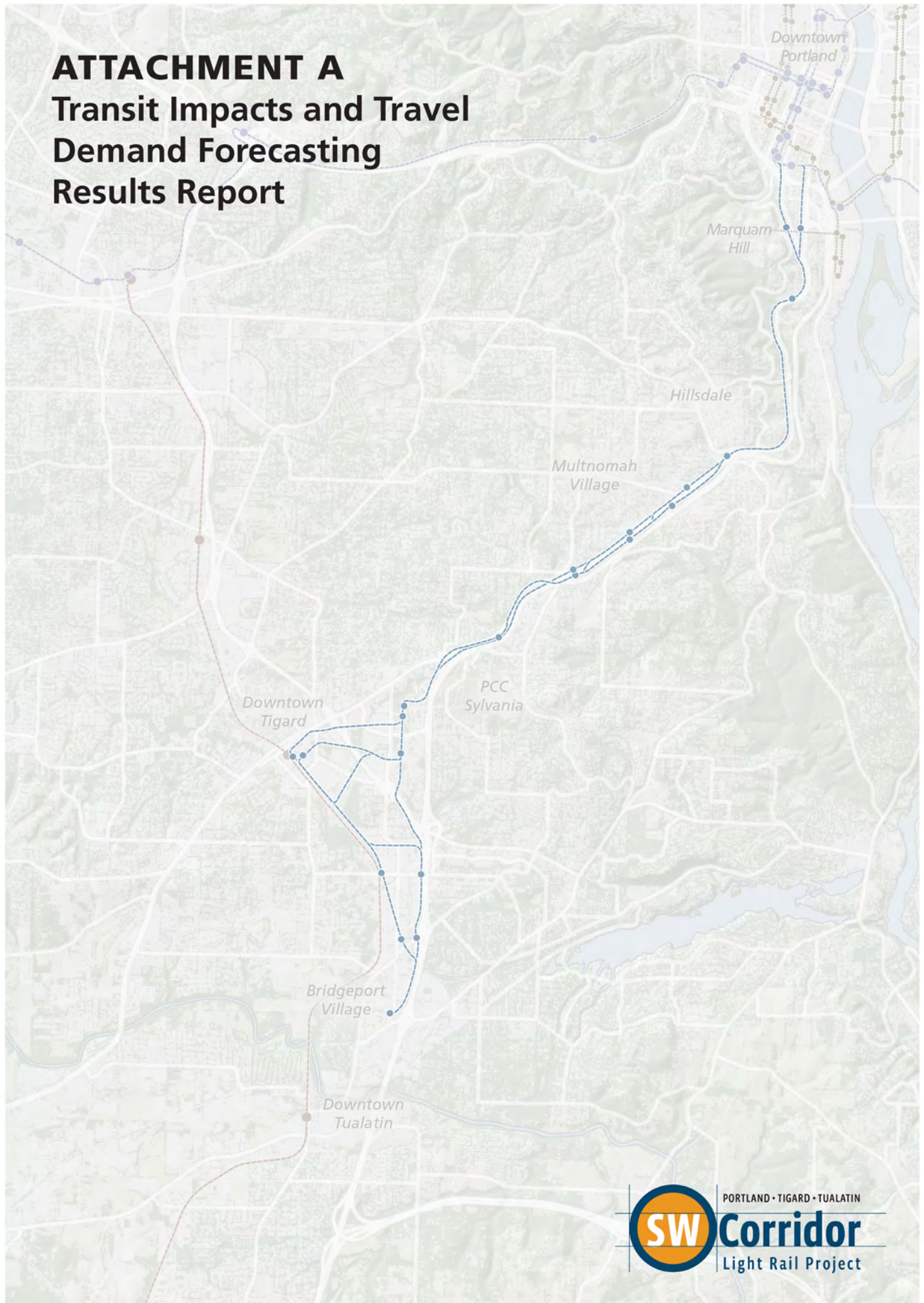


# ATTACHMENT A

## Transit Impacts and Travel Demand Forecasting Results Report



PORTLAND • TIGARD • TUALATIN

**Corridor**  
Light Rail Project

**Southwest Light Rail Corridor**  
**Draft Environmental Impact Statement**

**Transit Impacts and Travel Demand Forecasting Results Report**  
**May 31, 2018**

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## Appendices

## 1. INTRODUCTION

This Results Report addresses the effects on transit use and services that could occur with the Southwest Corridor Light Rail Project. The report provides supplemental information to Section 3 of the Southwest Corridor Light Rail Project Draft Environmental Impact Statement.

## 2. AFFECTED ENVIRONMENT

This section summarizes the characteristics and performance of the existing transportation system in the corridor and in the region.

### 2.1. Public Transportation

Transit service in the corridor features fixed-route, fixed-schedule buses operating in mixed traffic, and the Westside Express Service (WES) Commuter Rail operating during peak hours between Beaverton and Wilsonville. The major bus route is the 12 Barbur. The 96 Tualatin/I-5 bus runs peak hour, express service between Tualatin and downtown Portland. The Portland Aerial Tram connects the South Waterfront and Oregon Health & Science University (OHSU).

#### Transit Lines, Operations and Facilities

The Tri-County Metropolitan Transportation District of Oregon (TriMet) has a current fleet of 683 buses that serves 81 bus lines and seasonal shuttles with 6,591 bus stops and 980 bus shelters. There are 180 miles of frequent-service bus lines on 13 routes that provide 15-minute or better service 7 days a week. The 97-station Metropolitan Area Express (MAX) light rail system is 60 miles long and also operates at least every 15 minutes. In addition to fixed-route bus and MAX service, TriMet operates 268 LIFT vehicles, which provide door-to-door service for people with special needs. TriMet operates three bus operations and maintenance facilities and two rail operations and maintenance facilities.

Table 2.1-1 summarizes TriMet's fixed-route service. Overall, 90 percent of people within the TriMet district live within one-half mile of TriMet service.

**Table 2.1-1. 2016 Fixed-Route Service Summary**

	Streetcar	MAX LRT	Frequent Bus	Standard Bus
Routes	2	5	13	64
Length (miles)	16	60	180	784

#### Current Ridership, Operating Revenue, and Operating Expenses

On weekdays in FY2017, the TriMet system averaged 186,800 boardings on buses, 123,200 on light rail, and 1,800 on WES Commuter Rail. Streetcars averaged 15,000 boardings, the aerial tram averaged 11,000 boardings, and WES Commuter Rail averaged 1,700 boardings per day.

Between fiscal year (FY) 2007 and 2017, TriMet annual fare revenue as a percentage of the cost of operation and maintenance improved from 33 percent to 37.4 percent and the average operations cost per boarding ride for the fixed route service increased from \$2.34 to \$3.16, reflecting inflation and service expansion to lower ridership areas and times. Cost per boarding ride for LRT, at \$2.61, is lower than that for buses, at \$3.43 (FY 2017).

## 2.2. Travel Behavior

Metro's travel demand forecasting model produced current estimates and future projections of travel behavior referenced in this report. The basic unit of measurement used in describing travel behavior is the "person trip," which is a trip made by one person from a point of origin to a destination, via any travel mode. Several trip variables, including the origin, destination, mode and purpose of the trip, further describe travel behavior.

Travel demand totals between districts or groups of transportation analysis zones (TAZ) help to discern travel markets and shifts in modes due to the differences between alternatives. The district-to-district travel demand totals are split into three groups: total person trips, transit work trips and total transit trips. Figure 2.2-1 shows the district boundaries used to summarize trip data for the Southwest Corridor Light Rail Project modeling. Districts one through seven comprise the SW Corridor.

For 2015, the base year for the Draft EIS, the transportation facilities in the Southwest Corridor were estimated to carry 64,500 person trips between the corridor and the Portland Central Business District (CBD) on an average weekday. Of these, approximately 10,300 (16 percent) were on the transit system. Of 16,000 daily *work* trips between the corridor and the CBD, 5,500 (34 percent) were on transit.

## 3. TRANSIT IMPACTS

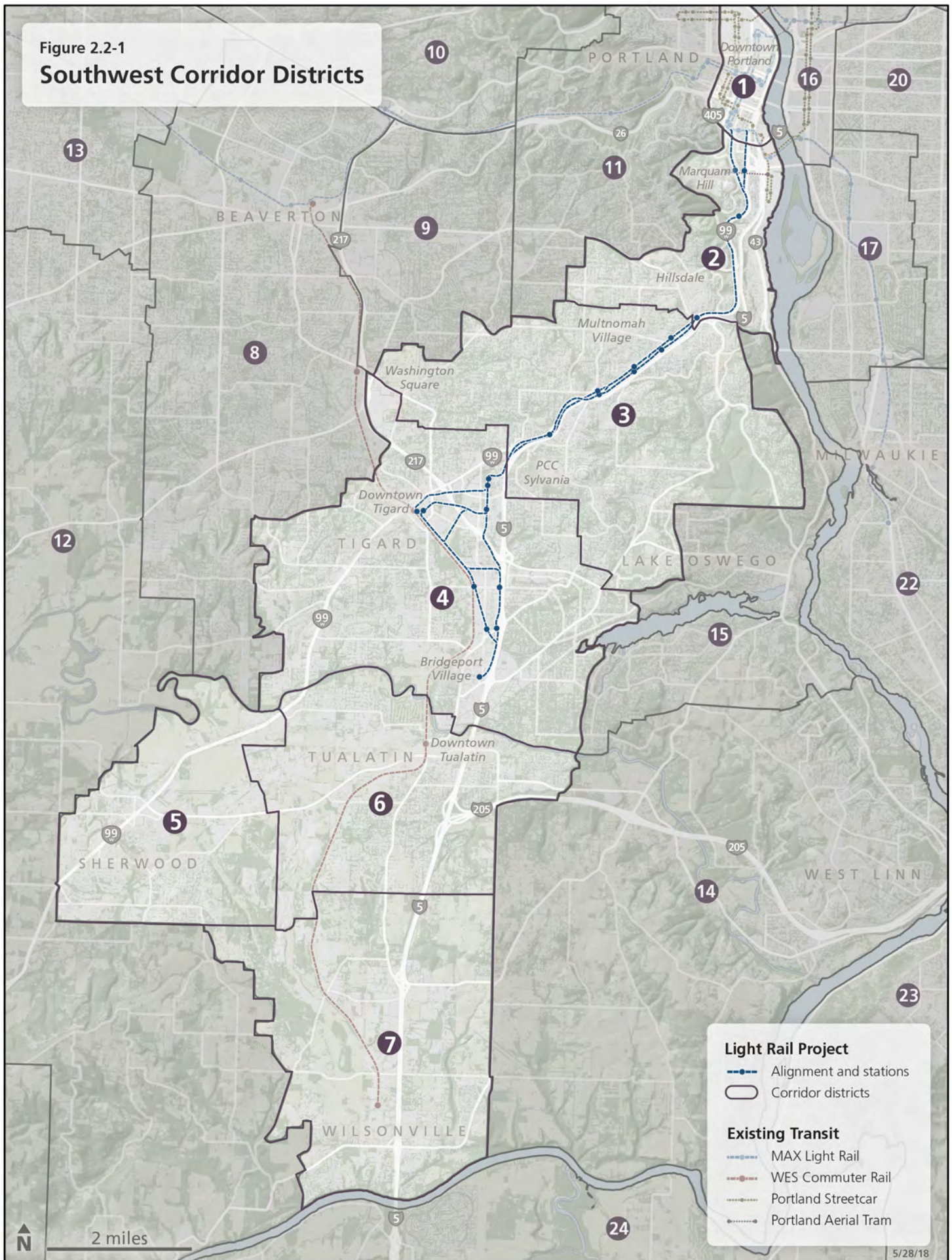
This section presents the impacts that the Southwest Corridor Light Rail Project would have on the transit system in the corridor. This section compares transit service characteristics, travel time, ridership, and reliability for the No-Build Alternative and the Light Rail Alternatives.

Two full-length alternatives were modeled and analyzed for the transit analysis, one utilizing a Through Configuration, and one utilizing a Branched Configuration (see section 2.3.3 of the Draft EIS). The Through Configuration combines Light Rail Alternatives A1, B2, and C1; the Branched Configuration combines Alternatives A1, B2, and C5 (see Table 2.3-1 of the Draft EIS). The remaining light rail alternatives are addressed by geographic segment and are described in terms of change compared to the Through or Branched Configuration.



Figure 2.2-1

# Southwest Corridor Districts



### 3.1. District-to-District Travel Demand and Mode Choice

#### 3.1.1. Total Person Trip Demand

Total person trip demand indicates the total number of people traveling by auto, transit, bike, and walk between two areas. Identical person trip tables were used in modeling No-Build and Build alternatives, consistent with methodology used under the Federal Transit Administration's (FTA) New Starts guidelines. The model projects 2,377,000 daily person trips originating from or destined to the corridor in 2035, excluding intra-Portland CBD (District 1) trips. Table 1 in Appendix 1 shows the total person trip table by district for the 2035 No-Build Alternative.

