

Annual Title VI Service Monitoring Report

April 2015

Part of TriMet's compliance with FTA Circular 4702.1B is ongoing performance monitoring across all modes of service (bus, MAX, and WES). This monitoring is meant to ensure that TriMet is providing service in a way that does not discriminate on the basis of race, color, or national origin. Specifically, TriMet monitors the following service and performance metrics:

1. "Minority" and "Non-minority" lines
2. Service frequency and span
3. On-time performance
4. Vehicle loads
5. Service availability
6. Stop amenities
7. Vehicle assignment

This evaluation is performed and the results provided to the TriMet board each fiscal year.

1. Minority & Non-minority lines

"Minority" lines, as defined by the FTA, are lines that provide at least 1/3 of their service (measured by revenue hours) in block groups that are above-average minority population. "Non-minority" lines are all others.

Currently TriMet operates a total of 85 lines, including 80 bus lines, 4 MAX light rail lines, and 1 WES commuter rail line. Of these, 38 bus lines as well as all 4 MAX lines and the WES line are considered minority lines. The remaining 42 bus lines are considered non-minority lines.

As of fall 2014, Minority lines account for over 70% of TriMet system service (measured by revenue hours), and 80% of system boarding rides. TriMet generally aligns service with mobility needs and ridership, thus lines serving areas with above-average minority populations typically have higher ridership and thus a higher overall level of service than non-minority lines.

2. Service Frequency & Span

The analysis of service frequency and span is by mode of service (bus, MAX, WES) and day of service (weekday, Saturday, Sunday). As shown in Tables 1-3 following, the frequency and time span of service is noted for minority and non-minority bus lines, with comparisons during each day and for weekday, Saturday, and Sunday.

FINDINGS

1. Service on minority bus lines is more frequent than service on non-minority lines during all weekday time periods.

2. Service frequency on minority bus lines is more frequent than on non-minority lines during all Saturday time periods.
 3. Service frequency on minority bus lines is more frequent than on non-minority lines during all time Sunday periods with the sole exception of early a.m. (before 7:00 a.m.), where non-minority lines have a 3-minute better average frequency (38 min, vs. 41 min for minority lines).
 4. A higher proportion of minority lines operate on Saturday (65 percent) and Sunday (63 percent) than non-minority lines on Saturday (41 percent) and Sunday (34 percent)
 5. The average span of service (hours from start to end of service) on minority bus lines exceeds the span of service on non-minority lines on weekdays, Saturdays, and Sundays.
- While finding #3 above flagged a potential disparity, it is more than offset by the greater number of minority lines operating during early a.m. Sunday, as well as the earlier average start of service for minority lines. Thus, there are no disparate impacts on minority population in regard to frequency or span of service on bus, MAX, or WES.

Tables 1: Frequency and Span of Service
 Minority and Non-Minority Transit Lines by Mode and Day of Service
 Fall 2014 Service – Weekdays Only

Day of Service	Mode of Service	Line Classification	No. of Lines in Service	% of Weekday Lines in Service	Average Frequency of Service (mins.) *						Avg. Time Service Begins	Avg. Time Service Ends	Span of Service (hours)
					Early AM	AM Peak	Midday	PM Peak	Evening	Night			
Weekday	Bus	Minority Lines	38	100%	29	31	36	31	29	37	5:17	22:22	17.1
		Non-Minority Lines **	41	100%	30	34	42	36	36	47	5:38	21:25	15.8
		All bus lines	79	100%	29	32	39	34	32	41	5:28	22:16	16.8
	MAX Light Rail	Minority Lines	4	100%	20	13	14	13	15	29	3:56	1:13	21.3
	WES Commuter Rail	Minority Line	1	100%	30	30		30	30		5:21	20:02	14.7
	System	Minority Lines	43	100%	28	29	34	29	28	36	5:10	22:34	17.4
		Non-Minority Lines **	41	100%	30	34	42	36	36	47	5:38	21:25	15.8
		All lines	84	100%	29	31	38	33	31	40	5:24	22:01	16.6

