

TO: Capital Metro Board of Directors

FROM: Sharmila Mukherjee, Executive Vice-President, Planning & Development

DATE: December 21, 2021

SUBJECT: September 2021 Service Change Equity Analysis

Summary

In response to the ongoing COVID-19 pandemic, Capital Metro has provided service at varying levels. As of the September 2021 service change, most service was restored to its pre-pandemic level. However, two sets of changes have been in place since March of 2020 and a service equity analysis was conducted for these changes. The changes are to commuter bus service and university service routes.

No disparate impact was identified. These changes are not disproportionately borne by minority populations. There is no disproportionate burden by low-income populations for the university service routes. A disproportionate burden was identified for the commuter bus service changes. The disproportionate burden impacts were minimized through an intentional approach to reducing service and the availability of alternatives. Since Capital Metro took steps to minimize the disproportionate burden impacts, these changes can proceed.

Additional information regarding the analysis is contained in this memo.

Analysis

The analysis was conducted in accordance with Title VI policies adopted by the board on June 28, 2021. The Major Service Change policy requires Capital Metro to conduct a service equity analysis whenever there is a "major service change" as defined in the policy. "Major service change" is defined to include "a geographic change on a given transit route of 25% or more of its annual revenue miles or hours." Furthermore, as outlined in the Title VI Circular Chapter IV, Section 7, any major service change that lasts longer than 12 months is considered permanent and requires a service equity analysis. Since service levels for individual commuter bus service and university service routes were reduced by more than 25% during the COVID-19 pandemic, and some of the changes have continued for longer than 12 months, a service equity analysis is required to evaluate the impacts of the service changes on Title VI-protected populations and low-income populations.

The service equity analysis was conducted using the Title VI component of Remix Transit, an online transit planning software¹. Remix allows agencies to automatically generate a Title VI report by comparing existing service to a set of proposed changes using demographic data from the US Census Bureau (2015-2019 American Community Survey (ACS) 5-Year Estimates). Using this data, Remix estimates the population near a route, including its low-income and minority percentage, for both existing and proposed service. The output of the Remix Transit VI analysis is then summarized to compare the people trips for minority/low-income to non-minority/non-low-income for the existing service to the proposed service. In accordance with Capital Metro’s Title VI policies, a difference of 2 percentage points or more results in a disparate impact to minority riders and a disproportionate burden to low income riders and would require Capital Metro to take steps to avoid, minimize or mitigate impacts when practicable (see following tables).

Commuter Bus Service

Commuter bus service includes express and flyer bus routes. Ten of Capital Metro’s 12 commuter routes have had their service reduced in response to COVID, while two routes have been suspended (Routes 981 & 987). Commuter routes have experienced a 90% decrease in ridership as employees have worked from home or work alternative schedules. With the Delta variant surge, many employers delayed plans for employees to return to the office. The demand for commuter service remains low and commuter routes have been adjusted to meet this reduced demand. Four of these 12 routes are classified as minority routes². Every route that was reduced or suspended qualifies as a major service change under Capital Metro’s Title VI policies.

Disparate Impact (Minority)

Minority populations experienced a 73.4% reduction in people trips and non-minority populations experienced an 74.5% reduction in people trips. Since minority populations experience fewer reductions than non-minority populations, there is no disparate impact.

	Non-Minority People Trips	Minority People trips
After	127,943,190	98,513,640
Before	501,034,455	370,217,925
Percent Change	-74.5%	-73.4%
Percentage Point Difference	-1.1%	

Disproportionate Burden (Low-Income)

¹ The full Remix Transit Title VI methodology can be found in Attachment A.

² A “minority route” is a route that has 1/3rd of its miles in Minority Census Blocks.



Low-income populations experienced a 76.8% reduction in people trips and non-low income populations experienced a 72.6% reduction in people trips. Since low-income populations experience more reductions than non-low-income populations at a rate of 4.2% percentage points, which is more than the 2% threshold set forth in Capital Metro’s Title IV policies, there is a disproportionate burden.

