

## Transportation Committee

Meeting date: September 9, 2013

For the Metropolitan Council meeting of September 25, 2013

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**Subject:** Approve Revised Title VI Service Equity Analysis for Central Corridor Transit Service Study

**District(s), Member(s):** 8-Adam Duinick, 10-vacant, 13-Richard Kramer, 14-Jon Commers

**Policy/Legal Reference:** 49 CFR part 21, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation Effectuation of Title VI of the Civil Rights Act of 1964"

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**Division/Department:** Metro Transit/Service Development

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### Proposed Action

That the Metropolitan Council approve the Revised Title VI Service Equity Analysis for the Central Corridor Transit Service Study.

### Background

Under guidance from the FTA Circular 4702.1A, Metro Transit did a Service Equity Analysis (SEA) for the proposed Green Line and associated Central Corridor Transit Service Study (CCTSS) bus service changes to ensure the benefits of the changes were distributed equitably to populations protected by Title VI. This Analysis was finished in September 2012 and found that the proposed changes did not result in disproportionately high or adverse impacts to minority or low-income populations.

In October 2012 FTA Circular 4702.1B was released, which supercedes Circular 4702.1A. The new circular states that all major service changes implemented after April 1, 2013 must be evaluated using the requirements of the new circular. Staff has reviewed the Title VI analysis completed under the requirements of the previous circular with the requirements of the new circular and determined that it is in compliance with two exceptions:

- The original CCTSS SEA report did not specifically mention the Council's Major Service Change Policy, which was adopted in June 2013.
- The original CCTSS SEA report did not adequately describe the dataset(s), data retrieval techniques and reason for using these datasets used in the analysis.

The SEA report has been revised to address these issues.

### Rationale

FTA Circular 4702.1B requires funding recipients to evaluate "any and all service changes that exceed the transit provider's major service change threshold, as well as all fare changes, to determine whether those changes will have a discriminatory impact based on race, color or national origin." It also requires that a "transit provider shall brief its board of directors...responsible for policy decisions regarding the service...changes and the equity

impacts.” Since staff has revised the original SEA to meet the requirements of the new circular, the Council must approve the revised document.

### **Funding**

The revised CCTSS SEA was developed using existing Metro Transit transit service planning resources. The CCTSS service changes will be implemented in mid-2014 using existing Metro Transit and Metropolitan Council transit service operating resources.

### **Known Support / Opposition**

No known opposition.

# Title VI Review: Green Line Service Study Concept Plan

9/19/2012

Amended 07/12/2013

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SRF No. 7758

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## **Title VI and 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. Title VI states that “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.”

To that end, the Federal Transit Administration (FTA) issued Circular 4702.1A in 2007, which delineates 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.”

This review fulfills this requirement as it relates to the proposed Green Line Concept Plan for transit service restructuring around the new light rail transit (LRT) line.

FTA Circular 4702.1A was superseded by Circular 4702.1B released in October, 2012. The new Circular requires that transit providers conduct a service equity analysis only when a proposed service change will exceed the major service threshold as established by the provider. The Green Line Concept Plan service changes meet this threshold for Metro Transit under the following criterion, “Restructuring of transit service throughout a sector or sub-area of the region as defined by Metro Transit.”

### **Disparate Impact**

The primary purpose of the Title VI review is to identify service changes which result in disparate impacts to Title VI-protected population groups. Disparate impact refers to “facially neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI.” Under the FTA guidelines, any major service change that results in a disproportionately greater detrimental impact to Title VI-protected population is identified as a disparate impact and must be evaluated in more detail for potential mitigating action. Transit providers are allowed to implement service reductions which result in disparate impacts only if they demonstrate that the change meets a substantial need in the public interest and that alternatives to the change would have a more adverse effect than the preferred alternative.

### **Title VI-Protected Populations**

This review uses FTA guidelines to understand impacts on low-income and minority populations. The following group definitions were used.

## 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. In other words, minority population is defined as non-white persons, or those of Hispanic origin. Minority and non-minority persons in the Green Line Service Study Area are mapped in Figure 1.

## 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 2010 U.S. Census and American Community Survey (ACS), which form the basis of this review. Low-income and non-low-income persons in the Green Line Service Study Area are mapped in Figure 2.

