



Equity Analysis: 2015 Spring & Summer Frequent Service Restoration

DRAFT

Department of Diversity & Transit Equity

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I. Background

Continuing an agency commitment made in 2009, TriMet plans to implement the next phases of Frequent Service restoration in March and June of 2015. This would bring all MAX light rail lines to 15-minute frequencies (or better) throughout the day, seven days a week, and all Frequent Service bus lines to 15-minute frequencies (or better) throughout the day, Monday through Saturday.

As a recipient of Federal financial assistance, TriMet must ensure that service changes – both increases and reductions – comply with Title VI of the Civil Rights Act of 1964, which states:

"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

The FTA has provided specific implementing guidelines and regulations for complying with Title VI in Circular 4702.1B ("Circular"). Due to the interrelated nature of race/ethnicity and income, the Circular instructs transit agencies to consider impacts on low-income populations as well as minority populations; the assessment of potential Title VI issues related to service changes is completed through a service equity analysis. Figure 1 below shows the sequence of steps and considerations in the equity analysis process.

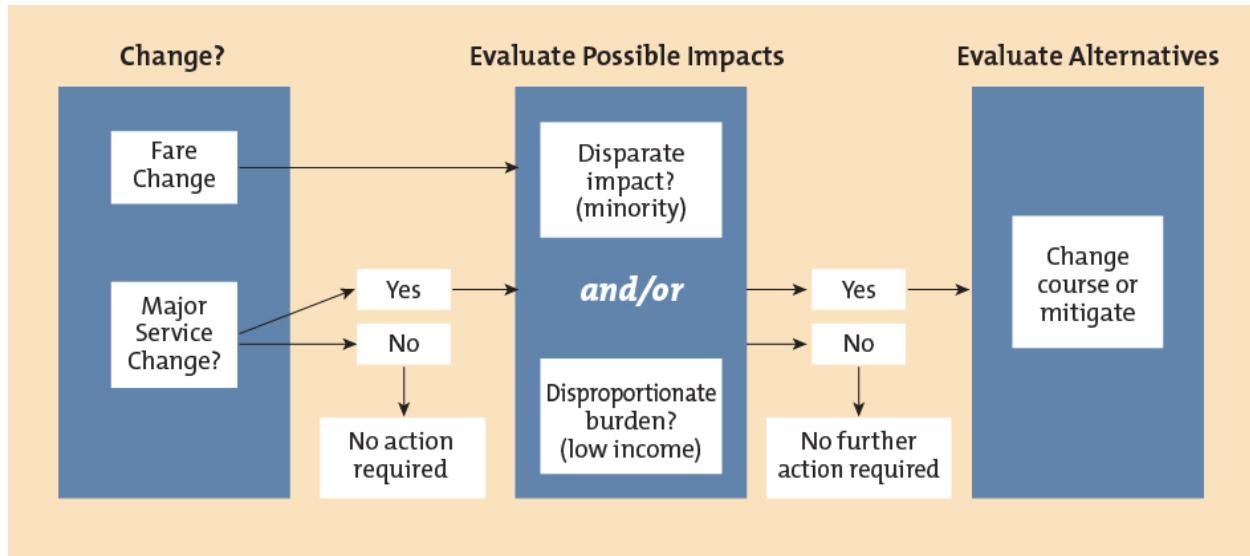


Figure 1: Overview of Title VI Equity Analysis

II. TriMet Title VI Compliance

In the fall of 2013, TriMet updated its Title VI Program, which received concurrence by the FTA in January 2014. The program outlines agency policies, definitions and procedures for complying with Title VI and performing equity analyses. This includes the agency's Major Service Change, Disparate Impact, and Disproportionate Burden policies.

A. Major Service Change Policy

All changes in service meeting the definition of Major Service Change are subject to a Title VI Equity Analysis prior to Board approval of the service change. A Title VI Equity Analysis will be completed for all Major Service Changes and will be presented to the TriMet Board of Directors for its consideration and included in the subsequent TriMet Title VI Program report with a record of action taken by the Board.

