



**Draft**  
**2027 Transit Network**  
Title VI Service Equity Analysis

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Prepared by RLS & Associates, Inc. and Nelson Nygaard  
Consulting Associates, Inc.



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Title VI Service Equity Analysis

Approved by IndyGo Board of Directors on

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## Table of Contents

Service Equity Analysis: Executive Summary .....	1
Background and Past Planning Efforts .....	1
Service Equity Analysis Key Findings .....	1
Service Equity Analysis: Technical Documentation .....	4
Title IV of the Civil Rights Act Overview .....	4
IndyGo’s Title VI Policy .....	5
Definitions .....	5
Outline of Proposed Service Changes .....	8
Data Sources .....	9
Geographic Analysis .....	11
Determining High Minority and High Poverty CENSUS Blocks .....	11
Determining Transit Accessibility by Population .....	11
Service Equity Analysis Methodology .....	12
Total Transit Vehicle Trips to Blocks .....	12
Average Transit Vehicle Trips per Block .....	13
Transit Vehicle Trips Weighted by Population .....	13
Service Equity Analysis: Results .....	14
Minority and Populations below Poverty .....	14
High Minority and High Poverty Blocks .....	17
Change in Weekly Trips to Blocks .....	18
Total Transit Vehicle Trips .....	19
Total Transit Vehicle Trips to Blocks .....	19
Average Transit Vehicle Trips per Block .....	19
Transit Vehicle Trips Weighted by Population .....	20
Route-by-Route Analysis .....	21
Conclusions .....	23

## SERVICE EQUITY ANALYSIS: EXECUTIVE SUMMARY

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### BACKGROUND AND PAST PLANNING EFFORTS

Completed over a two-year period in 2015 and 2016, IndyGo Forward, the future transit plan for Marion County, Indiana, redesigned IndyGo's bus network by shifting from a largely coverage-designed system to a system that focused on generating more ridership.

While significant progress has already been made towards fulfilling the vision of IndyGo Forward, including the launch of the Red Line, service seven days a week, improved frequency on some routes, and new buses, the COVID-19 pandemic has had a significant impact on IndyGo ridership, revenue projections, and availability of operators – causing IndyGo to pause its implementation of IndyGo Forward. Now, as the region recovers from the COVID-19 pandemic, IndyGo has been updating its network redesign plan. Referred to as IndyGo's **2027 Transit Network**, this updated plan adheres to the vision developed in IndyGo Forward and reflects the changes in how people travel as well as IndyGo's future revenue projections. The 2027 Transit Network will phase in improvements over the next five years.

### SERVICE EQUITY ANALYSIS KEY FINDINGS

The 2027 Transit Network reflects what has already been accomplished based on the IndyGo Forward Plan and re-establishes what IndyGo's future service plan will be. For the purposes of this analysis, existing service means IndyGo's bus service as of October 2021, as opposed to the bus service that existed in 2015 when the IndyGo Forward plan we established. Compared to the existing service (assumed for the purposes of this analysis to be October 2021), the 2027 Transit Network increases service by about 26%. Most parts of the service area will see an increase in service, but a few areas will see a decrease in the geographic coverage and service levels. As a result of this redesign, nearly all routes have changes, ranging from entire routes being modified to route segment changes and route extensions.

To assess the impact of re-establishing IndyGo's network redesign, per FTA's Title VI requirements and IndyGo's major service change policy, a service equity analysis (SEA) has been conducted. The SEA evaluates the proposed future route changes in terms of the impacts on minority and high-poverty populations in the service area compared to those areas that are non-minority and not high-poverty. Ultimately, the goal of the SEA is to ensure that IndyGo continues to provide the best and most equitable transit service by not having a disparate impact (DI) on minority populations or a disproportionate burden (DB) on high poverty areas.

**Based on this analysis, there was a finding of no disparate impact (DI) or disproportionate burden (DB) associated with the 2027 Transit Network.**

As noted above, most parts of IndyGo's service area will see an increase in service levels in 2027 compared to existing service levels (October 2021). Areas that are identified as high minority or high poverty, on average, will see more weekly trips added than all other areas. Figures ES-1 and ES-2 illustrate the census blocks where high minority, high poverty residents experience weekly trip increases or decreases.

**Figure ES-1: High Minority and High Poverty Blocks Receiving Added Trips**

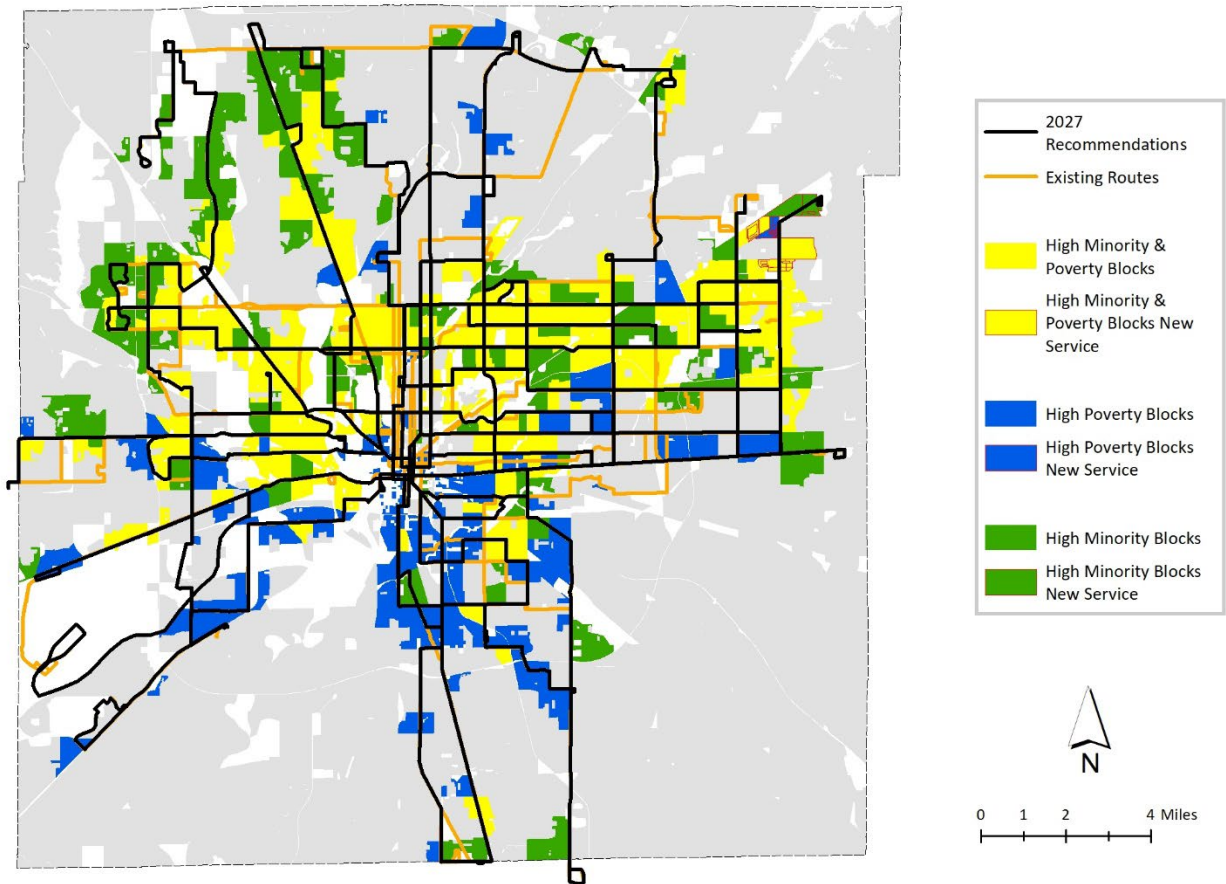
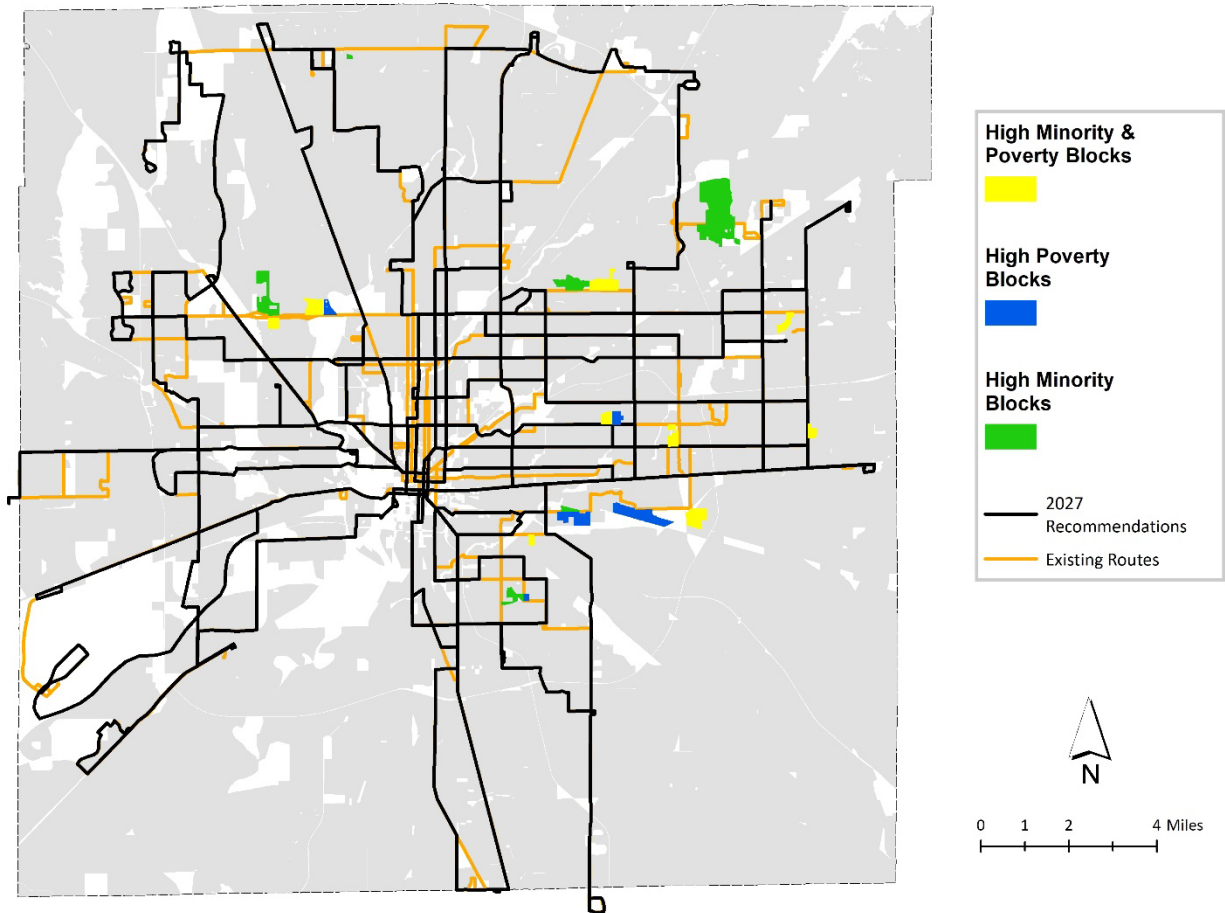