#### 3.1.2. Transit Work Trip Demand

Transit work trips are those transit trips that begin or end at work. There would be 124,000 daily transit work trips originating from or destined to the corridor in 2035, excluding intra-Portland CBD (District 1) trips with the Through Configuration, compared to 114,700 with the No-Build Alternative. Tables 2 and 3 in Appendix 1 show the work transit trips tables by district for the 2035 No-Build Alternative and the 2035 Through Configuration.

#### 3.1.3. Total Transit Trip Demand

Total transit trips include both work-and non-work trips using transit. There would be 244,900 daily transit trips originating from or destined to the corridor in 2035, excluding intra-Portland CBD (District 1) trips with the Through Configuration, compared to 227,800 with the No-Build Alternative. Tables 4 and 5 in Appendix 1 show the work transit trips tables by district for the 2035 No-Build Alternative and the 2035 Through Configuration.

### 3.2. Service Characteristics

The No-Build Alternative represents the service characteristics of the financially constrained transit network associated with the *2014 Regional Transportation Plan (RTP)* (Metro) (see Figure 3.2-1). The supporting bus network differs slightly between the No-Build Alternative and the Light Rail Alternative. Figure 323-2 shows the supporting bus network for the light rail alternatives, which are consistent for both the Through Configuration and Branched Configuration. Appendix 2 includes the transit line listings for the No-Build Alternative and the Light Rail Alternatives.

The 2035 No-Build bus network includes existing transit services and facilities and assumes increases in route frequencies to avoid peak overloads and to maintain schedule reliability. It includes incremental increases in service hours and vehicle procurement consistent with available revenue sources and consistent with the RTP 2035 financially constrained transit network. It also assumes the Division Bus Rapid Transit project between downtown Portland and downtown Gresham.

The Light Rail Alternative bus network includes all the transit network improvements in the No-Build transit network and incorporates the light rail project from downtown Portland to Bridgeport Village. It includes some adjustments to local service, mainly to eliminate or modify bus routes that would duplicate light rail service, and to adjust bus routes to serve light rail stations or transit centers. It assumes expanded park and rides at Barbur Transit Center and at Bridgeport, and new park and rides at the 53rd, Baylor, Tigard Transit Center, Bonita, and Upper Boones Ferry stations, providing a range of 3,000 to 4,200 park and ride spaces.



Adjustments to local bus service assumed in the modeling are described below. TriMet will make final decisions on bus service and routing shortly before the opening of light rail service.

Two lines operating on SW Barbur Boulevard in the No-Build, the line 12 from Tigard to downtown Portland and the line 94 express from Sherwood to downtown Portland, would be removed. The line 93 from Sherwood to Tigard would be extended to the Barbur Transit Center with service added to maintain frequency lost with the line 94 removal. The line 44 from downtown Portland would be shortened to terminate at PCC Sylvania, removing its No-Build routing between the campus and Bridgeport Village along SW Kerr Parkway and SW Boones Ferry Road. Instead, the line 96, an express route between Wilsonville and downtown Portland in the No-Build, would be re-routed north of Bridgeport to travel along the roads from which the 44 would be removed. The line 96 would serve PCC Sylvania and continue along SW Capitol Highway to terminate at the Barbur Transit Center.

With light rail serving the Marquam Hill connection, lines 64 and 65 to Marquam Hill, from Tigard and Burlingame, respectively, would be removed. Line 8, serving between NE Portland and Marquam Hill, would have peak service reduce by three vehicles per hour because its loads would be reduced by light rail service. Lines 1 and 38 would be shortened to terminate at Burlingame near the Custer station instead of continuing into downtown Portland. The line 54 from Beaverton would utilize a shared transitway with the light rail between SW Capitol Highway and SW Lincoln Street, allowing it to avoid congestion and improve reliability.



Figure 3.2-1  
**2035 Transit Network**  
*No-Build Alternative*

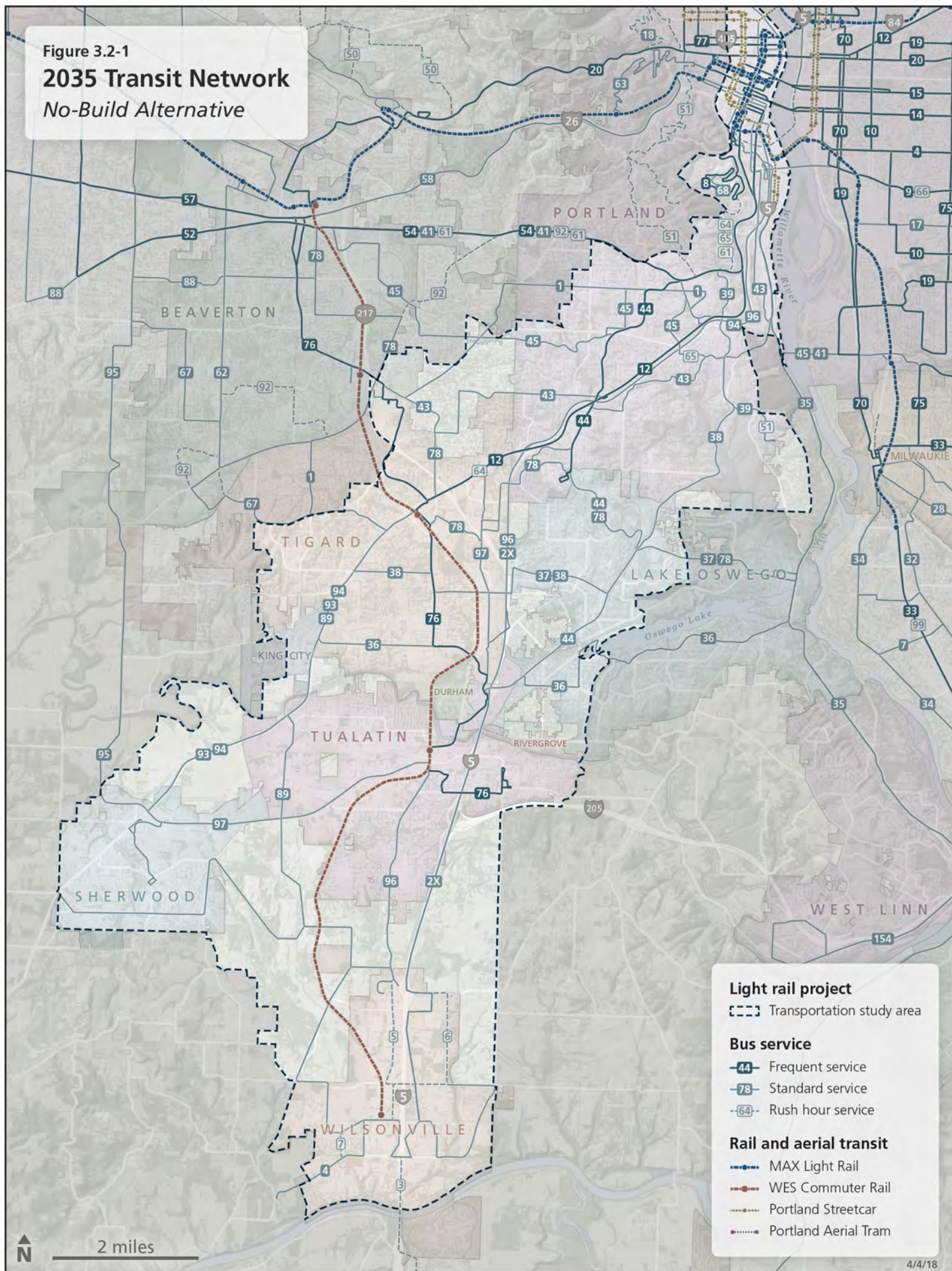
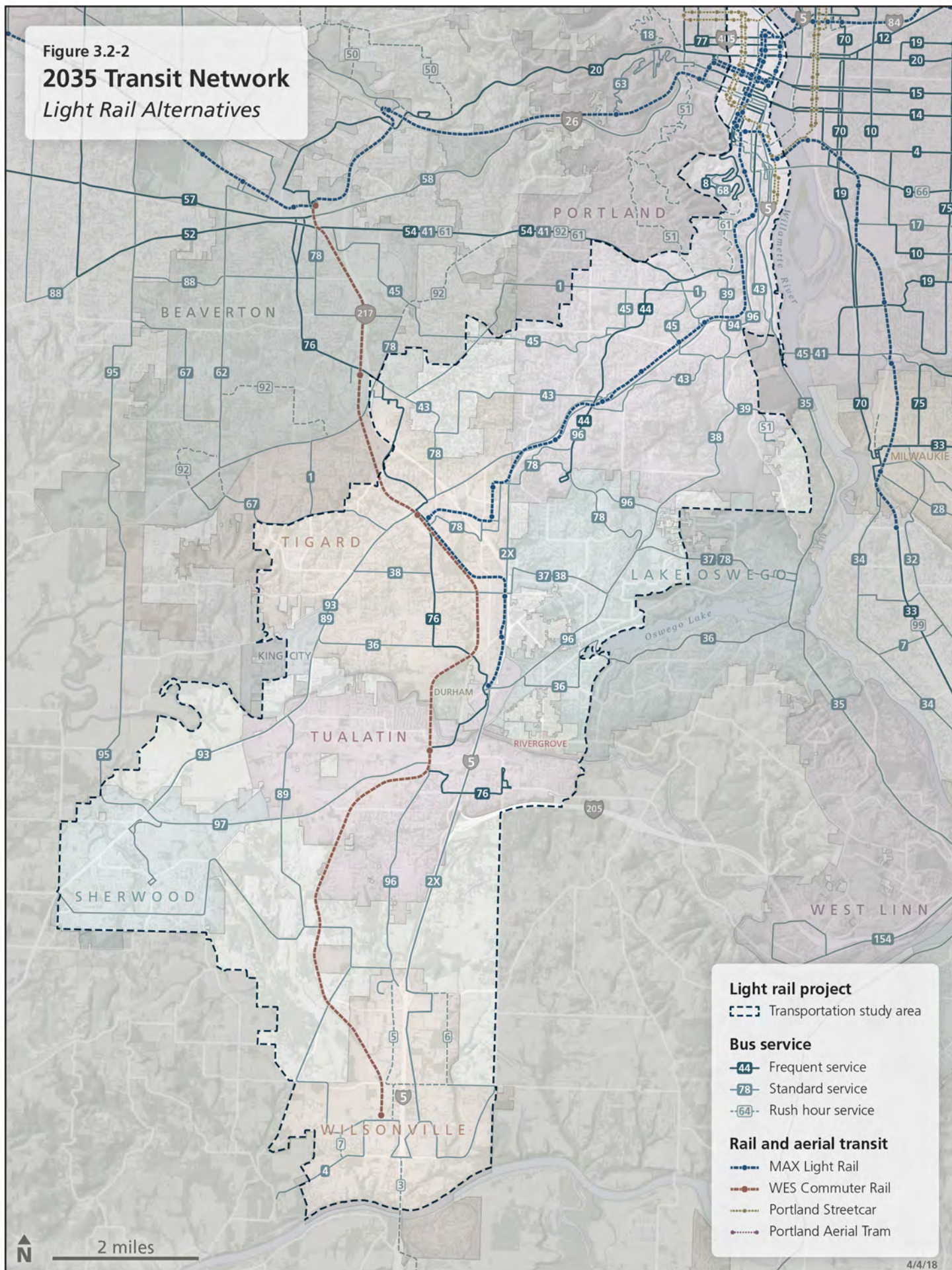




Figure 3.2-2  
**2035 Transit Network**  
*Light Rail Alternatives*



### 3.2.1. Amount of Service

The amount of transit service provided is measured by daily vehicle hours traveled (VHT) in revenue service, daily vehicle miles traveled (VMT) in revenue service, and daily place-miles of service. Daily VHT are the cumulative time that transit vehicles are in service and daily VMT are the distance they travel, independent of the size of the vehicles. “Daily” is defined as an average weekday in the year 2035. Place-miles refers to the total carrying capacity (seated and standing) of each bus or train and is calculated by multiplying the vehicle capacity of each bus or light rail vehicle by the daily VMT. Place-miles highlight differences in available capacity between alternatives. Table 3.2-1 summarizes these transit service characteristics.

**Table 3.2-1. Average Weekday Corridor<sup>1</sup> Transit Service Characteristics, Year 2035**

Measure	Existing (2015)	No-Build	Through Configuration	Branched Configuration
<b>Transit VMT</b>				
Bus	9,289	12,522	10,300	10,300
LRT <sup>2</sup>	3	3	1,970	2,778
Total	9,292	12,525	12,270	13,078
% Change <sup>3</sup>	N/A	34.8%	-2.0%	4.4%
<b>Transit VHT</b>				
Bus	547	776	663	663
LRT <sup>2</sup>	1	1	92	131
Total	548	777	755	794
% Change <sup>3</sup>	N/A	41.9%	-2.9%	2.2%
<b>Place-Miles<sup>4</sup></b>				
Bus	510,916	688,729	566,485	566,485
LRT	819	868	523,918	738,992
Total	511,736	689,598	1,090,403	1,305,477
% Change <sup>3</sup>	N/A	34.8%	58.1%	89.3%

Source: Metro 2017

Note: LRT = light rail transit; VMT = Vehicle Miles Traveled; VHT = Vehicle Hours Traveled; N/A = Not Applicable

<sup>1</sup> Excludes Portland CBD.

