

Title VI Review: Service and Facility Standards Monitoring

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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 provided to predominantly minority and predominantly low-income areas with service provided to other areas to ensure disparate impacts are not a result of policies and decision. *Disparate impact* refers to facially neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI, and 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." 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."

Technical Analysis of Service Standards

To ensure that Metro Transit's service design, delivery, and amenity distribution is not discriminatory, the system was reviewed against a set of quantitative service standards in areas recommended by the FTA, which include the following:

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

This Technical Analysis compared the agency's service standards documented in the Metropolitan Council's *2030 Transportation Policy Plan* with current transit service designs to ensure they are not discriminatory.

Determining Disparate Impacts and the Four-Fifths Rule

The Federal Transit Administration defines “disparate impacts” as neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI, and the recipient’s policy or practice lacks a substantial legitimate justification. If the results of the analysis indicated a potential for disparate impacts, further investigation was performed. This investigation used qualitative assessments and/or the “four-fifths rule” to determine whether disparate impacts exist.

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

In this analysis, if the quantitative results indicated that service standard compliance in predominantly minority/low-income areas was less than 80 percent of the compliance rate for non-minority/non-low-income areas, there could be evidence of disparate impacts. If disparate impacts are found using this threshold, mitigation measures should be identified.

A summary of the results from the technical analysis is provided in Table i.

Table i: Technical Analysis Summary

Standard	Low-Income	Minority
Vehicle Assignment	○	○
Maximum Passenger Load	○*	○*
On-Time Performance	○	○
Service Availability	--	--
Market Area I – Urban Radial Route Spacing	○	○
Market Area I – Urban Crosstown Route Spacing	○	○*
Market Area II – Local Route Spacing	○	○
Midday Headway	○	○
Bus Stop Spacing	○	○
Headway Standards	--	--
Midday	○	○
Peak	○	○
Transit Amenities	--	--
Shelter Distribution	--	--
Warranted Standard Shelters	○	○*
Unwarranted Standard Shelters	○	○
Warranted Heated Shelters	●	●
Unwarranted Heated Shelters	○	○
Lighted Shelters	○*	○
Customer Information	--	--
Pocket Schedule Distribution Locations	○	○
Timetable Locations	○	○
System Map Locations	○	○
Transit Facilities	--	--
Transit Centers	○	○
Transitway Stations	○	○
Park-and-Rides	○	○

- - Potential Disparate Impact
- * - No Potential Disparate Impact (Within four-fifths threshold)
- - No Potential Disparate Impact

Additional Analysis of Potential Disparate Impacts

Standards with a low-income compliance rate falling below the non-low-income compliance rate are listed in Table ii. Of the three standards listed, only Heated Shelter Placement falls outside of the four-fifths threshold. As such, this standard is evaluated in more detail in this section. The Maximum Passenger Load and Lighted Shelter Placement standards are well within the four-fifths threshold and do not warrant further analysis.

Table ii: Compliance Rates for Standards Within or Exceeding the Four-Fifths Threshold (Low-Income)

Standard	Overall	Low-Income	Non-Low-Income	Four-Fifths Threshold
Maximum Passenger Load: Stop-Hours in Compliance	99.96%	99.93%	99.99%	79.99%
Heated Shelter Placement: Warranted Locations in Compliance	2.4%	2.0%	4.2%	3.30%
Lighted Shelter Placement: Location has lighted shelter (Total standalone shelters)	32.7%	32.5%	33.3%	26.60%

Standards with a minority compliance rate falling below the non-minority compliance rate are listed in Table iii. Of the four standards listed, only Heated Shelter Placement falls outside of the four-fifths threshold. As such, this standard is evaluated in more detail in this section. Although the Market Area I – Urban Crosstown Route Spacing standard falls within the four-fifths threshold, it is only within the threshold by two percentage points and is also discussed in this section. The Maximum Passenger Load and Standard Shelter Placement standards are well within the four-fifths threshold and do not warrant further analysis.

Table iii: Compliance Rates for Standards Within or Exceeding the Four-Fifths Threshold (Minority)

Standard	Overall	Minority	Non-Minority	Four-Fifths Threshold
Maximum Passenger Load: Stop-Hours in Compliance	99.96%	99.96%	99.97%	79.97%
Market Area I - Urban Crosstown Route Spacing: Blocks in Compliance	63.9%	58.4%	70.5%	56.4%
Standard Shelter Placement: Warranted Locations in Compliance	62.9%	60.7%	64.8%	51.8%
Heated Shelter Placement: Warranted Locations in Compliance	2.4%	0.8%	3.9%	3.1%

Urban Crosstown Route Spacing

While the Market Area I Urban Crosstown Route Spacing Market Area I for Minority was close to violating the four-fifths rule, the results identify no potential for disparate impacts. Recent initiatives

include improving Market Area I crosstown service. The Central Corridor Transit Service Study concept plan proposes a new crosstown route on Lexington Parkway in St. Paul, which would address an existing route spacing gap in St. Paul. This implementation of this service is planned to coordinate with the 2014 opening of the Green Line LRT. Future considerations of this concept plan also include an expansion of crosstown service on West Broadway Avenue and Broadway Street NE, connecting north and northeast Minneapolis, although that service is not currently funded.

Heated Shelter Placement

The placement rate for heated shelters at warranted locations violates the four-fifths rule for low-income and minority populations. There are a total of 6 shelters in the entire system located outside of Downtown areas (including Downtown Minneapolis, Downtown St. Paul, and the University of Minnesota Minneapolis and St. Paul campuses) that meet the heat warrant of 80 daily boardings and have a shelter. It is *not* Metro Transit's standard practice to install heated standalone shelters at individual locations. Most often, standalone heated shelters are installed in broader corridor initiatives in the Downtown areas. Occasionally, standalone heated shelters are installed at individual locations as requests are received. Previously, the decision to install a heated standalone shelter has been based on:

- Average daily customers boardings (at least 80 daily);
- Cost and feasibility of bringing electricity to the shelter; and
- Waiting environment and length of wait times.

The methodology employed in this study relied on a shelter's location within a census-defined block as the way of determining whether it serves either minority or low income populations. However, upon a closer look at the 6 shelters that meet our warrants and have heat, it was shown that these shelters are in fact serving Title VI protected populations. In 4 of the cases, the shelters are located on sides of the street where the land use is predominantly commercial. However, the surrounding block groups that are predominantly residential, and most likely providing the population being served by the shelter, are predominantly minority/low-income. In the last 2 cases, the surrounding residential block groups are evenly mixed between predominantly minority/low-income and predominantly non-minority/non-low income.

Next Steps

Market Area I Urban Crosstown Route Spacing

Many factors impact route spacing and should be considered when conducting future reviews. These could include factors such as market demand, geographical barriers, appropriate operating environments for buses, and constrained operational funding. In addition to the consideration of these factors in future reviews, Metro Transit will prioritize the study of crosstown corridors in Title VI sensitive areas in future planning efforts.

Heated Shelter Placement

Based both on the low numbers of standalone shelters with heat, and the fact that, in reality, the majority of the shelters do serve Title VI protected populations, it is unlikely that the distribution of heated shelters represents a statistically valid system-wide concern and therefore there is no potential for disparate impacts. However, the impact on the potential for disparate impacts will be taken into consideration before the implementation of any additional heated shelters.

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 provided to predominantly minority and predominantly low-income areas with service provided to other areas to ensure disparate impacts are not a result of policies and decision. *Disparate impact* refers to facially neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI, and the recipient's policy or practice lacks a substantial legitimate justification.

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 service design with standards defined in the Metropolitan Council's *2030 Transportation Policy Plan*.

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."

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 predominantly low-income and predominantly minority areas with other areas. Recipients are to identify the average of minority or low-income population of their transit service area to determine predominant areas. The Metropolitan Council transit service area is not formally defined. However, fixed route transit services are primarily provided within the Transit Capitol Taxing District. For purposes of this review, the geographic extent of the Metro Transit/Metropolitan Council transit service area was defined as the area within the Transit Capitol Taxing District. Predominantly low-income and predominantly minority areas are further defined and described in this section.

Predominantly Low-Income Areas

The FTA defines a low-income individual as one whose household income is at or below the poverty thresholds set by the Department of Health and Human Services (DHHS). DHHS poverty thresholds are based on household size and income, and are nearly identical to the guidelines used to define poverty in the 2005-2009 American Community Survey 5-Year Estimates, which form the basis of this review. FTA defines a predominantly low-income area as one where the proportion of low-income persons residing

in that area exceeds the average proportion of low-income persons in the overall service area. Based on data from the 2005-2009 American Community Survey 5-Year Estimates, the percentage of low-income individuals in the service area is 11.9 percent. Low-income block groups are thereby defined as those where the low-income population is greater than 11.9 percent of the overall area population.

Of the 1,608 block groups inside the Metro Transit/Metropolitan Council service area, 585 are identified as predominantly low-income using this definition. Predominantly low-income block groups in the service area are shown in Figure 1.

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. 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 2010 U.S. Census data, the percentage of minority individuals in the Metro Transit/Metropolitan Council service area is 27.9 percent. Minority blocks are thereby defined as those whose minority population is greater than 27.9 percent of the overall block population.

Of the 36,118 blocks inside the Metro Transit/Metropolitan Council service area, 7,654 are identified as predominantly minority using this definition. Predominantly minority blocks in the service area are shown in Figure 2.

Reviewing Standards for Disparate Impacts

Service and facility standards were compared to the services provided in Title VI-protected population and non-Title VI-protected population areas. The standards evaluated in the Technical Analysis section of the report are listed below.

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

Determining Disparate Impacts and the Four-Fifths Rule

The Federal Transit Administration defines “disparate impacts” as neutral policies or practices that have the effect of disproportionately excluding or adversely affecting members of a group protected under Title VI, and the recipient’s policy or practice lacks a substantial legitimate justification. If the results of

the analysis indicated a potential for disparate impacts, further investigation was performed. This investigation used qualitative assessments and/or the “four-fifths rule” to determine whether disparate impacts exist.

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

In this analysis, if the quantitative results indicated that service standard compliance in predominantly minority/low-income areas was less than 80 percent of the compliance rate for non-minority/non-low-income areas, there could be evidence of disparate impacts. If disparate impacts are found using this threshold, mitigation measures should be identified.

Transit Market Areas

Several of the standards included in this review differ based on the Transit Market Area being evaluated. The Metropolitan Council’s *2030 Transportation Policy Plan* (TPP) defines five unique Transit Market Areas based on a combination of population density, employment density, and auto availability. 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. Regional design standards are custom-tailored for each transit Market Area¹. These standards represent typical design guidelines for transit service, though exceptions exist based on specific conditions. The locations of Market Areas throughout the region are shown in Figure 3. Market Area-specific standards are identified in this review where applicable and illustrated in the included figures.

¹ Additional information on the characteristics and service design for each Market Area can be found in the Metropolitan Council’s *2030 Transportation Policy Plan*.

Route Low-Income/Minority Makeup

For the purposes of this analysis, all routes were defined as low-income/minority routes or non-low-income/non-minority routes. The FTA's proposed circular 4702.1B provides guidance on the approach to determining which routes fall into these categories:

Minority Transit Route means a route that has at least 1/3 of its total route mileage in a census tract(s) or traffic analysis zone(s) with a percentage of minority population greater than the percentage of minority population in the transit service area. Recipients have the option of defining a minority route based on the above definition or using local demographics and/or ridership characteristics.

Using this guidance, the demographic makeup of each route was determined. A separate process was used for local routes, express routes not serving park-and-rides, and express routes serving park-and-rides. For each route type, the route makeup was determined based on weekday route configurations.

Local Routes

Local routes were defined as low-income/minority or non-minority/non-low-income based on the percentage of route mileage multiplied by the number of trips serving low-income or minority census divisions (defined as those divisions within 0.25 mile of the route's boarding portions).

- A route with more than one-third of its revenue mileage serving predominantly low-income/minority areas was defined as a low-income/minority route
- A route with less than one-third of its revenue mileage serving predominantly low-income/minority areas was defined as a non-low-income/non-minority route.

Express and Limited Stop Routes Not Serving Park-and-Rides

The demographic makeup of these routes was calculated in a similar manner to local routes. However, only service on the local service portions of the routes was used to calculate the makeups. Non-stop service and service in downtown Minneapolis, downtown St. Paul, or the University of Minnesota St. Paul and Minneapolis campuses was excluded from these calculations. These markets represent the destination of the service and not the residential populations they serve.

Express Routes Serving Park-and-Rides

Unlike local route service, park-and-ride facilities attract users from a wide geographic area. As such, assigning each park-and-ride the characteristics of the block or block group in which it is located would not provide an accurate estimation of the demographic makeup of the park-and-ride users.

Metro Transit collects home address information for park-and-ride users at each of its facilities every two years to document and better understand each park-and-ride facility's demand and geographic market. This address data was last collected during a sample period in October 2010. To determine the demographic makeup of each park-and-ride, the address of each user was geocoded and associated with the demographic makeup of the census block group in which it was located. For example, if ten users were located in a block group with 30 percent minority population, three users were assumed to be minority and seven were assumed to be non-minority.

For each park-and-ride, the estimated numbers of low-income/minority and non-low-income/non-minority users was then aggregated to calculate the average demographic makeup of the park-and-ride users at each facility. Similar to the approach for local routes,

- Express routes serving park-and-rides with a low-income/minority makeup exceeding one-third of the users were identified as low-income/minority routes.
- Express routes serving park-and-rides with a low-income/minority makeup less than one-third of the users were identified as non-low-income/non-minority routes.

A summary of the demographic makeup of routes is provided in Appendix A.

Technical Analysis

Vehicle Assignment

Metro Transit has five bus garages, along with a light rail and a commuter rail depot. Many routes are operated out of multiple garages and not necessarily designed to serve a specific area. Light rail and commuter rail vehicle assignment were not evaluated, as all vehicles are generally the same stock and are rotated consistently to balance the life of the train cars.

In addition, the Metropolitan Council Metropolitan Transportation Services (MTS) contracts out 33 routes for private providers to operate. As of winter 2012, there were four providers using seven separate garage locations. In most cases, the Metropolitan Council maintains ownership of buses and assigns them to providers with the contract to operate the service. Occasionally a private provider is asked to provide the vehicle as part of the contract.

A total of 921² Metro Transit buses and 96 MTS buses were used to provide fixed route services in the fall of 2011. The fleets included:

- 26 commuter coach buses (model years 1998, 1999, 2009)
- 56 high-floor articulated buses (model years 1998, 2003, 2004, 2006)
- 101 low-floor articulated buses (model years 2007-2011)
- 448 high-floor 40' buses (model years 1999-2004)
- 224 low-floor 40' buses (model years 2003-2011)
- 97 low-floor 40' hybrids (model years 2002, 2003, 2007, 2008, 2010)
- 34 high-/low-floor 30' buses (model years 2002-2011)
- 31 small buses (model years 2003-2009)

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.

Policies

FTA Circular Language

Vehicle assignment refers to the process by which vehicles are placed into service in depots and routes. Vehicle assignment policies can be based on the age of vehicle, the type of vehicle, technology available on a vehicle, and/or the type of service offered. Vehicle age can be used as a proxy for vehicle condition.

