



Orange Line Bus Rapid Transit Existing Conditions Report



Metro Transit
December 2013

DRAFT

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Common Abbreviations

| | |
|-------|--|
| ADA | Americans with Disabilities Act |
| AADT | Average Annual Daily Traffic |
| BRT | Bus Rapid Transit |
| CE | Categorical Exclusion |
| DEIS | Draft Environmental Impact Statement |
| EA | Environmental Assessment |
| EAW | Environmental Assessment Worksheet |
| FEIS | Final Environmental Impact Statement |
| HOV | High-Occupany Vehicle (lanes) |
| LRT | Light Rail Transit |
| MARQ2 | Transit facilities on Marquette and Second Avenues |
| TDM | Travel Demand Management |
| TPP | Transportation Policy Plan |
| ROD | Record of Decision |

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1 Purpose & Need

1.1 Study Area

The 16-mile I-35W corridor runs between Minneapolis and Burnsville, Minnesota. In the north portion of the corridor, from Washington Avenue in Downtown Minneapolis to I-494, the interstate area is bounded by Lyndale Avenue on the west and Park Avenue on the East. In the southern portion, between I-494 and West Burnsville Parkway, the interstate is bounded roughly by Penn Avenue on the west and Portland Avenue on the east. The study area will encompass a half-mile around ten planned transit stations, as shown in Figure 1. A potential “Phase II” extension from Burnsville Transit Station to Lakeville Kenrick park-and-ride, is being scoped as a possible future extension of the Orange Line, and will be studied in further detail in 2014.

This study area includes portions of Hennepin and Dakota County, and passes through four municipalities: Minneapolis, Richfield, Bloomington, and Burnsville.

1.2 Purpose

METRO Orange Line is a planned Bus Rapid Transit (BRT) line between Minneapolis, Richfield, Bloomington, and Burnsville. The Orange Line will benefit existing riders and attract new riders by improving transit access, service, and reliability on the I-35W corridor. Additionally, an identifiable, high-amenity brand will increase the visibility of transit and leverage service improvements.

All-day, frequent BRT service will complement local and express bus routes along I-35W, providing competitive running times for station-to-station trips and a new option for reverse-commute markets. Both BRT and express riders will benefit from stations, runningway technology, and service improvements. The Orange Line would provide 15-minute service frequency, at least 16 hours per day, seven days a week.

As a part of the METRO system, the Orange Line will connect people across the region to job centers, housing options, transit stations, and key destinations

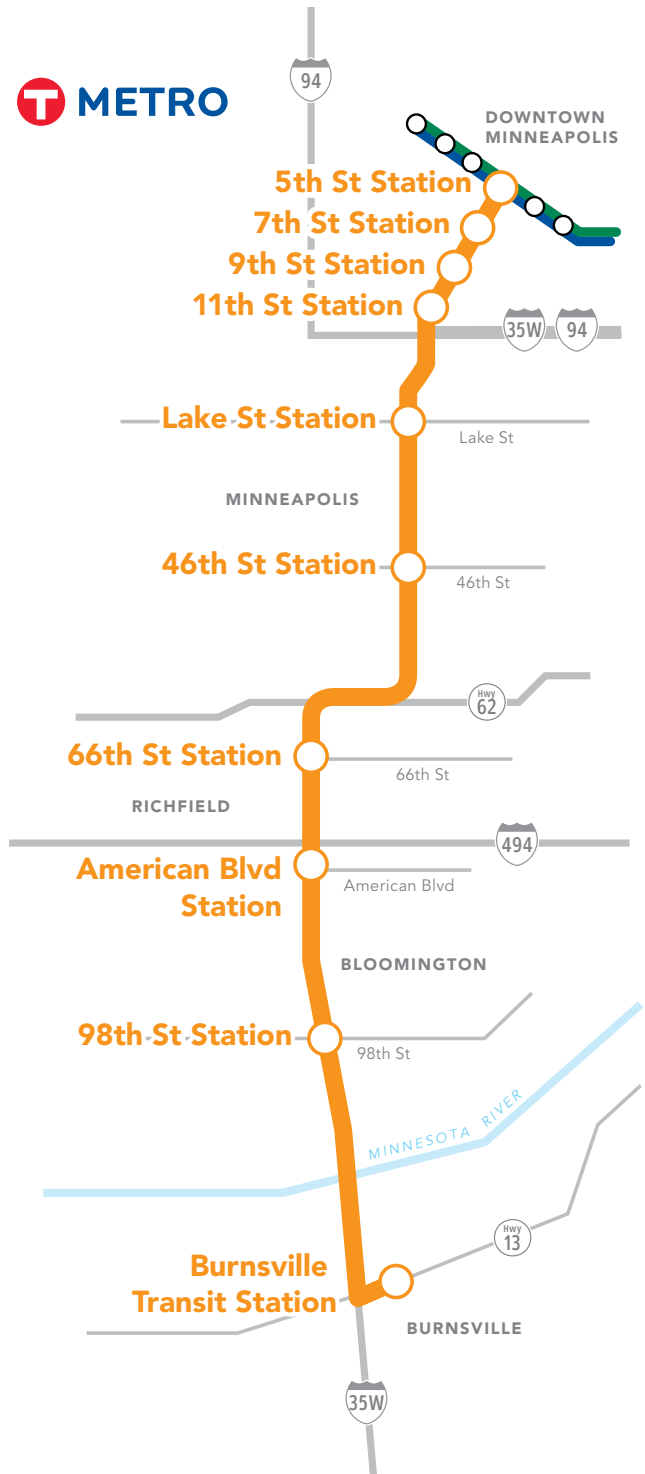


Figure 1. Map of Planned Orange Line Stations

in the I-35W corridor. The Orange Line will improve access to 162,000 jobs and 64,000 residents, including 30,000 jobs and 40,000 residents outside of downtown Minneapolis. By providing a new transportation option and expanding accessibility, BRT service will also promote compact, walkable development in the station areas.

1.3 Need

The I-35W corridor provides critical access into and through Downtown Minneapolis as well as job centers in Midtown Minneapolis, along the I-494 Corridor, and at suburban nodes. I-35W is a heavily-used transportation corridor, having carried approximately 210,000 daily vehicles and 14,000 daily transit riders in 2012. The Orange Line will build on incremental transit investments made over the past 40 years. Existing population and employment densities, income and auto deficiency densities, access to critical transit connections, and expected growth justify continued improvement of station-to-station Orange Line service.

1.3.1 Population and Employment Density

This demographic overview is based on block intersect within a half mile of stations compared to all blocks within the seven county Minneapolis-Saint Paul Metropolitan Statistical Area.

Population Density

Population density varies greatly throughout the study region, as shown in Figure 2. Concentrations of high density include the southwest corner of downtown Minneapolis and neighborhoods surrounding the Lake Street and 46th Street Stations. Traveling south, density gradually decreases. Population density is greatest surrounding the Lake Street Station and lowest surrounding the American Boulevard Station and 98th Street Station. The surrounding land use at these stations is mainly commercial while Lake Street's is a mix of residential and commercial.

Affordable Housing

The Metropolitan Council has established a regional goal of integrating land use plans, affordable housing, and development strategies along emerging transitways. Coordinating these investments will help to increase access to jobs and essential services for residents of all incomes and backgrounds.

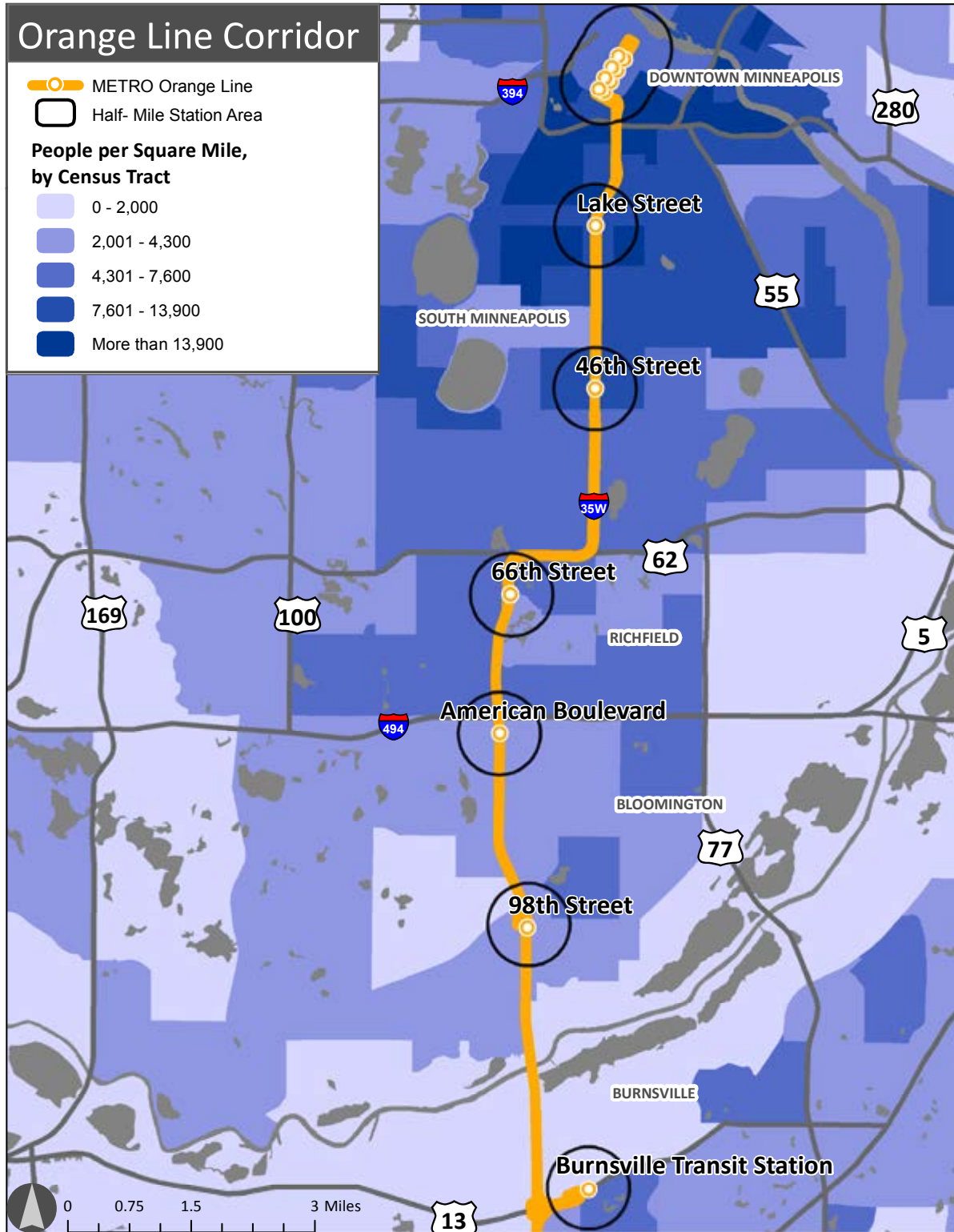
In Hennepin County, Orange Line Station area census tracts contain 30% of the county's affordable housing units on 3% of the county's land area. In Dakota County, the census tracts adjacent to Burnsville Transit Station contain about 2% of the county's affordable units on less than 1% of county's land area.¹ Figure 3 shows concentrations of affordable units within the corridor.

Income

In 2011, the median household income for the region was \$64,712. The Orange Line households with the lowest incomes are located south of downtown Minneapolis, near the Lake Street Station. This area is known for its ethnic diversity and is home to many first generation immigrants, many from Latin America and East Africa. Figure 4 maps median household income throughout the corridor.

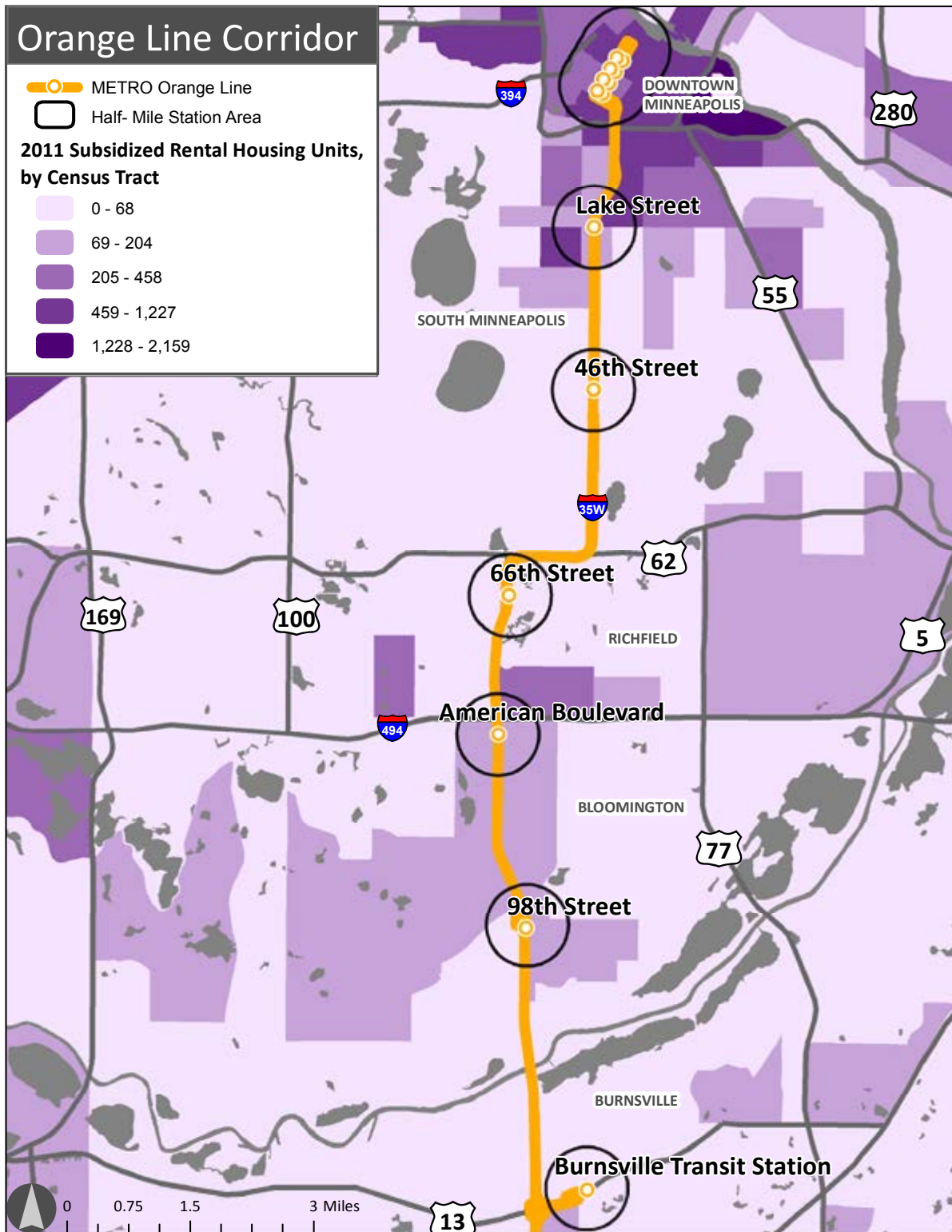
¹ For this report, affordable housing supply is measured as publicly-funded rental housing affordable to 80% area median income (AMI) or below. Housing Choice Vouchers (i.e. Section 8) are not included in this data. Data is compiled by Housing Link from various sources, including Minnesota Housing, the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Agriculture (USDA), the Federal Bank of Des Moines, and various local government and nonprofit sources.

Figure 2. Map of Population Density in Orange Line Corridor



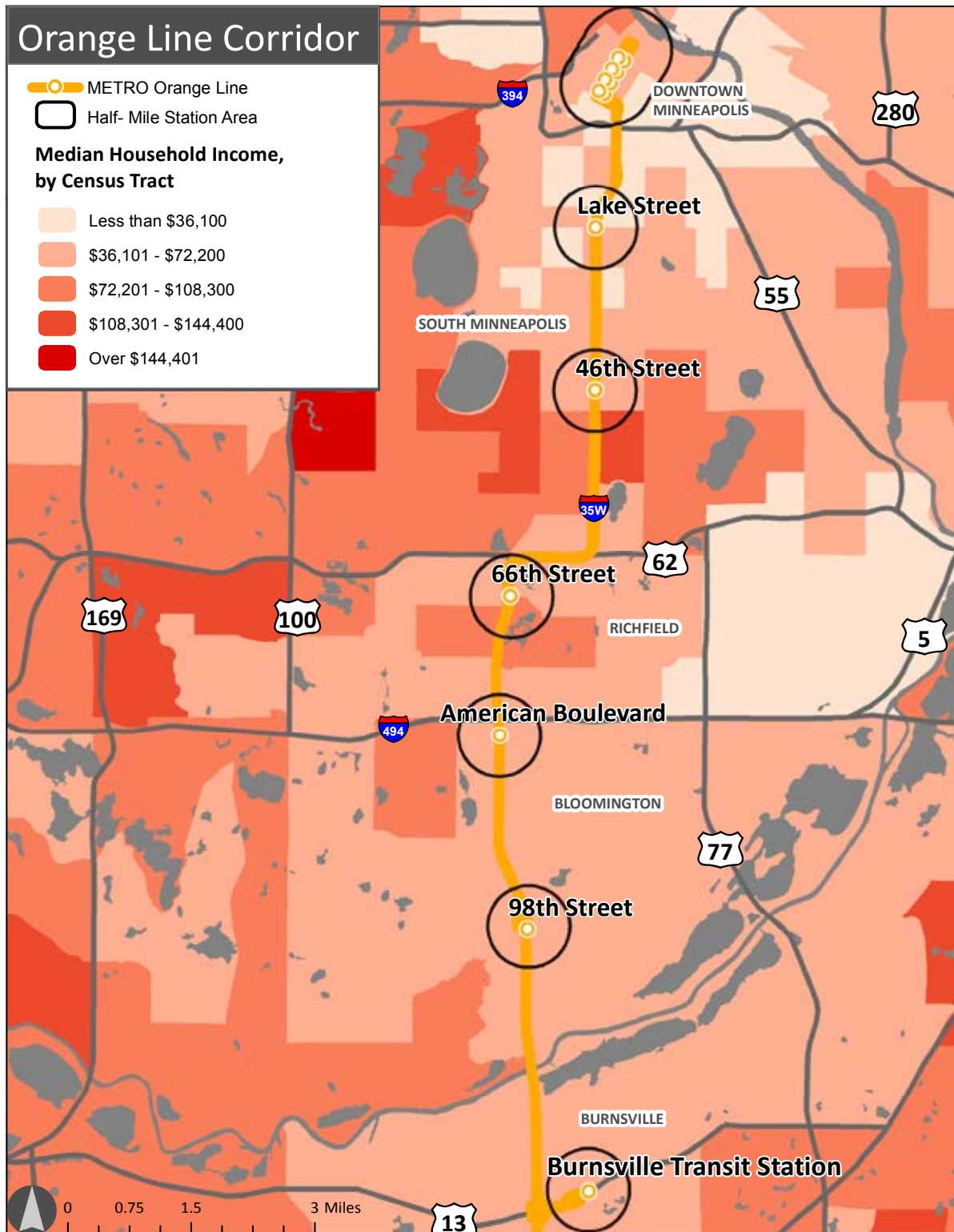
Source: 2011 American Community Survey

Figure 3. Map of Subsidized Rental Housing Units in the Orange Line Corridor



Source: 2011 Housing Link data.