A Major Service Change is defined as:

1. A change in service of:
 - a. 25 percent or more of the number of route miles, or;
 - b. 25 percent or more of the number of revenue vehicle hours of service on a daily basis for the day of the week for which a change is made, or;
2. A new transit route is established as defined in the Introduction of TriMet's Title VI Program.
3. If changes in service on a route to be effective at more than one date within any fiscal year would equal or exceed 1(a) and/or 1(b) above, the changes in total will be considered a Major Service Change, and an equity analysis will be completed in advance of action on the proposed change.

B. Disparate Impact Policy

Testing for Disparate Impact evaluates effects on minority riders or populations as compared to non-minority riders or populations. "Minority" is defined as all persons who identify as being part of racial/ethnic groups besides white, non-Hispanic.

Major Service Changes – One Line

A Major Service Change to a line will be considered to have a Disparate Impact if condition 1 and either condition 2(a) or 2(b) below is found to be true:

1. The percentage of impacted minority population in the service area of the line exceeds the percentage of minority population of the TriMet District as a whole, and;
- 2.(a) In the event of service reductions, the service change has an adverse effect on the minority population in the service area of the line.

- 2.(b) In the event of service additions, the addition is linked to other service changes that have adverse effects on the minority population in the service area of the line, or; the service addition on the subject line is linked with a service change(s) on other line(s) that have adverse effects on the minority population in the service area of that line or lines.

For lines with Major Service Changes, if the percentage of minority population in block groups¹ served by the impacted portion of the line (sum of minority population in all impacted block groups divided by the total population in all impacted block groups) exceeds the percentage of minority population in the TriMet District as a whole, the impacts of changes to the line will be considered disparate.

Major Service Changes – System Level

To determine the system-wide impacts of service changes on more than one line, the percentage of impacted minority population (sum of minority population in all impacted block groups divided by the minority population of the TriMet District as a whole) is compared to the percentage of impacted non-minority population (sum of non-minority population in all impacted block groups divided by the non-minority population of the TriMet District as a whole). Comparisons of impacts between minority and non-minority populations will be made for all changes for each respective day of service — weekday, Saturday, and Sunday.

If the percentage of impacted minority population differs from the percentage of impacted non-minority population by more than 20 percent, the overall impact of changes will be considered disparate.

C. Disproportionate Burden Policy

Testing for Disproportionate Burden evaluates potential effects on low-income riders or populations, defined as at or below 150% of the Federal Poverty Level. The line and system level evaluations are identical to those used to determine potential Disparate Impacts, but comparing low-income and higher income populations rather than minority and non-minority populations.

III. Proposed Service Changes

A. Description of Changes

The Frequent Service Network includes the following routes:

4-Division/Fessendent

6-Martin Luther King Jr Blvd

8-Jackson Park/NE 15th

9-Powell Blvd

¹ TriMet's 2013 Title VI Program states that the geographic unit of measurement will be tracts instead of block groups, but FTA C 4702.1B instructs transit agencies to evaluate impacts at the block or block group level.

12-Barbur/Sandy Blvd
14-Hawthorne
15-Belmont/NW 23rd
33-McLoughlin
54/56-Beaverton-Hillsdale Hwy/Scholls Ferry Rd
57-TV Hwy/Forest Grove
72-Killingsworth/82nd
75-Cesar Chavez/Lombard
MAX Blue Line
MAX Green Line
MAX Red Line
MAX Yellow Line

All of these routes, with the exception of the Line 72-Killingsworth/82nd, are proposed to receive additional service on Saturdays (beginning March 2015 for bus, June 2015 for MAX), and all MAX lines are proposed to receive additional service on Sundays (beginning June 2015) to meet the Frequent Service standard of 15-minute headways for most of the day. The Line 72 already meets this standard seven days per week. This additional service builds upon the steps taken to restore Frequent Service thus far, including adding service on weekday mid-days in spring 2014 and weekday evenings in fall 2014.

B. Major Service Change Test

To determine whether individual service changes meet the definition of Major Service Change, current and proposed service are compared. Revenue vehicle hours, or the number of hours buses and trains are serving riders, are used to determine changes in service by route; results are shown in Tables 1 and 2.

