

# **Nicollet-Central Transit Alternatives**

---

FINAL Purpose and Need

October 29, 2012



Prepared for:  
City of Minneapolis

Prepared by:  
**URS**

## Table of Contents

<b>Table of Contents</b> .....	<b>i</b>
<b>1. Executive Summary</b> .....	<b>1</b>
<b>2. Study Area Description</b> .....	<b>3</b>
<b>3. Purpose and Need</b> .....	<b>7</b>
3.1. PURPOSE OF THE PROPOSED ACTION .....	7
3.2. THE PROBLEM STATEMENT .....	7
3.3. NEED FOR THE PROPOSED ACTION .....	7
3.3.1. Strong and Growing Travel Demand.....	7
3.3.2. Economic Development Trends and Objectives .....	17
3.3.3. Deficiencies in Existing Bus Service.....	20
<b>4. Goals and Objectives</b> .....	<b>25</b>
<b>5. Evaluation Criteria</b> .....	<b>26</b>

## List of Tables

TABLE 1 EXISTING AND FUTURE POPULATION WITHIN THE ½ MILE BUFFER CORRIDOR.....	8
TABLE 2 EXISTING AND FUTURE EMPLOYMENT WITHIN THE ½ MILE BUFFER CORRIDOR.....	8
TABLE 3 RIDERSHIP ON ROUTE 10 AND 18 COMPARED WITH 9-MILE STUDY CORRIDOR .....	11
TABLE 4 RIDERSHIP ON ROUTE 10 AND 18 COMPARED WITH 5-MILE SEGMENT.....	12
TABLE 5 CORRIDOR SPECIAL TRIP GENERATORS .....	14
TABLE 6 ZERO AND ONE-CAR HOUSEHOLDS WITHIN THE ½ MILE BUFFER CORRIDOR .....	15
TABLE 7 POPULATION LIVING IN POVERTY WITHIN THE ½ MILE BUFFER CORRIDOR.....	15
TABLE 8 DISTRIBUTION OF BUS STOPS BY ROUTE 10 AND 18 BOARDING VOLUME IN THE CORRIDOR .....	21
TABLE 9 AM AND PM PEAK HOUR BUS VOLUMES ON NICOLLET MALL .....	22
TABLE 10 PERCENT OF TRIP OBSERVATIONS THAT EXCEED METRO TRANSIT VEHICLE LOAD GUIDELINES .....	22
TABLE 11 DISTRIBUTION OF ROUTE 10 AND 18 TRAVEL TIME.....	23
TABLE 12 DISTRIBUTION OF SCHEDULED VS. ACTUAL HEADWAYS ON ROUTE 10 WITHIN THE STUDY CORRIDOR.....	24
TABLE 13 DISTRIBUTION OF SCHEDULED VS. ACTUAL HEADWAYS ON ROUTE 18 WITHIN THE STUDY CORRIDOR.....	24
TABLE 14 PROJECT GOALS/EVALUATION MEASURE MATRIX .....	27

## List of Figures

FIGURE 1 NICOLLET-CENTRAL CORRIDOR.....	5
FIGURE 2 NICOLLET-CENTRAL EXISTING TRANSIT SERVICE.....	6
FIGURE 3 2030 POPULATION DENSITY .....	9
FIGURE 4 2030 EMPLOYMENT DENSITY .....	10
FIGURE 5 WEEKDAY PASSENGER TRIPS ON ROUTE 10 AND 18 BY SEGEMENT .....	13
FIGURE 6 PERCENT LIVING IN POVERTY .....	16
FIGURE 7 COMPACT, MIXED-USE DEVELOPMENT AT NICOLLET AVENUE AND 26 <sup>TH</sup> STREET.....	17
FIGURE 8 NICOLLET-CENTRAL CORRIDOR: FUTURE DIRECTED DEVELOPMENT .....	18
FIGURE 9 NICOLLET MALL .....	19
FIGURE 10 FREE RIDE BUS SERVICE ON NICOLLET MALL .....	20
FIGURE 11 TYPICAL PASSENGER FACILITIES IN THE CORRIDOR.....	21



## 1. Executive Summary

The purpose of the Nicollet-Central Transit Alternatives project is to improve transit connectivity, enhance the attractiveness of transit service, and catalyze development through an investment in transit infrastructure within the Nicollet-Central Corridor.

Minneapolis is a dense urban built environment with a growing network of transportation alternatives. The Twin Cities region has several major transit investments in various stages of implementation, most of which directly serve downtown Minneapolis and are primarily oriented to serving long and medium distance trips. The Nicollet-Central corridor includes some of the region's most densely-developed and transit-oriented activity centers, including downtown. It is home to a diverse population, including many people who rely on and frequently use transit, and it connects to a large transit network, including local and express bus routes and existing and future light rail and bus rapid transit lines. The corridor is planned to continue to grow with compact, mixed-use development. The corridor has a significant demand for shorter distance transit trips and is currently served directly by several high-ridership bus routes. While bus service in the corridor is frequent, it does not connect the activity centers and destinations in the corridor with a legible, easy-to-use, reliable transit service that can serve the growing travel demand and support economic development objectives.

The need for the Nicollet-Central Transit Alternatives project is based upon:

- **Strong and growing travel demand**
  - Population and employment are densely concentrated in the corridor and projected to grow significantly in and near downtown Minneapolis.
  - Existing bus riders make a lot of short trips in the corridor already, and demand for short trips is expected to grow with population and employment growth.
  - The corridor serves a diverse range of destinations and reasons that people travel, contributing to a strong, all-day transit market.
  - A lot of people living in the corridor rely on public transportation for access to jobs and economic opportunities and contribute to a strong transit market in the corridor.
- **Economic development trends and objectives**
  - Local land use policies direct compact, mixed-use development to the corridor; while the development market is performing strongly in selected nodes within the corridor, there is a need to catalyze further development to meet local and regional growth objectives.
  - Nicollet Mall is a central component of economic vitality in downtown Minneapolis, and the public and private sector have prioritized improving infrastructure, the pedestrian experience, and connectivity along and beyond Nicollet Mall.
- **Deficiencies in existing bus service**
  - To occasional bus riders and visitors, the existing bus service in the corridor is not easy to use because the vehicles and stop facilities are not clearly distinguishable from other bus service in the region.
  - The level of existing passenger facilities and amenities in the corridor is basic and not commensurate with passenger demand.
  - Existing vehicles and service frequency contribute to capacity constraints for future growth.
  - Boarding and fare payment on existing bus service is slow and contributes to inconsistent reliability of service in the corridor.

## Nicollet – Central Transit Alternatives

The goals of the Nicollet-Central Transit Alternatives project are to:

- **Connect People and Places**
  - Connect Downtown with nearby neighborhoods
  - Enhance connections between corridor activity centers and destinations
  - Improve connections between the corridor and the regional transit system
- **Increase the Attractiveness of Transit**
  - Provide transit capacity for future growth
  - Maximize transit ridership
  - Improve visibility and identification of the transit system
  - Provide improved passenger amenities and infrastructure
  - Provide reliable, frequent service
  - Provide transit service and facilities that are easy to use for people who live, and work and visit the corridor
  - Provide safe and comfortable transit service and facilities
  - Improve accessibility for people with mobility challenges
- **Catalyze and Support Economic Development**
  - Support the economic vitality of downtown
  - Support the economic vitality of small neighborhood businesses
  - Support local and regional goals to foster compact, mixed-used development along the corridor
- **Integrate with the Transportation System**
  - Integrate with the existing transit network
  - Provide acceptable traffic operations and reasonable parking options
  - Support walkable neighborhoods and multimodal transportation choices
- **Support Healthy Communities and Environmental Practices**
  - Minimize impacts to historical, cultural, and natural resources
  - Minimize impacts to low-income and minority communities
  - Minimize neighborhood and property impacts
  - Support improved transportation, housing and economic opportunities for all people
- **Develop an Implementable Project with Community Support**
  - Define transit improvements with strong public, stakeholder and agency support
  - Identify transit improvements that are financially feasible and competitive
  - Develop transit improvements that allow for phased implementation

## 2. Study Area Description

The study area consists of a 9.2-mile corridor located primarily in the City of Minneapolis and Hennepin County as shown in Figure 1. The southern end of the study area follows Nicollet Avenue from the I-35W and 46<sup>th</sup> Street transit station to downtown Minneapolis through Nicollet Mall. To the north, the alignment follows Hennepin and First Avenues NE and then Central Avenue NE to the existing Columbia Heights Transit Center at 41<sup>st</sup> Avenue NE in the City of Columbia Heights and Anoka County. The study area boundaries are based upon the long-term streetcar network on Nicollet and Central Avenues identified in the *Minneapolis Streetcar Feasibility Study* and adopted by the Minneapolis City Council.

