

2018 Service and Facilities Standards Monitoring

In Compliance with FTA Circular 4702.1B

Metro Transit



October 2018

SRF No. 11413

Table of Contents

Executive Summary.....	iii
Technical Analysis of Service Standards and Policies.....	iii
Disparate Impact, Disproportionate Burden, and the Four-Fifths Threshold.....	iv
Summary of Results.....	v
Introduction.....	1
Title VI and Environmental Justice.....	2
Defining Low-Income and Minority Populations.....	2
Transit Market Areas.....	6
Disparate Impact, Disproportionate Burden, and the Four-Fifths Threshold.....	8
Designation of Predominantly Minority/Low-Income Routes.....	8
Technical Analysis.....	10
Vehicle Load.....	11
Vehicle Headway.....	14
On-Time Performance.....	16
Service Availability.....	18
Transit Amenities.....	29
Vehicle Assignment.....	45
Summary of Results and Conclusion.....	50
APPENDIX A: MINORITY/LOW-INCOME DESIGNATION.....	51
APPENDIX B: ON-TIME PERFORMANCE BY ROUTE.....	56
APPENDIX C: TRANSIT CENTER FACILITY AMENITIES.....	61
APPENDIX D: PARK-AND-RIDE FACILITY AMENITIES.....	62
APPENDIX E: VEHICLE ASSIGNMENT SUMMARY BY ROUTE.....	64

Executive Summary

In order to comply with Federal Transit Administration (FTA) Title VI guidelines, federal funding recipients are required to adopt quantitative system standards necessary to guard against discriminatory service design and operations decisions. The FTA requires transit systems to monitor service standards at least once every three years by comparing the level and quality of service between minority routes and non-minority routes and between low-income routes and non-low-income routes to ensure that the current distribution of service does not result in discrimination against minority and/or low-income populations.

A note on the language and terminology used in this report: Many of the terms used in this report such as “minority” and “low-income” may not be consistent with efforts by Metro Transit and the Metropolitan Council to use respectful and inclusive language. However, these terms are used in this report to match the terminology used in the FTA Title VI Circular and other federal guidance.

Technical Analysis of Service Standards and Policies

This analysis reviewed the distribution and quality of service for each of the standards and policies listed below. Metro Transit’s established service standards and policies are described primarily in the Council’s *2040 Transportation Policy Plan (TPP), Appendix G: Regional Transit Design Guidelines and Performance Standards*, and other guidance such as newly developed shelter placement and vehicle load guidelines.

- Vehicle Load
- Vehicle Headway
- On-Time Performance
- Service Availability
 - Route Spacing
 - Midday Headway
 - Bus Stop Spacing
- Transit Amenities
 - Bus Shelter Distribution
 - Customer Information
 - Transit Facility Amenities
- Vehicle Assignment

The analysis was completed for bus (local, express, and BRT), light rail, and commuter rail (Northstar) modes independently. The results for light rail and Northstar are shown primarily for informational purposes. Metro Transit has only one commuter rail route and both of the light rail lines (Blue Line and Green Line) are identified as minority and low-income routes. It is therefore impossible to make comparisons between these route designations as it is with the bus system.

Disparate Impact, Disproportionate Burden, and the Four-Fifths Threshold

The FTA defines “disparate impacts” as facially neutral policies or practices that disproportionately affect members of a group identified by race, color, or national origin, where the recipient’s policy or practice lacks a substantial legitimate justification. 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, “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.” President Clinton’s Executive Order 12898 extends similar protections to low-income persons.

If the results of this evaluation indicate a potential for disparate impacts, further investigation is required. Metro Transit has defined its disparate impact threshold using the “four-fifths rule.” The four-fifths rule states that there may be evidence of disparate impacts if:

- Benefits are being provided to minority populations at a rate less than 80 percent (four-fifths) of the benefits being provided to non-minority populations, or
- Adverse effects are being borne by non-minority populations at a rate less than 80 percent (four-fifths) of the adverse effects being borne by minority populations.

The four-fifths rule originates from employment law but is applied in this setting to compare the distribution of benefits and/or adverse impacts among various population groups. 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. Metro Transit’s decision to use the four-fifths rule was subject to a formal public outreach process before being adopted by the Metropolitan Council in 2013.

Metro Transit uses a similar approach when comparing the distribution of benefits and adverse impacts for low-income and non-low-income populations. However, when the distributions for low-income populations fall outside of the four-fifths threshold, this is referred to as a disproportionate burden rather than a disparate impact.

In this analysis, if the quantitative results indicate that service standard compliance in predominantly minority/low-income areas is less than 80 percent of the compliance rate for non-minority/non-low-income areas, this could be evidence of disparate impacts or disproportionate burdens. In these cases, additional analysis will be conducted, and potential mitigation measures will be identified if necessary.

Summary of Results

A summary of the results of each evaluation is shown in Table 1. The potential for disparate impacts to minority populations and disproportionate burdens to low-income populations was identified in the Transit Amenities: Bus Shelter Amenities category. The specific amenity in question is the distribution of heaters at stops with shelters. Additional discussion of the potential causes of these results and the steps Metro Transit will undertake are discussed in detail in the Transit Amenities section.

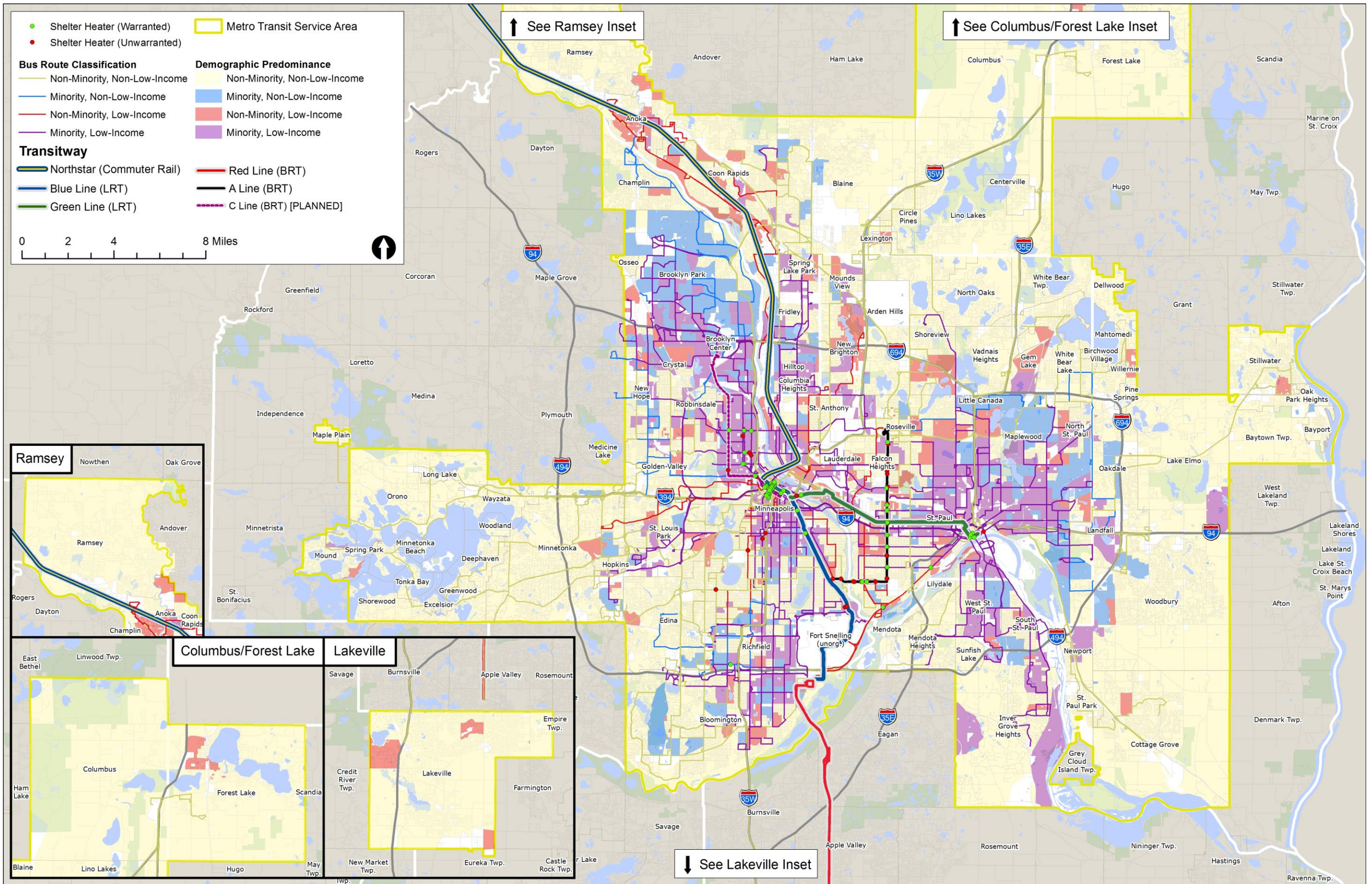
Table 1. Summary of Results

Standard/Policy	Minority Results	Low-Income Results
Vehicle Load	No Disparate Impacts	No Disproportionate Burdens
Vehicle Headway	No Disparate Impacts	No Disproportionate Burdens
On-Time Performance	No Disparate Impacts	No Disproportionate Burdens
Service Availability	-	-
Route Spacing	No Disparate Impacts	No Disproportionate Burdens
Midday Service Availability	No Disparate Impacts	No Disproportionate Burdens
Stop/Station Spacing	No Disparate Impacts	No Disproportionate Burdens
Transit Amenities	-	-
Bus Shelter Amenities*	Potential Disparate Impacts Identified	Potential Disproportionate Burdens Identified
Customer Information	No Disparate Impacts	No Disproportionate Burdens
Transit Facilities	No Disparate Impacts	No Disproportionate Burdens
Vehicle Assignment	No Disparate Impacts	No Disproportionate Burdens

* Amenities reviewed include shelter distribution and the availability of heat and light in shelters. The availability of heat at shelters was the only area showing potential impacts.

The purpose of this document is to satisfy Metro Transit’s requirement to monitor and evaluate compliance with FTA Title VI Requirements as they apply to the implementation of the agency’s service standards and policies. The review found that nearly all of Metro Transit’s standards and policies are implemented fairly and equitably with no potential for disparate impacts to minority populations or disproportionate burdens to low-income populations. As noted above, some minor issues were identified for individual standards or policies under the Bus Shelter Amenities category. Additional analysis of this result identified the implementation of heated shelters at A Line BRT and MARQ2 bus stops in downtown Minneapolis one of the main causes of the negative result. It is anticipated that the implementation of additional planned BRT lines in the near future will address these issues. These BRT lines represent a significant investment in transit infrastructure for the region and will be implemented in predominantly minority and/or low-income areas. The locations of transit routes by Title VI classification and the locations of bus shelter heaters are highlighted in Figure i. Metro Transit will continue to monitor the impact of heated shelters installed on these additional routes to ensure compliance with Title VI requirements.

Figure i. Transit Service and Area by Title VI Classification



Introduction

In order to comply with Federal Transit Administration (FTA) Title VI guidelines, federal funding recipients are required to adopt quantitative system standards necessary to guard against discriminatory service design and operations decisions. The FTA requires transit systems to monitor service standards at least once every three years by comparing the level and quality of service between minority routes and non-minority routes and between low-income routes and non-low-income routes to ensure that the current distribution of service does not result in discrimination against minority and/or low-income populations.

Note that many of the terms used in this report such as “minority” and “low-income” may not be consistent with efforts by Metro Transit and the Metropolitan Council to use respectful and inclusive language. However, these terms are used in this report to match the terminology used in the FTA Title VI Circular and other federal guidance.

The FTA requires agencies to adopt service standards and suggests the standards include (but are not limited to) vehicle assignment, vehicle load, vehicle headway, on-time performance, service availability, and distribution of transit amenities. This review uses these themes to compare existing transit services and amenities to Metro Transit’s established service standards and policies as outlined in the Metropolitan Council’s *2040 Transportation Policy Plan (TPP)*, *Appendix G: Regional Transit Design Guidelines and Performance Standards*, and other guidance such as the newly developed shelter placement and vehicle load guidelines.

For this analysis, the rates of compliance were compared between minority and non-minority routes/areas and between low-income and non-low-income routes/areas for the following Metro Transit standards and policies.

- Vehicle Load
- Vehicle Headway
- On-Time Performance
- Service Availability
 - Route Spacing
 - Midday Headway
 - Bus Stop Spacing
- Transit Amenities
 - Bus Shelter Distribution
 - Customer Information
 - Transit Facility Amenities
- Vehicle Assignment

This analysis included fixed routes directly operated by Metro Transit, those operated under contract to the Metropolitan Council, and the METRO Red Line Bus Rapid Transit. The Metro Transit Service Area used for this analysis was defined as the extents of the Transit Capital Levy Communities excluding those areas served by suburban transit authorities. Unless otherwise noted, the data used for this analysis is from the Fall 2017 pick.

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, “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.” Through this Executive Order, Title VI was identified as one of several Federal laws that should be applied “to prevent minority communities and low-income communities from being subject to disproportionately high and adverse environmental effects.”

To provide direction to recipients of federal funding, the FTA issued Circular 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients, in 2012. The Circular outlines the Title VI evaluation procedures for recipients of FTA-administered transit program funds and includes guidance for a variety of equity evaluations. This evaluation satisfies the FTA requirement to monitor transit service standards for public transportation agencies operating 50 or more vehicles in peak service and located in an urbanized area of 200,000 or more in population.

Defining Low-Income and Minority Populations

This review uses FTA definitions related to Title VI-protected populations and geographic areas. The FTA guidelines state recipients should evaluate services by comparing the service on predominantly minority/low-income routes with predominantly non-minority/non-low-income routes. The terms “predominantly minority” and “predominantly low-income” are further defined and described in this section.

Predominantly Minority Areas

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. For the purposes of this evaluation, non-minority persons are defined as those who self-identify as White and non-Hispanic. The remaining population is defined as minority.

A predominantly minority area is defined as one where the proportion of minority persons exceeds the proportion of minority persons in the overall service area. Based on data from the 2010 U.S. Decennial Census and 2012-2016 American Community Survey (ACS) Five-Year Estimates, the percentage of minority persons in the Metro Transit service area is 29.7 percent. Of the 36,735 census blocks inside the service area, 8,227 are identified as predominantly minority using this definition. Predominantly minority areas in the Metro Transit service area are shown in Figure 1.

Predominantly Low-Income Areas

While low-income populations are not an explicitly protected class under Title VI, the FTA recognizes the inherent overlap between Title VI and Environmental Justice principles. Subsequently, it requires transit providers to evaluate the impact of service and fare changes to low-income populations and to identify any disproportionate burden placed on those populations by the proposed changes. The FTA defines a low-income person as one whose household income is at or below the poverty guidelines set by the Department of Health and Human Services (DHHS). DHHS poverty guidelines are based on household size and the number of related children less than 18 years of age.

However, FTA Circular 4702.1B also allows for low-income populations to be defined using other established thresholds that are at least as inclusive as those developed by DHHS. Correspondingly, this analysis uses 2016 U.S. Census Bureau poverty thresholds, a more sophisticated measure of poverty that takes into account not only family size and the number of related children present, but also, for one- and two-person units, whether elderly or not. The U.S. Census Bureau's poverty thresholds are used for statistical purposes, while DHHS's poverty guidelines are used for administrative purposes.¹ The U.S. Census Bureau 2016 poverty thresholds by family size and presence of related children under 18 years is shown in Table 2.

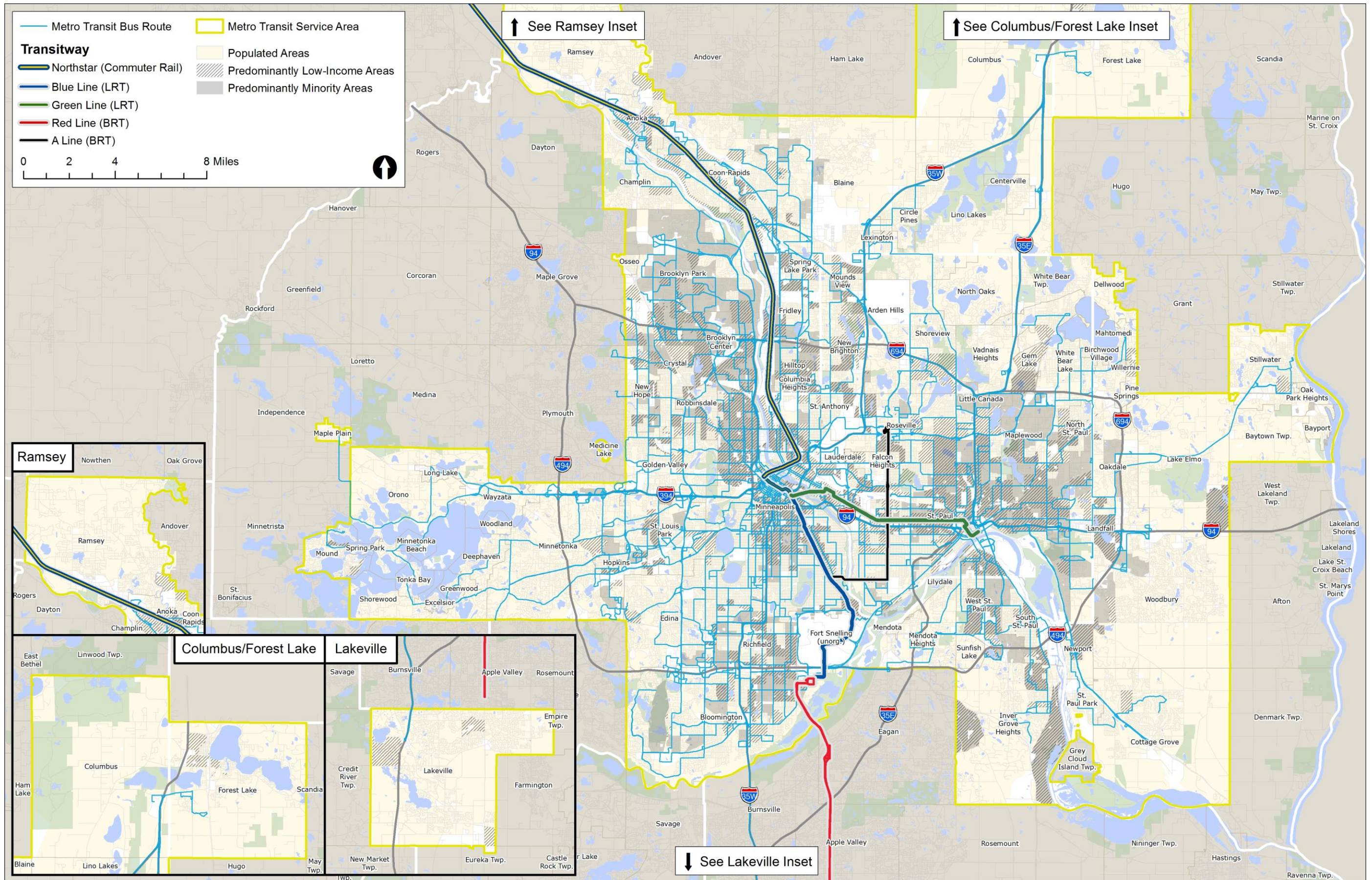
A predominantly low-income area is defined as one where the proportion of low-income persons exceeds the population of low-income persons in the overall service area. Based on data from the 2010 U.S. Decennial Census and 2012-2016 American Community Survey (ACS) Five-Year Estimates, the percentage of low-income persons in the Metro Transit service area is 12.4 percent. Of the 36,735 census blocks inside the service area, 7,367 are identified as predominantly low-income using this definition. Predominantly low-income blocks in the service area are shown in Figure 1.

