CHAPTER 5 – TITLE VI SERVICE EQUITY ANALYSIS

The Federal Transit Administration (FTA) issued Circular 4702.1B in 2012, which defines Title VI and Environmental Justice compliance procedures for recipients of FTA-administered transit program funds. Specifically, the FTA requires recipients, including Metro Transit, to "evaluate significant system-wide service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact."

The entire Title VI report for the West Suburban Service Changes concept plan is available online.

Definitions

Minority: The FTA defines a minority person as one who self-identifies as American Indian/Alaska Native, Asian, Black or African American, Hispanic or Latino, and/or Native Hawaiian/Pacific Islander. Minority percentages in the West Suburban Service Changes Study Area are mapped in Figure 7.

Low Income: The FTA defines a low-income individual as one whose household income is at or below the poverty guidelines set by the Department of Health and Human Services (DHHS). DHHS poverty thresholds are based on household size and income, and are nearly identical to the guidelines used to define poverty in the 2011 U.S. Census and American Community Survey (ACS), which form the basis of this review. Low-income percentages in the West Suburban Service Changes study area are mapped in Figure 8.

Disparate Impact: The Federal Transit Administration defines "disparate impacts" as neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI, and the recipient's policy or practice lacks a substantial legitimate justification. If the results of the analysis indicate a potential for disparate impacts, further investigation is performed. This investigation uses qualitative assessments and/or the "four-fifths rule" to determine whether disparate impacts exist. In this analysis, if the quantitative results indicate that the Concept Plan service changes provide benefits to minority/low-income groups at a rate less than 80 percent of the benefits provided to non-minority/non-low-income groups, there could be evidence of disparate impacts and mitigation measures should be identified.