Regional Fleet Policy

The Metropolitan Council adopted *Fleet Management Procedures* in 2010. 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

² The size of the Metro Transit active fleet at any given time during this period was 894 buses. However, because of bus retirements and replacements, the total number of buses that provided service during this period was 921.

vehicles to the extent feasible. 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 270, 272, 275, 288, 294, 355, 365, 375, 467, and 860.

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, 59, and 568.

Automatic Passenger Counter (APC)-Equipped Buses

Approximately one-third of all Metro Transit and one-half of MTS buses are equipped with APC. In order to get a complete sample of all trips, these buses are rotated throughout the system periodically. At Metro Transit, APC-equipped buses are assigned to a block for a period of two weeks. APC-equipped buses are rotated through the entire system 2-3 times each quarter.

Articulated Buses

Metro Transit has both low-floor and high-floor articulated buses in its fleet. These buses can be used 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. If articulated buses are used on a local route, an effort is made to use low-floor buses to speed boarding times.

Small Buses

Buses that are 30 feet or smaller are sometimes used by private providers under contract to MTS to provide service on lower-ridership suburban local routes.

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. Automatic Passenger Counters (APCs): The percentage of buses equipped in each sub-fleet should be the same across all garages.
7. Stability: a bus is kept at the same garage its entire service life if possible to provide ownership and accountability to the garage.
8. Sequential numbers: sequentially numbered groups of buses are kept together whenever possible to ease administrative tracking

Private Provider Fleet Management

MTS assigns vehicles to a specific provider garage as part of the contract; those buses normally do not transfer to another provider during the life of the contract. If a new provider 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 can assign any bus to any route as long as it is the correct size and type of bus. As a matter of practice, private providers prefer to assign the same vehicle to the same operator on a regular basis to track vehicle maintenance and condition concerns.

Analysis Method

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. To generate a report of the average age of buses by route, first it was necessary to determine what vehicle type was assigned to each weekday trip during the fall of 2011. 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. Using a combination of these sources, vehicle age was established for 99.78% of all trips. In cases where more than one vehicle was used to operate a trip³, the age of the first vehicle assigned was used.

A report of average bus age by route for weekday trips assigned in the fall of 2011 was used as the primary data source. The demographic makeup of each route was compared to the average age of the buses used to provide service on these routes to determine if there was a disparate impact in the age of buses used on low-income and minority routes.

Additionally, vehicle assignment was evaluated by comparing the average age of assigned buses to the average age of the buses available at each route's respective garage. In this case, "buses available" considers only the buses located at the garage of the appropriate size and type for the route.

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.

Results

As of September 2011, the average age of vehicles in the Metro Transit fleet was 5.98 years. The average age of vehicles in the MTS fleet was 5.51 years. The average age of the combined Metro Transit/MTS fleet was 5.93 years. It should be noted that these figures for the average fleet age will not necessarily be equal to the average assigned vehicle age or the average age of vehicles available at each individual garage. The assigned/available ages reported in this analysis represent an average of vehicles observed for each individual trip analyzed, and therefore represent a weighted result influenced by the number of bus trips in the observed sample.

Additionally, Metro Transit was in the process of retiring old buses and incorporating new buses into the fleet during the fall quarter of 2011. 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. The average age of the buses actually assigned reflects this drop. The average age of the buses available is more reflective of the average age at the end of the period, and explains why many routes appear to have been assigned buses older than what was available.

A summary of vehicle assignment by route is provided in Appendix B.

Predominantly Low-Income Routes

Table summarizes the average age of assigned vehicles for low-income and non-low-income routes.

Table 1: Vehicle Assignment (Low-Income Routes)

	All Routes	Low-Income Routes	Non-Low-Income Routes
Average Assigned Vehicle Age	5.69 years	5.63 years	5.75 years
Observed Age Variance (Assigned vs. Average Available⁴)	+0.44 years	+0.15 years	+0.75 years

The average age of buses assigned to low-income routes is 5.63 years, and the average age of buses assigned to non-low-income routes is 5.75 years. This means that on average, vehicles operated on low-income routes are newer than those on non-low-income routes. In addition, the average low-income route was assigned a bus that was 0.15 years older than the average bus that could be assigned, while the average non-low-income route was assigned a bus that was 0.75 years older than the average bus that could be assigned. **No potential for disparate impact was found for low-income populations relative to vehicle assignment.**

⁴ "Average Available" refers to the average age of the fleet present at the garage meeting all requirements described in the previous section. For example, if a trip requires a low-floor articulated bus, then the "Average Available" represents the average age of only low-floor articulated buses at a garage, excluding buses of other types.

Predominantly Minority Routes

Table 2 summarizes the average age of assigned vehicles for minority and non-minority routes.

Table 2: Vehicle Assignment (Minority Routes)

	All Routes	Minority Routes	Non-Minority Routes
Average Assigned Vehicle Age	5.69 years	5.56 years	5.81 years
Observed Age Variance (Assigned vs. Average Available⁴)	+0.44 years	+0.13 years	+0.73 years

The average age of buses assigned to minority routes is 5.56 years, and the average age of buses assigned to non-minority routes is 5.81 years. This means that on average, vehicles operated on minority routes are newer than those on non-minority routes. In addition, the average minority route was assigned a bus that was 0.13 years older than the average bus that could be assigned, while the average non-minority route was assigned a bus that was 0.73 years older than the average bus that could be assigned. **No potential for disparate impact was found for minority populations relative to vehicle assignment.**

Maximum Passenger Load Standards

The regional standards for vehicle loads are identified in the TPP as follows:

The number of riders on board the vehicle as a percentage of the number of seats. This value is used to determine when the bus is overloaded and additional service is needed. If the result is greater than 100%, then some standees are acceptable.

A summary of the specific maximum load standards stated in the TPP and analyzed in this review is shown in Table 3. Maximum load standards are not market area-specific. The TPP also defines minimum load standards for service types and times of day; however, these are not evaluated in this review because they are not representative of a poor transit experience.

Table 3: Maximum Load Standards by Route Type and Time of Day

Route Type	Maximum Load – Peak (6–9 a.m. and 3–6:30 p.m.)	Maximum Load – Off-peak (all other times)
Express	100%	100%
Urban Radial	125%	100%
Urban Crosstown	125%	100%
Suburban Local/Circulator	125%	100%
Limited Stop	115%	100%

The TPP states that maximum load standards are flexible on the fringe of the peak period. During the peak period, the standards represent the maximum customer load average over a 15-minute period on a consistent basis. In the off-peak, the standards represent the maximum customer load average over a 30-minute period on a consistent basis. These definitions are important in determining where overloads

are problematic. Peak and off-peak time period definitions (noted in Table 3) are based on the regional fare structure.

Data and Exclusion

This Title VI review used data from Metro Transit/Metropolitan Council's automatic passenger counter (APC) system to examine loads. The review was based on data from schedules effective September 2011, with actual data collected from September 2011 to February 2012. Loads on Saturday and Sunday were not examined because weekend ridership is generally lower than weekday ridership, and weekend overloads are rare.

The March 2010 monitoring review did not include Metropolitan Transportation Services (MTS) routes operated by private contractors, as the fleet on these services was not yet outfitted with APC equipment. Since that time, the MTS fleet has been outfitted with APCs; as such, these routes were included in this analysis.

Analysis Method

Each stop-level bus load observation was assigned to either the peak or off-peak period based on the scheduled time at the stop and the regional fare structure time period. The maximum acceptable load factor (from Table 3) was assigned to each observation based on the peak/off-peak designation and route type. Based on the seat capacity of the vehicle, the actual load factor (as a percentage of seated capacity) was calculated for each observation. If the actual load factor exceeded the standard, the observation was identified as an overload. For each trip-stop (observation of a unique trip at a unique stop) the percentage of overloaded trips was then calculated. Using the percent of overloaded trips rather than the absolute number of observed overloaded trips eliminates the statistical bias that could exist from sampling some trips more often than others.

Metro Transit considers a trip to be **consistently overloaded** if it experiences an overload 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. All trip-stops that were not sampled at least 5 times were screened from the analysis at this point. The remaining trip-stops were aggregated by route, stop, and hour of the day to yield a summary dataset containing a count of both adequately sampled trips and consistently overloaded trips occurring within each stop-hour⁵.

The TPP specifies that the load standards represent the average load at a location over a 15-minute period (peak) or a 30-minute period (off-peak). For this review, these defined periods for sustained overloading were converted into ratios reflecting the average overload over an hour:

- Sustained overload over a 15-minute period (peak) = 25% of trips in an hour
- Sustained overload over a 30-minute period (off-peak) = 50% of trips in an hour

⁵ A stop-hour is equal to one hour of service at a single stop by a single route

To determine these overload ratios, the number of consistently overloaded trips was divided by the total number of trips for each stop-hour. For stop-hours falling within the peak periods (6-9 a.m. and 3-7 p.m.⁶), the stop-hour was deemed non-compliant with the standard if the ratio exceeded 25 percent; for stop-hours outside the peak periods, the non-compliance threshold was 50 percent.

Compliance with the maximum load standard was compared with minority/non-minority and low-income/non-low-income areas based on the demographic makeup of the census division in which each stop is located. Stops in census divisions in downtown St. Paul, downtown Minneapolis, and the University of Minnesota St. Paul and Minneapolis campuses were excluded from the analysis, as they serve markets different from the residential populations that define their minority/low-income makeup.

Results

Based on September 2011 schedules, Metro Transit/Metropolitan Council transit routes provide a total of 181,261 stop-hours of service at 11,929 stops outside of downtown St. Paul, Minneapolis, and the University of Minnesota St. Paul and Minneapolis campuses. Only 68 (0.04 percent) of the 181,261 stop-hours represent consistent and sustained overloads not in compliance with the TPP standard.

Predominantly Low-Income Areas

Of the 181,261 total stop-hours of service, 83,354 serve stops in predominantly low-income areas (46 percent) and 97,907 serve stops in predominantly non-low-income areas (54 percent). Table 4 summarizes compliance with the load standard for stop-hours at low-income stops relative to stop-hours at non-low-income stops.

Table 4: Compliance with Load Standard by Stop-Hour (Low-Income)

	All Stop-Hours		Stop-Hours at Low-Income Stops		Stop-Hours at Non-Low-Income Stops	
In compliance with standard	181,193	99.96%	83,299	99.93%	97,894	99.99%
<i>Four-fifths threshold</i>						79.99%
Not in compliance with standard	68		55		13	
Total	181,261		83,354		97,907	

Although low-income stop-hours comply with the maximum load standard at a slightly lower rate than non-low-income stop-hours, the rate of compliance at low-income stops is still well above the four-fifths threshold of 79.99 percent. Also, although 55 of the 68 stop-hours that were not in compliance with the standard are in low-income areas, this number is relatively insignificant compared to the percentage of total system stop-hours in compliance with the standard. **No potential for disparate impact was found for low-income populations relative to maximum load standards.**

⁶ The p.m. peak period is defined as 3:00 p.m. to 6:30 p.m. Because the analysis was completed at the stop-hour level, the 6-7 p.m. hour was included in the p.m. peak period.

Predominantly Minority Areas

Of the 181,261 total stop-hours of service, 66,958 serve stops in predominantly minority areas (37 percent) and 114,303 serve stops in predominantly non-minority areas (63 percent). Table 5 summarizes compliance with the load standard for stop-hours at minority stops relative to stop-hours at non-minority stops.

Table 5: Compliance with Load Standard by Stop-Hour (Minority)

	All Stop-Hours		Stop-Hours at Minority Stops		Stop-Hours at Non-Minority Stops	
In compliance with standard	181,193	99.96%	66,929	99.96%	114,264	99.97%
<i>Four-fifths threshold</i>						79.97%
Not in compliance with standard	68		29		39	
Total	181,261		66,958		114,303	

Although minority stop-hours comply with the maximum load standard at a slightly lower rate than non-minority stop-hours, the rate of compliance at minority stops is still well above the four-fifths threshold of 79.97 percent. Also, although 29 of the 68 stop-hours that were not in compliance with the standard are in low-income areas, this number is relatively insignificant compared to the percentage of total system stop-hours in compliance with the standard. **No potential for disparate impact was found for minority populations relative to maximum load standards.**

Service Availability – Midday Headway

Service availability was evaluated based on the existence of transit service at the maximum required headway during the midday off-peak period. The Market Area-specific maximum headway standards identified in the TPP are as follows:

- Market Area I: off-peak headway standards call for 30-minute headway or less.
- Market Area II: off-peak headway standards call for 60-minute headway or less.
- Market Area III: off-peak headway standards call for 60-minute headway or less on urban radial routes and 90-minute headway or less on suburban local routes. For this analysis, the 60-minute headway standard was used on all Market Area III route types.

Data and Exclusion

The data used for the analysis of this theme encompasses every Metro Transit/MTS bus stop within Market Areas I, II, and III. At each bus stop, the average headway for all combined transit service between the hours of 11:00 a.m. and 2:00 p.m. was used to identify bus stops as either providing service or not providing service.

Analysis Method

Within Market Area I, bus stops with an average combined headway of 30 minutes or greater were identified as providing midday service. Within Market Areas II and III, bus stops with an average combined headway of 60 minutes or greater were identified as providing midday service.

Using GIS, a buffered area was generated around each bus stop identified as providing midday service. A buffer distance of 0.25 miles was used for regular bus stops and a buffer distance of 0.5 miles was used for transitway stations. Areas within these buffers were identified as meeting the standard. Gaps between these buffered areas were identified as not meeting the standard. The coverage area was overlaid against census divisions to calculate the percentage of each census area that meets the standard.

A census block group was considered in compliance with the midday headway standard if it was 95 percent covered by bus stop buffers. Because census blocks cover much smaller areas than block groups, a census block was considered in compliance if it was 100 percent covered.

Results

Predominantly Low-Income Areas

Out of the 1,461 block groups analyzed, 560 (38.3 percent) meet the service availability standards for midday headway. Table 14 summarizes midday headway standards compliance for all block groups in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 12.

Table 14: Midday Headway Service Availability Standard Compliance (Low-Income)

	All Block Groups		Low-Income Block Groups		Non-Low-Income Block Groups	
Complies with standard	560	38.3%	324	56.6%	236	26.5%
Not in compliance with standard	901		248		653	
Total	1,461		572		889	

At 56.6 percent, low-income block groups meet the midday headway standards at a higher rate than non-low-income block groups, of which 26.5 percent meet the standards. **Because compliance for low-income areas is higher than compliance for non-low-income areas, the analysis does not indicate disparate impact patterns of midday headway service availability.**

Predominantly Minority Areas

Out of the 30,112 blocks analyzed, 14,510 (48.2 percent) meet the service availability standard for midday headway. Table 15 summarizes the midday headway standards compliance for all blocks in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 13.