Figure ES-2: High Minority and High Poverty Blocks Receiving Reduced Trips



The following section provides technical documentation of the SEA evaluation that led to a finding of no disparate impact (DI) or disproportionate burden (DB) associated with the establishment of 2027 Transit Network as a replacement for the IndyGo Forward plan.

## SERVICE EQUITY ANALYSIS: TECHNICAL DOCUMENTATION

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The Federal Transit Administration (FTA) provides guidance for conducting a service equity analysis in Federal Circular 4702.1B. The guidance describes subjects of analysis and procedures to be used if proposed service changes result in disparate impacts or disproportionate burdens to Title VI protected populations. At a minimum, the FTA requires transit agencies to define the geography of the analysis, datasets used for the analysis, and evaluate whether there is an adverse effect for minority and/or low-income populations compared to the service levels received by non-minority or non-low-income populations. The following section provides more information about Title IV, IndyGo's Title VI policies, and the methodology used for this Service Equity Analysis.

### TITLE IV OF THE CIVIL RIGHTS ACT OVERVIEW

The Federal Transit Administration (FTA) guidance indicates that a Title VI equity analysis must be performed for major service changes implemented by transit providers that operate 50 or more fixed route vehicles in peak service and are located in a UZA of 200,000 or more in population. To ensure compliance with 49 CFR Section 21.5(b)(2), 49 CFR Section 21.5(b)(7), and Appendix C of 49 CFR part 21, IndyGo must evaluate, or in this case re-evaluate, all service changes that exceed its major service change threshold to determine if those changes will have a discriminatory impact based on race, color, or national origin.

The purpose of conducting a Service Equity Analysis before implementing major service changes is to determine whether the planned changes will have a disparate impact based on race, color, or national origin.

Low-income populations are not a protected class under Title VI. However, recognizing the inherent overlap of environmental justice principles in this area, and because it is important to evaluate the impacts of service changes on passengers who are transit-dependent, FTA requires transit providers to evaluate proposed service changes to determine whether low-income populations will bear a disproportionate burden of the changes.

The measure of disparate impact and disproportionate burden involves a comparison between the proportion of persons in the protected class who are adversely affected by the service change and the proportion of persons not in the protected class who are adversely affected. The comparison population for a statistical measure of disparate impact or disproportionate burden is all persons who are either affected by the service changes or who could be affected by the service change (e.g., potential passengers). This analysis is the focus of the SEA.

## INDYGO'S TITLE VI POLICY

IndyGo's Major Service Change Policy triggers an analysis if any route has a change of 25 percent of its route miles, a change impacting 25 percent of its passengers, or the route is new.

IndyGo's Title VI program was first adopted in 2013 after the FTA's most recent update to the Circular. The transit system's programs and policies assess the disparate impact and disproportionate burden that could potentially result from a major service change. The policies currently in effect are defined in IndyGo Board Resolution 2013-03:

Disparate Impact: A determination of disparate impact shall be made if the effects of a major service change borne by the minority population, both adverse and beneficial, are not within 20 percent of the effects borne by the non-minority population.

Disproportionate Burden: A determination of disproportionate burden shall be made if the effects of a major service change borne by the low-income population, both adverse and beneficial, are not within 20 percent of the effects borne by the non-low-income population.

IndyGo's Major Service Change policy does not specify whether systemwide service changes should be reviewed in totality or at the individual route level. Individual routing changes have been documented; however, because individual route changes would alter the usefulness of the entire network, this Service Equity Analysis analyzes the individual and cumulative changes associated with the proposed route network.

Although no disparate impact or disproportionate burden was found as part of this analysis, if a potential disparate impact and/or disproportionate burden is found, IndyGo's policy is to first attempt to modify the original proposal and re-analyze the network. If the modified proposal continued to demonstrate a potential disparate impact and/or disproportionate burden, IndyGo staff would propose alternatives, analyze those alternatives compared to the original/modified proposal, and conduct public involvement regarding the alternatives. If none of the alternatives would have a less disparate impact and/or disproportionate burden and IndyGo has made a substantial legitimate justification, the original / modified proposal could be implemented.

## DEFINITIONS

The following definitions will apply to the service equity analysis:

Average Transit Vehicle Trips per Block: This measure is based on Transit Vehicle Trips to Census Blocks, but the number of weekly transit trips is averaged over the number of blocks past which the trips were made. This reduces distortion in the analysis that suggests more service is being provided to people of interest when in fact service may simply be passing more Census blocks.



Disparate Impact: A determination of disparate impact shall be made if the effects of a major service change borne by the minority population, both adverse or beneficial, are not within 20 percent of the effects borne by the non-minority population. This policy was established in IndyGo Board Resolution 2013-03.