<sup>2</sup> For LRT, *transit VMT* and *VHT* are measured in train miles, rather than in car miles.

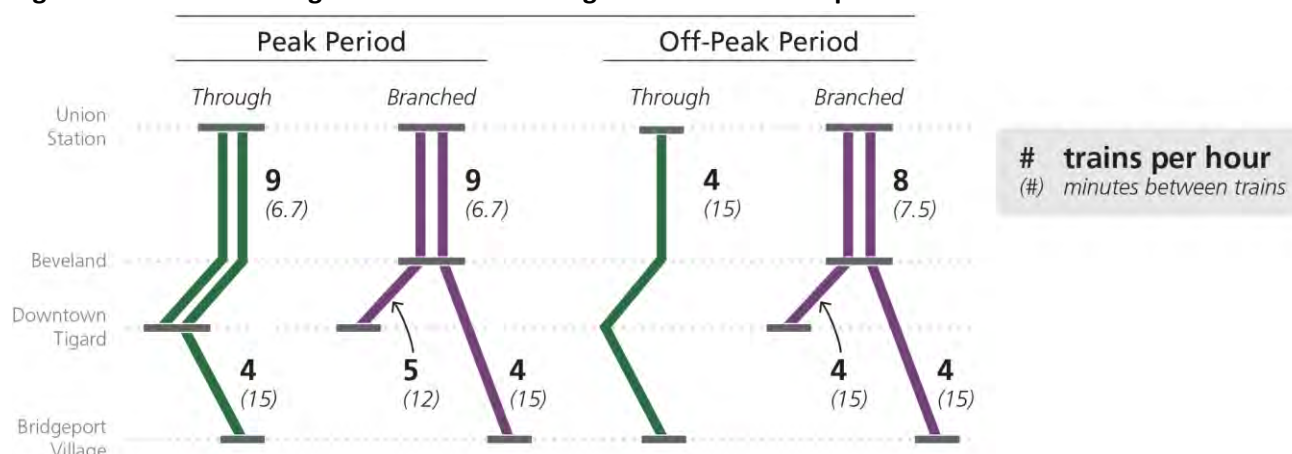
<sup>3</sup> For the No-Build Alternative, the % change is from existing; for all other alternatives % change is from the No-Build Alternative

<sup>4</sup> Place miles = transit vehicle capacity (seated and standing) multiplied by VMT. Bus capacity = 55, LRT capacity = 266 (LRT consists of two-car trains; each car can carry 133 people).

Light rail is assumed to operate at the TriMet policy minimum frequency of 15 minutes all day, or four trains per hour, with additional trains added in peak periods to serve higher ridership demand. Because the Branched Configuration would include two partially overlapping light rail lines, each operating at 15-minute service or better all day, the portion where they would overlap would experience higher VMT and VHT compared to the Through Configuration in off-peak periods. Also with the Branched Configuration, the segment between Tigard Transit Center and the Beveland Station would experience lower VMT and VHT than the Through Configuration in the peak period, as illustrated in Figure 3.2-3.



**Figure 3.2-3. 2035 Through and Branched Configuration Service Frequencies**



### 3.2.2. Travel Time

Transit and auto travel time are assessed using in-vehicle time and total travel time, as shown in Table 3.2-2. This table summarizes the change in P.M. peak hour in-vehicle and total travel time between the No-Build Alternative, the Through Configuration, and the Branched Configuration. Travel times are shown between Bridgeport Village, Tigard Transit Center, Barbur Transit Center, and Portland State University (PSU) in downtown Portland.

**Table 3.2-2. Average Weekday PM Peak Hour Auto and Transit Travel Times, Year 2035**

Origin/Destination	Auto via I-5	Auto via Barbur	No-Build Local Bus Transit	No-Build Express Bus Transit	Through Configuration Transit	Branched Configuration Transit
<b>In-Vehicle Travel Time<sup>1</sup></b>						
<b>From PSU to:</b>						
Barbur Transit Center	12	18	25 <sup>3</sup>	15 <sup>5</sup>	16	16
Tigard Transit Center	24	31	48 <sup>3</sup>	29 <sup>5</sup>	26	26
Bridgeport Village	29	N/A	62 <sup>4</sup>	38 <sup>6</sup>	33	29
<b>Total Travel Time<sup>2</sup></b>						
<b>From PSU to:</b>						
Barbur Transit Center	17	23	38 <sup>3</sup>	23 <sup>5</sup>	25	25
Tigard Transit Center	29	36	61 <sup>3</sup>	37 <sup>5</sup>	35	37
Bridgeport Village	34	N/A	82 <sup>4</sup>	51 <sup>6</sup>	46	42

Source: Metro, ODOT 2017

1 In minutes; in-vehicle time is the time that a passenger would spend within a public transit vehicle or an automobile.

2 In minutes; total time is the sum of in-vehicle time and all other time related to completing the trip, including walking and waiting time.

3 TriMet line 12

4 TriMet lines 12 and 76

5 TriMet line 94

6 TriMet line 96

Compared to No-Build local bus service, the Light Rail Alternative would improve the P.M. peak hour in-vehicle transit travel times from PSU by nine minutes to the Barbur Transit Center, 22 minutes to the Tigard Transit Center, and by up to 33 minutes to Bridgeport Village in 2035. Total transit time, including walk, initial wait, and transfer wait times, would improve by 13 to 40 minutes with light rail. Compared to the express bus service, the Light Rail Alternative transit travel times would be

comparable from Portland State University (PSU) to the Barbur Transit Center and to the Tigard Transit Center, but light rail would serve more stops and riders than limited-stop express buses. The Light Rail Alternative would save about 5 minutes in total travel time over express buses to Bridgeport Village. The difference in light rail frequencies between the Through and the Branched Configurations, described in the previous section, would affect the wait times and would result in differences in total travel time.

In peak periods, the Branched Configuration would have less frequent service in downtown Tigard than the Through Configuration. All Through Configuration trains would stop in downtown Tigard, resulting in nine trains per hour there during the peak period in 2035. With the Branched Configuration, four of those trains would instead travel on the Bridgeport branch, leaving five trains per hour serving downtown Tigard. With fewer hourly trains, riders using the downtown Tigard station would experience longer waiting times with the Branched Configuration.

In off-peak periods, the Branched Configuration would have more frequent service in Portland and in the Tigard Triangle. The TriMet policy minimum of four trains per hour would be sufficient for the off-peak ridership demand, but each branch line would need to meet the policy minimum, so the stations north of downtown Tigard where the branches overlap would be served by a combined eight trains per hour. This extra service would reduce wait times at those stations, but would also increase operating costs.

3.2.3. Reliability

Light rail lines in the TriMet system use reserved or exclusive right of way and exhibit greater percentages of on-time arrivals compared to buses operating in mixed traffic. Transit service that would operate in mixed traffic would be subject to traffic congestion and delay.

Table 3.2-3 summarizes three measures of transit reliability in the corridor: miles of exclusive or reserved right of way, the number of passenger miles that would occur in that right of way, and the percentage of passenger miles that would occur in that right of way. The light rail alignment on Barbur between downtown Portland and SW Capitol Highway ramps would be paved to accommodate buses as well as light rail. This shared transitway would allow buses on local routes to avoid congestion and improve travel times and reliability. Bus riders using this shared transitway are included in the calculation.

Table 3.2-3 Measures of Transit Reliability in the Corridor<sup>1</sup>, Year 2035

Light Rail Right of Way Measure	No-Build	Through Configuration	Branched Configuration
Miles of Light Rail	1	13	12
Average Weekday Passenger Miles <sup>2</sup>	212	255,400	243,400
% of total corridor Passenger Miles <sup>2</sup>	0%	55%	54%

Source: Metro, 2017  
<sup>1</sup> Light Rail provides an exclusive grade-separated and/or barrier separated transit right of way  
<sup>2</sup> Excludes downtown Portland in order to isolate transit lines that primarily serve the corridor.

3.3. Transit Ridership

This section evaluates several types of transit ridership: Southwest Corridor Light Rail ridership, total corridor transit ridership, total transit system ridership, work and non-work transit trips and mode share, and Southwest Corridor Light Rail station boardings and peak load points.

### 3.3.1. Light Rail Ridership

The ridership figures presented in Table 3.3-1 include average weekday boardings for the line between the Jackson Street station in downtown Portland and the Bridgeport Village terminus in Tualatin. The Branched Configuration is forecast to have 43,200 daily light rail riders in 2035, and an additional 8,800 bus riders utilizing the shared transitway. The light rail ridership with the Branched Configuration is four percent higher than with the Through Configuration, which is forecast to have 41,600 daily light rail riders and 8,900 bus riders on the shared transitway. The higher ridership on the Branched Configuration is chiefly due to the more frequent off-peak service (see section 3.3-1 – Amount of Service).

Most existing light rail lines would experience slight changes in ridership with the introduction of the project. Ridership on the Green Line MAX, however, is projected to increase by approximately 11 percent due to the route's interlining with the Southwest Corridor line, which would allow riders to access the corridor without transferring.

The peak load point is the location along the alignment with the highest projected ridership in the peak direction in the peak hour, and determines the frequency of service needed to accommodate demand. The peak load points for all light rail lines in the TriMet system are close to downtown Portland. With the both the Through Configuration and the Branched Configuration, the peak load point would occur just south of the Gibbs station.

**Table 3.3-1 Average Weekday Light Rail Ridership and Peak Load, Year 2035**

Measure	No-Build	Through Configuration	Branched Configuration
<b>Light Rail Ridership</b>			
Southwest Corridor Light Rail	N/A	41,600	43,200
Portland-Milwaukie (Orange Line)	23,000	23,000	23,000
East-West MAX (Blue Line) Eastside	57,800	59,500	59,700
East-West MAX (Blue Line) Westside	62,300	61,600	61,700
Airport MAX (Red Line) Eastside	26,700	27,600	27,700
Airport MAX (Red Line) Westside	25,200	24,500	24,600
I-205 LRT (Green Line)	52,900	58,700	58,000
Interstate MAX (Yellow Line)	41,100	41,400	41,500
<b>PM, Peak-Hour, Peak-Direction, Peak-Load Point</b>			
Southwest Corridor Light Rail	N/A	2,330	2,300
Portland-Milwaukie (Orange Line)	1,680	1,680	1,680
East-West MAX (Blue Line) Eastside	2,730	2,700	2,710
East-West MAX (Blue Line) Westside	2,900	2,820	2,840
Airport MAX (Red Line) Eastside	840	810	550
Airport MAX (Red Line) Westside	540	550	820
I-205 LRT (Green Line)	2,260	2,580	2,570
Interstate MAX (Yellow Line)	1,720	1,740	1,740

Source: Metro, 2017

### 3.3.2. Corridor and Systemwide Ridership

Total transit ridership in the corridor would increase over the No-Build Alternative by 8 percent (Table 3.3-2). Total transit ridership in the system would increase over the No-Build Alternative by 17,100 to 17,800 trips.