Table 15: Midday Headway Service Availability Standard Compliance (Minority)

	All Blocks		Minority Blocks		Non-Minority Blocks	
Complies with standard	14,510	48.2%	4,863	66.6%	9,647	42.3%
Not in compliance with standard	15,602		2,436		13,166	
Total	30,112		7,299		22,813	

At 66.6 percent, minority blocks meet the midday headway standards at a higher rate than non-minority blocks, of which 42.3 percent meet the standard. **Because compliance for minority areas is higher than compliance for non-minority areas, the analysis does not indicate disparate impact patterns of midday headway service availability.**

Service Availability – Bus Stop Spacing

Distance between bus stops affects route travel time and access to transit. Bus stop spacing standards are outlined in the TPP as follows:

Bus stops that are close together reduce walking distance and [improve] access to transit, but tend to increase bus travel time. This recommended spacing seeks to achieve a balance.

- 6-8 stops per mile for local service
- 1-2 stops per mile for limited stop service

The 6-8 stops per mile standard was used as the basis for this review, representing a distance of 660 to 880 feet between bus stops. To account for cases where street networks or other geographic features do not allow for stop spacing within the TPP-defined range, this review expanded the allowable range by considering stop spacing within 100 feet of the prescribed range acceptable (560 to 980 feet between stops). This approach also accounts for slight variations due to alternating near-side and far-side bus stop locations.

Data and Exclusion

The universe of analysis for this theme encompasses every bus stop in the Metro Transit/MTS service area. The bus stop spacing standards are designed to apply to local bus services only (including the boarding portions of express routes). Limited stop bus routes and transitways are designed with stops every 0.5 to 1 mile. The detailed planning process for transitways and special service design of limited stop routes result in appropriate levels of service that respond to the needs and demands of specific transit corridors. As such, stop spacing for these route types were not included in the analysis. In addition, because the analysis focuses primarily on residential boarding activity, census divisions within downtown St. Paul, downtown Minneapolis, and the University of Minnesota St. Paul and Minneapolis campuses were excluded from the analysis.

Analysis Method

Using GIS, the distance between two stops on a bus route was calculated and assigned to the geographic link connecting the stop pair based on the centroid of the “stop link” (path on the street network between stops). To avoid erroneously including non-stop portions of limited-stop or express routes, stop links greater than 0.4 miles were excluded from the analysis.

Each stop link was then associated with the census division in which it is located. Stop links located in predominantly minority blocks were designated as minority stop links and stop links located in predominantly low-income block groups were designated as low-income stop links. Analysis was conducted to determine whether stop links in predominantly low-income or predominantly minority areas comply with the spacing standard at comparable rates to non-low-income/non-minority stop links.

Results

The analysis examined 11,471 stop links. The rate of compliance with the standard for all stop links is 53.0 percent. The stop link distances in the remaining 47.0 percent of block groups are either above or below the target range of 560 to 980 feet (6 to 8 stops per mile +/- 100 feet).

Predominantly Low-Income Areas

Of the 11,471 stop links included in the analysis, 4,372 (38 percent) are located in predominantly low-income areas and 7,099 (62 percent) are not located in predominantly low-income areas. Table 16 summarizes compliance with the bus stop spacing standard for all stop links, low-income stop links, and non-low-income stop links in the Metro Transit/MTS service area. Spatial distribution of adherence to the standard is depicted in Figure 14.

Table 16: Bus Stop Spacing Standard Compliance (Low-Income)

	All Stop Links		Low-Income Stop Links		Non-Low-Income Stop Links	
Complies with standard	6,080	53.0%	2,557	56.7%	3,523	49.6%
Not in compliance with standard	5,391		1,815		3,576	
Less than target range (<560 feet)	3,062	26.7%	990	22.6%	2,072	29.2%
Greater than target range (>980 feet)	2,329	20.3%	825	18.9%	1,504	21.2%
Total	11,471		4,372		7,099	

Stop links in low-income areas comply with the standard at a higher rate than all stop links in the service area. The data show that 56.7 percent of low-income stop links are spaced at acceptable distances, compared with 49.6 percent of non-low-income stop links. **The analysis does not show disparate impact patterns of bus stop spacing adversely affecting low-income populations.**

Predominantly Minority Areas

Of the 11,471 stop links included in the analysis, 3,737 (33 percent) are located in predominantly minority areas and 7,734 (67 percent) are not located in predominantly minority areas. Table 17 summarizes compliance with the bus stop spacing standard for all stop links, minority stop links, and non-minority stop links in the Metro Transit/MTS service area. Spatial distribution of adherence with the standard is depicted in Figure 15.

Table 17: Bus Stop Spacing Standard Compliance (Minority)

	All Stop Links		Minority Stop Links		Non-Minority Stop Links	
Complies with standard	6,080	53.0%	2,224	59.9%	3,856	49.9%
Not in compliance with standard	5,391		1,513		3,878	
Less than target range (<560 feet)	3,062	26.7%	926	24.8%	2,136	27.6%
Greater than target range (>980 feet)	2,329	20.3%	587	15.7%	1,742	22.5%
Total	11,471		3,737		7,734	

Stop links in minority areas comply with the standard at a higher rate than all stop links in the service area. The compliance rate for minority stop links is 59.9 percent, compared to a compliance rate of 53.0 percent for all stop links. **The analysis does not show disparate impact patterns of bus stop spacing adversely affecting minority populations.**

Headway Standards

The Market Area-specific headway standards⁹ identified in the TPP are as follows:

Service frequency is expressed as the average number of minutes between transit vehicles on a given route or line, moving in the same direction. This table shows the recommended minimum service frequency for each service type in a given Market Area.

Route Type	Area I	Area II	Area III	Area IV	Area V
Express	30" Peak	30" Peak	3 Peak Trips	3 Peak Trips	N/A
Urban Radial	15" Peak/ 30" Offpeak	30" Peak/ 60" Offpeak	60" Peak/ 60" Offpeak	N/A	N/A
Urban Crosstown	30" Peak/ 30" Offpeak	30" Peak/ 60" Offpeak	N/A	N/A	N/A
Suburban Local/Circulator	N/A	30" Peak/ 60" Offpeak	60" Peak/ 90" Offpeak	N/A	N/A

For the purposes of this Title VI review, 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.

Data and Exclusion

Schedule information from September 2011 was used as the baseline for this analysis. Average headways were calculated for each route at each stop over the midday and peak periods. Each instance of a route serving a stop was referred to as a single route-direction¹⁰. Each route-direction was then identified as either complying or not complying with the headway standards based on route type and Market Area.

To account for instances where an average route headway slightly exceeds the service area standard due to operational considerations¹¹, a route was considered in compliance for a 15-minute headway if the average headway was less than or equal to 18 minutes; in compliance for a 30-minute headway if the average headway was less than or equal to 35 minutes; and in compliance for a 60-minute headway if the average headway was less than or equal to 65 minutes. Additionally, the 60-minute headway standard was applied to all Market Area III routes.

Analysis Method

Midday and Peak Local

To determine which census areas were served by which route-directions, a 0.25-mile buffer was generated around each stop with midday or peak local service. Any census area that intersected these buffers was identified as being served by the route-directions at that stop. The numbers of route-directions complying and not complying with the headway standards were then tallied for each census

⁹ The term "headway" is used throughout this report in place of service "frequency," as used in the TPP.

¹⁰ A single stop typically serves only one direction of a bi-directional route.

¹¹ These instances may be the result of transitional service levels at the beginning and end of the period, or the result of demand-driven schedule modifications.

area. If at least 50 percent of the route-directions serving a census area were in compliance with the headway standards, that census area was identified as in compliance. If less than 50 percent of the route-directions serving a census area were in compliance with the headway standards, that census area was identified as not in compliance.

Express Peak

Although the TPP standards state that express service during peak periods operate at a maximum 30-minute headway, in actual planning practice express service headways are determined based primarily on demand. As such, it was determined that a detailed analysis of express route headways was not required. However, a preliminary analysis of express routes found only three express routes that did not meet the TPP standard.

Peak express service in Market Areas I and II is provided as an overlay to the urban local network that is well-established in these areas. Additional service beyond three trips spaced no more than 30 minutes apart is provided as demand warrants, taking into account the presence of competitive local service, key work shift start/end times, and a scaling of service levels as appropriate. Metro Transit currently provides a minimum of three peak trips in Market Areas I and II, similar to the headway standards for Market Areas III and IV.

Express routes typically require park and ride facilities to generate ridership levels that would warrant service outside of the three or four key work start and end times. However, the majority of peak express routes in Market Area I and II are not anchored by a large park and ride and instead serve local neighborhoods.

Results

Predominantly Low-Income Areas

Midday Local

Out of the 1,231 block groups with midday local service, 1,199 (97.4 percent) are in compliance with the midday local headway standards. Table 18 summarizes midday local headway standards compliance for all block groups in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 16.

Table 18: Midday Local Headway Standards Compliance (Low-Income)

	All Block Groups		Low-Income Block Groups		Non-Low-Income Block Groups	
Complies with standard	1,199	97.4%	498	98.6%	701	96.6%
Not in compliance with standard	32		7		25	
Total	1,231		505		726	

At 98.6 percent, low-income block groups meet the midday local headway standards at a higher rate than non-low-income block groups, of which 96.6 percent meet the standard. **No potential for disparate impact was found for low-income populations relative to midday local headway standards.**

Peak Local

Out of the 1,264 block groups with peak local service, 1,023 (80.9 percent) are in compliance with the peak local headway standards. Table 19 summarizes peak local headway standards compliance for all block groups in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 17.

Table 19: Peak Local Headway Standards Compliance (Low-Income)

	All Block Groups		Low-Income Block Groups		Non-Low-Income Block Groups	
Complies with standard	1,023	80.9%	421	83.0%	602	79.5%
Not in compliance with standard	241		86		155	
Total	1,264		507		757	

At 83.0 percent, low-income block groups meet the peak local headway standards at a higher rate than non-low-income block groups, of which 79.5 percent meet the standards. **No potential for disparate impact was found for low-income populations relative to peak local headway standards.**

Predominantly Minority Areas

Midday Local

Out of the 1,231 block groups with midday local service, 1,199 (97.4 percent) are in compliance with the midday local headway standards. Table 20 summarizes midday local headway standards compliance for all block groups in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 18.

Table 20: Midday Local Headway Standards Compliance by Route Type (Minority)

	All Block Groups		Minority Block Groups		Non-Minority Block Groups	
Complies with standard	1,199	97.4%	535	98.2%	664	96.8%
Not in compliance with standard	32		10		22	
Total	1,231		545		686	

At 98.2 percent, minority block groups meet the midday local headway standard at a higher rate than non-minority block groups, of which 96.8 percent meet the standard. **No potential for disparate impact was found for minority populations relative to midday local headway standards.**

Peak Local

Out of the 1,264 block groups with peak local service, 1,023 (80.9 percent) are in compliance with the peak local headway standards. Table 21 summarizes peak local headway standards compliance for all block groups in Market Areas I, II, and III. Geographic distribution of compliance with the standards is depicted in Figure 19.

Table 21: Peak Local Headway Standards Compliance by Route Type (Minority)

	All Block Groups		Minority Block Groups		Non-Minority Block Groups	
Complies with standard	1,023	80.9%	453	83.0%	570	79.4%
Not in compliance with standard	241		93		148	
Total	1,264		546		718	

At 83.0 percent, minority block groups meet the peak local headway standards at a higher rate than non-minority block groups, of which 79.4 percent meet the standard. **No potential for disparate impact was found for minority populations relative to peak local headway standards.**

Distribution of Transit Amenities

The transit amenities standards examine distribution of bus shelters, customer information, and the distribution of amenities in park-and-rides, transit centers, and transitway stations.

Bus Shelter Distribution

The TPP includes the following standards for bus shelter distribution:

A standard shelter location may be appropriate if the following ridership target is met at a proposed stop.

- Minneapolis and St. Paul: ≥ 40 boardings per day
- All other areas: ≥ 25 boardings per day

In addition, heaters are occasionally installed in shelters with a warrant of 80 or more passenger boardings per day. No warrants or guidance currently exist regarding the placement of lighting at shelters.

Data and Exclusion

A known exception to the regional standard occurs in Roseville, where the city installs shelters as desired regardless of passenger volumes. Therefore, bus stops in Roseville were not included in the review.

In addition, private entities such as CBS Outdoor and private property owners are allowed to install shelters without Metro Transit consent. Metro Transit does not install its own shelters at warranted privately-owned shelters, nor does the agency remove unwarranted privately-owned shelters. As such:

- Warranted privately-owned were included in the analysis.
- Unwarranted privately-owned shelters were excluded from the analysis.

Also, because the focus of the standard is on distribution of shelters near residential locations, stops within downtown Minneapolis, downtown St. Paul, and the University of Minnesota St. Paul and Minneapolis campuses were excluded. The demographic makeup of bus stop users in these areas will not necessarily match the makeup of the surrounding residential areas on which the minority/low-income analysis is based.

Analysis Method

A database of bus shelters was reviewed alongside a database of boarding data to determine which stops meet the ridership warrant and whether a shelter is provided at those locations. For this analysis, Metro Transit staff identified locations where multiple bus stops are considered to be served by a single shelter. The dataset was manually adjusted to accurately represent the location of these stop groups.

Using GIS, the stops and shelters were overlaid with census divisions to determine whether a disparate impact pattern exists between shelter distribution and location of predominantly low-income or predominantly minority areas. Bus stops located within minority census blocks were identified as minority bus stops; stops within low-income block groups were identified as low-income bus stops.

The rate of shelter distribution was compared for minority and non-minority bus stops, and low-income and non-low-income bus stops, using two analyses. The first analysis measured the rate of “warranted” shelter distribution at stops that meet the TPP boarding warrants.

However, whether a stop complies with the shelter standards is only part of the information needed to examine potential disparate impacts. The locations of unwarranted shelters were also examined separately to identify potentially disparate impact patterns. Therefore, the second analysis measured the rate of “unwarranted” shelter distribution at stops that do not meet the TPP boarding warrants.

The same analysis was repeated for heated shelters using the boarding warrants set forth in the TPP (80 daily boardings for heated shelters). Lighted shelter placement was also examined, although no applicable boarding warrant is stated for lights in the TPP.

Table 22 summarizes the analyses included in this section.

Table 22: Summary of Shelter Distribution Analyses

	Low-Income	Minority
Warranted standard shelter placement for stops meeting warrant	X	X
Unwarranted standard shelter placement for stops not meeting warrant	X	X
Warranted heated shelter placement for stops meeting warrant	X	X
Unwarranted heated shelter placement for stops not meeting warrant	X	X
Lighted shelter placement for all stops (no applicable warrant)	X	X

Results – Standard Shelters

Excluding stops in the city of Roseville, privately-owned shelters at stops where the boarding warrant is not met, and stops within downtown Minneapolis, downtown St. Paul, and the University of Minnesota St. Paul and Minneapolis campuses, 11,962 Metro Transit/Metropolitan Council-served bus stops were included in this analysis. Among all stops, 95.7 percent are in compliance with the standard shelter distribution standard, 2.7 percent of all stops meet the boarding warrant but do not have a shelter, and 1.6 percent of all stops have a shelter without meeting the warrant. These figures are outlined in Table 23.

Table 23: Standard Shelter Distribution Compliance for All Stops

	All Stops	
Complies with standard	11,448	95.7%
Does not meet warrant, does not have shelter	10,901	91.1%
Meets warrant, has shelter	547	4.6%
Does not comply with standard	514	4.3%
Meets warrant, does not have shelter	322	2.7%
Does not meet warrant, has shelter	192	1.6%
Total	11,962	100.0%

Figure 20 illustrates the distribution of standard shelters relative to the location of predominantly low-income block groups. Figure 21 illustrates the distribution of standard shelters relative to the location of predominantly minority blocks.

