



# Title VI Service Monitoring Report

## Spring 2020

Carl Green Jr – Title VI and Equity Programs Administrator  
Department of Transit Equity, Inclusion, and Community Affairs  
February 4, 2021

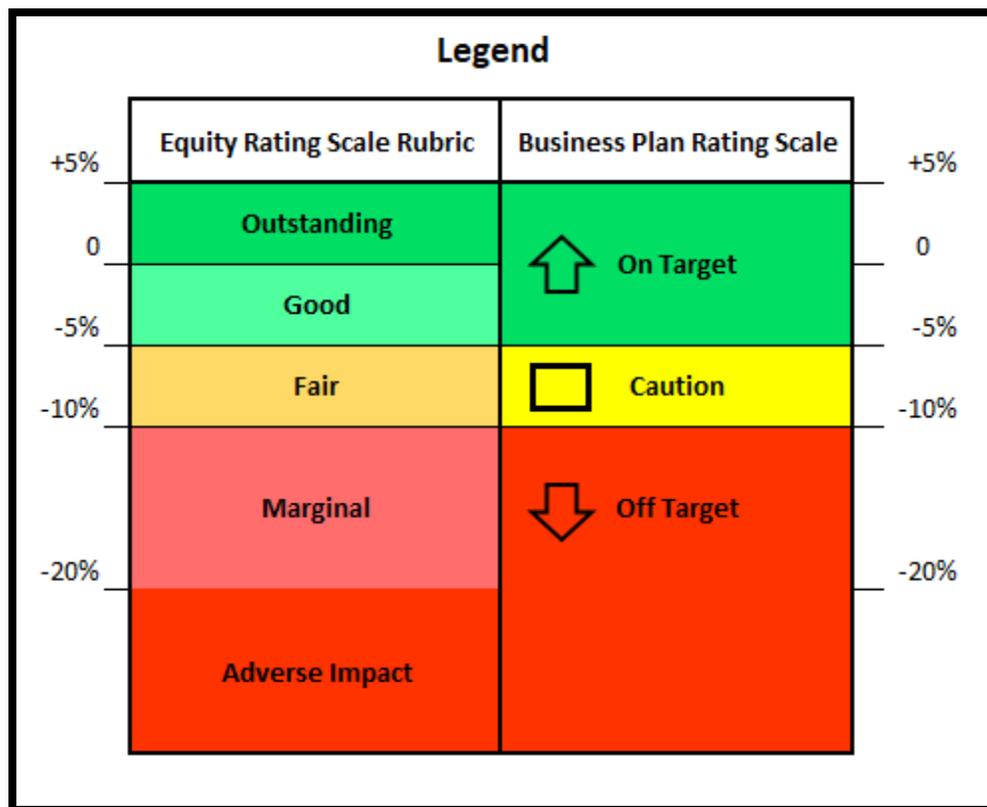
## Staff Summary

Part of TriMet's compliance with FTA Circular 4702.1B *Title VI Requirements and Guidelines for Federal Transit Administration Recipients (Title VI Circular)* is ongoing performance monitoring across all service modes (bus, MAX, and WES). The Title VI Circular does not require monitoring for demand response service. Aligned with TriMet's Business Plan, staff will conduct an annual review of resource and service distribution. The objective is to ensure there is an equitable distribution across TriMet's system. The analysis in this report compared minority and/or low-income access to that of non-minority and/or higher income access across six service performance metrics for data compiled during Spring 2020:

1. **Service frequency and span** (revenue hours): TriMet evaluates the amount and distribution of revenue hours of service provided. The hours while in service include trip start to finish.
2. **On-time performance**: TriMet defines "on-time" as no more than five minutes late or one minute early. Measured at time points.
3. **Vehicle loads**: TriMet evaluates whether fixed-route buses or light rail vehicles are overcrowded by comparing the load/seat ratio to the maximum load factor for each vehicle type: bus (1.3), MAX (2.1), and WES (1.0).
4. **Service availability**: TriMet considers persons residing within one-half mile of bus stops and/or rail stations as having service available. Service availability is expressed as number and percentage of District-wide population and is determined by vehicle mode.
5. **Stop amenities**: TriMet analyzes the distribution of stop amenities in the TriMet system (shelters, seating, lighting, waste receptacles, etc.) in order to identify any potential disparities.
6. **Vehicle assignment**: TriMet assesses the vehicle assignment practices for fixed-route buses and light rail vehicles. The expectation is that the average age of vehicles on minority and/or low-income lines should be no more than the average age of vehicles on non-minority and/or higher income lines.