The corridor can be divided into three major sections: Nicollet Avenue to the south, Nicollet Mall in downtown Minneapolis and Central Avenue (via Hennepin/First Avenues) to the north. Along Nicollet Avenue, the corridor is a two-lane, two-way commercial corridor with on-street parking that runs through some of the most densely populated neighborhoods in Minneapolis. In downtown, the corridor runs along Nicollet Mall, which serves pedestrians, bicyclists, taxis, and buses only. Nicollet Mall is lined with retail stores, restaurants, hotels, office buildings, and sidewalk cafes, and is used by approximately 18,000 pedestrians per day. Central Avenue NE is a four-lane, two-way street with on-street parking with commercial and retail, industrial and residential uses. The corridor crosses the Mississippi River, which serves as the northeast boundary of downtown Minneapolis.

The existing land uses in the corridor are a mixture of primarily medium to high-density residential and commercial uses. Downtown has a mix of office towers, stores, restaurants, hotels and theaters, along with institutions like the Central Library, the University of St. Thomas, Minneapolis Community and Technical College (MCTC), and Orchestra Hall, as well as the Minneapolis Convention Center. The land use south of downtown is a mixed-use commercial corridor between downtown and Lake Street with pockets of mixed use neighborhood commercial nodes and medium density housing south of Lake Street. Institutions like the Minneapolis Institute of Arts and Minneapolis College of Art and Design are also just off Nicollet Avenue between downtown and Lake Street. In the northern section of the corridor along Central Avenue between Broadway Avenue NE and 18th Avenue NE, the land use is primarily light industrial and lofts. To the north of 18th Street on Central Avenue, the land use is a mix of commercial, mixed use, residential, utilities, parks and open space. Land use along Nicollet Avenue is largely characterized by medium density housing, mixed use development, retail and commercial. The urban form and land use patterns throughout the corridor are highly oriented to walking, bicycling and transit. Many of the neighborhoods have a historic street grid that largely formed based on the former streetcar lines.

Existing transit services in the corridor are some of the region's most productive. The corridor is directly served by several major bus routes. The routes that most directly serve the full study area include Routes 10, 18 and 59. Route 18 runs along Nicollet Avenue from downtown to 104<sup>th</sup> Street in Bloomington and serves approximately 11,600 weekday riders. Route 10 runs along Nicollet Mall and Central Avenue from the Minneapolis Convention Center to Northtown Mall in Blaine and serves approximately 8,700 weekday riders. Route 59 is a limited stop overlay route with peak period, peak direction service and serves less than 1,000 weekday riders. Routes 10 and 18 are part of Metro Transit's High-Frequency Network, which guarantees service at least every 15 minutes for 13 hours a day on weekdays and 9 hours on Saturday. Both routes provide substantially higher service than required by this network, with 7-9 minute service on Route 18 and 10-minute service on Route 10 for much of the day. Figure 2 presents the existing transit including bus routes that directly serve and intersect with the corridor.

In downtown, the corridor connects with the existing and planned LRT services on Fifth Street, including Hiawatha Light Rail Transit (LRT) line (Blue Line), the future Central Corridor LRT (Green Line), and the future Southwest Corridor LRT (Green Line Extension). The existing Northstar Commuter Rail Line terminal station is located

## Nicollet – Central Transit Alternatives

approximately one-half mile west of the corridor and is connected via the existing and future LRT lines on Fifth Street and multiple bus routes. Along Nicollet Avenue, the corridor parallels the future I-35W Transitway (Orange Line), which is planned to have stations approximately every two miles outside downtown Minneapolis, including Lake Street and at 46<sup>th</sup> Street in south Minneapolis as shown in Figure 1.

A significant amount of transit and land use planning has occurred in the corridor and is documented in the *Technical Memorandum #3 - Relevant Issues*. These include both City of Minneapolis and the Metropolitan Council plans prioritizing transit improvements in the corridor and mode-specific feasibility studies of modern streetcar and arterial BRT. Land use plans for the corridor recommend development and land use patterns that support enhanced transit.

Figure 1: Nicollet-Central Corridor

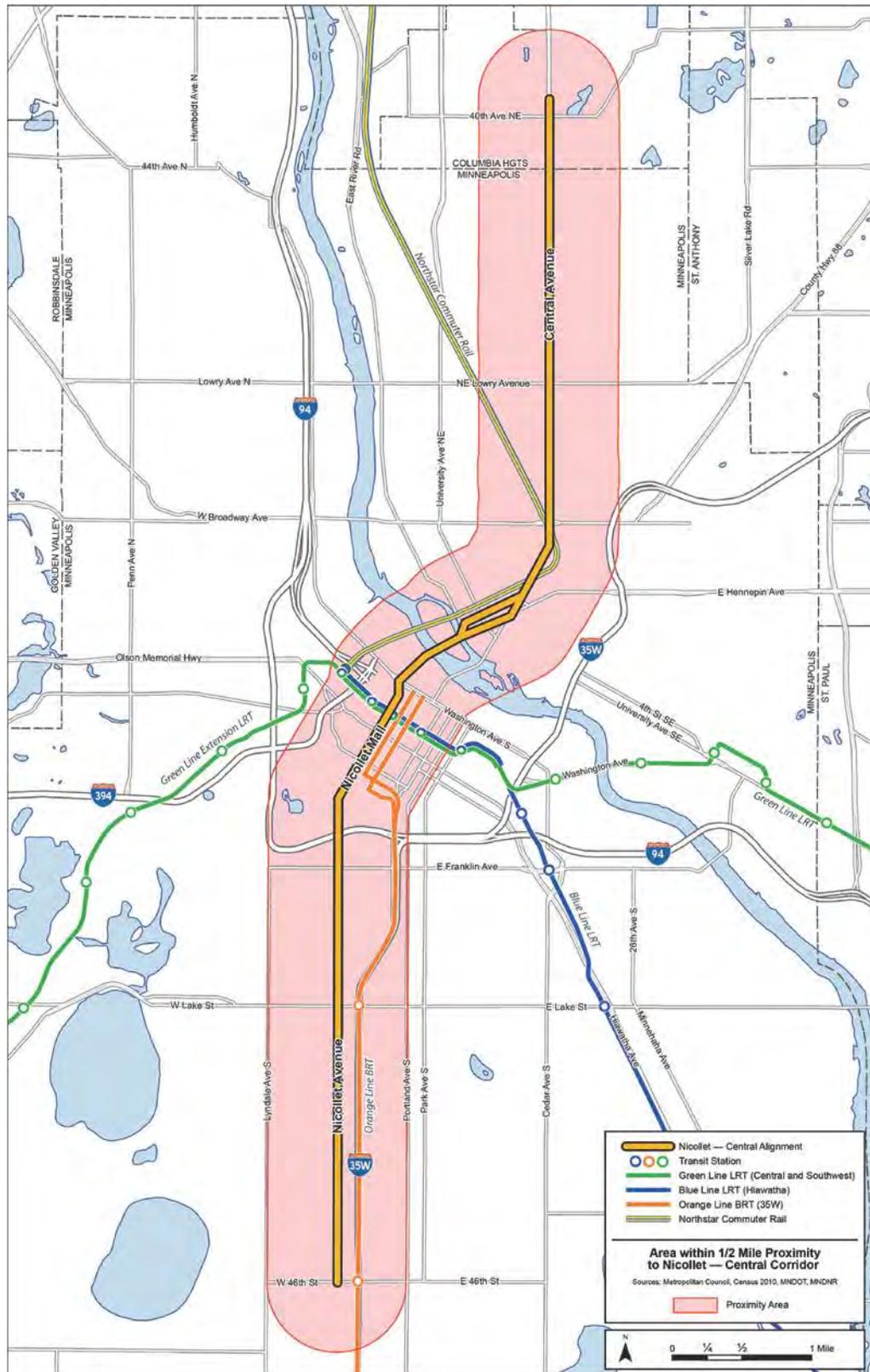
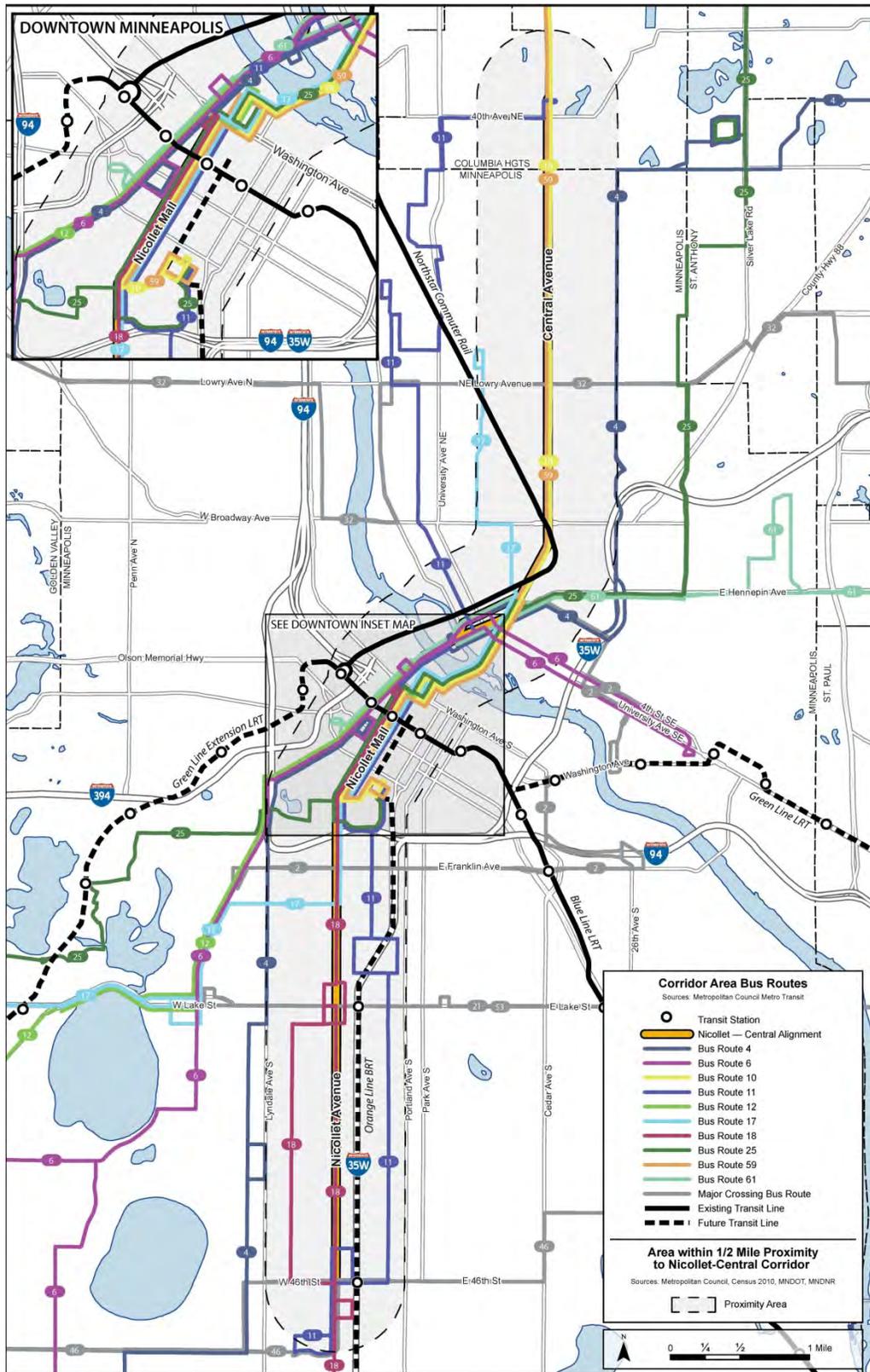