## Data Sources

This evaluation used U.S. Decennial Census Summary File 1 data to collect race and ethnicity information at the census block level. Data was collected using the U.S. Census American FactFinder website<sup>1</sup>. The American Community Survey 2011 5-year estimates were used to collect low-income data at the block group level. Data was collected using the Summary File Retrieval Tool downloaded from the U.S. Census American Community Survey website<sup>2</sup>. Census data was used in lieu of existing ridership data due to the implementation of new routes for which ridership data is not available.

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<sup>1</sup> <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

<sup>2</sup> [http://www.census.gov/acs/www/data\\_documentation/summary\\_file/](http://www.census.gov/acs/www/data_documentation/summary_file/)

Figure 1: Distribution of Minority Population in Service Study Area

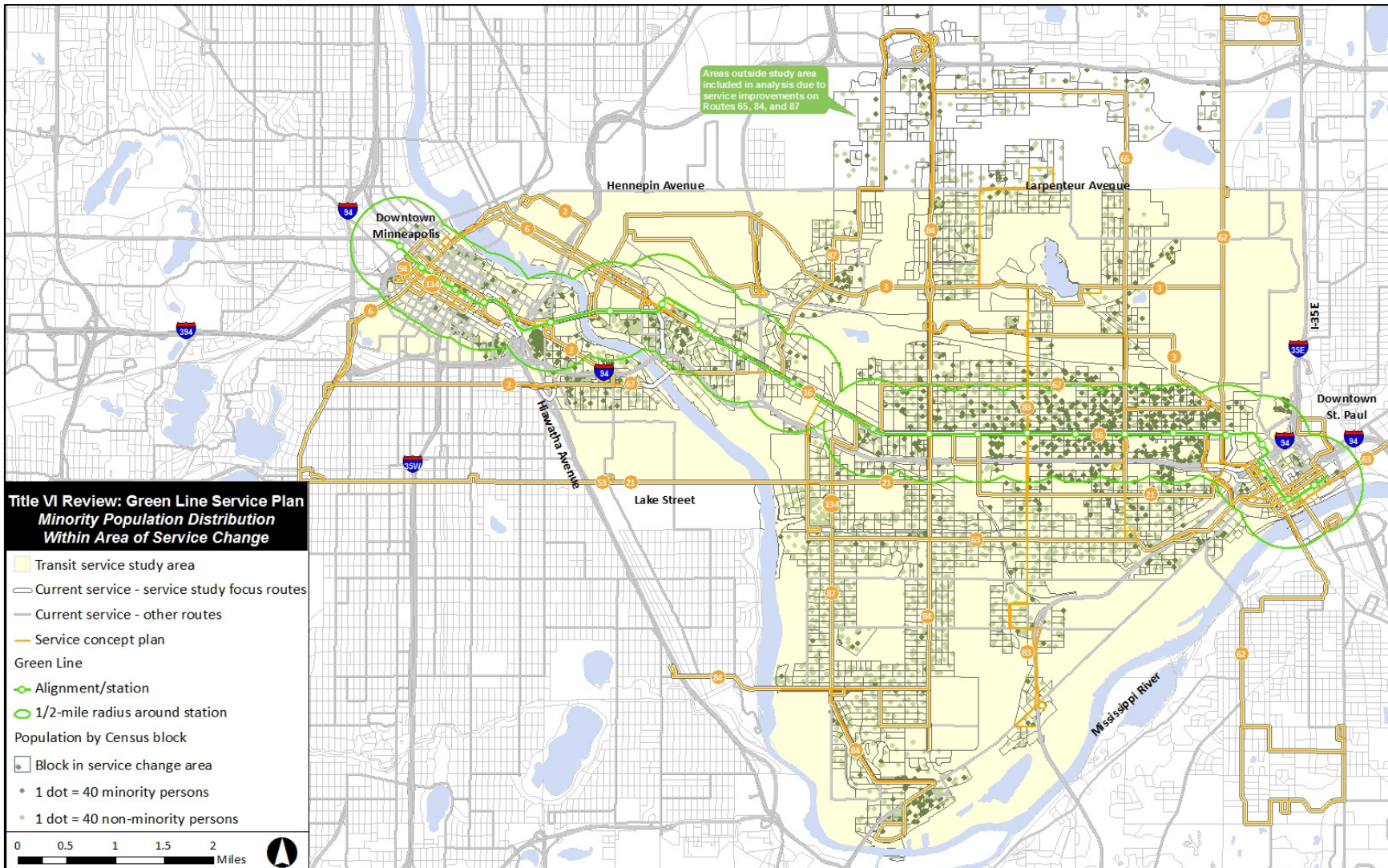
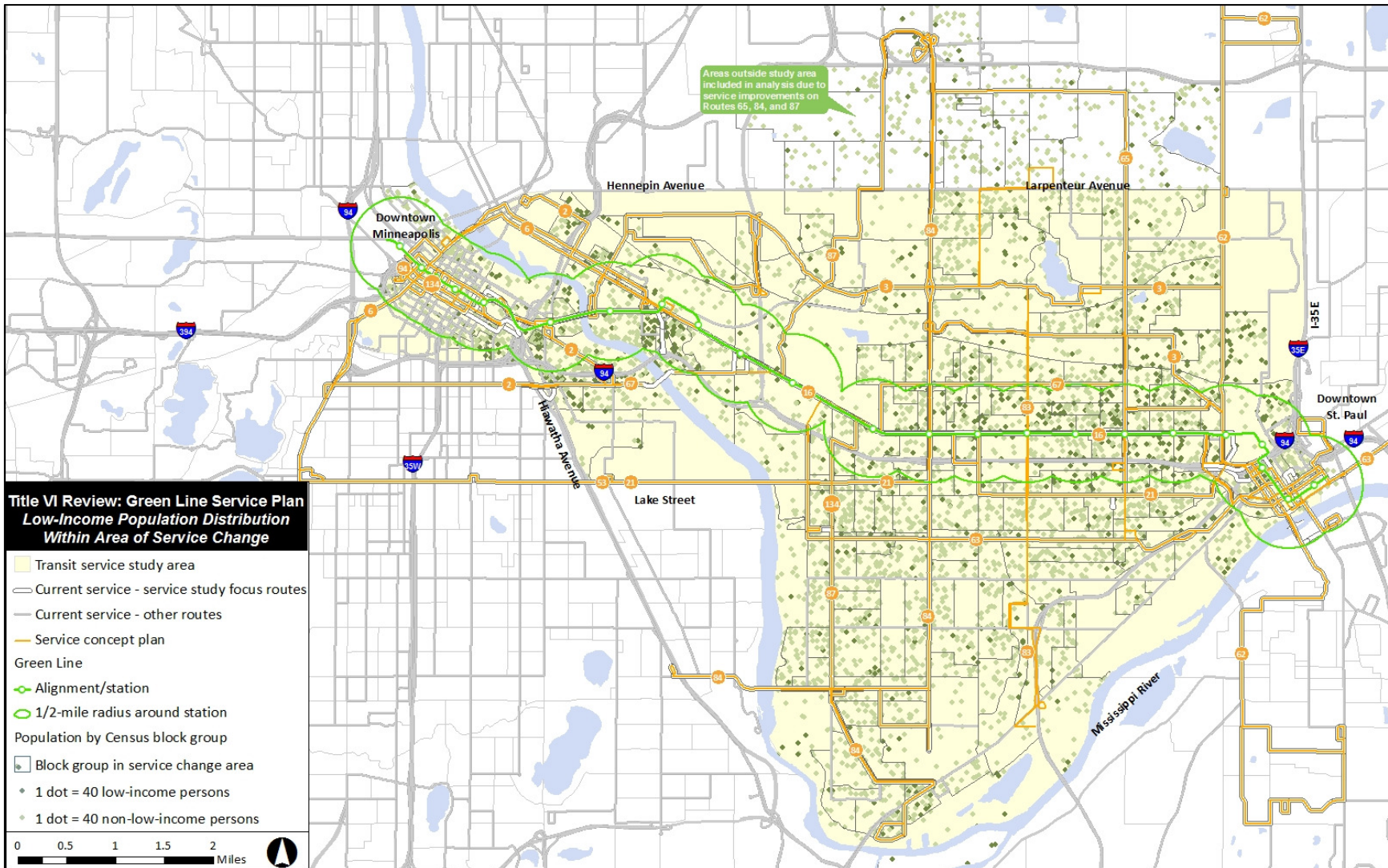


Figure 2: Distribution of Low-Income Population in Service Study Area





## **Service Change Analysis 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 concept plan service levels.
2. Spatially allocate current and proposed transit service levels to census divisions.
3. Define the geographic extent of analysis (service change area).
4. Calculate the percent difference in current versus proposed service levels for each Census division.
5. Calculate the average percent change in service for all minority/low-income and non-minority/non-low-income populations within the study area.
6. Determine whether the Concept Plan would result in disparate impacts by applying the four-fifths threshold (if needed).

