



E Line

E Line Corridor Study

TECHNICAL MEMO #1

This Technical Memo provides an overview of the Arterial BRT concept, reviews the existing conditions within the study area, and identifies the initial E Line alignment alternatives under review.

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Introduction

The METRO E Line is a planned arterial bus rapid transit (BRT) line that will substantially upgrade and replace portions of Route 6, one of Metro Transit's highest ridership bus routes, to provide faster, more reliable service and a more comfortable experience.

Route 6 is the primary transit route along Hennepin Avenue and runs approximately 12 miles from Stadium Village to Southdale Center via 4th Street SE and University Avenue, downtown Minneapolis, Hennepin Avenue, and either France Avenue, Wooddale Avenue, or Xerxes Avenue. Additional Route 6 service extends south of Southdale Center to Minnesota Drive and the Edina Industrial Park.

The purpose of the E Line Corridor Study is to determine the recommended routing for the METRO E Line for approval by the Metropolitan Council. This Technical Memo provides an overview of the Arterial BRT concept, reviews the existing conditions within the study area, and identifies the initial E Line alignment alternatives under review.

Arterial BRT Overview

Arterial BRT is designed to provide an improved customer experience with faster and more frequent trips than existing local service. This experience is delivered through a package of improvements that includes enhanced customer facilities and greater operational efficiency.

Every planned BRT corridor is unique in street design and surrounding land use. As a result, each line balances flexibility with implementation strategies with core BRT characteristics.

The following characteristics of arterial BRT will be applied to the context and unique aspects of each planned station along the corridor.

Station Features

Arterial BRT brings an improved experience to local bus corridors by providing faster and more efficient service, and station and bus amenities that create an improved customer experience.

Curb bumpouts

Arterial BRT primarily runs in general traffic, with bumpouts (also called curb extensions or bus bulbs) at stations where feasible. Today, many existing local bus stops are located out of a through-lane of traffic in right-turn lanes or in a curbside parking lane, causing delay

for buses merging back into traffic. Curb bumpouts at station platforms eliminate delay-inducing merging movements. They also provide extra space for station amenities and pedestrians on existing sidewalks. Additionally, to facilitate near-level boarding, curb heights will be increased to nine inches from the standard six where possible.

Off-board fare payment

Like on the A Line, C Line, and light rail, customers will pay fares prior to boarding the bus. Ticket vending machines and fare card validators will be located at each station. Off-board fare payment expedites the boarding process and significantly decreases dwell time at stations, allowing buses to stop briefly in the travel lane rather than pull over. Fare payment will be enforced through random on-board inspections by Metro Transit Police.

Shelters

Shelters provide weather protection while customers wait for the bus. Standard arterial BRT shelters feature on-demand heaters and integrated lighting, as well as emergency telephones. Shelters range from 12 to 36 feet long, depending on site conditions and ridership. A concrete foundation increases protection from the elements and helps establish more permanence than a standard shelter.