¹ The distinctions between poverty thresholds and poverty guidelines are described further at <https://aspe.hhs.gov/frequently-asked-questions-related-poverty-guidelines-and-poverty#programs>; and <http://www.irp.wisc.edu/faqs/faq1.htm>.

Table 2. U.S. Census Bureau Poverty Thresholds (in Dollars), 2016

Size of family unit	Weighted average poverty thresholds	Related children under 18 years								
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual)	12,228									
Under 65 years	12,486	12,486								
65 years and over	11,511	11,511								
Two people	15,569									
Householder under 65 years	16,151	16,072	16,543							
Householder 65 years and over	14,522	14,507	16,480							
Three people	19,105	18,774	19,318	19,337						
Four people	24,563	24,755	25,160	24,339	24,424					
Five people	29,111	29,854	30,288	29,360	28,643	28,205				
Six people	32,928	34,337	34,473	33,763	33,082	32,070	31,470			
Seven people	37,458	39,509	39,756	38,905	38,313	37,208	35,920	34,507		
Eight people	41,781	44,188	44,578	43,776	43,072	42,075	40,809	39,491	39,156	
Nine people or more	49,721	53,155	53,413	52,702	52,106	51,127	49,779	48,561	48,259	46,400

Figure 1. Predominantly Minority and Low-Income Areas



Transit Market Areas

Several of the standards included in this review differ based on the Transit Market Area being evaluated. The Metropolitan Council’s 2040 TPP defines five unique Transit Market Areas based on a combination of population density, intersection density, employment density, and automobile availability. The index is calculated using the following formula:

$$\begin{aligned} \left[\begin{array}{l} \text{Transit} \\ \text{Market} \\ \text{Index} \end{array} \right] &= 0.64(\text{Population Density}) + 0.23(\text{Intersection Density}) \\ &+ 0.20(\text{Employment Density}) + 0.11(\text{Automobile Availability}) \end{aligned}$$

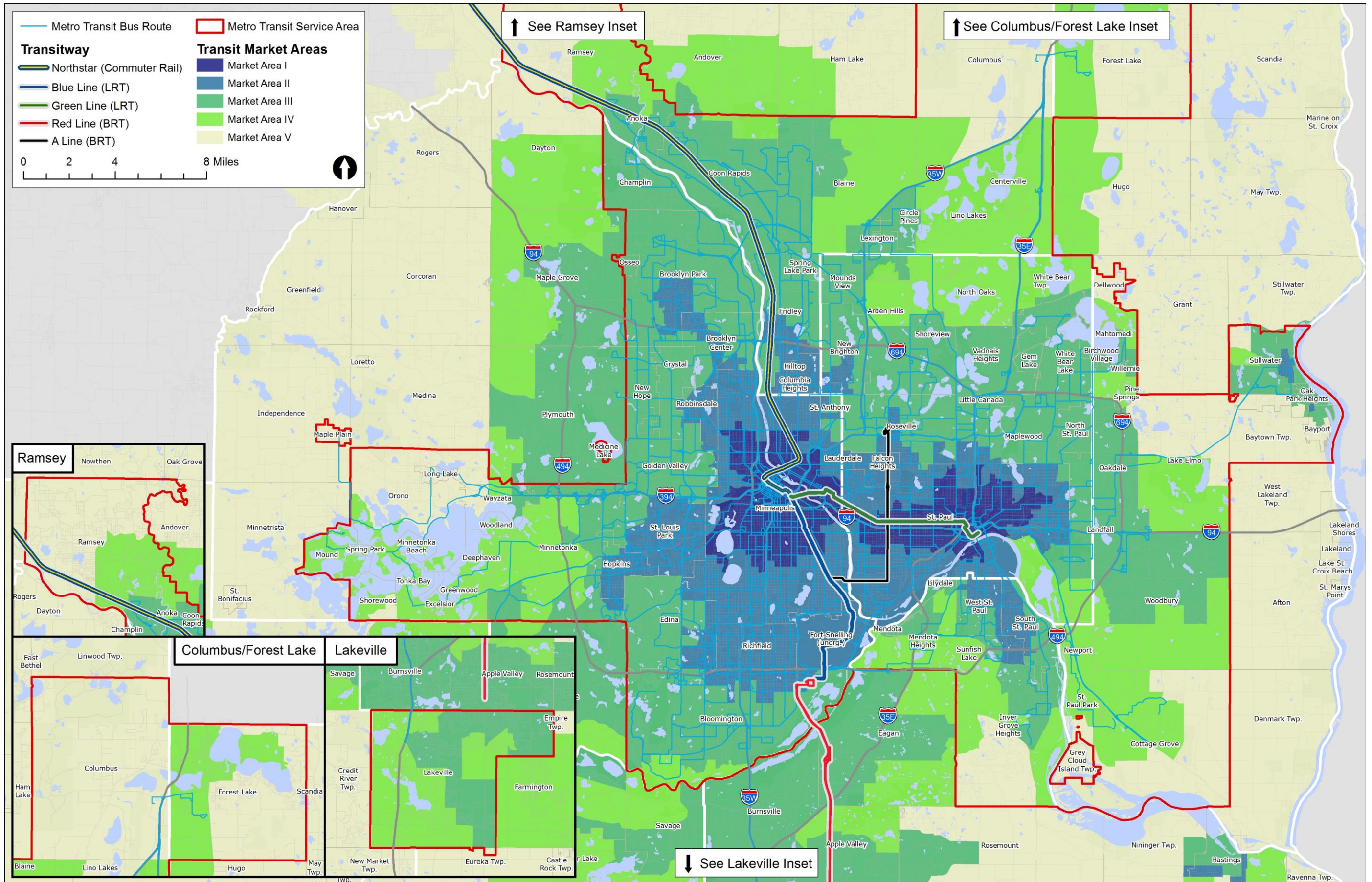
Transit Market Areas define the type of service best suited to an area. Market Area I has the highest concentration of people likely to use transit, and as such has the highest levels of transit service. Market Area V has the lowest concentration of people and jobs and thus can only support the lowest levels of transit service. The relationship between Transit Market Area classification and the Transit Market Index score is shown in Table 3. Two additional Transit Market Area categories include Emerging Market Overlay and Freestanding Town Center.

Table 3. Transit Market Area Characteristics

Transit Market Area	Transit Market Index
1	Above 256
2	Between 128 and 256
3	Between 64 and 128
4	Between 32 and 64
5	Less Than 32

Many of Metro Transit’s transit design standards are custom-tailored for each Transit Market Area. These standards represent typical design guidelines for transit service, though exceptions exist based on specific conditions. Transit Market Area-specific standards are identified in this review where applicable and illustrated in the included figures. The locations of Transit Market Areas throughout the region are shown in Figure 2.

Figure 2. Transit Market Areas



Disparate Impact, Disproportionate Burden, and the Four-Fifths Threshold

The FTA defines “disparate impacts” as facially neutral policies or practices that disproportionately affect members of a group identified by race, color, or national origin, and the recipient’s policy or practice lacks a substantial legitimate justification. If the results of this evaluation indicate a potential for disparate impacts, further investigation is required. Metro Transit has defined its disparate impact threshold using the “four-fifths rule.” The four-fifths rule states that there may be evidence of disparate impacts if:

- Benefits are being provided to minority populations at a rate less than 80 percent (four-fifths) of the benefits being provided to non-minority populations, or
- Adverse effects are being borne by non-minority populations at a rate less than 80 percent (four-fifths) of the adverse effects being borne by minority populations.

The four-fifths rule originates from employment law but is applied in this setting to compare the distribution of benefits and/or adverse impacts among various population groups. 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. Metro Transit’s decision to use the four-fifths rule was subject to a formal public outreach process before being adopted by the Metropolitan Council in 2013.

Metro Transit uses a similar approach when comparing the distribution of benefits and adverse impacts for low-income and non-low-income populations. However, when the distributions for low-income populations fall outside of the four-fifths threshold, this is referred to as a disproportionate burden rather than a disparate impact.

In this analysis, if the quantitative results indicate that service standard compliance in predominantly minority/low-income areas is less than 80 percent of the compliance rate for non-minority/non-low-income areas, this could be evidence of disparate impacts or disproportionate burdens. In these cases, additional analysis will be conducted, and potential mitigation measures will be identified if necessary.

Designation of Predominantly Minority/Low-Income Routes

For the purposes of this analysis, all routes were defined as either predominantly minority or predominantly non-minority and either predominantly low-income or predominantly non-low-income. The FTA Circular 4702.1B defines a minority transit route as “one in which at least one-third of the revenue miles are located in a census block, census block group, or traffic analysis zone where the percentage minority population exceeds the percentage minority population in the service area.” The same criteria apply to the definition of low-income routes. However, the FTA does allow some modification to this standard to account for routes that travel through areas which they do not make stops, such as commuter routes.

Local Routes and Express Routes Not Serving Park-and-Rides

This evaluation used a coverage-based approach for the designation of minority and low-income routes. The service area of each route was defined as a one-quarter mile buffer around each bus stop served by that route. Transitway routes (light rail, commuter rail, and BRT) followed a similar approach using a one-half mile buffer for rail and bus rapid transit stations. These buffers were then compared to the geographic locations of predominantly minority and predominantly low-income areas.

For each route, the total buffer area serving predominantly minority and low-income areas was calculated as a proportion of the route's total service area. This approach has the advantage of automatically excluding non-stop route segments, such as freeway sections of express routes. Routes with at least one-third of their service area in predominantly minority areas were designated as minority routes. Routes with at least one-third of their service area in predominantly low-income areas were designated as low-income routes.

The following steps were also taken to ensure that the service area of each route was accurately represented:

- The bus stop buffers were dissolved for each unique route and route pattern. This was done to avoid the double counting of intersecting buffers at closely spaced stops.
- Each buffer was weighted by the count of weekly trips to account for variations in service frequency for branches, shortlines, etc. This step ensures that high-frequency portions of routes have a higher impact on the demographic make-up of the routes than infrequently served areas.

Express Routes Serving Park-and-Rides

The areas immediately surrounding park-and-ride facilities are not necessarily representative of the demographics of the users of that facility. The designation of routes serving park-and-rides was partially based on the home locations of park-and-ride users at each park-and-ride. Home locations (aggregated to the nearest census block) from the *2016 Regional Park-and-ride System Report* were used to supplement the demographic makeup of each route. The calculation of the percent of each route serving predominantly minority or low-income populations was based on the following formula:

$$\left[\begin{array}{c} \text{Route} \\ \text{Minority} \\ \text{Proportion} \end{array} \right] = \frac{\left(\left[\begin{array}{c} \text{Local} \\ \text{Ridership} \end{array} \right] \times \left[\begin{array}{c} \% \text{ of Service} \\ \text{Area in} \\ \text{Predominantly} \\ \text{Minority Areas} \end{array} \right] \right) + \left(\left[\begin{array}{c} \text{Park} \\ \text{and Ride} \\ \text{Ridership} \end{array} \right] \times \left[\begin{array}{c} \% \text{ of Park and Ride} \\ \text{User Home Locations} \\ \text{in Predominantly} \\ \text{Minority Areas} \end{array} \right] \right)}{\text{Total Route Ridership}}$$

A similar formula was used for the identification of low-income routes. A listing of each Metro Transit route and its minority and low-income route designation status is provided in Appendix A.

Technical Analysis

The following sections describe the analysis and results for the evaluation of each of the service standards required by the FTA. Where possible, the minority and low-income route definitions noted previously are used to compare rates of compliance. Results are included for bus, light rail (METRO Blue Line and METRO Green Line), and commuter rail (Northstar) modes independently. The results for light rail and Northstar are shown primarily for informational purposes. Metro Transit has only one commuter rail route and both of the light rail lines are identified as both minority and low-income routes. It is therefore impossible to make comparisons between these route designations as it is with the bus system.

One additional mode provided by Metro Transit is bus rapid transit (BRT) service, including the Red Line Highway BRT and the A Line Arterial BRT. With the exception of the transit facility amenities analysis, BRT service has been incorporated into the analysis of the local and express bus service. However, characteristics were evaluated against the separate BRT service standards where applicable. For example, the minimum headway standards for BRT are different from the standards for regular bus service, but the overall rates of compliance for bus route headways included both BRT and regular route service. For the transit facility amenities analysis, the Red Line stations were included with the other transitway stations including light rail and commuter rail.

Comparison Index

The results of each analysis below are assessed by calculating a comparison index between the minority and non-minority results, and between the low-income and non-low-income results. In cases where the results measure an adverse impact (i.e., vehicle overloads), the comparison index is measured as the ratio between the non-minority/non-low-income results and the minority/low-income result. In cases where the results measure a positive impact (i.e., compliance with headway standards), the comparison index is measured as the ratio between the minority/low-income results and the non-minority/non-low-income results. In all cases, a comparison index less than 0.80 indicates the potential for disparate impact.

Vehicle Load

The Title VI Circular states the following in regard to vehicle load standards:

Vehicle load can be expressed as the ratio of passengers to the total number of seats on a vehicle. For example, on a 40-seat bus, a vehicle load of 1.3 means all seats are filled and there are approximately 12 standees. A vehicle load standard is generally expressed in terms of peak and off-peak times.

Analysis

Metro Transit's vehicle load standards are based on the route type, vehicle type, and peak/off-peak service. In general, peak maximum loads are higher than off-peak maximum loads to account for an acceptable number of standees during periods of high demand. Notable exceptions to this are maximum peak loads on light rail vehicles and on Commuter/Express service with more than four miles of travel on freeways. Metro Transit's maximum vehicle load standards are summarized in Table 4.

Table 4. Maximum Vehicle Load Standards

Route Type	Bus Type	Peak	Off-Peak
Core Local	Standard 40' Bus	48	38
	Articulated 60' Bus	71	57
Supporting Local	Standard 40' Bus	48	38
	Articulated 60' Bus	71	57
	30' Bus	35	28
	Cutaway	21	21
Arterial BRT	Arterial BRT 40' Bus	48	38
	Arterial BRT 60' Bus	71	57
Highway BRT	Standard 40' Bus	44	38
	Articulated 60' Bus	66	57
Commuter/Express (> 4 Miles on Freeway)	Standard 40' Bus	38	38
	Articulated 60' Bus	57	57
	Coach Bus	57	57
Commuter/Express (< 4 Miles on Expressway)	Standard 40' Bus	44	38
	Articulated 60' Bus	66	57
Suburban Local	Standard 40' Bus	48	38
	Articulated 60' Bus	71	57
	30' Bus	35	28
	Cutaway	21	21
Light Rail	Light Rail Vehicle (per car)	132	132

This evaluation of the bus system used data from Metro Transit/Metropolitan Council's automatic passenger counter (APC) system to examine vehicle loads. Weekday APC data was collected and evaluated for the Fall 2017 pick period. Loads on Saturday and Sunday were excluded from the analysis since ridership is generally lower than weekday ridership and weekend overloads are rare. Similar vehicle load data is not available for LRT or Northstar service. Periodic in-person spot checks of the LRT system are conducted by Metro Transit staff to assess ridership and vehicle load patterns. Vehicle load on Northstar vehicles is monitored by the conductors. No significant overload issues have been identified for either service during standard (non-event-related) service.

For each trip, the maximum passenger load was compared to the number of seats available on the bus type assigned to that trip. Overloaded trips were identified based on the maximum vehicle load standards summarized above. The number of total trips and overloaded trips were then aggregated by route and scheduled trip number. On average, 48 trips were observed for each unique trip during this period.

Occasional overloads are to be expected due to natural variations in transit demand and special events. Metro Transit considers overloads to be an issue needing to be addressed if they are "consistently overloaded." Individual route trips are considered to be consistently overloaded if they experience an overload on two or more days per week. Because a trip has an equal probability of being sampled on any weekday, this review considered a trip that was overloaded 40 percent or more of the time (two days per five-day week) to be consistently overloaded.

Two approaches were used to evaluate the vehicle load data:

- The first approach compared the overall percentage of overloaded trips on minority or low-income routes to the percentage of overloaded trips on non-minority or non-low-income routes.
- The second approach is similar to the first but used the percent of trips that are consistently overloaded as the comparison rather than the overall rate of overloaded trips.

Results

Out of the 357,301 observed trips included in the data, only 5,339 (1.5 percent) were found to be overloaded. Table 5 summarizes the percent of all observed trips with overloads by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes.

- Minority route trips experienced an overall overload rate of 1.37 percent. This is less than the average of 1.73 percent for non-minority routes, resulting in a comparison index of 1.27

- Low-income route trips also experienced an overall overload rate of 1.26 percent. This is less than the average of 2.18 percent for non-low-income routes, resulting in a comparison index of 1.73.

These results indicate that the proportion of overloaded trips is higher for non-minority and non-low-income routes than it is for minority and low-income routes.

Table 5. Percent of All Observed Trips with Overloads

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	1.37%	1.73%	1.27	1.26%	2.18%	1.73
Light Rail	No Data	n/a	-	No Data	n/a	-
Northstar Commuter Rail	n/a	No Data	-	n/a	No Data	-

Table 6 summarizes the percent of all observed trips that are consistently overloaded by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes.

- Minority bus trips experienced a consistently overloaded rate of 0.27 percent. This is less than the average of 0.45 percent for non-minority routes, resulting in a comparison index of 1.63.
- Low-income bus trips experienced a consistently overloaded rate of 0.28 percent. This is less than the average of 0.48 percent for non-low-income routes, resulting in a comparison index of 1.69.

Table 6. Percent of Trips Consistently Overloaded

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	0.27%	0.45%	1.63	0.28%	0.48%	1.69
Light Rail	No Data	n/a	-	No Data	n/a	-
Northstar Commuter Rail	n/a	No Data	-	n/a	No Data	-

The results of these analyses indicate that minority and low-income routes experience fewer consistently overloaded trips as well as fewer overloaded trips overall compared to non-minority and non-low-income routes.

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the vehicle load standard.

Vehicle Headway

The Title VI Circular states the following in regard to vehicle headway standards:

Vehicle headway is the amount of time between two vehicles traveling in the same direction on a given line or combination of lines. A shorter headway corresponds to more frequent service. Vehicle headways are measures in minutes; service frequency is measures in vehicles per hour. Headways and frequency of service are general indications of the level of service provided along a route. Vehicle headway is one component of the amount of travel time expended by a passenger to reach his/her destination. A vehicle headway standard is generally expressed for peak and off-peak service as an increment of time (e.g., peak: every 15 minutes; and off-peak: every 30 minutes).

Analysis

The regional headway standards are outlined in the 2040 TPP and the Metropolitan Council’s Regional Transitway Guidelines. Minimum headways are stated for peak and off-peak conditions for each of the five transit market areas. Metro Transit’s minimum headway standards are summarized in Table 7.

Table 7. Minimum Headway Standards

Route Type	Market Area I	Market Area II	Market Area III	Market Area IV	Market Area V
Core Local Bus	15" Peak 30" Off-peak 30" Weekend	30" Peak 60" Off-peak 60" Weekend	60" Peak 60" Off-peak 60" Weekend	n/a	n/a
Supporting Local Bus	30" Peak 30" Off-peak 30" Weekend			n/a	n/a
Suburban Local Bus	n/a			n/a	n/a
Arterial BRT	15" Peak			n/a	n/a
Highway BRT	15" Off-peak			n/a	n/a
Light Rail	15" Weekend			n/a	n/a
Commuter Express Bus	30" Peak		3 Trips each Peak Period		n/a
Commuter Rail	n/a		30" Peak		

For the purposes of this evaluation peak and off-peak headways were calculated using midday and p.m. peak period service levels. The 10:00 a.m. to 2:00 p.m. time period was used for midday service and the 3:00 to 6:30 p.m. time period was used for peak service.

Schedule information for the Fall 2017 was used as the baseline for this analysis. Using this data, the average peak and midday headways were calculated at each stop or station of each route. The headways at each stop and station were evaluated against the standards shown above to assess their compliance with the appropriate standard. This information was then

aggregated to the route level to calculate the percentage of stops or stations along a route that are in compliance with the headway standards.