Figure 2: Nicollet-Central Existing Transit Service



### 3. Purpose and Need

The purpose and need includes a summary of the transportation, land use and development problems and opportunities within the study area. This document builds upon the data and information presented in *Technical Memorandum #3 - Relevant Issues*.

#### 3.1. Purpose of the Proposed Action

The purpose of the Nicollet-Central Transit Alternatives project is to improve transit connectivity, enhance the attractiveness of transit service, and catalyze development through an investment in transit infrastructure within the Nicollet-Central Corridor.

#### 3.2. The Problem Statement

Minneapolis is a dense urban built environment with a growing network of transportation alternatives. The Twin Cities region has several major transit investments in various stages of implementation, most of which directly serve downtown Minneapolis and are primarily oriented to serving on long and medium distance trips. The Nicollet-Central corridor includes some of the region's most densely-developed and transit-oriented activity centers, including downtown. It is home to a diverse population, including many people who rely on and frequently use transit, and it connects to a large transit network, including local and express bus routes and existing and future light rail and bus rapid transit lines. The corridor is planned to continue to grow with compact, mixed-use development. The corridor has a significant demand for shorter distance transit trips (between two and five miles) and is currently served directly by several high-ridership bus routes. While bus service in the corridor is frequent, it does not connect the activity centers and destinations in the corridor with a legible, easy-to-use, reliable transit service that can serve the growing travel demand and support economic development objectives.

#### 3.3. Need for the Proposed Action

The need for the project is based on the following factors.

##### 3.3.1. *Strong and Growing Travel Demand*

- **Population and employment density and growth.** Population and employment are densely concentrated in the corridor and projected to grow significantly in and near downtown Minneapolis. With over 90,000 residents within ½ mile and population densities ranging from 5,000 people per square mile on the northern end of the corridor to 17,000 people per square mile just south of downtown, the Nicollet-Central Corridor is one of the most densely-populated corridors in the Twin Cities region. At the center of the corridor is downtown Minneapolis, the largest employment center in upper Midwest, with over 120,000 jobs that are largely concentrated within ½ mile of the corridor along Nicollet Mall. The corridor is currently forecasted to grow by 25,000 residents and 51,000 employees over the next 20 years, primarily in downtown and near-downtown neighborhoods (see Tables 1 and 2 and Figures 3 and 4). This growth will result in increased travel demand within the Nicollet-Central corridor, particularly within the downtown and near-downtown neighborhoods.

**Table 1: Existing and Future Population within the ½ mile Buffer Corridor**

GEOGRAPHIC AREA	2010 POPULATION	2010 POPULATION DENSITY (1,000 POP/SQ MI)	2010-2030 POPULATION CHANGE	2030 POPULATION DENSITY (1,000 POP/SQ MI)
<i>Corridor Total</i>	<i>91,000</i>	<i>9</i>	<i>+ 25,000</i>	<i>12</i>
<i>41<sup>st</sup> Avenue NE to Lowry Avenue</i>	<i>12,000</i>	<i>5</i>	<i>+ 0</i>	<i>5</i>
<i>Lowry Avenue to River</i>	<i>17,000</i>	<i>7</i>	<i>+ 5,000</i>	<i>9</i>
<i>Downtown (in corridor)</i>	<i>17,000</i>	<i>11</i>	<i>+13,000</i>	<i>19</i>
<i>I-94 to Lake Street</i>	<i>20,000</i>	<i>17</i>	<i>+ 7,000</i>	<i>22</i>
<i>Lake Street to 46<sup>th</sup> Street</i>	<i>25,000</i>	<i>10</i>	<i>+ 0</i>	<i>10</i>
<i>Downtown-wide</i>	<i>26,000</i>	<i>9</i>	<i>+ 21,000</i>	<i>17</i>
<i>Downtown (outside corridor)</i>	<i>9,000</i>	<i>8</i>	<i>+ 8,000</i>	<i>15</i>
<i>Downtown (in corridor)</i>	<i>17,000</i>	<i>11</i>	<i>+13,000</i>	<i>19</i>

Source: 2010 Population: 2010 Transportation Analysis Zone (TAZ) System: 2010 US decennial Census  
 2030 Population: Transportation Analysis Zones 2000: Estimated population within TAZ in 2030 (based on approved city and regional forecasts)  
 2010 Employment: 2010 Transportation Analysis Zone (TAZ) System: QCEW/LED data  
 2030 Employment: Transportation Analysis Zones 2000: Estimated employment within TAZ in 2030 (based on approved city and regional forecasts)

**Table 2: Existing and Future Employment within the ½ mile Buffer Corridor**

GEOGRAPHIC AREA	2010 EMPLOYMENT	2010 EMPLOYMENT DENSITY (1,000 EMP/SQ MI)	2010-2030 EMPLOYMENT CHANGE	2030 EMPLOYMENT DENSITY (1,000 EMP/SQ MI)
<i>Corridor Total</i>	<i>125,000</i>	<i>13</i>	<i>+ 51,000</i>	<i>18</i>
<i>41<sup>st</sup> Avenue NE to Lowry Avenue</i>	<i>2,000</i>	<i>1</i>	<i>+ 1,000</i>	<i>1</i>
<i>Lowry Avenue to River</i>	<i>9,000</i>	<i>4</i>	<i>+ 3,000</i>	<i>5</i>
<i>Downtown (in corridor)</i>	<i>103,000</i>	<i>63</i>	<i>+ 43,000</i>	<i>90</i>
<i>I-94 to Lake Street</i>	<i>8,000</i>	<i>7</i>	<i>+ 3,000</i>	<i>10</i>
<i>Lake Street to 46<sup>th</sup> Street</i>	<i>3,000</i>	<i>1</i>	<i>+ 1,000</i>	<i>2</i>
<i>Downtown-wide</i>	<i>122,000</i>	<i>44</i>	<i>+ 50,000</i>	<i>62</i>
<i>Downtown (outside corridor)</i>	<i>19,000</i>	<i>16</i>	<i>+7,000</i>	<i>22</i>
<i>Downtown (in corridor)</i>	<i>103,000</i>	<i>63</i>	<i>+ 43,000</i>	<i>90</i>

Source: 2010 Population: 2010 Transportation Analysis Zone (TAZ) System: 2010 US decennial Census  
 2030 Population: Transportation Analysis Zones 2000: Estimated population within TAZ in 2030 (based on approved city and regional forecasts)  
 2010 Employment: 2010 Transportation Analysis Zone (TAZ) System: QCEW/LED data  
 2030 Employment: Transportation Analysis Zones 2000: Estimated employment within TAZ in 2030 (based on approved city and regional forecasts)

