

# EQUITY ANALYSIS

June 2018

August 2018 Service Change

Equitable distribution of transit service is a core principle of the Regional Transportation District. This document details the measures taken to ensure major service changes do not result in a disparity in impacts absorbed by populations protected under Title VI of the Civil Rights Act of 1964 and Executive Order 12898 (Environmental Justice).



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# Equity Analysis

**AUGUST 2018 SERVICE CHANGE**

## INTRODUCTION

### Title VI and Environmental Justice

Equity is a core principle of the Regional Transportation District's (RTD) mission to provide mass transit service in the Denver Metro Area. An equitable mass transit system fairly distributes the benefits and adverse effects of transit service without regard for race, color, national origin, or low-income status. This principle is detailed and reinforced by Title VI of the Civil Rights Act of 1964 and Executive Order 12898 pertaining to environmental justice.

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs receiving federal financial assistance. Specifically, Title VI 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."

In 1994, President Clinton issued Executive Order 12898, which states that each federal agency "shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

The Federal Transit Administration's (FTA) Circular 4702.1B provides its recipients of FTA financial assistance with instructions for achieving compliance with Title VI and Environmental Justice. In this circular, the FTA requires RTD to evaluate, prior to implementation, any and all service changes that exceed the established major service change threshold, to determine whether those changes will have a disproportionately negative impact on minority or low-income populations.

## SERVICE CHANGE PHILOSOPHY

An equity analysis is triggered by proposed changes to the services provided by RTD. These changes include the addition of new routes, the elimination of existing routes, and changes to the alignment and trip frequency within existing routes. RTD has established policies to identify the service changes needed to meet the diverse travel needs of the citizens of the District and maintain a high-performance, sustainable transit system.

RTD services are divided into various service classes depending on service type, route alignment, and frequency. Each service class has its own service standards derived from the performance of all routes within each class. RTD continually adjusts services in response to changes in ridership and operational performance of the transit system as a whole. It is also the District's responsibility to identify services that are underperforming and recommend modifications, curtailment, or cancellation of service as warranted. In keeping with Colorado Revised Statutes, RTD utilizes official service standards to establish performance metrics used to identify underperforming services on a class-of-service basis. The District used these metrics to identify a series of service changes. Equity analyses examine the impact of the proposed changes on minority populations and low-income households at or below 150 percent of the Department of Health and Human Services Poverty Guidelines.

*...The general assembly further finds that the district should be organized efficiently, economically, and on a demand-responsive basis and that the district should consider least-cost alternatives in discharging its responsibilities. The general assembly further finds that the farebox recovery ratio of the district must be improved so that resources once allocated for mass transportation can be made available for other surface transportation needs.*

**Colorado Revised Statutes 32-9-119.7 Farebox Recovery Ratios -- Plans**

## ANALYSIS

The FTA requires RTD to establish policies that will guide the analysis to determine whether major service changes will have a disproportionately negative impact on minority or low-income populations. Accordingly, RTD established equity analysis policies and a service evaluation process to meet this requirement.

### Equity Analysis Policies

Per FTA Circular 4702.1B Chapter IV.7, RTD must establish a Major Service Change Policy, a Disparate Impact Policy, and a Disproportionate Burden Policy. Collectively, these policies provide foundational requirements for evaluating service change proposals for equity. These policies and their applicable thresholds are listed below:

1. **Major Service Change Policy:** A major service change is defined as a 25 percent addition or reduction in the service hours of any route that would remain in effect for twelve (12) or more months. All major service changes will be subject to an equity analysis that includes an analysis of adverse effects.
  - a. Adverse Effect is defined as a geographical or temporal reduction in service that includes, but is not limited to: eliminating a route, shortening a route by eliminating segments, rerouting an existing route, and increasing headways. RTD shall consider the degree of adverse effects and analyze those effects when planning major service changes.