This analysis evaluated the headways for each route independently of all other transit service per Metro Transit’s headway standards. A single stop or station may be used by multiple routes and have a combined headway that is much better than the headway of each individual route. The total number of unique combinations of route and stop/station will be greater than the total number of stops in the system

Results

Peak

Out of the 16,008 unique combinations of route and stop/station in the peak period, 11,015 (68.8 percent) meet the peak headway standards. Table 8 summarizes the percent of stops or stations meeting the headway standards for the peak period by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes.

- 68.0 percent of the stops and stations on minority routes are compliant with the peak headway standards. This is slightly lower than the compliance rate for non-minority routes at 70.0 percent. The resulting comparison index of 0.97 is within the four-fifths threshold.
- 68.4 percent of the stops and stations on low-income routes are compliant with the peak headway standards. This is slightly lower than the compliance rate for non-low-income routes at 69.3 percent. The resulting comparison index of 0.99 is within the four-fifths threshold.

Table 8. Percent of Stops or Stations Meeting Peak Headway Standards

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	68.0%	70.0%	0.97	68.4	69.3	0.99
Light Rail	100%	n/a	-	100%	n/a	-
Northstar Commuter Rail	n/a	100%	-	n/a	100%	-

Midday

Out of the 10,135 unique combinations of route and stop/station in the midday period, 9,589 (94.6 percent) meet the headway standards. Table 9 summarizes the percent of stops or stations meeting the headway standards for the midday period by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes.

- 93.9 percent of the stops and stations on minority routes are compliant with the midday headway standards. This is slightly lower than the compliance rate for non-minority routes at 96.2 percent. The resulting comparison index of 0.98 is within the four-fifths threshold.
- 96.0 percent of the stops and stations on low-income routes are compliant with the midday headway standards. This is higher than the compliance rate for non-low-income routes at 90.6 percent, resulting in a comparison index of 1.06.

Table 9. Percent of Stops or Stations Meeting Midday Headway Standards

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	93.9	96.2	0.98	96.0	90.6	1.06
Light Rail	100%	n/a	-	100%	n/a	-
Northstar Commuter Rail	n/a	100%	-	n/a	100%	-

The results of these analyses indicate that compliance with the peak and midday headway standards is largely similar between each of the route designations.

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the vehicle headway standard.

On-Time Performance

The Title VI Circular states the following in regard to on-time performance standards:

On-time performance is a measure of runs completed as scheduled. This criterion first must define what is considered to be “on time.” For example, a transit provider may consider it acceptable if a vehicle completes a scheduled run between zero and five minutes late in comparison to the established schedule.

Analysis

Metro Transit’s on-time performance goal for each service mode changes from pick to pick and year to year. This analysis compares the overall proportion of on-time trips between minority routes and non-minority routes and between low-income routes and non-low-income routes for the Fall 2017 pick. Each mode has a unique definition for what is considered “on-time.” The definitions are as follows:

- **Bus** service is considered on-time if it arrives at scheduled timepoints between 1 minute early and 5 minutes late.
- **Light Rail and Commuter Rail** service is considered on-time if it arrives at stations between 1 minute early and 4 minutes late.

The analysis of bus service used weekday on-time performance data collected using automated vehicle locator (AVL) equipment on Metro Transit and Metropolitan Council buses and commuter trains. Weekend on-time performance is not as frequently an issue due to lower traffic volumes and congestion. The percent of trips arriving on-time was calculated for each route individually for the Fall 2017 pick. The percent of on-time trips was then aggregated to each mode. The calculation for the percent of on-time trips for bus service was weighted by the number of daily trips available on each route to more accurately represent the on-time performance of the system. The analysis then compared the on-time performance results for minority and low-income route trips to the on-time performance results for non-minority and non-low-income route trips.

On-time performance data for LRT was evaluated using Supervisory Control and Data Acquisition (SCADA) data aggregated to a monthly summary for a similar time period.

Results

The total percentage of on-time trips by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes is summarized in Table 10. A summary of the on-time performance for each route is provided in Appendix B.

- Minority bus trips experienced an on-time performance rate of 84.8 percent compared to a rate of 84.7 percent for non-minority routes, resulting in a comparison index of 1.00.
- Low-income bus trips experienced an on-time performance rate of 84.9 percent compared to a rate of 84.6 percent for non-low-income routes, resulting in a comparison index of 1.00.

Table 10. Percent of Trips Arriving On-Time

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	84.8%	84.7%	1.00	84.9%	84.6%	1.00
Light Rail	80.6%	n/a	-	80.6%	n/a	-
Northstar Commuter Rail	n/a	88.5%	-	n/a	88.5%	-

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the on-time performance standard.

Service Availability

The Title VI Circular states the following in regard to service availability standards:

Service availability is a general measure of the distribution of routes within a transit provider's service area. For example, a transit provider might set a service standard to distribute routes such that a specified percentage of all residents in the service area are within a one-quarter mile walk of bus service or a one-half mile walk of rail service. A standard might also indicate the maximum distance between stops or stations.

Metro Transit evaluates the service availability standard based on three separate criteria: route spacing, midday service availability, and bus stop spacing.

Analysis: Route Spacing

Metro Transit's route spacing standards are outlined in the 2040 TPP. Standards are defined for core local bus, supporting local bus, and suburban local bus route types within Market Areas I and II. Route spacing in other Market Areas is designed to meet the specific demographics, geography, and transit needs of each area. Similarly, express routes and limited stop route that function like express routes on freeway segments are designed according to the availability and demand of specific highway corridors. The function and purpose of the routes evaluated under the route spacing criteria are as follows:

- **Core Local** routes are designed primarily to serve urban areas along dense corridors and comprise the basic framework of the all-day bus network.
- **Supporting Local** routes serve urban areas on crosstown corridors that typically do not connect to a major regional center and are designed to complete the grid of urban bus routes and facilitate connections to core local routes and transitways.
- **Suburban Local** routes typically operate in Market Areas II and III in a suburban context and are often less productive than Core Local routes. Their role is to provide a basic level of transit coverage throughout the region.

The 2040 TPP route spacing standards are summarized in Table 11.

Table 11. Maximum Route Spacing Standards

Route Type	Market Area I	Market Area II
Core Local	0.5 miles	1 mile
Supporting Local	1 mile	1-2 miles
Suburban Local	n/a	2 miles

Individual analyses were conducted for Core Local routes in Market Area I, Supporting Local routes in Market Area I, and all local routes in Market Area II. Because service in Market Area II is provided with a mix of Core Local, Supporting Local, and Suburban Local routes, a universal standard of 1 mile spacing was used as a consistent measure for service availability, independent of route type designations. A higher level of scrutiny was applied in this review than is specified in the TPP standards.

Using GIS, buffers were created around each route based on the route type and the Market Area being analyzed. For example, a half-mile buffer (half of the 1 mile spacing standard) was created around core local routes in Market Area I. Areas that do not fall within this buffer area would not meet the maximum spacing standard for core local routes in Market Area I. For each analysis, the buffer coverage area was overlaid against census blocks in order to compare the proportion of predominantly minority areas meeting the route spacing standard to the proportion of non-minority areas meeting the standard. This same process was used to compare the proportion of predominantly low-income areas meeting the standard to the proportion of non-low-income areas meeting the standard.

Results: Route Spacing

The results of these analyses are shown in Table 12. The location of predominantly minority and low-income areas as they relate to the route coverage areas under each analysis are shown in Figure 3, Figure 4, and Figure 5.

Core Local (Market Area I)

Core Local route coverage in Market Area I is very high. Approximately 95 percent of all populated areas in Market Area I meet the Core Local route spacing standards.

- 95.5 percent of the predominantly minority areas in Market Area I meet the Core Local route spacing standard. This is higher than the proportion of non-minority areas meeting the standard at 94.8 percent, resulting in a comparison index of 1.01
- 95.2 percent of the predominantly low-income areas in Market Area I meet the Core Local route spacing standard. This is slightly lower than the proportion of non-low-income areas meeting the standard at 95.5 percent, but the resulting comparison index of 1.00 is within the four-fifths threshold.

Supporting Local (Market Area I)

The coverage of Supporting Local routes in Market Area I is substantially lower than the coverage for the other route categories. This is primarily due to the limited Supporting Local service in portions of Saint Paul east of downtown and south of the Mississippi River. While these areas are heavily covered by core local service, the configuration of the street network and a number of natural barriers make the implementation of supporting local difficult.

Metro Transit is aware of these supporting local service gaps and makes efforts to restructure service to provide adequate transit service when feasible.

- 70.3 percent of the predominantly minority areas in Market Area I meet the Supporting Local route spacing standard. This is higher than the proportion of non-minority areas meeting the standard at 61.4 percent, resulting in a comparison index of 1.15.
- 66.8 percent of the predominantly low-income areas in Market Area I meet the Supporting Local route spacing standard. This is slightly lower than the proportion of non-low-income areas meeting the standard at 67.9 percent, but the resulting comparison index of 0.98 is within the four-fifths threshold.

All Local Routes (Market Area II)

Local route service in Market Area II is nearly universal. Approximately 98 percent of all populated areas in this Market Area II meet or exceed the local route spacing standards.

- 98.2 percent of the predominantly minority areas in Market Area I meet or exceed the local route spacing standard. This is higher than the proportion of non-minority areas meeting the standard at 97.6 percent.
- 99.6 percent of the predominantly low-income areas in Market Area I meet or exceed the local route spacing standard. This is higher than the proportion of non-low-income areas meeting the standard at 97.0 percent.

Table 12. Percent of Areas Meeting Route Spacing Standards

Route Type	Pred. Minority Areas	Pred. Non-Minority Areas	Comparison Index	Pred. Low-Income Areas	Pred. Non-Low-Income Areas	Comparison Index
Core Local (MA I)	95.5%	94.8%	1.01	95.2%	95.5%	1.00
Supporting Local (MA I)	70.3%	61.4%	1.15	66.8%	67.9%	0.98
Suburban Local (MA II)	98.2%	97.6%	1.01	99.6%	97.0%	1.03

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the service availability (route spacing) standard.

Figure 3. Core Local Spacing (Market Area I)

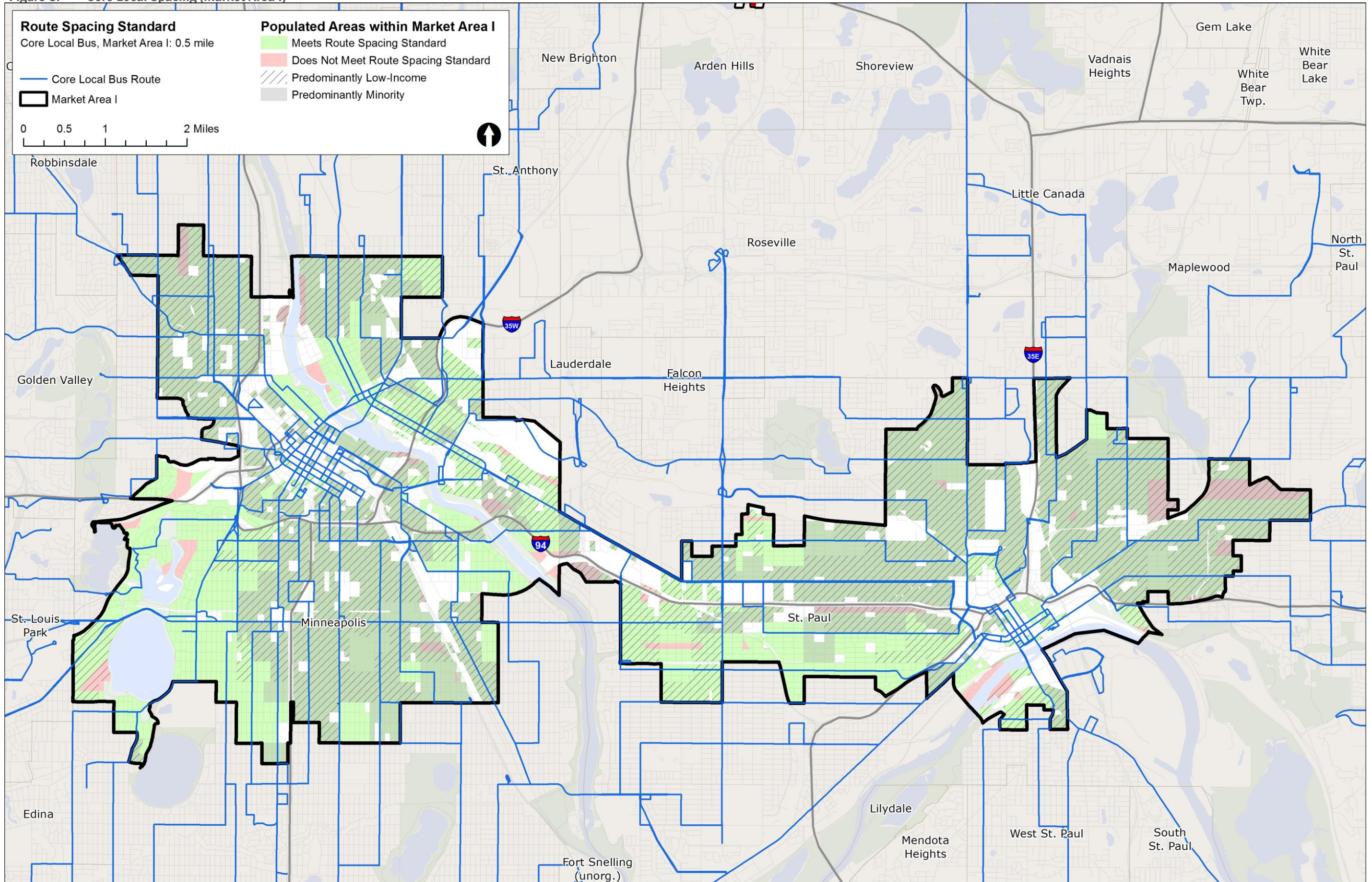


Figure 4. Supporting Local Spacing (Market Area I)

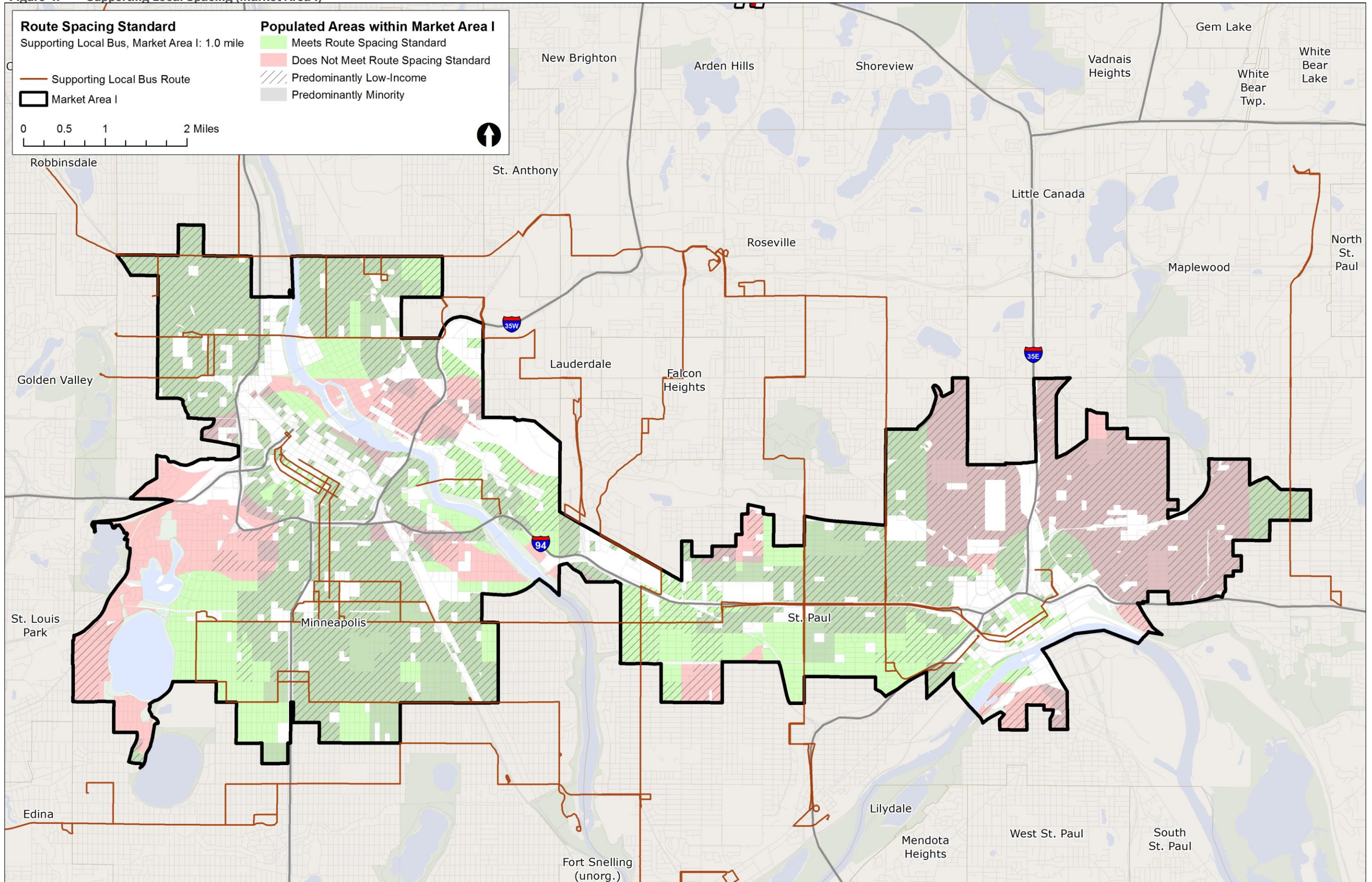
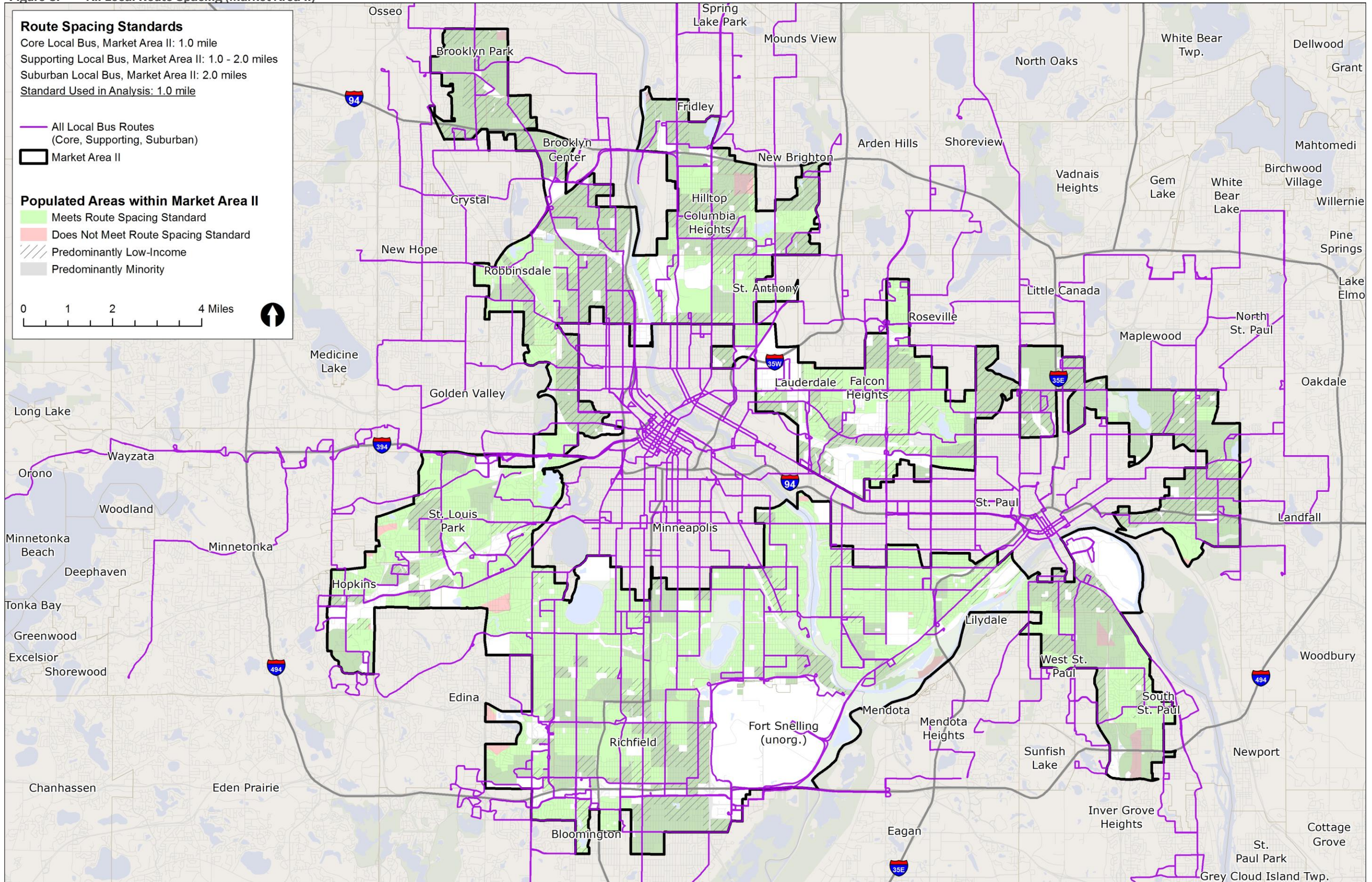


Figure 5. All Local Route Spacing (Market Area II)



Analysis: Midday Service Availability

Service availability was evaluated based on the presence of transit service meeting the required headway during the midday off-peak period. The Route Type and Transit Market Area-specific headway standards identified in the 2040 TPP are as follows:

Table 13. Minimum Off-Peak Headway Standards

Route Type	Market Area I	Market Area II	Market Area III	Market Area IV	Market Area V
Core Local Bus	30"	60"	60"	n/a	
Supporting Local Bus	30"				
Suburban Local Bus	n/a				
Arterial BRT	15"				
Highway BRT					
Light Rail					
Commuter Express Bus	n/a				
Commuter Rail	n/a				

Schedule information for the Fall 2017 was used as the baseline for this analysis. The hours between 11:00 a.m. and 2:00 p.m. on weekdays were assumed for midday service. Using this data, the average combined midday headway was calculated for each stop and station within Market Areas I, II, and III. A quarter-mile buffer was created around all bus stops meeting the combined headway standard. For BRT and LRT stations meeting the standard a half-mile buffer was used.