Disproportionate Burden: A determination of disproportionate burden shall be made if the effects of a major service change borne by the low-income population, both adverse or beneficial, are not within 20 percent of the effects borne by the non-low-income population. This policy was established in IndyGo Board Resolution 2013-03.

High Minority or High Poverty Census Block Groups: These Census block groups are those in which the percentage of minority residents or residents in poverty is greater than the percentage of Marion County residents who are minority or in poverty. Census blocks fall within Census block groups.

High Minority or High Poverty Census Blocks: These Census blocks are those which fall within an identified High Minority or High Poverty Census Block Group. US Census American Community Survey (ACS) data that is used to assess minority and poverty populations are not available at the block level. To calculate the number of individuals in each block, the proportion of the population from the 2010 Decennial Census for each block will be calculated and then multiplied by the total minority and poverty block group populations estimated in the 2014-2018 ACS. Only the total population will be calculated for each Census block to determine access.

Low-Income: Low-income individuals are individuals within a household below the Department of Health and Human Services (DHHS) poverty guidelines; the definition is consistent with the FTA definition. This definition is consistent with the definition applied in the Service Monitoring Report completed for IndyGo's 2020 Title VI Program update. Because the Department of Transportation (DOT) and FTA regulations and guidance refers to "low-income" individuals, that language is used here. However, data used are collected to determine poverty levels, which is why both terms may be used interchangeably when IndyGo staff recognizes that the terms "low-income" and "poverty" can refer to different definitions and categorizations of the economic condition of populations within the U.S. *Note: Spatial data uses the US Census Bureau's definition of poverty, which is more inclusive than the DHHS poverty guidelines.*

Minority: Minorities are defined as those individuals who identify themselves as non-white and/or Hispanic. This definition is consistent with the definition applied in the Service Monitoring Report completed for IndyGo's 2020 Title VI Program update.

Service Area: IndyGo’s service area is defined as the entirety of Marion County, including excluded cities.<sup>1</sup>

Service Buffer: The service buffer established for this analysis was ½-mile wide for local routes (1/4-mile buffer) and 1 mile wide for bus rapid transit lines (½ mile buffer). The buffer was defined by individual transit stops or bus rapid transit stations. Specifically, buffers were created around each stop from the GTFS (General Transit Feed Specification) files for the respective service networks. A limited number of changes are associated with routes that do not yet have stops. Route segments were used for new routes that do not have stops. The assumption that anyone in a Census block that is touched by the buffer can access transit is not true, nor is it the case that anyone in a Census block outside that buffer *cannot* access transit, but these standards are applied for analytical consistency.

Total Transit Vehicle Trips to Blocks: This is the number of transit vehicle trips that occur within one week that pass within the service buffer of any part of the Census blocks in question.

Existing (October 2021) and Proposed 2027 Transit Network trips to Census blocks were estimated using GTFS data exported provided by IndyGo. For each route, weekday trips were multiplied by 5, and Saturday and/or Sunday services were added to obtain a weekly total. Those trips were then multiplied by the number of designated blocks they passed.

For example, if 100 trips pass by 10 blocks, this equals 1,000 Transit Vehicle Trips to Blocks. This accounts for all trips that may be realized for all blocks served and represents how much transit service is provided to how many Census blocks.

Transit Vehicle Trips x Population: This measure estimates the usefulness of the service. It further reduces the distortion of Total Transit Vehicle Trips to Blocks (TTVTB), which can suggest that more service is being provided to populations within Title VI areas, when service is just passing more blocks but with potentially fewer people in them. In this measure, weekly transit trips on a route are weighted by the calculated total population within each Census block.

For example, if 100 trips pass by a block that has 10 people living in it, that would equal 1,000 trips x population; if the next Census block it passes has 50 people living in it, that would equal 5,000 trips x population, representing more access to service by more people.

This measure considers that Census blocks are not home to equal numbers of people and estimates the level of service access provided to *people* rather than to geographic zones.

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<sup>1</sup> Marion County has a consolidated city-county government in which four municipalities retain full government autonomy (including a mayor and city council). Those four municipalities are called excluded cities. The remaining municipalities in the county are “included towns” and exercise very limited authority of their own municipal and town services and town identities.

## OUTLINE OF PROPOSED SERVICE CHANGES

The service changes include small route deviations, added or removed segments, and complete route modifications. For analysis purposes, the types of route changes are classified into four categories. The following table outlines the classifications for each type of route change being proposed.

**Table 1: Change Classification Definitions**

Change Classification	General Description	Example Routes in Existing Network
No Change	No change to the route segments.	Route 37
Minor Change	Small deviations to a few segments.	Route 6
Moderate Change	An added/removed extension or other deviations.	Route 21
Significant Change	Addition/deletion of an entire route, creation of multiple branches, or complete revision of a route.	Route 13

Table 2 lists all route changes being proposed.

**Table 2: Summary of Route Changes**

Route #	Route Name	Change Classification
Route 2	East 34th St	Moderate
Route 3	E. Michigan/Arlington	Significant
Route 4 **	Fort Harrison	Significant
Route 5	East 25th St	Moderate
Route 6	Harding	Minor
Route 8 **	Washington	Significant
Route 9 *	W. Michigan	Significant
Route 10	10th Street	Moderate
Route 11	East 16th St	Moderate
Route 12 **	Minnesota/Raymond	Significant
Route 13	Raymond St	Moderate
Route 14 **	Prospect	Significant
Route 15 **	West 34th	Significant
Route 16	Troy	Moderate
Route 18 **	Broad Ripple	Significant
Route 19	Glendale Towne Ctr	Significant
Route 21	East 21st St	Moderate
Route 24	Mars Hill	No Change
Route 25	W. 16th Street/Lynhurst Crosstown	Significant
Route 26	Keystone Crosstown	Significant
Route 28	St. Vincent	Moderate
Route 30	30th St. Crosstown	Significant
Route 31	US 31	Minor
Route 34	ML King/Michigan Rd	Minor

Route #	Route Name	Change Classification
Route 37	Park 100	No Change
Route 38 **	West 38th St	Significant
Route 39 **	E. 38th St	Significant
Route 55 **	English	Significant
Route 56 *	English/Emerson	Significant
Route 86 **	86th St Crosstown	Significant
Route 87	Eastside Circulator	No Change
Route 901	College/86th Street/Castleton/Comm. North	Significant
Route 902	Red Line - County Line Rd	No Change
Blue Line *		Significant
Purple Line *		Significant
Red Line		No Change

\* Denotes New Route Number

\*\* Route Replaced or Retired in the 2027 Transit Network

### **Data Sources**

The US Census American Community Survey (ACS) surveys a sample of the population, gathering valuable information on characteristics including income and race. The ACS datasets are estimated based on 1-year and 5-year samples. The 5-year datasets are averages of the intervening years and are the most comprehensive and precise datasets with all the information needed for this examination. At the time of writing this Service Equity Analysis, the most recent version of the dataset is the 2020 ACS 5-Year Estimates. Census geographies are those developed as a result of the 2020 Census.

