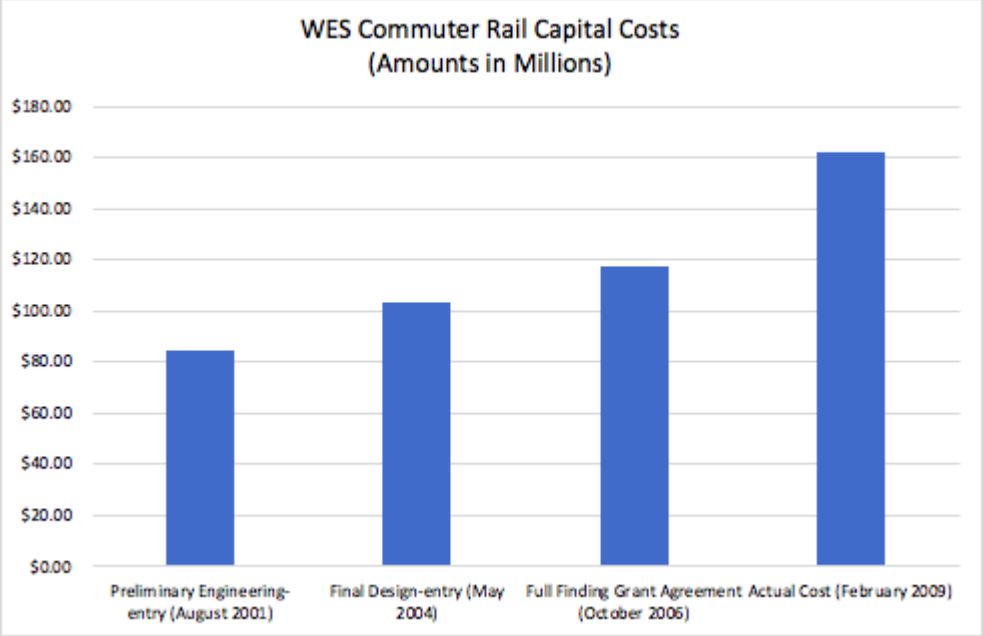
Figure 17



WES Commuter Rail

The year-of-expenditure (YOE) prediction for the project consistently underestimated the actual costs of the WES commuter rail, which turned out to be $162 million dollars in YOE dollars. Predicted cost at the preliminary engineering stage (August 2001) was $84.8 million (48% below actual); at final design (May 2004) $103.5 million (36% below actual); and at full funding grant agreement (October 2006) $117.3 (28% below actual). These numbers are compared below in **Figure 18**.

Figure 18



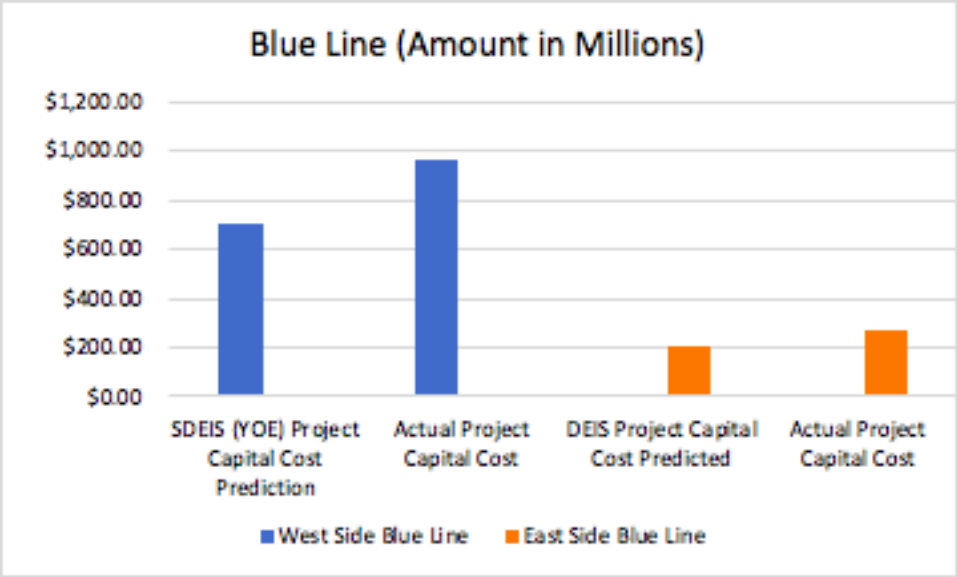
Blue Line

East Side: The Banfield EIS (1980) estimated the project costs to be $208.1 million in 1980 dollars. The actual cost of the project was $214 million in 1978 dollars, or $270.45 million in 1980. Both costs are well above what TriMet originally projected.

West Side: The westside SDEIS (1991) predicted that the light rail to 185th in Hillsboro (the original destination) would cost $439.5 million - $501.6 million in 1990 dollars. YOE cost estimates for the project were $703 million. The actual cost of the project was $963.5 million in 1998. TriMet's decision to extend the line to downtown Hillsboro after the release of the SDEIS accounts for some of the increased cost.

The difference in capital costs for both sides of the Blue Line are shown below in **Figure 19.**

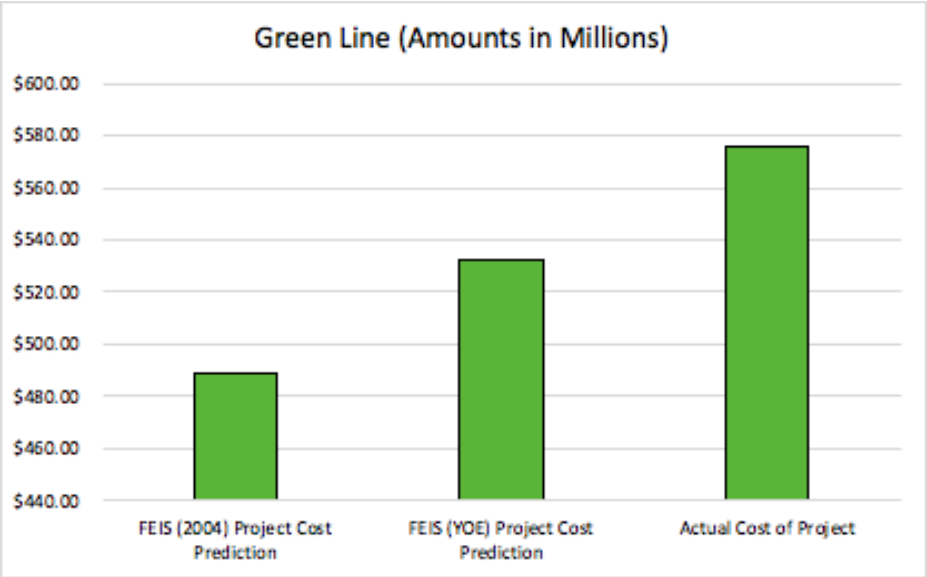
Figure 19



Green Line (South Corridor: I-205 to Mall)