2. **Disparate Impact Policy:** A major service change should not adversely affect a minority population 10 percent more than non-minority populations; this level of impact is considered a disparate impact.
3. **Disproportionate Burden Policy:** A major service change should not adversely affect a low-income population 10 percent more than non-low-income populations; this level of impact is considered a disproportionate burden. A low-income population is a group of households who are at or below 150 percent of the Department of Health and Human Services Poverty Guidelines.

If a proposed major service change results in a disparate impact or a disproportionate burden, RTD will consider modifying the proposed service change. RTD will then analyze the modification and make sure it removed the potential disparate impact or disproportionate burden. If a less discriminatory option cannot be identified and RTD can demonstrate a substantial legitimate justification for the proposed service change, the FTA may allow RTD to proceed with the proposed change.

## Service Change Overview

The equity analysis in this report examined the impact to minority and low-income populations caused by the proposed major service changes summarized below:

### Route 27 and Route 26

Service Standard type - Urban Local – (10%-12.2 pass. per hr. / 25%-19.1 pass. per hr.). Ridership on Route 27 between Englewood Station and Colorado Boulevard has been low historically and current ridership data shows the segment operating at 12.8 passengers per hour, which is below the 25 percentile standard for an Urban Local service of 19.1 boardings per hour and only slightly above the 10% standard of 12.2 boardings per hour. This proposal splits the Route 27 in to two separate route services. The new Route 26 - West Yale Avenue service would operate between Southwest Plaza and Englewood Station. The new Route 27 – East Yale service would operate between University Hills and Ulster - Tufts.

**Figure 1 – Route 27 and Route 26 Overview Map**





3 passengers per trip. 8 reverse commuters on the CV/CS/CX would be impacted. Discontinue Route CX. All trips would instead stop at Twin Forks PnR, providing 5 trips on Route CV in each direction, each peak.

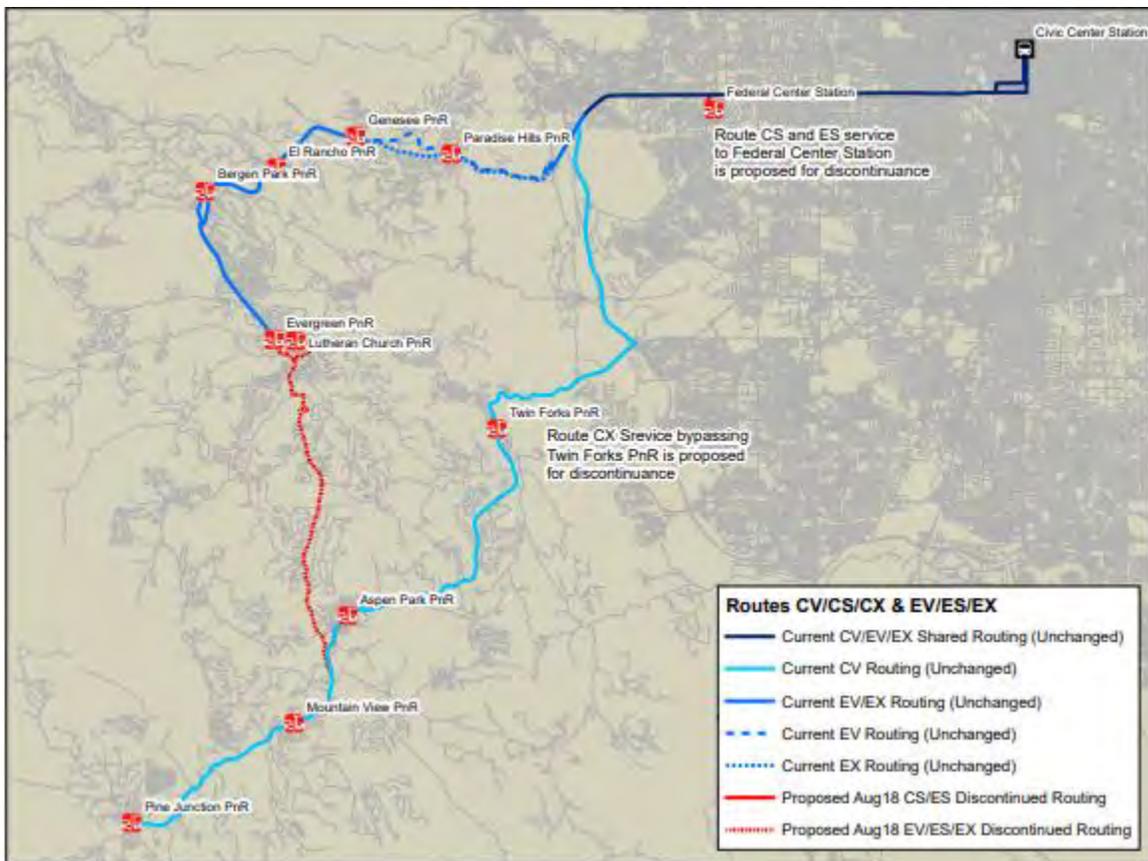
Discontinue Route ES. Impacts 10 passengers between Evergreen and Federal Center Station. Route ES currently carries 10 passengers solely between Evergreen and Federal Center on 5 eastbound and 5 westbound trips. This translates to 3.5 boardings per hour, averaging 2 passengers per trip. Route EV/ES/EX also has 8 passengers boarding between Aspen Park and Evergreen PnR that will no longer have service. 7 reverse commuters on the EV/ES/EX will be impacted.