Capital Metro’s Title VI policy states “Capital Metro will take steps to avoid, minimize or mitigate impacts when practicable”. When reducing service, Capital Metro attempted to retain the trips with the highest ridership so that the fewest customers would be impacted. Because of the 90% loss in commuter ridership Capital Metro needed to reduce commuter service to ensure resources were available for routes that maintained high ridership during COVID. We identified the Red Line as providing alternative service for many of the commuter routes allowing residents of Capital Metro’s northwest service area to access the largest commuter destinations: University of Texas, Capitol Complex and downtown. The disproportionate burden impacts to low-income users of commuter bus service were minimized through the intentional approach to reducing service and the availability of alternatives.

	Non-Low-Income People Trips	Low-Income People trips
After	160,474,784	65,982,046
Before	586,735,443	284,516,937
Percent Change	-72.6%	-76.8%
Percentage Point Difference	4.2%	

University Service Routes

University service consists of the routes that serve the University of Texas at Austin. Five of the 12 routes experienced a major change due to the elimination of three combo routes that operated on Sundays and weekday evenings. Instead of combining routes, additional service was added to the individual routes resulting in a service improvement. All of the affected routes are classified as minority routes.

Disparate Impact (Minority)

Minority populations experienced a 10.4% reduction in people trips and non-minority populations experienced an 11.7% reduction. Since minority populations experience fewer reductions than non-minority populations, there is no disparate impact.

	Non-Minority People Trips	Minority People trips
After	1,357,985,415	1,278,542,205
Before	1,537,597,725	1,427,162,835
Percent Change	-11.7%	-10.4%
Percentage Point Difference	-1.3%	

Disproportionate Burden (Low-Income)

Low-income populations experience a 9.2% reduction and non-low income populations experience a 12.6% reduction. Since low-income populations experience fewer reductions than non-low income populations, there is no disproportionate burden.

	Non-Low-Income People Trips	Low-Income People trips
After	1,450,279,789	1,186,247,831
Before	1,658,715,429	1,306,045,131
Percent Change	-12.6%	-9.2%
Percentage Point Difference	-3.4%	

Attachment A: Remix Methodology

Source: <https://help.remix.com/en/articles/1439215-remix-101-using-the-remix-title-vi-engine>

Remix allows you to automatically generate a Title VI report (based on Census data) by comparing existing service to a set of proposed changes. This page outlines the methodology and data sources we use when generating this report.

Data sources

- Demographic data comes from the US Census Bureau, 2015-2019 American Community Survey (ACS) 5-Year Estimates.
- Population is coded by table B03002, field B03002001.
- Low-income status is set at 100%, 150% or 200% the US federal poverty level, depending on your individual agency. This is coded by the appropriate fields in table C17002.
- Minority status is coded by table B03002, by subtracting the white, non-Hispanic population (B03002003) from the total population (B03002001).
- Service area is a set of block groups determined by a shapefile your agency provides.
- Map and routing data are provided OpenStreetMap, Mapbox, and Valhalla.

Methodology

1. Get the population near a route, including its low-income and minority percentage.
 - For each route, build a shape that represents the area within quarter-mile of any of its stops.
 - Intersect the catchment area with 2015-2019 ACS 5-year estimates. Get a list of block groups and the percentage overlap with each.
 - For each block group, take the percentage of overlap and multiply it by the block group's statistics.
 - Get the population, minority population, and low-income population for each group and sum them together. This is the total population a route could serve.
2. Compare the number of people-trips, before and after.
 - Multiply the population near a route by the number of trips it makes (per year) to get "people-trips".
 - Repeat for low-income and minority populations to get "low-income people-trips" and "minority people trips".
 - Compare these numbers between the before and after versions of the route, to get a set of people-trip differences. We match before and after using routes that have the same name.
3. Get the total difference in people-trips across the transit system.
 - Repeat the process above for every route in the transit system.