The proposed cost for the green line project in 2004 was $489.12 million ($532.24 million in YOE). The actual cost for the project when it was implemented in 2009 was $575.7 million (**Figure 20**).

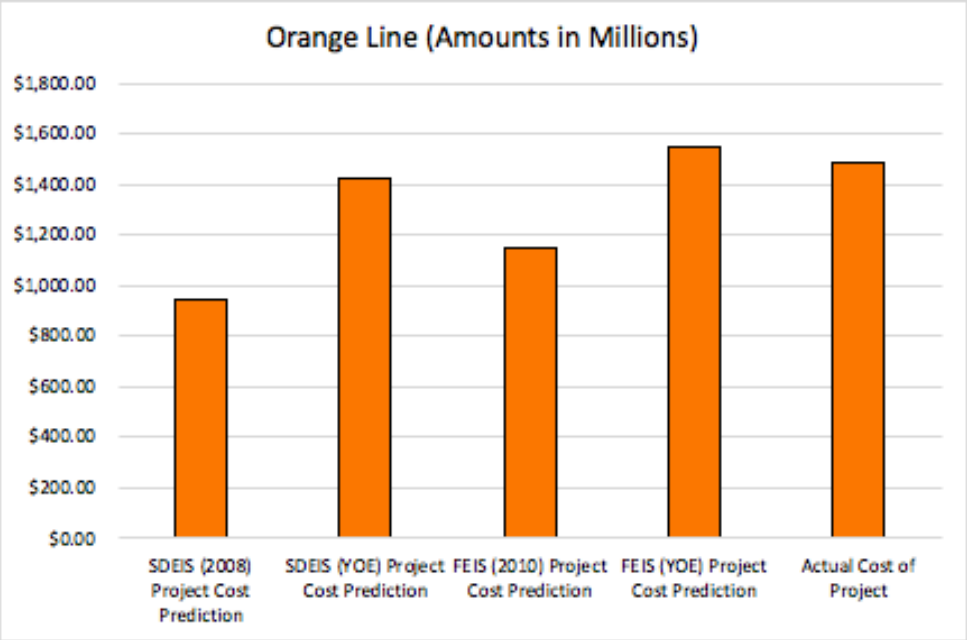
Figure 20



Orange Line (Portland-Milwaukie Light Rail)

The South Corridor SDEIS (2008) estimated costs for the Orange line from LPA - Park at $942.5 million in 2007 dollars or $1.4 billion in the year of expenditure (YOE). The FEIS (2010), released 2 years later, predicted the Subtotal LPA - Park Ave would cost $1.15 billion in 2010 dollars (or roughly $1.08 billion in 2007 dollars). The total for YOE was estimated to be $1.55 billion (**Figure 21**). The actual cost of this project was $1.49 billion. The actual cost was less than the prediction in 2010, but was $90 million greater than the predicted capital cost in 2008.

Figure 21



<u>Loss of Parking</u>

Section 3.2.6, "Street Parking," claims that "demand for parking would be expected to increase" (3-22), however the Southwest Corridor plan would eliminate 166 number of parking spaces in the corridor to accommodate light rail. In locations where the alignment alternative would operate near street rights of way, on-street parking would be eliminated. Residents in the corridor predominantly drive cars rather than public transportation, so they rely on the availability of parking.

Segment A would take away either **16 parking spaces on Duniway Park or 21 parking residential zone permit parking spaces** on SW Naito depending on the alternative chosen, even though the DEIS states that "eliminating the spaces would increase demand for remaining on-street spaces on nearby streets" (3-23).

Segment B would see **61 on-street parking spaces on SW Barbur eliminated** with the preferred alternative along SW Multnomah Boulevard.

In segment C, **89 spaces would be eliminated** with the preferred alternative on SW 70th, SW Beveland Street, and SW Ash Avenue.

If the preferred alternative is chosen for all three segments, then **a total of 166 parking spaces will be eliminated**. This would induce parking on side streets or in residential neighborhoods.

The DEIS claims that this wouldn't be an issue as "the combination of improved transit and improved bicycle and pedestrian facilities could help offset the impact" (3-23). However, this seems unlikely as light rail ridership is declining and the majority of those traveling in the corridor do so in a motor vehicle.

Similar claims were made by local transportation officials in the Sellwood Bridge EIS regarding the deliberate under-building of road capacity by Multnomah County. The DEIS asserted multiple times that congestion in the Tacoma Street-Sellwood Bridge corridor would be mitigated by substantial increases transit use, biking and walking, due to the bridge design. In fact, that never happened, and traffic congestion in the Tacoma Street corridor is worse today than it was a decade ago.

Loss of Road Capacity

Segment A: The loss of traffic lanes is discussed in detail in Attachment B - Transportation Impacts Results Report. In segment A, one northbound lane on SW Barbur between SW Naito Pkwy and SW Broadway would be converted to a transit-only lane. There are only two northbound lanes on SW Barbur in this segment, thus drivers heading towards the city center would be restricted to only one lane.

Along this segment, the plan would also convert all bike lanes (which are five - six feet wide) currently along Barbur to eight foot bike lanes on either side of the street, taking away four to six feet of vehicle roadway. The EIS claims that Barbur would be widened south of SW Hooker Street to accommodate the addition of sidewalks and bike lanes, but nowhere does it state by how much.