Figure 4. Median Household Income of Orange Line Corridor



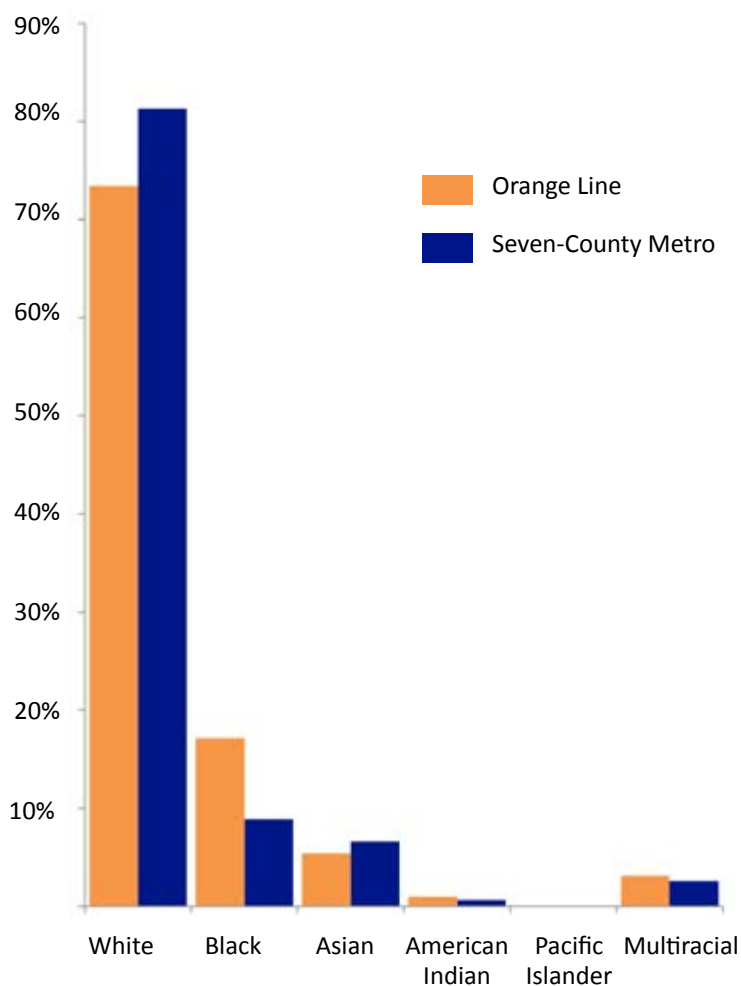
Source: 2011 American Community Survey

Transit ridership is affected by this population's auto use, or lack thereof. Auto deficiency density in each station area is determined by subtracting the number of available autos from the population that is 16 years and older within the station areas. Downtown, Lake Street, and 46th Street have the most auto deficiency. Often, areas with lower income and zero-car households use transit more than higher income households or households with one or more autos.

Racial and Ethnic Makeup

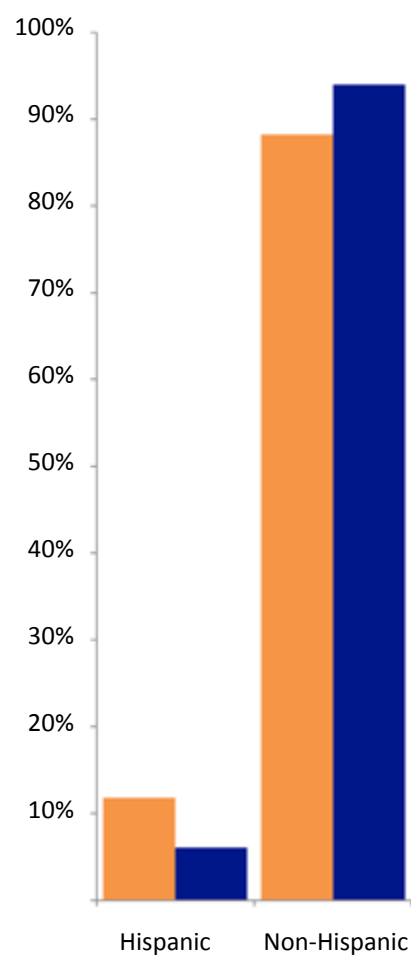
This corridor is more racially diverse than the seven-county population, and has a significantly higher percentage of black/African American population (Figure 5). In addition to the higher proportion of black/African American population, there is also a greater American Indian and multiracial presence. There is a smaller Asian and Pacific Islander population in the Orange Line Corridor when compared to the seven-county metropolitan area.

Figure 5. Chart of Percent of Population by Race in the Orange Line Corridor and Metropolitan Area



Source: 2011 American Community Survey

Figure 6. Chart of Hispanic and Non-Hispanic Populations in the Orange Line Corridor and Metropolitan Area



When Hispanic ethnicity is considered, this corridor has twice the proportion of Hispanic residents as the region as a whole. However, the majority of residents are non-Hispanic (Figure 6).

Employment

The majority of the employment density in this project’s study region focuses on downtown Minneapolis, as shown in Figure 7. Lake Street and the I-494/American Boulevard strip are also large employment centers in the corridor, as shown in Table 1. Best Buy, Target, US Bank, Wells Fargo Home Mortgage, Ameriprise Financial, Allina Health System, Xcel Energy, Century Link, Valspar, Hennepin County, and the City of Minneapolis are examples of employers within one-half mile of proposed stations. This corridor contains 10.4 percent of the jobs within the 7-County Metro.

Table 1. Population and Jobs in Orange Line Station Areas

| | Population | Households | Jobs |
|----------------------------|------------|------------|---------|
| Downtown | 34,517 | 21,240 | 137,849 |
| Lake Street | 29,176 | 12,345 | 8,390 |
| 46th Street | 15,911 | 6,623 | 2,724 |
| 66th Street | 24,355 | 10,583 | 8,245 |
| American Boulevard | 13,489 | 6,201 | 20,479 |
| 98th Street | 18,946 | 8,488 | 16,052 |
| Burnsville Transit Station | 11,993 | 5,521 | 13,005 |
| TOTAL | 148,387 | 71,001 | 206,744 |

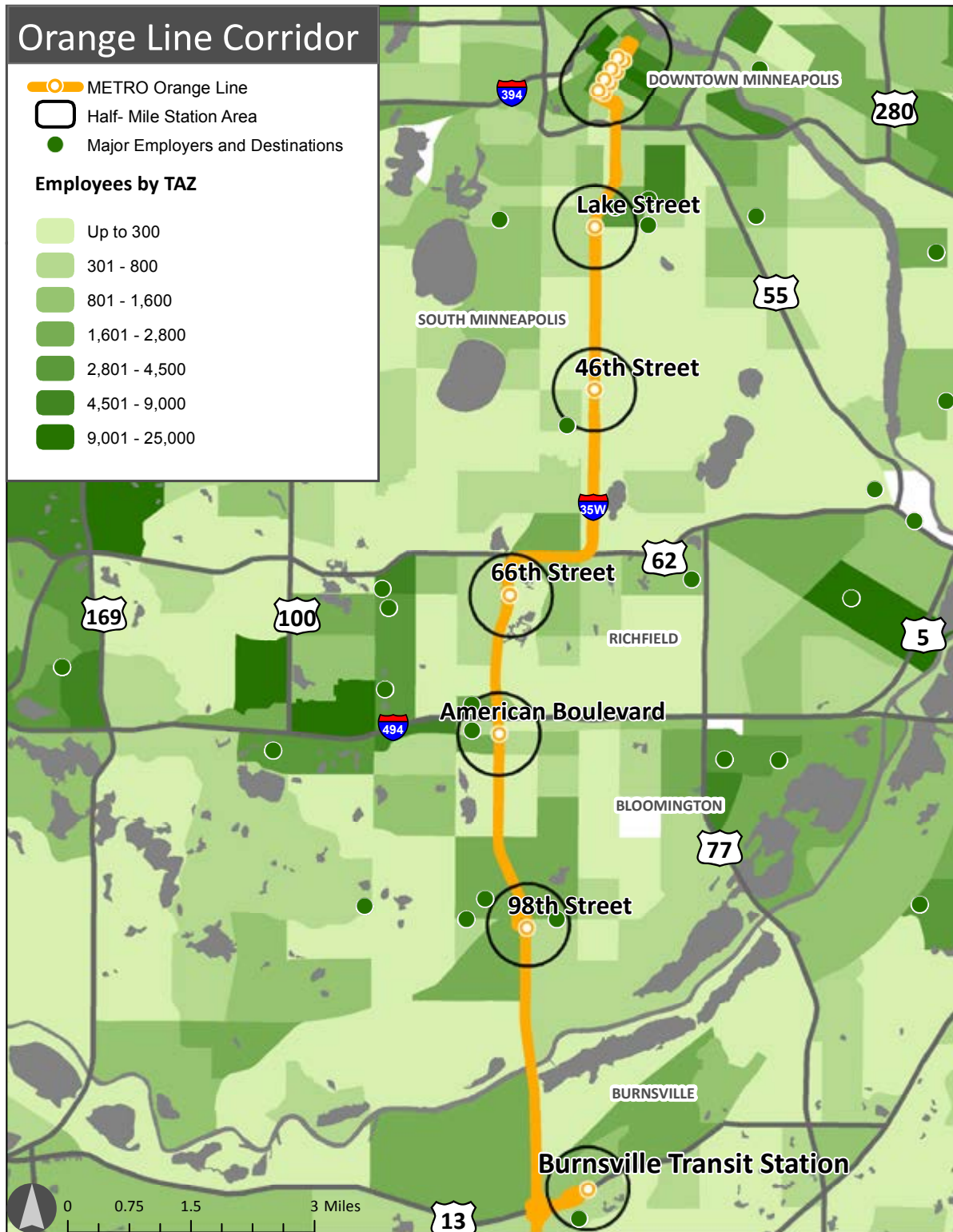
Businesses and Retail Centers

This corridor is home to over 4,600 businesses. Nearly half of businesses are in Downtown Minneapolis, while the other half are along the remainder of the corridor. Best Buy Headquarters and Wells Fargo Home Mortgage are major office spaces on the line. Major retail areas include Nicollet Mall in downtown Minneapolis and Southtown Shopping Center at American Boulevard. Both the Lake Street and 98th Street Stations have significant retail within half mile of a station as well (Figure 8).

1.3.2 Land Use

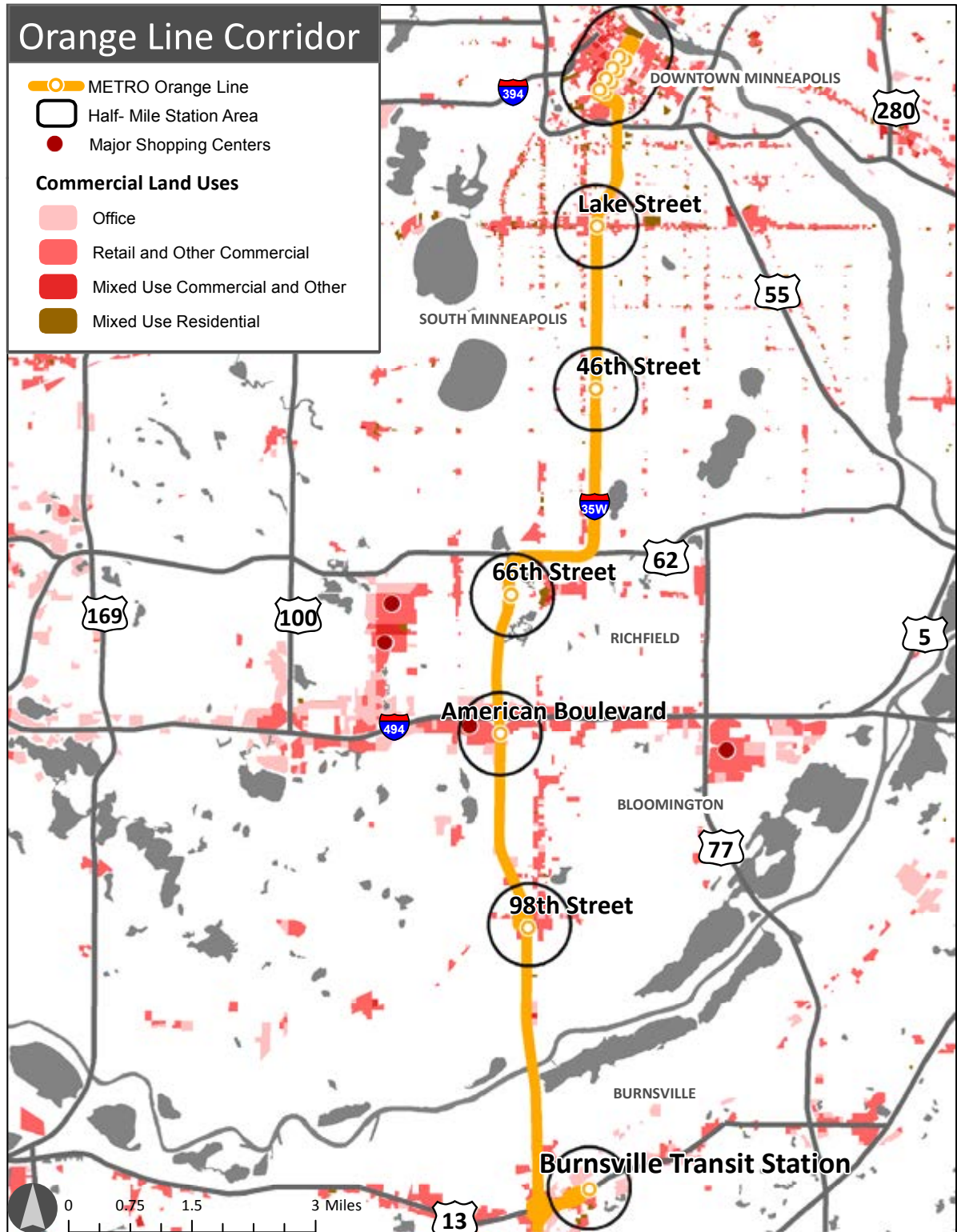
Figures 9 and 10 show existing (2010) and planned (2030) land use along the Orange Line corridor. The existing mix of land uses at stations and established travel patterns in both directions improve prospects for ridership growth over time, and in turn, improved access to transit will further promote walkable, mixed-use development in these areas.