**Table 3.3-2 Average Weekday Total Systemwide and Southwest Corridor Transit Trips<sup>1</sup>, Year 2035**

Measure	Existing (2015)	No-Build	Through Configuration	Branched Configuration
Total Corridor Transit Trips (originating rides)	132,500	227,800	244,900	245,600
Change from Existing	N/A	95,300	112,400	113,100
% Change from Existing	N/A	81%	85%	85%
Change from No-Build	N/A	N/A	17,100	17,800
% Change from No-Build	N/A	N/A	8%	8%
Total Systemwide Transit Trips	311,700	563,900	581,700	582,500

Source: Metro, 2017

### 3.3.3. Transit Trip Productions

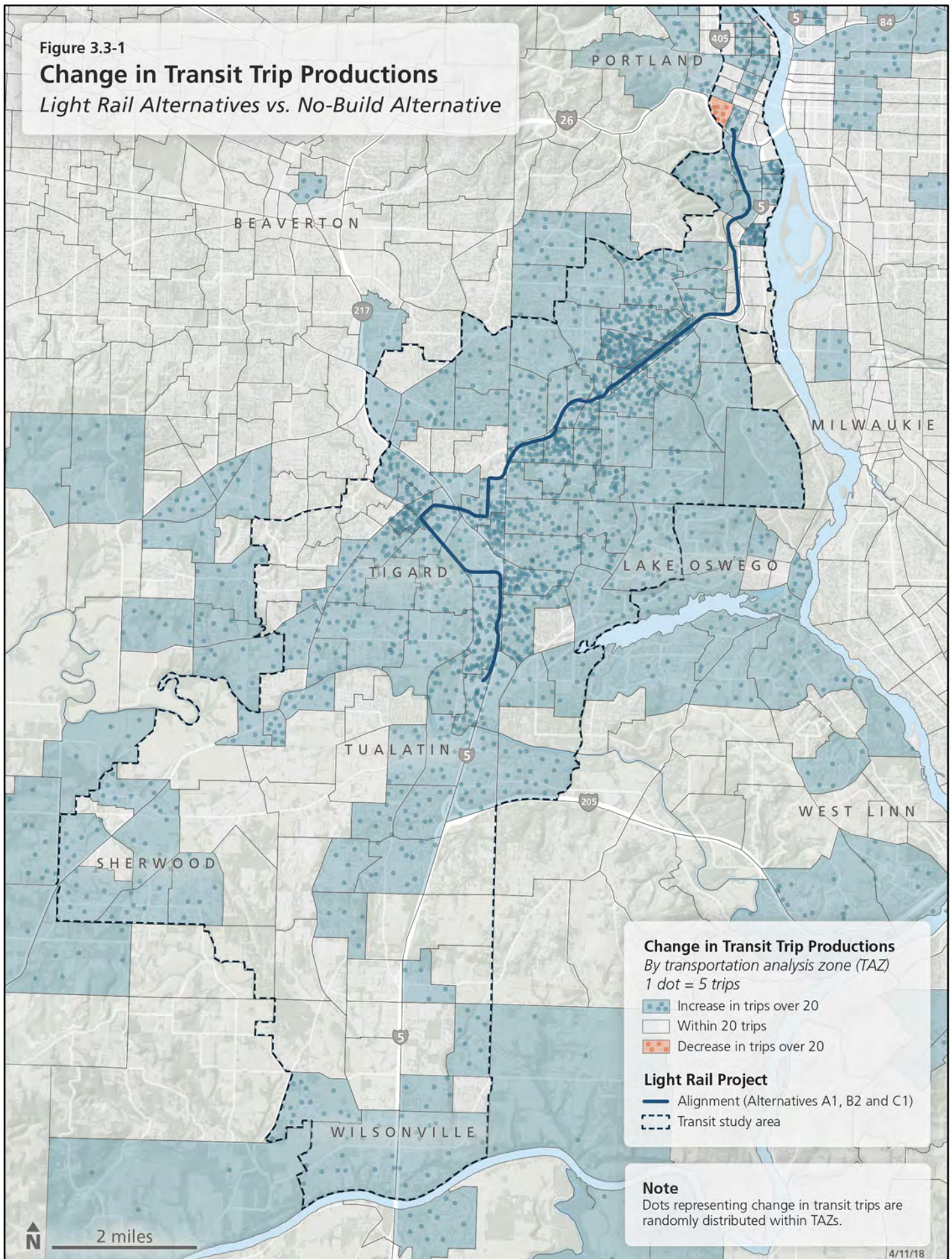
Figure 3.3-1 shows the change in transit trip productions (i.e., where trips would originate) for the Through Configuration compared to the No-Build Alternative. The map indicates which areas within the Southwest Corridor would benefit from the project, and conversely, which areas would experience a decrease in transit ridership production.

Of the 180 transportation analysis zones (TAZ) in the corridor, 114 zones would see an increase of more than 20 average weekday transit trip productions compared to the No-Build Alternative, for a total of 11,150 additional transit trips. Two zones in the corridor would see a reduction of more than 20 transit trip productions, for a total of 62 fewer transit trips. In addition, 66 zones outside of the corridor would gain more than 20 trips productions, for a total of 2,480 new productions. In general, the increase in transit trip productions would be due to improvements in travel times and accessibility with the proposed light rail line.

Reductions in transit trip productions in both zones that would lose trips reflect changes in local bus service assumptions in the model, which represent preliminary routing concepts (see bus routing assumptions described in Section 3.1) TriMet will make final bus service decisions before implementation of light rail following public outreach. The substitution of line 96 service for line 44 service between PCC Sylvania and Bridgeport Village would result in the loss of transit trip productions in the Lake Grove area. Near Portland State University, the reduced frequency of the line 8 during the peak assumed with implementation of light rail service would cause a reduction of trips to Marquam Hill. From this downtown location in close proximity to Marquam Hill, the line 8 would provide faster service to the hilltop compared to light rail accessing the Marquam Hill connector. From areas further from Marquam Hill, the light rail would provide a faster trip to the hilltop compared to the line 8.

Figure 3.3-1

## Change in Transit Trip Productions *Light Rail Alternatives vs. No-Build Alternative*





### 3.3.4. Work and Non-Work Transit Trips and Mode Share

Table 3.3-3 shows corridor transit trips and transit mode share (percentage of trips choosing to ride transit for a given trip) for trips produced in the Southwest Corridor that would be destined to the Portland central business district (CBD) for work and non-work purposes. The CBD is projected to have nearly 90,000 jobs in 2035, accounting for 28 percent of the jobs in the corridor. The Light Rail Alternative would have a higher transit mode share for both home-based work and non-work trips destined to the CBD, compared to the No-Build Alternative.

**Table 3.3-3 Average Weekday Work and Non-Work Corridor Transit Trips and Transit Mode Share to Portland CBD, Year 2035**

Measure	Existing (2015)	No-Build	Through Configuration	Branched Configuration
<b>Home-Based Work<sup>1</sup></b>				
Transit	5,470	9,750	11,330	11,320
Total Person	16,000	21,970	21,970	21,970
Mode Split	34%	44%	52%	52%
<b>Non-Work<sup>2</sup></b>				
Transit	4,810	10,400	11,440	11,710
Total Person	48,530	67,180	67,180	67,180
Mode Split	10%	15%	17%	17%
<b>Total</b>				
Transit	10,280	20,150	22,770	23,020
Total Person	64,530	89,150	89,150	89,150
Mode Split	16%	23%	26%	26%

Source: Metro, 2017

<sup>1</sup> Home-based work trips are defined as trips taken directly between one's home and one's place of work

<sup>2</sup> Non-work trips are defined as all trips that are not home-based work trips.

### 3.3.5. Station Usage and Mode of Access and Egress

Table 3.3-4 summarizes individual station use and mode of access and egress to the light rail stations with the Through and Branched Configurations.

The most frequently used station with the Through Configuration would be the Tigard Transit Center, with 20 percent of ons and offs. With the Branched Alignment, where one branch would terminate at Tigard Transit Station and would not connect directly to Bridgeport Village, the station would serve 11 percent of the total ons and offs. The majority of the riders at the Tigard Transit Center station, from 53 to 61 percent, would transfer to or from light rail via bus. The Gibbs station, where riders would access the Marquam Hill Connection, is forecast to carry 15 to 16 percent of the ons and offs, making it the busiest station with the Branched Configuration and second busiest with the Through Configuration.



**Table 3.3-4. Average Weekday Station Usage (Ons and Offs) by Mode of Access and Egress, Year 2035**

	Through Configuration				Branched Configuration		
Station	% by Mode of Access	Station Ons/Offs	% Total Ons/Offs		% by Mode of Access	Station Ons/Offs	% Total Ons/Offs
Jackson	56% walk 44% transfer	2,194	4%		54% walk 46% transfer	2,342	4%
Gibbs	94% walk 6% transfer	8,341	15%		94% walk 6% transfer	9,516	16%
Hamilton	55% walk 45% transfer	1,279	2%		60% walk 40% transfer	1,599	%3
Custer	61% walk 39% transfer	2,202	4%		58% walk 42% transfer	2,555	4%
19th Ave	70% walk 29% transfer 1% auto	2,460	4%		69% walk 30% transfer 1% auto	2,882	5%
26th Ave	95% walk 0% transfer 5% auto	4,059	7%		94% walk 0% transfer 6% auto	4,515	8%
Barbur TC	40% walk 25% transfer 35% auto	4,368	8%		41% walk 24% transfer 35% auto	4,761	8%
53rd Ave	46% walk 2% transfer 52% auto	3,586	6%		41% walk 20% transfer 39% auto	4,584	8%
Baylor	69% walk 1% transfer 30% auto	3,204	6%		68% walk 2% transfer 30% auto	3,477	6%
Beveland	91% walk 0% transfer 9% auto	2,620	5%		86% walk 6% transfer 8% auto	2,875	5%
Tigard TC	28% walk 61% transfer 11% auto	11,303	20%		35% walk 53% transfer 12% auto	7,481	13%
Bonita	89% walk 11% transfer 0% auto	2,670	5%		85% walk 15% transfer 0% auto	2,534	4%
Upper Boones Ferry	94% walk 0% transfer 6% auto	2,009	4%		80% walk 0% transfer 20% auto	2,338	4%
Bridgeport	32% walk 35% transfer 33% auto	6,120	11%		28% walk 41% transfer 31% auto	6,348	11%

Source: Metro, 2017

### 3.3.6. Light Rail Ridership Distribution

This section illustrates the distribution of the total projected riders along the light rail line and the connecting riders along their source transit routes.

#### Light Rail Line Volumes

Figure 3.3-2 shows the distribution of riders along the light rail line on an average weekday in 2035 between the Jackson Street Station on the Portland Transit Mall and the Bridgeport terminus for the

Through Configuration. The figure shows all light rail riders, including walk-on, transfer and park and ride patrons. The ridership is highest at the peak load point, just south of the Gibbs Station.

Connecting Riders

Figure 3.3-3 shows the distribution of transferring Southwest Corridor light rail riders on the transit lines to or from which they would connect. Connecting transit lines include the Green Line MAX, which would interline with the Southwest Corridor light rail, and all bus, light rail, WES commuter rail, and streetcar lines that would provide transfer opportunities to the Southwest Corridor line. The highest concentration of riders connecting to the Southwest Corridor line would come from the Green Line MAX, followed by transit riders on bus lines along Highway 99W southwest of Tigard.

3.3.7. Corridor Throughput

Light Rail would increase the person throughput in the corridor by adding capacity to the existing transportation network. Compared to the No-Build, the light rail (Through Configuration) would increase PM peak 1-hour person throughput in the peak direction south of downtown Portland by 26 percent in 2035. Of that total person throughput, approximately 21 percent would use light rail. Table 3.3-5 shows the share of southbound commuters in the PM 1-hour peak period that would be carried by I-5, SW Barbur Boulevard and light rail south of downtown Portland, in the vicinity of SW Bancroft Street, under the Through Configuration.

Table 3.3-5. PM Peak 1-Hour, Southbound Commuter Throughput by Facility, South of Downtown Portland

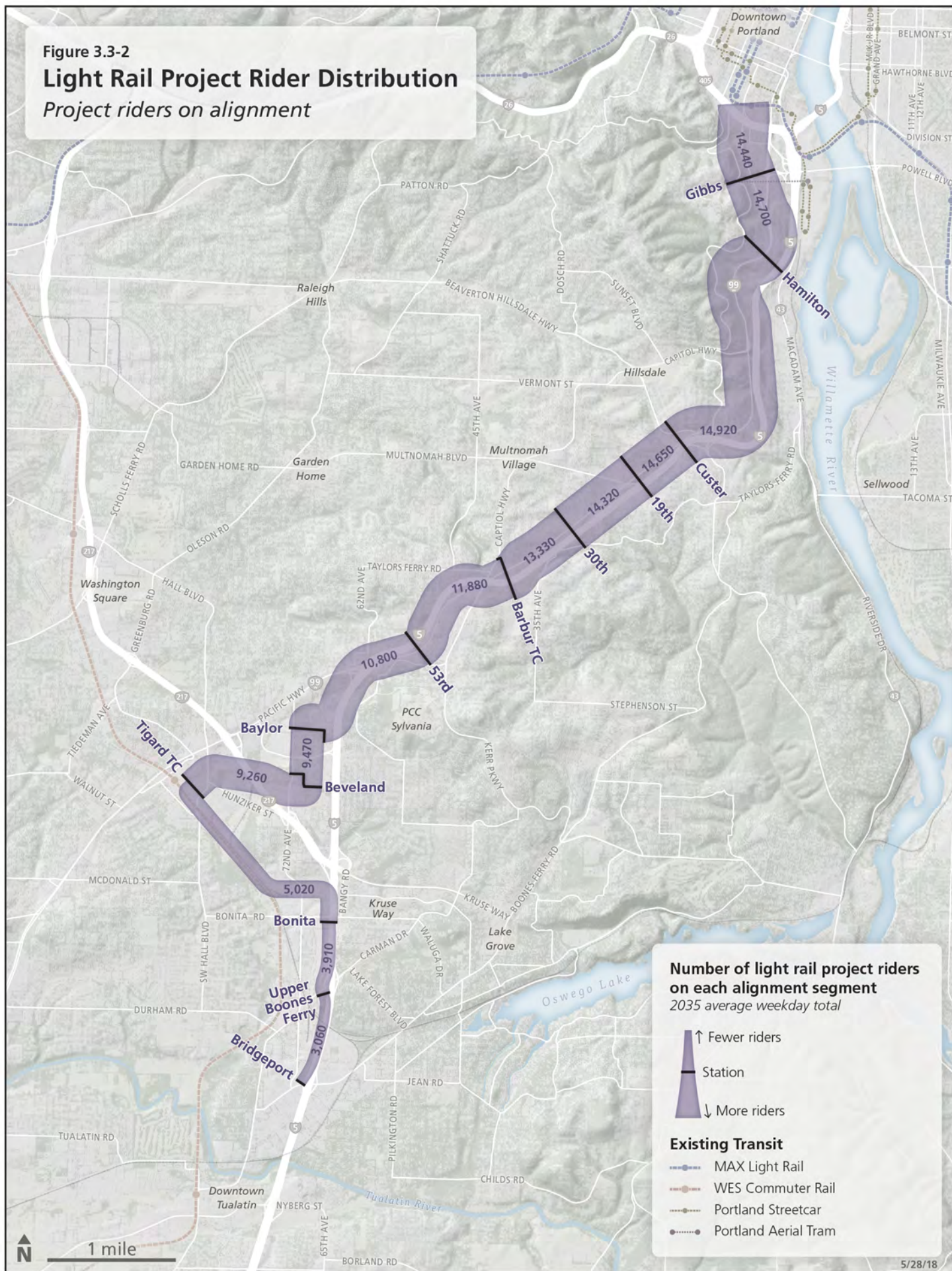
Facility	2035 1-Hour PM Peak Southbound Passenger Volume <sup>1</sup>	Share
I-5	6,030	54%
SW Barbur Boulevard <sup>2</sup>	2,740	25%
SW Corridor light rail <sup>3</sup>	2,330	21%