A total of seven intersections in the preferred segment A alternative will be negatively affected by the light rail project. Six left turn lanes will be eliminated (SW 4th @ SW Lincoln, SW Grant, SW Bancroft, SW Sheridan, SW /Caruthers/Broadway, and SW Barbur @ SW Hamilton), two through lanes will be eliminated (SW 4th @ Sheridan and SW Barbur @ SW Bancroft), one right turn lane will be eliminated (SW Barbur @ SW Bancroft), and the access to both View Point Terrace Street and eastbound SW Hamilton will be eliminated from Barbur due to light rail stations.

Segment B: Changes made to Segment B, described in Attachment B section 4.3.1 and 4.3.4, include widening SW Barbur in order to accommodate light rail in the center. 8-foot-wide bike lanes would be added in both directions between SW Brier Place and SW 60th Avenue. Bike lanes on Barbur are currently between 5-6 feet. If bike lane is currently 6 feet either way, they will take away 4 feet from the road the entire length of Barbur. If the length is 5 feet, 6 feet will be taken away from drivers. While the DEIS claims that SW Barbur would be widened to accommodate new bike lanes and sidewalks, nowhere does it say how much Barbur will be widened nor how wide the sidewalks are expected to be.

Three intersections would be affected in Segment B. The left turn lanes onto SW Barbur from SW 22nd in both directions will be eliminated (at the intersection SW Barbur @ SW 22nd). The right turn lanes from SW Barbur in both directions onto SW Custer and SW Multnomah as well as the right turn lane onto SW Barbur from Multnomah will be eliminated due to the proposed construction of a light rail station at the SW Barbur @ SW Custer/Multnomah intersection. Finally, the access to Barbur from SW 3rd will be eliminated due to the placement of the light rail route (at the intersection SW Barbur @ SW 3rd).

Segment C: The changes to segment C are described in 5.3.1 and 5.3.4 in Attachment B to the DEIS. Segment C extends from the intersection of SW 68th Parkway and SW Atlanta Street to near Bridgeport Village. The preferred alternative would run along existing or new roads between the Tigard Triangle and downtown Tigard, and then would follow the freight rail and WES tracks before turning east to run along I-5 to Bridgeport. 2 stations would be in the Tigard Triangle, one would be in downtown Tigard, one along I-5 at SW Bonita Road, SW Upper Boones Ferry Road and Bridgeport Village.

The only intersection change in segment C between the no-build and light rail options would come at SW Hall Blvd @ Ash/Knoll. Here the turn from Hall onto Knoll would be eliminated due to the light rail route cutting across the entrance of Knoll Dr. The light rail will continue across Hall, through the buildings across from Knoll Dr. and down Ash Avenue. There will only be one through lane in either direction on Hall at this intersection with the light rail alternative.

In all three proposed segments, the DEIS proposes creating 8-foot-wide bike lanes where there are none or increasing the width if such a lane already exists. It also proposes adding in sidewalks where there are none along SW Barbur. There is no mention as to how wide the sidewalks will be, nor does it mention how much SW Barbur will be widened to accommodate these new additions. It is critical to calculate these changes so that motor vehicle drivers know how much of the current roadway will be taken from them. Taking away a motor vehicle lane on a heavily used road (SW Barbur) to serve light rail would increase traffic in the corridor, not reduce it as the DEIS claims.

PCC Sylvania-Shuttle

The proposed PCC Sylvania-Shuttle described on page 2-20 in section 2.3 of the DEIS would provide a small amount of ridership for a high cost based upon similar shuttle services in the

region. One of the proposed shuttles would transport riders from the 53rd light rail stop to PCC-Sylvania, a distance of .5 miles. Table 4.4-3 of the DEIS admits that the impact from the addition of this shuttle would be offset by improved sidewalks, bike lanes and street lighting.

Clackamas Community College has run their own version of the proposed shuttle between their Harmony and Oregon City campuses and the Green Line station at the Clackamas Town Center since 2011. The CCC shuttle is fully funded by the college and is operated by a private business.

On average, only 217 individual trips were taken per day on the three shuttles by students during the spring of 2018. There were 7,974 students at both the Oregon City and Harmony campuses during that same time period. If each individual trip was completed by a different student than the shuttle was utilized by 2.72% of the student population. If each trip was part of a round trip, then the shuttle would have only been used by 1.36% of the student population. The cost to run three shuttles was $180,000 for the 2017-2018 school year.

The proposed shuttle from the Barbur Transit Center would use five standard 40-foot TriMet buses to operate, which would have a higher cost than the three van-sized shuttle buses used by CCC. CCC has demonstrated that a community college can run their shuttle service without the involvement of TriMet or the use of taxpayer dollars. Based upon the CCC shuttle, the PCC-Sylvania Shuttle would benefit very few people for at high cost to taxpayers.

Frequency of Service

The Draft EIS for the Southwest Corridor Light Rail Project states that the through route configuration would include nine trains per hour traveling to downtown Tigard during peak periods in 2035, with headways as low as 6.7 minutes in between operation of trains[5]. However, these predictions are implausible given the performance of current light rail installations. Even the less ambitious projections of 7.5 minute headways for previous lines are currently nowhere close to being met.

By averaging the times between stops at a single station in both directions between peak hours of 6:00 a.m.-9:00 a.m. and 3:00 p.m.-6:00 p.m. according to weekday MAX schedules on Trimet's website, we gain the best estimation of actual MAX headways during June 2018. Based on these calculations, light rail service operation has consistently fallen short of the frequencies promised in past environmental impact statements.

The Orange Line EIS predicted that by 2030, trains along the corridor would operate every 7.5 minutes[6], requiring 8 trains per hour to stop during peak periods. In the opening year 2016, the Orange Line was intended to operate with 10-minute headways[7]. In 2018, that frequency has not been met, with MAX schedules showing average weekday peak-hour headways of 13.1 minutes.