## Title VI Service Performance Measure Rating Scale Rubric

The Title VI rating scale rubric ranges from “outstanding”, “good”, “fair”, “marginal” to “adverse impact”. To receive an “outstanding” score, access or service distribution for minority and low-income must be as good or better than non-minority and higher income for each measure. A performance finding within the 5% threshold is considered “good”. The target for TriMet’s Business Plan objective is within 5% or better. A greater than 5% but less than 10% difference equates to “fair”. Above the 10% threshold but within 20% would result in a “marginal” score. A marginal score would be flagged as a caution and area for improvement. Any measure that exceeds 20% would indicate “adverse impact” and would result in a system-wide disparate impact<sup>1</sup>/disproportionate burden<sup>2</sup> finding per the Federal Transit Administration. TriMet will work to improve service and access on an on-going basis to ensure TriMet’s equity targets are achieved and for compliance with TriMet’s board adopted Title VI Program.



<sup>1</sup> A facially neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin.

<sup>2</sup> A facially neutral policy or practice that disproportionately affects low-income populations more than non-low-income populations.

## Minority vs. Non-minority Lines<sup>3</sup>

Equity Metric: Distribution of Amenities Spring 2020				
Metric % of stops with amenity on minority vs. non-minority lines	<= 20% Difference	<=10% Difference	<=5% Difference	As good or better on minority lines
<i>Seating</i>	✓	✓	✓	✓
<i>Lighting</i>	✓	✓	✓	✗
<i>Elevators</i>	✓	✓	✓	✓
<i>Digital Displays</i>	✓	✓	✓	✗
<i>Shelters</i>	✓	✓	✓	✓
<i>Signs, Maps and/or Schedules</i>	✓	✓	✓	✗
<i>Waste Receptacles</i>	✓	✓	✓	✓

Equity Metric: Service Standards Spring 2020												
Metric Minority and non-minority comparison by mode and for the system as a whole	<=20% Difference			<=10% Difference			<=5% Difference			As good or better on minority lines		
	B u s	M A X	S y s	B u s	M A X	S y s	B u s	M A X	S y s	B u s	M A X	S y s
<b>Vehicle Loads</b> If the average load of minority lines is above the maximum load factor, comparison to average load of non-minority lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Service Frequency &amp; Span</b> Revenue hours of service provided on minority vs. non-minority lines.	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗
<b>On-Time Performance</b> Average percent on-time for minority vs. non-minority lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
<b>Vehicle Assignment</b> Average age of vehicles serving minority vs. non-minority lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Service Availability</b> Percentage of minority vs. non-minority population within ½ mile of service.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*WES (a minority line) is the only commuter rail line, so it cannot be compared to other commuter rail lines. It is included as part of the overall system analysis.*

✓ = Performance meets metric at level indicated  
✗ = Performance does not meet level indicated

<sup>3</sup> A minority line is defined by the FTA as having at least one-third of its revenue vehicle hours in census block groups with above-average minority populations.

## **MINORITY vs. NON-MINORITY LINES PERFORMANCE RESULTS**

### ***Distribution of Amenities*** (See Exhibit A for full details)

- The percentage of stops containing each amenity on minority lines exceeds the percentage for non-minority lines in all categories examined with the exception of lighting, which is higher for non-minority lines (65 percent compared to 61 percent of stops), digital displays (4 percent compared to 3 percent of stops) and signs, maps and/or schedules (98 percent compared to 97 percent of stops).

### ***Vehicle Loads*** (See Exhibit B for full details)

- Average load/seat ratios range from a low of 0.03 to a high of 0.28.
- All average loads by mode are below the maximum load factor for every time period.

### ***Service Frequency & Span*** (See Exhibit C for full details)

- A lower percentage of revenue hours of service are provided on minority bus lines than non-minority lines (53% vs. 47%, respectively).
- A greater percentage of revenue hours of service are provided on minority MAX lines than non-minority lines (78% vs. 22%, respectively).

### ***On-time performance (OTP)*** (See Exhibit D for full details)

- Average OTP for minority bus lines is 1 percent lower than OTP for non-minority bus lines on Weekdays. The Saturday and Sunday average OTP is comparable for both bus lines.
- Average OTP for minority MAX lines is 1 percent lower than the OTP for the two non-minority MAX lines (Yellow and Orange) for Weekdays. The Saturday and Sunday average OTP is higher for minority MAX lines (3 percent and 2 percent, respectively).