To summarize, two lines meet TriMet's adopted Title VI Major Service Change definition, with service increases of over 25% compared to current service:

9-Powell Blvd

Travels between downtown Portland and Gresham Transit Center, primarily along Powell Blvd.

54/56-Beaverton-Hillsdale Hwy/Scholls Ferry Rd

The Lines 54 and 56 overlap to provide Frequent Service between downtown Portland and Southwest Portland.

Table 1: Change in service hours by line (Saturdays)

Line	Current Saturday Revenue Vehicle Hours	Proposed Saturday Revenue Vehicle Hours*	Change in Daily Revenue Hours From Current Quarter	Major Service Change?
4-Division/Fessenden	221	225	2%	
6-Martin Luther King Jr Blvd	80	95	18%	
8-Jackson Park/NE 15th	74	90	21%	
9-Powell Blvd	106	135	27%	✓
12-Barbur/Sandy Blvd	129	157	22%	
14-Hawthorne	64	75	17%	
15-Belmont/NW 23rd	94	113	20%	
33-McLoughlin	85	101	18%	
54/56-Beaverton-Hillsdale Hwy/Scholls Ferry Rd	59	76	28%	✓
57-TV Hwy/Forest Grove	103	123	20%	
72-Killingsworth/82nd	199	199	0%	
75-Cesar Chavez/Lombard	148	178	21%	
MAX Blue Line	238	267	12%	
MAX Green Line	78	88	13%	
MAX Red Line	114	129	13%	
MAX Yellow Line	70	79	13%	

*Estimated for MAX lines based on estimated number of trips being added. Projected revenue hours unavailable for MAX when analysis conducted.

Table 2: Change in service hours by line (Sundays)

Line	Current Sunday Revenue Vehicle Hours	Proposed Sunday Revenue Vehicle Hours*	Change in Daily Revenue Hours From Current Quarter (%)	Major Service Change?
MAX Blue Line	205	232	13%	
MAX Green Line	73	85	16%	
MAX Red Line	105	120	15%	
MAX Yellow Line	63	72	14%	

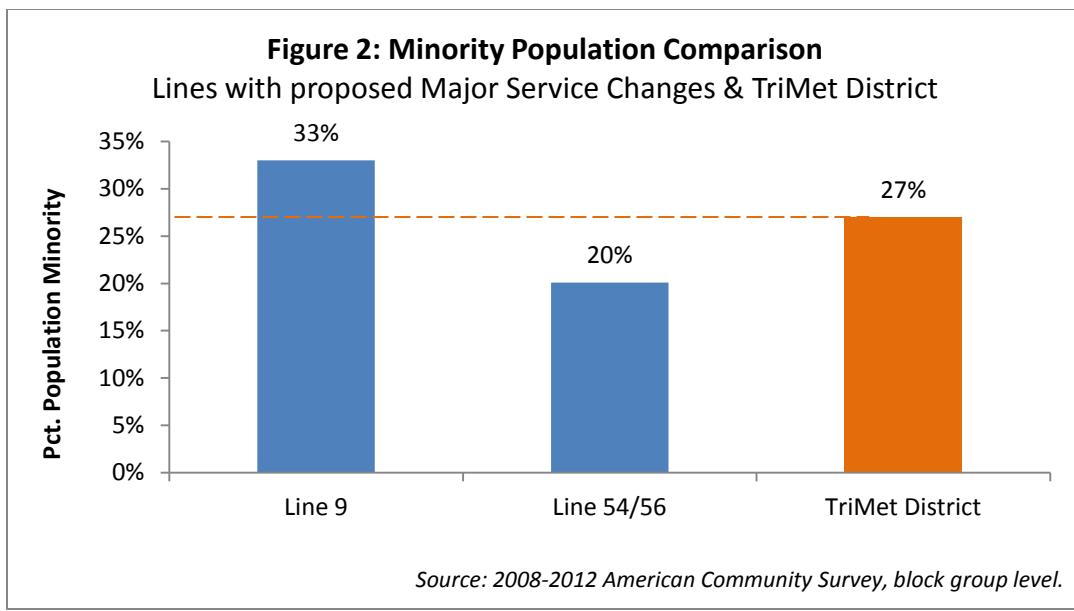
**Estimated based on estimated number of trips being added. Projected revenue hours unavailable when analysis conducted.*