Remaining service would provide 2 trips on Route EX each direction, each peak and would provide 3 trips on Route EV each direction, each peak. Discontinue service between Evergreen PnR and Aspen Park PnR. Impacts 1 passenger. Lutheran Church PnR passengers would instead need to board at Evergreen PnR.

Discontinue reverse peak in-service on all routes. Impacts 2 passengers. Provide 5 additional Route 100L trips between Federal Center Station and Civic Center Station to replace discontinued Route CS and ES trips. Alternative service can also be found the W Line light rail service and the formation of Van Pools. This proposal would save approximately 27 weekday hours and an estimated 3 weekday FTE's.

Anticipated resource impacts include a reduction of 6,885 annual hours.

**Figure 2 – Route 100L, CV/CS/CX, EV/ES/EX Overview Map**



## Equity Analysis Methodology

The basic framework for analyzing service changes for equity involved comparing affected populations. Identify the proposed changes by routes.

1. Collect and examine latest ridership survey data for statistical validity and ridership demographics at the route level.
2. If statistically valid ridership data is unavailable, obtain applicable demographic data for the study area and spatially allocate the data within a buffer around routes (0.25-mile buffer for bus, 0.50-mile buffer for rail) based on American Community Survey block group population data.
3. Examine the percentage of minority and non-minority populations and to low-income and non-low-income (ridership or residents) subject to the change in service.

Unfortunately, the ridership data samples for the routes of this analysis are below the threshold for statistical validity. Alternatively, we must rely on population data from the US Census and American Community Survey to examine the distribution of adverse effects. Table 1 displays the service area demographic profile used to measure service changes for disparate impact and disproportionate burden.

**Table 1 - RTD Service Area Demographic Profile**

Percent Minority <sup>1</sup>	Percent Low-income <sup>2</sup>
29%	21%

## Route 27 and Route 26 Analysis

As previously mentioned, its proposed to split the existing route 27 into two routes, creating the route 26, and discontinue the unproductive segment of the existing route 27. To examine the impacts of this change, demographics of the population in proximity to the new route 27, new route 26 and discontinued segment were analyzed. An examination of the route demographics did not reveal a disproportionate distribution of adverse effects among minority and low-income populations. The data and maps used to conduct this analysis are displayed in Table 2, Figure 4 and Figure 5.