Predominantly Low-Income Areas

Of the 11,962 bus stops identified in the analysis, 4,470 (37 percent) are located in predominantly low-income block groups. The remaining 7,492 stops (63 percent) are not located in predominantly low-income block groups.

Warranted Shelters

Of all stops included in the analysis, 869 stops (7 percent) meet the boarding warrant for a standard shelter. Among the 4,470 stops located in low-income block groups, 593 stops (13 percent) meet the warrant for a shelter. Among the 7,492 stops located in non-low income areas, 276 stops (4 percent) meet the warrant for a shelter.

Table 24 summarizes the rate of shelter placement for low-income and non-low-income stops that meet the standard shelter warrant.

Table 24: Rate of Shelter Placement at Stops that Meet Warrant (Low-Income)

	All Stops		Low-Income Stops		Non-Low-Income Stops	
Meets warrant, has shelter	547	62.9%	382	64.4%	165	59.8%
Meets warrant, needs shelter	322		211		111	
Total stops meeting warrant	869		593		276	

The rate of shelter placement at stops meeting the warrant is higher among low-income stops (64.4 percent) than non-low-income stops (59.8 percent). **As a result, no potential disparate impact pattern of shelter placement exists between low-income and non-low-income stops that meet the standard shelter warrant.**

Unwarranted Shelters

Among all stops included in the analysis, 192 stops (1.7 percent) do not meet the boarding warrant but have a shelter. Table 25 summarizes the rate of unwarranted shelter placement for low-income and non-low-income stops.

Table 25: Rate of Unwarranted Shelter Placement (Low-Income)

	All Stops		Low-Income Stops		Non-Low-Income Stops	
Unwarranted shelter	192	1.7%	120	3.1%	72	1.0%
Does not meet warrant, no shelter	10,901		3,757		7,144	
Total stops not meeting warrant	11,093		3,877		7,216	

The rate of unwarranted shelter placement at stops that do not meet the warrant is higher among low-income stops (3.1 percent) than non-low-income stops (1.0 percent). **As a result, no potential disparate impact pattern of shelter placement exists between low-income and non-low-income stops that do not meet the standard shelter warrant.**

Predominantly Minority Areas

Of the 11,962 bus stops included in the analysis, 3,737 (31 percent) are located in predominantly minority blocks. The remaining 8,225 stops (69 percent) are not located in predominantly minority blocks.

Warranted Shelters

Of all stops included in the analysis, 869 stops (7 percent) meet the boarding warrant for a standard shelter. Among the 3,737 stops located in minority areas, 392 stops (10 percent) meet the warrant for a shelter. Among the 8,225 stops located in non-minority areas, 477 stops (6 percent) meet the warrant for a shelter.

Table 26 summarizes the rate of shelter placement for minority and non-minority stops that meet the standard shelter warrant.

Table 26: Rate of Shelter Placement at Stops that Meet Warrant (Minority)

	All Stops		Minority Stops		Non-Minority Stops	
Meets warrant, has shelter	547	62.9%	238	60.7%	309	64.8%
<i>Four-fifths threshold</i>						51.8%
Meets warrant, needs shelter	322		154		168	
Total stops meeting warrant	869		392		477	

The rate of shelter placement at stops meeting the warrant is lower among minority stops (60.7 percent) than non-minority stops (64.8 percent). However, the rate of shelter placement at minority stops is well above the four-fifths threshold of 51.8 percent. **As a result, no potential disparate impact pattern of shelter placement exists between minority and non-minority stops that meet the standard shelter warrant.**

Unwarranted Shelters

Among all stops included in the analysis, 192 stops (1.7 percent) do not meet the boarding warrant but have a shelter. Table 27 summarizes the rate of unwarranted shelter placement for minority and non-minority stops.

Table 27: Rate of Unwarranted Shelter Placement (Minority)

	All Stops		Minority Stops		Non-Minority Stops	
Unwarranted shelter	192	1.7%	87	2.6%	105	1.4%
Does not meet warrant, no shelter	10,901		3,258		7,643	
Total stops not meeting warrant	11,093		3,345		7,748	

The rate of unwarranted shelter placement at stops that do not meet the warrant is higher among minority stops (2.6 percent) than non-minority stops (1.4 percent). **As a result, no potential disparate impact pattern of shelter placement exists between minority and non-minority stops that do not meet the standard shelter warrant.**

Results – Heated Shelters

Including only Metro Transit-owned standalone shelters, only 11 heated shelters are included in the analysis.

Among 11,831 bus stops included in the heated shelter distribution analysis, 97.91 percent are in compliance with the shelter heat standard, 2.05 percent of stops meet the heat warrant but do not have heat, and 0.05 percent of stops have heated shelters without meeting the warrant. These figures are outlined in Table 28.

Table 28: Heated Shelter Distribution Compliance for All Stops

	All Stops	
Complies with heat standard	11,584	97.91%
Does not meet warrant, does not have heated shelter	11,578	97.86%
Meets warrant, has heated shelter	6	0.05%
Meets warrant, does not have heated shelter	242	2.05%
Does not meet warrant, has heated shelter	5	0.04%
Total¹²	11,831	100.00%

Predominantly Low-Income Areas

Of the 11,831 bus stops identified in the analysis, 4,386 (37 percent) are located in predominantly low-income block groups. The remaining 7,445 stops (63 percent) are not located in predominantly low-income block groups.

Warranted Heated Shelters

Of all stops included in the analysis, 248 stops (2.1 percent) meet the boarding warrant for a heated shelter. Among the 4,386 stops located in low-income block groups, 200 stops (4.6 percent) meet the warrant for a heated shelter. Among the 7,445 stops located in non-low income areas, 48 stops (0.6 percent) meet the warrant for a heated shelter. Table 29 summarizes the rate of heated shelter placement for low-income and non-low-income stops that meet the heated shelter warrant.

Table 29: Rate of Heated Shelter Placement at Stops that Meet Warrant (Low-Income)

	All Stops		Low-Income Stops		Non-Low-Income Stops	
Meets warrant, has heated shelter	6	2.4%	4	2.0%	2	4.2%
<i>Four-fifths threshold</i>						3.3%
Meets warrant, does not have heat	242		196		46	
Total stops meeting heat warrant	248		200		48	

¹² Total stops do not equal total stops reported in Table 28 (Standard Shelter Distribution) because stops co-located with park-and-rides/transit centers/transitway stations were excluded from the shelter heat distribution analysis. Amenities at these facilities are examined in the Transit Facilities section.

The rate of heated shelter placement at stops meeting the heated shelter warrant is lower among low-income stops (2.0 percent) than non-low-income stops (4.2 percent). In addition, the rate of heated shelter placement at low-income stops is below the four-fifths threshold of 3.3 percent. **As a result, a potential disparate impact pattern of shelter placement is identified between low-income and non-low-income stops that meet the heated shelter warrant.** This result is discussed further in the Additional Analysis of Potential Disparate Impacts section later in this report.

Unwarranted Heated Shelters

Among all stops included in the analysis, only 5 stops (0.04 percent) do not meet the boarding warrant but have a heated shelter. Table 30 summarizes the rate of these unwarranted heated shelter placements for low-income and non-low-income stops.

Table 30: Rate of Unwarranted Heated Shelter Placement (Low-Income)

	All Stops		Low-Income Stops		Non-Low-Income Stops	
Unwarranted heated shelter	5	0.04%	4	0.10%	1	0.01%
Does not meet warrant, no heat	11,578		4,182		7,396	
Total stops not meeting warrant	11,583		4,186		7,397	

The rate of unwarranted heated shelter placement at stops that do not meet the warrant is higher among low-income stops (0.10 percent) than non-low-income stops (0.01 percent). **As a result, no potential disparate impact pattern of heated shelter placement exists between low-income and non-low-income stops that do not meet the standard shelter warrant.**

Predominantly Minority Areas

Of the 11,831 bus stops identified in the analysis, 3,695 (31 percent) are located in predominantly minority areas. The remaining 8,136 stops (69 percent) are not located in predominantly minority areas.

Warranted Heated Shelters

Of all stops included in the analysis, 248 stops (2.1 percent) meet the boarding warrant for a heated shelter. Among the 3,695 stops located in minority blocks, 119 stops (3.2 percent) meet the warrant for a heated shelter. Among the 8,136 stops located in non-minority areas, 129 stops (1.6 percent) meet the warrant for a heated shelter.

Table 31 summarizes the rate of heated shelter placement for minority and non-minority stops that meet the heated shelter warrant.

Table 31: Rate of Heated Shelter Placement at Stops that Meet Warrant (Minority)

	All Stops		Minority Stops		Non-Minority Stops	
Meets warrant, has heated shelter	6	2.4%	1	0.8%	5	3.9%
<i>Four-fifths threshold</i>						3.1%
Meets warrant, does not have heat	242		118		124	
Total stops meeting heat warrant	248		119		129	

The rate of heated shelter placement at stops meeting the heated shelter warrant is lower among minority stops (0.8 percent) than non-minority stops (3.9 percent). In addition, the rate of heated shelter placement at minority stops is below the four-fifths threshold of 3.1 percent. **As a result, a potential disparate impact pattern of shelter placement is identified between minority and non-minority stops that meet the heated shelter warrant.** This result is discussed further in the Additional Analysis of Potential Disparate Impacts section later in this report.

Unwarranted Heated Shelters

Among all stops included in the analysis, only 5 stops (0.04 percent) do not meet the boarding warrant but have a heated shelter. Table 32 summarizes the rate of these unwarranted heated shelter placements for minority and non-minority stops.

Table 32: Rate of Unwarranted Heated Shelter Placement (Minority)

	All Stops		Minority Stops		Non-Minority Stops	
Unwarranted heated shelter	5	0.04%	2	0.06%	3	0.04%
Does not meet warrant, no heat	11,578		3,574		8,004	
Total stops not meeting warrant	11,583		3,576		8,007	

The rate of unwarranted heated shelter placement at stops that do not meet the warrant is higher among minority stops (0.06 percent) than non-minority stops (0.04 percent). **As a result, no potential disparate impact pattern of heated shelter placement exists between minority and non-minority stops that do not meet the standard shelter warrant.**

Results – Lighted Shelters

Guidance from the TPP states only that lights are to be occasionally provided at shelters. Metro Transit does not currently use a warrant to justify the placement of lighting as with heaters. Therefore, this analysis evaluated the overall lighting placement rates within the system between shelters located within low-income/minority areas and shelters located within non-low-income/minority areas. A total of 739 Metro Transit-owned, standalone shelters are included in the analysis.

Predominantly Low-Income Areas

Of the 739 standalone bus shelters identified in the analysis, 502 (68 percent) are located in predominantly low-income block groups. The remaining 237 shelters (32 percent) are not located in predominantly low-income block groups. Table 33 summarizes the lighting placement rate for low-income and non-low-income shelters.

Table 33: Rate of Lighted Shelter Placement (Low-Income)

	All Shelters		Low-Income Shelters		Non-Low-Income Shelters	
Lighted	242	32.7%	163	32.5%	79	33.3%
<i>Four-fifths threshold</i>						26.6%
Not lighted	497		339		158	
Total standalone shelters	739		502		237	

The lighting placement rate at standalone shelters is higher among non-low-income shelters (33.3 percent) than low-income shelters (32.5 percent). However, the placement rate at low-income shelters is above the four-fifths threshold of 26.6 percent. **As a result, no potential disparate impact pattern of shelter lighting placement exists between low-income and non-low-income shelters.**

Predominantly Minority Areas

Of the 739 standalone bus shelters identified in the analysis, 325 (44 percent) are located in predominantly minority blocks. The remaining 414 shelters (56 percent) are not located in predominantly minority blocks. Table 34 summarizes the lighting placement rate at shelters for minority and non-minority shelters.

Table 34: Rate of Lighted Shelter Placement (Minority)

	All Stops		Minority Shelters		Non-Minority Shelters	
Lighted	242	32.7%	108	33.2%	134	32.4%
Not lighted	497		217		280	
Total standalone shelters	739		325		414	

The lighting placement rate at standalone shelters is higher among minority shelters (33.2 percent) than non-minority shelters (32.4 percent). **As a result, no potential disparate impact pattern of shelter lighting placement exists between minority and non-minority shelters.**

Customer Information

The current TPP does not provide policy direction for the distribution of customer information. Instead, the focus of this analysis is the provision of customer information through the use of pocket schedule distribution locations. However, Metro Transit provides service information to its customers through a variety of means:

- Printed signs, system maps, and route maps are provided throughout the system. Schedule information provided in all shelters, including privately owned shelters.
- Information is also made available through real-time information signs. However, because of their limited deployment throughout the transit network, electronic real-time signs were excluded from this analysis. Currently these signs are only located in downtown Minneapolis along the Marquette and 2nd Avenue Express Bus Lanes and at a limited number of park-and-ride facilities along the I-35W corridor.
- 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.

The distribution of customer information was analyzed by comparing the number of three customer information tools:

- Pocket schedule distribution outlets
- Location of timetable displays
- Location of system map displays

The analysis compared the number of these items located within predominantly low-income/minority census block groups compared to the number of items located within predominantly non-low-income/minority block groups.

Data and Exclusion

The following data sources were used for this analysis:

- A list of 834 pocket schedule distribution locations addresses provided by Metro Transit's Transit Information Center. Using GIS, the address of each pocket schedule distribution location was geocoded. All data was successfully geocoded and included in the analysis with the exception of 59 pocket schedule distribution locations outside of Metro Transit's service area.
- A GIS shapefile consisting of 1,146 timetable display locations of which 1,133 were located within the Metro Transit service area. These timetable displays are primarily located within transit shelters, but also transit centers, park-and-rides, and other locations.

- A GIS shapefile consisting of 19 system map locations. These maps are located primarily within transit centers and park-and-rides.

Analysis Method

The locations of each customer information tool were overlaid against low-income and minority populations to determine predominant low-income/minority status. To reflect that these customer information locations may serve a relatively large area, the larger block group level was used for both the low-income and minority analyses.

Figure 22 illustrates the distribution of customer information relative to the location of predominantly low-income block groups and predominantly minority blocks.

Results – Pocket Schedule Distribution Locations

A total of 775 pocket schedule distribution locations were analyzed. Of these, 480 (61.9 percent) are located in predominantly low-income areas and 477 (61.5 percent) are located in predominantly minority areas. The distribution of pocket schedule distribution locations are shown in Table 35 and Table 36.

Table 35: Pocket Schedule Distribution Locations (Low-Income)

	All Locations	Low-Income Locations		Non-Low-Income Locations	
Distribution Locations	775	480	61.9%	295	38.1%

Table 36: Pocket Schedule Distribution Locations (Minority)

	All Locations	Minority Locations		Non-Minority Locations	
Distribution Locations	775	477	61.5%	298	38.5%

The tables show that a larger proportion of pocket schedule distribution locations are placed in low-income or minority areas than in non-low-income or non-minority areas. Based on the location of distribution locations, **the analysis does not show disparate impact patterns of pocket schedule distribution adversely impacting low-income or minority populations.**

Results – Timetables

A total of 1,133 timetable locations were analyzed. Of these, 807 (71.2 percent) area located in predominantly low-income areas and 766 (67.7 percent) are located in predominantly minority areas. The distributions of timetable locations are shown in Table 37 and Table 38.