Notes: * Early AM = Start of service to 6:59 am

AM Peak = 7-8:59 am

Midday = 9 am - 3:59 pm

PM Peak = 4-5:59 pm

Evening = 6-7:59 pm

Night = 8 pm to end of service

** Data excludes Line 83-Washington Park Loop which provides seasonal service May - October.

Table 2: Frequency and Span of Service
 Minority and Non-Minority Transit Lines by Mode and Day of Service
 Fall 2014 Service – Saturday Only

Day of Service	Mode of Service	Line Classification	No. of Lines in Service	% of Weekday Lines in Service	Average Frequency of Service (mins.) *				Avg. Time Service Begins	Avg. Time Service Ends	Span of Service (hours)
					Early AM	Day	Evening	Night			
Saturday	Bus	Minority Lines	24	63%	40	33	33	40	6:13	23:38	17.4
		Non-Minority Lines **	17	41%	44	36	36	45	6:45	22:50	16.1
		All bus lines	41	52%	41	34	34	42	6:26	23:19	16.9
	MAX Light Rail	Minority Lines	4	100%	31	18	20	26	4:42	0:55	20.2
	System	Minority Lines	28	65%	38	31	31	37	6:00	23:49	17.8
		Non-Minority Lines **	17	41%	44	36	36	45	6:45	22:50	16.1
		All lines	45	54%	40	33	33	40	6:17	23:27	17.2

Notes: * Early AM = Start of service to 7:59 am
 Day = 8 am - 5:59 pm
 Evening = 6-7:59 pm
 Night = 8 pm to end of service
 ** Data excludes Line 83-Washington Park Loop which provides seasonal service May - October.

Table 3: Frequency and Span of Service
 Minority and Non-Minority Transit Lines by Mode and Day of Service
 Fall 2014 Service – Sunday Only

Day of Service	Mode of Service	Line Classification	No. of Lines in Service	% of Weekday Lines in Service	Average Frequency of Service (mins.) *				Avg. Time Service Begins	Avg. Time Service Ends	Span of Service (hours)
					Early AM	Day	Evening	Night			
Sunday	Bus	Minority Lines	23	61%	43	35	35	41	6:31	23:19	16.8
		Non-Minority Lines **	14	34%	38	36	37	48	7:07	23:05	16.0
		All bus lines	37	47%	41	35	36	43	6:44	23:14	16.5
	MAX Light Rail	Minority Lines	4	100%	35	20	22	25	4:40	0:53	20.2
	System	Minority Lines	27	63%	41	33	33	38	6:14	23:33	17.3
		Non-Minority Lines **	14	34%	38	36	37	48	7:07	23:05	16.0
		All lines	41	49%	40	34	34	41	6:32	23:23	16.9

Notes: * Early AM = Start of service to 7:59 am
 Day = 8 am - 5:59 pm
 Evening = 6-7:59 pm
 Night = 8 pm to end of service
 ** Data excludes Line 83-Washington Park Loop which provides seasonal service May - October.

3. On-time Performance

TriMet continuously monitors on-time performance on bus and MAX through CAD-AVL systems, and by direct observation on WES. TriMet defines “on-time” as no more than five minutes late or one minute early. In this analysis, the on-time performance for bus lines is compared between minority and non-minority lines on weekdays, Saturday, and Sunday (Table 4). Performance for MAX has been determined for weekday, Saturday and Sunday. WES commuter rail on-time data includes all service, weekdays.

Table 4: On-Time Performance
 Minority and Non-Minority Transit Lines by Mode and Day of Service
 Weekday, Saturday, Sunday
 Fall 2014 Service

Mode of Service	Day	Avg. % On-Time		Difference; Minority to Non-Minority +/-
		Minority Lines	Non-Minority Lines	
Bus	Weekday	80.8%	77.0%	3.8%
	Saturday	81.0	77.8	3.2
	Sunday	82.2	80.7	1.5
MAX Light Rail	Weekday	81.1	n/a	n/a
	Saturday	81.2	n/a	n/a
	Sunday	83.1	n/a	n/a
WES Commuter Rail	Weekday	95.5	n/a	n/a

Notes: For Bus and MAX service, a vehicle is considered “on time” if it departs no more than 1 minute before to 5 minutes after the scheduled time. For WES, trains that arrive at the end-of-line stations (Beaverton Transit Center or Wilsonville) no more than 4 minutes before or after the scheduled time are considered “on time”.