Figure 3: 2030 Population Density

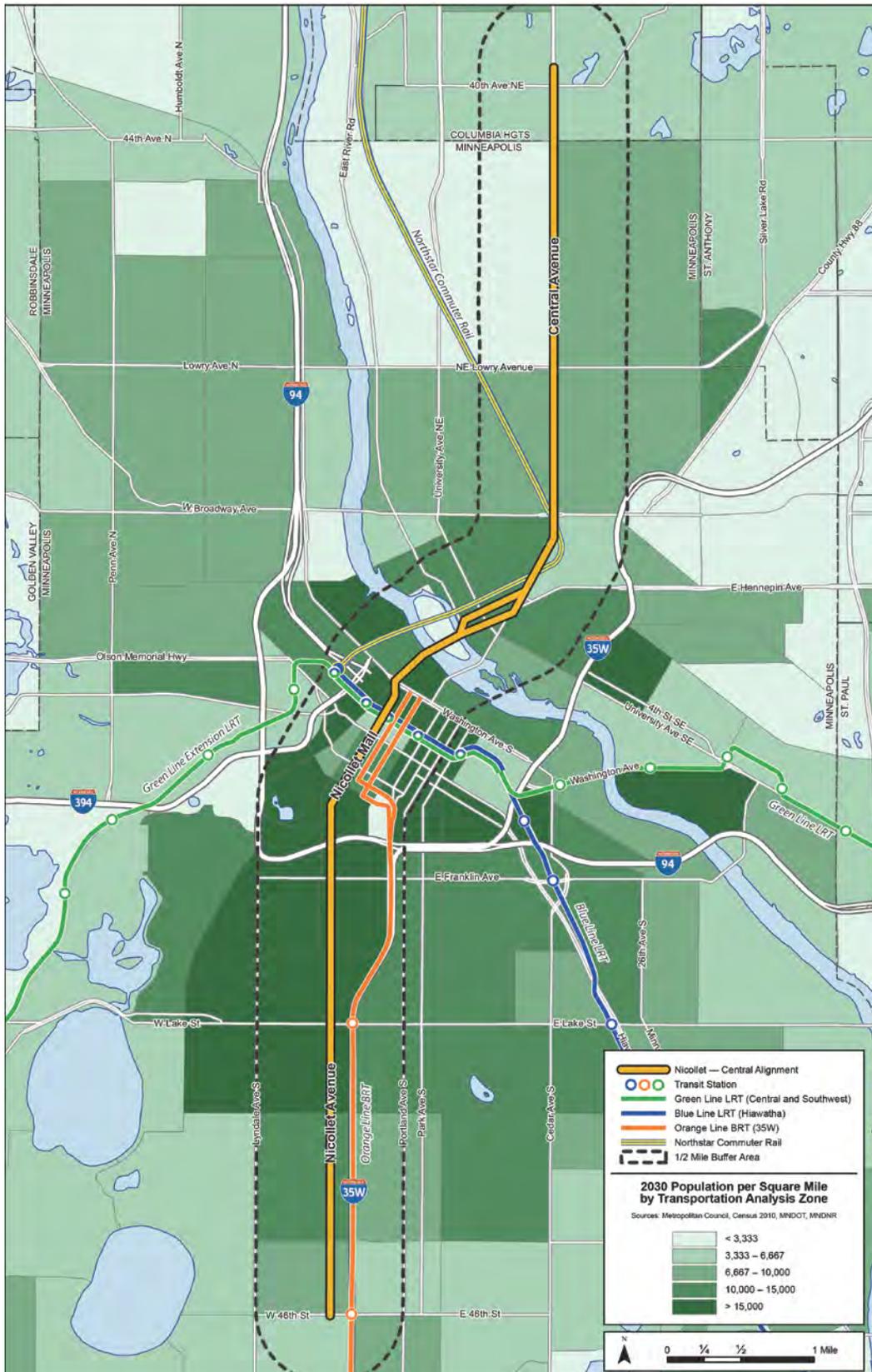
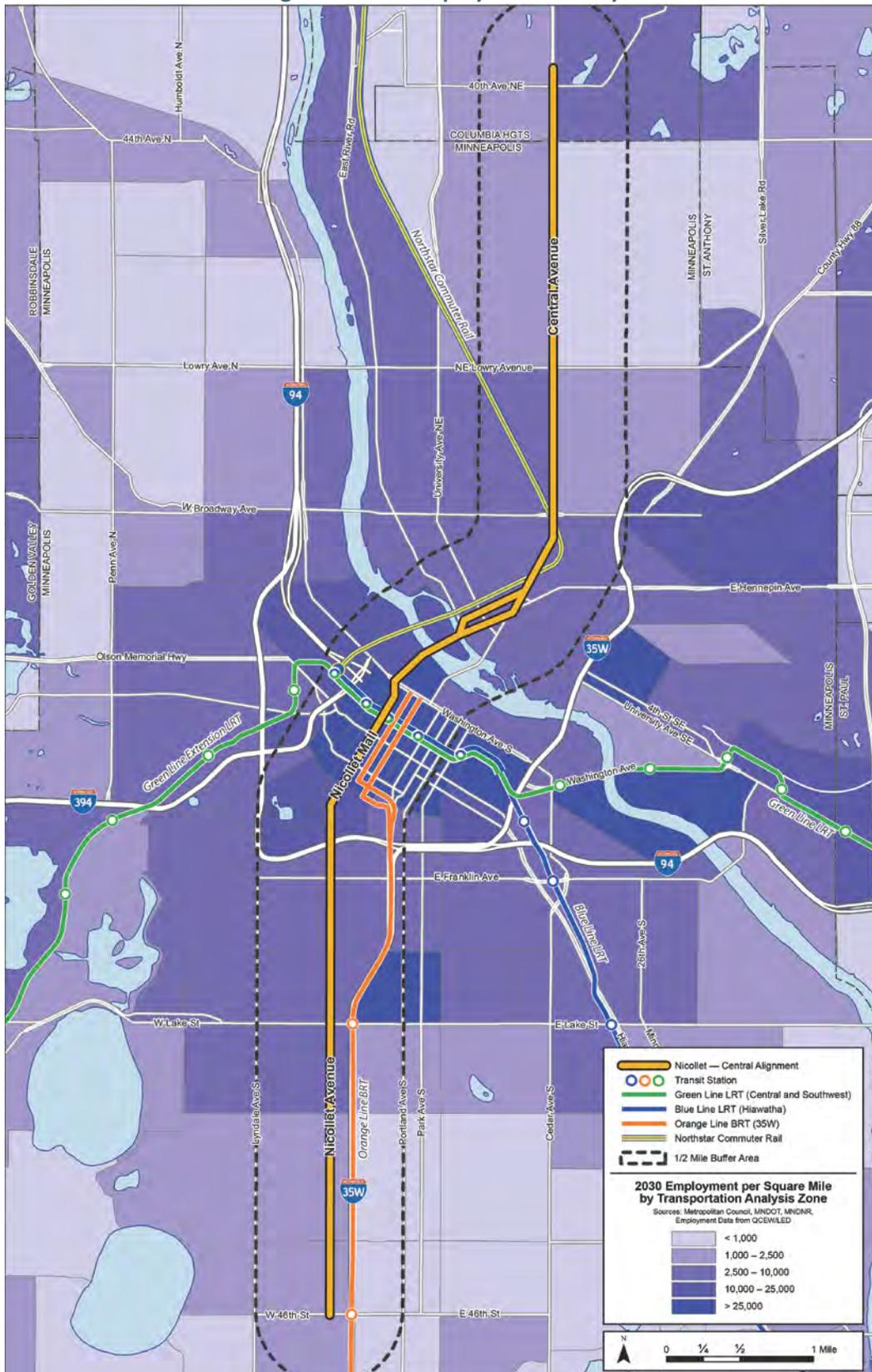


Figure 4: 2030 Employment Density



- Travel demand for short passenger trips.** Existing bus riders make a lot of short trips in the corridor already, and demand for short trips is expected to grow with population and employment growth. The two primary bus routes in the corridor, routes 10 and 18, are among the highest ridership routes in the region, serving over 20,000 weekday rides. These bus routes extend beyond the 9-mile study corridor, covering a total corridor distance of approximately 25 miles; however, there is strong existing demand for short passenger trips within the study corridor. Analysis of Metro Transit boarding and alighting data from Fall 2011 shows these routes averaged 20,300 daily boardings on weekdays. Seventy percent, 14,300, of these trips occur entirely within 9.2 mile corridor from the Columbia Heights Transit Center to 46<sup>th</sup> Street in south Minneapolis, while an even shorter 5-mile segment between Lowry Avenue and Lake Street contains 53 percent of the trips, or 10,700 trips, as shown in Tables 3, 4 and Figure 5. The demand for short trips within the corridor is expected to increase with forecast population and employment growth in downtown and near-downtown neighborhoods.