- ◆ 2020 ACS 5-Year Estimates file by block group
  - Table B03002 – Hispanic or Latino Origin by Race
  - Table B17021 – Poverty Status of Individuals in the Past 12 Months by Living Arrangement
- ◆ Decennial Census 2020, SF 100% by block
  - Table P1 – Total Population

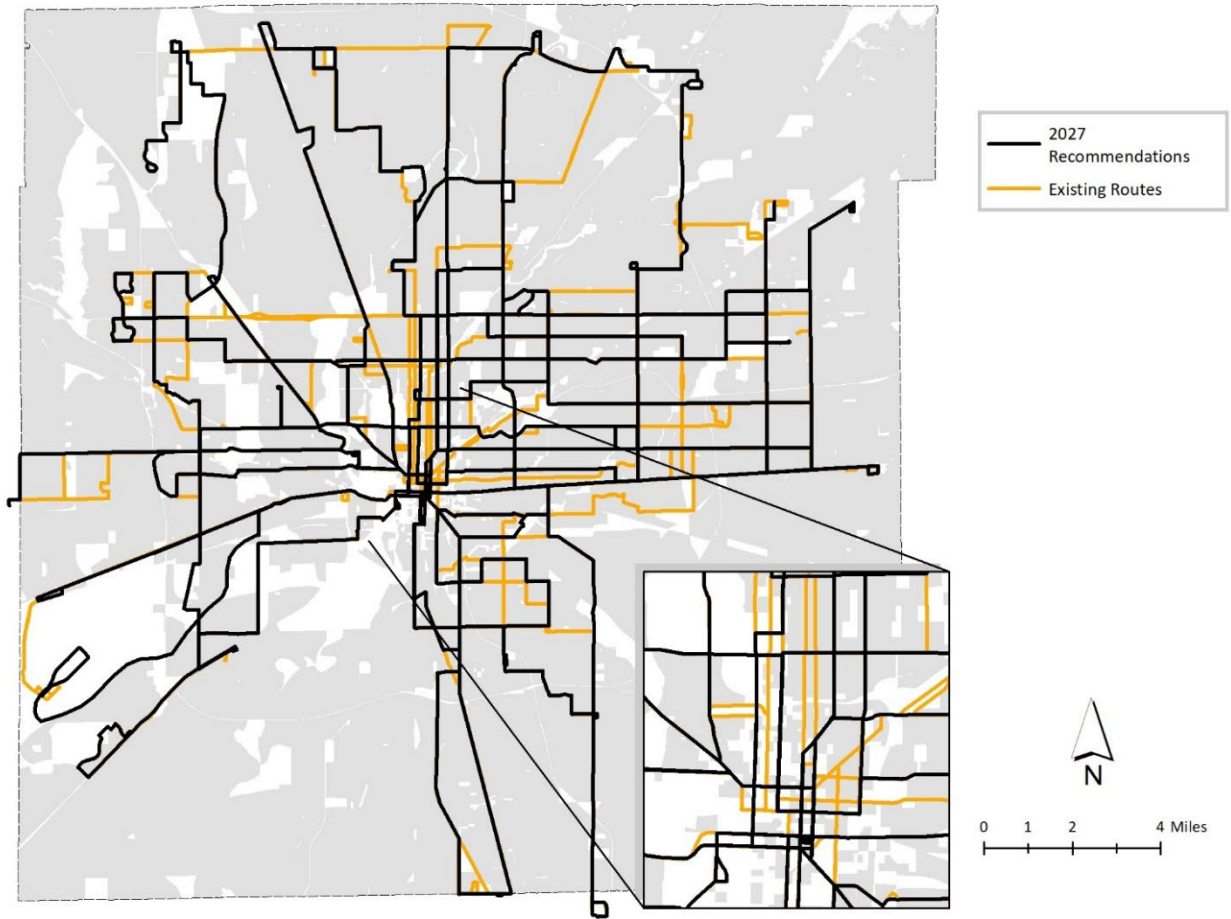
### **Transit Service Data**

IndyGo designs routes in HASTUS, a transit scheduling software. The data used for transit trips were provided from a HASTUS export, in the form of a General Transit Feed Service (GTFS) file. The GTFS file was then visualized using a toolbox for ArcMap, a geographic information systems software. The two networks were as follows:

- ◆ Existing Transit Network: 2110 Network (October 2021)
- ◆ Proposed 2027 Transit Network

Figure 1 illustrates the comparison of the existing routes and the recommendations proposed in the 2027 Transit Network. The black lines represent the proposed routes and the orange lines represent existing routes. The visible segments of the existing routes (depicted in orange) will change with the implementation of recommended routes.

Figure 1: Existing and Recommended 2027 Transit Network



## GEOGRAPHIC ANALYSIS

Census data is the primary source for demographic data in this analysis. The American Community Survey (ACS) 5-year dataset is the most accurate available data. It can be explored in different geographies, including block groups. Data from the ACS are not available at the smallest Census geography, the Census block. Based on the availability of current demographic data, Census block groups were used as the geography of analysis for determining High Minority and High Low-Income designations for blocks, while Census blocks were used to determine the population with access.

## DETERMINING HIGH MINORITY AND HIGH POVERTY CENSUS BLOCKS

Population data for an entire Census block group that is touched by public transit routes can result in the portrayal of misleading data regarding a person’s access to transit. Specifically, using Census block groups could count a person as having access who may be a mile or more away from the transit route due to the size of the Census geography. To address this potential issue, this analysis utilizes Census block data (the smallest geographic Census unit) to identify populations who have access but used Census block group data to determine and assign the High Minority or High Poverty designation. If a Census block fell within a High Minority or High Poverty Census block group, it was presumed that each Census block within that Census block group shared that designation. Table 3 illustrates this process.

**Table 3: Example of Attributing Census Block Designation for High Minority to Census Blocks**

Block and Block Group Name	2020 ACS 5-Year Minority Population as a percent of Block Group	Percent of Minority Population in Marion County	Does the Block Group Percent Exceed Marion County’s Percentage?	Block Designation
Block Group 1	47%	45.19%	Yes	
Block 1A	Not Available			High Minority
Block 1B	Not Available			High Minority
Block 1C	Not Available			High Minority
Block 1D	Not Available			High Minority

### Determining Transit Accessibility by Population

Population data are attributed geographically to Census block groups, which are represented in the spatial software. For this analysis, Census block groups were deemed too large to appropriately capture the accessibility of a transit line or the impact a change would have on access to the transit line or stop. Instead, IndyGo used minority and poverty population densities of Census blocks to analyze the impact on accessibility for each geographic area. Any population within a Census block of a stop or the buffer area around a route, regardless of the percentage of the Census block within the buffer, is considered as

a population with access to transit. IndyGo uses a ¼ mile buffer area around local route bus stops and a ½ mile buffer around bus rapid transit stations.

## SERVICE EQUITY ANALYSIS METHODOLOGY

The equity analysis involved the following steps:

1. Identify minority and poverty population characteristics of blocks in Marion County.
2. Develop a map of current and proposed routes.
3. Determine High Minority and High Low-Income block groups.
4. Determine which blocks are within access of stops and segments of the proposed and existing routes.
5. Allocate the projected change in weekly trips to blocks after proposed changes are implemented.
6. Determine the difference between the two scenarios for each block and the system in terms of Total Transit Vehicle Trips to Blocks, Average Transit Vehicle Trips per block, and Transit Vehicle Trips by population.
7. Compare the percentage change experienced by each group to the thresholds established in IndyGo’s Title VI Policy to determine if the proposed changes could result in discriminatory impacts.

Changes to frequency, geography or span of service are made through an analysis of the number of weekly trips by the route.

### **Total Transit Vehicle Trips to Blocks**

Any change in Total Transit Vehicle Trips to Blocks for minority and low-income populations that constituted a major service change was calculated as follows<sup>2</sup>:

The percent change in Transit Vehicle Trips to Blocks for minority and low-income populations =

$$\frac{\text{Recommended Transit Vehicle Trips to Block} - \text{Existing Transit Vehicle Trips to Block}}{\text{Existing Transit Vehicle Trips to Block}}$$

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<sup>2</sup> IndyGo’s major service change policy triggers an examination if any route has a change of 25 percent of its route miles, a change impacting 25 percent of its passengers, or the route is new.

**Average Transit Vehicle Trips per Block**

The Average Transit Vehicle Trips per Block model is also applied because it reduces the positive effect of drawing a route to simply touch more Census blocks of unspecified population. The formula can be expressed as follows:

Percent change in Average Transit Vehicle Trips per Block for minority and low-income populations =

$$\frac{\text{Recommended Average Transit Vehicle Trips per Block} - \text{Existing Average Transit Vehicle Trips per Block}}{\text{Existing Average Transit Vehicle Trips per Block}}$$

$$\left( \frac{\frac{\text{Recommended Transit Vehicle Trips to Block}}{\text{Served Blocks in Recommended Network for Population of Interest}} - \frac{\text{Existing Transit Vehicle Trips to Block}}{\text{Served Blocks in Existing Network for Population of Interest}}}{\frac{\text{Existing Transit Vehicle Trips to Block}}{\text{Served Blocks in Existing Network for Population of Interest}}} \right)$$

**Transit Vehicle Trips Weighted by Population**

Weekly transit trips on a route were weighted by the estimated population of interest within each block that is touched by a route. If the population were equal across all blocks, this additional method would mirror other analyses. Because total population and demographics vary among Census blocks, this is the only measure that captures how many people can access transit service today relative to recommended changes.