The service coverage area was overlaid against census blocks located both within Market Areas I, II, and III and within Metro Transit's service area in order to compare the proportion of predominantly minority areas meeting the midday service availability standard to the proportion of non-minority areas meeting the standard. This same process was used to compare the proportion of predominantly low-income areas meeting the standard to the proportion of non-low-income areas meeting the standard.

Results: Midday Service Availability

The results of this analysis are shown in Table 14. The location of predominantly minority and low-income areas as they relate to the midday service availability coverage area are shown in Figure 6.

- 63.2 percent of the predominantly minority areas in Market Areas I, II, and III meet the midday service availability standard. This is significantly higher than the proportion of non-minority areas meeting the standard at 36.5 percent.
- 71.6 percent of the predominantly low-income areas in Market Areas I, II, and III meet the midday service availability standard. This is significantly higher than the proportion of non-low-income areas meeting the standard at 35.4 percent.

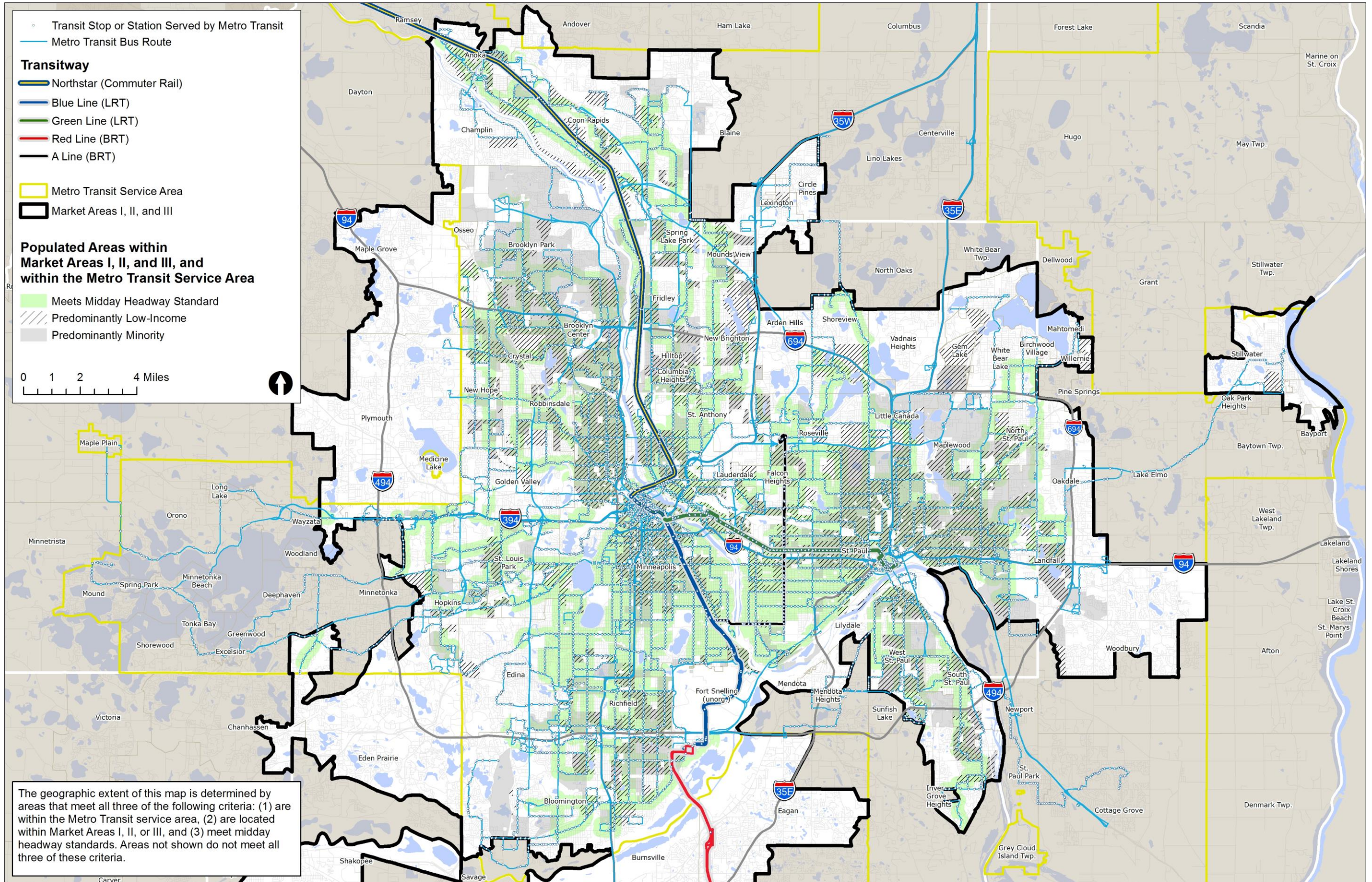
Table 14. Percent of Areas Meeting Midday Service Availability Standards

Area	Pred. Minority Areas	Pred. Non-Minority Areas	Comparison Index	Pred. Low-Income Areas	Pred. Non-Low-Income Areas	Comparison Index
Market Area I	96.6%	87.2%	1.11	95.3%	88.0%	1.08
Market Area II	78.4%	78.3%	1.00	85.1%	74.9%	1.14
Market Area III	38.3%	23.1%	1.66	48.6%	21.7%	1.14
Market Areas I-III Combined	63.2%	36.5%	1.73	71.6%	35.4%	2.02

Midday service availability is substantially higher for predominantly minority and low-income areas. This result is heavily influenced by the much higher non-minority and non-low-income populations in Market Area III, relative to Market Areas I and II. Market Area III's relative lack of coverage is reflected in the low total results for percent of non-minority and non-low-income areas meeting midday service availability standards.

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the service availability (midday service availability) standard.

Figure 6. Midday Service Availability (Market Areas I, II, III)



Analysis: Bus Stop and Station Spacing

Metro Transit’s bus stop spacing guidelines are provided in the 2040 TPP. The text notes that, “Stop spacing guidelines must balance between providing greater access to service with faster travel speed.” The recommended stop and station spacing is as follows:

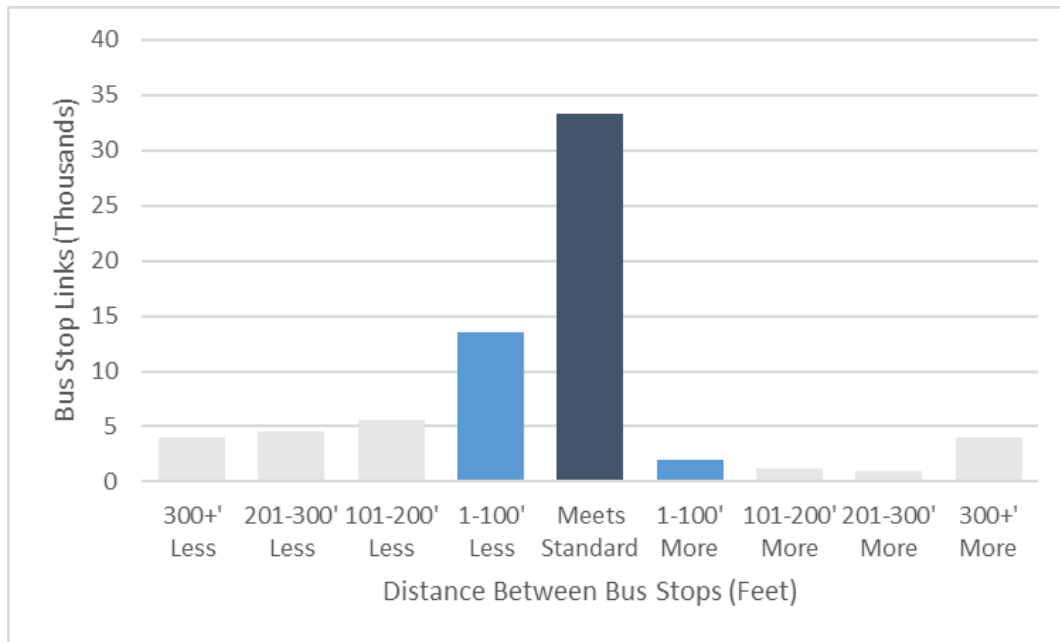
Table 15. Stop/Station Spacing Guidelines

Route Type	Typical Spacing
Core Local Bus	1/8 to 1/4 mile
Supporting Local Bus	1/8 to 1/4 mile
Suburban Local Bus	1/8 to 1/4 mile
Arterial BRT	1/4 to 1/2 mile
Highway BRT	1/2 to 2 miles
Light Rail	1/2 to 1 mile
Commuter Express Bus	Market Specific
Commuter Rail	5 to 7 miles

The standard of 1/8 to 1/4 miles between stops was used as the basis for this review for all local bus service, including local portions of limited stop and express routes. This represents a distance of 660 to 1,320 feet between bus stops. To account for cases where street networks or other geographic features do not allow for stop spacing precisely within the 2040 TPP-defined range, this review expanded the allowable range by considering stop spacing within 100 feet of the prescribed range acceptable (560 to 1,420 feet between stops). This approach also accounts for slight variations due to alternating near-side and far-side bus stop locations. To avoid the inclusion of non-stop portions of limited-stop or express routes, bus stop links greater than 0.5 miles were excluded from the analysis. A bus stop link is defined as the path along the roadway network between adjacent bus stops.

Figure 7 below displays the frequency of bus stop spacing for all bus stop links. The dark blue column represents the count of stop links meeting the bus stop spacing standard as outlined in the TPP. The light blue columns on either side represent stops links falling within 100 feet of the TPP standard. These light blue areas were assumed to meet the standard for the purpose of this analysis. In total, 71 percent of Metro Transit’s bus stop link distances fall within 100 feet of the TPP standard.

Figure 7. Bus Stop Spacing Frequency



For the evaluation of each mode, the percentage of stop links meeting the standards outlines above was compared between minority and low-income routes to the percentage of stop links meeting the standards on non-minority and non-low-income routes. Bus rapid transit stop links were incorporated into the final results for all bus service but were evaluated based on their individual spacing standard.

Results: Bus Stop and Station Spacing

The results of the analysis are shown in Table 16. A total of 71 percent of the bus stop links comply with the spacing standard for this evaluation.

- 70.5 percent of the bus stops on minority routes are compliant with the bus stop spacing standard compared with 63.0 percent of bus stops on non-minority routes.
- 70.9 percent of the bus stops on low-income routes are compliant with the bus stop spacing standard compared with 60.8 percent of bus stops on non-low-income routes.

Table 16. Percent of Stop and Station Links Meeting Spacing Standards

Mode	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison Index
Bus	70.5%	63.0%	1.12	70.9%	60.8%	1.17
Light Rail	92.3%	n/a	-	92.3%	n/a	-
Northstar Commuter Rail	n/a	66.7%	-	n/a	66.7%	-

All of the stations on the Green Line light rail corridor comply with the minimum station spacing standard. Two of the station links on the Blue Line light rail corridor are below the minimum spacing standard. These links are between the 28th Avenue and Bloomington Central stations and between the Bloomington Central and American Boulevard/34th Avenue stations.

Only two-thirds of the station links on the Northstar commuter rail comply with the minimum station spacing standard. The placement of the Anoka station causes this issue as it is located only 1.9 miles from the Coon Rapids Riverdale station and 4.1 miles from the Ramsey station.

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the service availability (bus stop spacing) standard.

Transit Amenities

The Title VI Circular states the following in regard to distribution of transit amenity standards:

Transit amenities refer to items of comfort, convenience, and safety that are available to the general riding public. Fixed route transit providers must set a policy to ensure equitable distribution of transit amenities across the system.

Metro Transit's transit amenity evaluation includes a review of bus shelters, customer information, and the distribution of amenities in facilities such as park-and-rides, transit centers, and transitway stations. This evaluation reviews the status of regional transit amenities that were in place as of the Fall 2017 pick.

For this analysis, transit amenities placed at fixed-route bus stops are evaluated separately from those amenities placed at transit centers, LRT stations, and park-and-rides. However, it is important to note the significant rider crossover between the various modes and facilities. In particular, many riders use both the local bus system in addition to the LRT system. The benefits that these riders received from LRT station amenities will not be reflected in the assessment of benefits at local bus stops.

In late 2014, Metro Transit reinforced its commitment to providing equitable distribution of transit amenities by launching the Better Bus Stops program, partially funded by a federal Ladders of Opportunities grant. This program has invested in bus stop improvements focused in areas of concentrated poverty where more than half the residents identify as people of color.

As part of the Better Bus Stops Program, in January 2018, Metro Transit updated the bus stop shelter placement guidelines, including guidelines for placement of lights and heat. These guidelines are summarized in Table 17 and will be reflected in the Council's next Title VI Plan in 2020.

Table 17. Shelter Placement Guidelines

Shelter Improvement	Criteria
Consider adding a shelter (highest priority)	100+ daily boardings and priority location
Consider adding a shelter (high priority)	100+ daily boardings
Consider adding a shelter (medium priority)	30+ daily boardings and priority location
Consider adding a shelter (lower priority)	30+ daily boardings
Replace shelter	At least 15 daily boardings
Remove shelter	Fewer than 15 daily boardings
Consider adding light to shelter	Not a standard shelter feature. Prioritized based on boardings from sunset to sunrise, personal security concerns, and site factors.
Consider adding heat to shelter	Not a standard shelter feature. Considered where there are 100+ daily boardings.

Priority locations include areas where more households do not have cars, near hospitals, healthcare clinics, social service providers, housing for people with disabilities or older adults, and major transit transfer points.

Analysis: Bus Shelter Distribution

This analysis compares the rates of bus shelter distribution at warranted and unwarranted shelter placements. For the purpose of this analysis, bus shelters were considered warranted if placed at stops with 30 daily boardings or more.

This analysis was conducted at the bus stop level, designating each stop as either minority or non-minority and either low-income or non-low-income based on the classification of routes serving each stop. If more than half of the trips serving a bus stop were from minority bus routes, the stop was considered a minority bus stop. Likewise, if more than half of the trips serving a bus stop were from low-income bus routes, the stop was considered a low-income bus stop.

Information on the number of average daily boardings at each bus stop was reviewed to identify stops meeting the ridership thresholds for shelter placement. This was then compared to the current database of existing bus shelter locations. The rates of shelter distribution were evaluated using two approaches:

- The first approach compared the distribution rates of warranted shelters (those with ridership above the appropriate thresholds) at minority and low-income bus stops to the distribution rates at non-minority and non-low-income bus stops.
- The second approach repeated these comparisons for the distribution of unwarranted shelters (those with ridership below the appropriate thresholds).

A similar approach was used to compare the distribution rates of warranted and unwarranted shelter heaters. For this analysis, stops with daily boardings of 100 or more were considered warranted for heater placement. However, it is understood that the placement of shelter heaters is not a standard feature and will depend on other factors such as site suitability and the availability of an electrical connection.

Since the placement of shelter lights is largely dependent on individual site characteristics, this review assessed the overall distribution rate of lights at stops with shelters. In this analysis lighting means a light in the shelter itself and does not take streetlights or other ambient lighting into consideration.

Results: Bus Shelter Distribution

The results of these analyses are shown in Table 18. The locations of warranted and unwarranted shelters are shown in Figure 8. The locations of warranted and unwarranted heaters and lighting are shown in Figure 9. Out of the 11,479 bus stops identified in this evaluation as having boarding or alighting activity, 1,306 (11.4 percent) meet the ridership warrant for a shelter and 290 (2.5 percent) meet the ridership warrant for heat.

- The placement rate of shelters at minority stops meeting the warrant is 54.3 percent. This is higher than the placement rate of shelters at non-minority stops meeting the shelter warrant at 50.0 percent.
- The placement rate of shelters at low-income stops meeting the warrant is 55.1 percent. This is higher than the placement rate of shelters at non-low-income stops meeting the shelter warrant at 43.4 percent.
- The placement rate of shelters at minority stops not meeting the warrant is 3.4 percent. This is higher than the placement rate of shelters at non-minority stops not meeting the warrant at 1.6 percent.
- The placement rate of shelters at low-income stops not meeting the warrant is 3.6 percent. This is higher than the placement rate of shelters at non-low-income stops not meeting the warrant at 1.3 percent.

Heaters

- The placement rate of heaters at minority stops meeting the warrant is 18.1 percent. This is lower than the placement rate of heaters at non-minority stops meeting the warrant at 54.7 percent and **the resulting comparison index of 0.33 is not within the four-fifths threshold.**
- The placement rate of heaters at low-income stops meeting the warrant is 22.1 percent. This is lower than the placement rate of heaters at non-low-income stops meeting the warrant at 54.0 percent and **the resulting comparison index of 0.41 is not within the four-fifths threshold.**

- The placement rate of heaters at minority stops not meeting the warrant is 2.9 percent. This is lower than the placement rate of shelters at non-minority stops not meeting the warrant at 15.6 percent and **the resulting comparison index of 0.18 is not within the four-fifths threshold.**
- The placement rate of heaters at low-income stops not meeting the warrant is 6.2 percent. This is higher than the placement rate of heaters at non-low-income stops not meeting the warrant at 3.0 percent.