### ***Vehicle Assignment*** (See Exhibit E for full details)

- The average age of vehicles on minority bus lines (4.3 years) is about 31% newer than the average age of vehicles on non-minority bus lines (5.6 years).
- The average age of vehicles on minority MAX lines (17.6 years) is about 9% newer than the average age of vehicles on non-minority MAX lines (19.1 years).
- For WES, TriMet does not maintain a detailed database of specific vehicles used for specific trips. The four main vehicles used for WES service were all built in 2007; the remaining two were built in 1952 and 1953, though they have been substantially refurbished, and are typically used as spares. WES is a minority line. Because it is the only commuter rail line in the region, there is no other line to compare with.

### ***Service Availability*** (See Exhibit F for full details)

- A higher percentage of the TriMet district's minority population lives within ½ mile of bus, MAX, and WES service compared to the district's non-minority population.

### **Note:**

*See Exhibit G for a breakdown of Minority and Non-Minority Lines and Exhibit H for map*

## Low-income vs. Higher Income Lines<sup>4</sup>

Equity Metric: Distribution of Amenities Spring 2020				
Metric % of stops with amenity on low-income vs. non-low-income lines	<= 20% Difference	<=10% Difference	<=5% Difference	As good or better on low-income lines
<i>Seating</i>	✓	✓	✓	✓
<i>Lighting</i>	✓	✓	✓	✗
<i>Elevators</i>	✓	✓	✓	✓
<i>Digital Displays</i>	✓	✓	✓	✗
<i>Shelters</i>	✓	✓	✓	✓
<i>Signs, Maps and/or Schedules</i>	✓	✓	✓	✗
<i>Waste Receptacles</i>	✓	✓	✓	✓

Equity Metric: Service Standards Spring 2020												
Metric Low-income and non-low-income comparison by mode and for the system as a whole	<=20% Difference			<=10% Difference			<=5% Difference			As good or better		
	B u s	M A X	S y s	B u s	M A X	S y s	B u s	M A X	S y s	B u s	M A X	S y s
<b>Vehicle Loads</b> If the average load of low-income lines is above the maximum load factor, comparison to average load of non-low-income lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Service Frequency &amp; Span</b> Revenue hours of service provided on low-income vs. non-low-income lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>On-Time Performance</b> Average percent on-time for low-income vs. non-low-income lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Vehicle Assignment</b> Average age of vehicles serving low-income vs. non-low-income lines.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Service Availability</b> Percentage of low-income vs. non-low-income population within ½ mile of service.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*WES (a low-income line) is the only commuter rail line, so it cannot be compared to other commuter rail lines. It is included as part of the overall system analysis. All MAX lines are low-income lines.*

✓ = Performance meets metric at level indicated  
 ✗ = Performance does not meet level indicated

<sup>4</sup> Low-income is defined as households at or below 150% federal poverty. A low-income line is defined as having at least one-half of its revenue vehicle hours in census block groups with a above-average low-income populations.

## **LOW-INCOME vs. HIGHER INCOME LINES PERFORMANCE RESULTS**

### ***Distribution of Amenities*** (See Exhibit A for full details)

- The percentage of stops containing each amenity on low-income lines exceeds the percentage for higher income lines in all categories examined with the exception of signs, maps, and/or schedules (99 percent compared to 96 percent of stops).

### ***Vehicle Loads*** (See Exhibit B for full details)

- Average load/seat ratios range from a low of 0.03 to a high of 0.24.
- All average loads by mode are below the maximum load factor for every time period.

### ***Service Frequency & Span*** (See Exhibit C for full details)

- A greater percentage of revenue hours of service are provided on low-income bus lines than higher income bus lines (78% vs. 22%, respectively).
- All MAX lines are considered low income.

### ***On-time performance*** (See Exhibit D for full details)

- Average OTP for low-income bus lines is 1 percent higher than OTP for higher income bus lines on Weekdays. The average OTP for low-income bus lines is 2 percent higher than OTP for higher income bus lines on Saturdays. The Sunday average OTP is comparable for both bus lines.
- All MAX lines are considered low income.