Figure 7. Map of Employment Density with Major Employers and Destinations



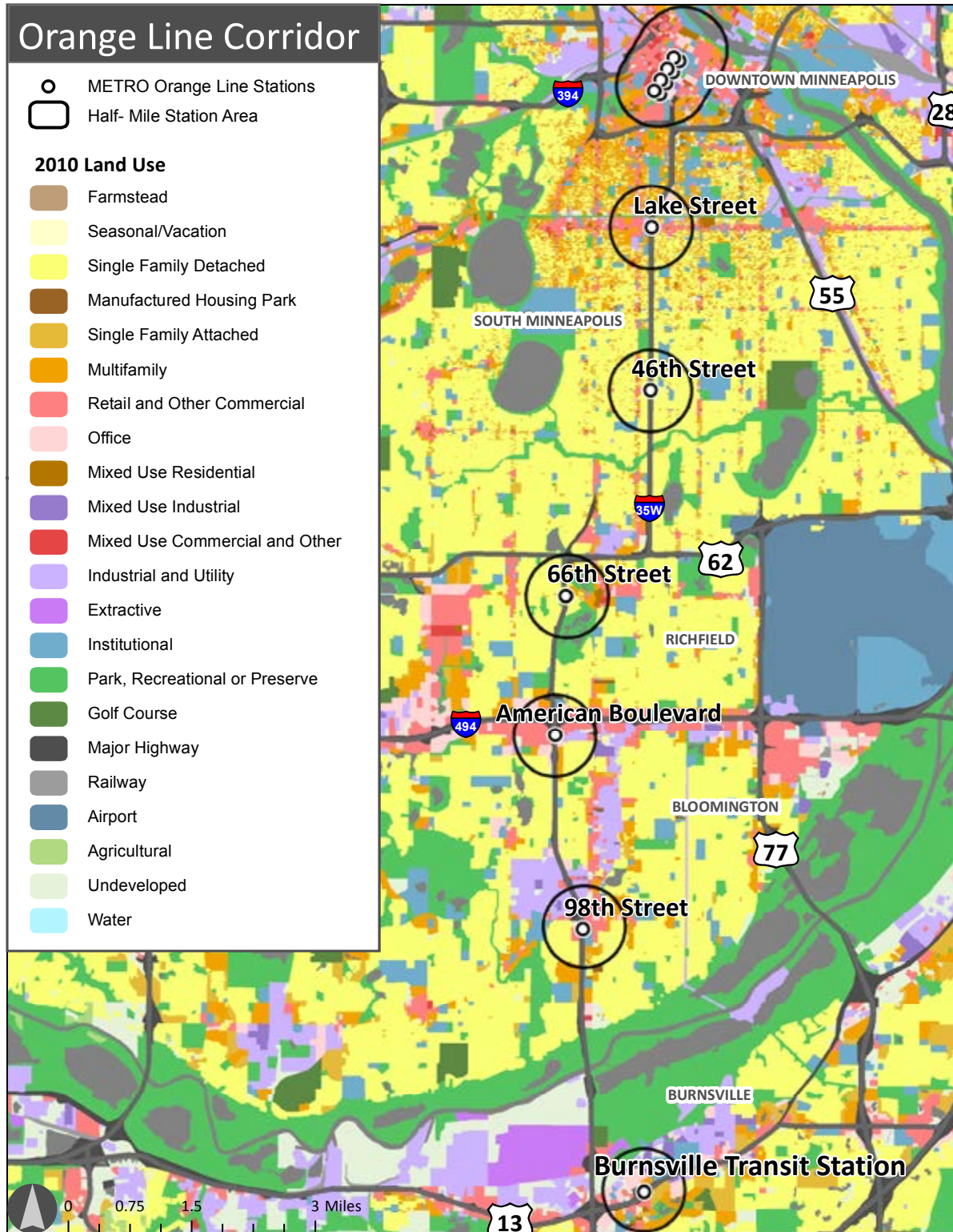
Source: 2010 Metropolitan Council TAZ data

Figure 8. Map of Commercial Land Uses



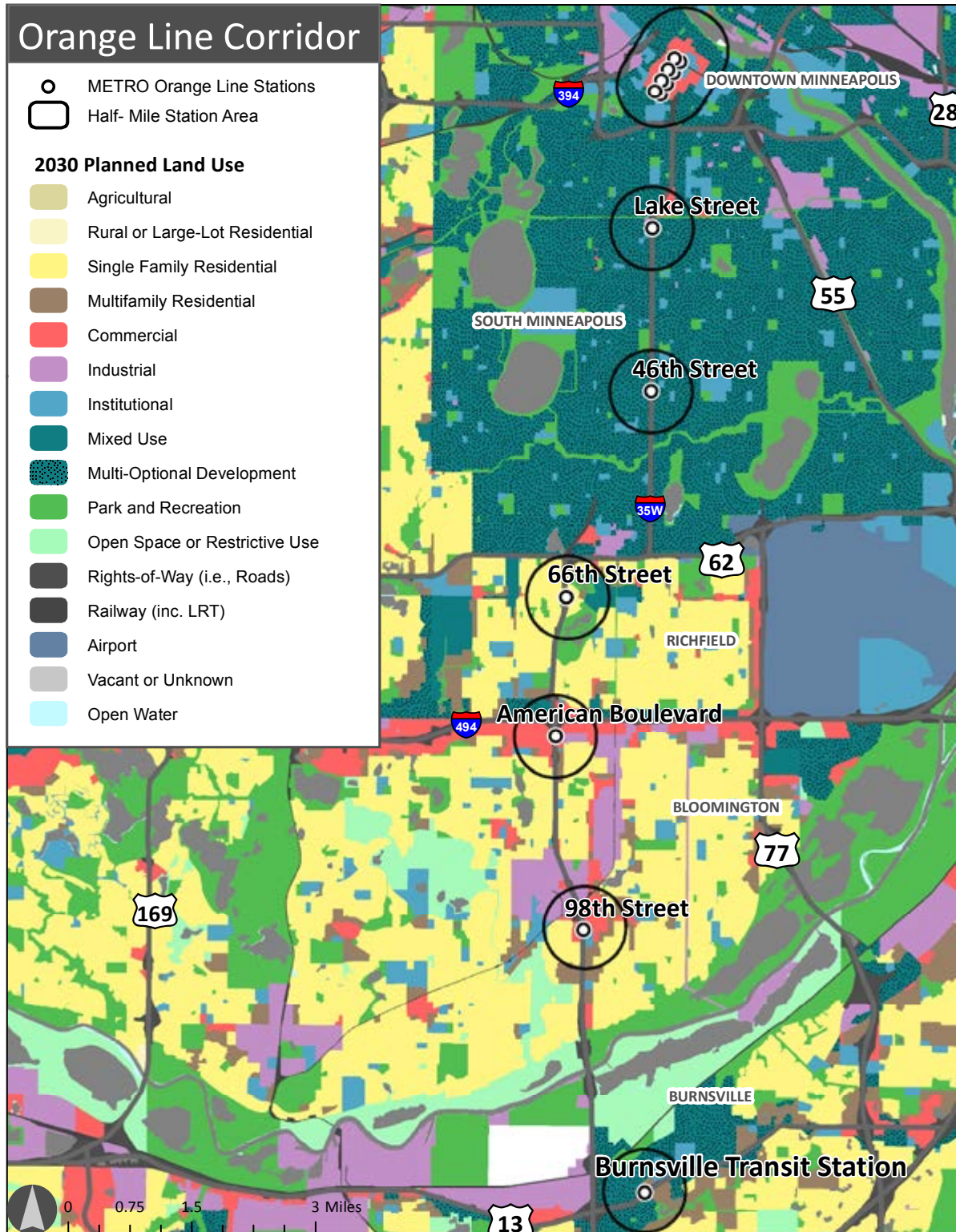
Source: 2010 Metropolitan Council Land Use Inventory

Figure 9. Map of Existing Land Use



Source: 2010 Metropolitan Council Land Use Inventory

Figure 10. Map of Planned Land Use



Source: 2013 Metropolitan Council compilation of municipal land use plans and plan amendment. A regionalized classification of municipalities' land use codes is provided for comparability and long-range planning purposes.

1.3.3 Forecasted Growth

2030 forecasts show the following population and employment growth, by municipality. This is the smallest geographic extent at which forecast data is currently available.

Table 2. Forecasted Change in Population, by Municipality

| Geography | Change in Population 2010-2030 | Percent change in population | Change in Households, 2010-2030 | Percent change in households |
|----------------------------|--------------------------------|------------------------------|---------------------------------|------------------------------|
| Minneapolis | 58,522 | +15.3% | 25,860 | +15.8% |
| Richfield | 9,772 | +27.7% | 4,682 | +31.6% |
| Bloomington | 9,607 | +11.6% | 4,595 | +12.8% |
| Burnsville | 4,694 | +7.8% | 4,417 | +18.2% |
| Twin Cities 7-County Metro | 758,433 | +26.6% | 374,251 | +33.5% |

Source: Metropolitan Council Community Profiles. Forecasts were last updated in the following years: Minneapolis – 2009, Richfield – 2009, Bloomington – 2009, and Burnsville – 2005.

The Metropolitan Council is in the process of local forecast allocation through 2013 model validation work. This will provide updated information for the year 2040. Inputs include real estate types and land supply, employment levels, socio-economic characteristics, housing stock, average building costs and average rent levels for each real estate product, cumulative accessibility measures, the presence of certain regional systems and services, allowable future land uses, and maximum densities per local comprehensive plans. These updated forecasts will be added to this document as they become available.

Table 3. Forecasted Change in Employment, by Municipality

| Geography | Change in Employment, 2010-2030 | Percent change in Employment |
|----------------------------|---------------------------------|------------------------------|
| Minneapolis | 29,500 | 9.3% |
| Richfield | 1,000 | 5.8% |
| Bloomington | 27,100 | 25.1% |
| Burnsville | 5,600 | 14.8% |
| Twin Cities 7-County Metro | 310,000 | 17.1% |

Source: Metropolitan Council Forecasts

1.3.4 Traffic Volumes and Congestion

As Minnesota’s busiest commuter highway, I-35W has 210,000 AADT at its most congested point (Figure 11). This high demand creates several hours of congestion each day and significant delays for people and freight traveling to and through the area (Figures 12 and 13).

In 2009, MnDOT opened MnPASS lanes on I-35W between Burnsville Parkway and downtown Minneapolis as a part of the Urban Partnership Agreement. However, as traffic has grown, buses weaving from the center-running MnPass Lane to the shoulder to serve transit stops has become operationally unviable.

The traffic congestion point occurring during the weekday peak periods has shifted from I-35W at Highway 62 to I-35W between Lake Street and I-94.

The maneuver necessary to make these shoulder stops adds time to express bus trips, especially going northbound. Since the Crosstown Commons construction was completed, the northbound stop at Lake Street has increased bus travel time by 5 minutes or more during the AM and PM peak hours.

The delays have not been significant for buses making the northbound stop at Lake Street before 7:00 am, between 9:00 am and 3:30 pm, or after 5:30 pm. Between 7:00 and 9:00 am, the northbound I-35W bus stop at Lake Street benefits about 40 bus commuters, but delays about 1,620 bus commuters traveling to downtown Minneapolis. Significant delays impact 98% of transit riders for the benefit of 2% of the total morning peak bus riders. Most of these 40 bus commuters are going to jobs at the major Midtown Minneapolis employers. The alternative bus connection from express buses to routes 5 or 39 on 8th Street in downtown adds about 15 minutes to the morning commute times to these major employers.

Between about 3:30 and 5:30 pm, the stop at Lake Street benefits about 10% of the total commuters riding buses northbound on I-35W. The delays can be as significant as in the morning peak hours, but the stop benefits a much more significant group of the total riders during those hours.

Effective in 2011, peak hour service to the northbound station was terminated in the morning peak hours, and non-peak service is restricted to drop-off only. Southbound, the stop is served by 25 express bus routes and the limited-stop 535. The bus stop restriction has been necessary until such time as the current bus stop on I-35W at Lake Street is replaced by a new Orange Line station in the highway median.

Figure 11. Chart of Annual Average Daily Traffic, 2012

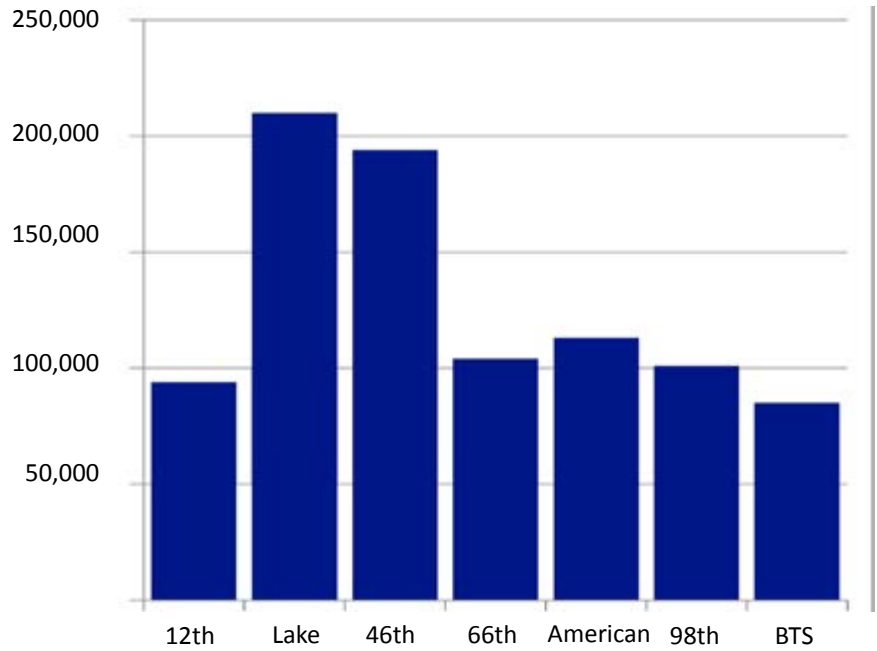


Figure 13. Map of Metro 2012 Freeway Congestion in PM Peak

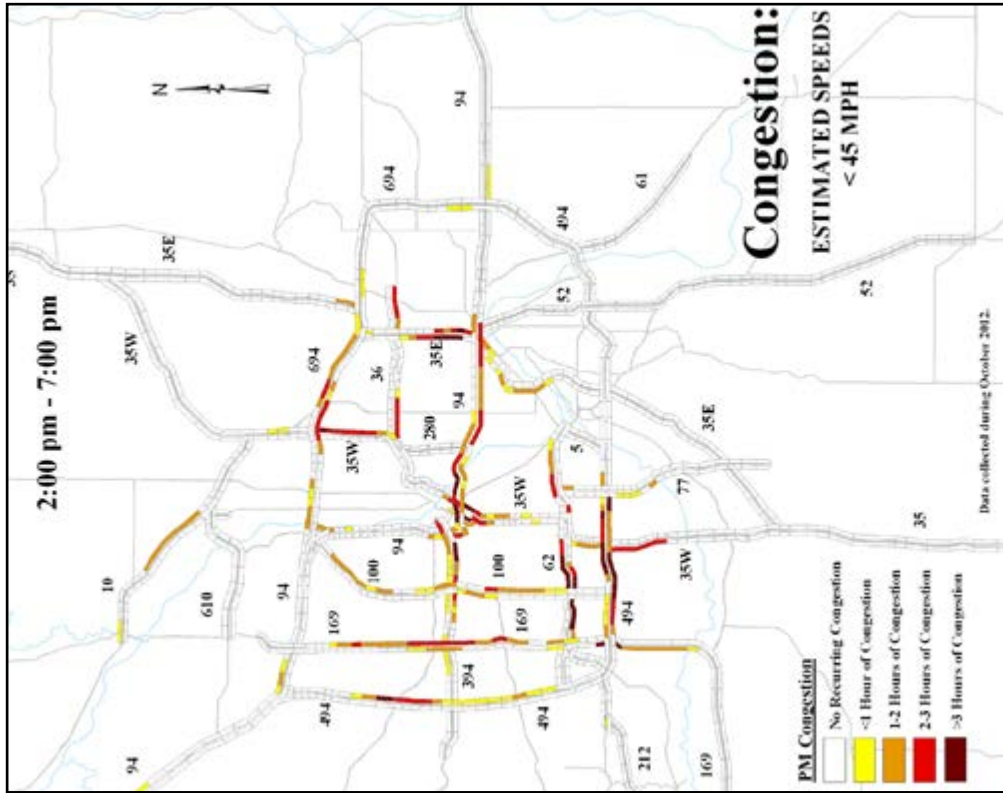
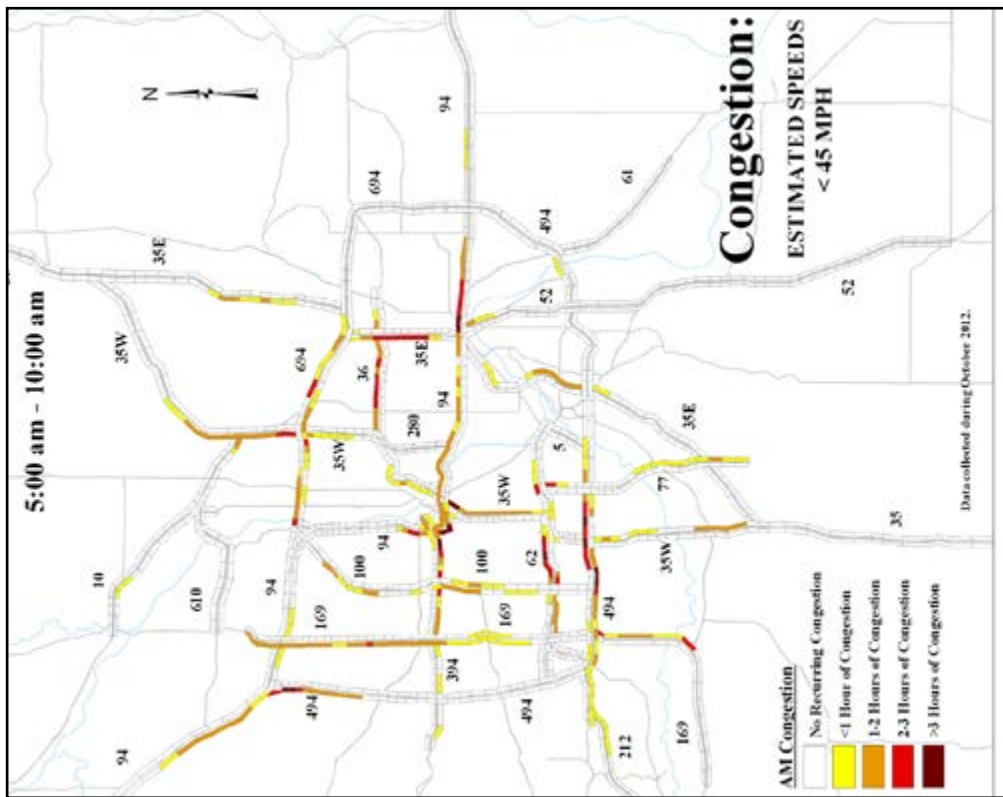


Figure 12. Map of Metro 2012 Freeway Congestion in AM Peak



2 Planning Context

2.1 Alternatives Studied

A number of studies and assessments have been completed in the I-35W Corridor in the last two decades. Table 4 details the transit components studied under various projects.

Table 4. Transit Alternatives Studied during Past Environmental Work in the I-35W Corridor

| Project | Year | Type | Extent | Transit Component |
|---|-------|-----------------------|---|--|
| I-35W/Crosstown Commons Reconstruction | 1992 | DEIS | Downtown Minneapolis to Burnsville | Bus (no build), LRT in I-35W Corridor or on Soo Line Railroad, HOV, LRT with HOV |
| I-35W HOV lane | 1990s | EA | 494 to Burnsville; later extended up to 66th Street | HOV |
| I-35W/Crosstown Commons Reconstruction | 1995 | FEIS | Downtown to Burnsville | LRT in I-35W median with HOV, TDM strategies and feeder bus service |
| I-35W/Crosstown Commons Reconstruction | 1996 | EIS addendum | Downtown to Burnsville | Bus, HOV |
| I-35W/Crosstown Commons Reconstruction | 2004 | EA, EAW , Revised ROD | Downtown to Burnsville | Bus, HOV |
| BRT Study | 2005 | Study | Downtown to Lakeville | BRT |
| Urban Partnership Agreement | 2008 | Environmental review | All I-35W roadway improvements | HOV, HOT, Bus |
| Northbound priced dynamic shoulder lane (PDSL) | 2008 | EAW, CE | 42nd Street to Downtown | HOT, BRT |
| Add Southbound Traffic Lane to I-35W | 2008 | EAW, CE | Bloomington to Burnsville | HOT, BRT |
| Lakeville Park & Ride and express bus service fleet | 2009 | CE | Downtown to Lakeville | BRT, Express bus |
| Marq2 (Marquette & 2nd Avenues) | 2010 | CE | Downtown | BRT, Express Bus |

2.2 I-35W BRT Study

Because of a long-held regional interest in improving public transit in this corridor, the State Legislature passed a bill in 2003 requiring MnDOT to study the feasibility of BRT in the corridor and make recommendations for its implementation. To help guide the 2005 BRT Study, a number of transit improvement alternatives were developed, including:

- Transitway Configuration;
- Station Design Alternatives;
- Fare Collection Options;
- Vehicle Type/Design;
- Passenger Information Systems;
- Operational Options;
- Traffic Management; and
- Signal Priority.