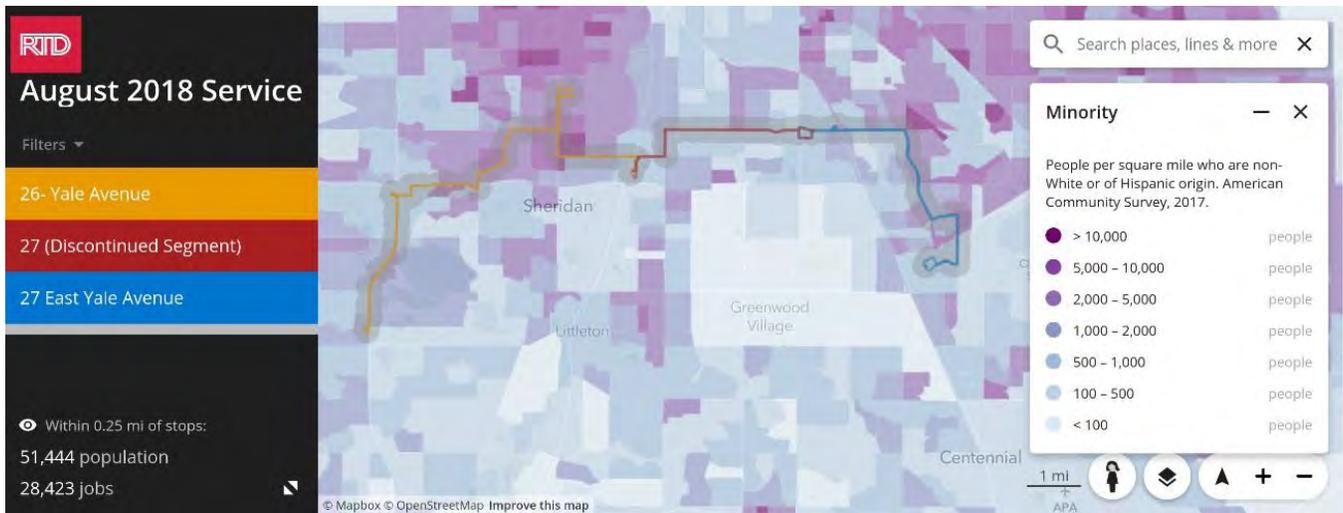
**Table 2 – Route 27 and Route 26 Population Demographics**

Route	Minority Population	+/- Systemwide Minority Population	Low-Income Population	+/- Systemwide Low-income Population
New Route 27	33%	+4%	8%	-13%
New Route 26	55%	+26%	19%	-2%
Route 27 Discontinued Segment	17%	-12%	11%	-10%