### ***Vehicle Assignment*** (See Exhibit E for full details)

- The average age of vehicles on low-income bus lines (4.7 years) is about 11% newer than the average age of vehicles on higher income bus lines (5.2 years).
- All MAX lines are considered low-income. The average age is 18.2 years.
- For WES, TriMet does not maintain a detailed database of specific vehicles used for specific trips. The four main vehicles used for WES service were all built in 2007; the remaining two were built in 1952 and 1953, though they have been substantially refurbished, and are typically used as spares. WES is a low-income line.

### ***Service Availability*** (See Exhibit F for full details)

- A higher percentage of the TriMet district's low-income population lives within ½ mile of bus, MAX, and WES service compared to the district's higher income population. Because it is the only commuter rail line in the region, there is no other line to compare with.

### ***Note:***

*See Exhibit I for a breakdown of Low-Income and Higher Income Lines and Exhibit J for map*

### Exhibit A: Stop Amenities Tables

<b>Category of Amenity</b>	<b>Pct. of Stops on Minority Lines</b>	<b>Pct. of Stops on Non-Minority Lines</b>
Seating	39%	33%
Lighting	61%	65%
Elevators	<1%	<1%
Digital Displays	3%	4%
Shelters	20%	18%
Signs, Maps and/or Schedules	97%	98%
Waste Receptacles	15%	14%

<b>Category of Amenity</b>	<b>Pct. of Stops on Low-Income Lines</b>	<b>Pct. of Stops on Higher Income Lines</b>
Seating	43%	29%
Lighting	66%	61%
Elevators	<1%	<1%
Digital Displays	6%	1%
Shelters	25%	13%
Signs, Maps and/or Schedules	96%	99%
Waste Receptacles	19%	10%

### Exhibit B: Vehicle Loads Tables

		Minority Lines		Non-Minority Lines	
Vehicle Type	Time Period	Load/Seat Ratio	Mean Load	Load/Seat Ratio	Mean Load
Bus (28 or 39 seats)	AM Peak	0.12	4.72	0.10	4.55
	Midday	0.15	5.61	0.12	4.83
	PM Peak	0.16	5.92	0.12	5.30
MAX Light Rail (128 seats)	AM Peak	0.16	22.21	0.16	19.43
	Midday	0.24	30.17	0.18	23.50
	PM Peak	0.28	35.00	0.19	24.75
WES Commuter Rail (146 seats)	AM Peak	0.13	9.80	n/a	n/a
	PM Peak	0.03	12.50	n/a	n/a

		Low-Income Lines		Higher Income Lines	
Vehicle Type	Time Period	Load/Seat Ratio	Mean Load	Load/Seat Ratio	Mean Load
Bus (28 or 39 seats)	AM Peak	0.15	5.72	0.09	3.74
	Midday	0.17	6.45	0.10	3.94
	PM Peak	0.19	7.17	0.19	4.27
MAX Light Rail (128 seats)	AM Peak	0.16	21.10	n/a	n/a
	Midday	0.21	27.50	n/a	n/a
	PM Peak	0.24	30.90	n/a	n/a
WES Commuter Rail (146 seats)	AM Peak	0.13	9.80	n/a	n/a
	PM Peak	0.03	12.50	n/a	n/a

### Exhibit C: Revenue Hours Tables

Mode of Service	Minority Lines	Non-Minority Lines	Difference; Minority to Non-Minority +/-(-)
Bus	47%	53%	(6)
MAX Light Rail	78%	22%	56
WES Commuter Rail	100%	n/a	n/a

Mode of Service	Low Income Lines	Higher Income Lines	Difference; Low Income to Higher Income +/-(-)
Bus	78%	22%	56
MAX Light Rail	100%	n/a	n/a
WES Commuter Rail	100%	n/a	n/a

**Exhibit D: On-Time Performance Tables**

Mode of Service	Day	Avg. % On-Time (weighted)		Difference; Minority to Non-Minority +/-
		Minority Lines	Non-Minority Lines	
Bus	Weekday	94%	95%	(1)
	Saturday	95%	95%	0
	Sunday	95%	95%	0
MAX Light Rail	Weekday	92%	93%	(1)
	Saturday	92%	89%	3
	Sunday	94%	92%	2
WES Commuter Rail	Weekday	99%	n/a	n/a