## **Modeling Current and Concept Plan Service Levels**

Two networks were modeled to represent the number of trips per service day in (a) the current condition and (b) the Concept Plan condition. A unique line was created for each individual route variation in the current system and the Concept Plan with the number of trips operated each day. The weekday, Saturday, and Sunday trips for each route are detailed in Table 1.

Table 1: Service Levels for Current Service and Concept Plan

Route	Route changing in concept plan?	Change in trip count?	Current Service				Concept Plan				TOTAL DIFFERENCE
			Weekday	Saturday	Sunday	Weekly Total	Weekday	Saturday	Sunday	Weekly Total	
2	Yes		148	101	84	925	148	101	84	925	0
3	Yes		227	75	66	1276	227	75	66	1276	0
6	Yes		95	77	70	622	95	77	70	622	0
7			79	74	73	542	79	74	73	542	0
8	Yes	Yes	50	0	0	250	0	0	0	0	-250
16	Yes	Yes	232	191	128	1479	120	109	104	813	-666
21	Yes		228	212	172	1524	228	212	172	1524	0
50	Yes	Yes	144	0	0	720	0	0	0	0	-720
53	Yes		16	0	0	80	16	0	0	80	0
61			70	27	0	377	70	27	0	377	0
62	Yes		74	67	38	475	74	67	38	475	0
63	Yes		97	71	35	591	113	98	89	752	161
65	Yes		58	18	12	320	105	101	96	722	402
67	Yes		63	26	20	361	110	103	104	757	396
68			90	64	54	568	90	64	54	568	0
70			60	29	20	349	60	29	20	349	0
71			102	86	27	623	102	86	27	623	0
74			114	96	65	731	114	96	65	731	0
83	Yes	Yes	0	0	0	0	66	64	64	458	458
84	Yes	Yes	141	122	62	889	198	178	176	1344	455
87	Yes	Yes	52	0	0	260	93	92	87	644	384
94	Yes	Yes	156	68	48	896	70	0	0	350	-546
118			8	0	0	40	8	0	0	40	0
134	Yes	Yes	30	0	0	150	14	0	0	70	-80
144	Yes	Yes	12	0	0	60	0	0	0	0	-60
262			6	0	0	30	6	0	0	30	0
353			1	0	0	5	1	0	0	5	0
355			26	0	0	130	26	0	0	130	0
365			16	0	0	80	16	0	0	80	0
375			20	0	0	100	20	0	0	100	0
452			6	0	0	30	6	0	0	30	0
LRT	Yes	Yes	0	0	0	0	216	184	184	1448	1448

## Assigning Transit Trips to Census Units

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. As such, different spatial selection methods are used to determine whether a block or block group is considered “served” by a transit service, as shown in the table below.

*Trips from a transit service are allocated to the block/block group if:*

	<b>Bus</b>	<b>Rail</b>
<b>Block (Minority Analysis)</b>	The <b>center</b> of the block is within <b>0.25 mile</b> of the bus route <sup>3</sup> .	The <b>center</b> of the block is within <b>0.5 mile</b> of the rail station.
<b>Block Group (Low-Income Analysis)</b>	The <b>boundary</b> of the block group is within <b>0.24 mile</b> of the bus route <sup>3</sup> .	The <b>boundary</b> of the block group is within <b>0.49 mile</b> of the rail station.

A distance of 1/4 mile is the standard walking distance to access transit services for local bus service; 1/2 mile is the standard walking distance for limited stop bus or transitway stations. For this analysis, distances slightly less than 1/4 mile and 1/2 mile are used in the block group analysis to more accurately represent the areas accessible within walking distance of a transit service. In the urban areas of St. Paul and Minneapolis, it is common for block group boundaries to be drawn at 1/4-mile distances, following the traditional street grid. Using the 0.24-mile (for bus) and 0.49-mile (rail) distances to allocate trips helps correct for cases where just a sliver of a block group is within the 1/4-mile or 1/2-mile distance of a service.

The selection was also examined manually to exclude Census divisions that intersect the service area, but are separated from transit service by physical barriers (e.g. lakes, railroads, major highways blocking pedestrian access).