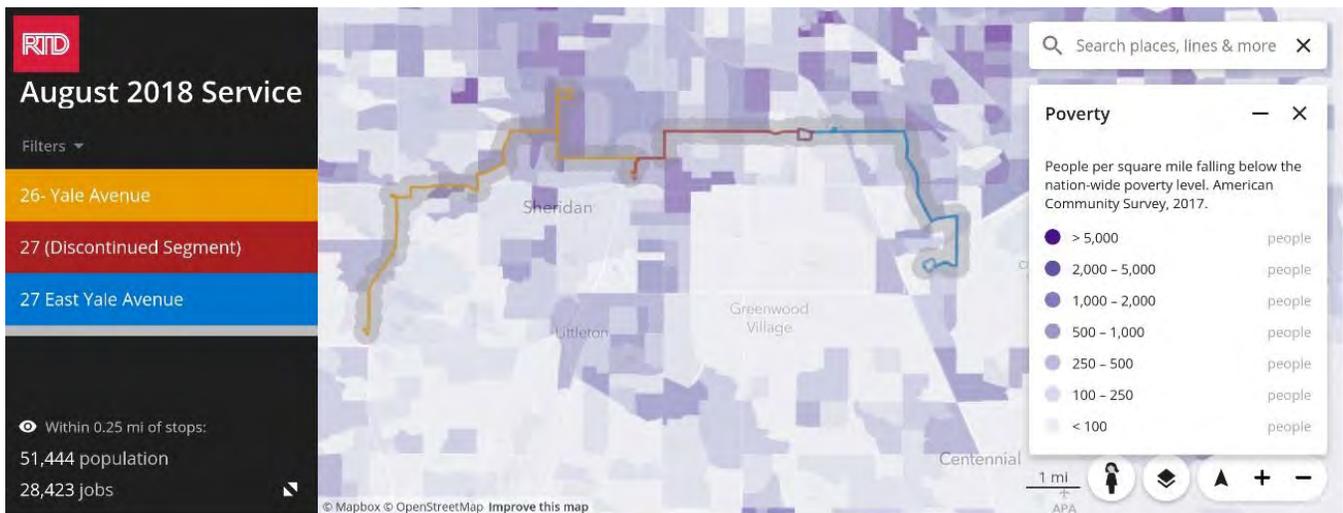
<sup>1</sup> 2010 US Census

<sup>2</sup> 2013 American Community Survey (2013)

**Figure 4 – Route 27 and Route 26 Minority Map**



**Figure 5 – Route 27 and Route 26 Low-income Map**



### **Route 85 and South Jeffco Call-n-Ride Analysis**

Due to consistent low ridership (9.8 boardings per hour) it is proposed that the Route 85 be replaced with a Call-n-Ride flex route. The capacity of a fixed route and fixed route vehicle are exchanged for the flexibility of the Call-n-Ride flex route and smaller cutaway vehicle (displayed in Picture 1). The Call-n-Ride flex route will operate at a frequency comparable to the frequency of the fixed-route service, for a fraction of the cost. An analysis of the route demographics reveals a disproportionately low population of minority and low-income individuals. Accordingly, no disparate impact or disproportionate burden was found. Table 3 displays to demographic profile of the route. Figure 6 and Figure 7 are examples of the maps used to analyze the proposed change.

**Picture 1 – Call-n-Ride Vehicle**



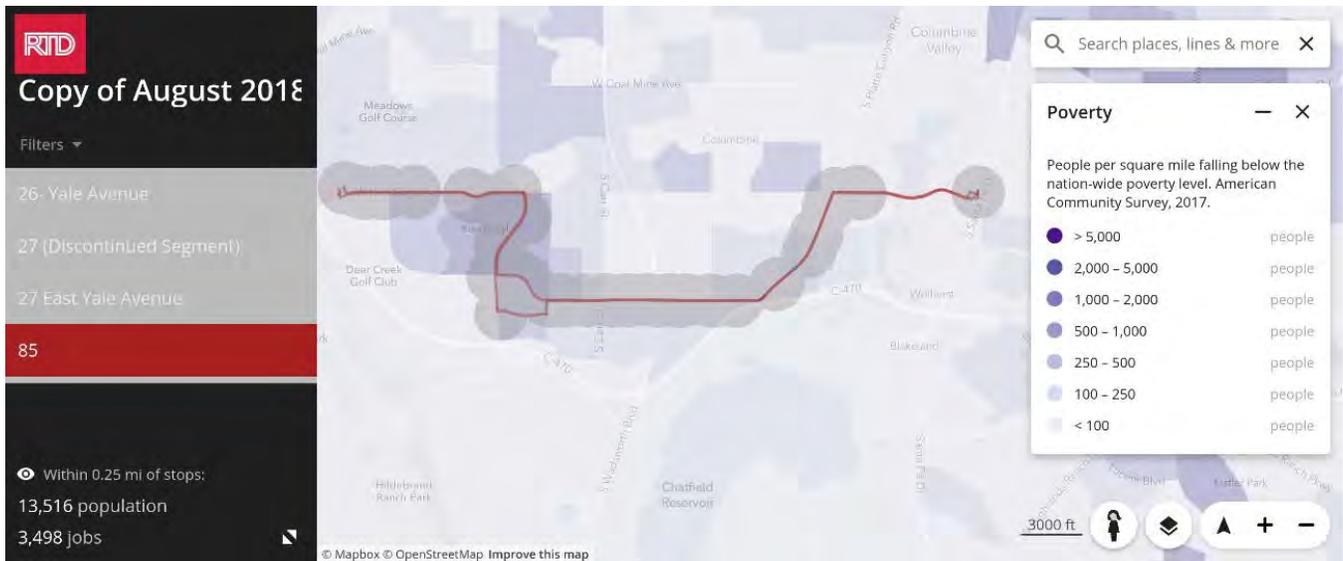
**Table 3 – Route 27 and Route 26 Population Demographics**