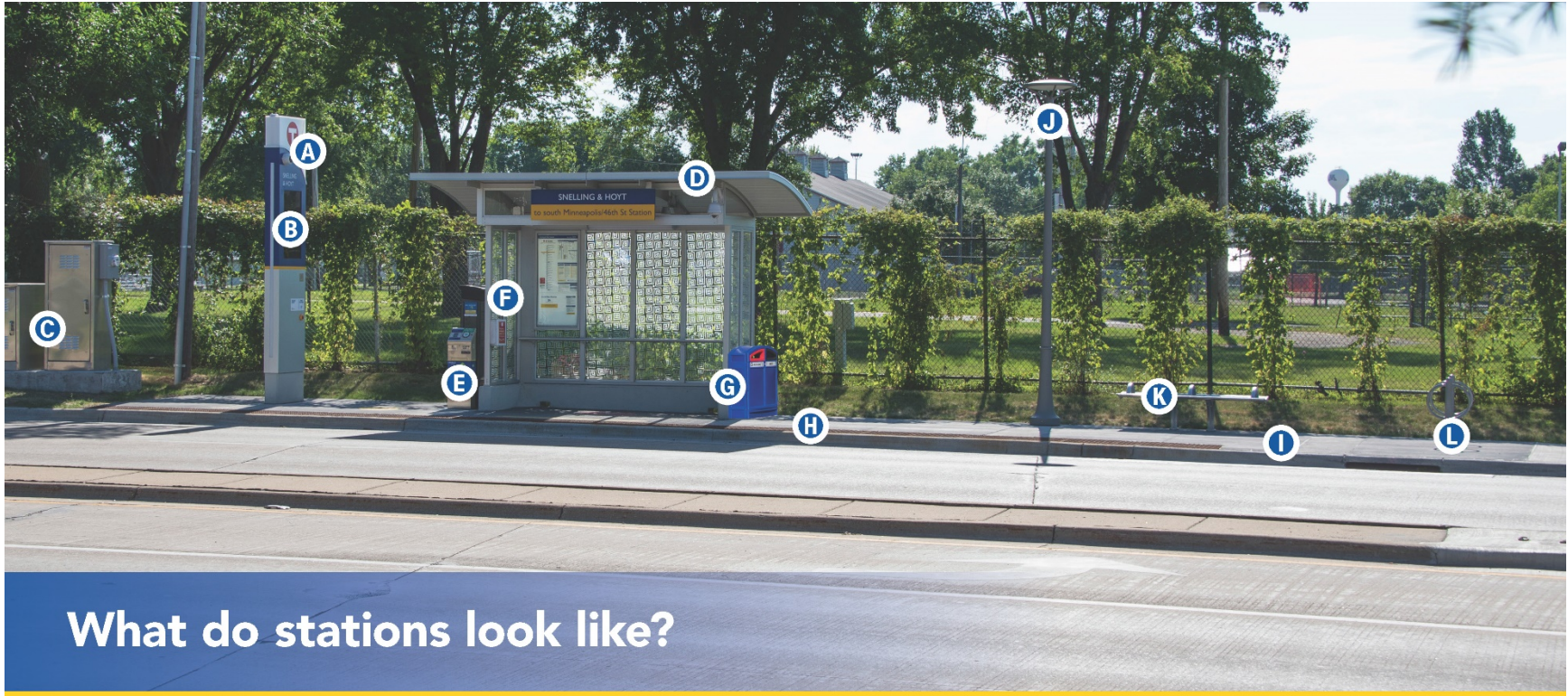
Information

Detailed transit information is provided in a variety of formats to offer clear direction and increase customer confidence in trip status. Each station includes a pylon landmark sign with a real-time NexTrip display and a printed panel with timetable, maps, and connection information.

Furnishings and other improvements

Several station components enhance customer safety and comfort, including security cameras and telephones and adequate clear zone for boarding and alighting through any bus door. Benches, trash receptacles, and bike racks are also installed at stations.

Figure 1: Arterial BRT Station Features



What do stations look like?

- A** Pylon markers help riders identify stations from a distance.
- B** Real-time NexTrip displays provide bus information, and on-demand annunciators speak this information for people with low vision.
- C** Utility boxes near station areas house necessary communications and electrical equipment.
- D** Shelters provide weather protection and feature on-demand heaters and integrated lighting. Shelter sizes will vary based on customer demand (small shown here).
- E** Ticket machines and fare card validators collect all payment before customers board the bus.
- F** Emergency telephones provide a direct connection to Metro Transit security. Stations also feature security cameras.
- G** Stations feature trash and recycling containers.
- H** Platform edges are marked with a cast-iron textured warning strip to keep passengers safely away from the curb while the bus approaches. Many stations also feature raised curbs for easier boarding.
- I** Platform areas are distinguished by a dark gray concrete pattern.
- J** Some stations have sidewalk-level light fixtures to provide a safe, well-lit environment. Fixtures will match existing lights in the surrounding area.
- K** Benches at stations provide a place to sit.
- L** Stations have bike parking loops.



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Operational Improvements

Limited stops and high frequency

Arterial BRT stations are spaced approximately every one-third to one-half mile, focusing on upgrading stops to stations where the greatest numbers of customers board buses today. More distance between stations significantly increases overall travel speeds when compared to local bus stop spacing of 1/8 mile (the length of a north-south block in Minneapolis), while also allowing for most customers to access stations comfortably by walking or rolling. High frequency service increases the convenience of arterial BRT. The E Line will become the primary service in the corridor, running every ten minutes throughout the day with increased service on nights and weekends compared to the existing Route 6.

Arterial BRT Vehicles

Arterial BRT vehicles have distinctive branding to differentiate them from standard buses. E Line buses will be 60-foot articulated vehicles to serve large numbers of riders, with three wide doors to allow customers to enter and exit through all doors of the vehicle. All buses will be low-floor vehicles to help facilitate boarding and alighting for all customers, and buses will have seating layouts that allow for interior circulation. Accessibility ramps will remain for those customers using a mobility device.