Source: Metro 2017  
<sup>1</sup> projected auto volumes multiplied by average auto occupancy rate of 1.13  
<sup>2</sup> south of merge point with SW Naito Parkway  
<sup>3</sup> south of Gibbs station

Figure 3.3-2

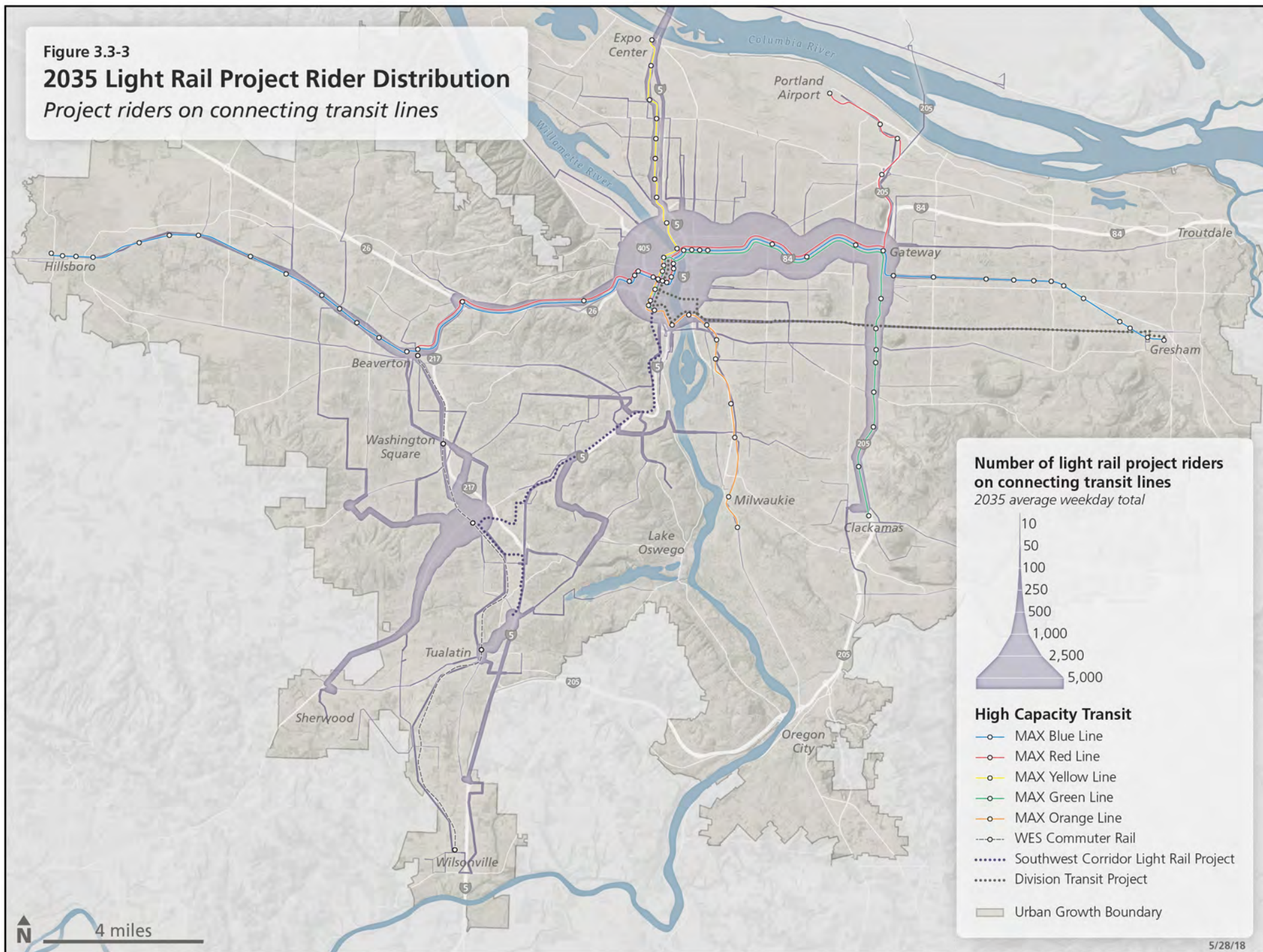
# Light Rail Project Rider Distribution

Project riders on alignment





**Figure 3.3-3**  
**2035 Light Rail Project Rider Distribution**  
*Project riders on connecting transit lines*



### 3.4. Light Rail Alternatives

This section describes the operational and ridership differences associated with the light rail alternatives in each segment that were not specifically included in the Through Configuration and Branched Configuration analysis described previously. Table 3.4-1 shows the light rail alternatives by segment and identifies those that comprise the Through and Branched Configurations evaluated above in bold text. Descriptions of the alternatives are included in Chapter 2 of the Draft EIS.

**Table 3.4-1. Light Rail Alternatives by Geographic Segment**

Segment	Light Rail Alternatives
<b>A: Inner Portland</b>	<b>A1: Barbur (included in Through and Branched Configurations)</b> A2-BH: Naito with Bridgehead Reconfiguration A2-LA: Naito with Limited Access
<b>B: Outer Portland</b>	B1: Barbur <b>B2: I-5 Barbur Transit Center to 60<sup>th</sup> (included in Through and Branched Configurations)</b> B3: I-5 26 <sup>th</sup> to 60 <sup>th</sup> B4: I-5 Custer to 60 <sup>th</sup>
<b>C: Tigard and Tualatin</b>	<b>C1: Ash to I-5 (included in Through Configuration)</b> C2: Ash to Railroad C3: Clinton to I-5 C4: Clinton to Railroad <b>C5: Ash and I-5 Branched (included in Branched Configuration)</b> C6: Wall and I-5 Branched

#### Segment A: Inner Portland

Alternatives in Segment A are compared to Alternative A1 (Barbur), the alternative included in the Through and Branched Configurations evaluated in the full-corridor analysis.

Compared with Alternative A1, Alternatives A2-BH (Naito with Bridgehead Configuration) and A2-LA (Naito with Limited Access) would be one minute, 10 seconds slower than Alternative A1. The A2 Alternatives would provide access to the Lincoln Station built as part of the Orange Line MAX. The additional stop at the Lincoln Station and slightly longer distance traveled account for most of the additional travel time with the A2 Alternatives compared to Alternative A1.

Despite the slower travel time, ridership in 2035 would be slightly higher with Alternative A2-LA or A2-BH than with Alternative A1, with 41,900 daily line riders compared to 41,600 line riders. Higher line ridership would be due to the Lincoln Station, which would attract additional walk-on riders and would provide a more direct transfer point for bus lines connecting to Southeast Portland via the Tilikum Crossing.

The A2 Alternatives would have 5 percent fewer daily system transit riders compared to Alternative A1. Alternative A1's travel time advantage would attract more new transit riders, while some of the A2 alternatives' riders transferring to and from buses at Lincoln station to use light rail to reach the Marquam Hill connection would otherwise use local buses to transfer to the line 8 to reach the hilltop.

With Alternative A1, the Gibbs station would be on SW Barbur Boulevard, providing a shorter walk time to Marquam Hill via the Marquam Hill Connector compared to the A2 Alternatives, with the station on SW Naito Parkway. While a station on SW Naito Parkway would be closer to South Waterfront via

the Hooley Pedestrian Bridge, the greater demand from Marquam Hill results in higher overall projected ridership at the Gibbs station with Alternative A1, with 7,800 daily walk ons and offs in 2035 compared to 6,600 with the A2 Alternatives.

### **Segment B: Outer Portland**

Alternative B2 was used to model and evaluate operations and ridership as part of the Full Length Light Rail Alternative. The four alignment alternatives in Segment B each include the same number of stations, with generally similar locations and spacing. With Alternative B4 (I-5 Custer to 60<sup>th</sup>) the Spring Garden Station would be located approximately 800 feet southwest of the 19<sup>th</sup> Street Station with the other alternatives. This would result in a slightly different, but similar, walk-access market for this station.

Light rail travel times would be similar among the alternatives. Light rail operating in the center of SW Barbur Boulevard may incur delay from signals at major intersections allowing traffic and pedestrians to cross the alignment and street. Up to 40 seconds of travel time between SW Terwilliger Boulevard and SW 60<sup>th</sup> Avenue was added to the model in peak periods to reflect potential average signal delay depending on the length of operation in SW Barbur Boulevard.

Even after accounting for the signal delay variance the light rail travel times would be similar among all of the Segment B alternatives and any resulting ridership difference is expected to be minor.

### **Segment C: Tigard and Tualatin**

Alternative C1 (Ash to I-5) or Alternative C5 (Ash and I-5 Branched) was used to model and evaluate operations and ridership for the Full Length Light Rail Alternative. The other Segment C Alternatives include C2 (Ash to Railroad), C3 (Clinton to I-5), C4 (Clinton to Railroad) and C6 (Wall and I-5 Branched).

Alternative C2 would be 30 seconds faster than Alternative C1. Despite the faster travel time, Alternative C2 would have slightly lower ridership than Alternative C1, because of Alternative C1's proximity to a higher number of households and employment. Alternative C2 would have 400 fewer average weekday riders and 300 fewer new system transit trips in 2035 compared to Alternative C1.

Alternative C3 would be 1.3 minutes faster than Alternative C1, because it would include a more direct route between the Tigard Triangle and downtown Tigard. It would include one fewer station than Alternative C1, omitting the Beveland station in the Triangle. The ridership gained throughout the alignment due to the faster travel time would not overcome the riders lost by not serving the Beveland station. The net result would be approximately 600 fewer riders and 1,100 fewer system transit trips with Alternative C3 compared to Alternative C1.

Alternative C4 would be 1.8 minutes faster than Alternative C1 because of a more direct route between the Tigard Triangle and downtown Tigard, as with Alternative C3, and a faster route between downtown Tigard and Bridgeport Village, as with Alternative C2. It would include one fewer station than Alternative C1, omitting the Beveland station. Alternative C4 would attract approximately 800 fewer riders and 500 fewer system transit trips compared to Alternative C1.

Alternative C6, the Wall and I-5 Branched Alternative, would be 1.8 minutes slower than Alternative C5 on the Tigard Branch because it would be nearly one-half mile longer including slow curves. As a result,



Alternative C6 would have 300 fewer average weekday riders and 600 fewer new system transit trips in 2035 compared to Alternative C5. The Bridgeport Branch would be identical between the two alternatives.

### **3.4.1. Park and Ride Range**

Light Rail alternative model runs assumed the maximum build-out of each park and ride. Final project designs may assume smaller capacities or exclude some lots, which would result in lower ridership than reported in earlier sections. To project the range of ridership outcomes possible with different park and ride capacities, a model run assuming no additional park and ride capacity in the corridor was performed. Results show that park and rides contribute up to 4,660 line riders over No-Build park and ride capacities.

### **3.4.2. Minimum Operable Segment (MOS)**

A Minimum Operable Segment (MOS) would shorten the proposed alignment to allow the project to be developed in phases if there is not sufficient funding for the full extension. There are two options considered for an MOS, one to the Tigard Transit Center and one directly to Bridgeport Village, both described in Chapter 2 of the Draft EIS. This section summarizes potential transportation impacts associated with these alignment options.