Principles were developed to help guide the study: allow buses to operate at posted speeds, maximize freeway capacity, minimize impacts on the right-of-way, make transit a competitive choice to automobile travel, and utilize existing resources to the greatest extent possible. The study concluded that the outlook for a BRT system on I-35W was favorable, in part for the following reasons:

- Significant levels of transit service and investment already exists;
- Buses will be able to operate at posted speeds in the peak hour;
- The corridor will experience significant growth in employment and population;
- Forecasts predict that ridership demand will almost triple by 2020;
- BRT serves more people without adding freeway lanes; and
- Several planned highway projects provide an opportunity to incorporate incremental improvements and BRT infrastructure.

Several recommendations from this study have already been implemented: an online station at 46th Street, creation of a shared BRT/HOV lane to Downtown Minneapolis, providing a mix of express, station-to-station- and local service, and new service to Lakeville. Planning for all other recommendations is underway: planning for additional station sites at 66th and 98th Streets, understanding fleet needs, and coordinating the planning of a new transit station in the redesign of I-35W and I-494.

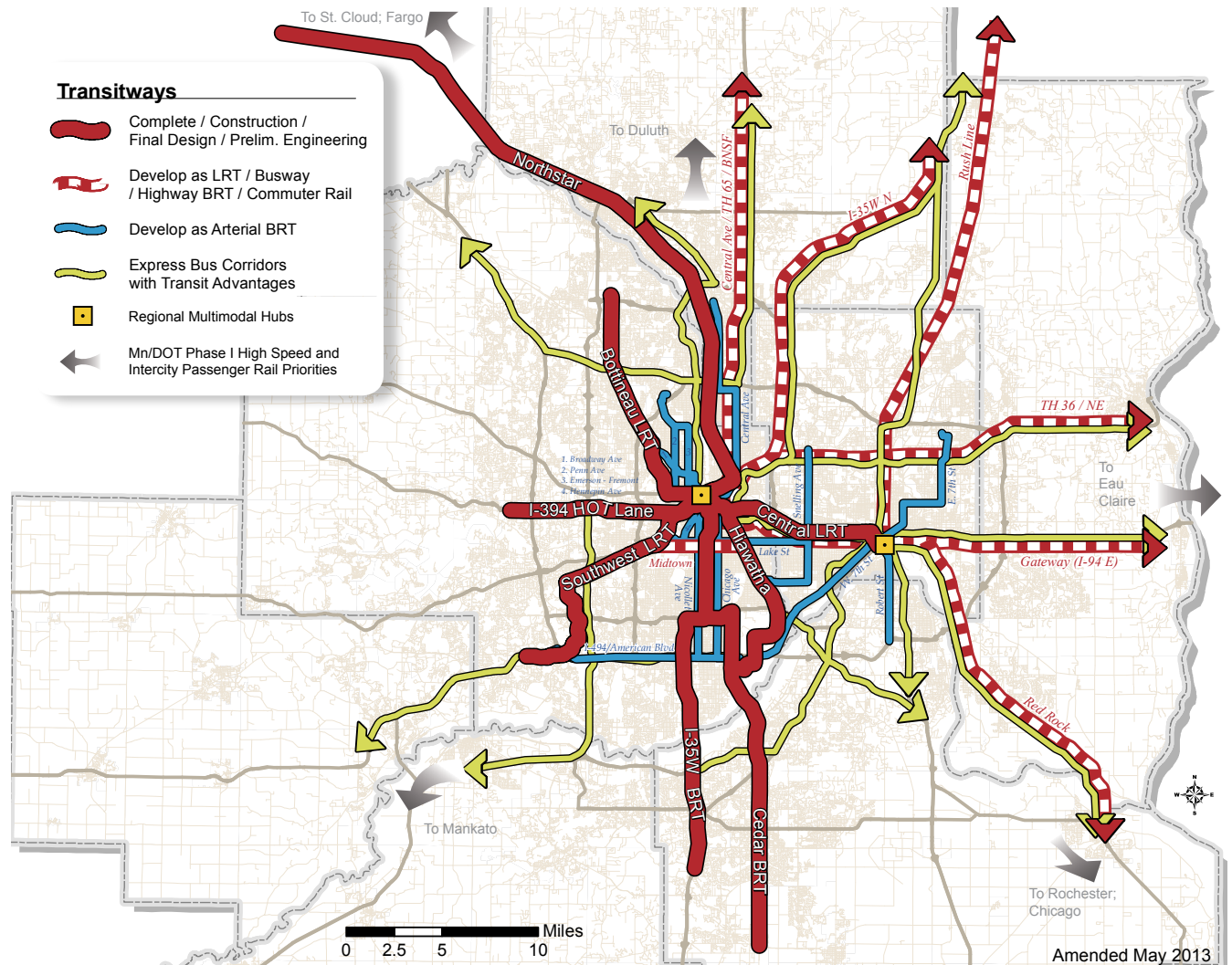
2.3 Central-South (Sector 5) Plan

In 2004, Metro Transit's Central-South (Sector 5) Plan recommended adding faster service in strong corridors and to major destinations, including all-day, limited-stop service on I-35W south of downtown Minneapolis. It also proposed anchoring high frequency, all-day, commuter express routes at large (300-500 car) park-and-ride lots, rather than several small lots with few bus trips. The planned American Boulevard Station park-and-ride is an example of this.

2.4 2030 Transportation Policy Plan

The Metropolitan Council's 2030 Transportation Policy Plan (TPP) was adopted in 2010, and cites I-35W as a BRT line already under construction (the MnPass Lanes, Marquette and Second project, and 46th Street BRT station were all opened in 2010). At the time of adoption, I-35W BRT was planned for opening in 2012 without a median Lake Street Station; however, due to unexpected changes in congestion with the Crosstown Commons opening, the project was tabled for further station design and roadway planning.

Figure 14. Map of Regional Transitway Projects



The TPP defines BRT as a transitway mode that uses bus vehicles while incorporating many of the characteristics of light rail or commuter rail. The high-frequency, all-day service, typically 15 minutes or better, provides a high level of service to customers. In addition, routes typically have limited stops except in downtowns and have express service. The TPP allows for runningways that include dedicated busway, bus lanes, managed lanes, dynamic shoulder lanes, dynamic parking lanes, bus-only shoulders, or mixed traffic where other options do not exist.

Technology recommendations include signal priority and driver technology allow buses to move more quickly and

reliably; as well as customer information displays and other technology that can improve the customer experience. The TTP states that BRT should utilize unique branding and stations that help distinguish the line from regular-route services. Vehicles can range from typical 40-foot transit buses to specialized vehicles with a unique look, low floors and additional doors for quicker boarding, automated docking, on-board arrival information, and other specialized features. Off-board fare collection is preferred.

2.5 Regional Transitway Guidelines

The Metropolitan Council's Regional Transitway Guidelines set minimum standards for highway bus rapid transit (HBRT). The seven elements for which it sets standards are service operations, stations, runningway, vehicles, fare collection, technology, and identity and branding. The standards pertaining to the Orange Line include:

- Service Operations on weekdays should have a 10-minute peak period and 15-minute midday combined frequency (for station-to-station and express services);
- Service Operations on weekends should be based on demand;
- Transitway stations should be justified by proven, documented demand, and achieve a functional, cost-effective outcome that balances aesthetics with funding availability;
- Transitway stations are attractive and informative environment for passengers at stations that is consistent with local community context and transitway identity, and use an interdisciplinary approach to design that incorporates advancements in technology;
- Transitway stations should achieve functional integration with the surrounding land uses, which may include forming a nucleus for transit-oriented development at stations;
- Transitway stations balance travel time, access and station demand relative to travel markets;
- Transitway stations promote a safe and secure environment by designing all elements to enhance passive security by maintaining visibility to and within the station and station area;
- Runningway should consist of full-sized (12 foot) managed lanes or bus shoulder lanes that provide transit with travel-time advantages under congested roadway conditions;
- Vehicles should be sleek, modern, premium-styled buses appropriately sized and configured to service characteristics, and be distinguishable from local bus;
- Modern and proven fare collection systems should integrate well within the regional system and fit the needs of the region and transitway;
- Automatic vehicle location (AVL) should be implemented on all vehicles, and automatic passenger counters (APC) on all BRT station-to-station vehicles;
- Real-time schedule information should exist at all high-volume stations and real-time parking availability at major park and-ride facilities;
- A proven communications link should be compatible and coordinated with regional transit control center; and
- Color line names and consistent signage will be used for station-to-station branding.

2.6 Minnesota Go

In 2012, MnDOT's "Minnesota Go" Statewide Multimodal Transportation Plan visioning process recommended use of multimodal solutions that ensure a high return-on-investment, given constrained resources. In the Twin Cities, examples include active traffic management and the development of a managed lane system in coordination with expanded transit service. Highway BRT on I-35W is highlighted as a planned transitway.

3 Existing Transit Service

3.1 Regular Route Service

I-35W was the first interstate highway in the Twin Cities to have express bus service. Today, four transit providers operate 27 weekday routes in the I-35W corridor, with differing levels of service². Express services are typically longer routes designed for commuter travel that provide additional capacity on highway corridors. Limited stop routes provide a faster option and wider stop spacing than local service in high-demand corridors. No weekend service currently operates on I-35W. A map of existing transit routes is shown in Figure 15.

- 133: Metro Transit Limited stop – Bloomington Avenue and Chicago Avenue
- 135: Metro Transit Limited stop – Grand Avenue, 35th Street, and 36th Street
- 146: Metro Transit Limited stop – Vernon Avenue, 50th Street, Bryant Avenue, and 46th Street
- 156: Metro Transit Express – 58th Street, 60th Street, 56th Street and Diamond Lake Road
- 440: MVTA Local – Mall of America, and the Minnesota Zoo
- 460: MVTA Express – Burnsville
- 464: MVTA Express – Burnsville and Savage
- 465: MVTA Express – Burnsville, Bloomington, and University of Minnesota
- 467: Metro Transit Express – Lakeville
- 470: MVTA Express – Eagan
- 472: MVTA Express – Eagan
- 475: MVTA Express – Apple Valley and University of Minnesota
- 476: MVTA Express – Apple Valley and Rosemount
- 477: MVTA Express – Apple Valley and Lakeville
- 478: MVTA Express – Rosemount
- 479: MVTA Express – Apple Valley
- 491: BlueXpress Express – Prior Lake, Shakopee, and Eagan
- 492: BlueXpress Express – Prior Lake, Burnsville, and Apple Valley

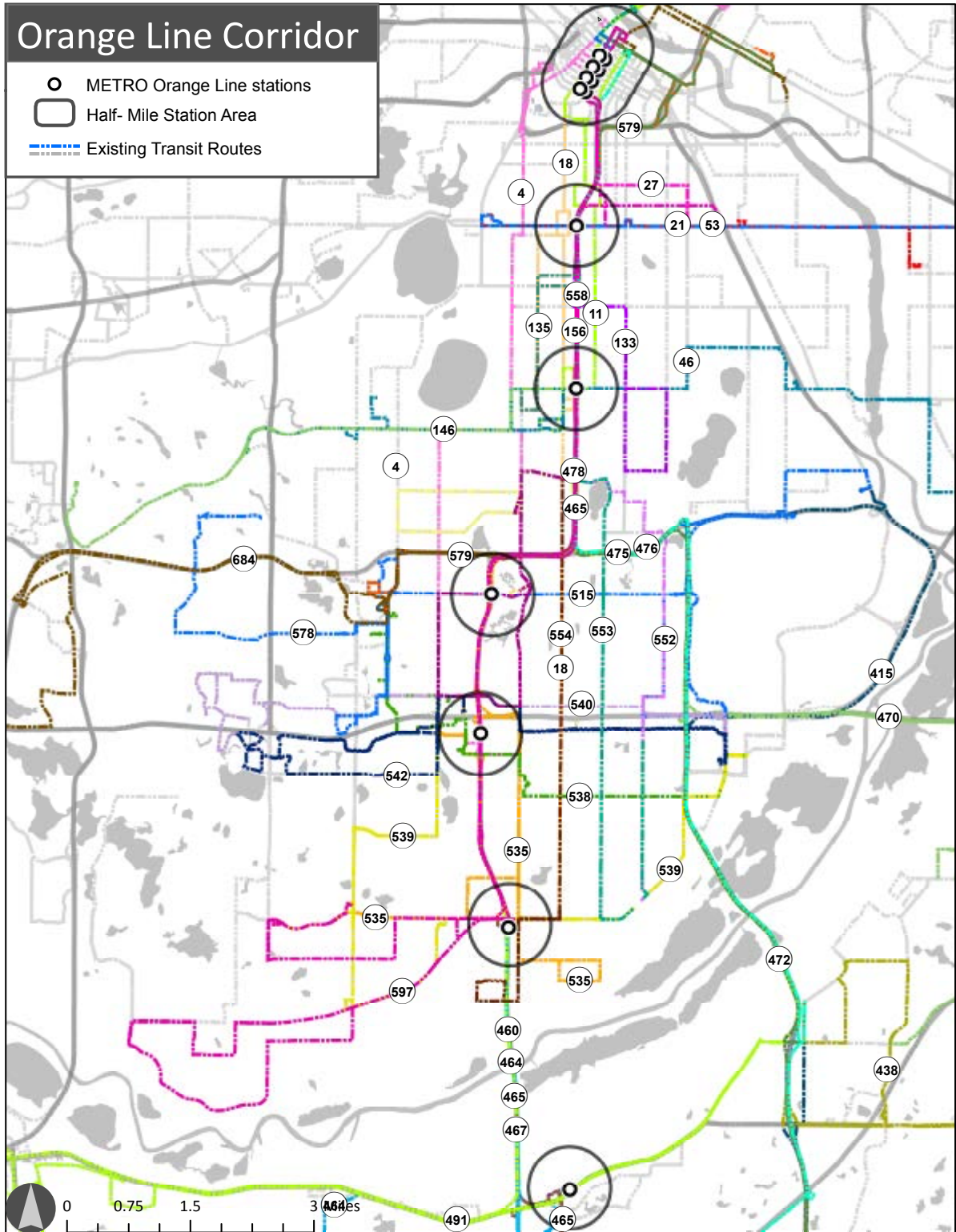
Table 5. Existing Route Frequency

| Route | AM Peak | PM Peak |
|-------|---------|---------|
| 133 | 15-20 | 30 |
| 135 | 10-30 | 30 |
| 146 | 10-30 | 15-30 |
| 156 | 15-30 | 15-30 |
| 440 | 30-60 | 30-60 |
| 460 | 5-15 | 5-15 |
| 464 | 10-30 | 10-30 |
| 465 | 30 | 15-60 |
| 467 | 10-20 | 15-40 |
| 470 | 10-35 | 15-30 |
| 472 | 10-20 | 10-20 |
| 475 | 30-60 | 60 |
| 476 | 20-30 | 20-30 |
| 477 | 10-20 | 10-20 |
| 478 | 30 | 30 |
| 479 | 30 | 35 |
| 491 | 25-60 | 1 trip |
| 492 | No trip | 60 |
| 552 | 30-35 | 30-40 |
| 553 | 30 | 30 |
| 554 | 15-30 | 15-30 |
| 558 | 30 | 30 |
| 578 | 30 | 30 |
| 579 | 75 | 60 |
| 597 | 10-30 | 10-30 |
| 684 | 45-60 | 60 |

Source: Transit provider schedules

² Data reflects MVTA service changes effective June 22, 2013 with the opening of METRO Red Line. Route 440 will no longer travel on I-35W, and a new base route will have added weekday and weekend service. Route 464 has added trips. Route 475 service will have added trips and a new Minnesota Zoo service.

Figure 15. Map of Existing Transit Service



Source: Metro Transit

- 535: Metro Transit Limited Stop – South Bloomington, Richfield, and Minneapolis
- 552: Metro Transit Express – 12th Avenue and Bloomington Avenue
- 553: Metro Transit Express – Bloomington and Portland Avenue
- 554: Metro Transit Express – Bloomington and Nicollet Avenue
- 558: Metro Transit Express – Lyndale Avenue, Penn Avenue and 66th Street
- 578: Metro Transit Express – Edina and Southdale
- 579: Metro Transit Express – Southdale and University of Minnesota
- 597: Metro Transit Express – West Bloomington
- 684: Southwest Transit Express – Eden Prairie and Southdale

One limited-stop route, the 535, was implemented in December 2004 as recommended by Central South Sector 5 Plan completed in 2003. The 535 provides 30-minute midday service and 15-minute peak period service.

Service on express routes varies. Frequencies are listed in Table 5, in minutes.