Transit Advantages

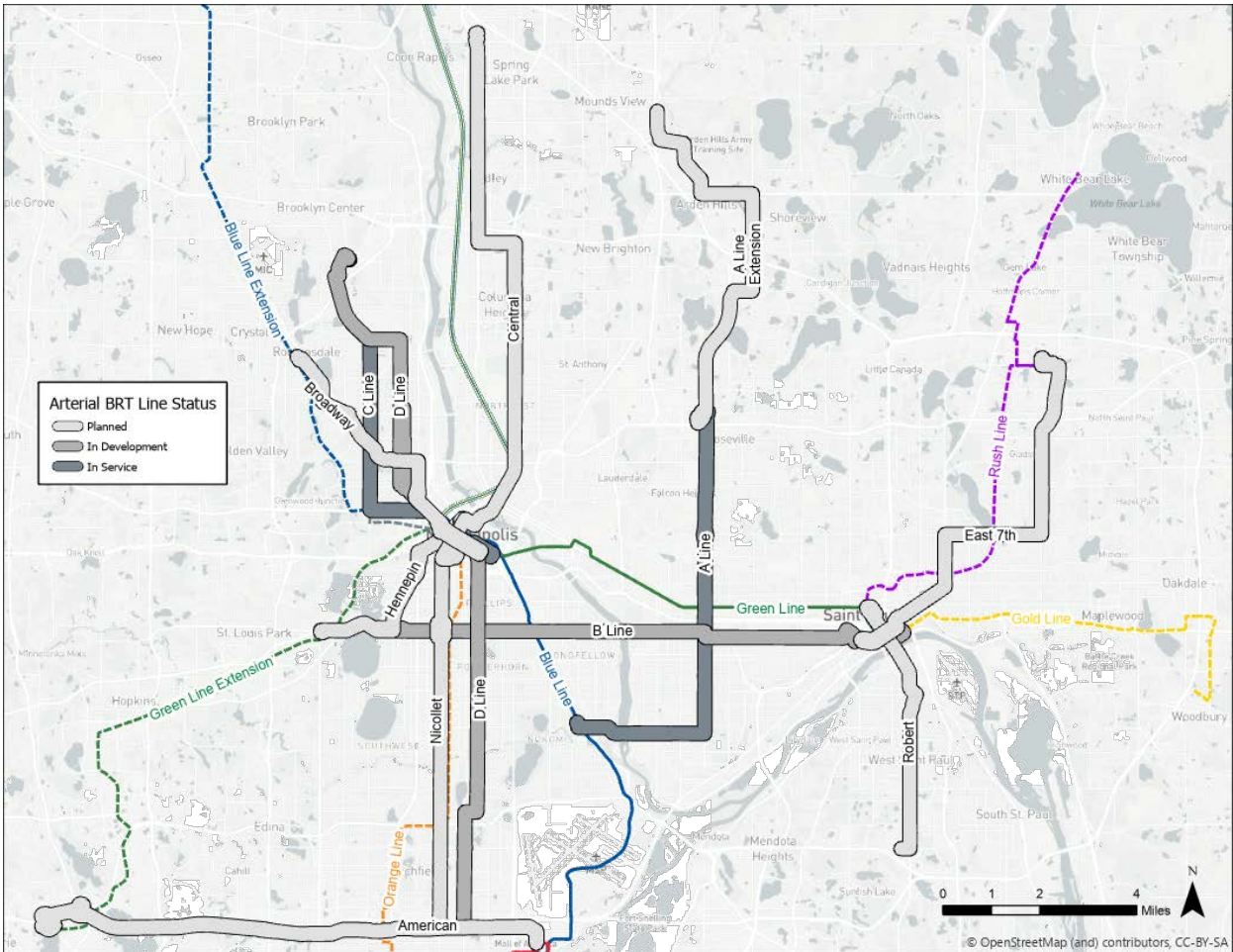
Buses will be linked to traffic signals throughout the corridor to provide transit signal priority (TSP) when conditions allow. A TSP system will allow buses to request early green time and/or extended green time to allow movement through the intersection. TSP helps reduce time spent stopped at red lights, a substantial source of bus delay.

Additional transit advantages, including potential bus-only lanes, to improve transit speeds and reduce travel time will be developed as part of the E Line project, future station planning work, and other roadway projects along the E Line corridor led by City and County partners.