- Sum together the difference in people trips. This will return three numbers: total difference in people-trips, total difference in low-income people-trips, and total difference in minority people trips.
4. Calculate the change borne by low-income and minority populations.
 - Divide the total difference in low-income people trips by the total difference in people-trips to get the percentage of change borne by those with low incomes.
 - Repeat for minority people-trips.
 5. Compare the percentage change to the average in the service area.
 - Calculate the average percentage of low-income and minority populations across the entire service area.
 - Subtract from the change borne by those populations.
 - Get two final numbers: the delta between the impact this set of transit changes had on low-income and minority populations compared to any average change.

Additional Raw Data

In addition to the methodology outlined above, Remix also produces a set of raw data you can use in your own methodology. Specifically, we provide:

- A list of Census block groups in the service area with population, low-income, minority information for each.
- A before and after count of trips in each block group.
- A service-area-wide average of minority and low-income populations

Attachment B: Capital Metro Commuter Service Demographic Maps

Figure 1: Capital Metro Commuter Service, January 2020

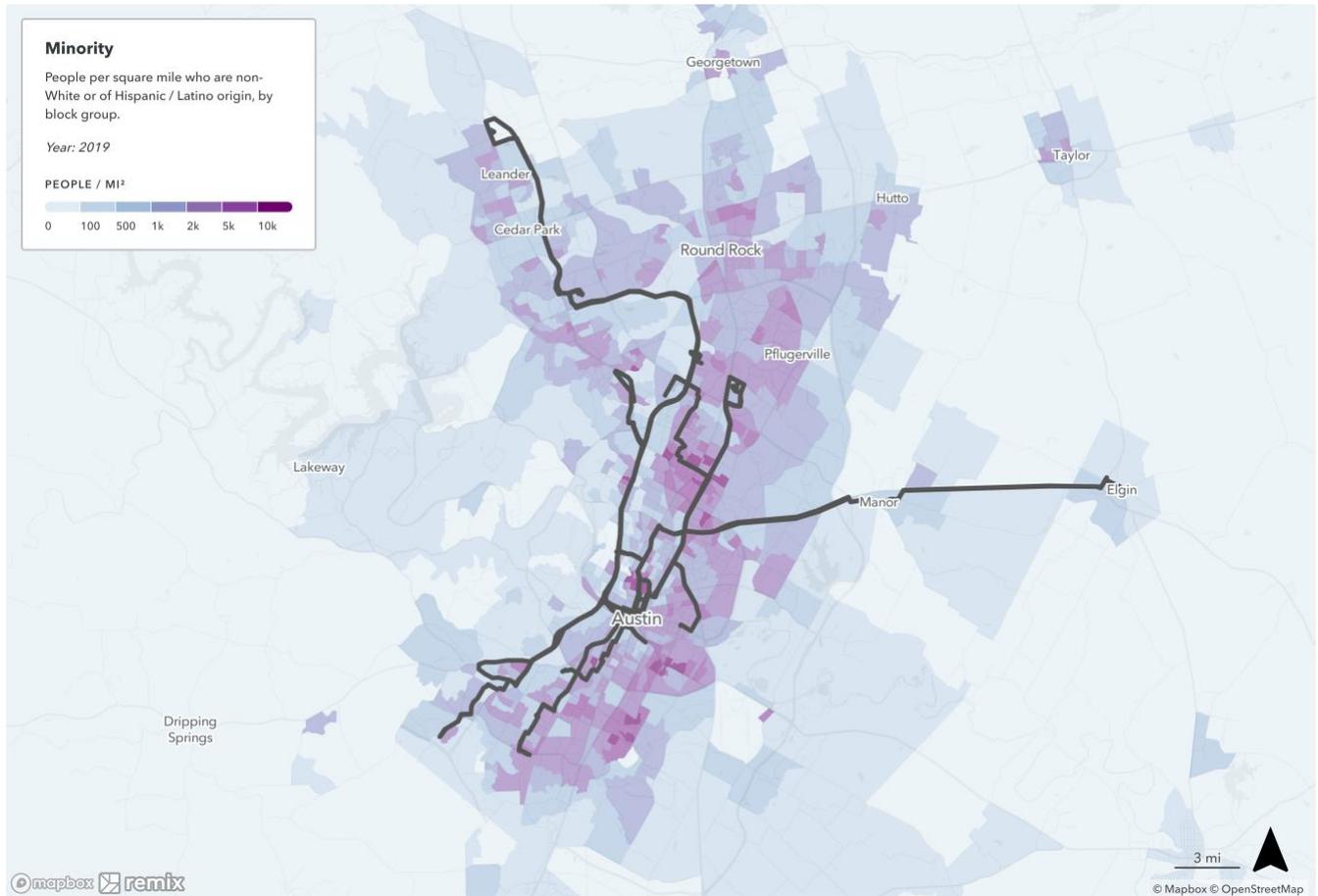


Figure 2: Capital Metro Commuter Service, August 2021

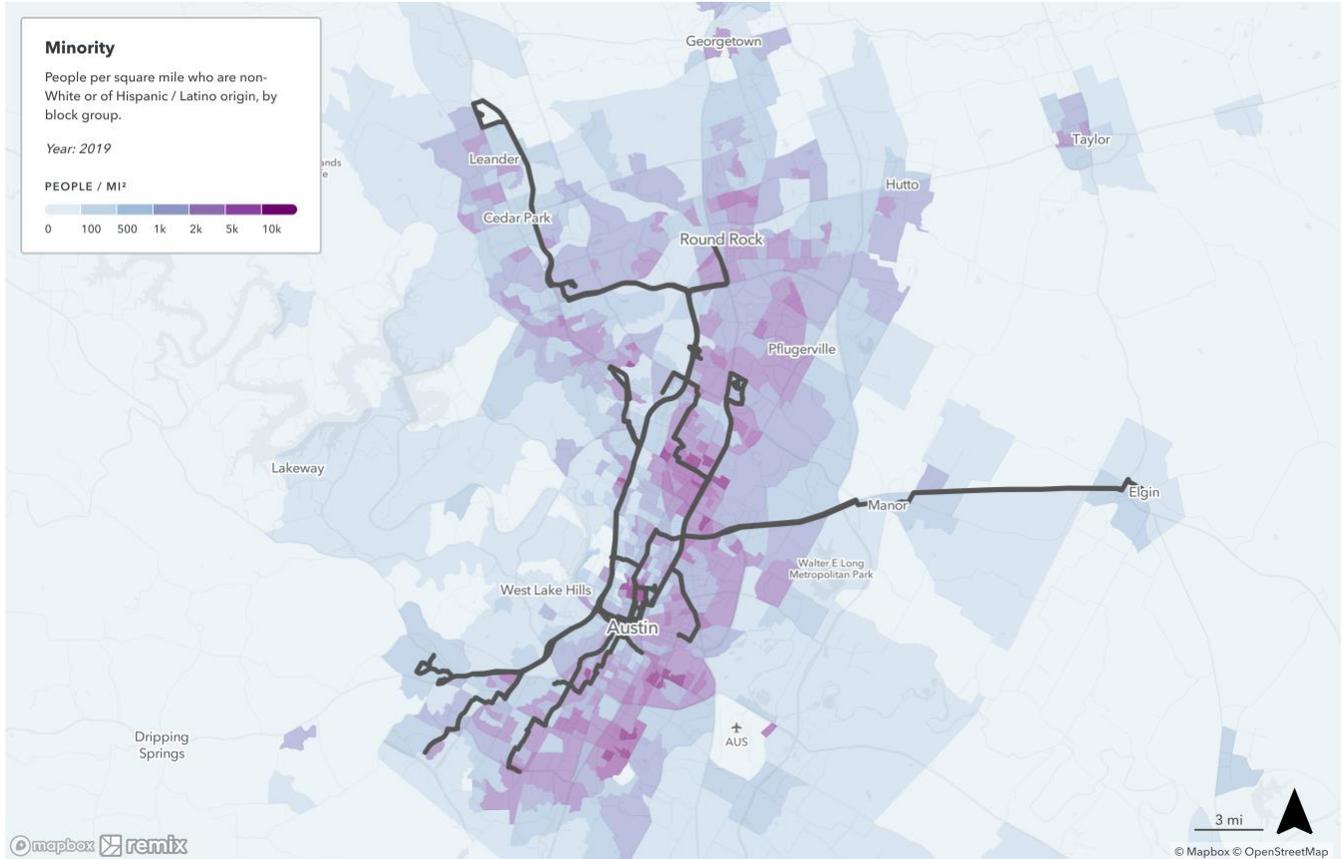


Figure 3: Capital Metro Commuter Service, January 2020

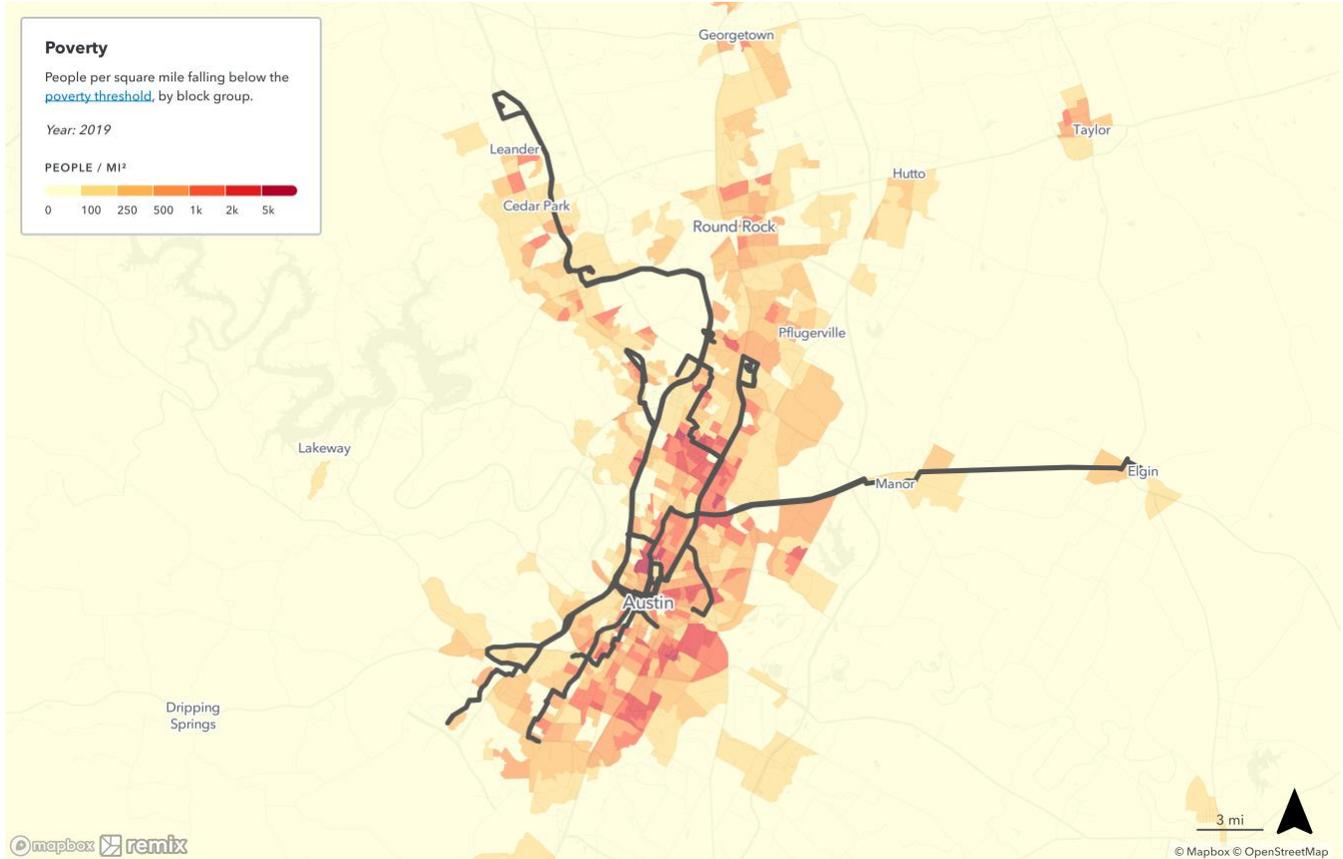
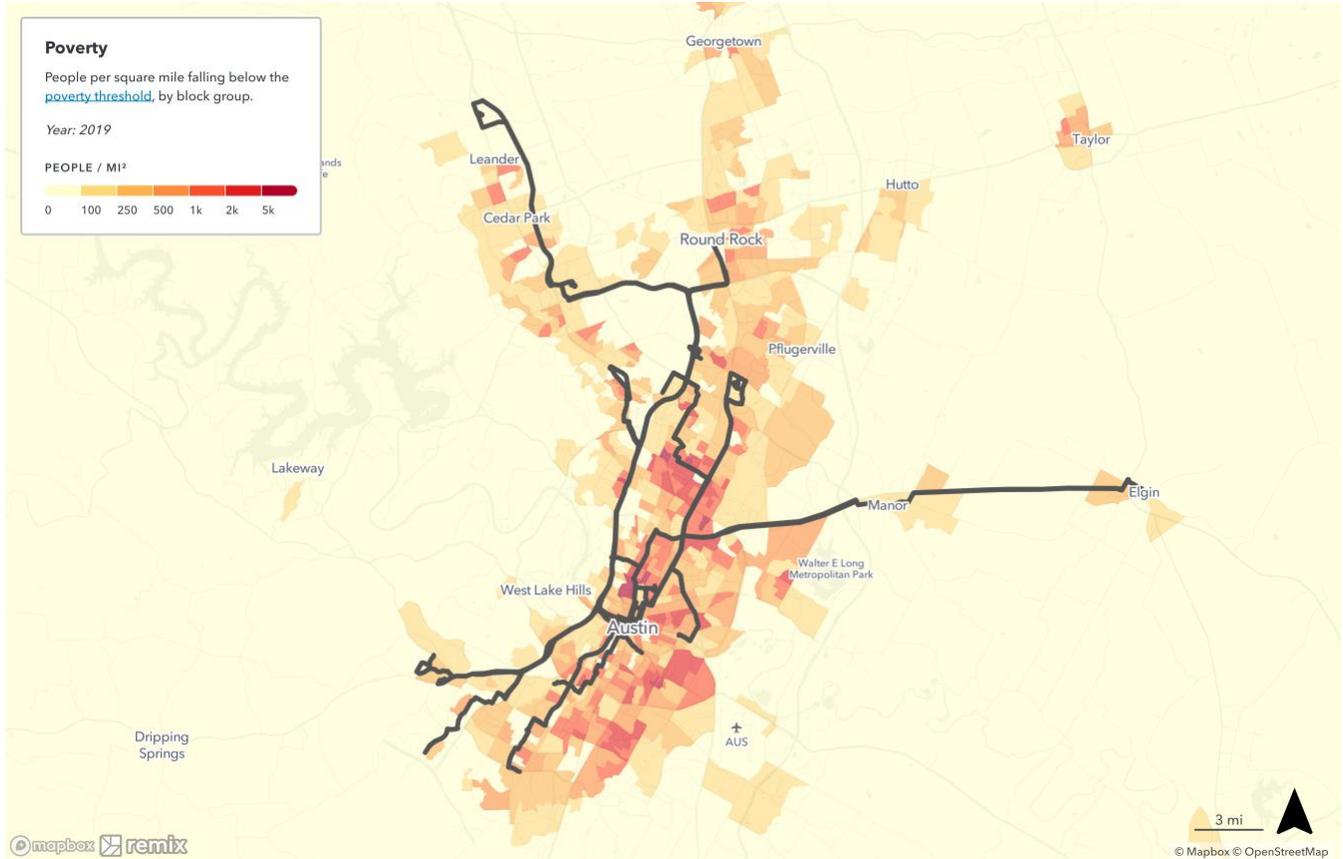