FINDINGS

1. Minority bus lines’ on-time performance exceeds the performance of non-minority lines during weekdays (81 percent vs. 77 percent), Saturdays (81 percent vs. 78 percent) and Sunday (82 percent vs. 81 percent).
 2. MAX on-time performance ranges from 81-83 percent by day of week.
 3. WES on-time performance is above 95 percent.
- Thus, there is no disparate impact on minority population in regard to bus on-time performance.

4. Vehicle Loads

Vehicle loads are examined to determine whether buses or trains are overcrowded. Table 5 shows vehicle capacities (including both seating and standing), and Table 6 compares average vehicle loads for minority and non-minority lines during the A.M. Peak, Midday, and P.M. Peak times.

Table 5: Vehicle Capacities by Mode and Type

Vehicle Type	Passenger Capacities			
	Seated	Standing	Maximum Achievable Capacity	Maximum Load Factor
30-ft. Bus	28	2	30	1.1
40-ft. Bus	39	12	51	1.3
MAX Light Rail 2-Car Train	128	138	266	2.1
WES Commuter Rail - 1 Car Train	70	0	70	1.0
WES Commuter Rail - 2 Car Train	146	0	146	1.0

Notes: All MAX operates as 2-car trains. WES may operate as a single-car or a 2-car train.

Table 6: Vehicle Loads
 Minority and Non-Minority Transit Lines
 Weekday by Mode and Time Period
 Fall 2014 Service

	Time Period	Minority Lines		Non-Minority Lines	
		Load/Seat Ratio	Mean Load	Load/Seat Ratio	Mean Load
Bus (28 or 39 seats)	AM Peak ¹	0.50	19.5	0.46	18.0
	Midday ²	0.46	17.9	0.40	15.7
	PM Peak ³	0.53	20.5	0.47	18.4
MAX Light Rail (128 seats)	AM Peak ¹	0.73	93.9	n/a	n/a
	Midday ²	0.59	76.2	n/a	n/a
	PM Peak ³	0.86	109.5	n/a	n/a
WES Commuter Rail (146 seats)	AM Peak ¹	0.71	54	n/a	n/a
	PM Peak ³	0.90	68.5	n/a	n/a

¹ AM Peak = 7:00 - 8:59 am

² Midday = 9:00 am - 3:59 pm

³ PM Peak = 4:00 - 5:59 pm

FINDINGS

1. Average load/seat ratios range from a low of 0.40 to a high of 0.90. All are below the maximum load factor.
2. Minority lines have somewhat larger loads than non-minority lines across all time periods, but observed loads on both groups of lines are well within the established maximum load factor standards.

➤ Thus, there is no disparate impact on minority population in regard to vehicle loads.

5. 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 mode; for bus, MAX, and WES respectively. Table 7 on the next page presents the availability of service by mode for Spring 2015 service¹.

FINDINGS

1. The percent of minority population with service available exceeds that of the non-minority populations for bus (88 percent vs. 85 percent), MAX (22 percent vs. 16 percent) and WES (3 percent vs. 2 percent).

➤ Thus, there are no disparate impacts on minority population in regard to availability of service on bus, MAX or WES.

¹ This is the only metric evaluating spring 2015 service. All others use fall 2014 service due to data availability.