C. Line-level Analyses

Having identified the proposed changes on lines that meet the definition of Major Service Change, the next step in the equity analysis is to look at each line individually to determine how equitable the potential impacts would be across racial/ethnic and economic lines. In the event of service reductions, TriMet analyzes whether minority and low-income populations stand to be disproportionately and adversely affected by the proposed changes. In this case, there are no adverse effects associated with any changes; the proposal includes only service *increases*, and therefore the analysis examines the extent to which the benefits of the improvements are inclusive of minority and low-income populations.

Disparate Impact Analysis

The line-level Disparate Impact analysis compares minority populations for the service area of each line to the minority population of the TriMet District as a whole. Figure 2 displays this comparison.



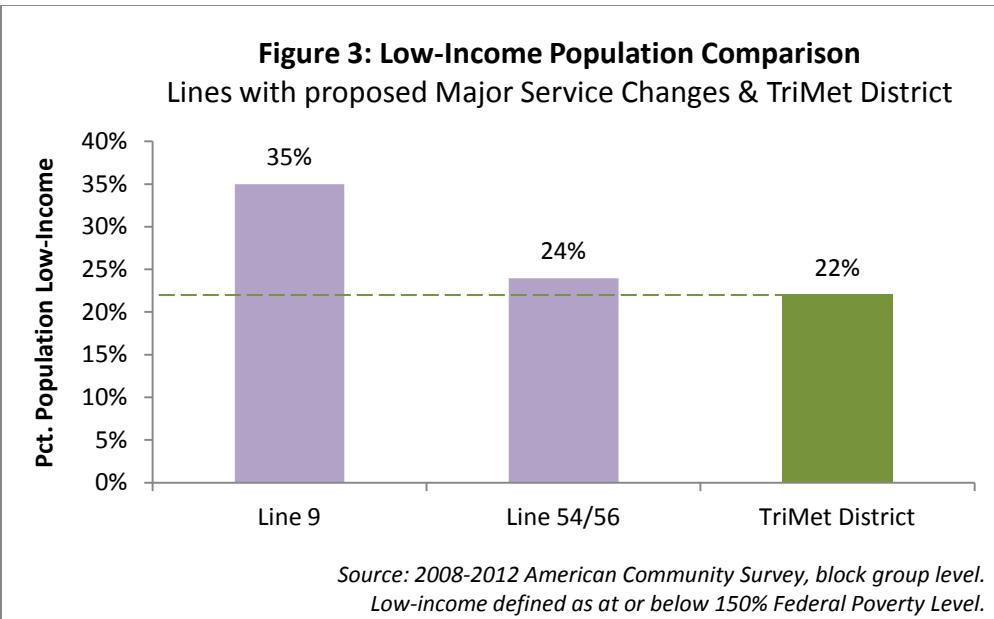
At 33% people of color, the service area of the Line 9 has a minority population that is above-average for the TriMet District. In other words, increasing the Line 9 to Frequent Service on Saturdays appears to benefit minorities to a greater extent than non-minorities. At the line level, this leads to a finding of no potential Disparate Impact.

On the other hand, the Line 54/56 (where the two lines overlap) has a below-average minority population compared to the TriMet district. That is, the Major Service Change improvement stands to disproportionately serve white, non-Hispanic populations, indicating a potential Disparate Impact at the line level, and calling for further examination to ensure that the change would not have discriminatory effects. The results of the system-level analysis and the context of the service change are part of this further examination, and are provided later in this report.

Disproportionate Burden Analysis

The line-level Disproportionate Burden analysis compares low-income populations for the service area of each line proposed for a Major Service Change to the low-income population of the TriMet District as a whole. As established in TriMet's adopted Title VI Program, low-income is defined as a household with annual income at or below 150% of the Federal Poverty Level. Figure 3 displays this comparison.