## Defining the Geographic Extent of Analysis

The geographic extent of this analysis is limited to those Census divisions that experience a change in service level as a result of the Green Line Concept Plan. The areas included within the analysis are those Census blocks and block groups that experience a change in service (either positive or negative) between the Concept Plan and current service, using the transit trip assignment methods described previously.

For this analysis, the “study area” boundary is expanded slightly from the area defined for the Green Line Transit Service Study, bounded on the north by Larpenteur/Hennepin Avenue; on the east by I-35E/downtown St. Paul, on the south and west by the Mississippi River, Lake Street, and Hiawatha Avenue; and on the west by downtown Minneapolis. As noted in Figure 1 and Figure 2, areas north of

<sup>3</sup> Excluding non-stop segment of route.

the Larpenteur/Hennepin Avenue Transit Service Study Area boundary are included in the Title VI analysis, to include the expansion of service on Routes 65, 84, and 87 in the analysis.

### Identifying Low-Income and Minority Populations within the Extent of Analysis

Minority and non-minority populations in blocks within the service change area are shown in Figure 1. Low-income and non-low-income populations in block groups within the service change area are shown in Figure 2.

### Calculating Change in Service Level by Census Division

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

$$\begin{array}{l} \text{Future trips available} \\ \text{within census division} \\ \text{(modified/planned bus routes)} \end{array} \quad - \quad \begin{array}{l} \text{Current trips available} \\ \text{within census division} \\ \text{(existing bus routes)} \end{array} \quad = \quad \begin{array}{l} \text{Change in service} \\ \text{by census division} \end{array}$$

After the absolute change in the number of trips is calculated, the percentage change is 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 are adjusted to 100 percent.

This Title VI analysis is intended to focus on evaluating the redistribution of transit resources as a result of the Green Line Concept Plan. As such, the percent change in service is calculated based only on the trip counts of routes included in this analysis. Other transit routes not included in the Green Line Concept Plan are excluded from the current trips available.

### Determining Average Change in Service

In this Title VI analysis, the population-based method of determining service change examines the effects of service changes at a more refined level than the predominately low-income/minority method used in past Title VI analyses.

One of the defining characteristics of the previously used “predominant” method is that all census divisions are weighted equally. Total population levels for block groups included in this analysis range from 90 to 3,659. A service change to the block group with the largest population will have a greater impact than a service change to the block group with the smallest population, yet for the purposes of calculating the average percent change, the block groups at each of these extremes are treated equally. An additional limitation of the original analysis method is that the minority/low-income population within predominantly non-minority/non-low-income census divisions is effectively ignored in the average percent change calculations. Likewise, the non-minority/non-low-income population within predominantly minority/low-income census divisions is also excluded from the final average.

Under the population method, the average percent change in service is calculated by assigning weights to each division’s individual percent change according to its population makeup. This is achieved by

multiplying each division’s population by the percent change in that division, summing the results for all analyzed areas, and dividing the sum by the total population of the analyzed census divisions, as shown:

$$Avg \% \Delta = \frac{\sum Population_i \times Percent\ Change_i}{\sum Population_i}$$

Where, for example:

*Population<sub>i</sub>* = Target population of census division *i*.  
*Percent Change<sub>i</sub>* = Percent change in service levels for census division *i*.

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

#### **Four-Fifths Threshold for Determining Disparate Impacts**

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 the “four-fifths rule” to determine whether disparate impacts exist.

The four-fifths rule originates from employment law, but is applied in this setting to compare rates of benefit distribution among various population groups to identify whether benefits are distributed equitably. The four-fifths rule suggests that a selection rate for any racial, ethnic, or gender group that is less than four-fifths or 80 percent of the rate for the group with the highest selection rate will be regarded as evidence of adverse impact. Although it is a “rule of thumb” and not a legal definition, it is a practical way for identifying adverse impacts that require mitigation or avoidance.

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. If disparate impacts are found using this threshold, mitigation measures should be identified.

## Evaluation of Impacts: Minority Population

The change in service by block as a result of the proposed Concept Plan is represented in Figure 3.

A total of 167,957 people live in census blocks that will experience a change in service levels as a result of the Concept Plan. This population includes 58,110 minority persons and 109,847 non-minority persons. Table 2 summarizes the current and future trip count averages and the percent change in trip count using the population-weighted method for the total population, minority population, and non-minority population.