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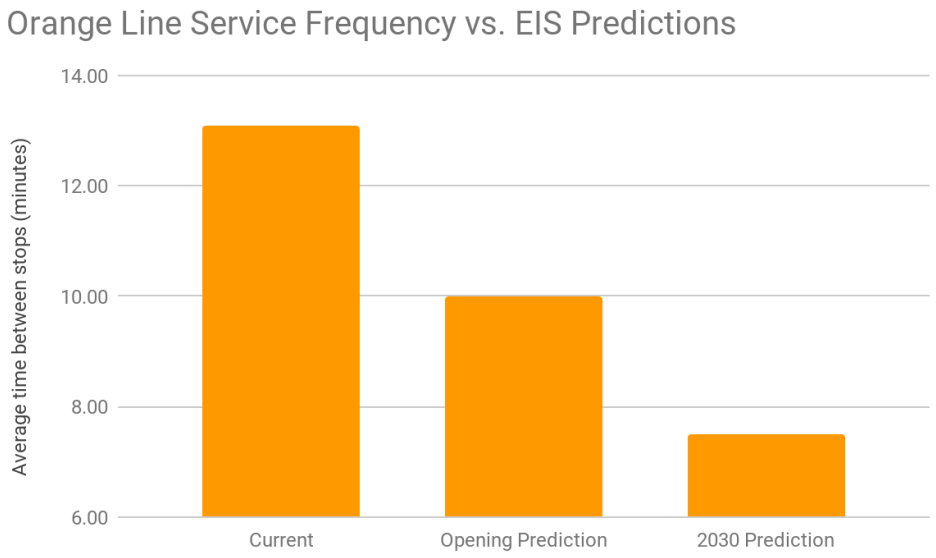
[5] Southwest Corridor Light Rail Project Draft Environmental Impact Statement, June 2018. Chapter 3, page 11.

[6] Portland-Milwaukie Light Rail Project Final Environmental Impact Statement, October 2010. Chapter 2, page 28.

[7] Portland-Milwaukie Light Rail Transit Project Full Funding Grant Agreement, October 2011. Attachment 1.

Figure 22 shows Orange Line headways during peak periods based on June 2018 schedules at the SE Park Ave MAX Station contrasted with earlier predictions of service frequency.

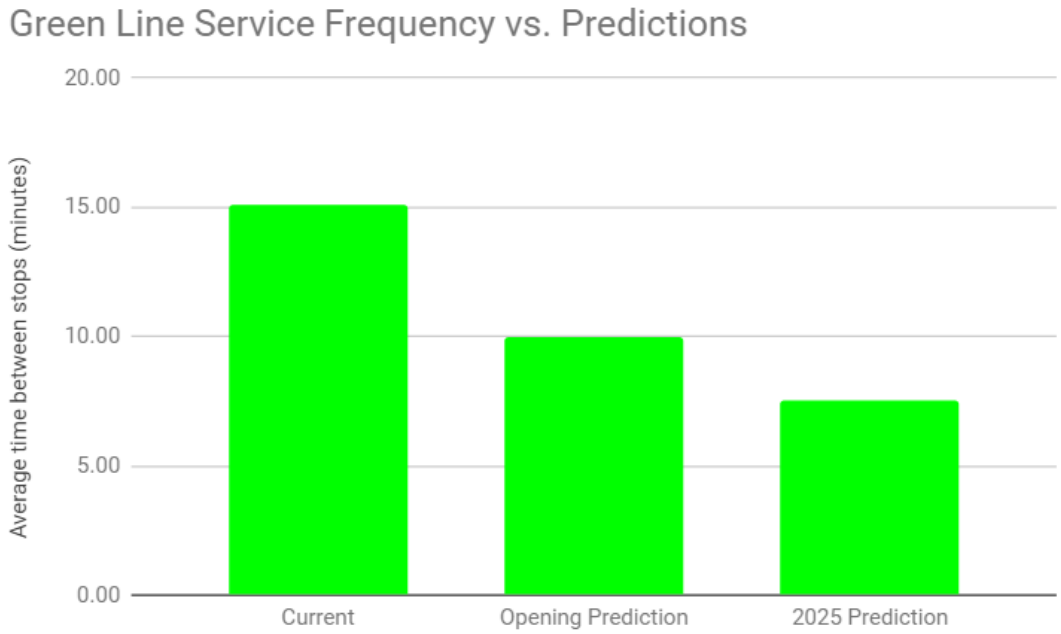
Figure 22



In similar fashion, TriMet promised FTA that the Green Line would operate every 7.5 minutes by 2025[8], but has failed to live up even to promises of 10-minute headways in its opening year[9]. An FTA Before-and-After Study of the Green Line's performance stated that"[t]he project opened with 15-minute intervals throughout the day and 35-minute intervals in the evenings,"[10] in sharp contrast to initial projections. 2018 MAX schedules at Clackamas Town Center TC MAX Station confirm that the Green Line has been operating with an average of 15.1 minutes between stops, as shown in **Figure 23**.

[8] South Corridor I-205/Portland Mall Light Rail Project Final Environmental Impact Statement, November 2004. Chapter 4, page 12.
[9] Green Line Light Rail Project Before-and-After Study, 2014. Federal Transit Administration. Page 6.
[10] Ibid.