Table 37: Timetable Locations (Low-Income)

	All Locations	Low-Income Locations		Non-Low-Income Locations	
Timetable Locations	1,133	807	71.2%	326	28.8%

Table 38: Timetable Locations (Minority)

	All Locations	Minority Locations		Non-Minority Locations	
Timetable Locations	1,133	766	67.6%	367	32.4%

The tables show that a larger proportion of timetable locations are placed in low-income or minority areas than in non-low-income or non-minority areas. Based on the location of timetables, **the analysis does not show disparate impact patterns of timetable distribution adversely impacting low-income or minority populations.**

Results – System Map

A total of 19 system map locations were analyzed. Of these, 13 (68.4 percent) are located in predominantly low-income areas and 11 (57.9 percent) are located in predominantly minority areas. The distributions of system map locations are shown in Table 39 and Table 40.

Table 39: System Map Locations (Low-Income)

	All Locations	Low-Income Locations		Non-Low-Income Locations	
System Map Locations	19	13	68.4%	6	31.6%

Table 40: System Map Locations (Minority)

	All Locations	Minority Locations		Non-Minority Locations	
System Map Locations	19	11	57.9%	8	42.1%

The tables show that a larger proportion of system map locations are placed in low-income or minority areas than in non-low-income or non-minority areas. Based on the location of system maps, **the analysis does not show disparate impact patterns of system map distribution adversely impacting low-income or minority populations.**

Transit Facilities

The TPP includes the following language regarding the established amenity standards for transit facilities and shelters:

Regional transit providers offer a range of amenities at bus stops, transit centers and other facilities for the comfort, convenience, and safety of our customers. The following table identifies the standard amenities that are included with various facility types. Some amenities are always provided and others are occasionally provided, depending on the specific size, location, or use of the facility.

Facility Type	Lights	Heaters	Trash Receptacles	Standalone Benches	Cameras	Electronic Customer Information Displays
Transit Centers	Y	Y	Y	Y	O	O
Park & Rides	Y	O	O	O	O	O
Rail Stations	Y	Y	Y	Y	Y	Y
Standard Shelters	O	O	N	N	N	N
Custom Shelters	O	O	N	O	O	O

Y = Yes, always provided; N = No, not provided; O = Occasionally Provided

Note that this guideline applies only to public transit agency-owned facilities. Providers also lease park & ride lots, and some shelters are owned and maintained by other entities. In those cases, providers do not normally offer customer amenities, although some may be included in certain situations.

Data and Exclusion

In accordance with the TPP, the analysis will apply these standards only to 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 will be treated as an agency-owned facility. Most of these cases are permanent facilities on MnDOT right-of-way constructed and operated by Metro Transit. In many cases throughout the region, the agency leases properties for transit use from private entities; in these cases, Metro Transit is not responsible for the facilities provided at these locations.

As of this review, the agency's real-time signage program is in the first stages of deployment; as such, real-time signage was not included in this review. In addition, security camera distribution is limited to major facilities with high usage and was not included in this review. Also, the TPP guidance refers to a requirement of standalone benches at many transit facilities. However, this analysis also noted the location of other types of benches, such as those integrated into transit shelters.

Transit Centers

A total of 19 transit centers were reviewed for amenity distribution. Distribution of these facilities is shown in Figure 23. Although not included in the list of amenities in the TPP, this review also evaluated the presence of shelters at transit centers. Of these 19 transit centers, 15 meet all four mandatory amenities required at these facilities (lights, heater, trash, and standalone bench) and also provide shelters. The facilities that do not provide all of the required amenities are summarized in Table 41. A full listing of Transit Center amenities is provided in Appendix D.

Table 41: Transit Centers Lacking Required Amenities

Transit Center	Lights	Heater	Trash	Standalone Bench	Other Bench	Shelter
I-35W/82nd St Transit Center	Y	N	N	N	N	N
Little Canada Transit Center	Y	N	Y	N	Y	Y
Louisiana Transit Center	Y	Y	Y	N	Y	Y
Southdale Transit Center	Y	N	Y	N	Y	Y

In reviewing these four transit centers, it is important to note a handful of contextual features and characteristics regarding these facilities:

- The Little Canada Transit Center has extremely low ridership levels compared to other transit centers. Also, while a standalone bench is not available, other bench types are available at this facility.
- The Louisiana Transit Center is deficient only in the category of standalone bench. Other bench types are currently available at this facility.
- The Southdale Transit Center is in the process of being reconstructed and is proposed to be operational by the year 2013. The reconstruction will include the addition of heaters and standalone benches, bringing this facility into full compliance.

Based on this information and a qualitative examination of Figure 23, these deficient facilities are not disproportionately distributed with regard to predominantly low-income or minority areas. **This review does not find disparate impact patterns of required provided amenity distribution with the potential to adversely affect low-income or minority populations.**

Transitway Stations

Transitway stations include station facilities for Hiawatha Light Rail Transit, Northstar Commuter Rail, and the I-35W/46th Street Station. All transitway stations in the Metro Transit service area comply with the four standards for amenities always provided at these types of facilities (lights, heater, trash, and standalone bench). **At 100 percent compliance, the review finds no potential for disparate impacts on low-income or minority populations for these facilities.**

Park-and-Rides

Because users drive varying distances to access park-and-rides, associating a park-and-ride with the census division in which it is located is not an accurate method of determining the degree to which the facility serves low-income or minority populations. While a travelshed or market analysis is a useful way to determine a park-and-ride's geographic area of influence, overlapping travelsheds without clearly defined boundaries present challenges when transferring this approach to a Title VI analysis.

For these reasons, a qualitative approach was used to examine potential for disproportionate distribution of amenities. A list of amenities at each park-and-ride facility was overlaid with low-income and minority populations and qualitatively reviewed. Figure 24 shows the locations of facilities and compliance with the amenity standards overlaid on predominantly low-income and predominantly minority areas. A total of 23 standalone park-and-rides (not co-located with a transit center or transitway station) were reviewed for amenity distribution.

Always-Provided Amenities

All of the 23 facilities reviewed meet the mandatory lighting standard for park-and-ride facilities. **As such, the qualitative analysis does not find disparate impact patterns of required amenity distribution with the potential to adversely affect low-income or minority areas.**

Occasionally/Other Provided Amenities

In addition to the occasionally provided amenities included in the TPP, this review also evaluated the presence of shelters and elevators (only relevant at locations with multi-level parking ramps). Of the 23 park-and-ride facilities included in this analysis, 7 facilities have all three of the occasionally provided amenities included in the TPP (heat, trash, and standalone bench) as well as shelters and elevators (where applicable). The remaining 16 facilities, listed in Table 42, are each missing one or more of the occasionally provided amenities. A full listing of park-and-ride amenities is provided in Appendix D.

Table 42: Park-and-Rides Lacking Occasionally Provided Amenities

Park-and-Ride Facility	Heater	Trash	Standalone Bench	Other Bench	Shelter	Elevator
63rd Ave & Bottineau Blvd	Y	Y	N	Y	Y	N
Co Rd 73 & I-394 South	Y	Y	N	Y	Y	Y
Como & Eustis	N	N	N	Y	Y	N/A
Foley Blvd	Y	Y	N	Y	Y	Y
General Mills Blvd & I-394	Y	Y	N	Y	Y	N/A
Guardian Angels Catholic Church	Y	Y	N	Y	Y	N/A
Hwy 61 & Co Rd C	N	N	N	Y	Y	N/A
Hwy 61 & Lower Afton Rd	N	Y	N	Y	Y	N/A
Hwy 610 & Noble	Y	Y	N	Y	Y	N/A
Hwy 7 & Vinehill Rd	N	N	N	N	N	N/A
I-35W & Co Rd H	N	Y	Y	Y	Y	N/A
Knox Avenue at Best Buy	Y	N	N	N	Y	N/A
Park Place & I-394	N	Y	N	Y	Y	N/A
Richardson Park	N	Y	N	Y	Y	N/A
West River Rd & 117th Ave	N	N	N	Y	Y	N/A
Woodbury Theatre	Y	Y	N	N	Y	N/A

Of these 16 facilities, 6 are included in the list due to the absence of a standalone bench, but do have other bench types available. Based on an examination of Figure 24, the occasionally provided amenities are not disproportionately distributed with regards to predominantly low-income or minority areas. **This review does not find disparate impact patterns of occasionally provided amenity distribution with the potential to adversely affect low-income or minority populations.**

Summary of Technical Analysis

Compliance with the standards examined in the Technical Analysis section is summarized in Table 43. Standards where potential disparate impacts were identified are further analyzed in the Additional Analysis of Potential Disparate Impacts section.

Table 43: Summary of Reviewed Standards

Standard	Low-Income	Minority
Vehicle Assignment	○	○
Maximum Passenger Load	○*	○*
On-Time Performance	○	○
Service Availability	--	--
Market Area I – Urban Radial Route Spacing	○	○
Market Area I – Urban Crosstown Route Spacing	○	○*
Market Area II – Local Route Spacing	○	○
Midday Headway	○	○
Bus Stop Spacing	○	○
Headway Standard	--	--
Midday	○	○
Peak	○	○
Transit Amenities	--	--
Shelter Distribution	--	--
Warranted Standard Shelters	○	○*
Unwarranted Standard Shelters	○	○
Warranted Heated Shelters	●	●
Unwarranted Heated Shelters	○	○
Lighted Shelters	○*	○
Customer Information	--	--
Pocket Schedule Distribution Locations	○	○
Timetable Locations	○	○
System Map Locations	○	○
Transit Facilities	--	--
Transit Centers	○	○
Transitway Stations	○	○
Park-and-Rides	○	○

- - Potential Disparate Impact
- * - No Potential Disparate Impact (Within four-fifths threshold)
- - No Potential Disparate Impact

Additional Analysis of Potential Disparate Impacts

Standards with a low-income compliance rate falling below the non-low-income compliance rate are listed in Table 44. Of the three standards listed, only Heated Shelter Placement falls outside of the four-fifths threshold. As such, this standard is evaluated in more detail in this section. The Maximum Passenger Load and Lighted Shelter Placement standards are well within the four-fifths threshold and do not warrant further analysis.

Table 44: Compliance Rates for Standards Within or Exceeding the Four-Fifths Threshold (Low-Income)

Standard	Overall	Low-Income	Non-Low-Income	Four-Fifths Threshold
Maximum Passenger Load: Stop-Hours in Compliance	99.96%	99.93%	99.99%	79.99%
Heated Shelter Placement: Warranted Locations in Compliance	2.4%	2.0%	4.2%	3.30%
Lighted Shelter Placement: Location has lighted shelter (Total standalone shelters)	32.7%	32.5%	33.3%	26.60%

Standards with a minority compliance rate falling below the non-minority compliance rate are listed in Table 45. Of the four standards listed, only Heated Shelter Placement falls outside of the four-fifths threshold. As such, this standard is evaluated in more detail in this section. Although the Market Area I – Urban Crosstown Route Spacing standard falls within the four-fifths threshold, it is only within the threshold by two percentage points and is also discussed in this section. The Maximum Passenger Load and Standard Shelter Placement standards are well within the four-fifths threshold and do not warrant further analysis.

Table 45: Compliance Rates for Standards Within or Exceeding the Four-Fifths Threshold (Minority)

Standard	Overall	Minority	Non-Minority	Four-Fifths Threshold
Maximum Passenger Load: Stop-Hours in Compliance	99.96%	99.96%	99.97%	79.97%
Market Area I - Urban Crosstown Route Spacing: Blocks in Compliance	63.9%	58.4%	70.5%	56.4%
Standard Shelter Placement: Warranted Locations in Compliance	62.9%	60.7%	64.8%	51.8%
Heated Shelter Placement: Warranted Locations in Compliance	2.4%	0.8%	3.9%	3.1%

Urban Crosstown Route Spacing

While the Market Area I Urban Crosstown Route Spacing Market Area I for Minority was close to violating the four-fifths rule, the results identify no potential for disparate impacts. Recent initiatives include improving Market Area I crosstown service. The Central Corridor Transit Service Study concept plan proposes a new crosstown route on Lexington Parkway in St. Paul, which would address an existing route spacing gap in St. Paul. This implementation of this service is planned to coordinate with the 2014 opening of the Green Line LRT. Future considerations of this concept plan also include an expansion of crosstown service on West Broadway Avenue and Broadway Street NE, connecting north and northeast Minneapolis, although that service is not currently funded.

Heated Shelter Placement

The placement rate for heated shelters at warranted locations violates the four-fifths rule for low-income and minority populations. There are a total of 6 shelters in the entire system located outside of Downtown areas (including Downtown Minneapolis, Downtown St. Paul, and the University of Minnesota Minneapolis and St. Paul campuses) that meet the heat warrant of 80 daily boardings and have a shelter. It is *not* Metro Transit's standard practice to install heated standalone shelters at individual locations. Most often, standalone heated shelters are installed in broader corridor initiatives in the Downtown areas. Occasionally, standalone heated shelters are installed at individual locations as requests are received. Previously, the decision to install a heated standalone shelter has been based on:

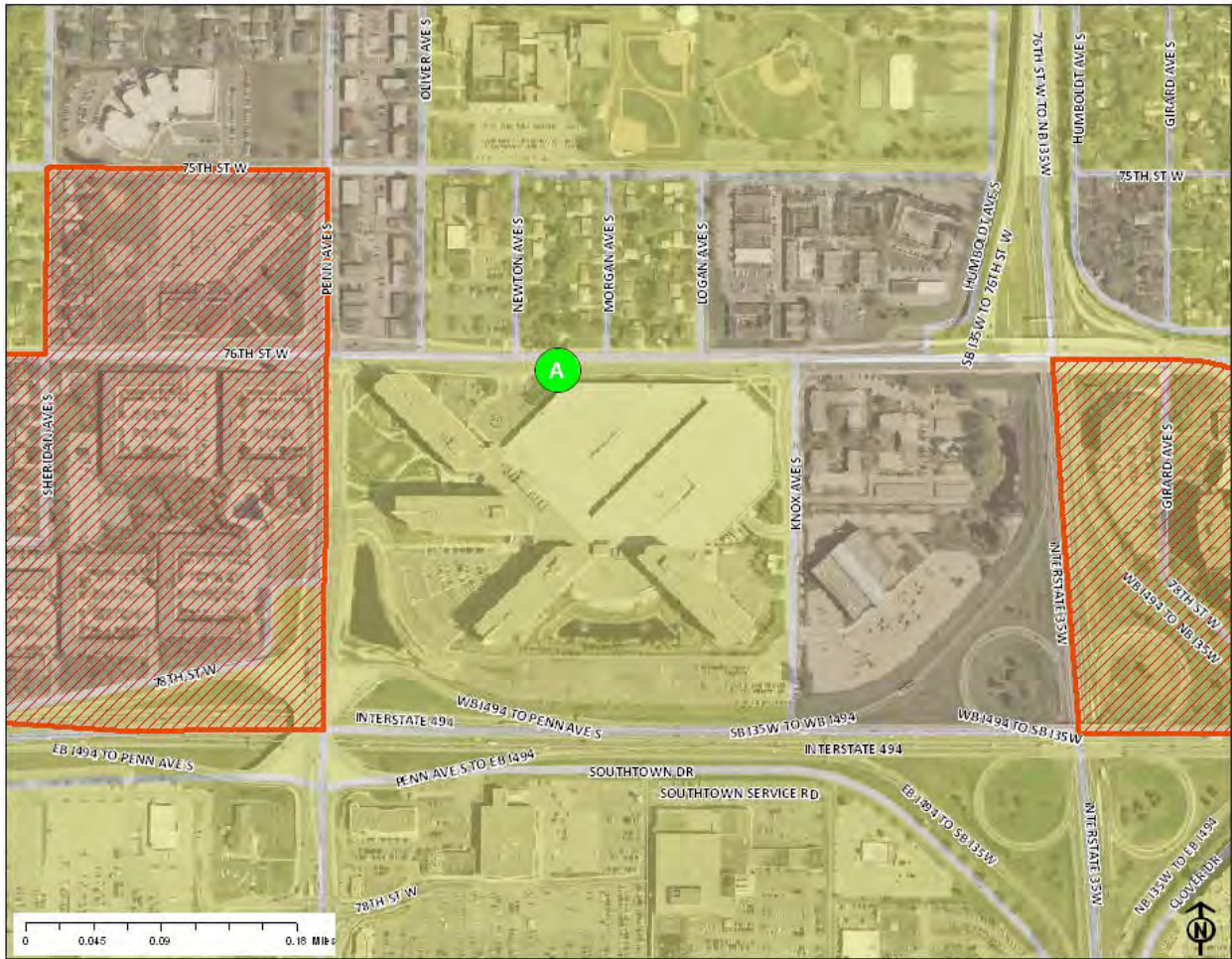
- Average daily customers boardings (at least 80 daily);
- Cost and feasibility of bringing electricity to the shelter; and
- Waiting environment and length of wait times.