The Tigard Transit Center MOS would shorten the proposed alignment to terminate at the Tigard Transit Center, and would not include stations or park and rides at SW Bonita Road, SW Upper Boones Ferry Road or Bridgeport Village, a reduction of 1,100 to 1,700 park and ride spaces with direct access to light rail. This option would likely result in additional parking demand at the Tigard Transit Center, Baylor and Barbur Transit Center park and rides. It would have 32,400 average weekday boardings, 9,200 fewer than with the build alternatives; and 14,200 new system transit trips, 3,600 fewer than with the build alternatives.

A Bridgeport MOS would not include the station or park and ride at Tigard Transit Center, a reduction of 275 to 300 park and ride spaces with direct access to light rail compared with the build alternatives. This MOS could result in a slight increase in demand at the Baylor (or Clinton) park and ride and the Barbur Transit Center park and ride. It would have 39,000 average weekday boardings and 17,700 new system trips. It would have higher ridership than an MOS to the Tigard Transit Center because it would include two additional stations.

### **3.4.3. Initial Route Proposal**

FTA standard operating procedures require grant applicants to identify a preferred alternative in the Draft EIS to give the public and federal, state and local agencies, and tribal governments an opportunity to comment on a full route alternative. The Southwest Corridor Steering Committee has not identified a draft preferred alternative, but staff from the project partners has identified an initial route proposal to fulfill this requirement. The initial route proposal, described in Chapter 2, is based on Alternatives A1, B2, and C2.

The initial route proposal is similar to the Through Configuration but would replace Alternative C1 (Ash to I-5) with Alternative C2 (Ash to Railroad). With C2, the alignment would have 600 fewer park and ride spaces compared to with C1. The initial route proposal would result in 41,200 average weekday boardings and 17,500 new system trips.

## **Appendices**

### **A. 2035 Average Weekday Trip Tables**

A.1. Total Person Trips

A.2. No-Build Transit Work Trips

A.3. LRT Through Configuration Transit Work Trips

A.4. No-Build Total Transit Trips

A.5. LRT Through Configuration Total Transit Trips

### **B. 2035 Corridor Transit Line Listings**

B.1. No-Build

B.2. Light Rail Alternatives



**Figure A1-1**  
**Regional Districts**

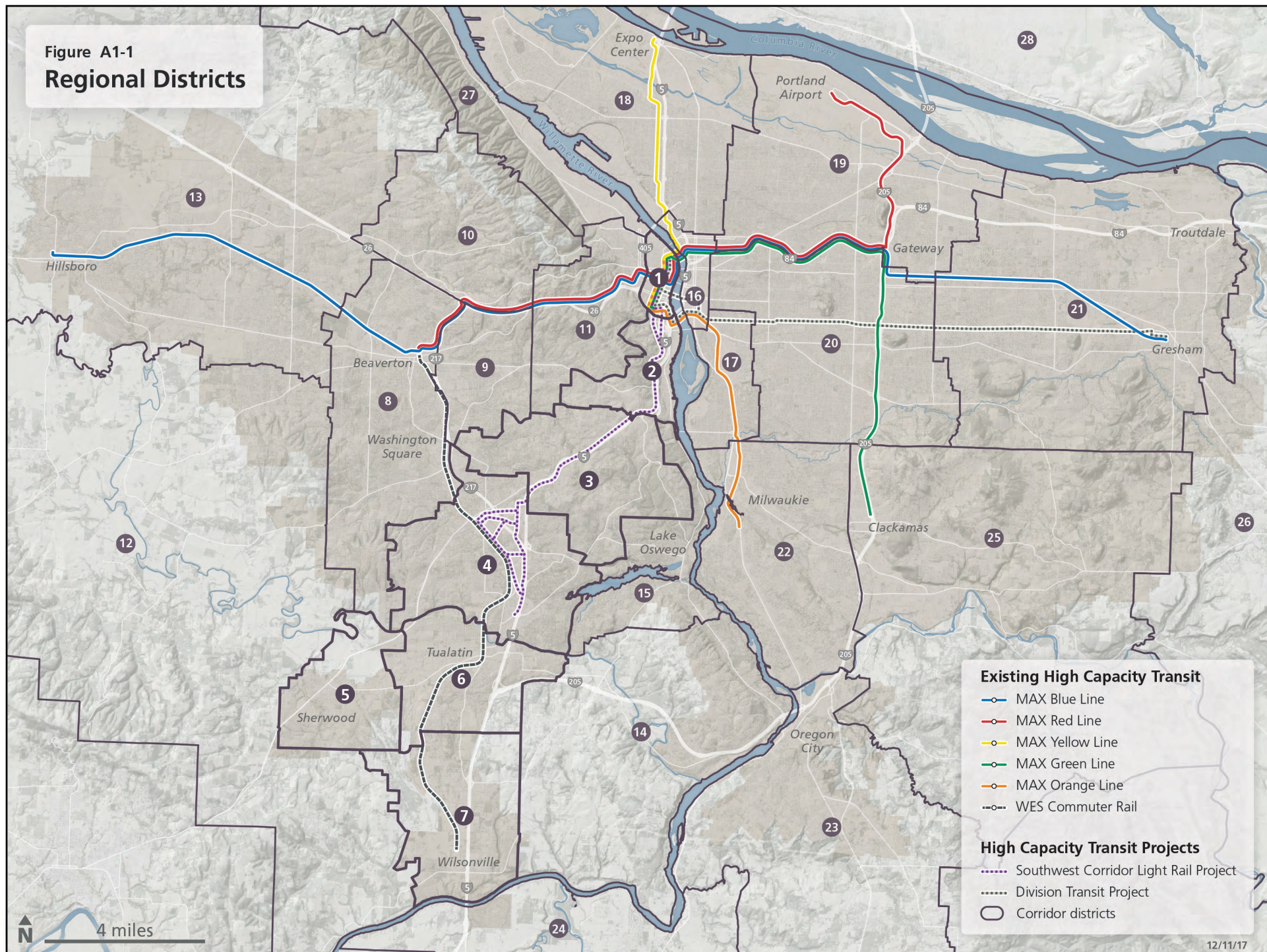




Table A 1 2035 Total Person Trips by District

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sum
1	229,552	17,212	3,234	5,838	261	942	627	5,562	2,443	2,570	36,573	431	6,191	363	654	28,996	4,870	15,494	11,666	18,449	3,802	2,514	436	130	2,235	234	3,512	4,255	409,046
2	37,953	66,191	11,651	12,524	505	1,899	1,258	8,321	4,775	2,696	16,519	688	7,327	752	1,490	12,501	5,787	9,625	7,064	12,791	2,921	3,404	627	227	2,664	206	1,828	2,990	237,184
3	11,156	17,407	54,713	51,737	1,484	5,709	3,662	17,801	8,036	3,327	8,947	1,564	9,801	1,678	4,032	5,102	2,851	5,487	3,956	6,190	1,539	3,342	1,192	556	2,500	156	1,363	1,519	236,809
4	7,701	8,985	26,317	205,929	5,732	19,002	8,265	41,216	9,970	5,362	6,853	5,041	18,480	3,454	6,179	4,440	2,130	4,794	3,896	5,485	1,519	3,418	2,438	1,350	3,226	201	1,046	1,860	414,288
5	942	1,007	2,586	11,492	30,158	6,813	4,636	5,502	1,003	712	696	4,632	5,329	864	821	443	210	472	378	538	173	656	711	581	773	44	125	142	82,439
6	1,787	2,261	4,735	27,788	4,799	37,787	7,906	7,238	1,861	1,188	1,615	1,864	4,281	2,533	1,982	1,109	570	1,205	980	1,575	556	1,853	1,785	1,029	2,199	137	264	438	123,324
7	1,490	2,080	4,513	16,970	3,994	9,766	61,461	5,635	1,636	1,047	1,470	2,155	3,456	3,272	2,049	1,006	558	1,090	948	1,592	628	2,225	2,322	2,811	2,639	159	243	415	137,632
8	12,631	8,796	15,523	70,939	4,428	8,904	4,844	183,095	23,576	17,411	10,240	14,837	73,762	1,529	2,142	4,801	1,675	5,645	4,088	4,694	1,371	1,918	1,081	643	1,556	109	1,455	1,808	483,501
9	5,183	4,295	5,579	15,160	501	1,492	975	21,691	27,567	4,362	5,228	1,357	11,590	367	523	2,030	778	2,493	1,695	2,181	641	792	248	146	599	47	599	900	119,019
10	10,295	5,621	3,801	13,776	625	1,770	1,132	31,870	9,169	50,320	13,050	2,392	47,844	376	578	4,559	1,155	5,987	3,523	4,147	1,183	1,036	255	150	761	78	1,690	1,643	218,785
11	67,415	16,459	6,784	11,229	426	1,589	1,045	12,501	7,415	6,706	86,574	898	12,515	440	824	14,337	3,099	13,990	8,593	11,324	2,944	2,177	368	153	1,745	189	5,421	3,480	300,637
12	4,773	3,635	7,265	28,975	11,653	8,955	7,662	43,251	6,604	5,826	3,583	52,403	85,030	1,267	1,394	1,515	557	1,965	1,224	1,322	386	944	878	802	916	52	684	395	283,914
13	19,389	11,988	9,201	36,330	3,886	5,750	3,403	105,303	20,348	36,919	18,411	31,530	851,525	908	1,336	8,287	2,311	12,694	7,163	7,502	2,206	2,053	642	407	1,499	138	3,965	3,181	1,208,275
14	2,058	2,880	4,413	15,841	1,685	7,139	7,672	4,491	1,352	830	1,518	831	2,223	41,733	6,357	1,299	1,030	1,354	1,996	3,767	1,962	7,957	9,248	2,061	9,079	545	329	746	142,394
15	2,628	3,481	6,008	17,718	866	3,727	2,590	4,352	1,379	862	1,862	587	2,347	3,622	21,391	1,560	1,217	1,661	1,223	2,131	570	2,589	1,762	502	2,223	126	371	478	89,831
16	25,049	4,558	1,187	2,220	101	341	229	2,016	889	950	8,310	171	2,202	166	283	53,042	4,643	15,637	12,522	19,783	3,293	2,053	350	89	1,910	206	1,003	2,780	165,982
17	13,058	7,642	2,520	3,803	160	697	524	2,238	1,108	872	4,827	171	2,135	448	884	15,096	36,794	8,249	8,526	31,147	4,467	9,632	1,255	279	6,368	424	948	1,543	165,814
18	36,278	13,678	4,250	7,777	321	1,308	865	7,421	3,432	4,066	24,738	581	11,157	506	990	53,044	7,766	242,296	56,138	35,615	14,232	5,703	947	241	5,652	875	7,010	20,460	567,348
19	26,576	9,229	3,118	5,672	289	1,023	771	5,153	2,160	2,557	13,684	566	6,365	816	782	39,557	7,951	55,162	190,571	86,880	44,672	8,953	2,604	710	15,262	2,792	3,133	33,002	570,010
20	49,745	17,228	5,243	9,107	423	1,914	1,492	6,485	2,982	3,047	17,702	439	7,083	1,681	1,524	58,834	33,165	35,812	93,013	328,767	59,038	30,364	6,731	1,393	46,999	3,796	3,942	13,075	841,024
21	13,798	6,394	1,890	3,509	195	947	855	2,584	1,199	1,295	7,394	177	2,808	1,242	571	18,234	7,207	21,974	73,733	81,992	390,984	15,593	5,139	1,207	42,848	25,038	1,983	16,282	747,072
22	8,515	6,325	3,453	6,250	538	2,351	2,144	2,512	1,173	862	4,236	291	1,991	3,476	2,086	10,212	11,772	8,021	13,065	32,538	12,926	121,791	17,214	2,836	59,740	2,582	978	3,186	343,064
23	1,320	1,537	1,533	6,110	689	2,935	2,882	1,761	533	329	920	298	900	4,864	1,639	2,167	2,009	1,841	5,274	10,234	6,107	19,566	90,786	10,172	22,823	1,852	212	1,474	202,765
24	946	1,273	1,885	8,353	1,495	4,497	9,627	2,280	682	415	756	617	1,150	3,162	1,240	1,247	1,106	1,089	2,783	5,411	4,419	10,329	27,494	119,268	14,364	4,514	171	580	231,154
25	4,890	3,785	2,065	5,073	559	2,477	2,277	1,689	721	547	2,825	239	1,237	3,482	1,519	7,046	6,398	6,711	20,084	40,842	45,692	44,355	20,298	3,564	166,453	9,109	709	5,193	409,840
26	1,561	1,023	364	886	87	438	402	382	173	183	1,094	38	366	656	227	2,712	1,423	3,542	11,807	12,668	71,017	7,277	3,930	2,069	20,946	104,297	329	2,504	252,401
27	5,064	1,611	560	1,057	47	161	108	1,157	481	674	6,282	146	3,405	61	111	2,618	507	4,936	2,106	2,232	692	384	65	22	340	44	3,650	1,138	39,658
28	15,561	6,462	1,725	3,075	115	558	384	2,711	1,298	1,519	8,909	157	3,360	372	386	13,902	3,258	51,200	57,804	26,420	23,723	4,686	1,485	276	8,099	1,419	3,030	1,796,557	2,038,452
Sum	617,314	253,043	196,116	605,138	76,020	140,891	139,699	536,218	143,966	157,453	314,818	125,101	#####	84,091	63,992	369,695	152,796	540,424	605,817	798,217	703,661	317,562	202,292	153,672	446,418	159,368	49,994	1,922,024	11,061,660