3.2 Existing and Planned Transit Linkages

The Orange Line will connect to the METRO system, the planned Arterial BRT system, and regular-route bus service, as shown in Figure 16. By implementing the planned Orange Line stations, the following transit connections are possible:

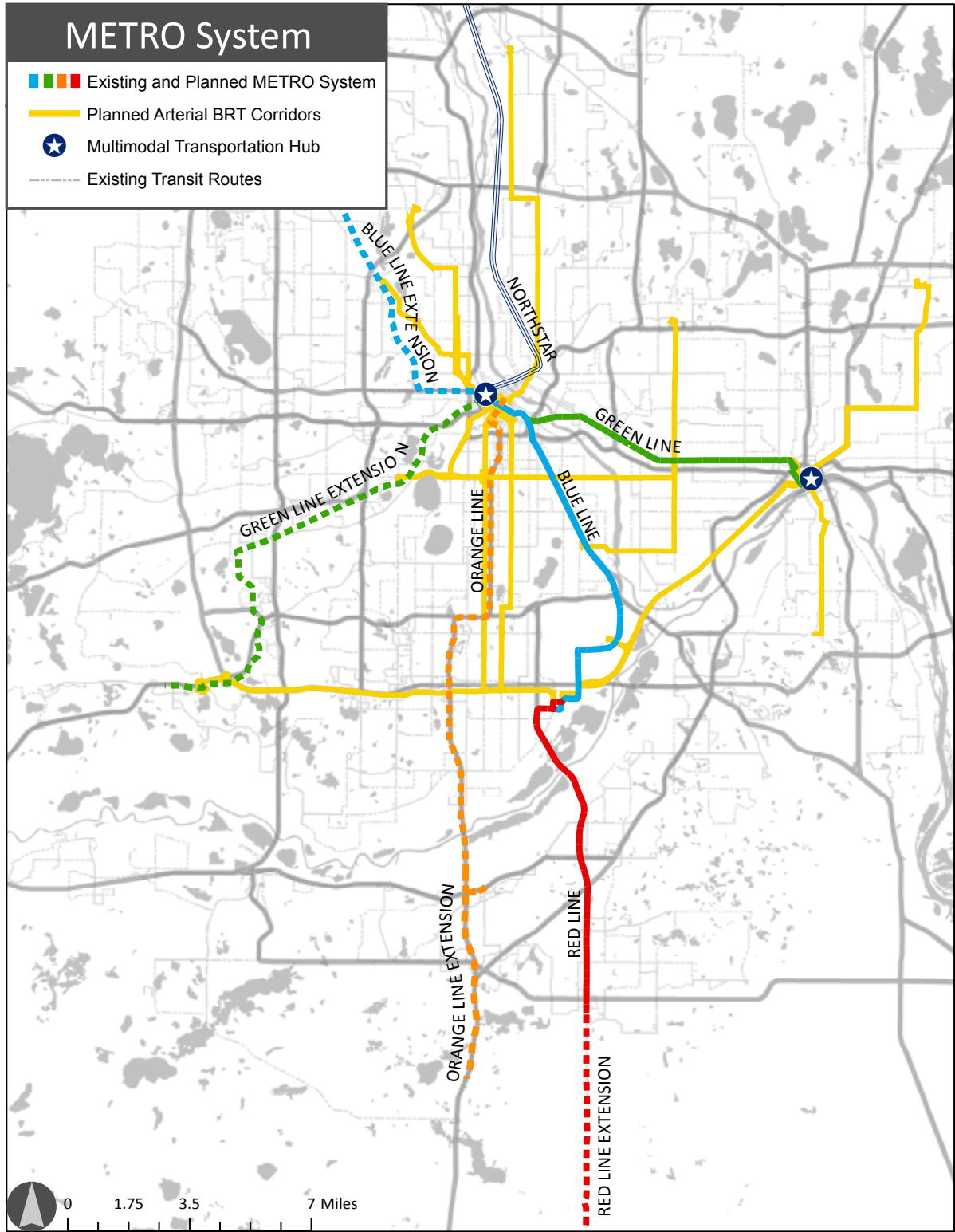
- METRO Green Line, near 5th Street Station;
- METRO Blue Line, near 5th Street Station;
- Bus routes 18, 21, 27 and 53 at Lake Street Station;
- Planned Lake Street Arterial BRT at Lake Street Station;
- Potential Midtown Corridor transit investments (under study) at Lake Street Station;
- Bus routes 11, 18 and 46 at 46th Street Station;
- Bus route 515 at 66th Street Station;
- Bus routes 4, 538, 539, 540, and 542 at American Boulevard Station;
- Planned American Boulevard Arterial BRT at American Boulevard Station;
- Bus routes 18, 535, 539, 554, 597, and 465 at South Bloomington Transit Center at 98th Street Station;
- Bus routes 421, 426, 444, 460, and 465 at Burnsville Transit Station; and
- Jefferson Lines at Burnsville Transit Station.

Table 6. Ridership by Route

| Route | Average Daily Ridership, 2012 |
|-------|-------------------------------|
| 133 | 233 |
| 135 | 270 |
| 146 | 440 |
| 156 | 427 |
| 440 | 76 |
| 460 | 2,229 |
| 464 | 210 |
| 465 | 1,206 |
| 467 | 962 |
| 470 | 557 |
| 472 | 400 |
| 475 | 210 |
| 476 | 546 |
| 477 | 1,613 |
| 478 | 55 |
| 479 | 54 |
| 535 | 1,750 |
| 552 | 159 |
| 553 | 237 |
| 554 | 316 |
| 558 | 156 |
| 578 | 384 |
| 579 | 138 |
| 597 | 492 |
| TOTAL | 13,120 |

Source: September through December 2012 Metro Transit and MVTA data. Data from Southwest Transit and BlueExpress is not included.

Figure 16. Map of METRO and Arterial BRT Corridors



Source: Metro Transit

3.3 Paratransit

Public vanpools and regional dial-a-ride services also utilize this corridor, typically in areas where regular-route bus service is not available. A map of Metro Mobility providers is shown in Figure 17.

Metro Mobility is a shared public transportation service for certified riders who are unable to use regular fixed-route buses due to a disability or health condition. Rides are provided for any purpose. The Americans with Disabilities Act (ADA) guidelines determine eligibility. People are generally eligible if either they are physically unable to get to the regular fixed-route bus, they are unable to navigate regular fixed-route bus systems once they are on board, or they are unable to board and exit the bus at some locations. Metro Mobility providers in this area include Transit Team, First Transit, DARTS, and Scott County.

Transit Link is dial-a-ride minibus or van service for the general public. Service is available on weekdays throughout the seven-county metro region in areas not served by regular-route transit, such as buses or trains. Transit Link provides curb-to-curb service, with limited assistance. Riders must reserve rides in advance, and reservations are subject to availability. Transit Link is different from Metro Mobility service in that it is available to the general public. Riders are not subject to special eligibility requirements.

Metro Mobility is the fastest growing transit service in the Twin Cities, and many Metro Mobility and Transit Link trips connect to this corridor at Burnsville Transit Station. Tables 7 and 8 show transfers at existing transit centers during September 2012 and March 2013.

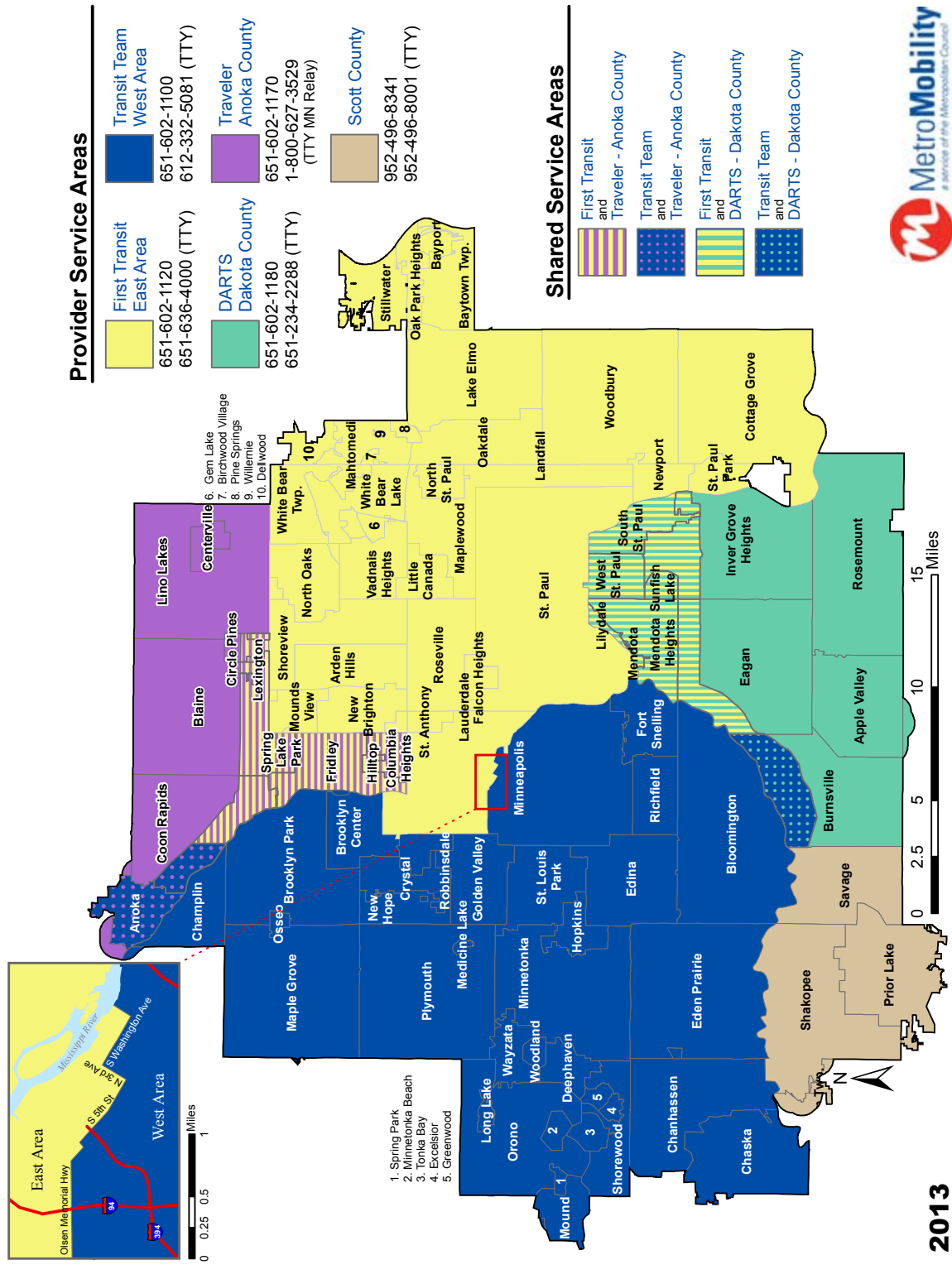
Table 7. Transit Link Trips to South Bloomington Transit Center

| Provider | September 2012 | March 2013 |
|--------------|----------------|------------|
| Transit Link | 6 | 29 |

Table 8. Metro Mobility and Transit Link Trips to Burnsville Transit Station

| Provider | September 2012 | March 2013 |
|---------------|----------------|------------|
| Transit Team | 580 | 617 |
| First Transit | 57 | 37 |
| DARTS | 542 | 625 |
| Scott County | 101 | 127 |
| Transit Link | 31 | 52 |

Figure 17. Map of Metro Mobility Providers



3.4 Productivity and Performance

The passenger per in-service hour (PPISH) standard establishes a minimum threshold of performance for light rail transit and bus operations. Passengers per in-service hour represents the total passengers carried divided by the in-service time. This measure is most often calculated at the route level. The 2030 Transportation Policy Plan recommends a minimum of 15 passengers per in-service hour, and an average greater than 20 passengers per in-service hour for bus service. Table 9 highlights PPISH for routes serving the I-35W Corridor.

3.5 Route 535 Travel Time and On-Time Performance

Orange Line BRT will improve and replace Route 535, which has five operating branches.

- 535A: Lake Street, 46th Street, 66th Street, 76th Street, Knox Avenue Park & Ride;
- 535B: Lake Street, 46th Street, 66th Street, 76th Street, Knox Avenue Park & Ride, Southtown, South Bloomington Transit Center;
- 535C: Lake Street, 46th Street, 66th Street, 76th Street, Knox Avenue Park & Ride, Southtown, South Bloomington Transit Center, Bloomington Industrial Center, Normandale College;
- 535D: Lake Street, 46th Street, 66th Street, 76th Street, Knox Avenue Park & Ride, Southtown, South Bloomington Transit Center, Normandale College; and
- 535E: Lake Street, 46th Street, 66th Street, Lyndale Avenue, 102nd Street.

Scheduled and actual running times for April 2013 are shown in Tables 10 through 13. Red numbers indicate trips that are, on average, more than a minute late.

Variability in all southbound trips, as well as northbound morning peak trips, indicate possible areas for concentrating reliability and speed improvements. Detailed data shows that most consistent delay, indicated by deviation from the schedule, occurs in the following areas.

Northbound

- Between Knox Avenue Park & Ride and I-35W/66th Street
 - » From approximately 7:30 am to 8:30 am
 - » Average delay on late trips is 1.6 minutes
- Between Girard/76th Street and I-35W/66th Street
 - » From 2:00 pm to 6:00 pm
 - » Average delay on late trips is 1.4 minutes

Table 9. Passengers Per In-Service Hour by Route

| Route | 2012 PPISH |
|-------|------------|
| 133 | 41.5 |
| 135 | 57.5 |
| 146 | 45.0 |
| 156 | 30.9 |
| 440 | 5.1 |
| 460 | 56.1 |
| 464 | 14.8 |
| 465 | 22.8 |
| 467 | 58.1 |
| 470 | 41.5 |
| 472 | 28.1 |
| 475 | 15.4 |
| 476 | 28.1 |
| 477 | 42.5 |
| 478 | 14.3 |
| 479 | 11.3 |
| 535 | 40.6 |
| 552 | 36.1 |
| 553 | 32.0 |
| 554 | 31.5 |
| 558 | 21.7 |
| 578 | 30.9 |
| 579 | 31.6 |
| 597 | 32.3 |

Source: Weekday 2012 Metro Transit, MVTA ridership data.

Table 10. Average Scheduled Time per Northbound Trip, in minutes

| Branch | AM Peak | Midday | PM Peak | Evening |
|--------|---------|--------|---------|---------|
| 535A | 22.8 | 23 | 24 | - |
| 535B | 34 | - | - | - |
| 535C | 45 | 49.6 | 50.8 | - |
| 535D | 43 | 43 | 41 | 38 |
| 535E | 43 | - | - | - |

Table 12. Average Scheduled Time per Southbound Trip, in minutes

| Branch | AM Peak | Midday | PM Peak | Evening |
|--------|---------|--------|---------|---------|
| 535A | 29 | - | 28.6 | - |
| 535B | - | - | - | 34 |
| 535C | 52.5 | - | - | - |
| 535D | 42.6 | 44.3 | 49 | 42.3 |
| 535E | - | - | 48 | - |

Table 11. Average Actual Time per Northbound Trip, in minutes

| Branch | AM Peak | Midday | PM Peak | Evening |
|--------|---------|--------|---------|---------|
| 535A | 26.3 | 22.1 | 23.2 | - |
| 535B | 31.8 | - | - | - |
| 535C | 45.5 | 49.5 | 50.8 | - |
| 535D | 42.7 | 41 | 41.3 | 37.5 |
| 535E | 46.7 | - | - | - |

Table 13. Average Actual Time per Southbound Trip, in minutes

| Branch | AM Peak | Midday | PM Peak | Evening |
|--------|---------|--------|---------|---------|
| 535A | 32.1 | - | 29.9 | - |
| 535B | - | - | - | 35.2 |
| 535C | 54 | - | - | - |
| 535D | 44.9 | 47.5 | 51.2 | 44.6 |
| 535E | - | - | 51.3 | - |

Southbound

- Between Marquette/4th Street and Marquette/8th Street
 - » All day, from 7:00 am to 10:00 pm
 - » Average delay on late trips in the morning peak is 1.5 minutes
 - » Average delay on late trips midday is 1.3 minutes
 - » Average delay on late trips in the evening peak is 2.2 minutes
 - » Average delay on late trips in the evening is 1.3 minutes
- Between I-35W/66th and Girard/76th
 - » From 7:00 am to 8:00 am
 - » Average delay on late trips is 2 minutes
- Between 76th/Newton and American/Morgan
 - » From 7:00 am to 2:30 pm
 - » Average delay on late trips in the morning peak is 1.3 minutes
 - » Average delay on late trips midday is 1.4 minutes
- Between 86th/Lyndale and South Bloomington Transit Center
 - » From 5:30 am to 7:00 am
 - » From 8:30 am to 4:00 pm (midday trips operate from American Boulevard and Morgan Circle)
 - » Average delay on late trips in the morning peak is 1.2 minutes
 - » Average delay on late trips midday is 1.5 minutes
 - » Average delay on late trips in the evening peak is 1.4 minutes
- Between 94th Street/Bloomington Freeway West and Normandale College
 - » From 6:00 am to 8:00 am
 - » Average delay on late trips is 2.3 minutes

3.6 Ridership & Boardings

3.6.1 Ridership by Route

Ridership is one indicator of the various markets within the I-35W corridor. Highest ridership routes include the 460, 477, and 535. Routes 460, 464, 465, 535, and 597 are expected to have some overlap with the METRO Orange Line ridership. Daily ridership is for weekdays only, as there is not currently any weekend service on I-35W.