Figure 23



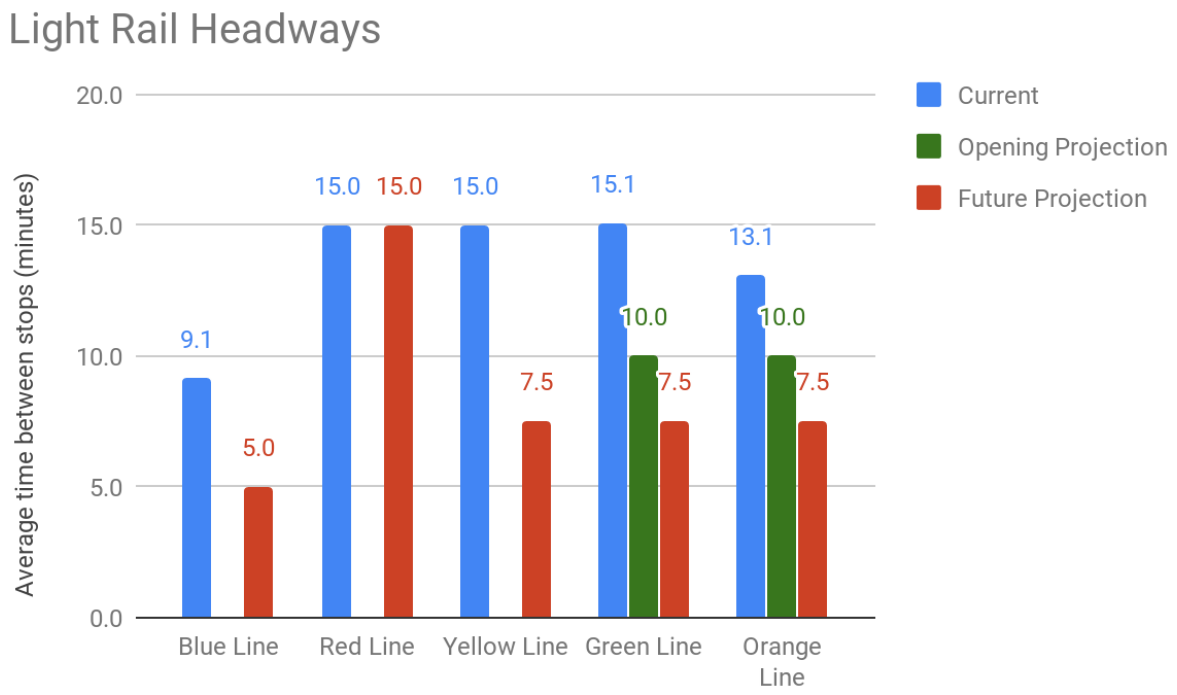
MAX service frequency has consistently underperformed for nearly its entire history. The only MAX line that has been living up to its projections is the Red Line, with a much lower bar of 15 minute headways by 2015[11].

The 1991 SDEIS for the Westside Corridor Blue Line project stated that "[t]wo-car trains would operate every five minutes east of the Beaverton Transit Center"[12] by the year 2005, but in 2018, these trains only operate every 9.1 minutes.

Likewise, the Yellow Line EIS promised headways of 7.5 minutes during peak travel periods in 2020[13] and 10-minute headways in opening year 2005[14], but Yellow Line trains offer only half that level of service in 2018, with trains at N Prescott St Station operating every 15 minutes on average. **Figure 24** shows the consistent failure of MAX lines to offer the level of frequency promised during the planning process.

[11] MAX Extension to the Portland Airport Environmental Assessment, December 1998. Chapter 3, page 10.
[12] Westside Corridor Project Supplemental Draft Environmental Impact Statement, January 1991. Chapter 4, 1.
[13] North Corridor Interstate MAX Light Rail Project Final Environmental Impact Statement Executive Summary, October 1999. Section 3.1.2.
[14] North Corridor Interstate MAX Light Rail Project Final Environmental Impact Statement, October 1999. Chapter 1, page 2.

Figure 24



It is unreasonable to expect light rail along the Southwest corridor to operate at 6.7 minute headways during peak periods. No previous light rail installation has met the benchmark of 7.5 minutes, and only the Blue Line has managed to offer even 10 minute headways. MAX has yet to live up to expectations of service frequency, and the promise of nine trains per hour in the Southwest Corridor has no basis in reality.

<u>Travel Times</u>

According to the EIS, light rail in the Southwest Corridor "would reduce the PM peak-hour in-vehicle transit travel time from Portland State University to Bridgeport Village from 38 minutes (via TriMet bus line 96 Tualatin Express) to 29 minutes with the Branched Route or 33 minutes with the Through Route."[15] This prediction is implausible given the track record of current MAX lines.

Table 1 shows the travel times between selected Orange Line stops according to TriMet MAX schedules in 2018 compared to EIS predictions for 2030.[16] Assuming 100% on-time performance, Orange Line travel times are currently 4.8 minutes longer on average than predicted in the Portland-Milwaukie Light Rail Project EIS.

[15] Southwest Corridor Light Rail Project Draft Environmental Impact Statement, June 2018. Chapter 3, page 12.
[16] Portland-Milwaukie Light Rail Project Final Environmental Impact Statement, October 2010. Chapter 4, page 18.

Table 1

Orange Line			
Distance	South Corridor EIS Predicted Travel Time in 2030	Actual PM Peak Period Travel Time in 2018	Scheduled Stops (PM Peak-hour)
Pioneer Square to Milwaukie Park Ave	26	32	5:04 - 5:36
PSU to Milwaukie Park Ave	20	26	5:10 - 5:36
South Waterfront to Milwaukie Park Avenue	16	21	5:15 - 5:36
Pioneer Square to Lake Rd	24	29	5:04 - 5:33
PSU to Lake Rd	19	23	5:10 - 5:33
South Waterfront to Lake Rd	15	18	5:15 - 5:33

Similarly, Green Line has lagged behind in travel times, with actual travel times 4.7 minutes longer on average than predicted for 2025 in the South Corridor FEIS.[17] **Table 2** shows Green Line travel times compared to EIS predictions.

[17] South Corridor I-205/Portland Mall Light Rail Project Final Environmental Impact Statement, November 2004. Chapter 4, page 14.