Figure 7 Minority Percentages

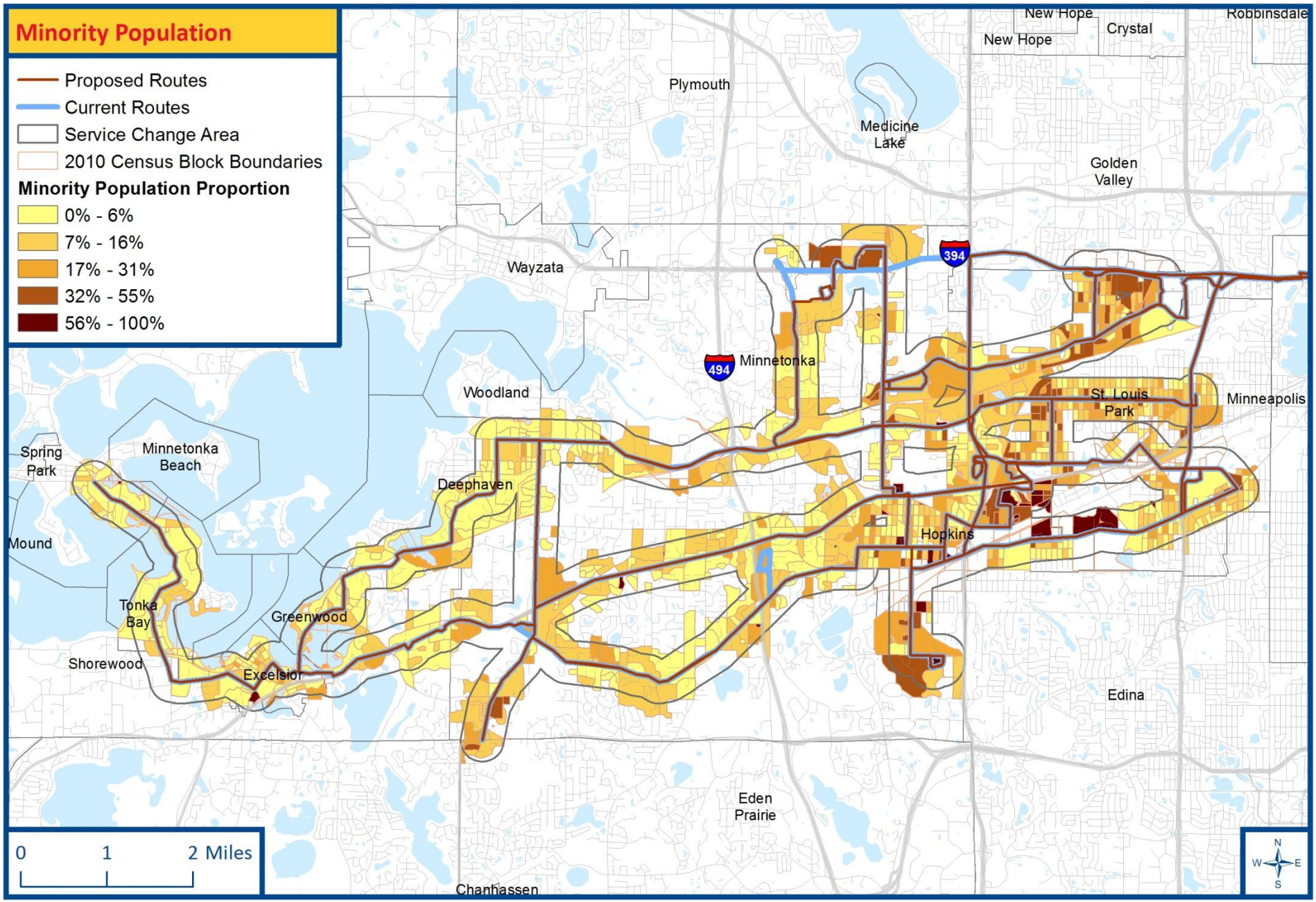
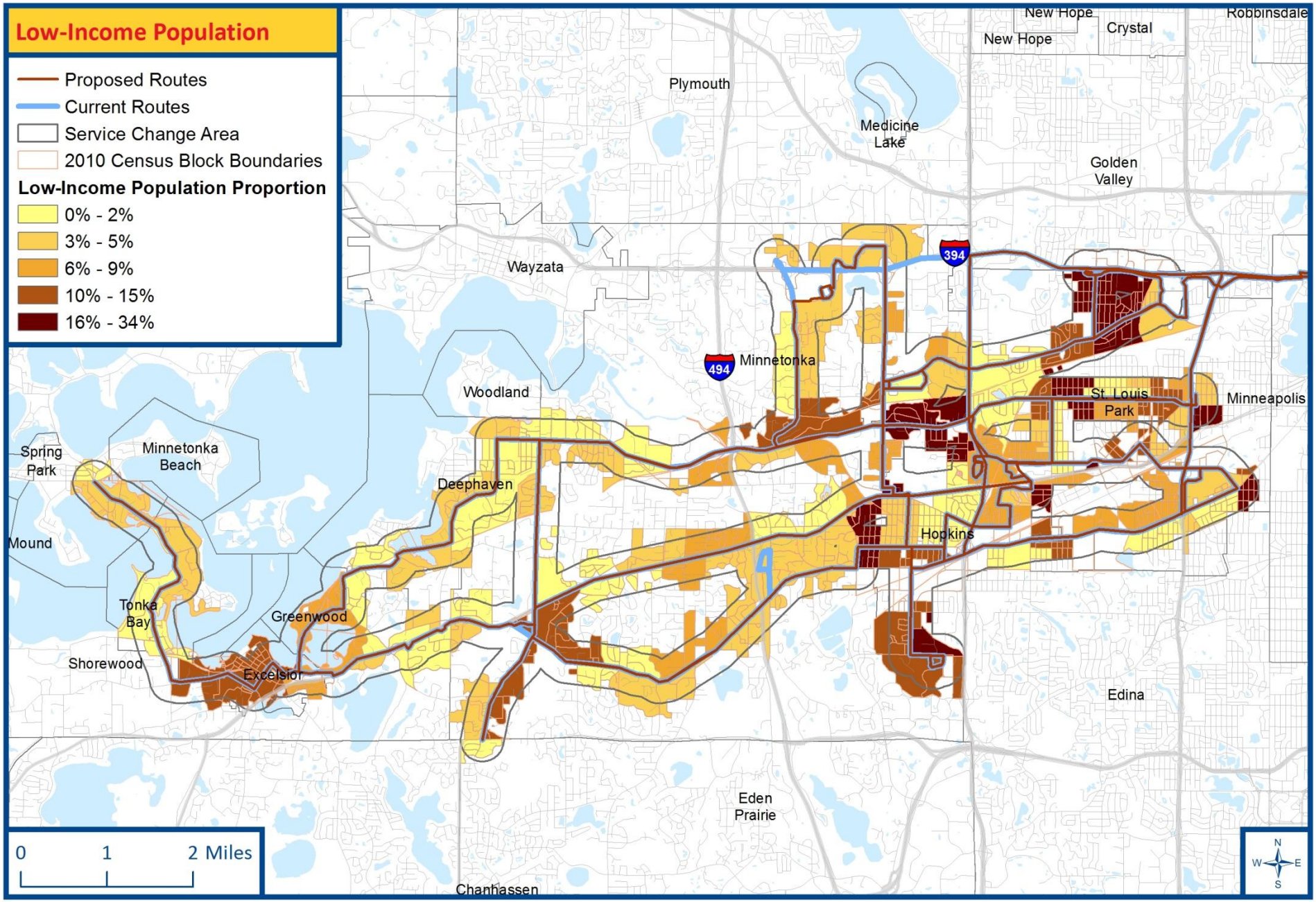