Table A 2. 2035 No-Build Transit Work Trip Demand by District, 2035 Average Weekday

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sum
1	5,418	871	116	441	22	88	66	534	107	142	701	3	624	12	33	876	154	554	453	478	265	164	28	3	147	6	109	156	12,569
2	2,835	839	84	324	18	67	47	326	77	67	304	2	377	12	32	500	94	263	194	234	136	99	23	3	96	3	45	75	7,173
3	2,261	551	120	439	27	91	68	342	69	54	223	2	374	7	24	418	48	137	104	122	64	53	14	2	64	1	23	43	5,744
4	1,878	461	70	513	44	110	96	348	48	50	187	2	374	6	26	351	31	84	69	74	35	30	12	3	44	1	15	26	4,988
5	282	76	13	116	26	31	27	74	9	9	30	1	126	1	5	52	5	12	9	11	5	6	3	1	14	0	2	3	949
6	426	99	10	86	7	34	22	71	9	9	39	0	76	1	7	76	5	14	11	13	8	7	2	1	28	0	2	4	1,069
7	460	150	17	151	7	33	141	127	13	15	59	0	106	2	12	98	8	15	19	19	12	12	8	6	41	0	3	4	1,538
8	2,949	705	99	695	48	160	107	1,066	134	180	429	8	1,730	7	29	586	54	179	156	150	67	47	13	3	51	1	35	51	9,738
9	829	208	26	139	8	32	19	174	44	28	96	1	274	2	7	166	16	50	40	41	21	18	4	1	20	0	8	17	2,291
10	1,344	295	22	177	8	45	21	264	32	78	170	1	505	2	7	273	21	82	66	63	35	24	5	1	28	0	12	34	3,617
11	4,402	720	85	349	17	71	50	521	95	140	846	3	682	9	25	784	101	446	355	364	205	109	18	2	117	4	95	131	10,746
12	1,274	252	15	185	19	53	44	241	25	35	153	3	614	2	10	232	9	30	40	24	15	8	3	0	16	0	5	12	3,320
13	6,423	1,525	131	1,009	87	213	96	2,539	294	397	1,075	19	6,384	9	34	1,391	101	351	328	277	125	78	15	3	95	1	67	97	23,164
14	614	155	7	95	4	12	24	62	6	6	48	0	43	7	9	124	10	16	32	33	24	31	16	2	70	0	2	6	1,461
15	684	175	12	94	5	17	19	63	9	8	60	0	47	5	14	140	14	34	24	29	17	14	11	1	28	0	4	12	1,545
16	1,331	204	29	109	5	21	15	131	28	38	179	1	150	3	9	680	79	329	301	292	171	96	15	1	96	4	33	51	4,402
17	2,368	470	43	168	9	35	25	191	41	44	242	1	201	9	17	901	243	349	304	443	265	229	55	5	226	8	36	61	6,989
18	6,678	1,378	98	356	17	79	48	505	91	125	769	2	576	10	35	2,659	258	1,863	1,064	921	608	260	39	3	356	12	127	364	19,305
19	5,250	1,003	75	282	13	59	37	422	71	105	671	2	442	13	25	2,329	249	1,065	1,423	1,198	1,100	350	67	5	660	26	86	208	17,235
20	10,802	2,095	180	664	34	148	104	814	160	212	1,302	4	846	39	64	4,815	741	1,852	2,636	3,293	2,352	1,070	228	19	1,732	68	190	361	36,825
21	6,202	1,304	62	228	11	61	39	334	57	85	779	1	293	17	26	3,315	387	983	1,858	1,821	2,422	513	89	6	1,078	109	83	201	22,365
22	2,332	525	23	115	8	27	30	100	22	23	211	0	94	21	13	1,077	168	241	381	498	322	495	163	17	525	13	22	42	7,507
23	538	134	5	102	4	14	29	31	3	3	40	0	17	7	7	269	28	25	86	86	62	94	96	10	146	1	2	7	1,848
24	427	139	6	117	5	28	43	83	4	6	43	0	43	5	8	204	15	11	57	49	45	44	35	19	136	0	1	3	1,575
25	1,959	422	14	88	7	31	31	69	12	14	186	0	57	11	11	1,016	93	188	420	440	372	275	66	6	462	14	15	44	6,323
26	933	210	3	21	1	10	2	30	3	6	105	0	21	2	4	579	36	66	199	155	291	53	9	0	182	13	5	17	2,957
27	376	67	3	15	1	3	2	21	3	4	34	0	30	0	1	79	5	25	20	18	12	5	1	0	8	0	6	9	750
28	6,564	1,355	35	200	8	45	16	274	33	57	886	1	223	8	24	3,170	150	1,226	726	585	532	140	29	1	511	3	51	6,191	23,044
Sum	77,839	16,391	1,405	7,277	470	1,616	1,265	9,757	1,496	1,941	9,868	58	15,331	231	520	27,161	3,125	10,488	11,377	11,733	9,587	4,323	1,068	125	6,978	290	1,083	8,232	241,037

Table A 3. Through Route Transit Work Trip Demand by District, 2035 Average Weekday

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sum
1	5,415	892	137	578	23	87	66	537	108	143	707	3	626	12	34	882	155	560	457	482	267	165	29	3	147	6	110	157	12,789
2	2,932	900	115	516	23	75	56	345	85	71	320	2	390	13	34	530	98	279	210	247	141	104	24	3	101	3	48	77	7,743
3	2,948	884	183	784	46	125	98	405	80	67	302	2	427	9	30	601	58	184	163	168	80	67	17	3	91	2	33	59	7,916
4	2,178	692	120	750	58	130	107	387	54	57	215	2	415	8	29	433	36	107	97	99	39	37	14	4	63	1	20	31	6,183
5	337	119	24	157	28	34	25	83	9	10	37	1	134	2	7	67	4	11	11	12	5	6	3	1	15	0	2	3	1,146
6	533	176	21	118	8	35	21	83	9	10	51	0	93	1	7	104	6	14	17	14	8	8	3	1	30	0	3	5	1,380
7	564	208	38	212	10	39	140	124	13	15	66	0	105	2	12	121	9	18	21	21	11	12	8	6	43	0	3	6	1,828
8	3,039	853	137	863	60	163	105	1,069	135	180	436	8	1,738	7	26	613	55	181	160	154	68	48	13	3	57	1	35	52	10,262
9	844	239	34	172	10	32	21	176	44	29	98	1	277	2	8	169	16	50	42	42	22	18	4	1	21	0	8	17	2,396
10	1,341	328	44	238	11	46	22	266	32	78	172	1	504	2	8	275	21	82	67	63	35	24	5	1	28	0	12	34	3,743
11	4,436	748	106	480	20	70	53	524	96	141	852	3	688	9	27	792	102	449	359	366	206	110	18	2	116	4	95	131	11,005
12	1,382	363	44	283	26	63	38	245	25	35	165	3	612	2	12	259	10	32	44	26	16	9	3	0	21	0	5	13	3,738
13	6,392	1,562	191	1,226	90	213	100	2,533	294	397	1,072	19	6,372	8	34	1,387	101	351	327	276	125	78	15	3	95	1	67	96	23,425
14	702	224	34	170	8	25	20	76	6	7	53	0	59	8	10	134	11	16	33	33	24	32	16	2	71	0	2	7	1,783
15	827	244	24	130	7	20	17	64	9	9	69	0	52	5	14	161	15	33	30	29	17	14	11	1	29	0	5	12	1,848
16	1,337	217	36	144	6	21	15	132	29	38	181	1	151	3	9	685	80	332	304	295	173	97	15	1	97	4	33	51	4,486
17	2,373	474	56	251	10	33	26	192	41	44	243	1	202	9	18	903	244	350	304	444	266	230	55	5	226	8	36	61	7,103
18	6,680	1,453	136	539	17	67	46	508	92	126	771	2	578	10	35	2,663	258	1,871	1,068	924	609	261	39	3	356	12	127	365	19,619
19	5,246	1,053	110	437	14	54	37	423	71	105	671	2	442	12	25	2,331	249	1,067	1,427	1,199	1,104	350	66	5	650	26	86	209	17,472
20	10,798	2,159	248	1,000	36	138	106	818	161	212	1,302	4	847	39	64	4,811	742	1,854	2,638	3,295	2,355	1,071	228	19	1,726	68	190	361	37,292
21	6,202	1,329	99	351	11	51	38	335	57	85	779	1	294	17	26	3,317	387	983	1,859	1,817	2,423	512	88	6	1,067	109	83	202	22,529
22	2,374	556	37	179	11	40	31	104	22	23	214	0	95	21	13	1,086	169	242	381	498	322	496	163	17	525	13	22	42	7,696
23	570	165	28	154	7	31	25	40	3	4	42	0	19	7	8	277	30	26	85	86	62	95	96	10	148	1	2	7	2,030
24	494	192	34	187	10	46	36	77	4	6	50	0	41	5	10	227	16	13	58	51	44	46	37	19	140	0	1	4	1,850
25	1,964	474	31	159	9	51	29	72	12	15	186	0	58	11	12	1,019	94	188	419	439	372	275	66	6	463	14	15	44	6,498
26	931	210	10	37	1	6	2	30	3	6	104	0	21	2	4	577	36	66	199	154	290	53	9	0	182	13	5	17	2,968
27	369	67	5	24	1	3	2	21	3	4	34	0	29	0	1	79	5	26	21	18	13	5	1	0	8	0	6	9	755
28	6,575	1,407	98	337	7	34	15	276	33	57	888	1	223	8	24	3,176	150	1,234	727	570	537	138	29	1	488	3	51	6,212	23,301
Sum	79,783	18,189	2,182	10,475	567	1,732	1,300	9,946	1,529	1,973	10,081	60	15,493	238	542	27,679	3,158	10,619	11,528	11,820	9,633	4,362	1,077	127	7,004	291	1,109	8,287	250,781