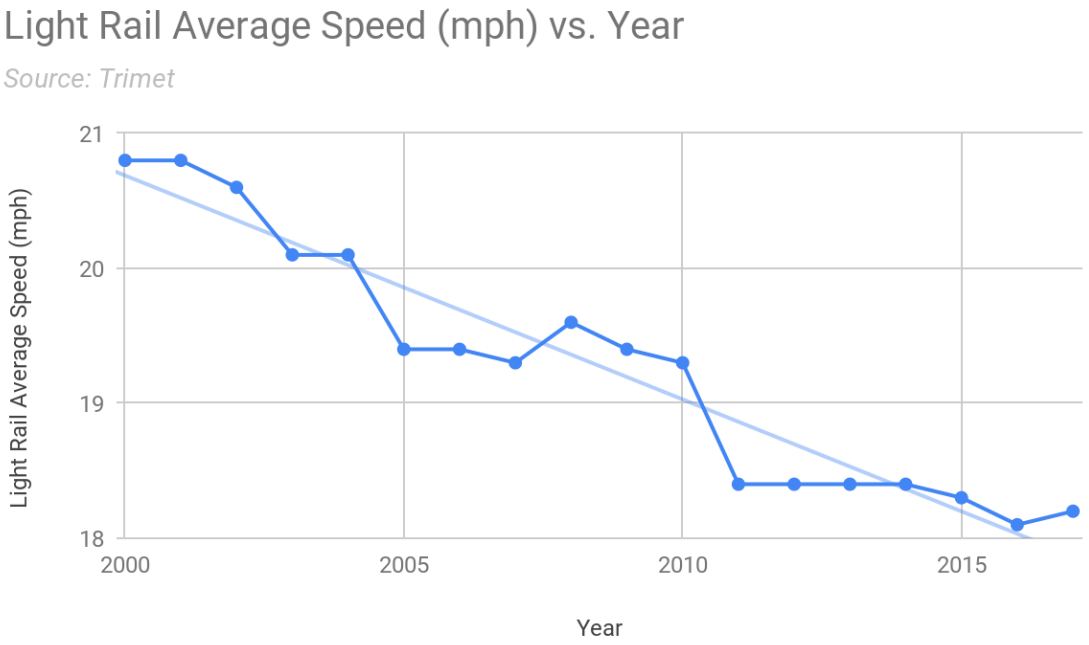
Table 2

Green Line			
Distance	South Corridor FEIS I-205 Year 2025 Predicted Travel Time	Actual PM Peak Period Travel Time in 2018	Scheduled Stops (PM Peak-hour)
Pioneer Square to Clackamas TC	38	43	5:08 - 5:51
PSU to Clackamas TC	42	48	5:03 - 5:51
Rose Quarter to Clackamas TC	30	33	5:18 - 5:51
Pioneer Square to Lents	31	36	5:08 - 5:44
PSU to Lents	35	41	5:03 - 5:44
Rose Quarter to Lents	23	26	5:18 - 5:44

If MAX lines increased in speed over the next few years, perhaps these gaps could be closed in time to meet projections. However, given trends since 2000, this is highly unlikely. The average speed of light rail has been steadily decreasing,[18] as seen in **Figure 25**.

[18] TriMet Service and Ridership Statistics, October 2017.

Figure 25



Taking the data into consideration, the Southwest Corridor EIS projections for transit travel time are likely overestimated. If the new light rail line has travel times nearly 5 minutes longer than predicted, as current lines do, the advantage over bus service will be negligible.

Service Efficiency

A stated purpose of expanding light rail to the Southwest Corridor is to "provide light rail transit service that is cost-effective to build and operate with limited local resources,"[19] but statistics have shown TriMet light rail operation to be less cost effective than bus. While measures of Operating Expense per Vehicle Revenue Mile and Operating Expense per Vehicle Revenue Hour have increased at roughly the same rate for light rail and bus, light rail consistently ranks above bus in both measures, as seen in **Figure 26** and **Figure 27**.[20]

[19] Southwest Corridor Light Rail Project Draft Environmental Impact Statement, June 2018. Chapter 1, page 5.
[20] National Transit Database, Federal Highway Administration. Region 10 Transit Agency Profiles 2000-2016.

Figure 26

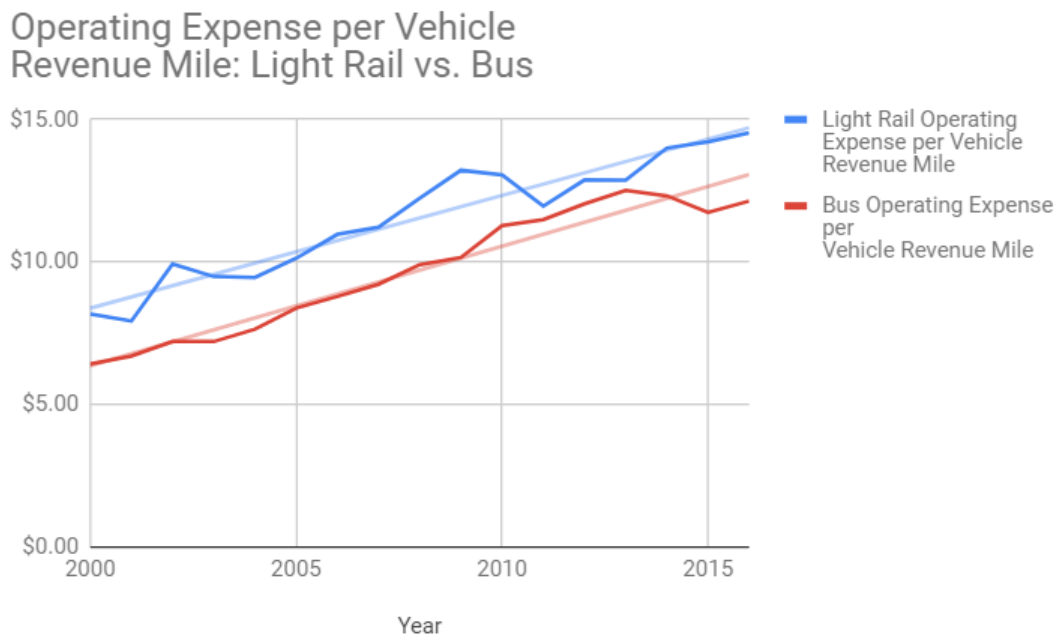
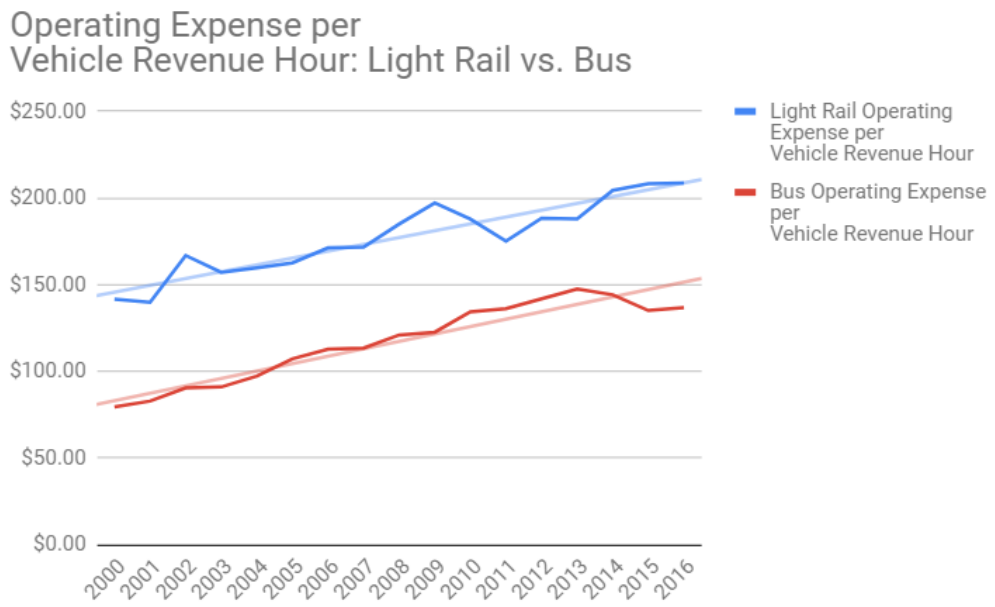