Mode of Service	Day	Avg. % On-Time (weighted)		Difference; Low Income to Higher Income +/-
		Low Income Lines	Higher Income Lines	
Bus	Weekday	95%	94%	1
	Saturday	96%	94%	2
	Sunday	95%	95%	0
MAX Light Rail	Weekday	92%	n/a	n/a
	Saturday	90%	n/a	n/a
	Sunday	93%	n/a	n/a
WES Commuter Rail	Weekday	99%	n/a	n/a

### Exhibit E: Vehicle Assignment Tables

Avg. Age of Vehicles (Years)			
Mode of Service	Minority Lines	Non-Minority Lines	Difference; Minority to Non-Minority +/-(-)
Bus	6.6	6.7	1.34
MAX Light Rail	17.6	19.1	1.50
WES Commuter Rail	Primary: 14.0 Spares: 68.5	n/a	n/a

Avg. Age of Vehicles (Years)			
Mode of Service	Low Income Lines	Higher Income Lines	Difference; Low Income to Higher Income +/-(-)
Bus	4.7	5.2	.53
MAX Light Rail	18.2	n/a	n/a
WES Commuter Rail	Primary: 14.0 Spares: 68.5	n/a	n/a

### Exhibit F: Service Availability Table

Demographic Analysis of Proximity to TriMet Service (Percent)		TM District		Percent within 1/2* Mile of...			Frequent Service	
		Totals (Raw Num)	Totals (Pct.)	Bus	MAX	WES	Bus	Bus & MAX
<b>Population</b>	Total (ACS 5 year estimate, 2014-2018)	1,614,972	100.0%	88.2%	16.5%	0.9%	43.7%	60.2%
<b>Minority</b>	All Minorities**	481,205	29.8%	90.2%	20.9%	1.3%	46.2%	67.1%
<b>Non-Minority</b>	White (Non-Hispanic)	1,133,765	70.2%	87.3%	14.7%	0.7%	42.6%	57.3%
<b>Population</b>	Total population with known income (ACS 5 year estimate, 2014-2018)***	1,592,945	100.0%	88.1%	16.4%	0.9%	43.4%	59.9%
<b>Income</b>	Below 150% of Poverty Level	309,065	19.4%	93.8%	24.6%	1.5%	55.5%	80.0%
<b>Income</b>	Above 150% of Poverty Level	1,283,880	80.6%	86.8%	14.5%	0.7%	40.6%	55.0%

**Sources:** TriMet GIS, Metro Regional Land Information System, and US Census American Community Survey Tables: 2014 - 2018 (5-Year Estimates), Table B03002. Hispanic or Latino Origin By Race, and Table C17002. Ratio Of Income To Poverty Level In The Past 12 Months (Block Group Level Data)

To adjust for the fact that some census block groups are only partially within the TriMet Transit District, staff estimated the fraction of each block group's population within the transit district by calculating the percentage of residential address points that fell within the district. Staff then multiplied this address fraction by the Census counts to get the estimated TriMet District population. Staff used Oregon Metro's Master Address File (with non-residential and vacant addresses removed) as the address points for this analysis.

\* Distance calculations based on March 2018 stop and station locations. Similar to the TriMet District level population estimates, we multiplied each block group's counts by the fraction of addresses within it that also fell within a half-mile buffer of a transit stop of the specified type.