As shown, the service area of each line has a higher-than-average low-income population for the TriMet District, which is 22% low-income as a whole. This indicates that the service improvements have the potential to benefit low-income populations to a greater extent than higher-income populations. Thus, no potential Disproportionate Burden exists at the line level.



D. System-level Analysis

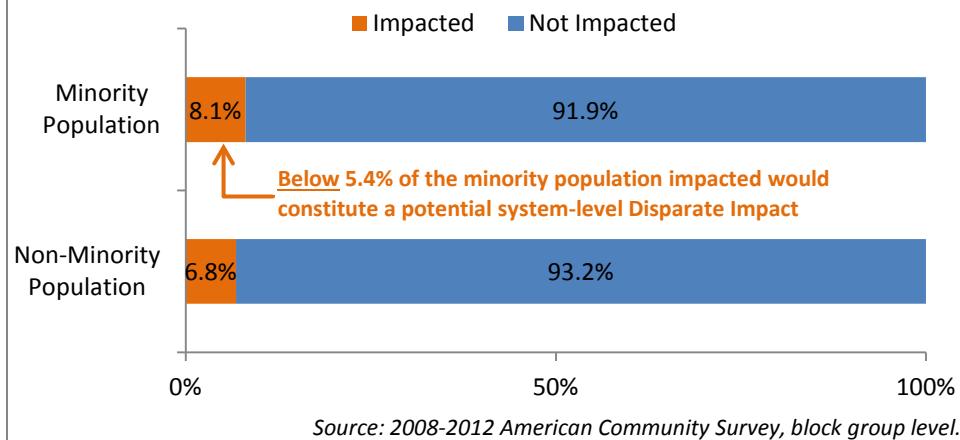
Because more than one line is proposed for Major Service Changes, a system-level analysis is required in addition to the line-level analysis. The system-level analysis aims to measure impacts of all Major Service Changes combined to determine how equitable the impacts would be across racial/ethnic and economic lines. Once again, the relative potential *benefits* of the service increases are compared between populations (minority vs. non-minority, and low-income vs. higher income) since the proposal includes only service increases and no adverse effects.

Disparate Impact Analysis

The system-level Disparate Impact analysis is completed by determining what proportion of the TriMet District's minority population is positively impacted by the Major Service Changes, and comparing that to the District's non-minority population that is positively impacted. A potential Disparate Impact would exist if 20% less of the District's minority than non-minority population (or 4/5) stood to benefit from the Major Service Changes, per TriMet's adopted Title VI policies.

Figure 4 compares the impacted minority and non-minority populations. As shown, a higher percentage of the district's minority population stands to benefit from the proposed Major Service Changes as compared to the district's non-minority population. Given the 6.8% of non-minorities positively impacted by the set of Major Service Changes, the percentage of minorities impacted would have to be below 4/5 of that figure (or 5.4%) to meet the definition of a system-level Disparate Impact. Therefore, no system-level Disparate Impact is found.

Figure 4: System-level impacts of proposed Major Service Changes, Spring and Summer 2015
Minority and Non-minority Populations



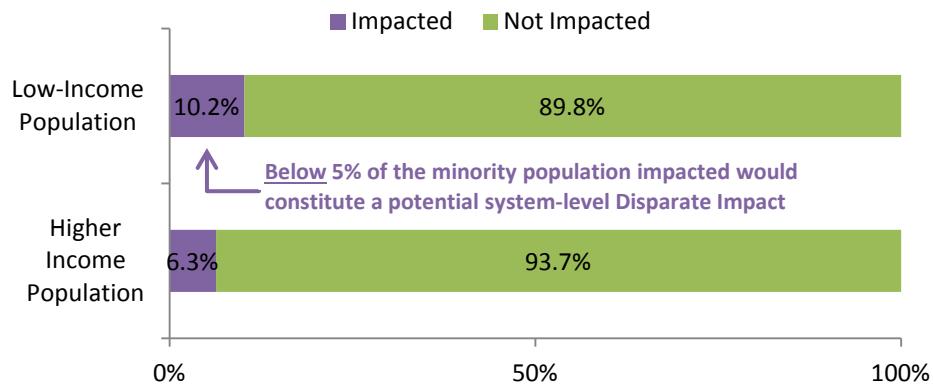
Disproportionate Burden Analysis

The system-level Disproportionate Burden analysis is completed by determining what proportion of the TriMet District's low-income population is positively impacted by the Major Service Changes, and comparing that to the District's higher income population that is positively impacted. "Higher income" includes all persons above the low-income threshold of 150% Federal Poverty. A potential Disproportionate Burden would exist if 20% less of the District's low-income than higher income population (or 4/5) stood to benefit from the Major Service Changes, per TriMet's adopted Title VI policies.