The formula is expressed as follows:

Percent change in Weighted Transit Vehicle Trips for minority or low-income populations =

$$\frac{\text{Total Recommended Weighted Transit Vehicle Trips} - \text{Total Existing Weighted Transit Vehicle Trips}}{\text{Total Existing Weighted Transit Vehicle Trips}}$$

$$\frac{\sum_{i=1}^n [(\text{residents of Block } i)(\text{Recommended Transit Vehicle Trips to Block } i - \text{Existing Transit Vehicle Trips to Block } i)]}{\sum_{i=1}^n [(\text{residents of Block } i)(\text{Existing Transit Vehicle Trips to Block } i)]}$$



## SERVICE EQUITY ANALYSIS: RESULTS

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The results of the methodology described above are summarized in the following paragraphs, tables, and maps.

### MINORITY AND POPULATIONS BELOW POVERTY

Title VI regulations require that IndyGo compare its service for areas with minority and non-minority populations and areas with populations below the poverty level. For this analysis, geographic areas were classified as a “Minority Area” if the block group had a percentage of minority population that was greater than the minority population of the entire service area (45.73%). The same approach was used to identify areas where the percent of the population living below poverty was higher than that of the entire service area (16.42%). Table 4 summarizes the number and percent of the population that classified as minority areas or areas living below poverty<sup>3</sup>.

**Table 4: Number and Percent of Minority Population in Marion County**

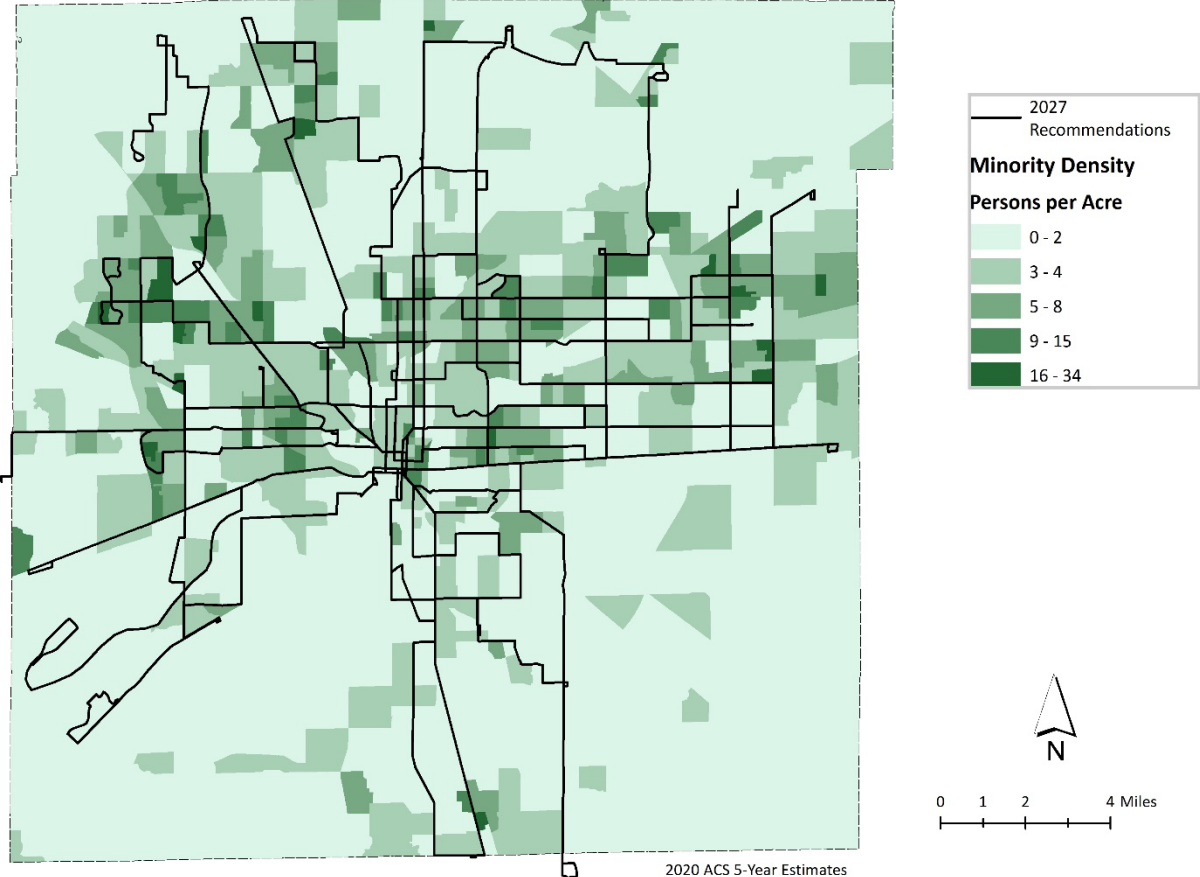
Category	Total Number	Service Area Percent
Minority Population	437,761	45.73%
Population in Poverty	154,027	16.42%
Total Population	957,337	100%

The maps presented below were developed to offer a visualization of the Minority and Poverty population densities within the service area (Marion County). Figures 2 and 3 illustrate the subject population densities by acre compared and include the recommended 2027 Transit Network route structure for context, whereas Figures 5 and 6 provide densities per block as described in the methodology.

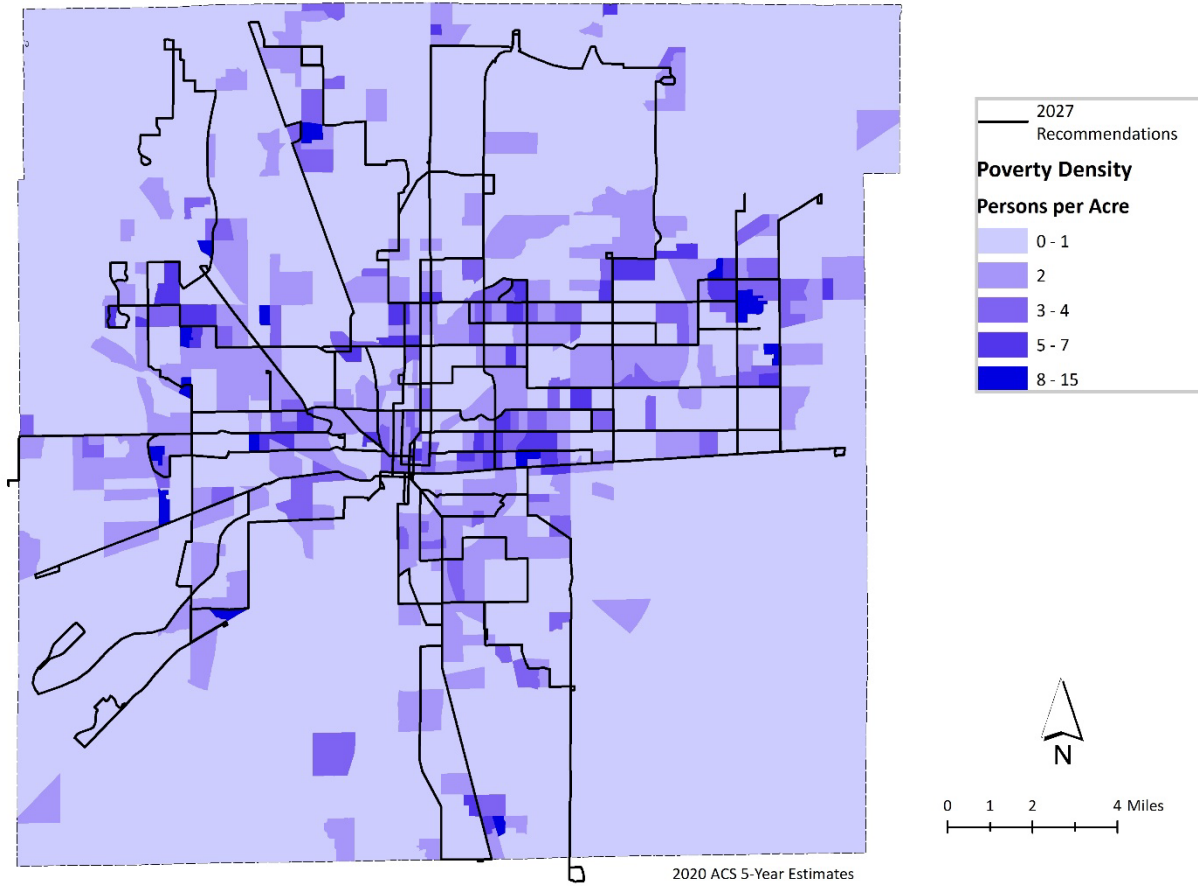
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<sup>3</sup> The total population used for the percent of population in poverty removes children under 15, people that are institutionalized, college students living in dorms, and military populations living in barracks because they cannot determine their income, and thus poverty status. Therefore, the percent is slightly different than if the entire population was used.