3.6.2 Ridership by station

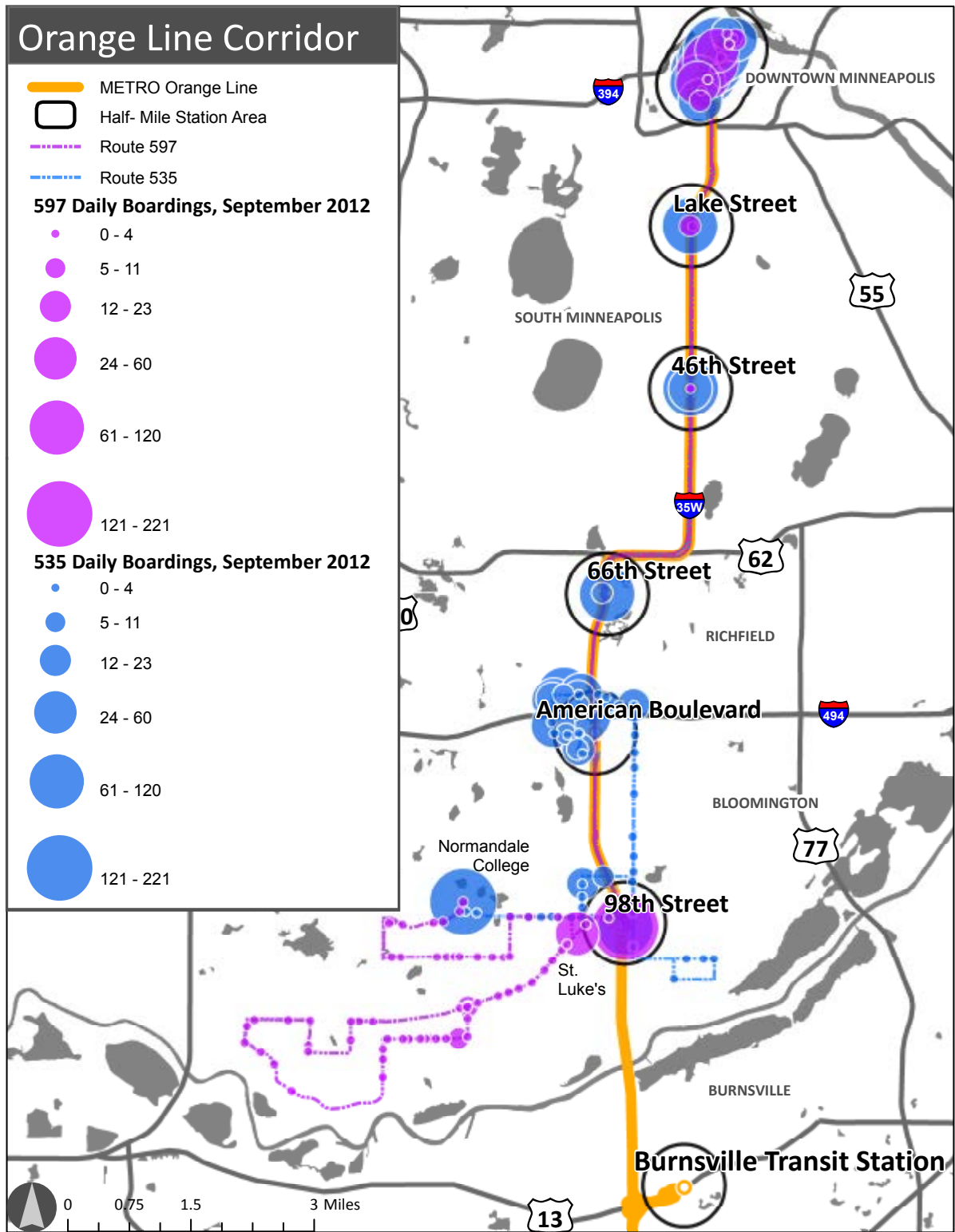
Route 535 shows strong boardings in future station areas throughout the corridor. Because the 597 complements service in the southern portion of the proposed route, especially at South Bloomington Transit Center, its boardings are also shown in Figure 18.

At the existing Lake Street stop, about 70% of all southbound Metro Transit trips are carried on the 535. Because the northbound 535 does not stop at Lake Street during the morning peak hours, and is restricted to drop off during the midday and evening peak hours, there are no daily boardings northbound.

In the area near 76th Street, Knox Avenue, and Penn Avenue in Richfield, the proposed relocation of the station and park-and-ride to American Boulevard and I-35W could impact access to 414 northbound boardings. Of these, it can be assumed that about 150 boardings are riders that have driven to the park-and-ride that will utilize the American Boulevard facility, and the remaining boardings are riders who walk or bike to the stop, or who transfer from another bus. Another 37 daily riders in this area are boarding the 535 southbound, and could also be impacted by the future station location.

The Orange Line is not proposed to serve Normandale College directly, but rather would connect to improved cross-town bus service to increase overall transit access, via either the American Boulevard or 98th Street station, or both. It is critical that Orange Line service planning carefully consider these connections as about 17% of all daily 535 trips begin or end at Normandale College.

Figure 18. Map of Transit Boardings in the Orange Line Corridor



4 Existing Transit Facilities

A number of transit investments have been made in the corridor. Most recently these have included the following components.

4.1 Guideway

Existing buses use two major transit advantages, MARQ2 and the MnPass Lanes, to navigate the area.

4.1.1 MARQ2

Orange Line will use the transit advantages on Marquette Avenue and 2nd Avenue in downtown Minneapolis, providing faster service and the ability to move more people through downtown at peak times.

In 2009, Marquette Avenue and 2nd Avenue South (locally known as MARQ2) were reconstructed to provide side-by-side bus-only lanes and accommodate 80% of express bus trips in downtown Minneapolis.

The original contraflow bus lanes on Marquette and 2nd Avenue opened in the 1970s. The number of buses using the streets quickly outpaced the lane capacity. This full street reconstruction established skip-stop spacing and side-by-side transit lanes for buses to pass one another. All buses on MARQ2 use a pay leave fare system to speed boarding and reduce bus congestion downtown.

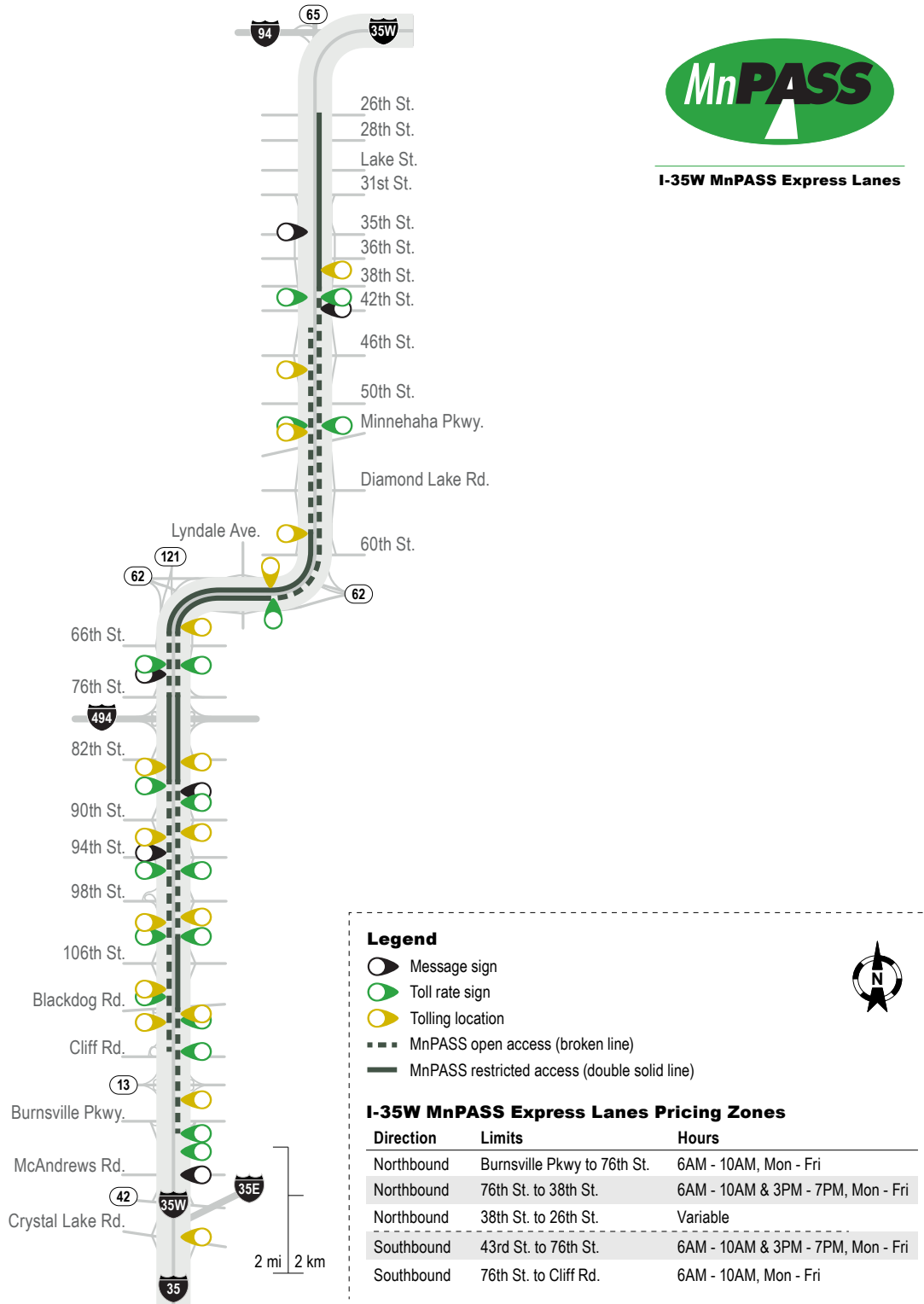
Figure 19. Diagram of MARQ2 Gates



4.1.2 MnPass

METRO Orange Line buses will use existing MnPass lanes, which help maintain traffic flow, reduce congestion and give a safe, reliable commute to those riding transit, traveling in a carpool or vanpool, riding a motorcycle or using a MnPass transponder. The priced high-occupancy lanes exist from Highway 13 to approximately 22nd Street northbound, and 42nd Street to Highway 13 southbound (Figure 20). The lanes move people more reliably, reduce peak travel demand, improve the flow of traffic in adjacent free lanes, and enable greater speed and reliability for transit. MnPASS Express Lanes can move 50 percent more people than regular lanes, and guarantee faster, congestion-free service for transit riders because buses can always use the lane. Carpoolers can use the lanes free of charge any time. Solo motorists

Figure 20. Map of Existing MnPass Lanes



Source: MnDOT

with a MnPASS transponder can choose to use the lanes during rush hours by paying a fee averaging \$1.50. When traffic slows to 50 mph, the fee to enter the MnPASS Lane increases. Lanes adjacent to the MnPASS lanes remain for general purpose traffic.

4.2 BRT Stations

4.2.1 46th Street Station

This Orange Line station, opened in 2010, was the first online BRT station to be constructed in the Twin Cities. Located between the northbound and southbound lanes of I-35W, the configuration allows buses to pick up and drop off customers without leaving the freeway. Customers can board express buses on the freeway level or transfer to local buses on the 46th Street bridge. To coincide with the opening of the station, in December 2010, Metro Transit restructured bus service in south Minneapolis, Bloomington, Richfield and Edina. Changes affected routes 11, 18, 46, 135, 146, 152, 156, 535, 558, 576, 578, 579 and 597.

4.3 Transit Centers and Park & Ride Facilities

4.3.1 Knox Avenue Park & Ride

The Orange Line American Boulevard Park & Ride is proposed to replace an existing 525-space existing surface lot at Knox Avenue, which was constructed on MnDOT right-of-way reserved for the future interchange. A 2012 survey showed that 152 cars were using the Park & Ride. The stop is served by the 535 and 539, which also attracts some walk-up transit riders from the neighborhood. Routes 540, 542, and 558 also connect in this area along 76th Street, but do not directly serve the Park & Ride.

4.3.2 South Bloomington Transit Center

The South Bloomington Transit Center opened in 2004 and provides 195 parking spaces for customers riding Routes 18, 535, 539, 554, 597, and 465. This transit center is heavily used by customers coming by foot, bike, or bus, with about 400 total daily passengers boarding here in 2012. Metro Mobility and Transit Link also serve the facility. Outdoor bike racks and rentable bike lockers are available.

The Park & Ride was purchased with the Right-of-way Acquisition Loan Fund (RALF)³ for the purpose of landbanking for a future full interchange at 98th Street. The transit center is an interim use until which time that the interchange is reconstructed and an online bus station can be constructed. The parking has 93% usage, according to a 2012 survey.

³ Because MnDOT is unable to purchase highway right-of-way until a road is programmed for construction, many acres which will be needed for future road right-of-way have been lost to development. To address this, the 1982 Minnesota legislature established a revolving loan fund program to acquire undeveloped property threatened by development that is located within an officially-mapped metropolitan highway right-of-way.

4.3.3 Burnsville Transit Station

Burnsville Transit Station opened in 1995, and has an ample indoor, climate-controlled waiting space with public restrooms, vending machines, and transit information. The station is a key transit connection in the south Metro and hosts a popular 1,428-space park-and-ride facility, with a kiss-and-ride loop. The station also has bike parking capacity for 29 bikes. The park-and-ride recorded 87% usage in 2012.

Burnsville Transit Station is served by routes 421, 426, 444, 460, 465, Jefferson Lines, Transit Link, and Metro Mobility. The station currently has four bays with 221 weekday fixed-route trips, eight daily Jefferson Lines trips, and 23 daily Metro Mobility trips on average. Transit Link also serves the transit station. Due to the facility's success, MVTA foresees the need for additional layover and turnaround areas to accommodate additional transit vehicles. The expansion is also needed, in part, due to high volumes of dial-a-ride trips, which by nature are unscheduled.

4.3.4 Lakeville Kenrick Park & Ride

In 2008, the federal Urban Partnership Agreement funded construction of a major park-and-ride facility at I-35W and Kenrick Avenue as well as two park-and-pools (I-35W and County Road 70 and I-35W and County Road 60) in Lakeville.

The Kenrick Avenue facility has experienced rapid growth in use since its opening in 2009 with the introduction of the 467 peak hour express service into Minneapolis. There were 458 vehicles counted in the 750-space facility during the 2012 Annual Survey. This compares with a broader growth in park-and-ride use in Lakeville of 7.6% since 2008; this is nearly three times the population growth in Lakeville from 2007-2010. The popularity of this location warrants studying the possible extension of the Orange Line to Lakeville; however, any planning for this Orange Line "Phase II" project will be done at a later date and is not included the scope of the Orange Line for this report.

4.4 Technology

Orange Line BRT will build on previous technology infrastructure along the corridor. Technology has affected all aspects of a passenger's trip, such as updated information about the availability of parking at park- and-rides, next-bus arrival information, estimated travel times, web-based trip planning tools, real-time transit information, and rechargeable fare cards.

Next-bus arrival information is currently available on monitors and annunciators on 2nd Avenue and Marquette Avenues downtown, as well as at the 46th Street Station and South Bloomington Transit Center. Transit riders are also able to access the information using NexTrip online, on a mobile device, or by phone.

5 Stations Area Opportunities and Challenges

Each Orange Line station area has a unique mix of existing facilities with both opportunities and challenges.

5.1 Downtown Minneapolis

Buses use a skip stop gate system traveling northbound on 2nd and southbound on Marquette. Gates provide well-lit, heated shelters with detailed transit information and real-time signage. Streetscape improvements were recently implemented, including the addition of trees and public art. Some gates also utilize indoor waiting space in adjacent building lobbies.

Opportunities

- Recent transit and streetscape investments
- High-amenity waiting space and real-time signage already in place
- Side-by-side bus lanes provide transit advantages
- Build on Route 535 ridership, which already uses this corridor

Challenges

- Fares are collected when passengers leave on buses departing from Marquette Avenue, whereas Orange Line buses will have fare collection done off-vehicle entirely
- Distinguishing Orange Line branding within existing gate system
- Skip stop spacing and one-way routes make wayfinding difficult for new or occasional users
- Minor delays exist at entry and exit to downtown (11th and 12th Streets)
- Transit-only lanes can be used by any vehicle during off-peak hours; Orange Line service will also operate during off-peak times and on weekends
- Bus gate assignments and schedules are complex and interwoven
- No direct connection exists from 2nd Avenue to light rail
- Orange Line operations could be moved to another street, but would require new dedicated transit lanes and stations

MARQ2: Side-by-side transit-only lanes



MARQ2: Real-time information at gates



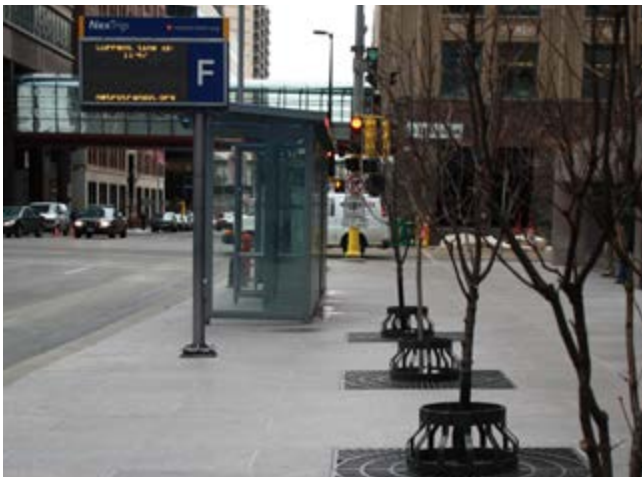
MARQ2: Light rail connection at 5th Street



MARQ2: Existing gate on 2nd Avenue



MARQ2: Existing gate on 2nd Avenue



MARQ2: Existing gate on Marquette



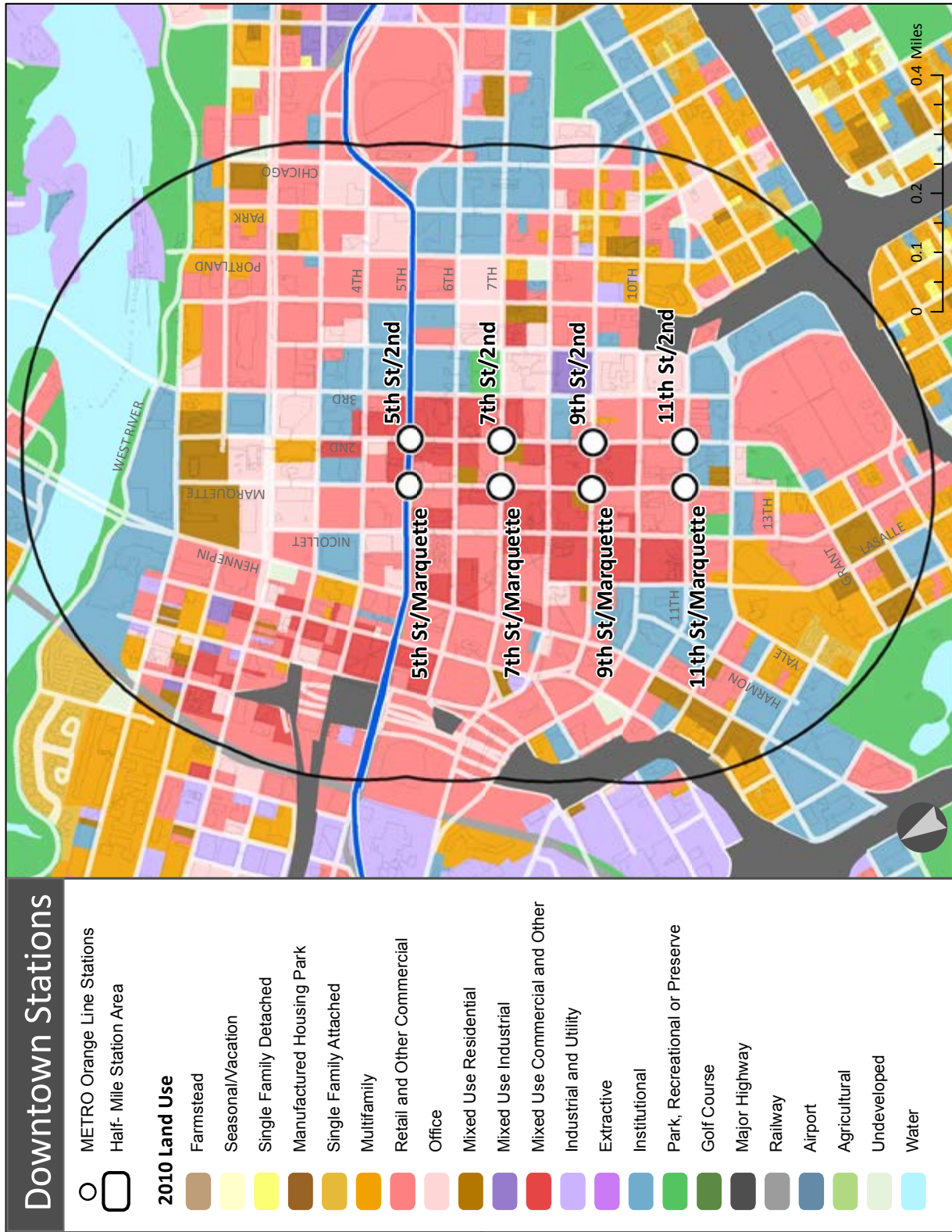


Figure 21. Map of Downtown Stations

5.2 Lake Street at I-35W.

Major roadway and bridge work will be coordinated with the construction of a new grade-separated online station at Lake Street. The current shoulder bus stop at Lake Street on I-35W requires operators to merge across the congested interstate in order to serve passengers, causing delay and unpredictable service.