Lighting

- The overall placement rate of lighting at minority stops with shelters is 41.2 percent. This is lower than the placement rate of lighting at non-minority stops with shelters at 51.1 percent, but the resulting comparison index of 0.81 is within the four-fifths threshold.
- The overall placement rate of lighting at low-income stops with shelters is 44.2 percent. This is higher than the placement rate of lighting at non-low-income stops with shelters at 12.5 percent.

Table 18. Bus Shelter and Shelter Amenity Placement Rates

Bus Stop Amenity	Minority Stops	Non-Minority Stops	Comparison Index	Low-Income Stops	Non-Low-Income Stops	Comparison Index
Shelters (At Warranted Stops)	54.3%	50.6%	1.07	55.1%	44.4%	1.24
Shelters (At Unwarranted Stops)	3.4%	1.5%	2.26	3.6%	1.2%	3.01
Heaters (At Warranted Stops)	18.1%	54.7%	0.33	22.1%	54.0%	0.41
Heaters (At Unwarranted Stops)	2.9%	15.6%	0.18	6.2%	3.0%	2.07
Lights (At Stops with Shelters)	41.4%	51.1%	0.81	44.3%	40.0%	1.11

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the distribution of shelters or lights. However, potential disparate impacts and disproportionate burdens are identified for the distribution of heaters. Additional analysis of this result is discussed below.

Figure 8. Bus Shelter Distribution

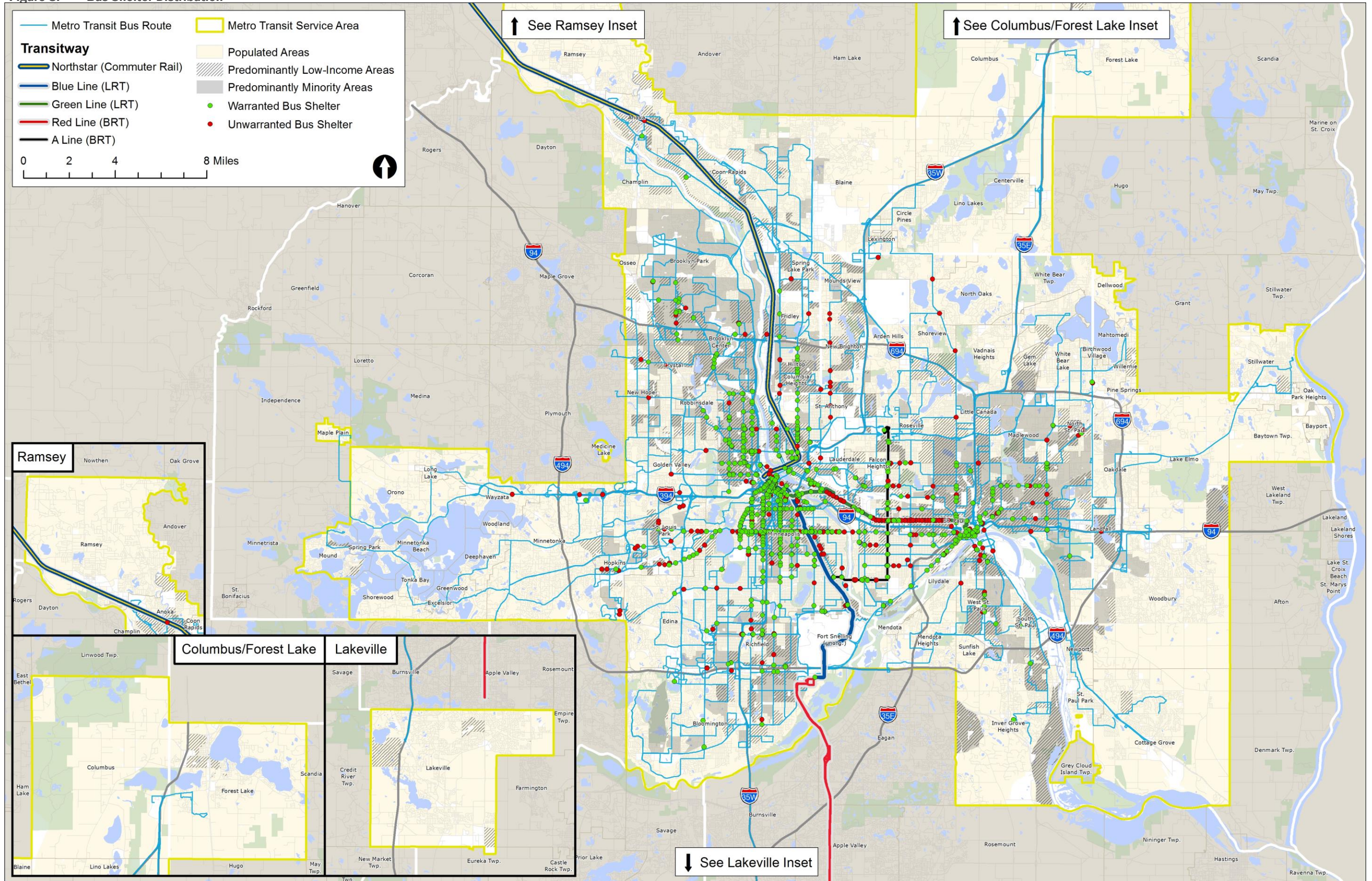
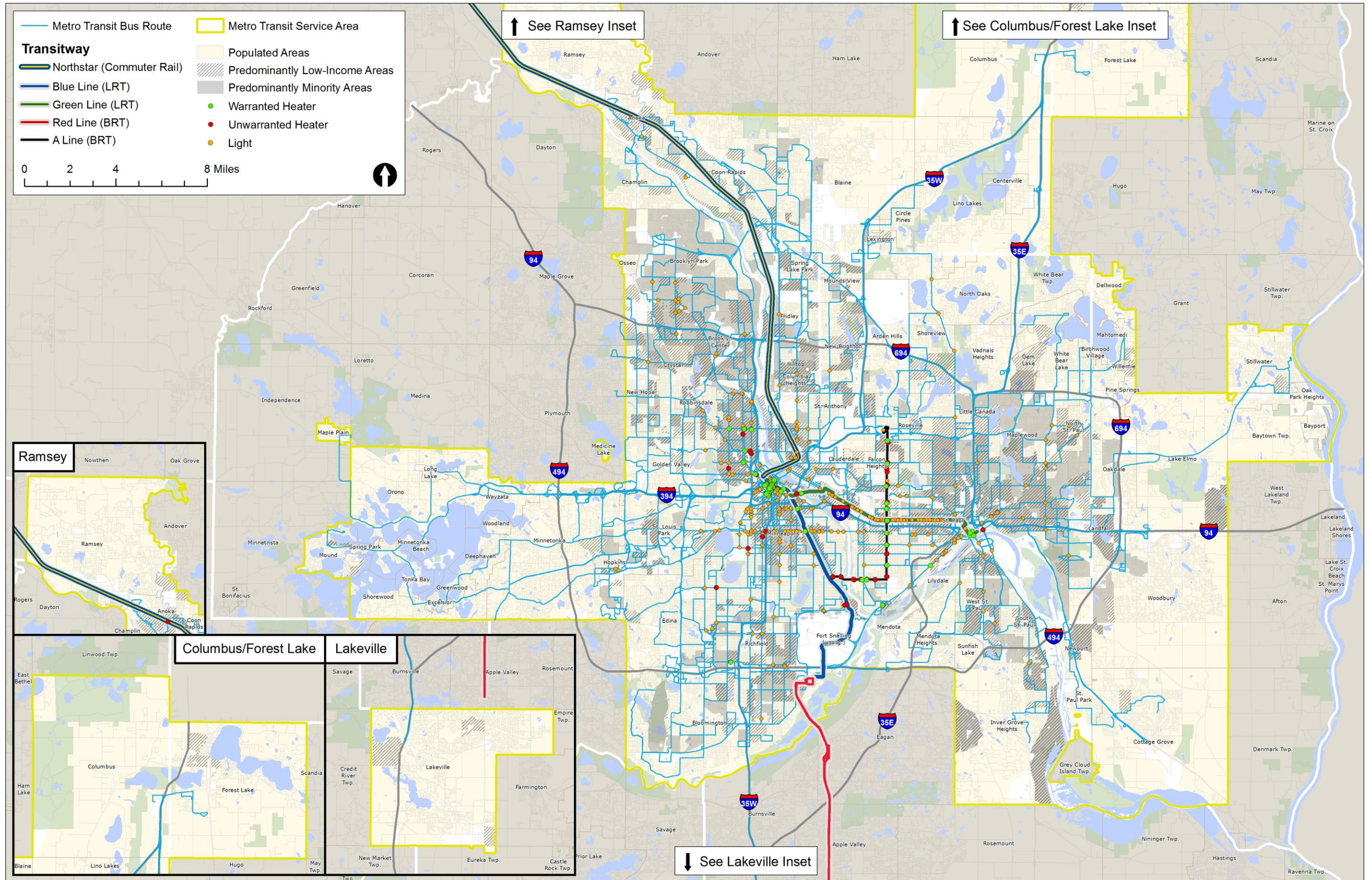


Figure 9. Bus Shelter Heater and Light Distribution



Additional Analysis of Heater Distribution

A further review of the distribution of shelters across Metro Transit’s system helps to highlight the causes of the results shown above. Table 19 below summarizes the heater distribution results, but also includes a breakdown according to the following categories:

- Bus stops on the downtown Minneapolis express route corridor on Marquette and 2nd Avenues (MARQ2)
- Bus stops served by BRT routes
- All other bus stops

The MARQ2 and BRT routes represent a significant investment in transit infrastructure for the region. Bus stops in each of these categories are held to a higher standard of transit service and transit amenities, including the implementation of shelters with heaters. Out of the 119 heaters distributed across the system, the bus stops along MARQ2 and the BRT routes account for 68 heaters (57 percent).

Table 19. Heater Distribution of Bus Stop Category

Bus Stop Category	Minority Stops	Non-Minority Stops	Comparison Index	Low-Income Stops	Non-Low-Income Stops	Comparison Index
Heaters (At Warranted Stops)	18.1%	54.7%	0.33	22.1%	54.0%	0.41
MARQ2 Stops	100%	92.0%	1.09	100%	92.9%	1.08
BRT Stops	n/a	100%	-	100%	n/a	-
All Other Stops	14.6%	8.6%	1.70	14.6%	4.5%	3.21
Heaters (At Unwarranted Stops)	2.9%	15.6%	0.18	6.2%	3.0%	2.07
MARQ2 Stops	n/a	n/a	-	n/a	n/a	-
BRT Stops	n/a	100%	-	100%	n/a	-
All Other Stops	2.9%	2.3%	1.27	2.7%	3.0%	0.90

When assessed independently, each of these categories results in comparison indices that meet the four-fifths threshold. However, in combination, the resulting comparison indices are substantially lower. This change in the result is partially due to the nature of the Title VI Circular requirements which require routes to be categorized entirely as either minority or non-minority, and as either low-income, or non-low-income. For example, despite the fact that they serve a variety of demographic areas, all of the BRT service stops are categorized as predominantly non-minority. This has a substantial impact on the final results. Current BRT service consists of two routes, the Red Line Highway BRT and the A Line Arterial BRT. C Line Arterial BRT is currently under construction and will open in 2019; three additional Arterial BRT corridors are currently being planned for implementation throughout the

system (the B, D, and E Lines). Nearly all these planned routes would be implemented in areas that are predominantly minority or predominantly low-income. It is anticipated that the implementation of these lines will help to address the findings of potential disparate impact and disproportionate burden noted in this assessment. Metro Transit will continue to monitor the impact of these additional routes and will also continue to monitor the implementation of heaters to ensure Title VI compliance.

Additionally, the MARQ2 corridor improvements completed in 2009 consolidated and improved service for many express bus routes entering and departing downtown Minneapolis. Because express routes are typically characterized as serving predominantly non-minority and non-low-income areas, nearly all the MARQ2 bus stops are categorized as such, contributing to the higher rates of distribution overall for heaters at non-minority and non-low-income bus stops. The MARQ2 corridor improvements were part of a major federal and state Urban Partnership Agreement including a series of transportation projects to improvement traffic conditions and reduce congestion on I-35W, Highway 77/Cedar Avenue, and downtown Minneapolis. The project has seen benefits in terms of service speed and quality and has also improved the reliability of service to connecting routes throughout the rest of the system.

Finally, the Nicollet Mall shelters, all of which include heat and light, were opened in early 2018. These stops are categorized as predominantly minority and predominantly low-income and will be included in the next Monitoring Study analysis.

Analysis: Customer Information

Metro Transit provides service information to its customers through a variety of means. The *2014 Guidelines for Transit Information at Bus Stops* outlines the type of customer information that should be provided at various tiers of bus stop type. These five tiers include low-boarding stops, medium/high boarding stops, stops with shelters, transitway stations and transit centers. The types of information media recommended for each tier is summarized in Table 20.

Metro Transit also provides customer information through the following channels:

- The Transit Information Center (TIC) fields over 1 million calls per year from transit customers.
- An automated interactive voice response (IVR) system is also available to provide scheduled and real-time transit information.
- Go-To Card customers can also receive information on the account's stored value amount and add funds to their card through the phone system.
- An online trip planner which is interfaced with real-time scheduling information allows customers to plan their trips using personal computers or online mobile devices. The system currently receives over 6.4 million trip queries per year.
- Pocket Schedule Distribution outlets are located throughout the region

Table 20. Bus Stop Transit Information Guidelines

Information Type	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
	Low-Boarding, Stand-Alone Bus Stops (<10 daily boardings)	Medium/High Boarding, Stand-Alone Bus Stops (≥ 10 daily boardings)	Bus Stops with Customer Waiting Shelters	Transitway Stations (BRT and LRT)	Transit Centers
Bus Stop Sign	✓	✓	✓	✓	✓
Route Numbers	✓	✓	✓	✓	✓
NexTrip Instructions	✓	✓	✓	✓	✓
Route Descriptions		✓	✓	✓	✓
Route Maps		✓	✓	✓	✓
Timetables		*	✓	✓	✓
Real-time Sign			**	✓	✓
Local Area Map				✓	
Fare poster					✓
System Map					✓

* Timetables will be considered at bus stops that meet the shelter placement boarding warrants but where a shelter is not installed due to space constraints or other limitations.

** Real-time signs will be considered at customer waiting shelters. The criteria for placement of real-time signs are still under development, but may include boardings, on-time performance, number of routes serving the shelter, Title VI considerations, and proximity to regional attractions.

Results: Customer Information

The locations of system maps, timetable displays, and pocket schedule distribution outlets are shown in Figure 10. The locations of bus stop information by tier as noted in Table 20 is shown in Figure 11. As of the publication of this report, Metro Transit has confirmed that customer information consistent with the above guidance has been fully implemented for all five tiers. This full implementation rate at all locations will result in comparison indices of 1.0 for both minority and low-income populations. **Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified under the customer information standard.**

Figure 10. Customer Information

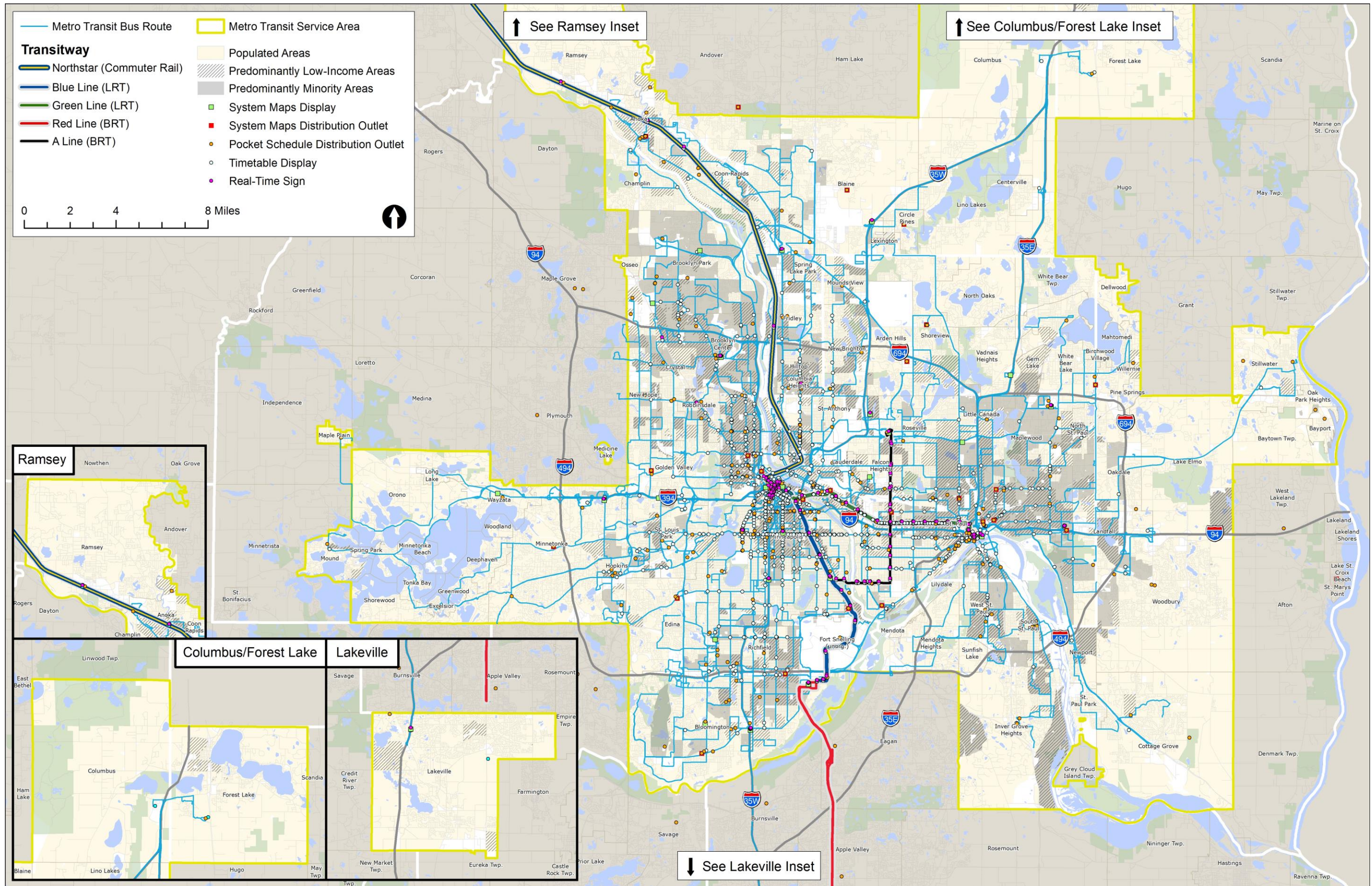
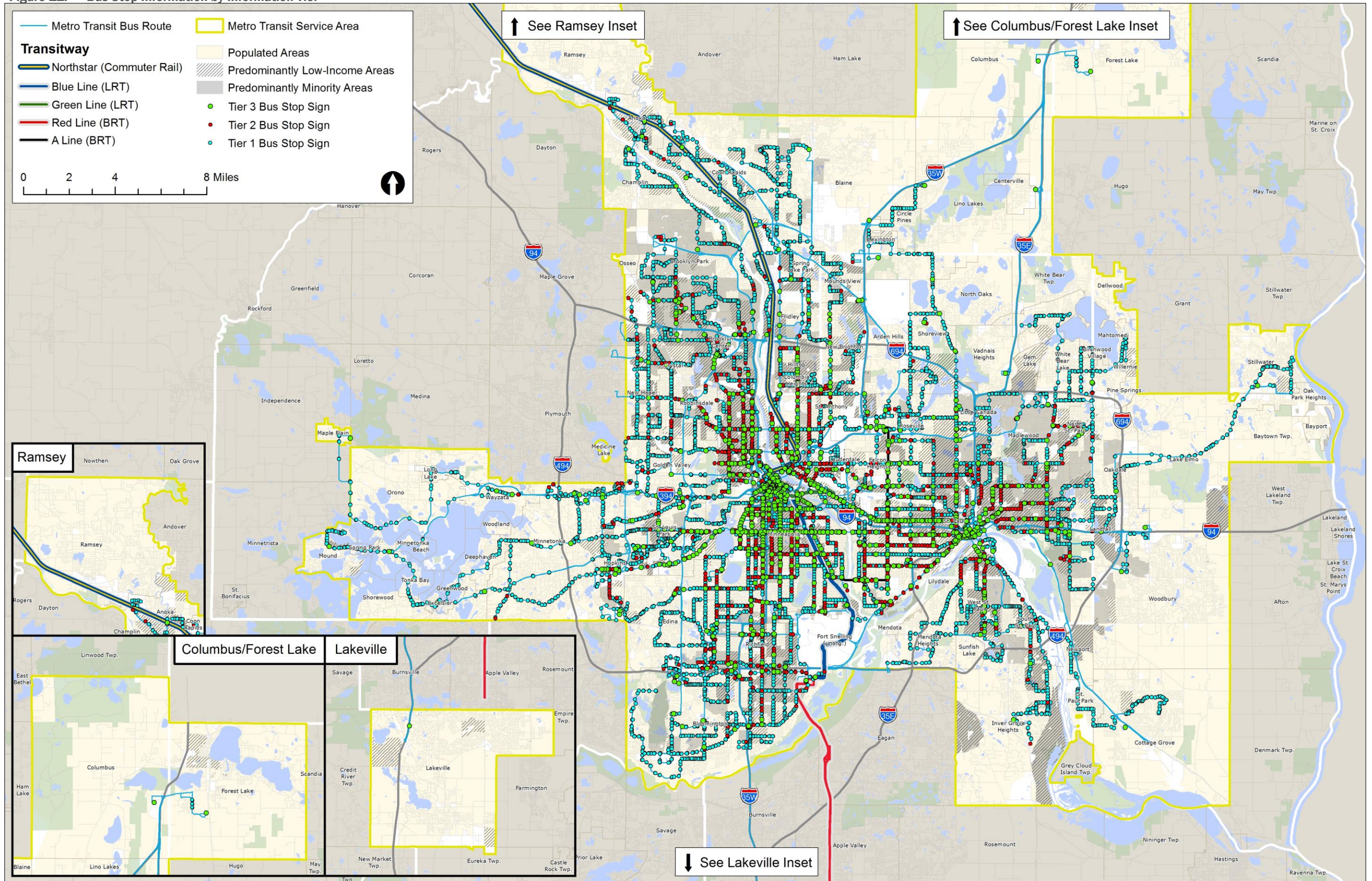