**Table 3: Ridership on Route 10 and 18 Compared with 9-mile Study Corridor**

ROUTE AND TRAVEL PATTERN:	NUMBER OF WEEKDAY PASSENGER TRIPS	PERCENTAGE OF WEEKDAY PASSENGER TRIPS
<b>ROUTE 18</b>	<b>11,600</b>	<b>100%</b>
<i>Travelling entirely north of 46<sup>th</sup> Street*</i>	<i>8,900</i>	<i>77%</i>
<i>Crossing 46<sup>th</sup> Street</i>	<i>2,100</i>	<i>18%</i>
<i>Travelling entirely south of 46<sup>th</sup> Street</i>	<i>600</i>	<i>5%</i>
<b>ROUTE 10</b>	<b>8,700</b>	<b>100%</b>
<i>Travelling entirely south of 41<sup>st</sup> Ave NE</i>	<i>5,400</i>	<i>62%</i>
<i>Crossing 41<sup>st</sup> Ave NE</i>	<i>2,500</i>	<i>29%</i>
<i>Travelling entirely north of 41<sup>st</sup> Ave NE</i>	<i>800</i>	<i>9%</i>
<b>ROUTES 10 AND 18 COMBINED</b>	<b>20,300</b>	<b>100%</b>
<i>Travelling entirely within 9-mile study corridor</i>	<i>14,300</i>	<i>70%</i>
<i>Crossing 46<sup>th</sup> Street or 41<sup>st</sup> Avenue NE</i>	<i>4,600</i>	<i>23%</i>
<i>Travelling entirely outside 9-mile study corridor</i>	<i>1,400</i>	<i>7%</i>

Source: Metro Transit: September 2011 APC and farebox data

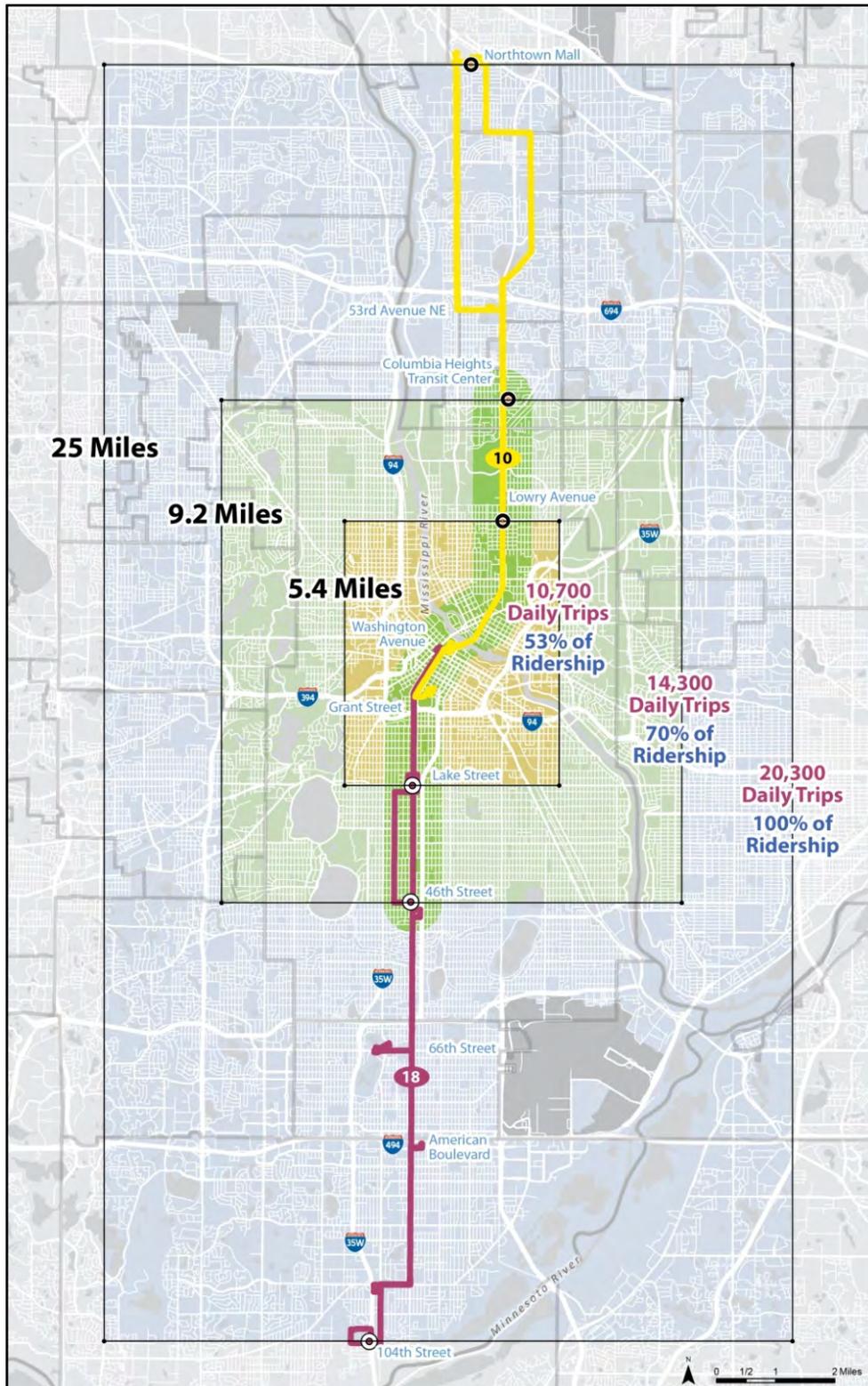
\*Route 18 includes the Grand Avenue branch, route 18G.

**Table 4: Ridership on Routes 10 and 18 Compared with 5-mile Segment**

<b>ROUTE AND TRAVEL PATTERN</b>	<b>NUMBER OF WEEKDAY PASSENGER TRIPS</b>	<b>PERCENTAGE OF WEEKDAY PASSENGER TRIPS</b>
<b>ROUTE 18</b>	<b>11,600</b>	<b>100%</b>
<i>Travelling entirely north of Lake Street</i>	<i>6,500</i>	<i>56%</i>
<i>Crossing Lake Street</i>	<i>3,300</i>	<i>28%</i>
<i>Travelling entirely south of Lake Street</i>	<i>1,800</i>	<i>16%</i>
<b>ROUTE 10</b>	<b>8,700</b>	<b>100%</b>
<i>Travelling entirely South of Lowry Ave</i>	<i>4,200</i>	<i>48%</i>
<i>Crossing Lowry Ave</i>	<i>3,100</i>	<i>36%</i>
<i>Travelling entirely North of Lowry Ave</i>	<i>1,400</i>	<i>16%</i>
<b>ROUTES 10 AND 18 COMBINED</b>	<b>20,300</b>	<b>100%</b>
<i>Travelling entirely within 5-mile segment</i>	<i>10,700</i>	<i>53%</i>
<i>Crossing Lake Street or Lowry Ave</i>	<i>6,400</i>	<i>32%</i>
<i>Travelling entirely outside 5-mile segment</i>	<i>3,200</i>	<i>16%</i>

Source: Metro Transit: September 2011 APC and farebox data

Figure 5: Weekday Passenger Trips on Routes 10 and 18 by Segment<sup>1</sup>



<sup>1</sup>Source: September 2011 APC and farebox data provided by Metro Transit. Inbound boardings and outbound alightings.

## Nicollet – Central Transit Alternatives

- Diverse trip generators and trip purposes.** The corridor serves a diverse range of destinations and reasons that people travel, contributing to a strong, all-day transit market. According to Metro Council’s 2010 Travel Behavior Inventory (TBI) On-Board Survey, only 50 percent of route 18 riders and 42 percent of route 10 riders are travelling between home and work, with the remaining riders travelling to or from school, shopping, recreation and other trip purposes. Within the Nicollet-Central Corridor, there are a wide variety of land uses and trip generators in addition to the downtown employment district and dense residential neighborhoods that contribute to travel demand for a diversity of trip purposes. The corridor includes approximately 6,000 hotel rooms<sup>2</sup>; the Minneapolis Convention Center with 475,000 square feet of meeting space; restaurant districts including Nicollet Mall, Eat Street, Central Avenue, and East Hennepin/St. Anthony Main; the Northeast Arts District; the Mississippi River; the Minneapolis Institute of Arts and Children’s Theater; the Central Library; the Minneapolis Community and Technical College; the Minneapolis College of Art and Design. Table 5 provides a list of the major special trip generators in the corridor. The diversity of trip generators and trip purposes in the corridor supports a strong, all-day transit market.

**Table 5: Corridor Special Trip Generators**

<b>CULTURAL</b>	<b>INSTITUTIONAL/ EDUCATIONAL</b>	<b>RECREATIONAL/ TOURISM</b>	<b>SHOPPING/ DINING</b>
<i>Minneapolis Institute of Arts</i>	<i>University of St. Thomas</i>	<i>Minneapolis Convention Center</i>	<i>Nicollet Mall shopping and restaurant district</i>
<i>Children’s Theatre Company</i>	<i>Minneapolis Community and Technical College</i>	<i>St. Anthony Main/Mississippi River</i>	<i>“Eat Street” restaurant district</i>
<i>Hennepin Theatre Trust (Orpheum, State, Pantages, New Century Theatres)</i>	<i>Minneapolis College of Art and Design</i>	<i>Target Center</i>	<i>Central Avenue NE commercial district</i>
<i>The Cowles Center for Dance and the Performing Arts</i>	<i>Minneapolis Central Library</i>	<i>Target Field</i>	<i>East Hennepin commercial district</i>
<i>Orchestra Hall</i>		<i>6,000 hotel rooms</i>	<i>Northeast Arts District</i>

- People who rely on transit.** A lot of people living in the corridor rely on public transportation for access to jobs and economic opportunities and contribute to a strong transit market in the corridor. Twenty-five percent of households in the corridor have no car, and an additional 47 percent of households have only one car, significantly higher than the rest of the region, as shown in Table 6. Low income households are primarily concentrated in neighborhoods south of downtown to 46th Street, as shown in Table 7 and Figure 6. These populations have a higher propensity to use transit, are a significant component of the strong existing transit market in the corridor, and can benefit significantly from the enhanced economic opportunities resulting from mobility improvements.