The planned design will provide an accessible median station with improved pedestrian connections and amenities. The I-35/Lake Transit Access Project will replace the existing highway bridge over Lake Street with three separate bridges, using the center structure for a highway-level, grade separated BRT station. Large lobbies on the street level will provide vertical circulation to two side platforms above. The plans also would improve vehicular access in this area, and replace two structurally deficient bridges between Lake Street and the I-94 Commons.

Opportunities

- Extensive design and community engagement process is already underway
- Create an accessible station that adds value to street and surrounding properties
- Potential for transit-oriented redevelopment and infill development in the station area
- Streetscape improvements on Lake Street can improve personal safety and comfort
- Planned pedestrian and bicycle connections to the Midtown Greenway
- Lake Street will be widened under the bridge, allowing for ample bus stops and pedestrian space
- Transit improvements on Lake Street and/or the Midtown Greenway provide legible transfers to and from the Orange Line

Challenges

- The existing bus stops on I-35W are inaccessible and uncomfortable, plagued by a combination of issues: exposed conditions, freeway congestion and noise, deteriorating stair infrastructure, a lack of maintenance, and a significant reduction of northbound bus service in 2011
- The interstate bridges have the potential to become physical barriers to creating comfortable, connected neighborhoods
- Station design should be open and provide good visibility on both the upper and lower level
- Maintenance of larger station area will require close coordination of multiple agencies, property owners and neighborhood groups

Lake: Northbound bus stop on I-35W, looking south



Lake: Stairs from Lake Street to I-35W



Lake: Lake Street under I-35W



Lake: Lake Street under I-35W



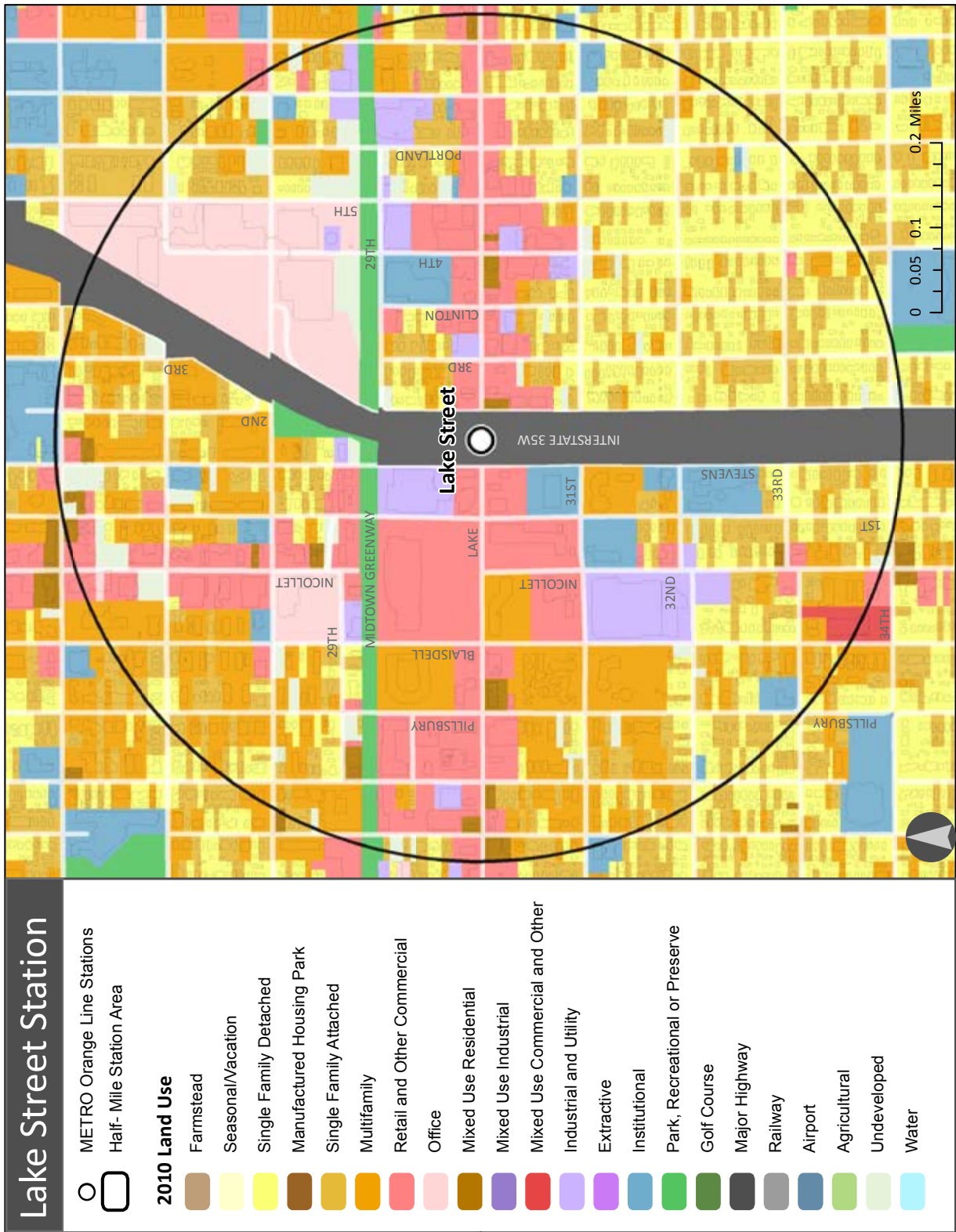
Lake: Lake Street under I-35W



Lake: Southbound bus stop on I-35W, looking north



Figure 22. Map of Lake Street Station



5.3 46th Street at I-35W.

This existing Minneapolis station was completed in 2009 as a part of the Crosstown Commons reconstruction, and is already served by several Metro Transit routes, including Route 535. Connections to local bus service can be made at the street level above.

Opportunities

- As the only existing station, design could inform Orange Line improvements elsewhere in the corridor
- Provide connections for weekend service where it does not currently exist
- Explore ways to alleviate transponder issues so that other transit providers may provide service to the station

Challenges

- Incorporate METRO branding into existing station to differentiate Orange Line service
- Cross-over platform design is no longer preferred for transit station construction, as it can increase chances for collision
- Existing configuration does not allow buses to pass each other, or offer an opportunity to expand bus capacity in the future

46th: Existing BRT station



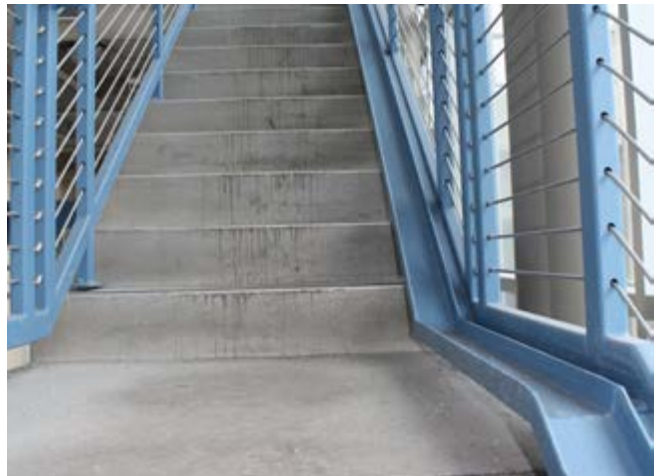
46th: Entrance to BRT station



46th: Lower level of BRT station



46th: Stairs and bike rail



46th: Center platform at BRT station



46th: Real-time information



Figure 23. Map of 46th Street Station



5.4 66th Street at I-35W.

66th Street is a major east-west artery in Richfield, as it is only one of two streets in the city that crosses I-35W. The existing bus stops on the exit ramps east and west of the interstate will be replaced by small, upgraded stations with real-time information, and ticket vending machines. Space is limited due to adjacent residential land uses and noise walls. Long term, the 66th Street station may be replaced with an online, grade-separated station at the highway level. However, this will not be pursued until the I-35W bridge over 66th Street needs reconstruction several decades from now. The existing I-35W bus stops are served by route 535, with connecting service on the 66th Street route, the 515, and 558 express service to Lyndale Avenue and Penn Avenue.

Opportunities

- Provide convenient transfers for bus transfers and comfortable connections for riders who walk and bike to the station
- Bike parking is needed
- As one of few places to cross I-35W, the site is already a key accessible pedestrian route
- Consider travel patterns and parking demands to better accommodate riders coming from areas north of 66th Street
- 66th Street is planned for reconstruction, and projects can be timed to integrate public process, design, and improvements
- Signal priority could help reduce transit travel delay

Challenges

- Some transit riders park in adjacent residential neighborhoods, where on-street parking is not restricted
- The proposed loss of the Knox Avenue (Best Buy) Park and Ride could increase parking demand in this area, especially for riders coming north of 66th Street
- This four-lane, high-volume road requires careful consideration of sightlines and street crossings
- Noise walls provide reduced visibility into station areas and restrict pedestrian access from the neighborhood
- Nearby residential streets do not have sidewalks

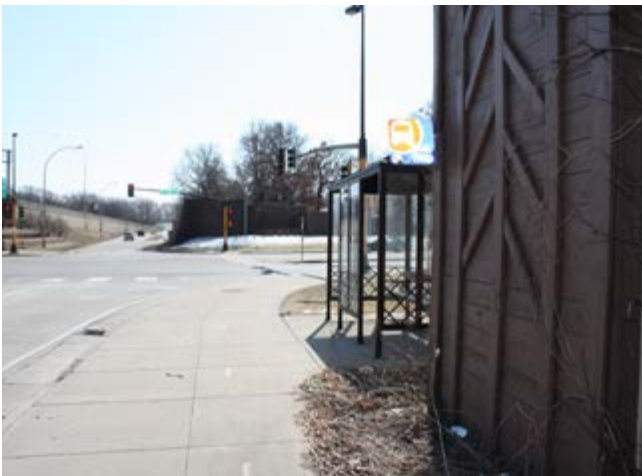
66th: Southbound bus stop on exit ramp



66th: 66th Street under I-35W



66th: Southbound bus stop on exit ramp



66th: Sidewalk and bus stop under I-35W



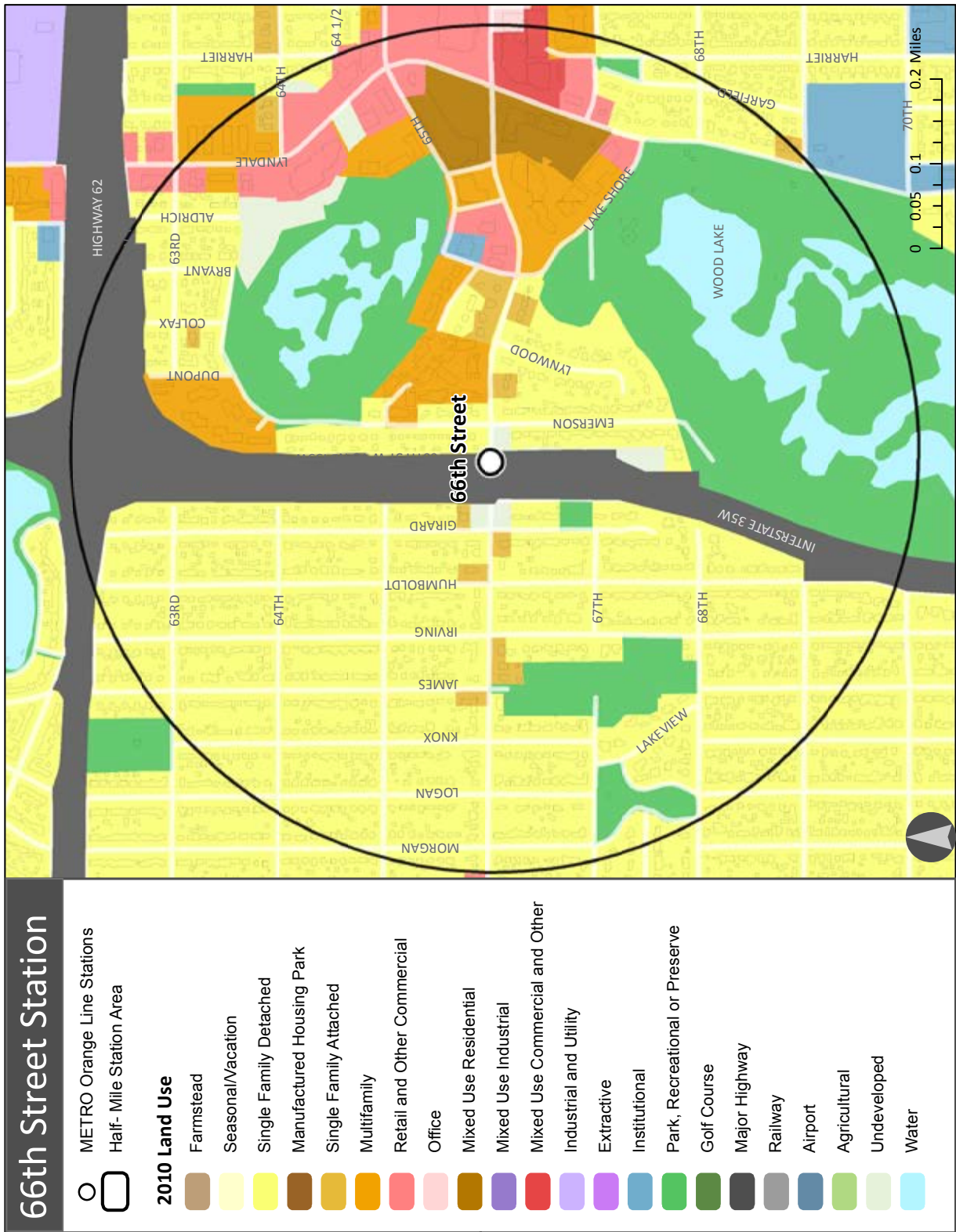
66th: Northbound bus stop on exit ramp



66th: Landscaping adjacent to I-35W



Figure 24. Map of 66th Street Station



5.5 American Boulevard at I-35W.

American Boulevard, just south of I-494, is a focus of future redevelopment and new infill opportunities. The street connects the state's largest transit station, at Mall of America, with Orange Line and the planned Green Line extension in Eden Prairie, with many hotels, office buildings, housing units, and retail locations in between. Southtown is a major source of ridership as a service and employment center. The Penn-American District, adjacent to I-35W to the west, is currently undergoing a planning process to guide future land use, transportation, urban design and redevelopment of this important commercial center. The 82nd Street Transit Center is also adjacent to I-35W, just two blocks south of American, and the Knox Avenue/Best Buy park and ride north of I-494 would be replaced with a new facility at American Boulevard. A major interchange redesign is underway for I-494 and I-35W, allowing the transit station and roadway projects to be integrated in one comprehensive design.