The methodology employed in this study relied on a shelter's location within a census-defined block as the way of determining whether it serves either minority or low income populations. However, upon a closer look at the 6 shelters that meet our warrants and have heat, it can be shown that these shelters are in fact serving Title VI protected populations. In 4 of the cases, the shelters are located on sides of the street where the land use is predominantly commercial. However, the surrounding block groups that are predominantly residential, and most likely providing the population being served by the shelter, are predominantly minority/low-income. In the last 2 cases, the surrounding residential block groups are evenly mixed between predominantly minority/low-income and predominantly non-minority/non-low income. A detailed analysis of the location of these 6 shelters is shown below:


Shelter Location	Site On	Site At	Corner Description	City	Title VI Minority Block	Title VI Low-Income Block Group	Comment
A	76 St W	Newton Av S	Far side E	RICHFIELD	Non-Minority	Non Low-Income	Bus stop/shelter is located within a block that is entirely consumed by an employment center. Shelter serves a mixture of predominately minority & non-minority blocks. (Image 1)
B	Bryant Av S	36 St W	Near side N	MINNEAPOLIS	Non-Minority	Non Low-Income	Shelter is on the border of Non-Minority & Minority blocks AND on the border of Non-Low-Income & Low-Income Block Group. Shelter serves ALL populations. (Image 2)
C	I-35W	Lake St E	Near side S	MINNEAPOLIS	Non-Minority	Low-Income	Bus stop/shelter is located within a block that is entirely commercial uses. All adjacent residential blocks are predominately minority. Low-income status confirmed. (Image 3)
D	Snelling Av	Spruce Tree Av	Across from N	SAINT PAUL	Non-Minority	Low-Income	Bus stop/shelter is located within a block that is entirely commercial uses. Immediately adjacent residential blocks are predominately minority. Low-income status confirmed. (Image 4)
E	Snelling Av	St Anthony Av	Near side N	SAINT PAUL	Non-Minority	Low-Income	Bus stop/shelter is located within a block that is entirely commercial uses. Immediately adjacent residential blocks are predominately minority. Low-income status confirmed. (Image 4)
F	Anthony Av	Snelling Av	Far side W	SAINT PAUL	Minority	Low-Income	No comment. Minority & Low-Income status confirmed.

The designations highlighted in yellow in the table above do not accurately reflect the populations served, as detailed in the comments column above and further depicted in Images 1 through 4 below.


Image 1: 76th Street W. & Newton Ave, Richfield (Shelter Location A)



 Shelter Location

 Low-Income Block Group

Census Block - Minority Status

 Predominately Minority


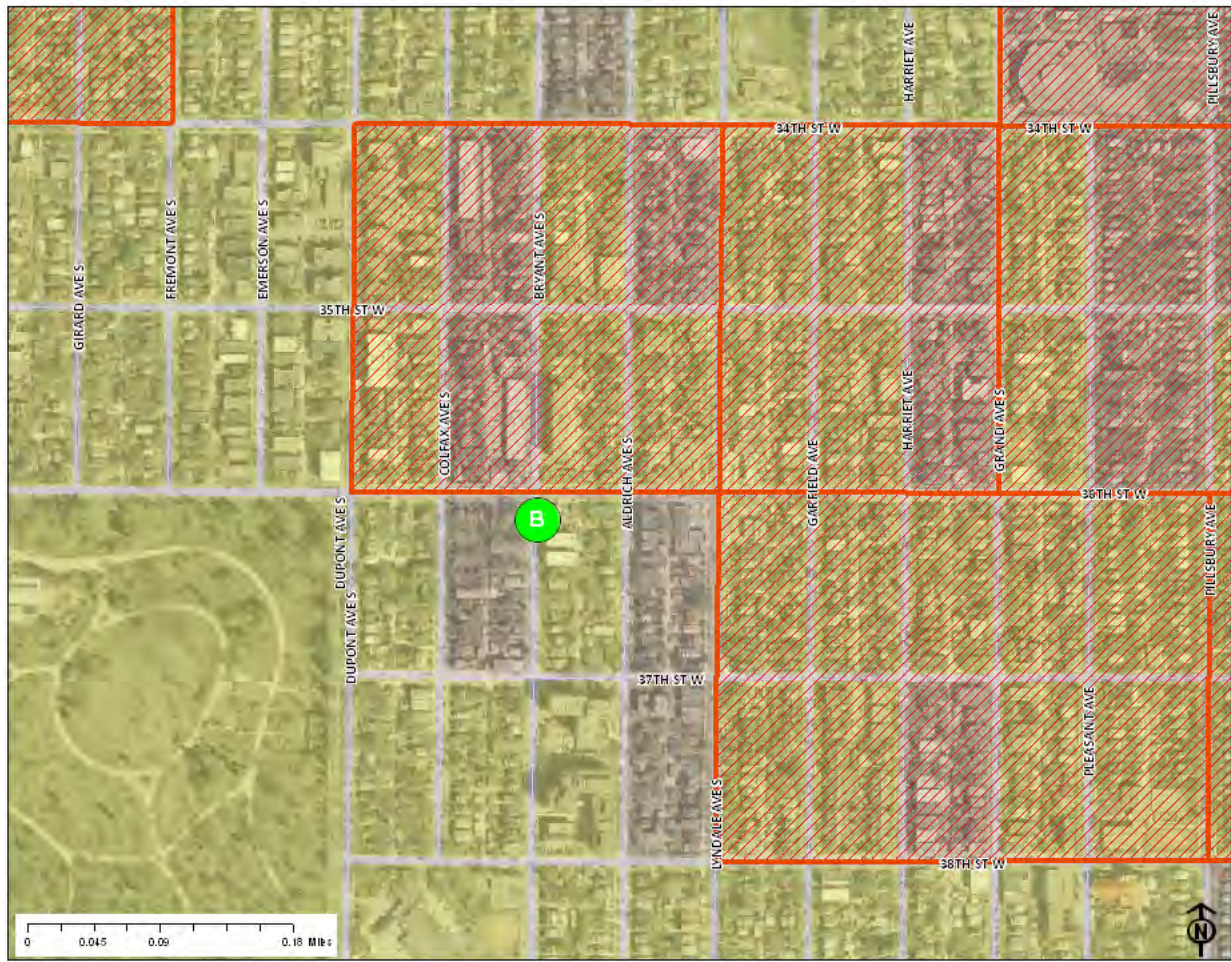


 Predominately Non-Minority


Image 2: Bryant Ave S & 36th St W, Minneapolis (Shelter Location B)



 Shelter Location

 Low-Income Block Group

Census Block - Minority Status

 Predominately Minority


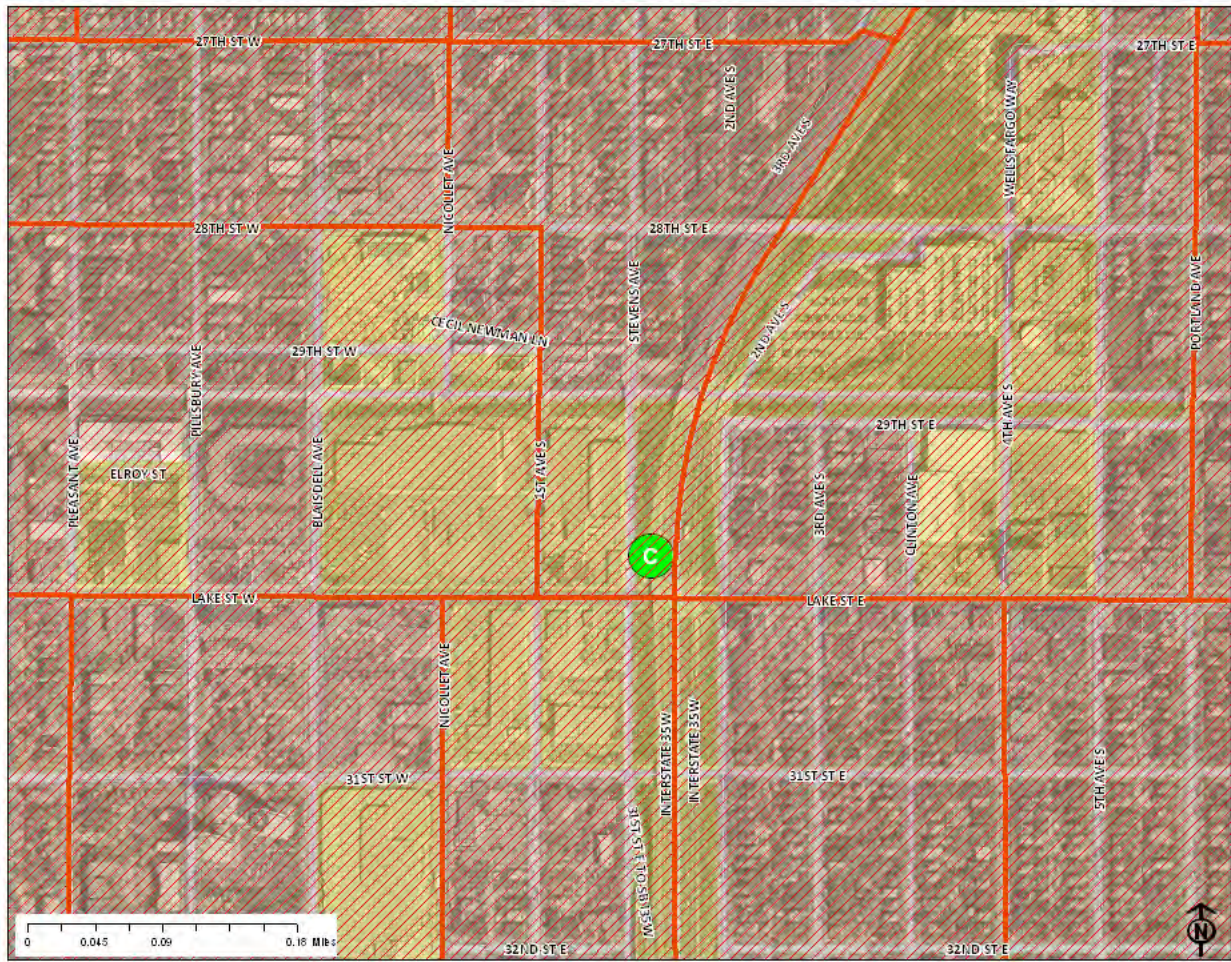


 Predominately Non-Minority


Image 3: I-35W & Lake Street E, Minneapolis (Shelter Location C)



 Shelter Location

 Low-Income Block Group

Census Block - Minority Status

 Predominately Minority


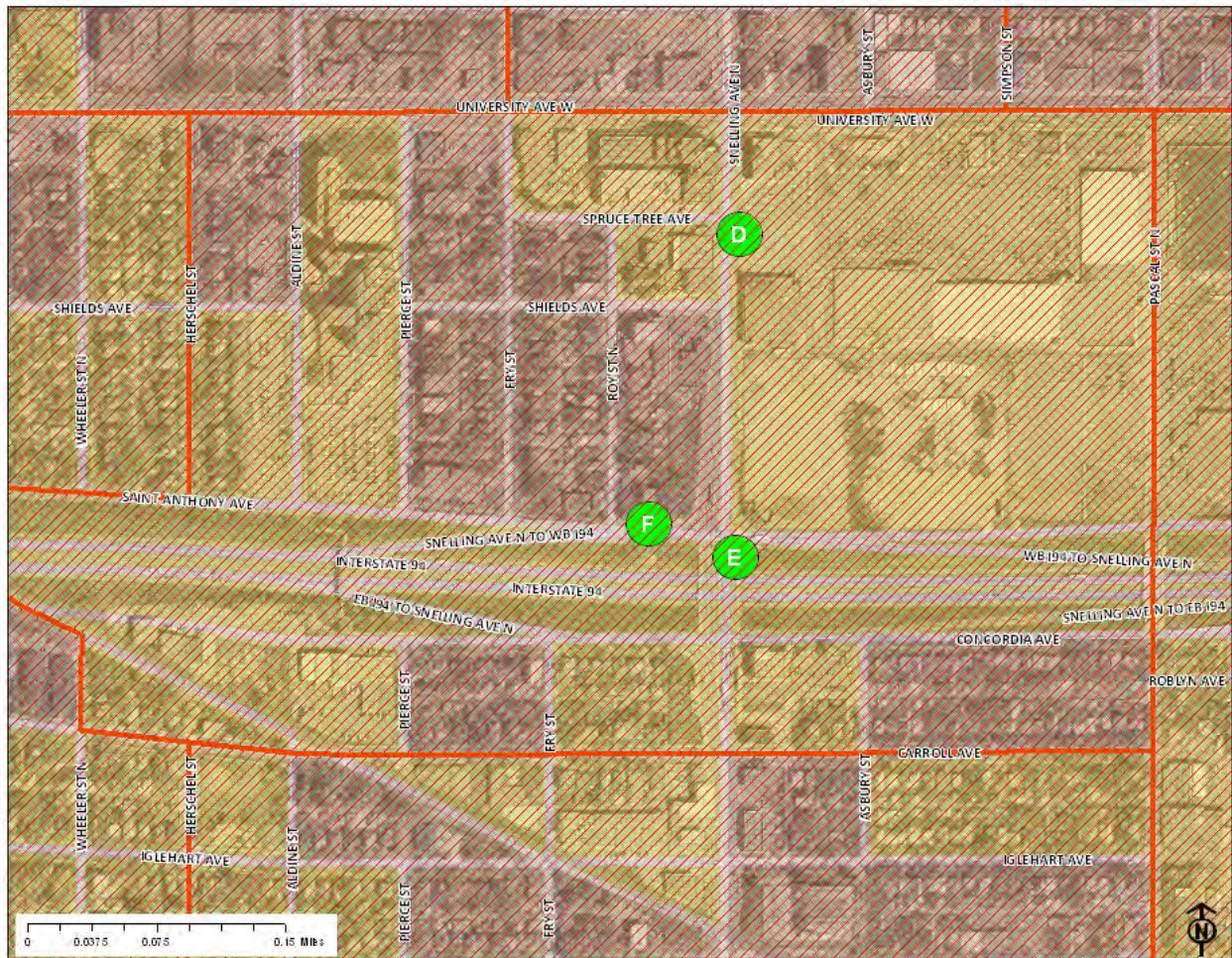




 Predominately Non-Minority

Image 4: Snelling Ave & Spruce Tree Ave and Snelling Ave & St. Anthony Ave (Shelter Locations D & E)



-  Shelter Location
-  Low-Income Block Group
- Census Block - Minority Status**
 -  Predominately Minority
 -  Predominately Non-Minority

Next Steps

Market Area I Urban Crosstown Route Spacing

Many factors impact route spacing and should be considered when conducting future reviews. These could include factors such as market demand, geographical barriers, appropriate operating environments for buses, and constrained operational funding. In addition to the consideration of these factors in future reviews, Metro Transit will prioritize the study of crosstown corridors in Title VI sensitive areas in future planning efforts.