<sup>2</sup> Source: Meet Minneapolis and Smith Travel Research, July 2012

**Table 6: Zero and One-Car Households within the ½ mile Buffer Corridor**

LOCATION:	TOTAL HOUSEHOLDS	AVERAGE HOUSEHOLD SIZE	% ZERO-CAR HOUSEHOLDS	% ONE –CAR HOUSEHOLDS
<i>Corridor Total</i>	46,400	2.13	25%	47%
<i>41<sup>st</sup> Avenue NE to Lowry Avenue</i>	5,300	2.41	13%	42%
<i>Lowry Avenue to River</i>	8,200	2.17	21%	45%
<i>Downtown</i>	10,800	1.47	31%	52%
<i>I-94 to Lake Street</i>	12,600	1.93	32%	49%
<i>Lake Street to 46<sup>th</sup> Street</i>	9,600	2.66	19%	41%
<i>Minneapolis - citywide</i>	167,100	2.17	19%	43%
<i>Seven County Metro</i>	1,110,700	2.48	8%	32%

Source: 2010 American Community Survey, 5-year estimate

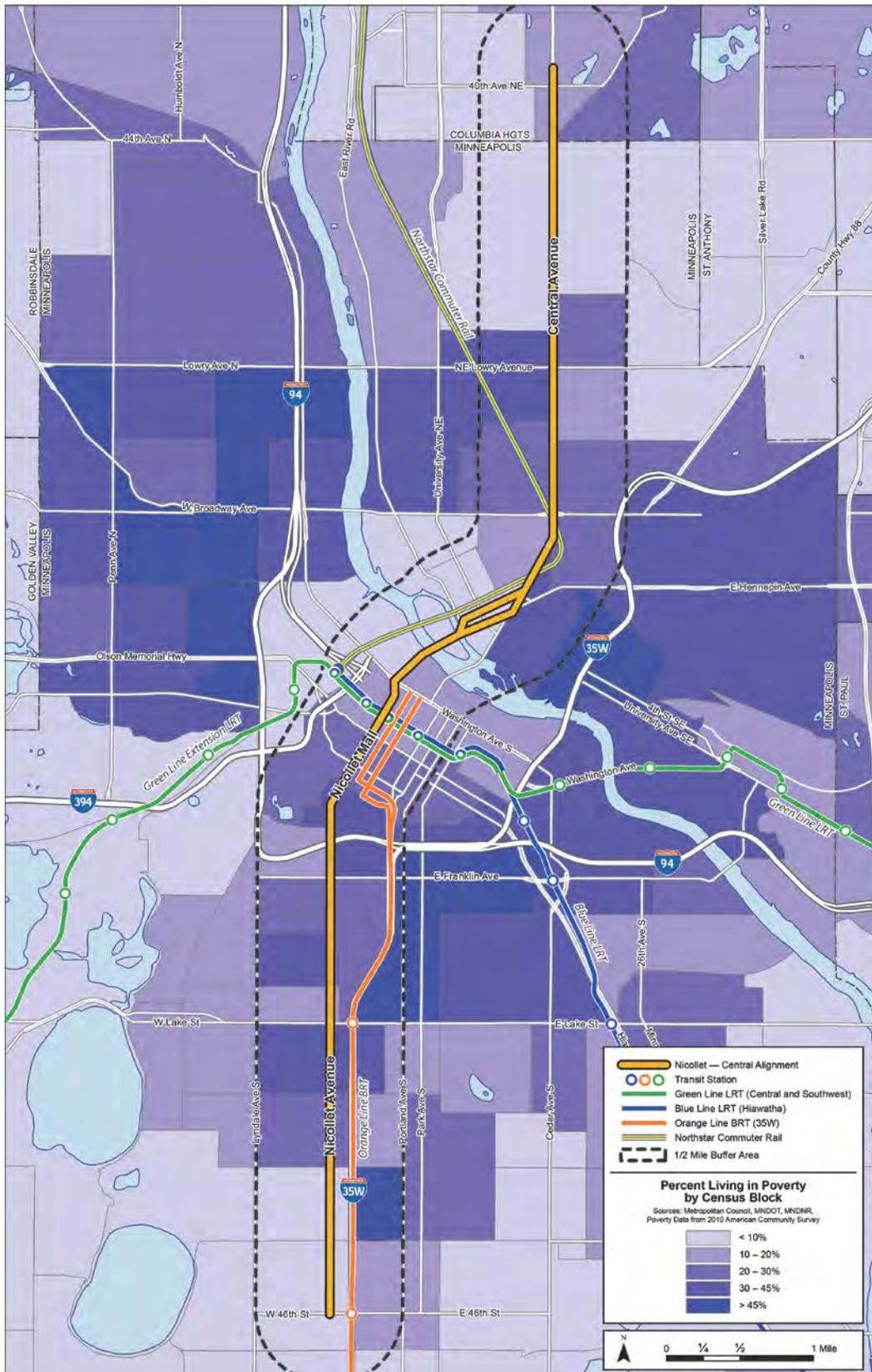
**Table 7: Population Living in Poverty within the ½ mile Buffer Corridor <sup>3</sup>**

LOCATION:	TOTAL POPULATION	POPULATION IN POVERTY	% IN POVERTY
<i>Corridor Total</i>	91,400	21,800	24%
<i>41<sup>st</sup> Avenue NE to Lowry Avenue</i>	12,300	1,900	16%
<i>Lowry Avenue to River</i>	16,100	3,900	24%
<i>Downtown</i>	16,800	3,300	20%
<i>I-94 to Lake Street</i>	23,000	6,700	29%
<i>Lake Street to 46<sup>th</sup> Street</i>	23,100	5,900	26%
<i>Minneapolis - citywide</i>	382,600	82,900	22%
<i>Seven County Metro</i>	2,849,600	276,100	10%

Source: 2010 American Community Survey, 5-year estimate

<sup>3</sup> Definition of Living in Poverty: According to the *US Census Bureau*, “If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U)”. For a family of four with two children under 18, the income threshold for living in poverty is \$22,811.