Figure 2: Minority Population Density and Recommended 2027 Transit Network



**Figure 3: Density of Population Below Poverty and Recommended 2027 Transit Network**

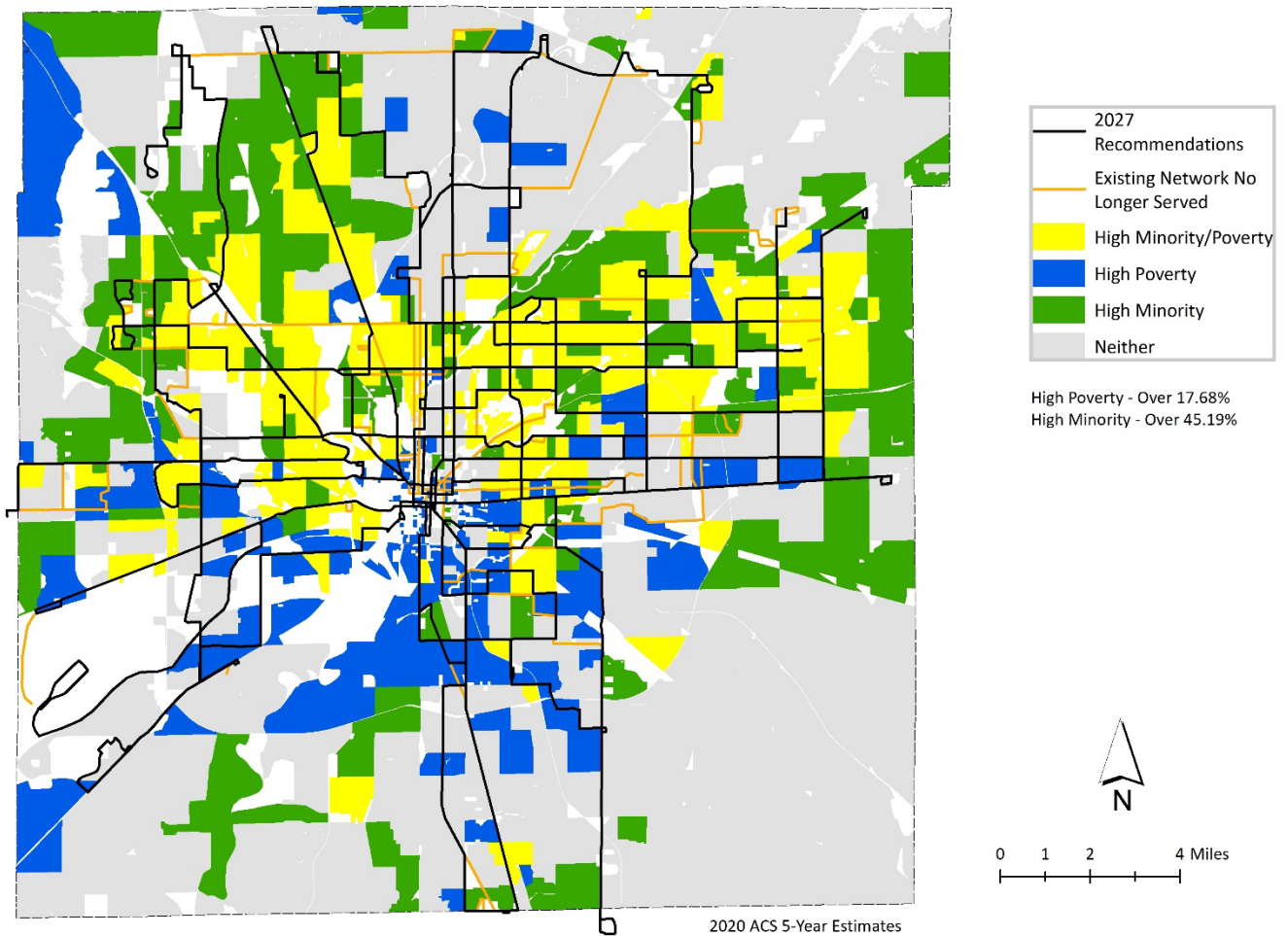


## HIGH MINORITY AND HIGH POVERTY BLOCKS

The following exhibits illustrate the same demographic factors distributed by blocks. Figure 4 compares the recommended 2027 Transit Network with the existing route network with blocks that have a higher than average minority population (High Minority), higher than average population density below poverty (High Poverty), and both High Minority and High Poverty. Blocks shaded in gray have lower than average densities of the subject population groups. Blocks that do not have a color are blocks that do not have any population (non-habitable).

Blocks with higher-than-average densities of minority and/or low-income populations are scattered throughout the service area but are most prevalent north of Washington Street. Areas with higher-than-average poverty but not higher than average minority population are located in pockets throughout the service area but most frequently appear in the central Indianapolis area and south and southeast of downtown Indianapolis.

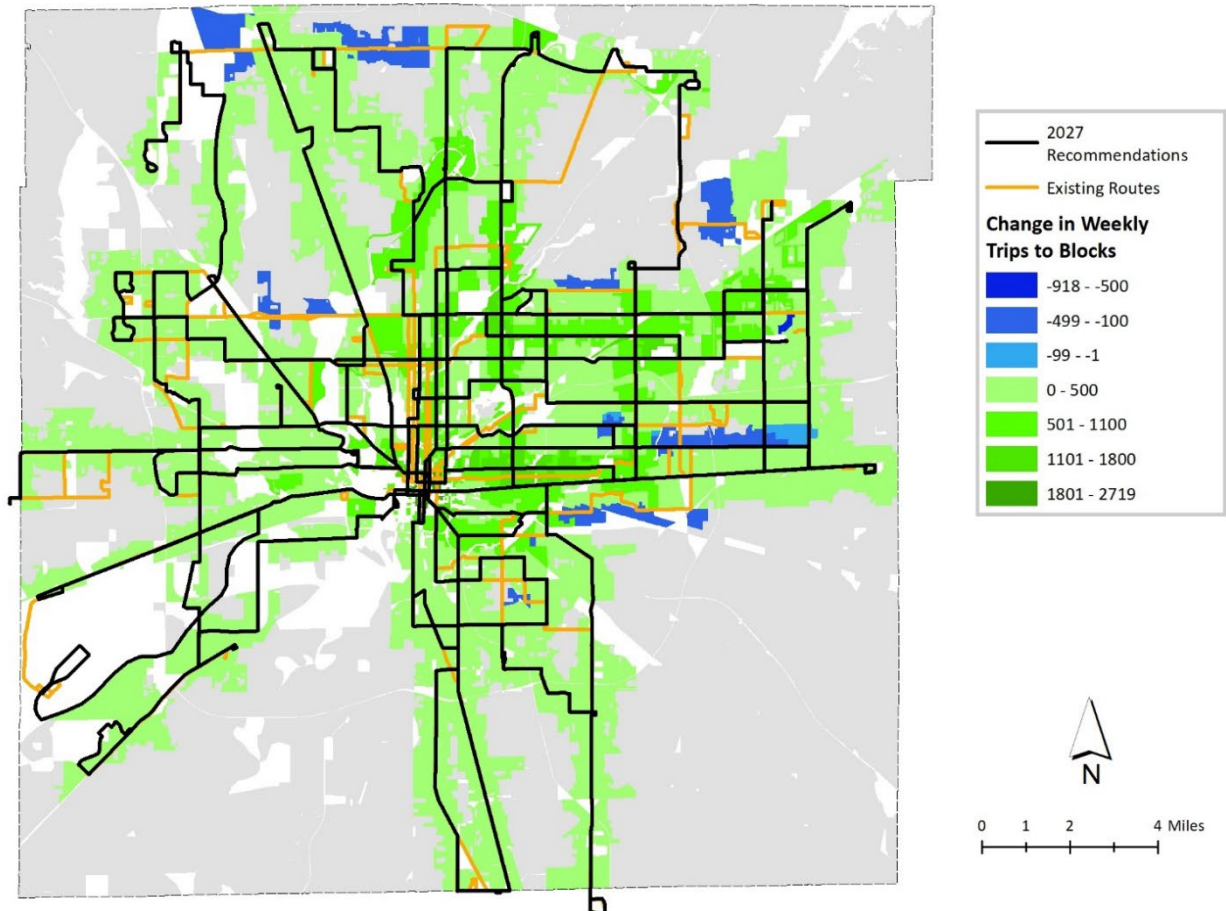
**Figure 4: High Minority and High Poverty Blocks and Recommended 2027 Transit Network**