Route	Minority Population	+/- Systemwide Minority Population	Low-Income Population	+/- Systemwide Low-income Population
Route 85/Flex Route	15%	-14%	10%	-11%

**Figure 6 – Route 85/Jeffco Call-n-Ride Flex Route Minority Map**



**Figure 7 – Route 85/Jeffco Call-n-Ride Flex Route Low-Income Map**



### **Route 100L, CV/CS/CX, EV/ES/EX Analysis**

To better match service to customer demand it is proposed to restructure Routes CV/CS/CX and EV/ES/EX and eliminate service between Federal Center Station (CS and ES) and Conifer/Evergreen (EV,ES,EX). Service would be maintained between Civic Center and Conifer/Evergreen. Trips between Federal Center Station and Civic Center would be replaced by trips on Route 100L. This collection of routes has struggled to meet the ridership thresholds that warrant current service levels. The areas served by these routes have below average minority and low-income populations and in some cases, disproportionately lower minority and low-income populations. The analysis of this collection of changes did not reveal a disparate impact or disproportionate burden.

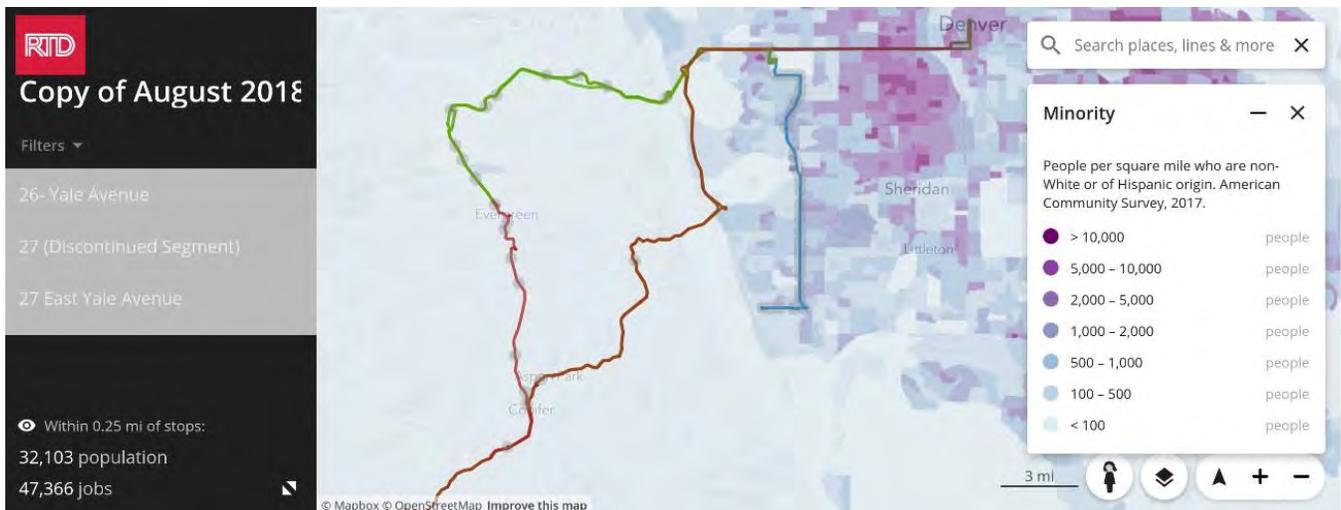
The following table and figures were used to analyze this collection of changes for disparate impact and disproportionate burden.