Figure 5 compares the impacted low-income and higher income populations. A greater percentage of the District's low-income population stands to benefit from the proposed Major Service Changes as compared to the higher income population (10.2% vs. 6.3%, respectively). Given the 6.3% of higher income persons positively impacted by the set of Major Service Changes, the percentage of minorities impacted would have to be below 4/5 of that figure (or 5%) to meet the definition of a system-level Disproportionate Burden. Therefore, no system-level Disproportionate Burden is found.

Figure 5: System-level impacts of proposed Major Service Changes, Spring and Summer 2015

Low-income and Higher Income Populations



Source: 2008-2012 American Community Survey, block group level.
Low-income defined as at or below 150% Federal Poverty Level. Higher Income is all others.

E. Summary & Conclusions

Table 3 summarizes the results of the line-level and system-level Disparate Impact and Disproportionate Burden analyses. None of the analyses indicated a potential Disproportionate Burden, meaning the proposed Major Service Changes (both of which are service increases) are equally-or-more beneficial to low-income populations, as compared to higher income populations.

Improvements to the Line 9 have the potential to be more beneficial to minority populations as compared to non-minority populations due to the demographics of its service area. On the other hand, the service area of the Line 54/56 (where the Lines 54 and 56 overlap) has a below-average minority population. Looking at these two Major Service Changes combined, however, shows that the changes actually serve a greater proportion of the district's minority population as compared to the non-minority population. Thus, the combined (system-level) analysis found no potential Disparate Impact.

Table 3: Summary of Disparate Impact and Disproportionate Burden analysis results

	Potential Disparate Impact?	Potential Disproportionate Burden?
9-Powell Blvd	No	No
54/56-Beaverton-Hillsdale Hwy/Scholls Ferry Rd	Yes	No
Combined (System-level)	No	No

Additional context and analysis provide substantial justification to move forward with the proposal as planned, despite flagging a potential issue with the Line 54/56 increase. First, the objective of the Frequent Service Network is to allow TriMet customers to make trips throughout the day, the evening, and on weekends, with confidence that there will be a bus or train to get them home. It is meant to operate as a network, and its effectiveness is reflected in the fact that the network carries 58% of bus system rides, while only using 48% of the bus system's service hours. In other words, Frequent Service lines are the most heavily utilized lines in the TriMet system, and provide a healthy return on investment for TriMet riders.

Second, TriMet's effort to restore Frequent Service stems from a commitment made several years ago. When the agency was facing budget shortfalls due to the Great Recession, it was forced to make service cuts and increase fares. These cuts reduced the Frequent Service Network from its standard of service every 15 minutes, most of the day and seven days a week. With input and support from community stakeholders, TriMet committed to restore Frequent Service as soon as resources were available. The Line 54/56 has been an established part of this network since its inception, and omitting it from the service restoration due to the demographics of their service area would not support the goals of the Frequent Service Network.

Furthermore, the Major Service Change definition measures the degree of *change*, which depends on the level of service prior to the changes. The end result is arguably more important to consider, since frequencies will be similar across all Frequent Service lines, even those that do not meet the Major Service Change definition in this instance. Once all service increases are implemented, Frequent Service lines with above-average minority populations –half of all Frequent Service lines – will provide 64% of Frequent Service on weekends², which is the same proportion provided currently.

Thus, given the available data and established methodology, implementing these changes appears to benefit protected populations equitably. TriMet therefore finds no Disparate Impact or Disproportionate Burden associated with restoring Frequent Service bus on Saturdays and MAX on Saturdays and Sundays.

² Based on revenue hours of service.