## CHANGE IN WEEKLY TRIPS TO BLOCKS

Figure 5 illustrates the change in weekly trips if the recommended 2027 Transit Network were to be implemented. Blocks with the darkest blue shading have the most significant reduction in weekly trips. In other words, these blocks will receive less service after the recommended changes are implemented. Most of the service area is shaded light green to dark green indicating that those blocks will receive equal or more service with the recommended 2027 Transit Network.

**Figure 5: Change in Weekly Trips to Blocks and Recommended 2027 Transit Network**



**Total Transit Vehicle Trips**

When combined, all recommended route changes will result in an overall increase of 26 percent in total transit vehicle trips per week, as shown in Table 5. This is roughly equivalent to the increase in service between the existing (October 2021) network and the 2027 Transit Network. The percent change in total transit vehicle trips to blocks presented in the next section is a specific measure for this SEA and does not represent the percent change in service levels. Weekly trips are a representation of service provided in a typical transit week, which does not include holiday service on a weekday.

**Table 5: Change in Total Weekly Transit Vehicle Trips**

Existing Weekly Trips (October 2021)	Proposed Weekly Trips (2027 Transit Network)	Change in Weekly Trips (#)	Change in Weekly Trips (%)
11,195	14,141	2,946	26%

**Total Transit Vehicle Trips to Blocks**

Table 6 provides a comparison of the change in the number of total weekly transit vehicle trips to blocks when the recommended 2027 Transit Network is implemented. There is an increase in trips to all High and Non-High Minority and Poverty categories of Census blocks. The increase is slightly more significant for the High Minority and High Poverty blocks.

**Table 6: Results of Total Transit Vehicle Trips to Blocks Analysis**

Census Blocks	(A) Existing Trips to Blocks	(B) Proposed Trips to Blocks	(C) Change in Trips to Blocks	(D) Percent Change	(E) Acceptable Range of Change +/- 20% of (D)	Disparate Impact or Disproportionate Burden
High Minority	2,364,040	3,517,051	1,153,011	49%	34% - 51%	No
Non-High Minority	3,064,065	4,364,136	1,300,071	42%		No
High Poverty	2,818,422	4,137,604	1,319,182	47%	35% - 52%	No
Non-High Poverty	2,609,683	3,743,583	1,133,900	43%		No
All Habitable Blocks	5,428,105	7,881,187	2,453,082	45%		

**Average Transit Vehicle Trips per Block**

Table 7 presents the Average Transit Vehicle Trips per Block analysis, which compares average trips to High Minority and High Poverty blocks to Non-High Minority and Non-High Poverty blocks. For all areas, there is an increase of 351 trips to blocks, which is comparable to the change to High Minority blocks (347) but lower than the change to High Poverty blocks (364).

Based on this analysis, High Minority and High Poverty blocks will see a greater overall increase in service compared to entire service area, resulting a finding of no disparate impact and no disproportionate burden.

**Table 7: Results of Average Transit Vehicle Trips to Blocks Analysis**

Census Blocks	(A) Average Existing Trips to Blocks Served	(B) Average Proposed Trips to Blocks Served	(C) Average Change in Trips to Blocks Served	(D) Percent Change in Average Trips to Blocks	(E) Acceptable Range +/- 20% of (D)	Disparate Impact or Disproportionate Burden
High Minority	712	1,059	347	49%	34% - 51%	No
Non-High Minority	836	1,191	355	42%		No
High Poverty	777	1,141	364	47%	35% - 52%	No
Non-High Poverty	777	1,114	337	43%		No
All Habitable Blocks	777	1,128	351	45%		

**Transit Vehicle Trips Weighted by Population**

The following metric follows a similar pattern as the first two. Transit Vehicle Trips Weighted by Population (TVTWP) result in a beneficial measure for Disparate Impact (DI) or Disproportionate Burden (DB). Because total population and demographics vary among Census blocks, this is the only measure that captures how many people can access transit service under the current route structure compared to the proposed changes.

The typical measure of DI and DB that results from a service change is a comparison between the proportion of persons in the protected class who are adversely affected by the service and the proportion of persons not in the protected class that are adversely affected. The comparison population is all persons who are either affected by the service or who could be affected (i.e., potential passengers or total population).

The change in transit vehicle trips in all habitable blocks is positive. That is to say that there will be more trips provided by population in the proposed service structure compared to the existing level of service. When analyzing the percent change in trips weighted by the population of blocks, the results indicate that the percent change is consistently between 41 percent and 46 percent for blocks of high and non-high minority and high and non-high poverty. Furthermore, there is a stronger positive percent change for areas of high minority and high poverty than for the non-high minority/poverty blocks.

**Table 8: Analysis of Transit Vehicle Trips Weighted by Population**

	(A) Existing TVTwxP	(B) Proposed TVTwxP	(C) Change in TVTwxP	(D) % Change	(E) Threshold for DI/DB +/- 20% of (D)	DI/DB?
<b>High Minority</b>	190,501,436	277,680,274	87,178,838	46%	33% - 49%	No
<b>Non-High Minority</b>	215,394,993	304,201,178	88,806,185	41%		No
<b>High Poverty</b>	213,129,165	310,295,489	97,166,324	46%	33% - 49%	No
<b>Non-High Poverty</b>	192,767,264	271,585,963	78,818,699	41%		No
<b>All Habitable Blocks</b>	<b>405,896,429</b>	<b>581,881,452</b>	<b>175,985,023</b>	43%		

**Route-by-Route Analysis**

Figure 6 illustrates the route-by-route analysis that more precisely reveals the impact of recommended route changes. The map illustrates the high minority and high poverty blocks that will receive no or reduced service when the recommended service changes are implemented. IndyGo recognizes that increasing frequency and decreasing coverage means that some areas will experience an impact of less service. IndyGo will continue to understand how best to serve individuals who no longer receive service due to the redesign.