Figure 11. Bus Stop Information by Information Tier



Analysis: Transit Facilities

Metro Transit’s standards for transit facility amenities are summarized in the 2040 TPP. Potential amenities include lights, heaters, trash receptacles, stand-alone benches, security cameras, and electronic customer information displays. These amenities are designated as “always provided”, “occasionally provided”, or “never provided” for each facility type. Standards are also included for bus shelter amenities, but this category is reviewed under the Bus Shelter Distribution analysis in previous sections. The TPP standards assessed in this report are summarized in Table 21. Customer information as outlined in the previous section is also available at all transit facilities.

Table 21. TPP Standards for Transit Facility Amenities

Facility Type	Shelter	Light	Heat	Trash Receptacle	Standalone Bench
Transit Centers	Y	Y	Y	Y	Y
Park-and-rides	Y	Y	O	O	O
Rail Stations	Y	Y	Y	Y	Y

Y = Always Provided; O = Occasionally Provided; N = Not Provided

In accordance with the TPP, the analysis included only facilities under Metro Transit ownership. In cases where Metro Transit does not own the parcel but has a significant construction or maintenance investment in the property, the facility was also treated under Metro Transit ownership. Most of these cases are permanent facilities on MnDOT right-of-way but constructed and operated by Metro Transit. In many cases throughout the region, Metro Transit leases properties for transit use from private entities. In these cases, Metro Transit is not responsible for the facilities provided at these locations. The following exception to the evaluation of the TPP standards was used in this analysis:

- The TPP guidance refers to a requirement of standalone benches at many transit facilities. This analysis also reviews the inclusion of other types of benches, such as those integrated into transit shelters. Generally Metro Transit does not provide standalone benches at bus stops. Most bus benches are provided by a private company (US Bench) and are sited primarily for advertising purposes. For this analysis, any the presence of any bench at a facility was assumed to meet the Stand-Alone Bench requirement.

Results: Transit Facilities

The results of the evaluations for transit centers, park-and-rides, and transit stations are summarized in the sections below. The locations of these facilities in relation to Metro Transit’s service area are shown in Figure 12.

Transit Centers

A qualitative approach was used to evaluate the distribution of transit center amenities by comparing the locations of facilities meeting and not meeting the standards against areas of predominantly minority and predominantly low-income areas. Designating transit centers as predominantly minority or low-income is difficult since most transit centers provide service to populations from multiple routes from a broad geographical range.

A total of 18 transit centers were reviewed for amenity distribution. Of these, 16 meet all mandatory amenities required at these facilities. The two facilities that do not provide all of the required amenities are shown in Table 22. A full listing of Transit Center amenities is provided in Appendix C.

Table 22. Transit Centers Lacking Required Amenities

Transit Center	Shelter	Light	Heat	Trash Receptacle	Standalone Bench
Little Canada Transit Center	Yes	Yes	No	Yes	No
Plymouth Road Transit Center	Yes	Yes	Yes	Yes	No

In reviewing these facilities, it is important to note that both the Little Canada Transit Center and the Plymouth Road Transit Center have extremely low ridership levels compared to other transit centers. The provision of heaters is not warranted by the current ridership levels.

Based on this information and a qualitative examination of the locations of these facilities in Figure 12, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the distribution of transit center amenities under the transit amenities (transit facilities) standard.

Park-and-Rides

A total of 60 standalone park-and-rides (not co-located with a transit center or transitway station) were reviewed for amenity distribution. Shelters and lighting are the only amenities listed in the standard as being “always provided”. The presence of heaters, trash receptacles and standalone benches are “occasionally provided” amenities based on the TPP standards (Table 21); each were reviewed for this analysis. The presence of any type of bench was assumed to satisfy the occasionally provided stand-alone bench standard.

Each park-and-ride was assigned a classification of minority or non-minority and low-income or non-low-income based on the results of the most recent license plate survey data from the *2016 Regional Park-and-ride System Report*. If the majority of vehicles at each facility originated from census areas exceeding the regional average for minority or low-income proportion, they were assigned to these categories. The proportion of park-and-rides in each

category meeting the amenity distribution guidelines is summarized and compared in Table 23. A full listing of park-and-ride amenities is provided in Appendix D.

Table 23. Park-and-Rides Amenity Distribution

Amenity	Minority Park-and-Rides	Non-Minority Park-and-Rides	Comparison Index	Low-Income Park-and-Rides	Non-Low-Income Park-and-Rides	Comparison Index
Shelter	75.0%	63.6%	1.18	60.0%	71.4%	0.84
Light	50.0%	47.7%	1.05	40.0%	54.3%	0.93
Heat	37.5%	31.8%	1.18	34.3%	32.0%	0.93
Trash Receptacle	37.5%	63.6%	0.59	40.0%	68.6%	0.58
Standalone Bench	56.3%	38.6%	1.46	52.0%	37.1%	1.40
All Amenities Available	18.8%	22.7%	0.83	20.0%	22.9%	0.88

With the exception of trash receptacles, the comparison indices for each amenity type show that the differences between the distribution of amenities at minority park-and-rides and non-minority park-and-rides are within the four-fifths threshold. Likewise, the differences between the distribution of amenities at low-income park-and-rides and non-low-income park-and-rides are within the four-fifths threshold. The distribution of trash receptacles at both minority and low-income park-and-rides is approximately 60 percent of the distribution rate at non-minority and non-low-income park-and-rides. Trash receptacles are considered an “occasionally provided” amenity and their placement is based on a case-by-case basis at each facility. Metro Transit will conduct a further review of trash receptacle placement to ensure that the distribution of these amenities complies with Title VI requirements.

Based on this information, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the distribution of park-and-ride amenities under the transit amenities (transit facilities) standard.

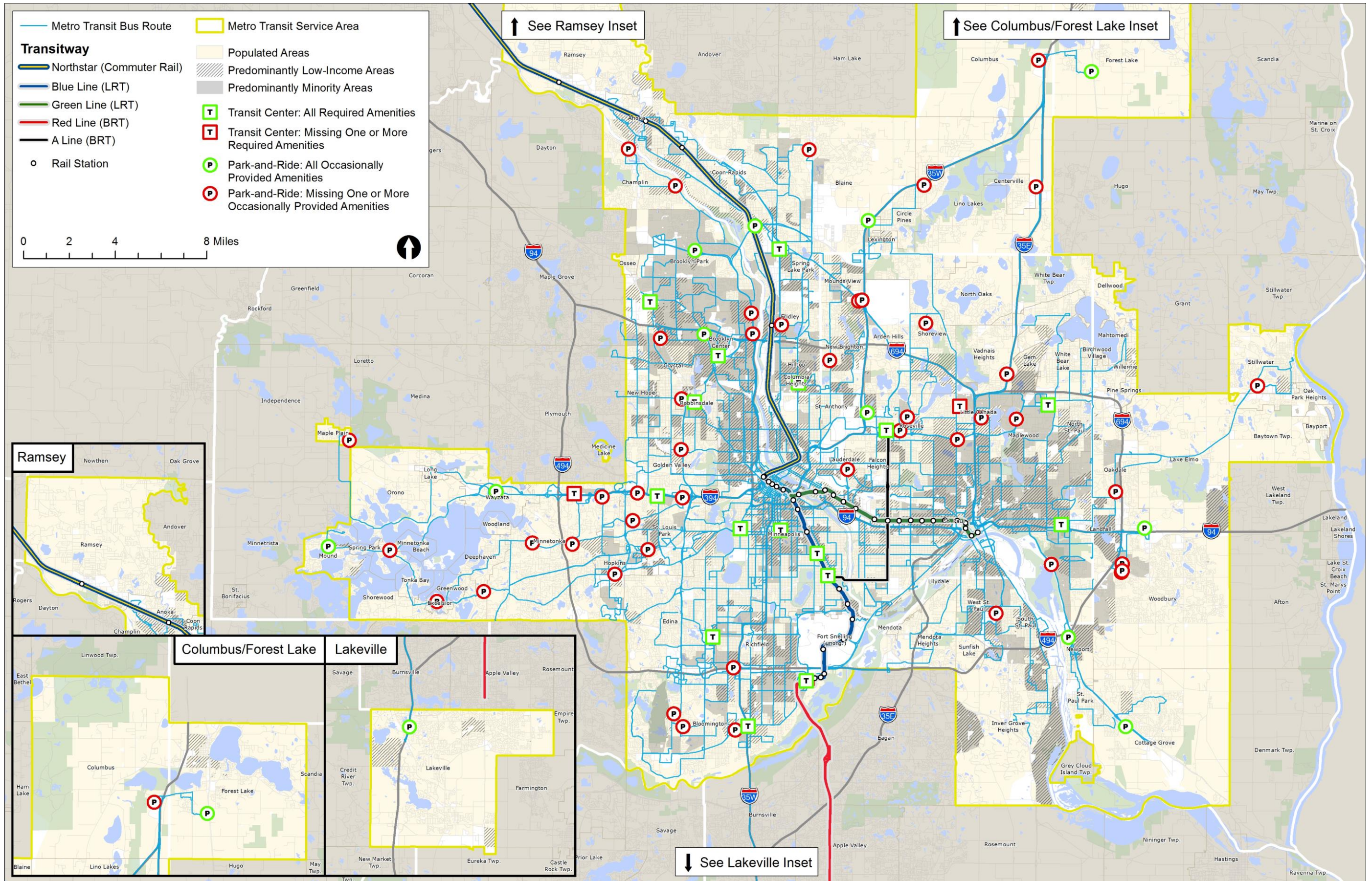
Transitway Stations

Transitway stations include the rail station facilities for the Northstar Commuter Rail and for the Green and Blue Line light rail systems. Bus transitway facilities include the Red Line BRT, the A Line BRT system, and the I-35W/46th Street Station facility. For the purposes of this analysis, the TPP standards for rail stations will be applied to all transitway stations.

All transitway stations in the Metro Transit service area comply with the six standards for amenities always provided at these types of facilities (lighting, heaters, trash, standalone bench, camera, and electronic customer information display). All transitway stations are also equipped with a shelter and/or a facility that provides shelter.

Based on this information, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the distribution of transitway station amenities under the transit amenities (transit facilities) standard.

Figure 12. Transit Facility Amenities



Vehicle Assignment

The Title VI Circular states the following in regard to vehicle assignment standards:

Vehicle assignment refers to the process by which vehicles are placed into service in depots and on routes throughout the transit provider's system. Policies for vehicle assignment may be based on the age of the vehicle, where age would be a proxy for condition.

Vehicle assignment and other standards are summarized in the Metropolitan Council's *Fleet Management Procedures*, updated in 2012. These procedures are designed to facilitate compliance with FTA and Title VI standards, assure that vehicles purchased meet minimum standards, and create efficiencies and improve flexibility in the deployment/reassignment of vehicles to the extent feasible.

Metro Transit/Metropolitan Council Fleet

Metro Transit has five bus garages, along with two light rail and one commuter rail depots. Many routes are operated out of multiple garages and not necessarily designed to serve a specific area. In addition, the Metropolitan Council Metropolitan Transportation Services (MTS) contracts out 28 routes. As of fall 2017, there were two contractors using four separate garage locations. In all cases, the Metropolitan Council owns the buses and leases them to the operating contractor under a master vehicle lease.

A total of 941² Metro Transit buses, 86 MTS buses, and seven BRT buses were used to provide fixed route services in the fall of 2017. A summary of this fleet is provided in Table 24.

Table 24. Metro Transit/Metropolitan Council Fleet Summary

Bus Type	Bus Count	Model Years
40'	564	2003, 2004, 2006, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
40' Hybrid	128	2007, 2008, 2010, 2012
Articulated	203	2003, 2004, 2006, 2007, 2008, 2009, 2010, 2012
Coach	45	2009, 2012, 2013, 2014, 2015
BRT	20	2013, 2015, 2016, 2017
30'	45	2009, 2011, 2014, 2016
Small Bus	29	2012, 2013, 2015
Total	1,034	

² The size of the Metro Transit active fleet at any given time during this period was 873 buses. However, because of bus retirements and replacements, the total number of buses that provided service during this period was 941.

All 30-foot, 40-foot, and articulated buses have a 12-year life span. Commuter coach buses are replaced every 14 years; small cutaway buses have a life span of 5-7 years.

Guidelines for Assigning Vehicle to Garages

Metro Transit's Bus Maintenance department has developed guidelines for assigning vehicles to garages. When service needs require adjustment of the fleet between one service garage and another, or when new vehicles are added to the fleet, the following items need to be considered:

1. Garage capacity and characteristics
2. Spare factor
3. Vehicle Type: 40-foot or Articulated, based on ridership as assigned by Service Development
4. Average fleet age: a fair and balanced average fleet age will be maintained throughout all garages. This ensures knowledge of new technology will be broadly distributed to all mechanics and helps keep both Operators and Mechanics system-wide sharing the benefits of new equipment.
5. Sub-fleets: a particular vehicle design or configuration should be kept together whenever possible
6. Stability: a bus is kept at the same garage its entire service life if possible to provide ownership and accountability to the garage.
7. Sequential numbers: sequentially numbered groups of buses are kept together whenever possible to ease administrative tracking

Contractor Fleet Management

MTS assigns vehicles to a specific contractor garage as part of the contract; those buses normally do not transfer to another contractor during the life of the contract. If a new contractor is awarded a service contract, the buses follow the service. Buses are moved from one contract to another only occasionally as routes are added or terminated, vehicle issues arise, etc.

The contractor may assign any bus to any route as long as it is the correct size and type of bus. As a matter of practice, contractors prefer to assign the same vehicle to the same operator on a regular basis to track vehicle maintenance and condition concerns. However, because not all buses are equipped with APCs, MTS stipulates within the operating contract that vehicles must be rotated among operators and work pieces to ensure APC coverage throughout the service.

Specific Vehicle Assignment Policies

In select situations, a specific bus type or size is assigned to a route or geographic area.

Commuter Coach Buses

Coach buses may be used on express trips carrying riders on a one-way trip length of 15 miles or longer and duration of more than 30 minutes. Although coach buses are lift-equipped, an effort is made to not use them on trips with regular wheelchair users due to the narrow aisle configuration and length of time it takes to deploy the lift. The Service Analysis group assigns coach buses to specific blocks based on ridership patterns and trip distance. Currently coach buses are used on some trips on Routes 275, 288, 294, 351, 355, 365, 375, 467, 860, and 865.

Hybrid Buses

Through agreement with the City of Minneapolis, all routes operating on Nicollet Mall in downtown Minneapolis must use hybrid buses. This includes Routes 10, 11, 17, 18, 25, and 59. Hybrid buses are also assigned to Routes 63, 64, and 68 operating in St. Paul.

Articulated Buses

Metro Transit uses articulated buses on either local or express routes. Service Analysis assigns articulated buses to specific blocks based on ridership patterns and maximum loads. Assignments are reviewed at least once each quarter. Articulated buses are used primarily on express routes during the peak period. Articulated buses are used on local routes with heavy ridership during off-peak times.

Small Buses

Buses that are 30 feet or smaller are sometimes used by contractors to provide service on lower-ridership suburban local routes.

BRT Buses

Bus Rapid Transit buses are specially marked buses that help brand BRT routes. They are used exclusively on the A Line and Red Line. A Line buses have no farebox; both A and Red Line buses have fewer seats to allow for better passenger circulation.

Analysis

This monitoring is intended to evaluate the quality of service (in this case, vehicle quality) provided to customers. This evaluation used bus age as a general indicator of the quality of the riding experience. It compares the average age of vehicles assigned to minority or low-income route trips to the average age of vehicles assigned to non-minority or non-low-income route trips.

To generate a report of the average age of buses by route, it was first necessary to determine what vehicle type was assigned to each weekday trip during the fall of 2017. This information was generated primarily using automatic vehicle locator (AVL) data. If AVL data was not available for a trip, secondary sources were used, including farebox data and dispatcher-recorded assignments. In cases where more than one vehicle was used to operate a trip³, the age of the first vehicle assigned was used.

An analysis of LRT and Commuter Rail vehicles was not included due to the limited availability of data on the age of assigned vehicles. Metro Transit's Blue Line fleet consists primarily of light rail vehicles (LRVs) purchased in 2004 and 2007. Metro Transit's Green Line fleet consists primarily of LRVs purchased in 2012. However, in some cases, year 2012 vehicles are assigned to Blue Line service when they are not need on the Green Line. Metro Transit's commuter rail fleet consists of vehicles purchased in 2009.

Results

The average age of vehicles assigned to Metro Transit and Metropolitan Council routes was 5.4 years. It should be noted that this value is less than average age of vehicles in the fleet. Newer buses tend to be more reliable and as a result are more frequently available to be assigned to trips. During the evaluation period, Metro Transit was also in the process of retiring old buses. The average fleet age was calculated based on the ages of all buses in service at any time during a three-month period. In actuality, the average age of the fleet dropped steadily over this period. A route-by-route summary of vehicle assignment results is provided in Appendix E.