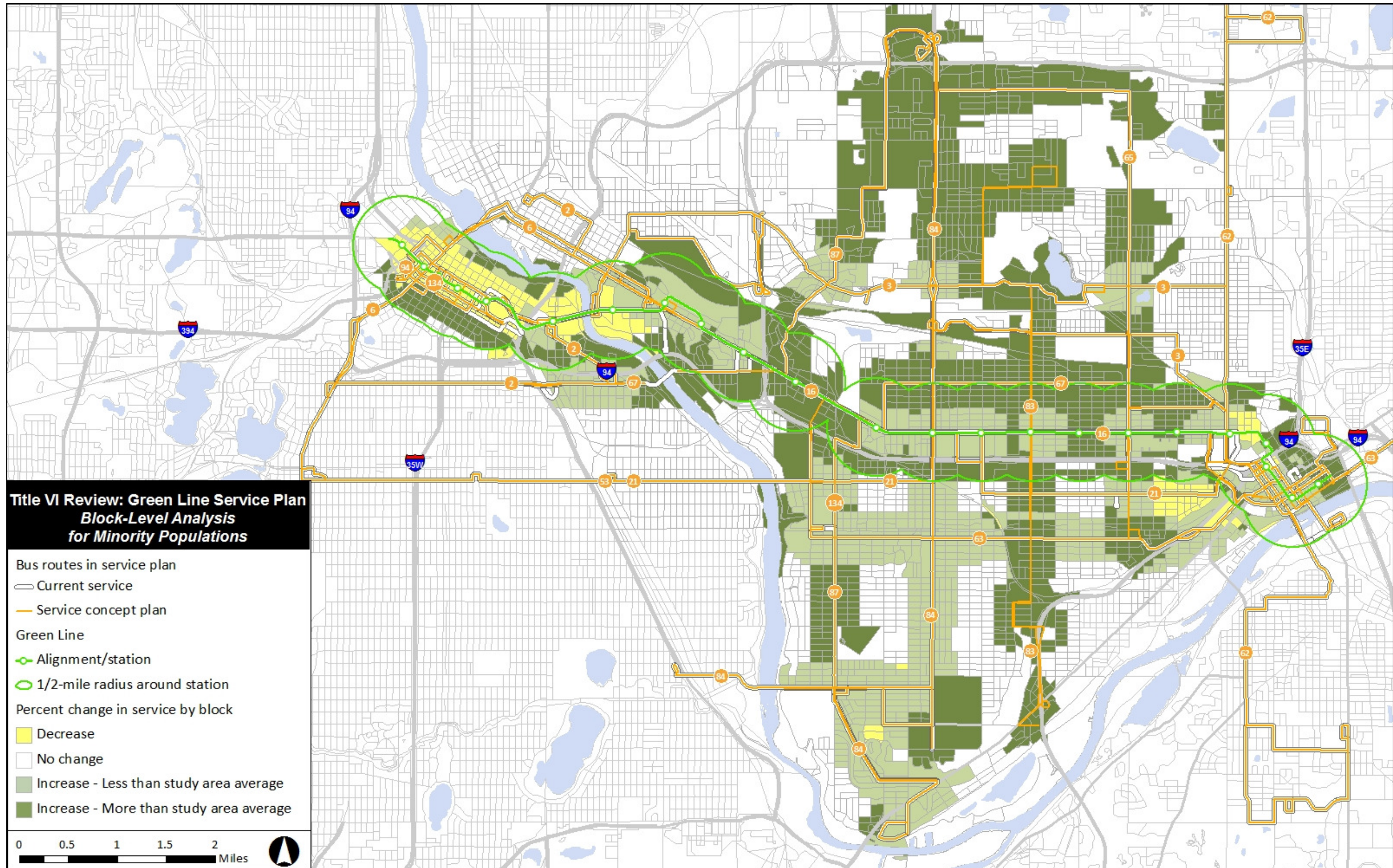
**Table 2: Current and Future Weekly Service Levels – Minority Analysis**

	<b>Total</b>	<b>Minority</b>	<b>Non-Minority</b>
<b>Population</b>	167,957	58,110	109,847
<b>Average Percent Change in Service</b>	52.8%	51.6%	53.4%
<b><i>Four-Fifths Threshold (4/5 x Non-Minority Rate of Change)</i></b>			42.7%

Both minority and non-minority population experience an overall average increase in transit service availability as a result of the proposed Concept Plan. The average individual in the service area sees a 52.8 percent increase in trips per week. Minority individuals experience a 51.6 percent average increase in trip count. Non-minority individuals experience a 53.4 percent average increase in trip count.