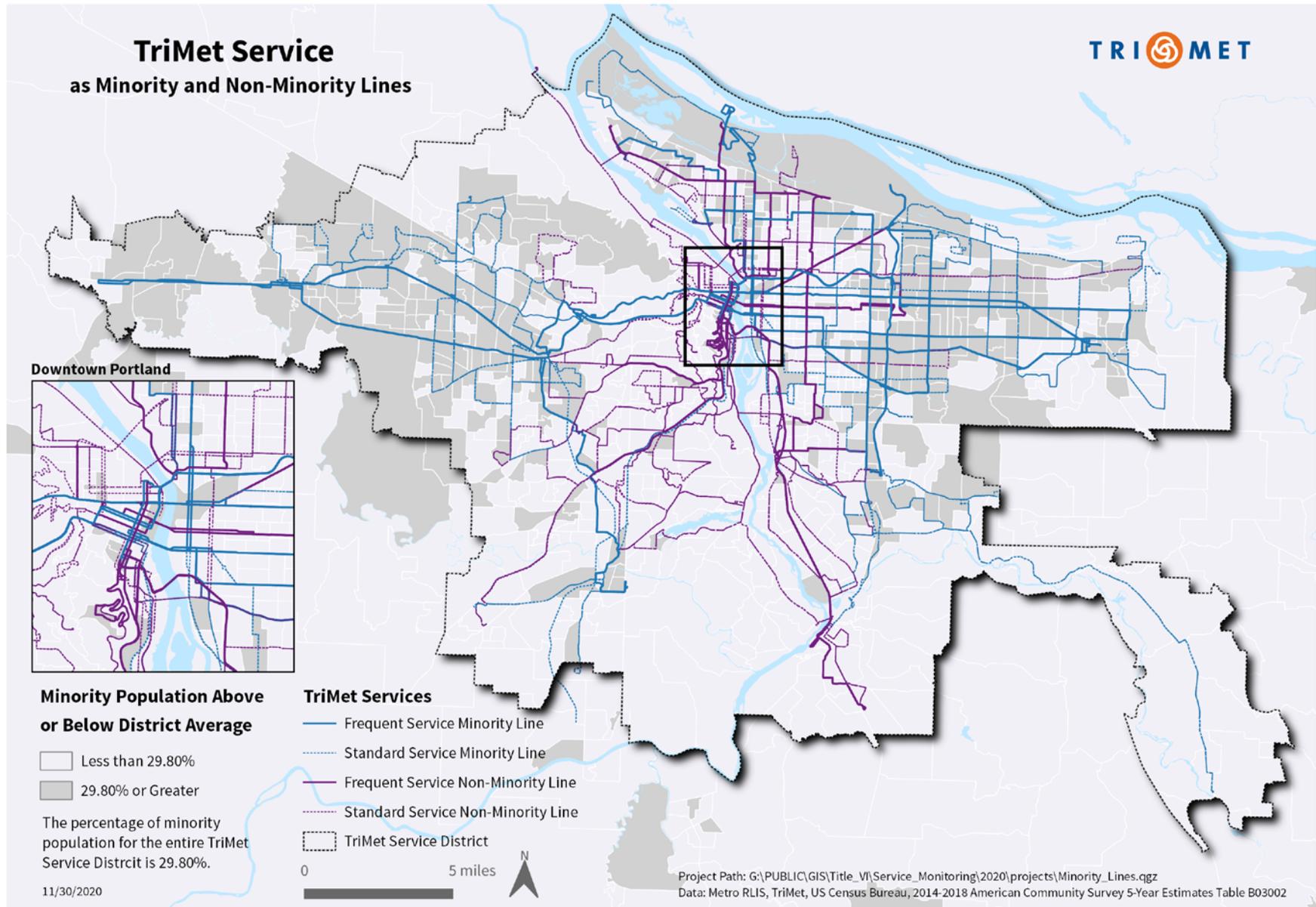
\*\* All Minorities include Black (non-Hispanic), Hispanic, Asian (non-Hispanic), Native American (non-Hispanic), Hawaiian Native and Pacific Islander (non-Hispanic), and Other (Including Mixed Race, non-Hispanic).

\*\*\* Population totals for the TriMet district vary between statistics for race and income/poverty in part due to the fact that the Census is a full count and the ACS is an extrapolation based on a sample, and in part because the ACS total excludes those whom poverty status is not determined.