Figure 8 Low Income Percentages



Evaluation Methodology

A geographic information systems (GIS)-based approach was employed in this analysis to measure the location and magnitude of proposed service changes and compare minority/non-minority and low-income/non-low-income populations for distribution of impacts and benefits. The analysis consists of five steps:

1. Model current and proposed service levels.
2. Spatially allocate current and proposed transit service levels to population groups based on intersection between service buffer and census block centroid.
3. Calculate the percent difference in current versus proposed service levels for each census block.
4. Calculate the average percent change in service for all minority/low-income and non-minority/non-low-income populations within one-quarter mile of the current and proposed transit service.
5. Determine whether the proposed service plan will result in disparate impacts by applying the four-fifths threshold (if needed).

Information on minority populations is available at the census block level. However, information on low-income populations is available only at the census block group level. Census block groups and blocks differ in their geographic makeup. Census block groups are made up of several blocks. Census blocks are significantly smaller and generally are more uniformly shaped, particularly in urban areas, where a census block will generally represent a true city block.

To estimate the low-income populations at the census block level, the total population of each block was multiplied by the percentage of low-income population for its parent block group. This approach assumes that the percentage of low-income population is uniform throughout the block group, but allows for a more refined analysis than an analysis using the block groups as a whole.

The local and express bus service trips for each route were allocated to all census blocks with a centroid located within one-quarter mile of that service. Non-stop segments of express routes were excluded from the analysis. All population groups within those census blocks were assumed to be served by those trips.

The change in service level was then calculated for each census block by subtracting current total trips from future total trips, as shown:

Future trips available within census block (*modified/planned bus routes*)	-	**Current trips available within census block (*existing bus routes*)**	=	**Change in service by census block**

After the absolute change in the number of trips was calculated, the percentage change was found by dividing the change in service by the existing service level. To minimize artificial skewing from newly served areas, all percentage change figures greater than 100 percent or those that are incalculable due to no existing service were adjusted to 100 percent. The average percent change in service levels by census block is shown in Figure 9.

The average percent change in service for each target population was calculated by weighting the percent change in each census block by the target population served in that census block. For example, the average percent change in service for minority populations was completed by multiplying each census block's minority population by the percent change in service for that block, summing the results for the blocks impacted by the service change, and dividing the sum by the total minority population of the blocks impacted by the service change.

The formula used for these analyses is shown below:

Where:

= Target population of census block *i*.
= Percent change in service levels for census block *i*.

In this manner, the weighted percent change was calculated individually for the total population, minority/low-income population, and non-minority/non-low-income population. Using this method, the effect of the service changes on each census block is proportionate to the makeup of the population within the census block, and each block's weight in the total result is proportionate to its share of the total service area population.

Evaluation of Impacts

The table below summarizes the percent change in service for the total population, minority population, non-minority population, low-income population, and non-low-income population.

Change in Service Levels – Minority Analysis

Population Group	Population of Service Change Area	Average Percent Service Change	Four-Fifths Threshold
Minority	14,492	18.3%	13.2%
Non-Minority	58,913	16.5%	-
Low-Income	5,750	14.5%	13.7%
Non-Low-Income	67,655	17.1%	-
Total	**73,405**	**16.9%**	**-**

On average, minority populations within the service change area experience 111 percent of the benefits experienced by the non-minority population. At 18.3 percent, the minority average service increase is greater than the average service increase for non-minority populations and is well above the four-fifths threshold of 13.2 percent. Therefore, no potential for disparate impact is identified.

On average, low-income populations within the service change area experience 85 percent of the benefits experienced by non-low-income people. At 14.5 percent, the low-income average service

increase is below the average increase for non-low-income populations, but is above the four-fifths threshold of 13.7 percent. Therefore, no potential for disproportionate burden is identified.

Figure 9 Service Level Change by Census Block