On the whole, minority populations within the service change area experience 97 percent of the benefits experienced by the non-minority population. While the percent change in service is very slightly lower for the minority population than the non-minority population, the minority rate of service increase is well within the four-fifths threshold of 42.7 percent. Therefore, no potential for disparate impact is identified.

Figure 3: Service Change by Block for Minority Population Analysis



## Evaluation of Impacts: Low-Income Population

The change in service by block group as a result of the service plan is represented in Figure 4.

The total population for the analyzed census block groups is 224,588, of which 44,051 are low-income and 180,537 are non-low-income. The difference in population from the minority evaluation is due to the different data sources used for each measure. Minority population data is available from the 2010 US Decennial Census. Low-income population data is available only from the American Community Survey, which represents an estimate based on trends over the previous five years. Table 3 summarizes the current and future trip count averages and the percent change in trip count using the population-weighted method for the total population, low-income population, and non-low-income population.

**Table 3: Current and Future Service Levels – Low-Income**

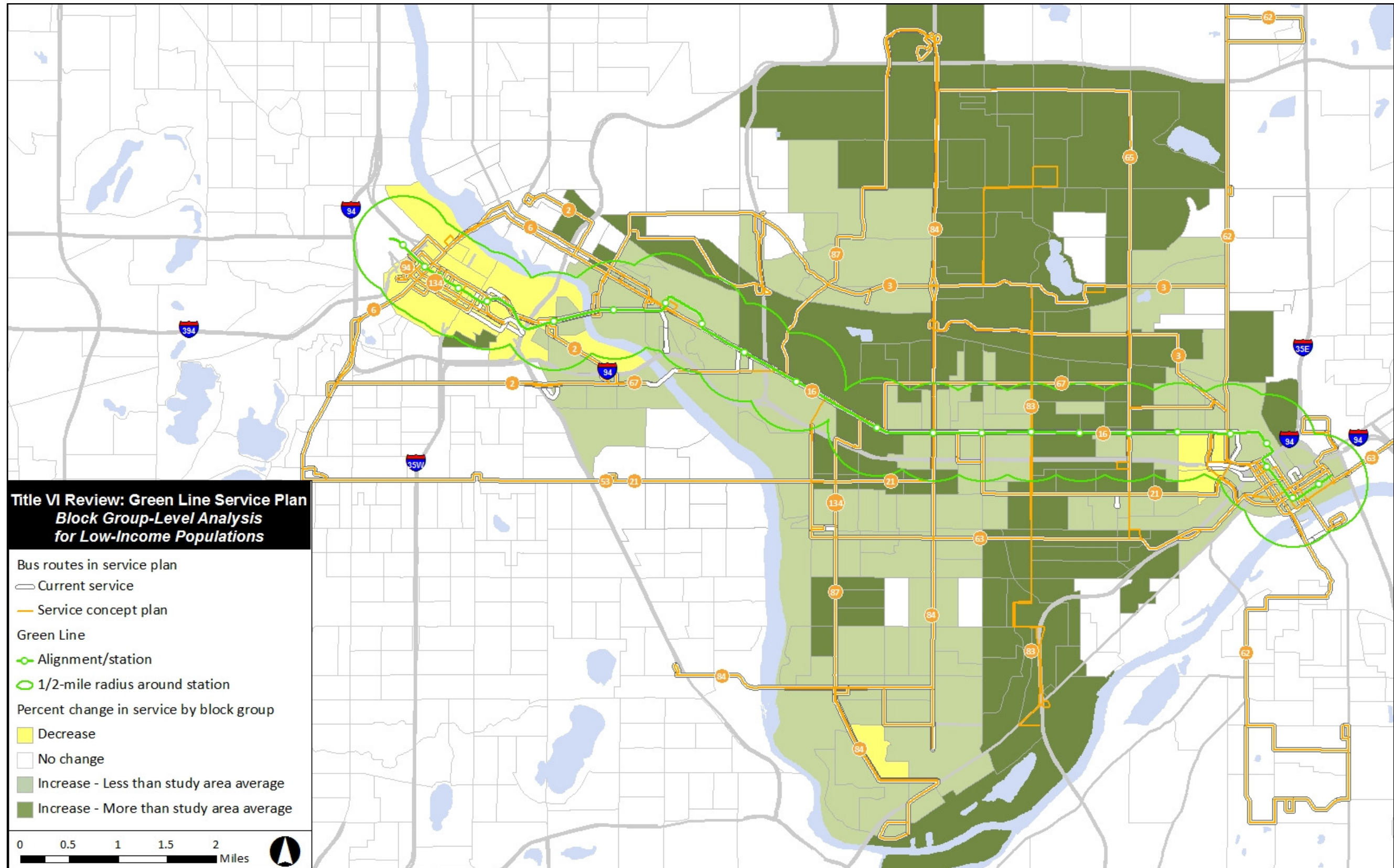
	<b>Total</b>	<b>Low-Income</b>	<b>Non-Low-Income</b>
<b>Population</b>	224,588	44,051	180,537
<b>Average Percent Change in Service</b>	45.2%	41.5%	46.1%
<b>Four-Fifths Threshold (4/5 x Non-Low-Income Rate of Change)</b>			36.9%