### Exhibit G: Minority and Non-Minority Lines

Minority Lines	Non-Minority Lines
10-Harold St	1-Vermont
11-Rivergate/Marine Dr	12-Barbur/Sandy Blvd
14-Hawthorne	152-Milwaukie
155-Sunnyside	154-Willamette/Clackamas Heights
156-Mather Rd	15-Belmont/NW 23rd
19-Woodstock/Glisan	16-Front Ave/St Helens Rd
20-Burnside/Stark	17-Holgate/Broadway
21-Sandy Blvd/223rd	18-Hillside
22-Parkrose	24-Fremont/NW 18th
23-San Rafael	291-Orange Night Bus
25-Glisan/Rockwood	297-NW Yeon/OBRC
2-Division	29-Lake/Webster Rd
30-Estacada	32-Oatfield
31-Webster Rd	33-McLoughlin/King Rd
46-North Hillsboro	34-Linwood/River Rd
47-Main/Evergreen	35-Macadam/Greeley
48-Cornell	36-South Shore
4-Fessenden	37-Lake Grove
52-Farmington/185th	38-Boones Ferry Rd
53-Arctic/Allen	39-Lewis & Clark
57-TV Hwy/Forest Grove	43-Taylors Ferry Rd
59-Walker/Park Way	44-Capitol Hwy/Mocks Crest
62-Murray Blvd	45-Garden Home
67-Bethany/158th	50-Cedar Mill
6-Martin Luther King Jr Blvd	51-Vista
71-60th Ave	54-Beaverton-Hillsdale Hwy
72-Killingsworth/82nd Ave	55-Hamilton
73-122nd Ave	56-Scholls Ferry Rd
74-162nd Ave	58-Canyon Rd
76-Hall/Greenburg	61-Marquam Hill/Beaverton
79-Clackamas/Oregon City	63-Washington Park/Arlington Hts
80-Kane/Troutdale Rd	64-Marquam Hill/Tigard
81-Kane/257th	65-Marquam Hill/Barbur Blvd
82-South Gresham	66-Marquam Hill/Hollywood
84-Powell Valley/Orient Dr	68-Marquam Hill/Collins Cirde
87-Airport Way/181st	70-12th/NE 33rd Ave
88-Hart/198th	75-Cesar Chavez/Lombard
96-Tualatin/I-5	77-Broadway/Halsey
97-Tualatin-Sherwood Rd	78-Denney/Kerr Pkwy
9-Powell Blvd	85-Swan Island
MAX Blue Line	8-Jackson Park/NE 15th
MAX Green Line	92-South Beaverton Express
MAX Red Line	93-Tigard/Sherwood
WES Commuter Rail	94-Pacific Hwy/Sherwood
	99-Macadam/McLoughlin
	MAX Orange Line
	MAX Yellow Line

# Exhibit H: Minority and Non-Minority Lines Map



### Exhibit I: Low-Income and Higher Income Lines

Low Income Lines	Higher Income Lines
10-Harold St	11-Rivergate/Marine Dr
12-Barbur/Sandy Blvd	152-Milwaukie
14-Hawthorne	154-Willamette/Clackamas Heights
15-Belmont/NW 23rd	155-Sunnyside
17-Holgate/Broadway	156-Mather Rd
19-Woodstock/Glisan	16-Front Ave/St Helens Rd
20-Burnside/Stark	18-Hillside
21-Sandy Blvd/223rd	1-Vermont
23-San Rafael	22-Parkrose
25-Glisan/Rockwood	24-Fremont/NW 18th
291-Orange Night Bus	29-Lake/Webster Rd
297-NW Yeon/OBRC	31-Webster Rd
2-Division	35-Macadam/Greeley
30-Estacada	36-South Shore
32-Oatfield	37-Lake Grove
33-McLoughlin/King Rd	38-Boones Ferry Rd
34-Linwood/River Rd	39-Lewis & Clark
44-Capitol Hwy/Mocks Crest	43-Taylors Ferry Rd
4-Fessenden	45-Garden Home
52-Farmington/185th	46-North Hillsboro
53-Arctic/Allen	47-Main/Evergreen
56-Scholls Ferry Rd	48-Cornell
57-TV Hwy/Forest Grove	50-Cedar Mill
61-Marquam Hill/Beaverton	51-Vista
64-Marquam Hill/Tigard	54-Beaverton-Hillsdale Hwy
68-Marquam Hill/Collins Circle	55-Hamilton
6-Martin Luther King Jr Blvd	58-Canyon Rd
70-12th/NE 33rd Ave	59-Walker/Park Way
72-Killingsworth/82nd Ave	62-Murray Blvd
73-122nd Ave	63-Washington Park/Arlington Hts
74-162nd Ave	65-Marquam Hill/Barbur Blvd
76-Hall/Greenburg	66-Marquam Hill/Hollywood
77-Broadway/Halsey	67-Bethany/158th
78-Denney/Kerr Pkwy	71-60th Ave
79-Clackamas/Oregon City	75-Cesar Chavez/Lombard
80-Kane/Troutdale Rd	84-Powell Valley/Orient Dr
81-Kane/257th	85-Swan Island
82-South Gresham	92-South Beaverton Express
87-Airport Way/181st	96-Tualatin/I-5
88-Hart/198th	99-Macadam/McLoughlin
8-Jackson Park/NE 15th	
93-Tigard/Sherwood	
94-Pacific Hwy/Sherwood	
97-Tualatin-Sherwood Rd	
9-Powell Blvd	
MAX Blue Line	
MAX Green Line	
MAX Orange Line	
MAX Red Line	
MAX Yellow Line	
WES Commuter Rail	

# Exhibit J: Low-Income and Higher Income Lines Map