³ This will occur in cases where a garage sends out a double-header (two buses operate the same trip in tandem) or when a second bus replaces the original bus midway through the trip due to mechanical issues.

Table 25 summarizes the average age of assigned vehicles by mode for minority routes, non-minority routes, low-income routes, and non-low-income routes.

- The average age of buses assigned to minority routes is 5.56 years, more than the average of 5.06 years for non-minority routes, but the resulting comparison index of 0.91 is within the four-fifths threshold.
- The average age of buses assigned low-income routes was 5.35 years, less than the average of 5.46 years for non-low-income routes.

These results indicate that the quality of buses assigned to minority and low-income routes is approximately equal to the quality of buses assigned to non-minority and non-low-income routes.

Table 25. Average Age of Assigned Vehicles (Years)

Analysis	Minority Routes	Non-Minority Routes	Comparison Index	Low-Income Routes	Non-Low-Income Routes	Comparison index
Bus	5.56	5.06	0.91	5.35	5.46	1.02

Based on this analysis, no potential for disparate impact to minority populations or disproportionate burden to low-income populations is identified for the vehicle assignment standard.

Summary of Results and Conclusion

A summary of the results of each evaluation is shown in Table 26. The potential for disparate impacts to minority populations and disproportionate burdens to low-income populations was identified in two categories: Transit Amenities, Bus Shelter Amenities, and Transit Amenities, Customer information. The specific amenities in question are the distribution of heaters at stops with shelters and the distribution of customer information at Tier 2 bus stops. Additional discussion of the potential causes of these results and the steps Metro Transit will undertake are discussed in detail in the Transit Amenities section.

Table 26. Summary of Results

Standard/Policy	Minority Results	Low-Income Results
Vehicle Load	No Disparate Impacts	No Disproportionate Burdens
Vehicle Headway	No Disparate Impacts	No Disproportionate Burdens
On-Time Performance	No Disparate Impacts	No Disproportionate Burdens
Service Availability	-	-
Route Spacing	No Disparate Impacts	No Disproportionate Burdens
Midday Service Availability	No Disparate Impacts	No Disproportionate Burdens
Stop/Station Spacing	No Disparate Impacts	No Disproportionate Burdens
Transit Amenities	-	-
Bus Shelter Amenities	Potential Disparate Impacts Identified	Potential Disproportionate Burdens Identified
Customer Information	No Disparate Impacts	No Disproportionate Burdens
Transit Facilities	No Disparate Impacts	No Disproportionate Burdens
Vehicle Assignment	No Disparate Impacts	No Disproportionate Burdens

* Amenities reviewed include shelter distribution and the availability of heat and light in shelters. The availability of heat at shelters was the only area showing potential impacts.

The purpose of this document is to evaluate Metro Transit's compliance with Title VI Requirements as they apply to the implementation of the agency's service standards and policies. The review found that nearly all of Metro Transit's standards and policies are implemented fairly and equitably with no potential for disparate impacts to minority populations or disproportionate burdens to low-income populations. As noted above, some minor issues were identified for individual standards or policies. However, explanations for these results and steps Metro Transit can take to improve the results are provided in each of these instances. This analysis satisfies the FTA's Title VI Requirements to monitor transit system performance relative to system-wide service standards and policies.

APPENDIX A: MINORITY/LOW-INCOME DESIGNATION

Table A: Minority and Low-Income Route Designations

Route	Percent Minority Coverage Area	Predominantly Minority Route	Percent Low-Income Coverage Area	Predominantly Low-Income Route	Type
2	50.2%	Y	82.2%	Y	Core Local
3	60.6%	Y	81.3%	Y	Core Local
4	25.4%	N	41.0%	Y	Core Local
5	77.8%	Y	69.7%	Y	Core Local
6	16.9%	N	24.5%	N	Core Local
7	50.1%	Y	55.3%	Y	Core Local
9	28.8%	N	37.8%	Y	Core Local
10	60.5%	Y	61.9%	Y	Core Local
11	69.7%	Y	68.5%	Y	Core Local
12	25.4%	N	29.1%	N	Core Local
14	59.7%	Y	51.4%	Y	Core Local
16	74.6%	Y	91.7%	Y	Core Local
17	36.0%	Y	44.8%	Y	Core Local
18	53.5%	Y	56.2%	Y	Core Local
19	93.5%	Y	84.5%	Y	Core Local
20	71.0%	N	98.8%	N	Supporting Local
21	55.3%	Y	60.7%	Y	Core Local
22	74.1%	Y	56.1%	Y	Core Local
23	30.4%	N	23.4%	N	Supporting Local
25	17.8%	N	27.4%	N	Core Local
27	100.0%	Y	84.8%	Y	Supporting Local
30	67.4%	Y	74.8%	Y	Supporting Local
32	56.1%	Y	75.1%	Y	Supporting Local
39	93.1%	Y	100.0%	Y	Supporting Local
46	11.8%	N	10.3%	N	Supporting Local
53	50.3%	Y	63.1%	Y	Supporting Local
54	18.2%	N	36.2%	Y	Core Local
59	53.3%	Y	51.1%	Y	Core Local
61	53.9%	Y	59.9%	Y	Core Local
62	57.7%	Y	53.3%	Y	Core Local
63	48.8%	Y	53.6%	Y	Core Local
64	75.5%	Y	69.7%	Y	Core Local
65	49.5%	Y	60.7%	Y	Supporting Local
67	60.1%	Y	65.4%	Y	Core Local
68	57.0%	Y	53.5%	Y	Core Local
70	40.4%	Y	36.5%	Y	Core Local
71	68.7%	Y	59.8%	Y	Core Local
74	45.2%	Y	51.4%	Y	Core Local
75	58.2%	Y	52.8%	Y	Core Local
80	74.3%	Y	54.9%	Y	Supporting Local
83	21.1%	N	19.6%	N	Supporting Local
84	26.0%	N	38.7%	Y	Core Local
87	23.6%	N	50.0%	Y	Supporting Local

Route	Percent Minority Coverage Area	Predominantly Minority Route	Percent Low-Income Coverage Area	Predominantly Low-Income Route	Type
94	59.3%	Y	83.7%	Y	Commuter Express
111	46.5%	Y	36.8%	Y	Commuter Express
113	17.5%	N	34.1%	Y	Commuter Express
114	5.5%	N	34.8%	Y	Commuter Express
115	6.7%	N	22.8%	N	Commuter Express
118	36.9%	Y	56.3%	Y	Commuter Express
129	56.1%	N	96.5%	N	Supporting Local
133	40.5%	Y	31.3%	N	Commuter Express
134	16.2%	N	39.2%	Y	Commuter Express
135	30.6%	N	31.6%	N	Commuter Express
141	34.6%	Y	53.4%	Y	Core Local
146	8.5%	N	15.9%	N	Commuter Express
156	30.6%	N	20.8%	N	Commuter Express
219	33.4%	Y	26.5%	N	Suburban Local
223	37.9%	Y	23.0%	N	Suburban Local
225	3.6%	N	27.6%	N	Suburban Local
227	9.5%	N	23.9%	N	Suburban Local
250	10.4%	N	9.6%	N	Commuter Express
252	5.1%	N	3.5%	N	Commuter Express
261	17.0%	N	21.8%	N	Commuter Express
262	17.5%	N	24.2%	N	Core Local
263	44.3%	Y	40.7%	Y	Commuter Express
264	26.4%	N	27.0%	N	Commuter Express
265	24.9%	N	12.2%	N	Commuter Express
270	30.5%	N	21.7%	N	Commuter Express
272	29.0%	N	21.0%	N	Commuter Express
275	0.9%	N	4.6%	N	Commuter Express
288	2.6%	N	8.8%	N	Commuter Express
294	7.5%	N	7.1%	N	Commuter Express
350	55.4%	Y	15.6%	N	Commuter Express
351	15.8%	N	5.6%	N	Commuter Express
353	13.4%	N	4.4%	N	Commuter Express
355	13.4%	N	4.4%	N	Commuter Express
361	15.7%	N	11.8%	N	Commuter Express
364	21.4%	N	23.1%	N	Commuter Express
365	15.8%	N	10.6%	N	Commuter Express
375	17.4%	N	11.1%	N	Commuter Express
415	4.9%	N	4.9%	N	Suburban Local
417	1.6%	N	3.6%	N	Suburban Local
452	54.2%	Y	40.4%	Y	Commuter Express
467	4.8%	N	8.7%	N	Commuter Express
515	60.5%	Y	39.9%	Y	Suburban Local
535	34.8%	Y	38.6%	Y	Commuter Express
537	27.1%	N	15.8%	N	Suburban Local
538	63.0%	Y	33.6%	Y	Suburban Local
539	25.1%	N	28.0%	N	Suburban Local

Route	Percent Minority Coverage Area	Predominantly Minority Route	Percent Low-Income Coverage Area	Predominantly Low-Income Route	Type
540	66.8%	Y	42.6%	Y	Suburban Local
542	44.7%	Y	39.8%	Y	Suburban Local
552	56.1%	Y	45.2%	Y	Commuter Express
553	50.7%	Y	37.4%	Y	Commuter Express
554	42.6%	Y	49.0%	Y	Commuter Express
558	39.0%	Y	21.2%	N	Commuter Express
578	33.1%	Y	20.0%	N	Commuter Express
579	39.5%	Y	38.1%	Y	Commuter Express
587	26.2%	N	18.3%	N	Commuter Express
588	45.6%	Y	50.4%	Y	Commuter Express
589	21.9%	N	5.7%	N	Commuter Express
597	19.6%	N	11.7%	N	Commuter Express
604	23.3%	N	22.2%	N	Suburban Local
612	24.1%	N	27.8%	N	Suburban Local
614	0.0%	N	0.2%	N	Suburban Local
615	23.5%	N	15.9%	N	Suburban Local
643	20.1%	N	23.2%	N	Commuter Express
645	16.6%	N	9.1%	N	Suburban Local
652	14.9%	N	11.3%	N	Commuter Express
663	20.0%	N	18.4%	N	Commuter Express
664	46.3%	Y	34.8%	Y	Commuter Express
667	24.9%	N	22.7%	N	Commuter Express
668	40.2%	Y	33.7%	Y	Commuter Express
670	11.4%	N	11.3%	N	Commuter Express
671	4.9%	N	5.8%	N	Commuter Express
672	17.3%	N	14.0%	N	Commuter Express
673	8.8%	N	7.7%	N	Commuter Express
674	1.8%	N	11.1%	N	Commuter Express
677	11.5%	N	12.6%	N	Commuter Express
679	20.4%	N	13.8%	N	Commuter Express
705	39.1%	Y	27.9%	N	Suburban Local
716	63.5%	Y	46.0%	Y	Suburban Local
717	41.1%	Y	20.3%	N	Suburban Local
721	59.7%	Y	73.0%	Y	Suburban Local
722	97.1%	Y	31.6%	N	Suburban Local
723	100.0%	Y	37.5%	Y	Suburban Local
724	98.1%	Y	54.3%	Y	Suburban Local
755	34.8%	Y	26.7%	N	Commuter Express
756	25.0%	N	19.1%	N	Commuter Express
758	23.1%	N	26.0%	N	Commuter Express
760	90.7%	Y	46.5%	Y	Commuter Express
761	97.3%	Y	50.1%	Y	Commuter Express
762	94.4%	Y	70.2%	Y	Commuter Express
763	85.1%	Y	29.1%	N	Commuter Express
764	49.3%	Y	38.4%	Y	Commuter Express
765	90.3%	Y	44.4%	Y	Commuter Express

Route	Percent Minority Coverage Area	Predominantly Minority Route	Percent Low-Income Coverage Area	Predominantly Low-Income Route	Type
766	38.6%	Y	16.8%	N	Commuter Express
767	69.8%	Y	53.1%	Y	Commuter Express
768	54.6%	Y	12.3%	N	Commuter Express
801	69.5%	Y	59.9%	Y	Suburban Local
805	21.5%	N	35.8%	Y	Suburban Local
812	94.9%	Y	46.7%	Y	Suburban Local
813	77.5%	Y	61.1%	Y	Suburban Local
814	100.0%	Y	72.5%	Y	Suburban Local
815	76.6%	Y	56.8%	Y	Suburban Local
824	59.6%	Y	43.7%	Y	Core Local
825	19.5%	N	26.2%	N	Core Local
831	15.2%	N	15.4%	N	Suburban Local
850	7.1%	N	18.3%	N	Commuter Express
852	19.8%	N	37.3%	Y	Commuter Express
854	29.5%	N	25.8%	N	Commuter Express
860	13.5%	N	18.1%	N	Commuter Express
865	12.8%	N	5.7%	N	Commuter Express
Northstar	6.6%	N	9.9%	N	Commuter Rail
Green Line	56.0%	Y	55.0%	Y	LRT
Blue Line	68.2%	Y	84.1%	Y	LRT
Red Line	13.2%	N	15.7%	N	Highway BRT
A Line	17.0%	N	33.9%	Y	Arterial BRT

Route Type Definitions

Core Local Bus: Core Local routes typically serve the denser urban areas of Market Areas I and II, usually providing access to a downtown or major activity center along important commercial corridors. They form the base of the core bus network and are typically some of the most productive routes in the system.

Supporting Local Bus: Supporting Local routes are typically designed to provide crosstown connections within Market Areas I and II. Typically, these routes do not serve a downtown but play an important role connecting to Core Local routes and ensuring transit access for those not traveling downtown.

Suburban Local Bus: Suburban Local routes typically operate in Market Areas II and III in a suburban context and are often less productive than Core Local routes. These routes serve an important role in providing a basic-level of transit coverage throughout the region.

Commuter and Express Bus: Commuter and Express Bus routes primarily operate during peak periods to serve commuters to downtown or a major employment center. These routes typically operate non-stop on highways for portions of the route between picking up passengers in residential areas or at park-and-ride facilities and dropping them off at a major destination.

Arterial Bus Rapid Transit (BRT): Arterial bus rapid transit (BRT) lines operate in high demand urban arterial corridors with service, facility, and technology improvements that enable faster travel speeds, greater frequency, an improved passenger experience, and better reliability. Design guidelines for arterial BRT can be found in the Regional Transitway Guidelines.

Highway Bus Rapid Transit (BRT): Highway bus rapid transit (BRT) lines operate in high demand highway corridors with service, facility, and technology improvements providing faster travel speeds, all-day service, greater frequency, an improved passenger experience, and better reliability. Design guidelines for highway BRT can be found in the Regional Transitway Guidelines.

Light Rail (LRT): Light rail operates using electrically-powered passenger rail cars operating on fixed rails in dedicated right-of-way. It provides frequent, all-day service stopping at stations with high levels of customer amenities and waiting facilities. Design guidelines for light rail can be found in the Regional Transitway Guidelines.

Commuter Rail: Commuter rail operates using diesel-power locomotives and passenger coaches on traditional railroad track. These trains typically only operate during the morning and evening peak period to serve work commuters. Design guidelines for commuter rail can be found in the Regional Transitway Guidelines

APPENDIX B: ON-TIME PERFORMANCE BY ROUTE

Table B: On-Time Performance by Route

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Percent On-Time
2	Y	Y	Core Local	83.4%
3	Y	Y	Core Local	84.4%
4	N	Y	Core Local	81.9%
5	Y	Y	Core Local	77.3%
6	N	N	Core Local	80.9%
7	Y	Y	Core Local	84.2%
9	N	Y	Core Local	81.0%
10	Y	Y	Core Local	77.8%
11	Y	Y	Core Local	87.4%
12	N	N	Core Local	77.6%
14	Y	Y	Core Local	80.7%
16	Y	Y	Core Local	90.2%
17	Y	Y	Core Local	83.9%
18	Y	Y	Core Local	85.1%
19	Y	Y	Core Local	81.6%
20	N	N	Supporting Local	96.0%
21	Y	Y	Core Local	84.2%
22	Y	Y	Core Local	75.0%
23	N	N	Supporting Local	81.4%
25	N	N	Core Local	79.2%
27	Y	Y	Supporting Local	79.0%
30	Y	Y	Supporting Local	83.3%
32	Y	Y	Supporting Local	66.8%
39	Y	Y	Supporting Local	87.0%
46	N	N	Supporting Local	85.5%
53	Y	Y	Supporting Local	82.2%
54	N	Y	Core Local	83.9%
59	Y	Y	Core Local	73.3%
61	Y	Y	Core Local	88.5%
62	Y	Y	Core Local	93.3%

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Percent On-Time
63	Y	Y	Core Local	86.3%
64	Y	Y	Core Local	89.8%
65	Y	Y	Supporting Local	94.2%
67	Y	Y	Core Local	89.4%
68	Y	Y	Core Local	91.8%
70	Y	Y	Core Local	91.7%
71	Y	Y	Core Local	92.0%
74	Y	Y	Core Local	87.4%
75	Y	Y	Core Local	91.9%
80	Y	Y	Supporting Local	94.4%
83	N	N	Supporting Local	83.6%
84	N	Y	Core Local	93.1%
87	N	Y	Supporting Local	90.5%
94	Y	Y	Commuter Express	92.1%
111	Y	Y	Commuter Express	61.5%
113	N	Y	Commuter Express	72.8%
114	N	Y	Commuter Express	79.5%
115	N	N	Commuter Express	68.1%
118	Y	Y	Commuter Express	88.1%
129	N	N	Supporting Local	98.4%
133	Y	N	Commuter Express	70.4%
134	N	Y	Commuter Express	78.9%
135	N	N	Commuter Express	68.3%
141	Y	Y	Core Local	87.0%
146	N	N	Commuter Express	65.9%
156	N	N	Commuter Express	75.1%
219	Y	N	Suburban Local	84.5%
223	Y	N	Suburban Local	93.8%
225	N	N	Suburban Local	87.6%
227	N	N	Suburban Local	91.8%
250	N	N	Commuter Express	84.8%
252	N	N	Commuter Express	82.1%
261	N	N	Commuter Express	85.0%

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Percent On-Time
262	N	N	Core Local	85.5%
263	Y	Y	Commuter Express	94.2%
264	N	N	Commuter Express	91.1%
265	N	N	Commuter Express	93.4%
270	N	N	Commuter Express	86.9%
272	N	N	Commuter Express	73.4%
275	N	N	Commuter Express	97.5%
288	N	N	Commuter Express	87.0%
294	N	N	Commuter Express	83.4%
350	Y	N	Commuter Express	78.1%
351	N	N	Commuter Express	90.5%
353	N	N	Commuter Express	100.0%
355	N	N	Commuter Express	84.6%
361	N	N	Commuter Express	88.6%
364	N	N	Commuter Express	71.4%
365	N	N	Commuter Express	84.8%
375	N	N	Commuter Express	92.8%
415	N	N	Suburban Local	85.2%
417	N	N	Suburban Local	65.6%
452	Y	Y	Commuter Express	83.2%
467	N	N	Commuter Express	85.8%
515	Y	Y	Suburban Local	90.8%
535	Y	Y	Commuter Express	82.1%
537	N	N	Suburban Local	98.1%
538	Y	Y	Suburban Local	86.8%
539	N	N	Suburban Local	81.9%
540	Y	Y	Suburban Local	84.6%
542	Y	Y	Suburban Local	81.6%
552	Y	Y	Commuter Express	69.8%
553	Y	Y	Commuter Express	74.6%
554	Y	Y	Commuter Express	62.3%
558	Y	N	Commuter Express	71.5%
578	Y	N	Commuter Express	75.8%