Figure 4: Capital Metro Commuter Service, August 2021





Attachment C: Capital Metro University Service Demographic Maps

Figure 5: Capital Metro University Service, January 2020





Figure 7: Capital Metro University Service, January 2020

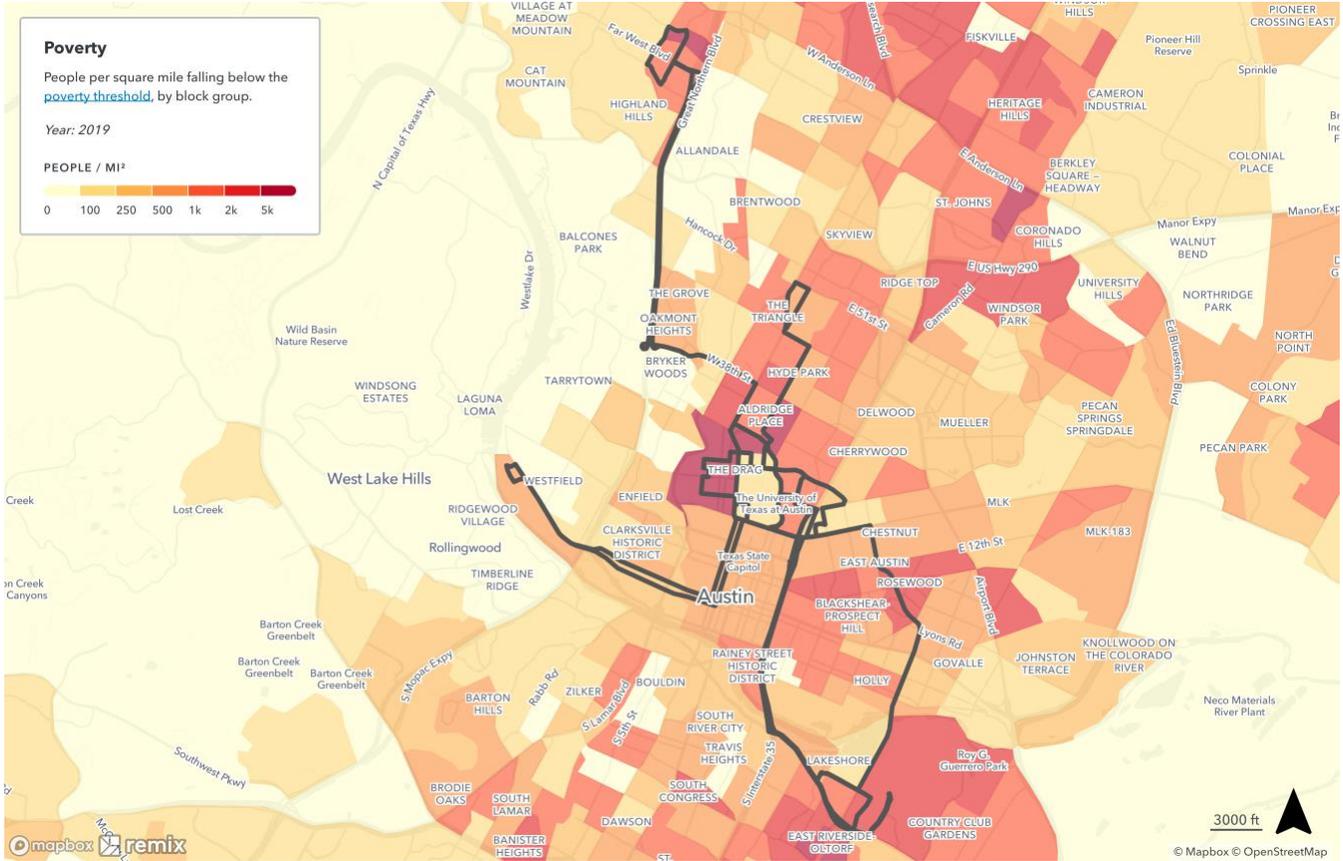




Figure 8: Capital Metro University Service, August 2021