Figure 6: High Minority and High Poverty Blocks Receiving Reduced Trips

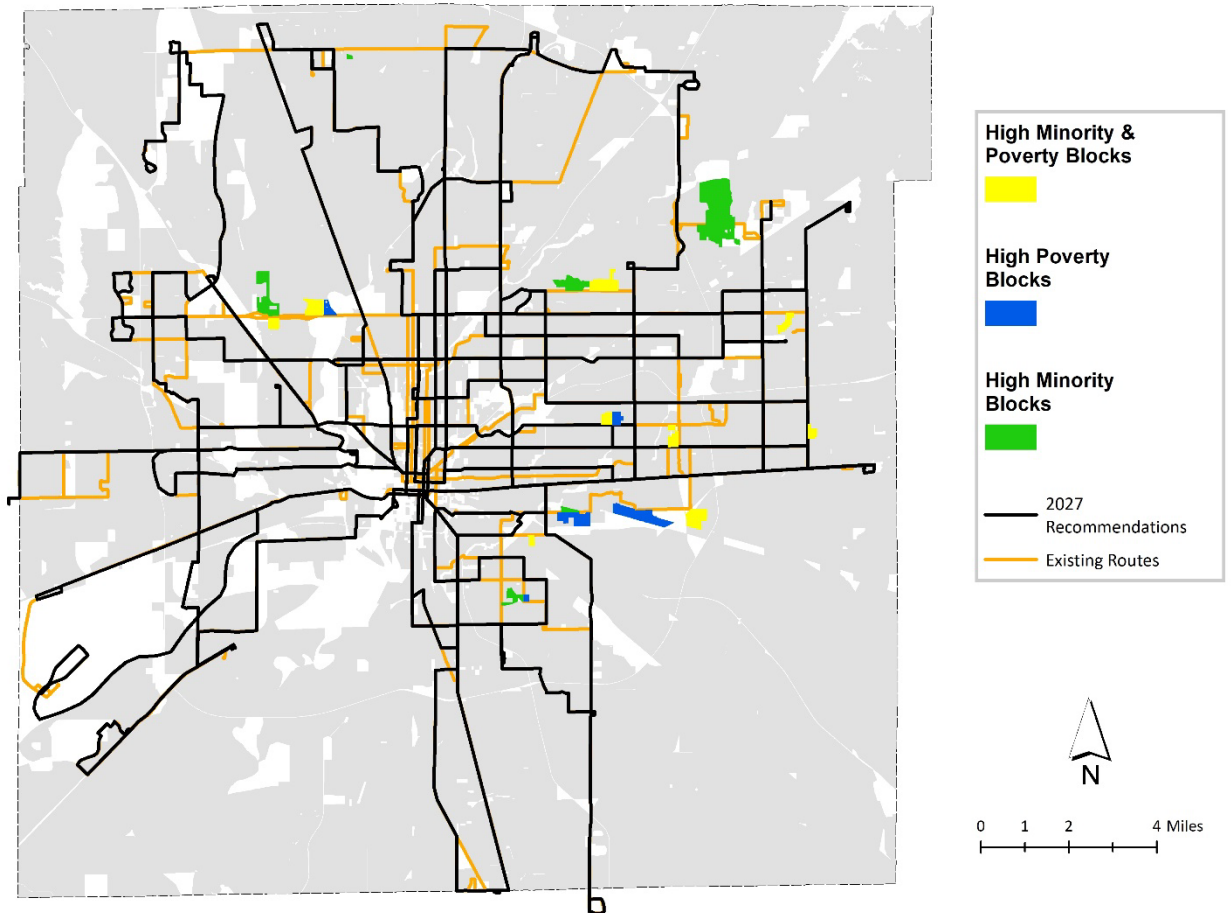
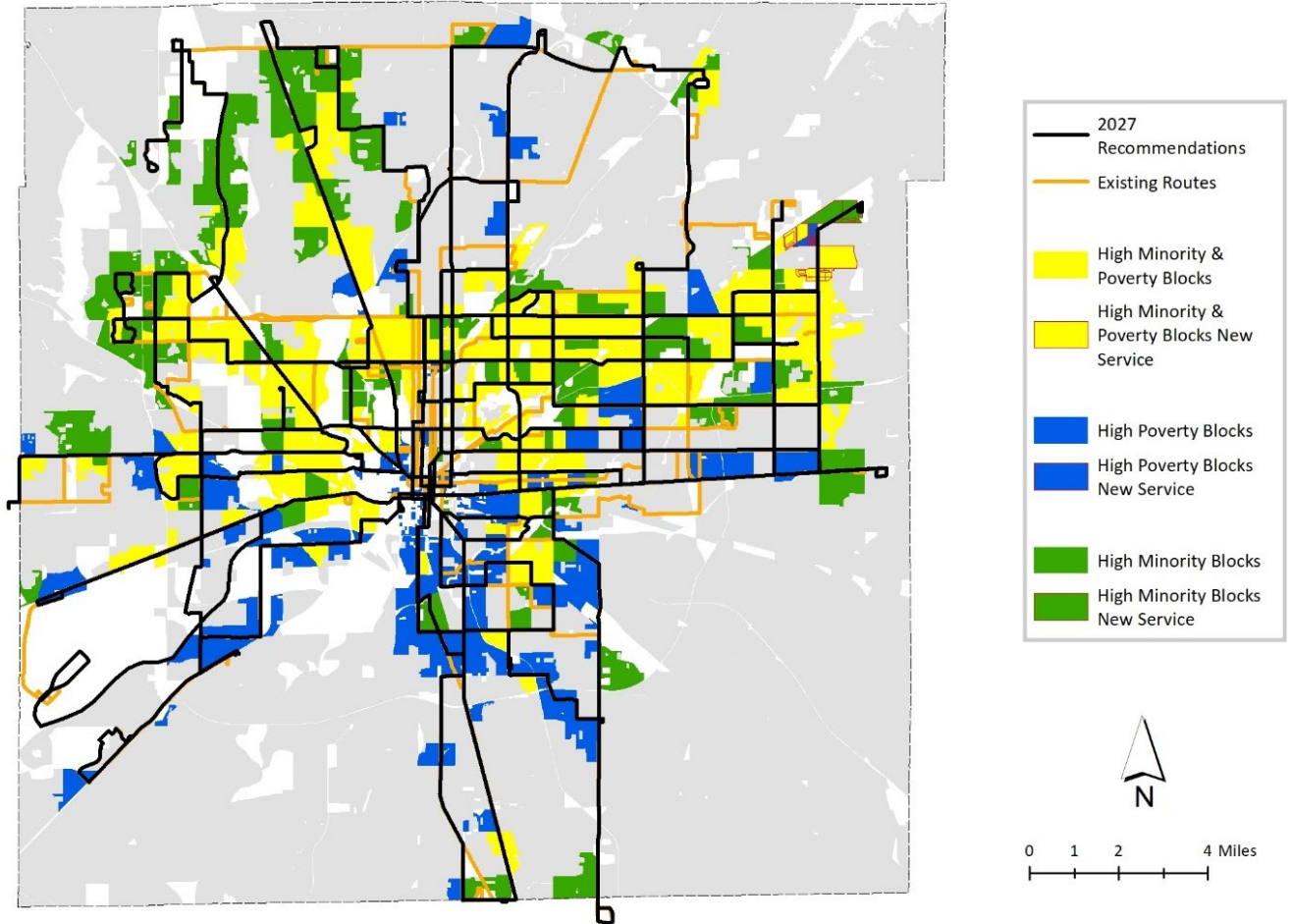


Figure 7 illustrates the route-by-route analysis that more precisely reveals the impact of recommended route changes. The map illustrates the high minority and high poverty blocks that will receive added service when the recommended service changes are implemented.

**Figure 7: High Minority and High Poverty Blocks Receiving Added Trips**



## CONCLUSIONS

At the systemwide level, the recommended route changes will result in additional trips to the high-minority and high-poverty blocks and the non-high-minority and non-high-poverty blocks. The positive percent change in the total number of trips to blocks across all habitable blocks is 45 percent. The positive impact on high-minority and high-poverty blocks is within one percent of the overall impact. Therefore, there is a finding of no disproportionate burden or disparate impact.

IndyGo also analyzed the trips to blocks before and after changes are implemented based on the population of the block. The additional analysis by person is the only measure that captures how many people in each block can access transit service. That deeper analysis resulted in an overall positive change of 43 percent for all habitable blocks. The positive impact on high-minority and high-poverty blocks when weighted by the person is 46 percent and 46 percent, respectively. This conclusion further supports that the proposed changes pose no disproportionate burden or disparate impact.