Heated Shelter Placement

Based both on the low numbers of standalone shelters with heat, and the fact that, in reality, the majority of the shelters do serve Title VI protected populations, it is unlikely that the distribution of heated shelters represents a statistically valid system-wide concern and therefore there is no potential for disparate impacts. However, the impact on the potential for disparate impacts will be taken into consideration before the implementation of any additional heated shelters.

APPENDIX A: LOW-INCOME/MINORITY ROUTE DESIGNATION

Table A-1: Low-Income/Minority Route Designation

Route	Percent Minority	Minority Route? (>1/3)	Percent Low-Income	Low-Income Route? (>1/3)	Type
2	58%	Y	56%	Y	Local
3	48%	Y	51%	Y	Local
4	28%	N	31%	N	Local
5	82%	Y	77%	Y	Local
6	18%	N	20%	N	Local
7	57%	Y	55%	Y	Local
8	42%	Y	38%	Y	Local
9	48%	Y	46%	Y	Local
10	61%	Y	54%	Y	Local
11	73%	Y	66%	Y	Local
12	21%	N	21%	N	Local
14	66%	Y	61%	Y	Local
16	75%	Y	64%	Y	Local
17	37%	Y	37%	Y	Local
18	60%	Y	57%	Y	Local
19	92%	Y	84%	Y	Local
20	79%	Y	72%	Y	Local
21	61%	Y	56%	Y	Local
22	74%	Y	70%	Y	Local
23	42%	Y	41%	Y	Local
25	23%	N	22%	N	Local
27	95%	Y	96%	Y	Local
32	66%	Y	56%	Y	Local
39	91%	Y	87%	Y	Local
46	24%	N	24%	N	Local
50	70%	Y	60%	Y	Local
53	56%	Y	55%	Y	Local
54	50%	Y	45%	Y	Local
59	61%	Y	56%	Y	Local
61	51%	Y	49%	Y	Local
62	74%	Y	69%	Y	Local
63	51%	Y	51%	Y	Local
64	74%	Y	65%	Y	Local
65	52%	Y	52%	Y	Local
67	68%	Y	67%	Y	Local
68	57%	Y	55%	Y	Local
70	44%	Y	44%	Y	Local
71	76%	Y	72%	Y	Local
74	54%	Y	54%	Y	Local
75	78%	Y	70%	Y	Local
80	83%	Y	77%	Y	Local
84	25%	N	24%	N	Local
87	21%	N	25%	N	Local
94	30%	N	89%	Y	Express

Route	Percent Minority	Minority Route? (>1/3)	Percent Low-Income	Low-Income Route? (>1/3)	Type
111	50%	Y	53%	Y	Express
113	24%	N	52%	Y	Express
114	16%	N	64%	Y	Express
115	15%	N	57%	Y	Express
118	34%	Y	53%	Y	Express
133	45%	Y	49%	Y	Express
134	13%	N	53%	Y	Express
135	32%	N	51%	Y	Express
141	23%	N	56%	Y	Express
144	16%	N	38%	Y	Express
146	15%	N	22%	N	Express
156	24%	N	36%	Y	Express
219	38%	Y	34%	Y	Local
223	42%	Y	36%	Y	Local
225	18%	N	15%	N	Local
227	24%	N	22%	N	Local
250	13%	N	4%	N	Express
252	11%	N	4%	N	Express
260	24%	N	45%	Y	Express
261	18%	N	8%	N	Express
262	30%	N	25%	N	Express
264	17%	N	8%	N	Express
265	14%	N	10%	N	Express
270	20%	N	20%	N	Express
272	19%	N	28%	N	Express
275	8%	N	3%	N	Express
288	6%	N	6%	N	Express
294	10%	N	10%	N	Express
350	50%	Y	42%	Y	Express
351	21%	N	5%	N	Express
353	21%	N	4%	N	Express
355	20%	N	6%	N	Express
361	17%	N	8%	N	Express
364	24%	N	28%	N	Express
365	21%	N	6%	N	Express
375	14%	N	5%	N	Express
415	12%	N	22%	N	Local
417	33%	N	31%	N	Local
452	24%	N	17%	N	Express
467	10%	N	3%	N	Express
515	58%	Y	58%	Y	Local
535	43%	Y	41%	Y	Express
538	58%	Y	55%	Y	Local
539	39%	Y	34%	Y	Local
540	50%	Y	38%	Y	Local
542	49%	Y	48%	Y	Local

Route	Percent Minority	Minority Route? (>1/3)	Percent Low-Income	Low-Income Route? (>1/3)	Type
552	56%	Y	47%	Y	Express
553	48%	Y	46%	Y	Express
554	50%	Y	48%	Y	Express
558	34%	Y	36%	Y	Express
568	34%	Y	27%	N	Local
578	32%	N	26%	N	Express
579	47%	Y	51%	Y	Express
587	8%	N	4%	N	Express
589	8%	N	12%	N	Express
597	22%	N	18%	N	Express
604	25%	N	22%	N	Local
615	26%	N	24%	N	Local
643	19%	N	18%	N	Express
649	18%	N	16%	N	Express
652	19%	N	21%	N	Express
663	23%	N	16%	N	Express
664	10%	N	15%	N	Express
665	18%	N	13%	N	Express
667	15%	N	18%	N	Express
668	21%	N	16%	N	Express
670	4%	N	4%	N	Express
671	6%	N	1%	N	Express
672	10%	N	10%	N	Express
673	14%	N	5%	N	Express
674	7%	N	6%	N	Express
675	13%	N	8%	N	Express
677	6%	N	4%	N	Express
679	12%	N	3%	N	Express
705	35%	Y	29%	N	Local
716	65%	Y	55%	Y	Local
717	49%	Y	46%	Y	Local
721	60%	Y	58%	Y	Local
722	92%	Y	87%	Y	Local
723	92%	Y	93%	Y	Local
724	93%	Y	86%	Y	Local
755	34%	Y	28%	N	Express
756	16%	N	9%	N	Express
758	23%	N	17%	N	Express
760	68%	Y	42%	Y	Express
761	74%	Y	62%	Y	Express
762	67%	Y	58%	Y	Express
763	74%	Y	22%	N	Express
764	41%	Y	32%	N	Express
765	43%	Y	41%	Y	Express
766	31%	N	8%	N	Express
767	40%	Y	32%	N	Express

Route	Percent Minority	Minority Route? (>1/3)	Percent Low-Income	Low-Income Route? (>1/3)	Type
801	48%	Y	43%	Y	Local
805	25%	N	25%	N	Local
824	31%	N	41%	Y	Express
825	16%	N	29%	N	Express
831	21%	N	23%	N	Local
850	13%	N	9%	N	Express
852	13%	N	28%	N	Express
854	17%	N	18%	N	Express
860	14%	N	7%	N	Express

APPENDIX B: VEHICLE ASSIGNMENT SUMMARY BY ROUTE

Table B-1: Vehicle Assignment Summary by Route

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Average Age Assigned	Average Age Available	Variance (Assigned-Available)	Outcome
2	Y	Y	Local	9.2	8.6	0.6	Older
3	Y	Y	Local	3.8	3.5	0.3	Older
4	N	N	Local	7.4	6.9	0.5	Older
5	Y	Y	Local	4.9	5.1	-0.2	Newer
6	N	N	Local	6.1	6.0	0.2	Older
7	Y	Y	Local	5.7	6.2	-0.4	Newer
8	Y	Y	Local	10.5	9.4	1.1	Older
9	Y	Y	Local	8.0	8.1	-0.1	Newer
10	Y	Y	Local	2.0	2.5	-0.5	Newer
11	Y	Y	Local	2.9	2.9	0.0	Newer
12	N	N	Local	9.5	9.2	0.3	Older
14	Y	Y	Local	5.4	5.5	-0.1	Newer
16	Y	Y	Local	3.9	3.8	0.1	Older
17	Y	Y	Local	2.6	2.9	-0.3	Newer
18	Y	Y	Local	3.0	2.9	0.1	Older
19	Y	Y	Local	6.0	6.0	0.0	Newer
20	Y	Y	Local	10.4	10.1	0.3	Older
21	Y	Y	Local	8.0	7.8	0.2	Older
22	Y	Y	Local	5.8	5.7	0.1	Older
23	Y	Y	Local	9.8	9.1	0.7	Older
25	N	N	Local	2.3	2.5	-0.2	Newer
27	Y	Y	Local	10.3	9.4	0.9	Older
32	Y	Y	Local	2.4	3.9	-1.5	Newer
39	Y	Y	Local	9.3	8.4	0.9	Older
46	N	N	Local	10.0	9.2	0.8	Older
50	Y	Y	Local	4.6	4.0	0.6	Older
53	Y	Y	Local	6.5	6.3	0.1	Older
54	Y	Y	Local	4.7	4.8	-0.1	Newer
59	Y	Y	Local	2.2	2.5	-0.3	Newer
61	Y	Y	Local	5.8	5.6	0.2	Older
62	Y	Y	Local	6.0	6.4	-0.4	Newer
63	Y	Y	Local	5.0	5.3	-0.3	Newer
64	Y	Y	Local	5.2	5.3	-0.1	Newer
65	Y	Y	Local	5.9	6.3	-0.4	Newer
67	Y	Y	Local	5.7	5.4	0.3	Older
68	Y	Y	Local	5.1	5.2	-0.1	Newer
70	Y	Y	Local	4.9	5.4	-0.5	Newer
71	Y	Y	Local	5.8	5.4	0.3	Older
74	Y	Y	Local	5.0	5.3	-0.3	Newer

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Average Age Assigned	Average Age Available	Variance (Assigned-Available)	Outcome
75	Y	Y	Local	5.0	5.1	-0.1	Newer
80	Y	Y	Local	7.9	9.0	-1.1	Newer
84	N	N	Local	5.2	5.2	0.0	Newer
87	N	N	Local	7.7	3.9	3.8	Older
94	N	Y	Express	5.3	5.3	0.0	Newer
111	Y	Y	Express	4.7	4.4	0.3	Older
113	N	Y	Express	4.7	3.8	0.9	Older
114	N	Y	Express	2.4	1.8	0.6	Older
115	N	Y	Express	0.3	0.0	0.3	Older
118	Y	Y	Express	7.3	6.0	1.3	Older
133	Y	Y	Express	8.4	7.9	0.6	Older
134	N	Y	Express	5.6	4.8	0.8	Older
135	N	Y	Express	7.7	8.8	-1.1	Newer
141	N	Y	Express	8.5	7.6	1.0	Older
144	N	Y	Express	4.5	4.4	0.2	Older
146	N	N	Express	6.5	5.3	1.2	Older
156	N	Y	Express	9.4	8.4	1.0	Older
219	Y	Y	Local	3.2	7.5	-4.3	Newer
223	Y	Y	Local	2.1	3.6	-1.5	Newer
225	N	N	Local	4.6	4.7	0.0	Newer
227	N	N	Local	4.6	4.7	-0.1	Newer
250	N	N	Express	5.1	4.6	0.5	Older
252	N	N	Express	6.4	4.0	2.4	Older
260	N	Y	Express	6.4	5.6	0.8	Older
261	N	N	Express	6.8	5.3	1.6	Older
262	N	N	Express	6.3	9.0	-2.7	Newer
264	N	N	Express	8.5	7.1	1.5	Older
265	N	N	Express	4.7	5.0	-0.4	Newer
270	N	N	Express	4.5	5.0	-0.5	Newer
272	N	N	Express	6.1	6.5	-0.4	Newer
275	N	N	Express	10.9	4.6	6.4	Older
288	N	N	Express	2.0	2.0	0.0	Newer
294	N	N	Express	4.1	3.8	0.3	Older
350	Y	Y	Express	8.0	8.0	0.0	Newer
351	N	N	Express	8.0	8.0	0.0	Newer
353	N	N	Express	5.8	4.3	1.5	Older
355	N	N	Express	3.7	3.8	-0.1	Newer
361	N	N	Express	5.8	6.5	-0.7	Newer
364	N	N	Express	4.4	3.6	0.8	Older
365	N	N	Express	4.3	4.4	0.0	Newer
375	N	N	Express	4.7	4.7	0.0	Newer

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Average Age Assigned	Average Age Available	Variance (Assigned- Available)	Outcome
415	N	N	Local	6.1	4.0	2.1	Older
417	N	N	Local	4.3	3.6	0.7	Older
452	N	N	Express	5.4	3.9	1.5	Older
467	N	N	Express	2.1	2.1	0.0	Older
515	Y	Y	Local	4.4	4.2	0.1	Older
535	Y	Y	Express	5.3	4.9	0.4	Older
538	Y	Y	Local	8.7	7.7	1.0	Older
539	Y	Y	Local	7.1	7.3	-0.1	Newer
540	Y	Y	Local	4.8	3.6	1.1	Older
542	Y	Y	Local	6.0	5.1	0.9	Older
552	Y	Y	Express	6.0	4.8	1.3	Older
553	Y	Y	Express	5.5	4.6	0.9	Older
554	Y	Y	Express	4.3	4.0	0.4	Older
558	Y	Y	Express	4.9	5.6	-0.7	Newer
568	Y	N	Local	2.7	2.5	0.2	Older
578	N	N	Express	6.1	4.4	1.7	Older
579	Y	Y	Express	4.1	3.7	0.4	Older
587	N	N	Express	5.4	3.7	1.7	Older
589	N	N	Express	6.6	5.1	1.5	Older
597	N	N	Express	5.1	4.2	0.8	Older
604	N	N	Local	4.0	3.6	0.4	Older
615	N	N	Local	4.2	3.6	0.6	Older
643	N	N	Express	8.6	6.7	1.9	Older
649	N	N	Express	9.1	7.2	1.9	Older
652	N	N	Express	4.2	3.7	0.5	Older
663	N	N	Express	8.3	6.7	1.6	Older
664	N	N	Express	8.0	8.0	0.0	Newer
665	N	N	Express	8.0	6.3	1.7	Older
667	N	N	Express	5.7	4.6	1.0	Older
668	N	N	Express	4.3	3.5	0.8	Older
670	N	N	Express	8.0	8.0	0.0	Newer
671	N	N	Express	8.5	6.5	2.0	Older
672	N	N	Express	9.6	7.2	2.4	Older
673	N	N	Express	6.0	4.9	1.1	Older
674	N	N	Express	9.1	7.2	1.9	Older
675	N	N	Express	5.0	4.5	0.5	Older
677	N	N	Express	5.5	4.4	1.1	Older
679	N	N	Express	7.2	6.3	0.9	Older
705	Y	N	Local	2.0	3.9	-1.9	Newer
716	Y	Y	Local	2.6	3.6	-1.0	Newer
717	Y	Y	Local	2.1	3.6	-1.5	Newer