Table 7: Availability of Service By Mode
 Minority and Non-Minority Population
 TriMet District
 Spring 2015 Service

		TriMet District		Bus w/i half mile		MAX w/i half mile		WES w/i half mile	
		Count	%	Count	%	Count	%	Count	%
TriMet District Population		1,500,409	100.0%	1,289,828	86.0%	265,846	17.7%	38,530	2.6%
Minority	All Minorities	412,019	27.5%	362,340	87.9%	89,398	21.7%	12,514	3.0%
	Black	51,925	3.5%	49,107	94.6%	13,484	26.0%	549	1.1%
	Hispanic	182,491	12.2%	159,986	87.7%	41,180	22.6%	8,958	4.9%
	Asian	108,454	7.2%	92,082	84.9%	21,571	19.9%	1,663	1.5%
	Native American	8,356	0.6%	7,432	88.9%	1,751	21.0%	97	1.2%
	Pacific Islander	7,813	0.5%	7,458	95.5%	1,353	17.3%	371	4.7%
	Other Races (including Mixed Race)	52,980	3.5%	46,275	87.3%	10,059	19.0%	876	1.7%
Non-Minority	White	1,088,390	72.5%	927,489	85.2%	176,448	16.2%	26,016	2.4%

Source: Input population and race statistics come from the ACS 2013 5-year Summaries, Table B03002. TriMet route and service district data reflect their state in March of 2015

6. Stop Amenities

TriMet analyzes the distribution of stop amenities in the TriMet system (shelters, seating, waste receptacles, etc.) in order to identify any potential disparities. Table 8 shows the percentage of stops along minority and non-minority lines containing each amenity.

Table 8: Stop Amenities on Minority and Non-Minority Lines

Category of Amenity	Pct of Stops on Minority Lines	Pct of Stops on Non-Minority Lines
Seating	37%	24%
Lighting	62%	63%
Elevators	<1%	n/a *
Digital Displays	3%	1%
Shelters	21%	12%
Signs, Maps and/or Schedules	73%	65%
Waste Receptacles	17%	9%

*all elevators serving TriMet system are on lines classified as “minority”

FINDINGS

1. The percentage of stops containing each amenity on minority lines exceeds the comparable ratio for non-minority lines in all categories examined with the exception of lighting, which is slightly higher for non-minority lines (63 percent compared to 62 percent of stops).
- Thus, there is no disparate impact on minority population in regard to the distribution of amenities.

7. Vehicle Assignment

In regard to assessing the results of TriMet’s vehicle assignment practices in the context of Title VI, the expectation is that the average age of vehicles on minority lines should be no more than the average age of vehicles on non-minority lines. Vehicle assignment is presented in Table 9.

Table 9: Vehicle Assignment
Average Age of Vehicles Assigned by Mode
Fall 2014 Service

Mode of Service	Average Age of Vehicles Assigned (Years)		Difference; Minority to Non-Minority +/-
	Minority Lines	Non-Minority Lines	
Bus	9.0	12.0	-3.0
MAX Light Rail	16.4	n/a	n/a
WES Commuter Rail	6.2	n/a	n/a

FINDINGS

1. The average age of bus vehicles on minority lines (9 years) is less than the average age of vehicles on non-minority lines (12 years).
 2. All MAX light rail lines and the WES commuter rail are considered minority lines. Average age of MAX vehicles is 16.4 years and average age of WES vehicles is 6.2 years.
- Thus, there are no disparate impacts on minority population in regard to vehicle assignment on bus, MAX or WES.

Summary

As summarized in Table 10, TriMet finds no disparities in terms of performance standards that would indicate lesser service provision to minority riders or populations. Across nearly every metric minority lines actually performed better than non-minority lines, and minority populations have better access to the TriMet system based on residential proximity to service.

Table 10: Evaluation and Findings – Service Standards and Policies
 Comparison of Minority and Non-Minority Lines
 April 2015

	Mode of Service			System
	Bus	MAX	WES	
Service Standards				
<i>Vehicle Loads</i>	✓	✓	✓	✓
<i>Service Frequency & Span</i>	✓	✓	✓	✓
<i>On-Time Performance</i>	✓	✓	✓	✓
<i>Service Availability</i>	✓	✓	✓	✓
Distribution of Amenities				
<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>				✓
Vehicle Assignment	✓	✓	✓	✓
✓ = No Disparity in Performance or Distribution				