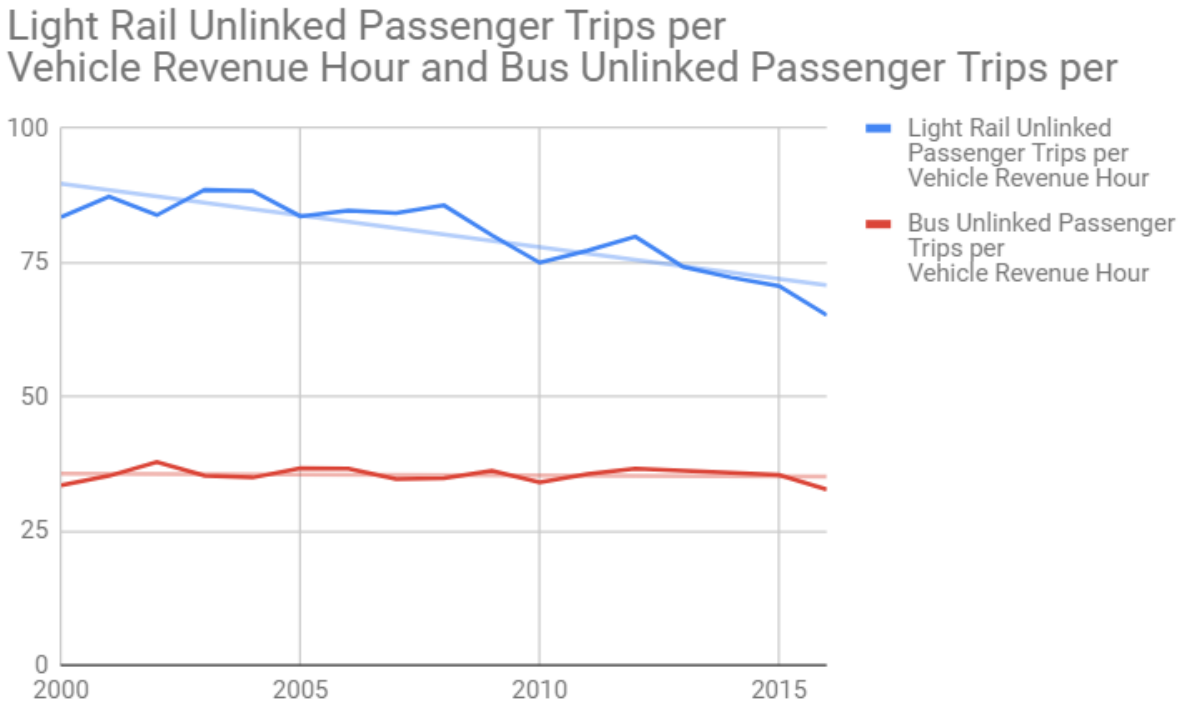
Figure 27



Operating Expenses per Unlinked Passenger Trip are higher for bus than light rail, likely due to the higher carrying capacity of MAX cars, but as **Figure 28** shows, Unlinked Passenger Trips per Vehicle Revenue Hour have been trending downward for light rail while staying steady for bus.[21]

[21] Ibid.

Figure 28



Light rail has not shown itself to be comparatively cost-effective in operation. Why assume that the Southwest Corridor Project will perform significantly better than light rail already present in the Portland Metro region?