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Percent On-Time
579	Y	Y	Commuter Express	76.9%
587	N	N	Commuter Express	78.8%
588	Y	Y	Commuter Express	85.5%
589	N	N	Commuter Express	77.0%
597	N	N	Commuter Express	70.1%
604	N	N	Suburban Local	92.0%
612	N	N	Suburban Local	86.1%
614	N	N	Suburban Local	96.2%
615	N	N	Suburban Local	87.4%
643	N	N	Commuter Express	81.0%
645	N	N	Suburban Local	80.1%
652	N	N	Commuter Express	86.8%
663	N	N	Commuter Express	79.8%
664	Y	Y	Commuter Express	79.0%
667	N	N	Commuter Express	82.6%
668	Y	Y	Commuter Express	84.8%
670	N	N	Commuter Express	69.6%
671	N	N	Commuter Express	72.1%
672	N	N	Commuter Express	87.5%
673	N	N	Commuter Express	81.8%
674	N	N	Commuter Express	75.3%
677	N	N	Commuter Express	72.9%
679	N	N	Commuter Express	79.4%
705	Y	N	Suburban Local	86.5%
716	Y	Y	Suburban Local	89.0%
717	Y	N	Suburban Local	80.7%
721	Y	Y	Suburban Local	86.0%
722	Y	N	Suburban Local	94.0%
723	Y	Y	Suburban Local	93.1%
724	Y	Y	Suburban Local	89.1%
755	Y	N	Commuter Express	65.5%
756	N	N	Commuter Express	71.3%
758	N	N	Commuter Express	82.8%

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Percent On-Time
760	Y	Y	Commuter Express	77.8%
761	Y	Y	Commuter Express	86.3%
762	Y	Y	Commuter Express	85.1%
763	Y	N	Commuter Express	79.4%
764	Y	Y	Commuter Express	71.5%
765	Y	Y	Commuter Express	82.9%
766	Y	N	Commuter Express	78.3%
767	Y	Y	Commuter Express	88.2%
768	Y	N	Commuter Express	86.7%
801	Y	Y	Suburban Local	82.9%
805	N	Y	Suburban Local	68.2%
812	Y	Y	Suburban Local	n/a
813	Y	Y	Suburban Local	n/a
814	Y	Y	Suburban Local	n/a
815	Y	Y	Suburban Local	n/a
824	Y	Y	Core Local	81.0%
825	N	N	Core Local	81.0%
831	N	N	Suburban Local	96.9%
850	N	N	Commuter Express	80.6%
852	N	Y	Commuter Express	82.1%
854	N	N	Commuter Express	80.8%
860	N	N	Commuter Express	77.6%
865	N	N	Commuter Express	86.2%
Northstar	N	N	Commuter Rail	88.5%
Green Line	Y	Y	LRT	76.7%
Blue Line	Y	Y	LRT	83.9%
Red Line	N	N	Highway BRT	88.8%
A Line	N	Y	Arterial BRT	93.8%

APPENDIX C: TRANSIT CENTER FACILITY AMENITIES

Table C: Transit Center Amenities

Transit Center	Shelter	Lights	Heater	Trash Receptacle	Bench
Columbia Heights Transit Center	Yes	Yes	Yes	Yes	Yes
Brooklyn Center Transit Center	Yes	Yes	Yes	Yes	Yes
Sun Ray Transit Center	Yes	Yes	Yes	Yes	Yes
Uptown Transit Center	Yes	Yes	Yes	Yes	Yes
Robbinsdale Transit Center	Yes	Yes	Yes	Yes	Yes
38th St Transit Center	Yes	Yes	Yes	Yes	Yes
46th St Transit Center	Yes	Yes	Yes	Yes	Yes
Little Canada Transit Center	Yes	Yes	No	Yes	No
Chicago Lake Transit Center	Yes	Yes	Yes	Yes	Yes
Starlite Transit Center	Yes	Yes	Yes	Yes	Yes
Maplewood Mall Transit Center	Yes	Yes	Yes	Yes	Yes
Rosedale Transit Center	Yes	Yes	Yes	Yes	Yes
Northtown Transit Center	Yes	Yes	Yes	Yes	Yes
Louisiana Transit Center	Yes	Yes	Yes	Yes	Yes
Plymouth Rd Transit Center	Yes	Yes	Yes	Yes	No
Southdale Transit Center	Yes	Yes	Yes	Yes	Yes
South Bloomington Transit Center	Yes	Yes	Yes	Yes	Yes
Mall of America Transit Center	Yes	Yes	Yes	Yes	Yes

APPENDIX D: PARK-AND-RIDE FACILITY AMENITIES

Table D: Park-and-Ride Amenities

Park-and-Ride	Predominantly Minority	Predominantly Low-Income	Shelter	Lights	Heater	Trash	Bench
Como & Eustis	Yes	Yes	Yes	No	No	No	Yes
Normandale Village	Yes	No	Yes	No	No	No	No
St. Edward's Catholic Church	No	No	No	No	No	No	No
Co Rd 73 & I-394 South	No	No	Yes	Yes	Yes	Yes	No
Minnetonka Blvd & Baker Rd	No	No	No	No	No	No	No
Minnetonka Blvd & Steele St	No	No	No	No	No	No	No
Excelsior City Hall	No	No	No	No	No	Yes	No
Westwood Lutheran Church	No	No	Yes	Yes	No	Yes	Yes
Little Canada Municipal Lot	No	Yes	No	No	No	No	No
Salem Covenant Church	Yes	Yes	Yes	Yes	No	No	Yes
Faith-Lilac Way Lutheran Church	No	Yes	No	No	No	No	No
Navarre Center	No	No	No	No	No	No	No
Wayzata Blvd & Barry Ave	No	No	Yes	Yes	Yes	Yes	Yes
Mermaid Supper Club	No	Yes	No	No	No	No	No
West River Rd & 117th Ave	No	No	Yes	Yes	No	Yes	Yes
Christ Episcopal Church	No	No	No	No	No	No	No
Church of Nazarene	Yes	Yes	Yes	Yes	Yes	No	Yes
Hwy 7 & Texas Ave	Yes	No	No	No	No	No	No
I-35W & Co Rd H	No	Yes	Yes	No	No	No	Yes
Hwy 61 & Lower Afton Rd	Yes	Yes	Yes	No	No	Yes	No
General Mills Blvd & I-394	No	No	Yes	Yes	No	Yes	Yes
St. Joseph's Church	No	No	No	No	No	No	No
Shoreview Community Center	No	No	No	No	No	Yes	No
Park Place & I-394	No	Yes	Yes	No	No	Yes	No
St. Luke's Lutheran Church	No	No	Yes	No	No	No	No
Richardson Park	No	No	Yes	No	No	Yes	No
Foley Blvd	No	Yes	Yes	Yes	Yes	Yes	Yes
Hwy 61 & Co Rd C	Yes	Yes	Yes	No	No	No	Yes
Hwy 7 & Vinehill Rd	No	No	No	No	No	No	No
65th Ave & Brooklyn Blvd	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Park-and-Ride	Predominantly Minority	Predominantly Low-Income	Shelter	Lights	Heater	Trash	Bench
I-35W & 95th Ave	No	No	Yes	Yes	Yes	Yes	Yes
West St Paul Sports Complex	Yes	Yes	No	No	No	No	No
Woodbury Lutheran Church	No	No	Yes	Yes	No	Yes	Yes
St Croix Valley Recreation Center	No	No	Yes	Yes	No	Yes	No
Hwy 610 & Noble	Yes	No	Yes	Yes	Yes	Yes	Yes
Woodbury Theatre	No	No	Yes	Yes	Yes	Yes	No
Cottage Grove	No	No	Yes	Yes	Yes	Yes	Yes
Hadley Ave & Upper 17th Street	No	No	Yes	Yes	Yes	Yes	No
Hwy 100 & Duluth	No	Yes	No	No	No	No	No
Knox Avenue at Best Buy	Yes	Yes	Yes	Yes	Yes	No	No
Guardian Angels Catholic Church	No	No	Yes	Yes	Yes	Yes	Yes
Church of St. William	Yes	Yes	No	No	No	No	No
63rd Ave & Bottineau Blvd	Yes	Yes	Yes	Yes	Yes	Yes	No
Hwy 252 & 66th Ave	Yes	Yes	Yes	No	No	No	Yes
Grace Church	No	Yes	No	No	No	No	No
Skating Center	No	Yes	No	No	No	No	No
I-35 & Kenrick Ave	No	No	Yes	Yes	Yes	Yes	Yes
I-35W & Co Rd C	No	Yes	Yes	Yes	Yes	Yes	Yes
Running Aces	No	No	Yes	No	No	No	No
Forest Lake Transit Center	No	No	Yes	Yes	Yes	Yes	Yes
Hwy 36 & Rice St	Yes	Yes	No	Yes	No	Yes	Yes
Maple Plain	No	Yes	No	No	No	Yes	Yes
I-35E & County Road 14	No	No	Yes	Yes	No	Yes	No
I-35E & County Road E	No	No	Yes	Yes	No	Yes	No
Hopkins Park-and-Ride	No	No	Yes	No	No	Yes	Yes
Newport Transit Station	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paul Parkway	No	No	Yes	No	No	Yes	No
Southdale Transit Center	No	No	Yes	Yes	Yes	Yes	No
South Bloomington Transit Center	No	No	Yes	Yes	Yes	Yes	Yes
Mound Transit Center	No	Yes	Yes	Yes	Yes	Yes	Yes

APPENDIX E: VEHICLE ASSIGNMENT SUMMARY BY ROUTE

Table E: Vehicle Assignment Summary by Route

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Average Age Assigned	Average Age Available	Difference (Assigned-Available)
2	Y	Y	Core Local	3.94	3.56	0.38
3	Y	Y	Core Local	5.06	6.01	(0.95)
4	N	Y	Core Local	5.45	6.90	(1.45)
5	Y	Y	Core Local	5.17	6.35	(1.18)
6	N	N	Core Local	5.42	7.03	(1.61)
7	Y	Y	Core Local	4.19	6.52	(2.33)
9	N	Y	Core Local	5.86	7.18	(1.32)
10	Y	Y	Core Local	7.07	7.86	(0.79)
11	Y	Y	Core Local	7.84	8.23	(0.39)
12	N	N	Core Local	5.97	6.35	(0.39)
14	Y	Y	Core Local	5.12	6.57	(1.45)
16	Y	Y	Core Local	4.22	5.82	(1.60)
17	Y	Y	Core Local	7.17	8.22	(1.06)
18	Y	Y	Core Local	7.64	8.19	(0.54)
19	Y	Y	Core Local	4.96	5.55	(0.59)
20	N	N	Supporting Local	5.38	6.10	(0.72)
21	Y	Y	Core Local	4.65	5.48	(0.83)
22	Y	Y	Core Local	4.97	6.06	(1.08)
23	N	N	Supporting Local	5.98	7.57	(1.60)
25	N	N	Core Local	6.85	7.37	(0.52)
27	Y	Y	Supporting Local	4.90	4.56	0.34
30	Y	Y	Supporting Local	5.00	6.02	(1.02)
32	Y	Y	Supporting Local	6.41	5.69	0.71
39	Y	Y	Supporting Local	6.22	7.37	(1.15)
46	N	N	Supporting Local	6.05	7.59	(1.54)
53	Y	Y	Supporting Local	5.85	5.53	0.32
54	N	Y	Core Local	5.09	6.85	(1.76)
59	Y	Y	Core Local	6.69	7.38	(0.69)
61	Y	Y	Core Local	4.94	5.86	(0.92)
62	Y	Y	Core Local	4.62	5.47	(0.85)
63	Y	Y	Core Local	6.46	6.61	(0.15)
64	Y	Y	Core Local	5.92	5.96	(0.04)
65	Y	Y	Supporting Local	5.15	5.50	(0.34)
67	Y	Y	Core Local	5.17	6.79	(1.62)
68	Y	Y	Core Local	6.54	6.39	0.14
70	Y	Y	Core Local	5.12	5.46	(0.34)
71	Y	Y	Core Local	5.13	5.54	(0.42)
74	Y	Y	Core Local	4.81	5.51	(0.69)
75	Y	Y	Core Local	5.94	5.46	0.48
80	Y	Y	Supporting Local	1.99	2.00	(0.01)
83	N	N	Supporting Local	2.87	4.56	(1.69)
84	N	Y	Core Local	5.79	6.27	(0.48)
87	N	Y	Supporting Local	1.86	2.00	(0.13)

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Average Age Assigned	Average Age Available	Difference (Assigned-Available)
94	Y	Y	Commuter Express	5.42	6.51	(1.10)
111	Y	Y	Commuter Express	7.53	7.35	0.18
113	N	Y	Commuter Express	6.63	7.17	(0.54)
114	N	Y	Commuter Express	6.68	7.02	(0.34)
115	N	N	Commuter Express	6.17	6.35	(0.18)
118	Y	Y	Commuter Express	4.81	5.98	(1.17)
129	N	N	Supporting Local	4.45	5.98	(1.53)
133	Y	N	Commuter Express	6.28	7.04	(0.76)
134	N	Y	Commuter Express	6.19	7.32	(1.13)
135	N	N	Commuter Express	6.14	7.20	(1.06)
141	Y	Y	Core Local	5.50	6.28	(0.78)
146	N	N	Commuter Express	6.82	7.45	(0.63)
156	N	N	Commuter Express	6.72	7.43	(0.71)
219	Y	N	Suburban Local	5.06	5.07	(0.01)
223	Y	N	Suburban Local	4.91	4.56	0.35
225	N	N	Suburban Local	4.84	4.56	0.29
227	N	N	Suburban Local	4.84	4.56	0.28
250	N	N	Commuter Express	6.39	6.70	(0.31)
252	N	N	Commuter Express	7.07	6.55	0.53
261	N	N	Commuter Express	6.89	6.67	0.23
262	N	N	Core Local	6.79	5.46	1.33
263	Y	Y	Commuter Express	5.98	5.65	0.33
264	N	N	Commuter Express	6.29	6.36	(0.07)
265	N	N	Commuter Express	6.25	5.67	0.59
270	N	N	Commuter Express	5.76	6.33	(0.57)
272	N	N	Commuter Express	6.98	5.57	1.41
275	N	N	Commuter Express	6.95	6.67	0.28
288	N	N	Commuter Express	7.20	7.03	0.18
294	N	N	Commuter Express	6.03	5.87	0.17
350	Y	N	Commuter Express	11.36	6.93	4.42
351	N	N	Commuter Express	5.13	6.22	(1.09)
353	N	N	Commuter Express	6.87	5.46	1.41
355	N	N	Commuter Express	5.71	6.92	(1.22)
361	N	N	Commuter Express	5.88	5.65	0.24
364	N	N	Commuter Express	4.82	4.56	0.27
365	N	N	Commuter Express	6.91	6.96	(0.06)
375	N	N	Commuter Express	5.12	6.64	(1.52)
415	N	N	Suburban Local	7.56	7.29	0.27
417	N	N	Suburban Local	4.85	4.56	0.29
452	Y	Y	Commuter Express	7.05	7.26	(0.20)
467	N	N	Commuter Express	6.46	6.78	(0.32)
515	Y	Y	Suburban Local	5.65	7.35	(1.70)
535	Y	Y	Commuter Express	6.03	7.33	(1.30)
537	N	N	Suburban Local	2.17	2.00	0.17
538	Y	Y	Suburban Local	2.10	2.00	0.10
539	N	N	Suburban Local	1.76	2.00	(0.23)

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Average Age Assigned	Average Age Available	Difference (Assigned-Available)
540	Y	Y	Suburban Local	5.77	3.65	2.12
542	Y	Y	Suburban Local	6.49	3.65	2.84
552	Y	Y	Commuter Express	7.16	7.26	(0.09)
553	Y	Y	Commuter Express	6.88	7.33	(0.46)
554	Y	Y	Commuter Express	7.47	8.17	(0.69)
558	Y	N	Commuter Express	6.78	7.31	(0.54)
578	Y	N	Commuter Express	7.20	7.25	(0.04)
579	Y	Y	Commuter Express	6.98	7.35	(0.37)
587	N	N	Commuter Express	6.87	7.21	(0.34)
588	Y	Y	Commuter Express	6.76	7.23	(0.47)
589	N	N	Commuter Express	6.85	7.33	(0.48)
597	N	N	Commuter Express	6.78	7.18	(0.40)
604	N	N	Suburban Local	4.89	4.56	0.33
612	N	N	Suburban Local	4.57	3.65	0.92
614	N	N	Suburban Local	4.87	4.56	0.31
615	N	N	Suburban Local	4.95	4.56	0.40
643	N	N	Commuter Express	6.20	6.31	(0.12)
645	N	N	Suburban Local	5.53	6.13	(0.60)
652	N	N	Commuter Express	6.85	6.74	0.11
663	N	N	Commuter Express	6.58	6.49	0.09
664	Y	Y	Commuter Express	5.07	6.28	(1.21)
667	N	N	Commuter Express	6.05	6.14	(0.09)
668	Y	Y	Commuter Express	6.16	6.19	(0.03)
670	N	N	Commuter Express	1.71	6.93	(5.22)
671	N	N	Commuter Express	1.83	6.93	(5.10)
672	N	N	Commuter Express	5.31	5.98	(0.67)
673	N	N	Commuter Express	7.31	7.03	0.29
674	N	N	Commuter Express	5.45	5.98	(0.53)
677	N	N	Commuter Express	5.95	6.74	(0.79)
679	N	N	Commuter Express	7.34	6.41	0.93
705	Y	N	Suburban Local	3.93	3.65	0.28
716	Y	Y	Suburban Local	4.94	4.56	0.39
717	Y	N	Suburban Local	4.80	4.56	0.24
721	Y	Y	Suburban Local	5.16	4.87	0.29
722	Y	N	Suburban Local	5.41	4.73	0.68
723	Y	Y	Suburban Local	5.33	4.65	0.67
724	Y	Y	Suburban Local	5.27	4.84	0.44
755	Y	N	Commuter Express	5.85	6.03	(0.19)
756	N	N	Commuter Express	7.28	6.65	0.62
758	N	N	Commuter Express	6.07	6.27	(0.20)
760	Y	Y	Commuter Express	5.32	7.71	(2.39)
761	Y	Y	Commuter Express	5.92	5.00	0.93
762	Y	Y	Commuter Express	6.06	6.09	(0.02)
763	Y	N	Commuter Express	5.49	5.84	(0.34)
764	Y	Y	Commuter Express	6.20	7.04	(0.84)
765	Y	Y	Commuter Express	6.19	6.19	0.00

Route	Predominantly Minority Route	Predominantly Low-Income Route	Type	Average Age Assigned	Average Age Available	Difference (Assigned- Available)
766	Y	N	Commuter Express	6.39	6.79	(0.39)
767	Y	Y	Commuter Express	5.37	5.98	(0.61)
768	Y	N	Commuter Express	6.90	7.19	(0.29)
801	Y	Y	Suburban Local	6.83	6.83	0.00
805	N	Y	Suburban Local	6.83	6.83	(0.00)
812	Y	Y	Suburban Local	n/a	n/a	n/a
813	Y	Y	Suburban Local	n/a	n/a	n/a
814	Y	Y	Suburban Local	n/a	n/a	n/a
815	Y	Y	Suburban Local	n/a	n/a	n/a
824	Y	Y	Core Local	7.22	7.11	0.11
825	N	N	Core Local	6.38	6.23	0.14
831	N	N	Suburban Local	6.83	6.83	0.00
850	N	N	Commuter Express	5.22	8.24	(3.03)
852	N	Y	Commuter Express	5.20	5.02	0.18
854	N	N	Commuter Express	5.73	6.02	(0.29)
860	N	N	Commuter Express	6.99	7.03	(0.04)
865	N	N	Commuter Express	3.33	3.28	0.05
Northstar	N	N	Commuter Rail	No Data	No Data	No Data
Green Line	Y	Y	LRT	No Data	No Data	No Data
Blue Line	Y	Y	LRT	No Data	No Data	No Data
Red Line	N	N	Highway BRT	1.82	1.77	0.05
A Line	N	Y	Arterial BRT	4.67	4.67	0.00