**Table 4 – Route 100L, CV/CS/CX, EV/ES/EX Population Demographics**

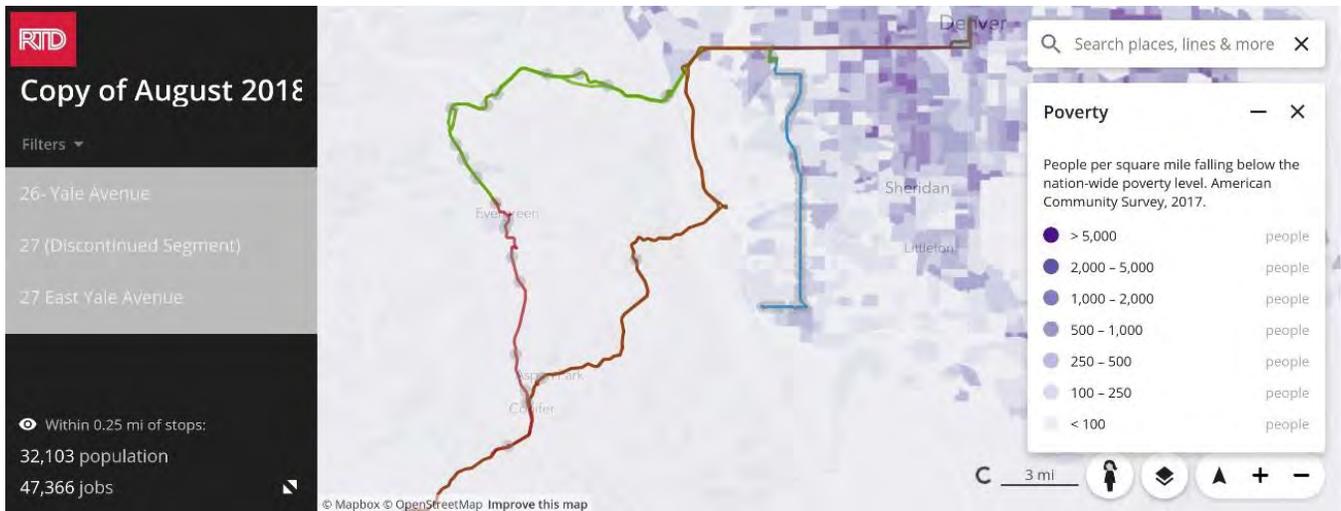
Route	Minority Population	+/- Systemwide Minority Population	Low-Income Population	+/- Systemwide Low-income Population
EV/EX Reduced Trips	21%	-8%	16%	-5%
EV/EX Discontinued Segment	9%	-20%	8%	-13%
ES Discontinued	19%	-10%	8%	-13%
100L Increased Trips	21%	-8%	9%	-12%
CV Reduced Trips	23%	-6%	17%	-4%
CS Discontinued	25%	-4%	8%	-13%
CX Discontinued	23%	-6%	17%	-4%

Figure 7 and Figure 8 are a sample of the multiple maps used to visually assess the populations affected by the proposed changes.

**Figure 7 – Route 100L, CV/CS/CX, EV/ES/EX Minority Map**



**Figure 8 – Route 100L, CV/CS/CX, EV/ES/EX Income Map**



## Conclusion

The primary objective for this analysis was to examine proposed service changes to ensure minority and low-income populations would not be more adversely affected than non-minority and non-low-income populations. Analysis of demographic data has shown the proposed service changes would not result in a disparate impact or disproportionate burden.

RTD's main objective is to provide service levels commensurate with transit demand. Unfortunately, changes subject to this analysis mainly include significant adjustments due to shifting and dwindling demand throughout the district. However, the areas in the district with decreasing demand tend to have populations that have lower density and lower than average minority and low-income populations.

Therefore, based on the nature of the changes and proportion of protected populations affected, no disparate impact or disproportionate burden was identified, and the proposed major service changes do not require revision.