Opportunities

- An online station at American Boulevard will provide quick access and reduce delay for transit
- Explore the opportunity to bring the Orange Line closer to the heart of the Penn-American District, while continuing to serve riders north of I-494

Challenges

- Transit riders will have increased walk times or bus rides to housing and jobs at Southtown, Best Buy, and the 76th Street corridor
- Crosstown routes will need to continue jog to connect 76th Street and American Boulevard
- Major stormwater mitigation would be needed on the Bentley Forbes/GN Resound
- The Luther Infiniti dealership was recently approved for a new building on the same facility
- No north-south pedestrian connection exists between Penn and Lyndale Avenues, effectively restricting the half-mile station walk shed to the southern side of I-494
- Property acquisition will be required for a park and ride
- A grade-separated station on the interstate under American Boulevard will require careful attention to safety
- An online station at American Boulevard requires operational weaving to exit to an inline station at 66th Street, which may be prohibitive given the short distance (1.25 miles)

American: I-35W under American Boulevard



American: Southtown Shopping Center



American: American Boulevard near Knox Avenue



American: American Boulevard at Knox Avenue



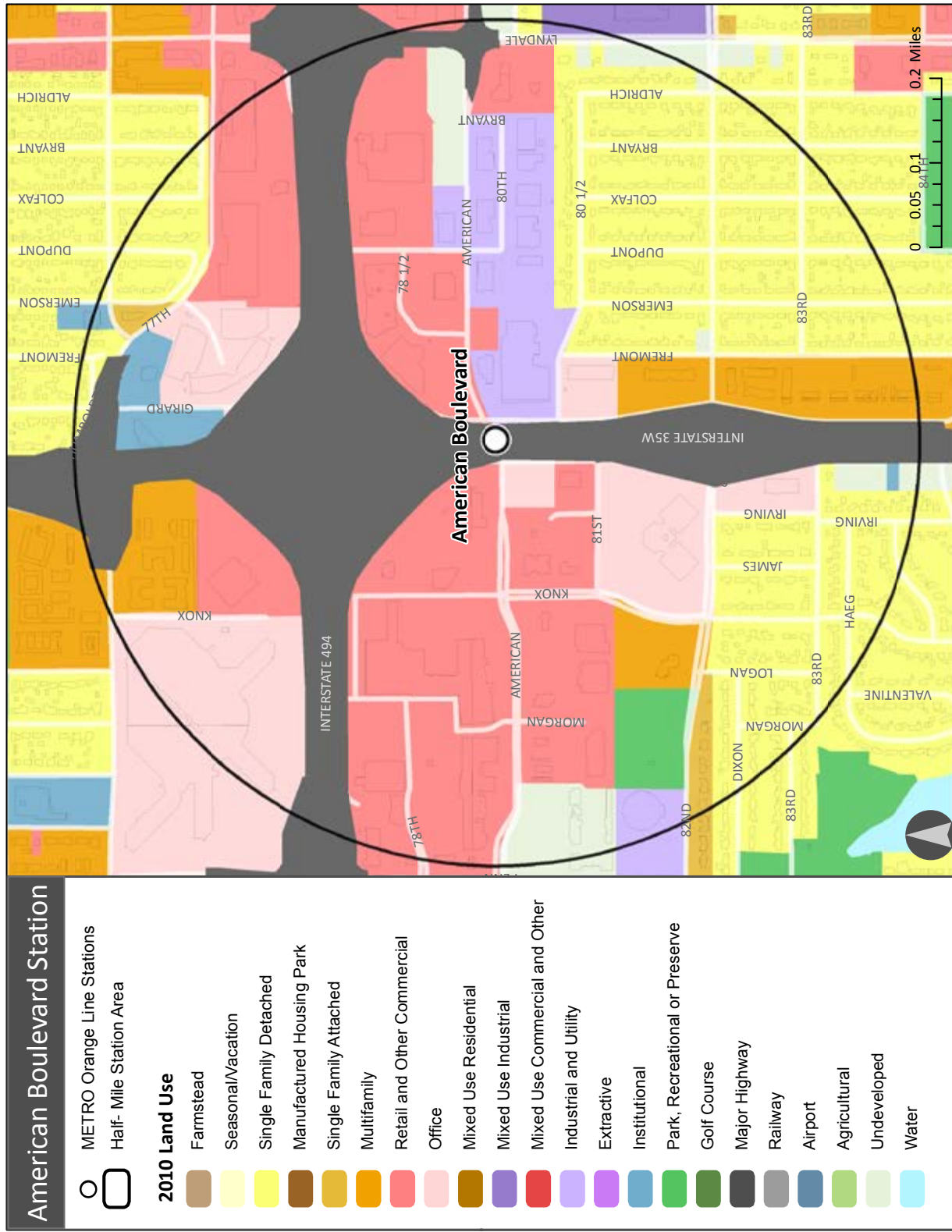
American: Uses adjacent to I-35W



American: Southtown Shopping Center



Figure 25. Map of American Boulevard Station



5.6 98th Street at I-35W.

The South Bloomington Transit Center is located at the southeast quadrant of I-35W and 98th Street, and is an important facility for park-and-ride customers and bus service connections. 98th Street also connects major destinations, including Normandale Community College, Bloomington City Hall, and Fairview Oxboro Clinic. The planned configuration would create a new northbound Orange Line side platform on the exit ramp adjacent to South Bloomington Transit Center. This would allow the bus to pull over and pick up passengers, and then continue back onto I-35W. Riders would use the South Bloomington Transit Station for pedestrian access, parking, and bus transfers. Southbound, the Orange Line would exit I-35W to Dupont Avenue South, stop farside at a new side platform, and then utilize the HOV ramp to re-enter the interstate. Time saved from not traveling to South Bloomington Transit Center will be significant; however, better pedestrian connections and wayfinding need improvements to make the northbound and southbound stops legible as a pair.

Opportunities

- A detailed station design for this site was created in 2011
- Provide convenient transfers for bus transfers, and comfortable connections for riders who walk and bike to the station.
- Create more efficient routing for northbound and southbound buses serving 98th Street
- Improve pedestrian signals and curb ramps in the immediate area

Challenges

- South Bloomington Transit Center is at capacity as a park and ride; and demand is expected to grow
- The distance between the proposed northbound and southbound stations is approximately 1,700 feet, with no visual connection, resulting in an approximate 8 minute walk to the main transit center

98th: Transit information



98th: Bus loop at South Bloomington Transit Center



98th: Housing adjacent to South Bloomington Transit Center



98th: Real-time information



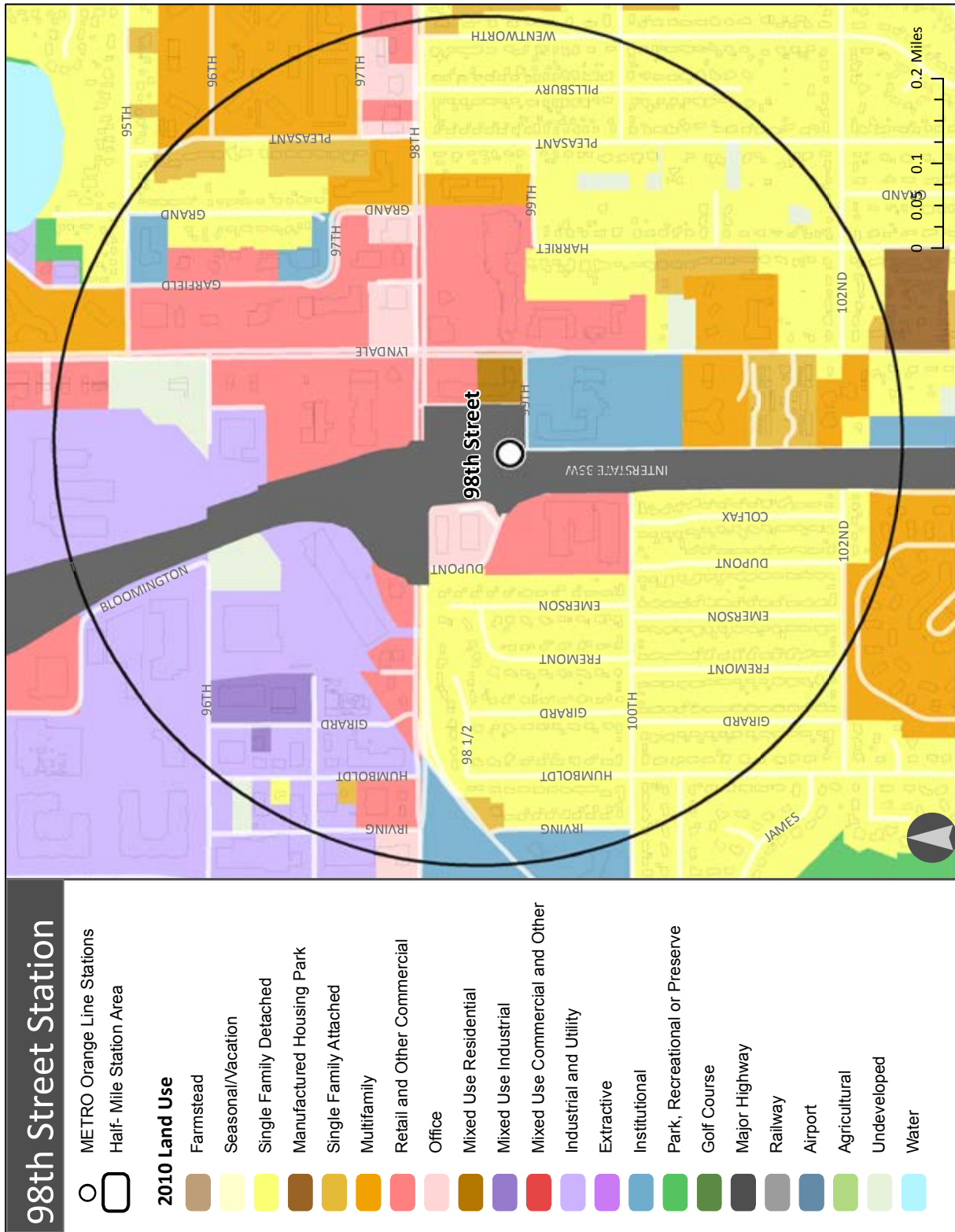
98th: Crosswalk and 98th Street bridge over I-35W



98th: Intersection of Dupont and 98th Street



Figure 26. Map of 98th Street Station



5.7 Burnsville Transit Station

Burnsville Transit Station is located at 100 East Highway 13, just east of I-35W at Nicollet Avenue. The existing facility is served by routes 421, 426, 444, 460, 465, Jefferson Lines, and many dial-a-ride vehicles. The station is a key transit connection in the south metro, and hosts a 1,428 park-and-ride facility. Due to the high number of regular route and paratransit vehicles, modifications to the existing station will be needed to accommodate an Orange Line platform, provide layover space, and improve BRT access to and from the facility.

Opportunities

- Provide improvements to existing stations to accommodate additional transit vehicles
- Create easy transfers between MVTA and Orange Line service
- Utilize high-quality indoor waiting space

Challenges

- Differentiate Orange Line service from other express and local services, incorporating BRT branding elements
- Provide enough space for all transit services to operate safely, efficiently, and at desired frequency
- Give special attention to platform design, turn radius, construction materials, internal circulation and local access, signage, and bicycle boarding
- Pedestrian access from nearby destinations to the site is difficult

BTS: Existing transit facility



BTS: Boarding area



BTS: Transit information counter



BTS: Bicycle lockers



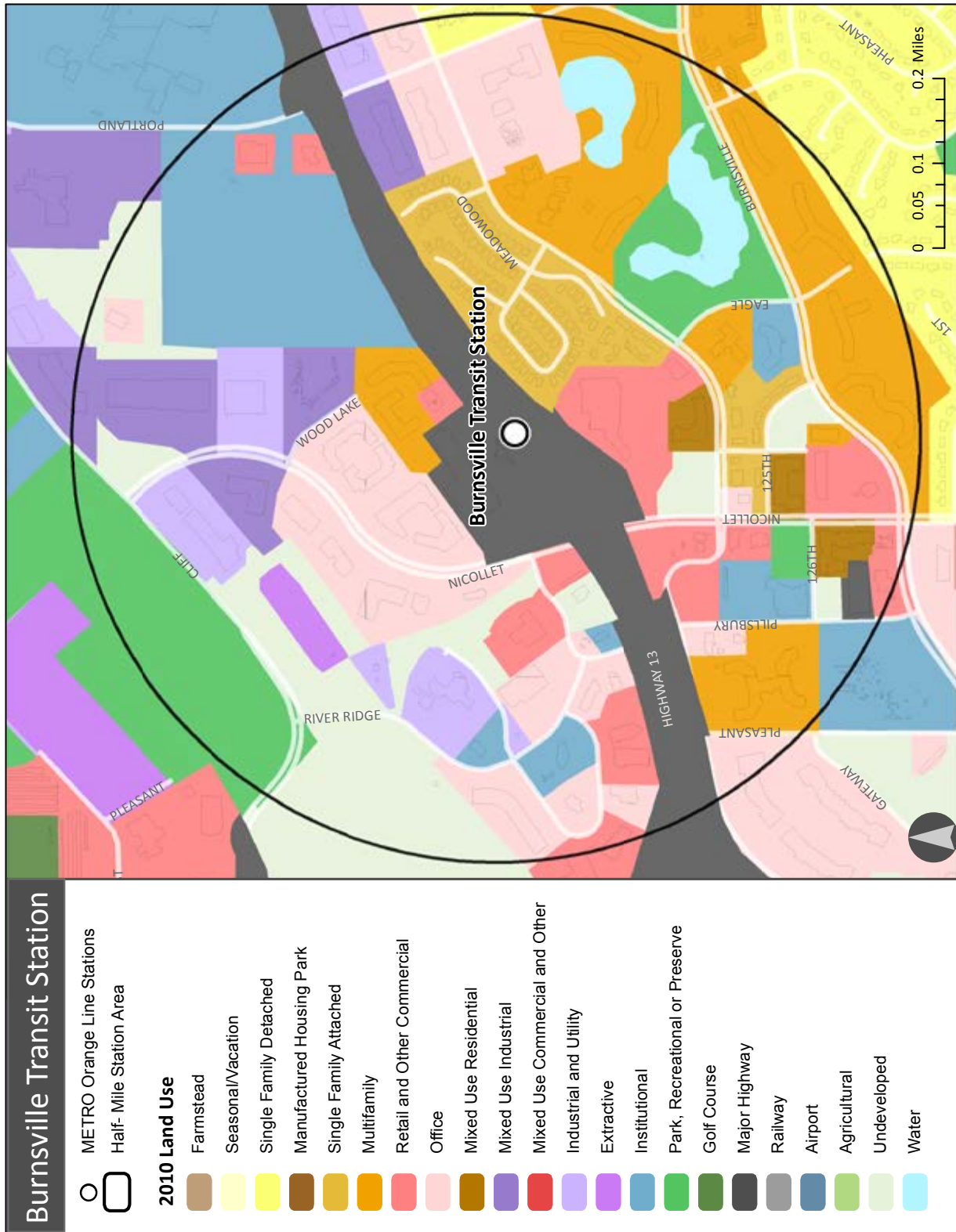
BTS: Parking ramp and walkway



BTS: Uses adjacent to Burnsville Transit Station



Figure 27. Map of Burnsville Transit Station



6 Related Projects and Planning

6.1 I-35W/Lake Transit Access Project

The I-35W Transit/Access Project is being led by Hennepin County in partnership with the City of Minneapolis, Metropolitan Council/Metro Transit, and MnDOT. Project activities will include the following tasks:

- Design and construct the Lake Street Orange Line Bus Rapid Transit station in the median of I-35W, and provide efficient transit connections to/from Lake Street, the Midtown Greenway, Nicollet Avenue and I-35W;
- Add a southbound MnPass lane from downtown Minneapolis to meet the existing lane near 42nd Street;
- Complete the design of I-35W between approximately 32nd Street and I-94; including, the Lake Street/28th Street interchange, the areas to the north of the interchange, and replacement of two bridges;
- Replace the southbound I-35W bridge over Trunk Highway 65 (known as the “Braid Bridge”) and replacing the bridge from northbound TH 65 to westbound I-94 (known as the “Flyover Bridge”), as well several other vehicle and pedestrian bridges;
- Reconstruct Lake Street near I-35W, providing enhanced streetscape features, landscaping, pedestrian facilities, and a high-quality bicycle connection to the Midtown Greenway; and
- Complete an Environmental Assessment to document any potential environmental impacts and appropriate ways to avoid, minimize and/or mitigate those impacts.

6.2 Midtown Corridor Alternatives Analysis

A Midtown Corridor Alternative Analysis is currently underway to determine the benefits, costs and impacts of implementing a transitway along either the Midtown Greenway or Lake Street in south Minneapolis. The project also will recommend the best method of delivering transit service in the Midtown Corridor: light rail, streetcar, busway or bus rapid transit.

Metro Transit is partnering with the City of Minneapolis, Hennepin County and other community groups on the project. The purpose of a transit improvement in the Midtown Corridor is to provide high-quality, convenient transit service that meets current and future travel needs, attracts new riders, and supports sustainable growth and development in the corridor.

6.3 66th Street Reconstruction

This street reconstruction will improve the operational safety for pedestrians, bicyclists, and vehicles, as well as improve the condition of the pavement. The project will replace the deteriorating 66th Street roadway and the sidewalks, thereby improving safety and access to the 66th Street Orange Line BRT Station.

The Richfield Transportation Commission, with significant involvement from members of the City Council, various other advisory Commissions, the Richfield Chamber of Commerce, and County and City Staff, recently concluded two visioning workshops. The goal for these workshops was to discuss the vision for major roadway corridors in the City and form a set of guiding principles that could be used in the planning and design process as roads are reconstructed.

6.4 I-494/35W Vision Layout

The I-35W/494 interchange is one of the most congested, unsafe interchanges in the State of Minnesota. It was designed in the 1950's, constructed in the early 1960's, with very few modifications or improvements since that time. The interchange is congested well over 30% of each and every day, carrying nearly 500,000 vehicles daily through the now over-capacity interchange, with many vehicle crashes occurring in and around the area.

The 2001 Final Environmental Impact Statement (FEIS) recommendation totally redesigned the interchange. The 2001 FEIS preferred alternative involved a multi-level interchange at a cost of close to \$300 million. The design was also difficult to construct in a performance-based, phased approach. In 2009, the Rescoping Project recommended a "turbine interchange" concept layout, which has the ability to be constructed in phases. This phased approach has a much higher possibility of being funded by federal, state, regional, and local agencies. Phase I of the I-35W/494 interchange improvement is planned to include an online BRT transit station with a park-and-ride ramp. Planning is currently underway.

6.5 Penn American District Plan

The Penn American District is bounded by I-494 on the north, I-35W on the east, West 82nd Street on the south, and Penn and Russell Avenues on the west, and is adjacent to the planned American Boulevard Station. It encompasses about 160 acres, most of which were developed 30 to 50 years ago. Existing development is dominated by retail uses, with several auto dealerships, some offices and high density housing. Recent and pending developments contain a mix of residential, retail, office, and hotel uses.

The draft Penn American District Plan (PADP) provides a framework for development and public infrastructure investments in the district over the next several decades. The plan recommends specific strategies and investments that the City, Bloomington Housing and Redevelopment Authority (HRA), and private developers can implement to foster redevelopment and achieve the long-term vision to make the district a vibrant, attractive, mixed use, high-density activity center that serves as an amenity for the surrounding neighborhoods and the city as a whole. Key elements of the Penn American vision include:

- Adding new, pedestrian-friendly streets and creating smaller development blocks as redevelopment occurs;
- Increasing development intensity and diversifying the mix of land uses;
- Improving the quality and character of buildings and public spaces;
- Increasing mobility through targeted improvements to roads, bikeways, and sidewalks; and
- Leveraging the proposed substantial investments in transit and transportation infrastructure.