Figure 6: Percent Living in Poverty



### 3.3.2. Economic Development Trends and Objectives

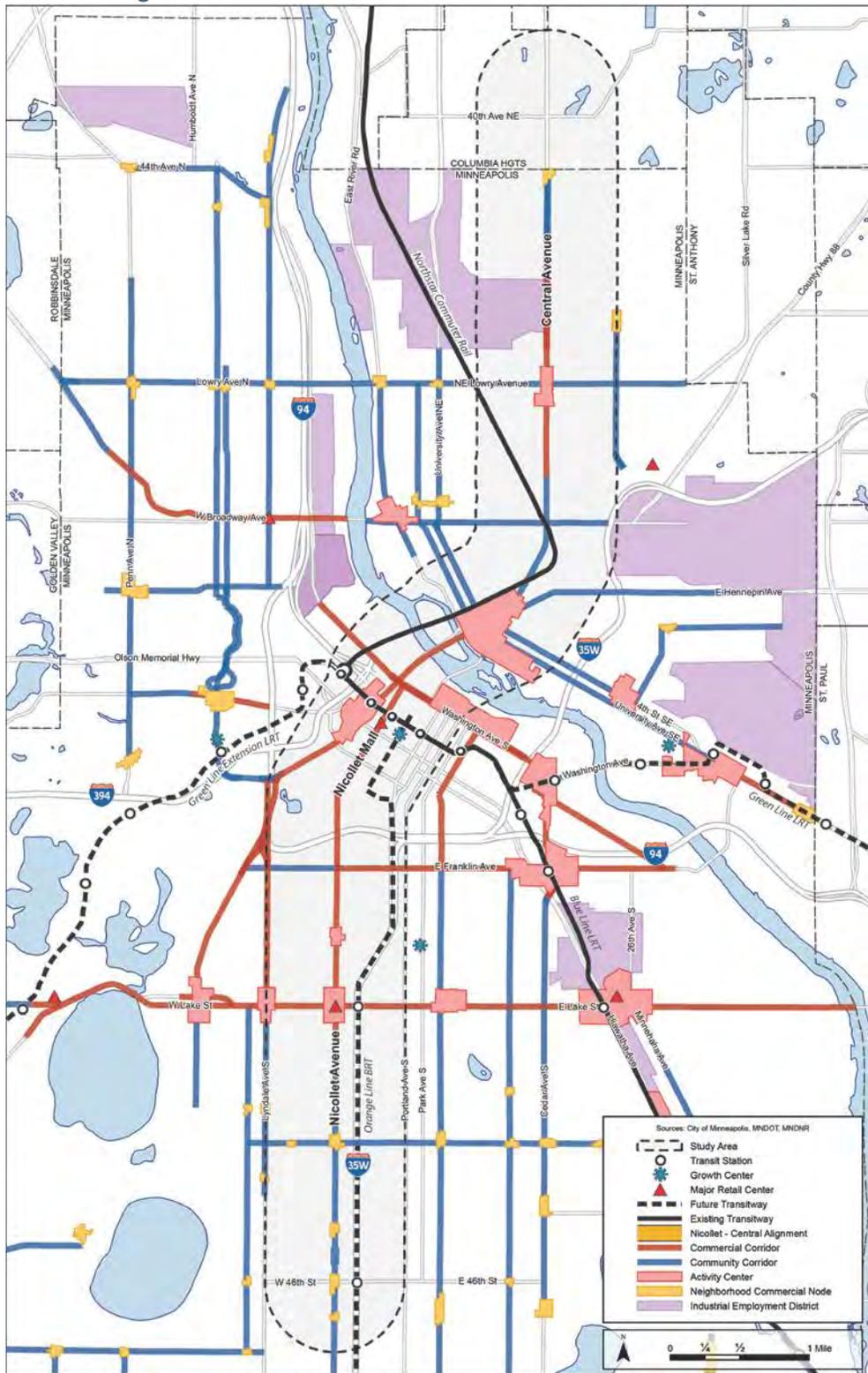
- **Compact, mixed-use development:** Local and regional land use policies direct compact, mixed-use development to the corridor; while the development market is performing strongly in selected nodes within the corridor, there is a need to catalyze further development to meet local and regional growth objectives. The existing urban form and land use patterns throughout the corridor are highly oriented to walking, bicycling and transit, as shown in Figure 7. Public policy in both Minneapolis and Columbia Heights directs compact, mixed-use development throughout the corridor with more intense development in downtown Minneapolis and neighborhood business districts, as shown in Figure 8. Local zoning regulations and regional and local housing and economic development programs reflect these policies. Regional plans also support increasing population and employment density, clustering employment near transit and pedestrian infrastructure, and implementing land use patterns to support transit-supportive development.<sup>4</sup> While there are infill development opportunities throughout the corridor, large-scale redevelopment opportunities include Shoreham Yards, the Central/Lowry business district, North Nicollet Mall, the Franklin Avenue/I-94 area, and the Nicollet/Lake Street area. Ultimately, the objective is to coordinate land use policies with transit investments, so that people have reasonable housing, employment and transportation choices that are sustainable and enhance quality of life.

Figure 7: Compact, Mixed-use Development at Nicollet Avenue and 26th Street



<sup>4</sup> Metro Council, *2030 Transportation Policy Plan*, November 2010

Figure 8: Nicollet-Central Corridor: Future Directed Growth <sup>5</sup>



<sup>5</sup> City of Minneapolis, *The Minneapolis Plan for Sustainable Growth*, October 2009.

- **Sustained economic vitality of downtown Minneapolis and Nicollet Mall:** Nicollet Mall is a central component of economic vitality in downtown Minneapolis, and the public and private sector have prioritized improving infrastructure, the pedestrian experience, and connectivity along and beyond Nicollet Mall. Downtown Minneapolis has the highest concentration of economic, cultural and entertainment destinations in the state. For the metropolitan region to prosper and compete in the coming decades, downtown Minneapolis needs to grow its residential population, maintain and attract major employers, improve its public spaces and walking experience, and enhance connectivity within downtown and adjacent districts.<sup>6</sup> Nicollet Mall is the geographic and economic heart of downtown Minneapolis, shown in Figure 9. The Mississippi River and Interstate 94 separate downtown and Nicollet Mall from the neighborhoods and growing activity centers to the north and south of downtown. Attracting investment to Nicollet Mall, improving the pedestrian experience on Nicollet Mall, and connecting destinations along Nicollet Mall and between Nicollet Mall and surrounding activity centers are shared priorities for the private and public sectors in downtown Minneapolis.

Figure 9: Nicollet Mall



<sup>6</sup> Minneapolis Downtown Council, *Intersections.2025*, 2012.

### 3.3.3. Deficiencies in Existing Bus Service

While routes 10 and 18 provide frequent, all-day service in the corridor, deficiencies in other measures of quality of service limit the corridor’s ability to serve growing travel demand and support economic development objectives.

- **Service legibility:** To occasional bus riders and visitors, the existing bus service in the corridor is not easy to use because the vehicles and stop facilities are not clearly distinguishable from other bus service in the region. The vehicles used on routes 10 and 18 have the same look and branding as all of Metro Transit’s regular route bus service. Two efforts have been implemented to differentiate the service. In 2008, Metro Transit implemented a Hi-Frequency Network branding effort for 11 bus routes, including routes 10 and 18, and the Blue Line (Hiawatha) LRT line that have the most frequent, all-day service (at least every 15 minutes from 6 a.m. to 7 p.m. on weekdays and from 9 a.m. to 6 p.m. on Saturdays). This branding effort consists of an additional logo on the bus stop sign, printed schedules, and website route information. In 2010, Metro Transit also implemented a free ride service using inbound route 18 and 10 buses travelling between Grant St and Washington Avenue on Nicollet Mall. Special bus stop signs on Nicollet Mall and the variable message sign on the front of the bus advertise the free ride service, as shown in Figure 10. The free ride service has increased total rides within the downtown 50-cent fare zone from 94,000 in 2009 to nearly 200,000 in 2010.<sup>7</sup> Despite these modest efforts, the transit service in the corridor does not provide the legibility and premium customer experience needed to attract new riders, as well as serve existing riders with a premium service.

Figure 10: Free Ride Bus Service on Nicollet Mall



<sup>7</sup> Metro Transit AVL Data, October 2011

- Passenger facilities:** The level of existing passenger facilities and amenities in the corridor is basic and not commensurate with passenger demand. The passenger facilities at bus stops are similar to all regular route bus stops, consisting of a bus stop sign and in some cases a standard bus shelter (typically at inbound bus stops), as shown in Figure 11. Passenger information consists of schedules posted only at bus stops with shelters. The quality of existing facilities is not commensurate with the high demand in the corridor. 21 of the total 148 bus stops in the study corridor have greater than 200 daily boardings on Routes 10 and 18, as shown in Table 8. Metro’s system-wide (bus, light rail and commuter rail) average for daily station/stop boardings is 21 passengers.

Figure 11: Typical Passenger Facilities in the Corridor



Table 8: Distribution of Bus Stops by Route 10 and 18 Boarding Volume in the Corridor

GEOGRAPHIC AREA	STOPS WITH <100 BOARDINGS	STOPS WITH 100-200 BOARDINGS	STOPS WITH >200 BOARDINGS	TOTAL STOPS
<i>Corridor Total</i>	111	16	21	148
<i>41<sup>st</sup> Avenue NE to Lowry Avenue</i>	26	2	0	28
<i>Lowry Avenue to River</i>	25	2	1	28
<i>Downtown</i>	17	4	12	33
<i>I-94 to Lake Street</i>	7	3	6	16
<i>Lake Street to 46<sup>th</sup> Street</i>	36	5	2	43

Source: September 2011 APC and farebox data provided by Metro Transit, excluding route 18 Grand Avenue branch stops.

- Limited transit capacity:** Existing vehicles and service frequency contribute to capacity constraints for future growth. Buses in the corridor are often near or at capacity, particularly on route 10 and 18.<sup>8</sup> Currently 11

<sup>8</sup> Metro Council, 2030 Transportation Policy Plan, November 2010 Appendix G: Regional Transit Standards

## Nicollet – Central Transit Alternatives

percent of route 10 bus trips and seven percent of route 18 bus trips are considered overloaded as buses approach and exit downtown, by Metro Transit standards for local bus service, as shown in Table 10. Nicollet Mall currently has a high volume of bus service throughout the day with service on routes 10, 11, 17, 18, 25 and 59. During the AM peak hour (between 7:20 AM and 8:19 AM), 28 northbound and 35 southbound buses travel on Nicollet Mall, as shown in Table 9. During the PM peak hour (3:40 PM to 4:39 PM), 37 northbound and 25 southbound buses travel on Nicollet Mall, as shown in Table 9. This high frequency of service limits the ability to add additional bus service on Nicollet Mall during the peak period as transit demand increases.

**Table 9: AM and PM Peak Hour Bus Volumes on Nicollet Mall**

<b>ROUTE:</b>	<b>AM NORTHBOUND</b>	<b>AM SOUTHBOUND</b>	<b>PM NORTHBOUND</b>	<b>PM SOUTHBOUND</b>
<i>Route 10</i>	7	6	6	6
<i>Route 11</i>	3	7	6	3
<i>Route 17</i>	8	4	5	6
<i>Route 18</i>	8	9	11	8
<i>Route 25</i>	2	2	2	2
<i>Route 59</i>	0	6	6	0
<i>Route 568/587</i>	0	1	1	0
<b>Total</b>	<b>28</b>	<b>35</b>	<b>37</b>	<b>25</b>

Source: Metro Transit, based on service provided on Sept. 11, 2012.