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Average Age Assigned	Average Age Available	Variance (Assigned-Available)	Outcome
721	Y	Y	Local	7.0	7.1	-0.1	Newer
722	Y	Y	Local	8.0	8.1	-0.1	Newer
723	Y	Y	Local	8.8	8.6	0.2	Older
724	Y	Y	Local	4.4	4.1	0.3	Older
755	Y	N	Express	7.3	6.4	0.9	Older
756	N	N	Express	6.4	5.8	0.6	Older
758	N	N	Express	8.0	7.3	0.6	Older
760	Y	Y	Express	5.1	3.8	1.4	Older
761	Y	Y	Express	5.9	4.1	1.8	Older
762	Y	Y	Express	5.4	4.1	1.3	Older
763	Y	N	Express	6.0	4.1	1.9	Older
764	Y	N	Express	5.5	3.9	1.6	Older
765	Y	Y	Express	5.4	4.2	1.3	Older
766	N	N	Express	4.6	4.3	0.3	Older
767	Y	N	Express	7.0	6.4	0.6	Older
801	Y	Y	Local	0.0	0.0	0.0	Newer
805	N	N	Local	0.0	0.0	0.0	Newer
824	N	Y	Express	8.7	7.7	1.0	Older
825	N	N	Express	7.1	6.0	1.1	Older
831	N	N	Local	0.0	0.0	0.0	Newer
850	N	N	Express	3.7	3.8	-0.1	Newer
852	N	N	Express	3.9	4.6	-0.7	Newer
854	N	N	Express	5.3	4.4	1.0	Older
860	N	N	Express	2.5	2.9	-0.3	Newer

APPENDIX C: ON-TIME PERFORMANCE BY ROUTE

Table C-1: On-Time Performance by Route

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Percent On-Time	On-Time Goal (>88.67%)
2	Yes	Yes	Local	88.49%	Does not meet goal
3	Yes	Yes	Local	87.63%	Does not meet goal
4	No	No	Local	86.24%	Does not meet goal
5	Yes	Yes	Local	88.27%	Does not meet goal
6	No	No	Local	82.79%	Does not meet goal
7	Yes	Yes	Local	91.77%	Meets goal
8	Yes	Yes	Local	95.70%	Meets goal
9	Yes	Yes	Local	86.08%	Does not meet goal
10	Yes	Yes	Local	84.03%	Does not meet goal
11	Yes	Yes	Local	89.33%	Meets goal
12	No	No	Local	83.39%	Does not meet goal
14	Yes	Yes	Local	87.02%	Does not meet goal
16	Yes	Yes	Local	83.86%	Does not meet goal
17	Yes	Yes	Local	87.19%	Does not meet goal
18	Yes	Yes	Local	89.68%	Meets goal
19	Yes	Yes	Local	90.37%	Meets goal
20	Yes	Yes	Local	97.56%	Meets goal
21	Yes	Yes	Local	84.54%	Does not meet goal
22	Yes	Yes	Local	83.70%	Does not meet goal
23	Yes	Yes	Local	91.95%	Meets goal
25	No	No	Local	83.94%	Does not meet goal
27	Yes	Yes	Local	96.82%	Meets goal
32	Yes	Yes	Local	87.70%	Does not meet goal
39	Yes	Yes	Local	95.98%	Meets goal
46	No	No	Local	92.77%	Meets goal
50	Yes	Yes	Local	82.36%	Does not meet goal
53	Yes	Yes	Local	86.33%	Does not meet goal
54	Yes	Yes	Local	90.07%	Meets goal
59	Yes	Yes	Local	88.50%	Does not meet goal
61	Yes	Yes	Local	86.69%	Does not meet goal
62	Yes	Yes	Local	91.03%	Meets goal
63	Yes	Yes	Local	90.16%	Meets goal
64	Yes	Yes	Local	89.30%	Meets goal
65	Yes	Yes	Local	86.77%	Does not meet goal
67	Yes	Yes	Local	94.06%	Meets goal
68	Yes	Yes	Local	91.68%	Meets goal
70	Yes	Yes	Local	91.09%	Meets goal
71	Yes	Yes	Local	94.53%	Meets goal
74	Yes	Yes	Local	90.58%	Meets goal
75	Yes	Yes	Local	95.42%	Meets goal
80	Yes	Yes	Local	97.08%	Meets goal
84	No	No	Local	89.80%	Meets goal
87	No	No	Local	76.24%	Does not meet goal
94	No	Yes	Express	86.29%	Does not meet goal

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Percent On-Time	On-Time Goal (>88.67%)
111	Yes	Yes	Express	82.28%	Does not meet goal
113	No	Yes	Express	78.23%	Does not meet goal
114	No	Yes	Express	74.48%	Does not meet goal
115	No	Yes	Express	73.86%	Does not meet goal
118	Yes	Yes	Express	81.83%	Does not meet goal
133	Yes	Yes	Express	63.99%	Does not meet goal
134	No	Yes	Express	83.22%	Does not meet goal
135	No	Yes	Express	68.58%	Does not meet goal
141	No	Yes	Express	91.12%	Meets goal
144	No	Yes	Express	72.38%	Does not meet goal
146	No	No	Express	78.04%	Does not meet goal
156	No	Yes	Express	82.87%	Does not meet goal
219	Yes	Yes	Local	87.76%	Does not meet goal
223	Yes	Yes	Local	91.57%	Meets goal
225	No	No	Local	88.95%	Meets goal
227	No	No	Local	94.95%	Meets goal
250	No	No	Express	84.84%	Does not meet goal
252	No	No	Express	63.92%	Does not meet goal
260	No	Yes	Express	90.16%	Meets goal
261	No	No	Express	86.42%	Does not meet goal
262	No	No	Express	85.17%	Does not meet goal
264	No	No	Express	95.31%	Meets goal
265	No	No	Express	86.65%	Does not meet goal
270	No	No	Express	84.06%	Does not meet goal
272	No	No	Express	74.33%	Does not meet goal
275	No	No	Express	66.90%	Does not meet goal
288	No	No	Express	79.14%	Does not meet goal
294	No	No	Express	86.56%	Does not meet goal
350	Yes	Yes	Express	79.09%	Does not meet goal
351	No	No	Express	80.18%	Does not meet goal
353	No	No	Express	92.62%	Meets goal
355	No	No	Express	77.22%	Does not meet goal
361	No	No	Express	90.60%	Meets goal
364	No	No	Express	71.95%	Does not meet goal
365	No	No	Express	79.83%	Does not meet goal
375	No	No	Express	85.74%	Does not meet goal
415	No	No	Local	81.35%	Does not meet goal
417	No	No	Local	79.03%	Does not meet goal
452	No	No	Express	86.90%	Does not meet goal
467	No	No	Express	66.97%	Does not meet goal
515	Yes	Yes	Local	92.07%	Meets goal
535	Yes	Yes	Express	89.88%	Meets goal
538	Yes	Yes	Local	83.74%	Does not meet goal
539	Yes	Yes	Local	77.02%	Does not meet goal
540	Yes	Yes	Local	92.85%	Meets goal
542	Yes	Yes	Local	96.85%	Meets goal

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Percent On-Time	On-Time Goal (>88.67%)
552	Yes	Yes	Express	74.11%	Does not meet goal
553	Yes	Yes	Express	76.28%	Does not meet goal
554	Yes	Yes	Express	71.48%	Does not meet goal
558	Yes	Yes	Express	78.60%	Does not meet goal
568	Yes	No	Local	82.36%	Does not meet goal
578	No	No	Express	81.66%	Does not meet goal
579	Yes	Yes	Express	74.53%	Does not meet goal
587	No	No	Express	72.79%	Does not meet goal
589	No	No	Express	77.51%	Does not meet goal
597	No	No	Express	78.26%	Does not meet goal
604	No	No	Local	93.96%	Meets goal
615	No	No	Local	80.08%	Does not meet goal
643	No	No	Express	88.07%	Does not meet goal
649	No	No	Express	89.86%	Meets goal
652	No	No	Express	74.77%	Does not meet goal
663	No	No	Express	86.22%	Does not meet goal
664	No	No	Express	53.10%	Does not meet goal
665	No	No	Express	73.88%	Does not meet goal
667	No	No	Express	85.69%	Does not meet goal
668	No	No	Express	77.03%	Does not meet goal
670	No	No	Express	42.26%	Does not meet goal
671	No	No	Express	74.64%	Does not meet goal
672	No	No	Express	89.41%	Meets goal
673	No	No	Express	87.79%	Does not meet goal
674	No	No	Express	81.49%	Does not meet goal
675	No	No	Express	83.30%	Does not meet goal
677	No	No	Express	77.90%	Does not meet goal
679	No	No	Express	85.29%	Does not meet goal
705	Yes	No	Local	92.02%	Meets goal
716	Yes	Yes	Local	89.89%	Meets goal
717	Yes	Yes	Local	91.83%	Meets goal
721	Yes	Yes	Local	87.80%	Does not meet goal
722	Yes	Yes	Local	96.83%	Meets goal
723	Yes	Yes	Local	84.15%	Does not meet goal
724	Yes	Yes	Local	93.61%	Meets goal
755	Yes	No	Express	88.56%	Does not meet goal
756	No	No	Express	81.99%	Does not meet goal
758	No	No	Express	74.11%	Does not meet goal
760	Yes	Yes	Express	86.45%	Does not meet goal
761	Yes	Yes	Express	86.57%	Does not meet goal
762	Yes	Yes	Express	92.04%	Meets goal
763	Yes	No	Express	88.36%	Does not meet goal
764	Yes	No	Express	70.01%	Does not meet goal
765	Yes	Yes	Express	96.05%	Meets goal
766	No	No	Express	86.44%	Does not meet goal
767	Yes	No	Express	85.75%	Does not meet goal

Route	Minority Route? (>1/3)	Low-Income Route? (>1/3)	Type	Percent On-Time	On-Time Goal (>88.67%)
801	Yes	Yes	Local	96.36%	Meets goal
805	No	No	Local	90.44%	Meets goal
824	No	Yes	Express	89.77%	Meets goal
825	No	No	Express	88.26%	Does not meet goal
831	No	No	Local	97.06%	Meets goal
850	No	No	Express	86.18%	Does not meet goal
852	No	No	Express	81.32%	Does not meet goal
854	No	No	Express	84.17%	Does not meet goal
860	No	No	Express	81.29%	Does not meet goal

APPENDIX D: TRANSIT FACILITY AMENITIES

Table D-1: Transit Center Amenities

Transit Center	Lights	Heater	Trash	Standalone Bench	Other Bench	Shelter
38th St Transit Center-Minneapolis	Y	Y	Y	Y	Y	Y
46th St Transit Center-Minneapolis	Y	Y	Y	Y	Y	Y
Brooklyn Center Transit Center	Y	Y	Y	Y	Y	Y
Chicago Lake Transit Center	Y	Y	Y	Y	Y	Y
Columbia Heights Transit Center	Y	Y	Y	Y	Y	Y
I35W/82nd St Transit Center	Y	N	N	N	N	N
Little Canada Transit Center	Y	N	Y	N	Y	Y
Louisiana Transit Center-St Louis Park	Y	Y	Y	N	Y	Y
Mall of America Station	Y	Y	Y	Y	Y	Y
Maplewood Mall	Y	Y	Y	Y	Y	Y
Northtown Hub-Blaine	Y	Y	Y	Y	Y	Y
Plymouth Rd Transit Center-Minnetonka	Y	Y	Y	Y	Y	Y
Robbinsdale Transit Center	Y	Y	Y	Y	Y	Y
Rosedale	Y	Y	Y	Y	Y	Y
So Bloomington Transit Center	Y	Y	Y	Y	Y	Y
Southdale-Edina	Y	N	Y	N	Y	Y
Starlite Transit Center	Y	Y	Y	Y	Y	Y
SunRay-St Paul	Y	Y	Y	Y	Y	Y
Uptown Transit Center-Minneapolis	Y	Y	Y	Y	Y	Y

Table D-2: Park-and-Ride Amenities

Park-and-Ride Facility	Lights	Heater	Trash	Standalone Bench	Other Bench	Shelter	Elevator
63rd Ave & Bottineau Blvd	Y	Y	Y	N	Y	Y	N
65th Ave & Brooklyn Blvd	Y	Y	Y	Y	Y	Y	N/A
Co Rd 73 & I-394 South	Y	Y	Y	N	Y	Y	Y
Como & Eustis	Y	N	N	N	Y	Y	N/A
Cottage Grove	Y	Y	Y	Y	Y	Y	N/A
Foley Blvd	Y	Y	Y	N	Y	Y	Y
General Mills Blvd & I-394	Y	Y	Y	N	Y	Y	N/A
Guardian Angels Catholic Church	Y	Y	Y	N	Y	Y	N/A
Hwy 61 & Co Rd C	Y	N	N	N	Y	Y	N/A
Hwy 61 & Lower Afton Rd	Y	N	Y	N	Y	Y	N/A
Hwy 610 & Noble	Y	Y	Y	N	Y	Y	N/A
Hwy 7 & Vinehill Rd	Y	N	N	N	N	N	N/A
I-35 & Kenrick Avenue	Y	Y	Y	Y	Y	Y	Y
I-35W & 95th Ave	Y	Y	Y	Y	Y	Y	Y
I-35W & Co Rd C	Y	Y	Y	Y	Y	Y	Y
I-35W & Co Rd H	Y	N	Y	Y	Y	Y	N/A
Knox Avenue at Best Buy	Y	Y	N	N	N	Y	N/A
Lakeville Cedar	Y	Y	Y	Y	Y	Y	N/A
Park Place & I-394	Y	N	Y	N	Y	Y	N/A
Richardson Park	Y	N	Y	N	Y	Y	N/A
Wayzata Blvd & Barry Ave	Y	Y	Y	Y	Y	Y	N/A
West River Rd & 117th Ave	Y	N	N	N	Y	Y	N/A
Woodbury Theatre	Y	Y	Y	N	N	Y	N/A