Both low-income and non-low-income populations experience an overall average increase in transit service availability as a result of the proposed Concept Plan. The average individual in the service area sees a 45.2 percent increase in trips per week. Low-income individuals experience a 41.5 percent average increase in trip count. Non-low-income individuals experience a 46.1 percent average increase in trip count.

On the whole, low-income populations within the service change area experience 90 percent of the benefits experienced by non-low-income people. While the percent change in service is lower for the low-income population than the non-low-income population, the low-income rate of service increase is well within the four-fifths threshold of 36.9 percent. Therefore, no potential for disparate impact is identified.



Figure 4: Service Change by Block Group for Low-Income Population Analysis



## Mitigating Adverse Effects

Notwithstanding the above finding of no disparate or discriminatory impact, there are a few areas that experience a decrease in service as a result of the Concept Plan. These areas are represented in yellow on Figure 3 and Figure 4. Specific cases and the reasons for the net loss in service are described below.

- **Downtown St. Paul/Capitol Complex.** The area just north of downtown St. Paul near the State Capitol experiences a loss in service due to the discontinuation of Route 94B trips that serve the Capitol directly today. Under the Concept Plan, these trips can be made with direct LRT service from the Green Line.
- **Downtown Minneapolis.** Blocks and block groups in downtown Minneapolis experience a loss in service due to:
  - Discontinuation of Route 16 service to downtown.
  - Discontinuation of Route 144 service to downtown.
  - Reduction in Route 94 service.
  - Reduction in Route 134 service.

In the Concept Plan, each of these services is replaced with Green Line LRT.

- **University of Minnesota.** Areas surrounding the University of Minnesota campus experience a loss in service due to the replacement of Route 16 and Route 50 service with Green Line LRT west of Oak Street/Washington Avenue.
- **Selby Avenue.** Areas surrounding Selby Avenue just west of downtown St. Paul see a reduction in service due to the restructuring of Route 65 in this area. Route 65 frequency is increased and service along Selby Avenue to downtown St. Paul is discontinued. Route 21 service remains in the corridor.
- **Highland Park near St. Paul Avenue/Montreal Avenue.** A small area of the Highland Park neighborhood in St. Paul experiences a reduction in service due to:
  - Restructuring of Route 84 branches. Currently, the “D” and “H” branches of Route 84 are served on two different route patterns. In the Concept Plan, these branches are combined so that they are served by the same pattern. This results in a net decrease in number of trips, but the effective service level remains the same.
  - Discontinuation of Route 144.

While these changes reduce the number of transit trips available, since there is alternative service available for most current riders within 1/4 mile, these are not considered adverse impacts.

## Summary

Under the guidance of FTA Circular 4702.1A, any service change whose benefits are disproportionately distributed inequitably to Title VI-protected populations can be identified as having a disparate impact on that population and should be further reviewed for mitigating or alternative measures. Minority and low-income populations experience an average increase in service that is greater than 80 percent of the increase in service experienced by non-minority and non-low-income populations, respectively. Therefore, this review finds that the proposed Green Line service changes do not disproportionately and adversely affect minority or low-income populations.