**Table 10: Percent of Trip Observations that Exceed Metro Transit Vehicle Load Guidelines\***

<b>TIME OF DAY BEGINNING OR ENDING IN DOWNTOWN:</b>	<b>NORTHBOUND ROUTE 10</b>	<b>SOUTHBOUND ROUTE 10</b>	<b>NORTHBOUND ROUTE 18</b>	<b>SOUTHBOUND ROUTE 18</b>
<i>1am to 6am</i>	0%	2%	0%	0%
<i>6am to 9am</i>	0%	1%	7%	0%
<i>9am to 3pm</i>	13%	19%	16%	10%
<i>3pm to 6pm</i>	9%	4%	4%	12%
<i>6pm to 9pm</i>	29%	6%	0%	8%
<i>9pm to 1am</i>	20%	4%	0%	3%
<b>24-hour Total</b>	<b>12%</b>	<b>10%</b>	<b>7%</b>	<b>7%</b>

\*Metro Transit's Load Standards for Routes 10 and 18 are 125% of seated capacity during peak periods (6:00-9:00am and 3:00-6:30pm) and 100% of seated capacity during off-peak periods.

Source: Metro Transit APC Data, September 2011

- Boarding delay and reliability challenges:** Boarding and fare payment on existing bus service is slow and contributes to inconsistent reliability of service in the corridor. Twenty-four to thirty-two percent of route 10 and 18 travel time is spent boarding and alighting passengers and collecting fares, as shown in Table 11. Twenty-three of the total 163 one-way bus stops within the study area have greater than 200 weekday boardings and alightings on routes 10 and 18 alone, primarily located downtown on Nicollet Mall.<sup>9</sup> Passenger boarding and fare payment are a significant contributor to delay and reliability challenges in the corridor, particularly at the highest volume bus stops in and near downtown, see Table 11. One of the objectives of the hi-frequency network and Nicollet Mall free ride service is to provide frequent-enough and reliable-enough service that transit customers don't need to rely on a schedule to use the service. According to Metro Transit's on-time performance standards (no more than five minutes late or one minute early), 84 percent of route 10 and 85 percent of route 18 trips are on-time;<sup>10</sup> however, because these routes have very frequent service, this is a significant variability in headways between buses, resulting in bus bunching. On route 10, 92 percent of trips within the study corridor are scheduled at 8-12 minute headways, but only 48 percent of trips achieve 8-12 minute headways, as shown in Table 12. On route 18, 84 percent of trips within the study corridor are scheduled at 6-9 minute headways, but only 50 percent of trips achieve 6-9 minute headways, as shown in Table 13.

**Table 11: Distribution of Route 10 and 18 Travel Time**

	ROUTE 10	ROUTE 18
<i>Moving</i>	53%	42%
<i>Boarding Customers</i>	24%	32%
<i>Traffic Signal</i>	16%	23%
<i>Traffic Congestion</i>	3%	3%
<i>Scheduled Hold/Other</i>	6%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Source: Arterial Transitway Corridors Study, Metro Transit, 2012

<sup>9</sup> Metro Transit: September 2011 APC and farebox data provided by Metro Transit

<sup>10</sup> Metro Transit AVL Data, October 2011

**Table 12: Distribution of Scheduled vs. Actual Headways on Route 10 within the Study Corridor**

<b>HEADWAYS BETWEEN BUSES</b>	<b>SCHEDULED</b>	<b>ACTUAL</b>
<i>0-2 minutes</i>	0%	5%
<i>3-5 minutes</i>	1%	9%
<i>6-7 minutes</i>	1%	11%
<i>8-12 minutes</i>	92%	48%
<i>13-15 minutes</i>	3%	16%
<i>&gt;15 minutes</i>	3%	11%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Source: Metro Transit AVL Data, October 2011, weekdays, 7am-7pm

**Table 13: Distribution of Scheduled vs. Actual Headways on Route 18 within the Study Corridor**

<b>HEADWAYS BETWEEN BUSES</b>	<b>SCHEDULED</b>	<b>ACTUAL</b>
<i>0-2 minutes</i>	0%	7%
<i>3-5 minutes</i>	6%	16%
<i>6-9 minutes</i>	84%	50%
<i>10-12 minutes</i>	3%	15%
<i>13-15 minutes</i>	3%	6%
<i>&gt;15 minutes</i>	4%	6%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Source: Metro Transit AVL Data, October 2011, weekdays, 7am-7pm

## 4. Goals and Objectives

Based on the Purpose and Need for transit improvements in the Nicollet-Central Corridor, the following goals and objectives have been developed:

- **Connect People and Places**
  - Connect Downtown with nearby neighborhoods
  - Enhance connections between corridor activity centers and destinations
  - Improve connections between the corridor and the regional transit system
- **Increase the Attractiveness of Transit**
  - Provide transit capacity for future growth
  - Maximize transit ridership
  - Improve visibility and identification of the transit system
  - Provide improved passenger amenities and infrastructure
  - Provide reliable, frequent service
  - Provide transit service and facilities that are easy to use for people who live, and work and visit the corridor
  - Provide safe and comfortable transit service and facilities
  - Improve accessibility for people with mobility challenges
- **Catalyze and Support Economic Development**
  - Support the economic vitality of downtown
  - Support the economic vitality of small neighborhood businesses
  - Support local and regional goals to foster compact, mixed-used development along the corridor
- **Integrate with the Transportation System**
  - Integrate with the existing transit network
  - Provide acceptable traffic operations and reasonable parking options
  - Support walkable neighborhoods and multimodal transportation choices
- **Support Healthy Communities and Environmental Practices**
  - Minimize impacts to historical, cultural, and natural resources
  - Minimize impacts to low-income and minority communities
  - Minimize neighborhood and property impacts
  - Support improved transportation, housing and economic opportunities for all people
- **Develop an Implementable Project with Community Support**
  - Define transit improvements with strong public, stakeholder and agency support
  - Identify transit improvements that are financially feasible and competitive
  - Develop transit improvements that allow for phased implementation

### 5. Evaluation Criteria

In order to evaluate the different transit modes and alignment options and identify the appropriate mode-alignment pairings that will define the detailed alternatives, the Nicollet-Central Transit Alternatives project proposes to undertake a two-step method. The first step (“Initial Screening”) will entail the assessment of each mode and alignment relative to overall implementation viability. The second step (“Detailed Evaluation of Alternatives”) will assess the mode/alignment pairing that passed the initial screening criteria. The mode/alignment pairing that fares best against the detailed criteria in this second step is the Locally Preferred Alternative (LPA). The evaluation criteria associated with each step are a combination of quantitative and qualitative performance measures. The Initial Screening phase will apply fewer and broader measures, including information from previous corridor studies. The Detailed Evaluation of Alternatives phase will apply more and finer performance measures. Each evaluation criterion will also address more than one goal; this Project will consider weighting such criteria and will discuss this approach with the appropriate committees. Table 14 presents the measures that address more than one goal.

Following are the proposed evaluation criteria for both the Initial Screening and Detailed Evaluation of Alternatives:

- **Initial Screening**
  - Potential right-of-way impacts
  - Access provided to the community
  - Compatibility with local and regional plans
  - Consistent with existing community character
  - Provides appropriate transit capacity
  - Community and stakeholder sentiment
  - Connects activity centers
  - Effective alignment that provides for direct access
- **Detailed Evaluation of Alternatives**
  - Number of passengers per service-hour
  - Capital cost
  - Operating and maintenance (O&M) cost
  - Parking impacts
  - Traffic impacts
  - Transit-dependent population served
  - Ridership
  - Population density
  - Employment
  - Land use and economic development opportunities
  - Estimated vehicle hours travelled (VHT)
  - Bicycle and pedestrian safety
  - Cost effectiveness
  - Community and stakeholder sentiment
  - Consistency with local and regional plans and policies
  - Environmental impacts/benefits

**Table 14: Project Goals/Evaluation Measure Matrix**

<b>Criteria:</b>	<b>Goals:</b> Connect people and places	Increase attractiveness of transit	Catalyze and support economic development	Integrate with the transportation system	Support healthy communities and environmental practices	Develop an implementable project with community support
<b>INITIAL SCREENING</b>						
Potential right-of-way impacts				X	X	X
Access provided to the community	X	X	X	X	X	X
Compatibility with local and regional plans	X	X	X	X	X	X
Consistent with existing community character			X	X		
Provides appropriate transit capacity	X			X		
Community and stakeholder sentiment		X	X		X	X
Connects activity centers	X		X			X
Effective alignment that provides for direct access	X	X		X		X
<b>DETAILED EVALUATION</b>						
Number of passengers per service-hour		X		X		
Capital cost				X		X
O&M cost				X		X
Parking impacts			X	X	X	
Traffic impacts			X	X	X	
Transit-dependent population served	X				X	
Ridership	X	X		X	X	
Population density	X		X	X		
Employment	X		X	X		
Land use and economic development opportunities			X			
Vehicle hours travelled				X	X	
Bicycle and pedestrian safety				X		
Cost effectiveness						X
Community and stakeholder sentiment		X			X	X
Consistency with local and regional plans, policies			X	X	X	
Environmental impacts/benefits					X	