Table A 4. No-Build Total Transit Trip Demand by District, 2035 Average Weekday

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sum
1	19,241	2,246	350	829	34	137	84	1,239	285	292	3,245	12	1,178	23	71	3,321	549	1,751	1,619	2,094	687	345	47	4	387	10	221	334	40,633
2	8,082	4,128	586	807	31	117	67	812	293	154	1,374	9	687	27	94	1,489	430	808	571	1,051	313	228	39	4	222	5	82	146	22,657
3	3,943	1,222	1,902	1,366	48	172	96	767	221	109	588	9	561	15	72	679	148	319	251	371	102	94	20	4	106	2	38	64	13,287
4	2,877	680	499	2,393	108	311	137	967	161	106	331	23	662	16	80	516	65	173	193	196	67	51	19	4	71	1	21	44	10,771
5	410	104	78	248	192	57	39	121	16	13	42	26	177	3	10	66	8	19	14	22	7	9	4	1	18	0	3	4	1,714
6	569	136	74	366	26	259	46	165	26	18	61	6	127	7	16	104	12	29	23	36	15	13	4	1	40	0	3	8	2,193
7	590	186	82	253	20	68	543	167	22	20	77	7	127	11	19	122	14	27	29	38	19	18	13	10	53	0	4	7	2,545
8	5,877	1,107	463	1,915	87	258	133	4,151	526	506	944	115	3,832	14	54	1,040	124	401	427	418	150	83	20	4	97	2	51	94	22,892
9	1,644	340	125	351	12	48	24	531	271	72	206	9	493	4	13	263	36	107	80	103	38	28	5	1	32	1	11	27	4,876
10	2,461	431	75	363	12	60	27	842	126	795	473	12	1,011	4	12	445	49	187	162	185	66	37	7	1	45	1	21	49	7,958
11	11,825	1,592	342	631	24	97	62	1,122	271	328	5,037	12	1,125	14	46	1,919	274	1,156	897	1,163	381	184	24	2	202	5	184	206	29,127
12	1,714	292	50	269	66	64	56	464	49	54	179	276	1,041	3	13	248	12	39	45	31	16	9	3	0	17	0	6	13	5,030
13	10,616	2,083	362	1,784	141	280	113	6,146	746	881	1,848	209	19,608	13	52	1,982	186	670	656	602	219	116	21	3	142	2	92	140	49,713
14	674	183	20	126	7	22	41	76	9	8	59	2	48	241	48	139	17	23	40	54	31	63	48	3	101	1	3	8	2,095
15	918	257	64	213	9	31	24	103	18	14	93	2	66	28	160	181	37	58	41	64	24	32	21	2	44	0	6	15	2,525
16	4,971	568	97	225	9	35	21	374	86	91	797	4	336	7	22	3,316	344	1,319	1,330	1,655	509	241	27	2	307	7	64	138	16,901
17	5,130	992	144	279	12	48	30	318	87	75	577	3	285	16	42	2,125	1,951	846	769	2,397	547	595	94	6	554	12	56	105	18,095
18	12,512	2,259	268	576	23	105	58	888	209	232	2,085	7	875	17	64	6,508	719	12,029	3,522	3,070	1,175	490	57	4	665	17	236	954	49,625
19	10,996	1,572	206	473	16	74	44	792	140	192	1,543	6	738	20	41	5,567	650	3,558	7,994	5,758	2,873	723	104	6	1,608	44	132	493	46,363
20	22,128	3,424	431	963	43	187	122	1,246	287	335	2,687	9	1,140	65	107	10,032	2,779	3,990	7,698	20,939	5,607	2,464	391	26	4,755	108	273	620	92,859
21	8,775	1,703	119	298	13	72	44	480	92	121	1,233	3	393	27	36	5,067	779	1,729	4,220	5,681	9,966	932	134	8	2,215	262	109	348	44,857
22	3,776	757	70	168	10	38	37	153	39	35	344	1	130	47	39	1,622	593	462	748	1,534	613	2,159	531	29	1,953	21	30	74	16,010
23	570	157	10	119	5	17	32	42	5	5	51	0	23	21	18	312	58	43	125	199	95	341	618	36	337	2	3	12	3,258
24	431	142	7	122	5	29	47	85	4	6	44	0	44	6	9	207	16	12	59	55	49	61	93	337	158	5	1	3	2,036
25	2,477	514	36	115	9	40	36	102	21	22	264	1	80	21	20	1,404	264	333	927	1,565	837	938	204	13	2,232	33	20	77	12,602
26	954	218	4	22	2	10	3	33	3	6	113	0	23	2	4	615	45	79	246	242	656	72	11	2	251	255	5	19	3,895
27	774	115	13	28	1	5	3	45	9	13	172	0	53	1	3	167	20	171	70	85	28	11	1	0	15	0	74	17	1,896
28	8,543	1,543	56	219	8	48	17	307	44	66	1,028	1	245	9	27	3,503	207	2,249	1,033	866	647	169	33	1	572	4	60	15,958	37,461
Sum	153,478	28,950	6,531	15,519	973	2,689	1,987	22,535	4,066	4,571	25,496	763	35,111	680	1,192	52,959	10,387	32,588	33,789	50,475	25,735	10,506	2,594	513	17,199	801	1,808	19,976	563,874

Table A . Through Route Total Transit Trip Demand by District, 2035 Average Weekday

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sum
1	19,264	2,294	418	1,151	39	133	84	1,251	287	295	3,265	12	1,188	23	72	3,344	553	1,766	1,628	2,107	691	348	47	4	389	10	223	336	41,221
2	8,283	4,220	711	1,235	42	131	79	867	329	163	1,422	10	717	29	98	1,584	445	853	605	1,103	321	242	40	4	245	5	88	150	24,019
3	5,016	1,768	2,225	2,252	84	236	139	920	260	135	736	12	648	19	88	970	175	407	353	486	128	125	25	5	166	2	53	85	17,513
4	3,522	1,110	818	3,558	152	380	161	1,094	183	120	431	25	743	18	88	752	88	261	290	328	94	77	22	5	155	1	31	64	14,574
5	466	155	129	343	204	65	39	138	17	14	48	26	187	3	12	82	7	19	17	23	7	10	4	1	24	0	3	5	2,050
6	695	225	105	458	31	262	47	178	26	19	76	6	143	8	17	138	11	30	31	40	15	15	5	1	50	0	4	8	2,645
7	706	252	136	344	23	76	543	164	22	20	84	7	127	11	20	144	15	30	31	40	18	19	13	10	56	0	4	8	2,923
8	5,927	1,287	587	2,182	104	262	132	4,165	528	507	952	115	3,845	14	52	1,068	125	405	432	424	151	84	20	4	105	2	52	95	23,626
9	1,648	383	146	402	15	48	26	535	273	73	208	9	498	4	14	267	36	107	82	104	39	29	5	1	33	1	12	27	5,025
10	2,454	466	110	438	16	61	28	843	125	795	474	12	1,009	4	14	448	49	187	163	185	66	38	7	1	45	1	21	49	8,107
11	11,917	1,633	383	833	27	97	65	1,131	275	330	5,062	12	1,134	14	48	1,933	276	1,163	903	1,169	383	185	24	2	201	5	186	207	29,598
12	1,819	408	112	377	73	75	51	468	49	54	190	276	1,040	4	15	275	13	41	49	34	17	10	4	0	22	0	6	14	5,494
13	10,519	2,131	454	2,057	145	280	117	6,136	745	881	1,844	209	19,581	13	52	1,977	186	669	655	601	218	115	21	3	142	2	92	140	49,986
14	770	254	60	213	10	36	37	89	10	9	64	2	64	241	49	149	18	23	41	54	31	64	48	3	102	1	3	8	2,451
15	1,137	335	92	272	12	34	23	103	18	14	106	2	70	28	160	208	37	58	48	63	24	33	21	2	45	0	6	16	2,968
16	4,992	594	122	329	10	35	21	376	86	92	802	4	338	7	22	3,338	346	1,328	1,338	1,665	512	243	27	2	308	7	64	139	17,149
17	5,130	998	165	394	13	44	31	319	88	76	578	3	286	16	42	2,130	1,953	849	771	2,402	548	597	94	6	555	12	56	106	18,260
18	12,524	2,364	334	852	24	90	56	893	211	233	2,092	7	878	17	64	6,533	722	12,061	3,536	3,083	1,179	492	57	4	666	17	237	956	50,183
19	11,009	1,642	273	713	19	70	43	794	140	192	1,545	6	738	20	41	5,576	651	3,564	8,005	5,767	2,879	724	104	6	1,600	44	132	494	46,791
20	22,146	3,514	547	1,431	47	175	124	1,251	289	336	2,691	9	1,142	65	107	10,040	2,783	3,997	7,705	20,950	5,610	2,464	391	26	4,745	108	274	621	93,588
21	8,777	1,730	168	454	14	60	44	481	92	122	1,233	3	394	27	36	5,069	778	1,730	4,221	5,676	9,966	930	133	8	2,204	262	109	348	45,069
22	3,821	790	95	261	14	51	37	156	39	66	347	1	131	47	40	1,630	594	463	748	1,534	613	2,159	531	29	1,954	21	30	74	16,247
23	602	188	36	175	8	35	28	51	5	5	53	0	25	21	18	321	59	44	125	199	95	342	618	36	339	2	3	13	3,448
24	501	195	45	195	10	48	40	79	4	6	51	0	42	6	11	230	18	14	60	57	48	95	337	162	5	1	4	2,327	
25	2,482	581	68	234	13	63	34	106	21	22	264	1	80	21	21	1,407	265	333	926	1,563	837	638	204	13	2,232	33	20	77	12,857
26	952	218	11	39	1	6	3	33	3	6	112	0	23	2	4	613	45	79	246	240	654	72	11	2	251	255	5	19	3,908
27	770	116	17	46	1	5	3	45	9	13	173	0	53	1	3	167	20	171	71	86	28	11	1	0	15	0	74	17	1,916
28	8,561	1,597	126	368	8	36	16	309	45	66	1,031	1	245	9	27	3,377	27	2,256	1,034	850	652	167	33	1	548	4	60	15,980	37,740
Sum	156,409	31,446	8,493	21,066	1,160	2,894	2,050	22,974	4,180	4,633	25,935	770	35,370	691	1,234	53,901	10,476	32,908	34,113	50,833	25,827	10,596	2,607	516	17,357	802	1,848	20,059	581,690



**Table " 1. 2035 No-Build Transit Lines in the Southwest Corridor**

<b>Light Rail</b>		Mode	PK Hdwy	OP Hdwy
01Y2	MILW-UNION STATION	l	30	0
01Y	MILW-CLARKCOL TILL-P	l	15	15
<b>Commuter Rail</b>				
01CR	COM RAIL WILS-BEAV	r	30	0
<b>Streetcar</b>				
SC	SCAR LOWELL-NW NBCOD	e	15	15
SCJ	SCAR JOHN LAND-NW NB	e	15	15
SCLP	STRCAR EASTSIDE LOOP	e	15	15
<b>Tram</b>				
TRAM	MARQUAM HILL TRAM	b	5	5
<b>TriMet Buses - SW Corridor</b>				
02V	VERMONT via JEFF/COL	b	30	30
06M54	MLK JR To BH HWY	b	10	15
08J	JACKSON PARK TRIPPER	b	20	0
08JN	JACKSON PARK-NE 15TH	b	10	15
12BS	TIGARD TO PARKROSE	b	15	15
35M	MACADAM/GREELEY	b	15	30
36K	TUAL/LAKE OSWEGO	b	30	60
37N	TUALATIN	b	60	60
38B	BOONES FRY JEFF/COL	b	30	60
39LC	LEWIS & CLARK	b	30	45
41CB	CTC to BTC	b	20	30
43TN	TAYLOR FY/WASH SQ JC	b	30	30
44BM	CAPITOL HWY/MOCKS CR	b	15	15
45GJ	GARDEN HOME JEFF/COL	b	30	30
51CLC	COUNCIL CREST/LC	b	45	0
61X	MH/BVTN	b	30	0
64MT	MARQ HILL TIGARD	b	30	0
65M	MARQ HILL BARBUR	b	30	0
66MH	MARQ HILL HOLLYWOOD	b	30	0
68C	COLLINS CIR/MAR. HL	b	15	30
76B	BEAV/TUALATIN	b	15	15
78B	BEAV/LAKE OSWEGO	b	30	30
89T	TIGARD COMM	b	20	30
92JX	S BVTN EXP JEFF/COL	b	30	0
93ST	SHERWOOD TIGARD	b	15	30
94XI	SHERWOOD PACIFIC EXP	b	30	30
94XO	SHERWOOD PACIFIC EXP	b	8	30
96TC	TUAL/COMMERCE CIR JC	b	30	60
96TM	TUAL/MOHAWK JEFF/COL	b	30	60
97ST	SHERWOOD TUALATIN	b	30	60
C190P	Marquam Hill Exp PRM	b	20	0

**Table " 2. 2035 Light Rail Alternative Transit Lines**

<b><u>Light Rail</u></b>		<b>Mode</b>	<b>PK Hdwy</b>	<b>OP Hdwy</b>
01PB	LRT CTC/BRIDGEPORT	l	15	15
01PT	LRT CTC/TIGARD	l	15	0
01PTU	LRT TIGARD/UNION ST	l	60	0
01Y2	MILW-UNION STATION	l	30	0
01Y	MILW-CLARKCOL TILL-P	l	15	15
<b><u>Commuter Rail</u></b>				
01CR	COM RAIL WILS-BEAV	r	30	0
<b><u>Streetcar</u></b>				
SC	SCAR LOWELL-NW NBCOD	e	15	15
SCJ	SCAR JOHN LAND-NW NB	e	15	15
SCLP	STRCAR EASTSIDE LOOP	e	15	15
<b><u>Tram</u></b>				
TRAM	MARQUAM HILL TRAM	b	5	5
<b><u>TriMet Buses - SW Corridor</u></b>				
02V	VERMONT via JEFF/COL	b	30	30
06M54	MLK JR To BH HWY	b	10	15
08JN	JACKSON PARK-NE 15TH	b	10	15
35M	MACADAM/GREELEY	b	15	30
36K	TUAL/LAKE OSWEGO	b	30	60
37N	TUALATIN	b	60	60
38B	BOONES FRY JEFF/COL	b	30	60
39LC	LEWIS & CLARK	b	30	45
41CB	CTC to BTC	b	20	30
43TN	TAYLOR FY/WASH SQ JC	b	30	30
44CM	PCC - CAPITOL HWY/MOCKS CR	b	15	15
45GJ	GARDEN HOME JEFF/COL	b	30	30
51CLC	COUNCIL CREST/LC	b	45	0
61X	MH/BVTN	b	30	0
66MH	MARQ HILL HOLLYWOOD	b	30	0
68C	COLLINS CIR/MAR. HL	b	15	30
76B	BEAV/TUALATIN	b	15	15
78B	BEAV/LAKE OSWEGO	b	30	30
89T	TIGARD COMM	b	20	30
92JX	S BVTN EXP JEFF/COL	b	30	0
93ST	SHERWOOD TIGARD	b	6	15
95SH	SHERWOOD HILLSBORO	b	20	30
96TC	TUAL/COMMERCE CIR JC	b	15	30
97ST	SHERWOOD TUALATIN	b	30	60
C190P	Marquam Hill Exp PRM	b	20	0