<u>Overestimation of VMT Reduction</u>

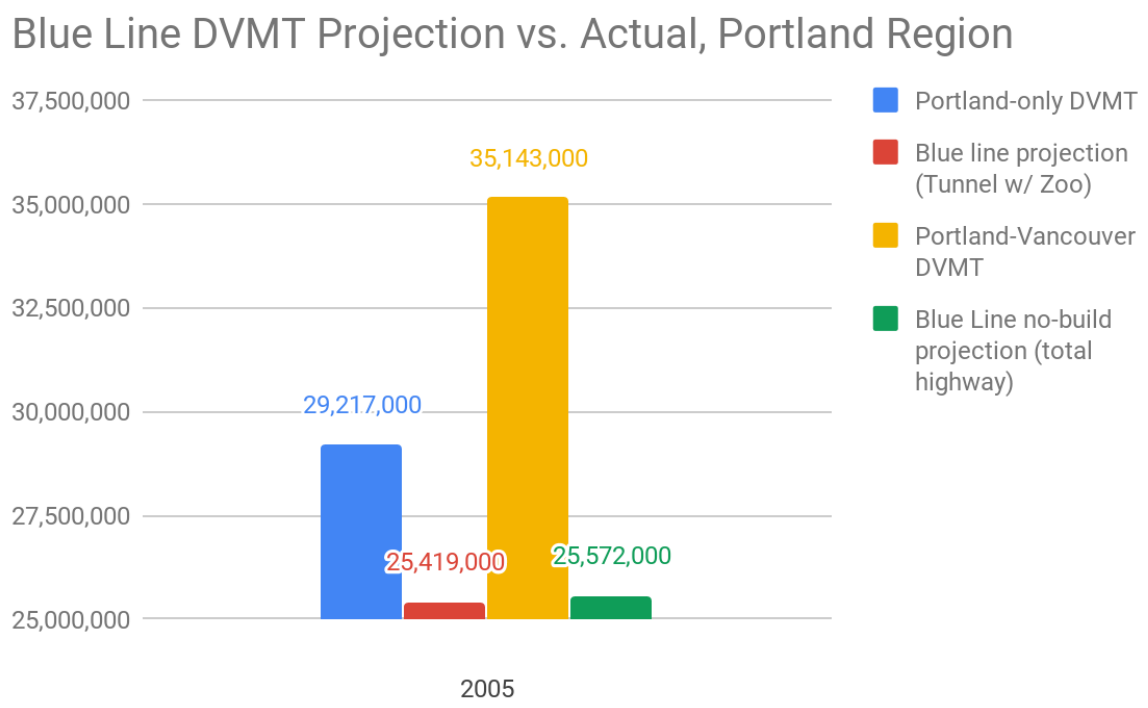
In Chapter 4, the Draft EIS claims that the Light Rail Alternative would result in total driving of 51,415,071 daily vehicle miles traveled (DVMT) for passenger vehicles in the Metro Region in 2035, down from a projected 51,474,286 daily VMT for the No-Build Alternative.[22] Through increased mode-sharing, the Southwest Corridor Project is anticipated to reduce car travel by 59,215 daily miles. However, light rail in Portland has yet to yield the significant passenger vehicle travel reductions initially hoped for.

The 1991 SDEIS for the Westside Corridor Blue Line project claimed that the light rail installation would reduce Total Highway-related VMT by 153,000 in 2005, projecting 25,419,000 VMT compared to 25,572,000 VMT for the No-Build Alternative.[23] However, information from the Federal Highway Administration shows that actual DVMT surpassed both these projections, with DVMT in the Portland Federal-Aid Urbanized Area reaching 29,217,000 and the greater

[22] Southwest Corridor Light Rail Project Draft Environmental Impact Statement, June 2018. Chapter 4, page 129.
[23] Westside Corridor Project Supplemental Draft Environmental Impact Statement, January 1991. Chapter 4, page 1.

Portland-Vancouver region (including most of the Metro area) displaying 35,143,000 DVMT.[24] EIS projections for the Blue Line compared to actual results from 2005 are displayed in **Figure 29**.

Figure 29



The projections of more recently constructed MAX lines cannot be accurately examined until DVMT statistics from 2020 onward are published, but current results show insufficient reduction in VMT to meet Blue Line estimations. If a goal of light rail is to get people out of their cars, this hasn't worked as well as expected.

Actual VMT in 2005 was 3.8 million higher than what the Blue Line's SDEIS promised. If the Blue Line couldn't reduce VMT in the Portland Region by 153,000 (or seemingly at all), how can the Southwest Corridor Project reduce VMT by 59,215?

<u>Affected Properties</u>

According to the draft EIS, a full-corridor project would "acquire and displace 78 to 293 residential units" and "have acquisitions affecting 106 to 156 businesses or

[24] Highway Statistics 2005. Federal Highway Administration. Roadway Extent, Characteristics, and Performance, Table HM-72.

institutions and 961 to 1,990 employees."[25] The plan for the Southwest Corridor includes compensation and relocation assistance for displaced businesses and property owners, but fails to address the full costs of the light rail's displacement.

Regardless of compensation, the proposed property acquisitions will negatively impact homeowners with significant financial and personal investments in their property, as well as businesses who may have clientele, local connections, or other factors that are dependent on their current location. Condemning these properties introduces an unnecessary shock to residents' stability.

The planners of the project seem confident in their ability to successfully mitigate the effects of lost property, but cannot possibly understand the needs of residents and businesses better than these residents and businesses themselves. By what standard are the proposed transit improvements better than allowing people to stay where they currently live?

In considering the effects of acquiring these properties, we must also consider the effects on opportunities for future development. Converting private property to public property is likely to make it harder for future homeowners and businesses to find space - these acquisitions would reduce the overall supply of property available in the area, and with no guarantee of future availability, we lose the opportunity for private development in these areas. The costs of lost property will be felt most immediately by current property owners and renters, but the opportunity costs for the area as a whole reach much further into the future.

Reducing the supply of property in the Southwest Corridor may result in increased housing prices, given that less space will be available to live in. In the midst of a housing crisis, how can demolishing residential property do anything but exacerbate the situation?

These effects are even more prominent considered alongside zoning requirements that mandate high-density projects near light rail. These requirements will increase the cost of new housing, further reducing supply and raising prices.

Conclusion

An EIS by definition consists almost entirely of forecasts, most of which are destined to be wrong because predicting the future is difficult. However, when key forecasts are consistently skewed in the same direction for over 30 years, it suggests a troubling trend: that transit planners are deliberately creating forecasts that are most favorable to procuring political and financial support necessary to proceed with the project.

Specifically, TriMet rail construction projects have consistently over-estimated ridership and peak-hour service levels, while under-estimating construction and operating costs. They also

[25] Southwest Corridor Light Rail Project Draft Environmental Impact Statement, June 2018. Summary, page 20.

claim to reduce traffic congestion and increase the use of alternative modes; yet none of those things has occurred after more than three decades of light rail operation.

It's unlikely that these flaws can be addressed in the FEIS. For those and other reasons, we urge TriMet, Metro, and JPACT to adopt the no-build alternative.

Sincerely,

John A. Charles, Jr.
Justus Armstrong
Miranda Bonifield
Rachel Dawson
Jakob Puckett