E Line Planning Background

Arterial BRT has been operating in the Twin Cities region since the opening of the A Line in 2016. In 2012, Metro Transit completed the Arterial Transitway Corridors Study (ATCS), which developed the arterial BRT service concept and identified 11 urban corridors with high-ridership bus routes implementation of arterial BRT service.

Figure 2: Planned Arterial BRT Network



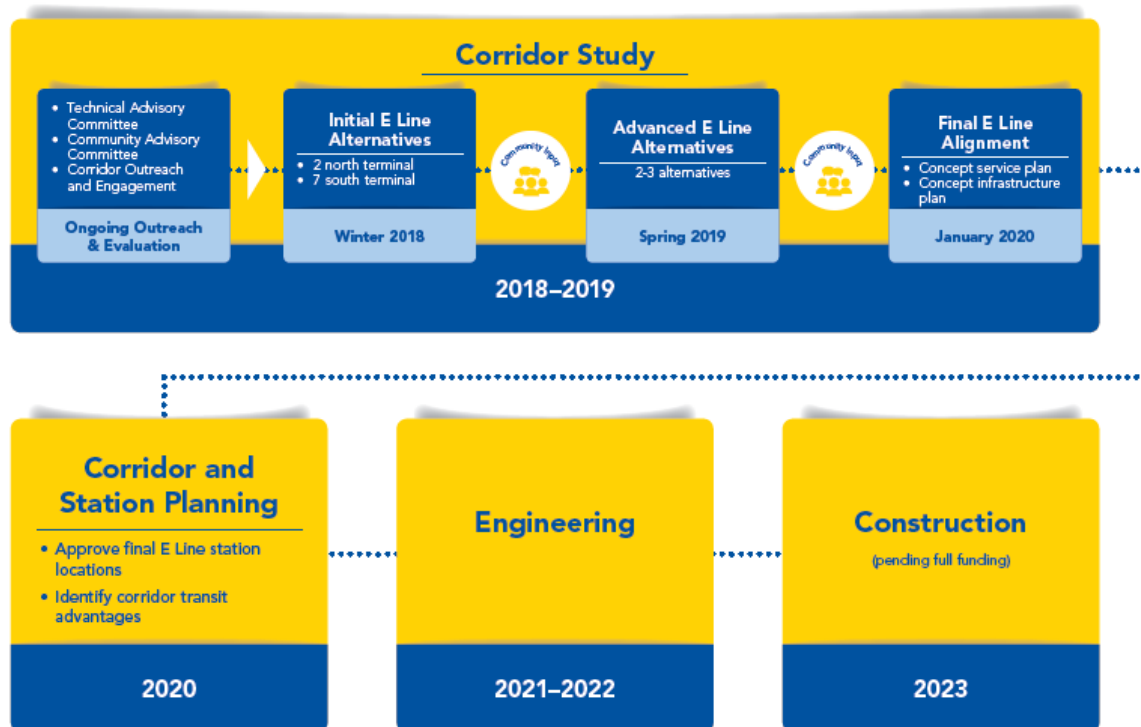
The Hennepin Avenue corridor, later identified as the E Line, was one of the 11 corridors evaluated in the ATCS. The corridor identified in the ATCS ran along Hennepin Avenue and Lake Street from downtown Minneapolis to the future METRO Green Line West Lake Street Station. The study determined that the Hennepin Avenue corridor as identified performed well on the technical evaluation criteria but that additional planning was needed to better develop the arterial BRT and connecting bus service concept in the corridor.

E Line Corridor Study Purpose and Scope

The E Line Corridor Study is the next step in the E Line planning process and builds on the planning work completed in the Arterial Transitways Corridor Study. The purpose of the E Line Corridor Study is to determine the recommended routing for the METRO E Line for approval by the Metropolitan Council. The study will include the development of the recommended E Line routing, concept locations for future E Line stations, and concept connecting local bus service plan for when the E Line begins operation.

E Line Project Next Steps and Timeline

Following the approval of the recommended E Line routing developed in the E Line Corridor Study, Metro Transit will begin the development of the E Line Corridor Plan. The E Line Corridor Plan will identify and finalize E Line Station locations and designs. After the completion on the Corridor Plan in 2020, work will begin on design and engineering through 2021 and 2022. Construction of the corridor could begin as early as 2023., pending full funding.



E Line Corridor Existing Conditions

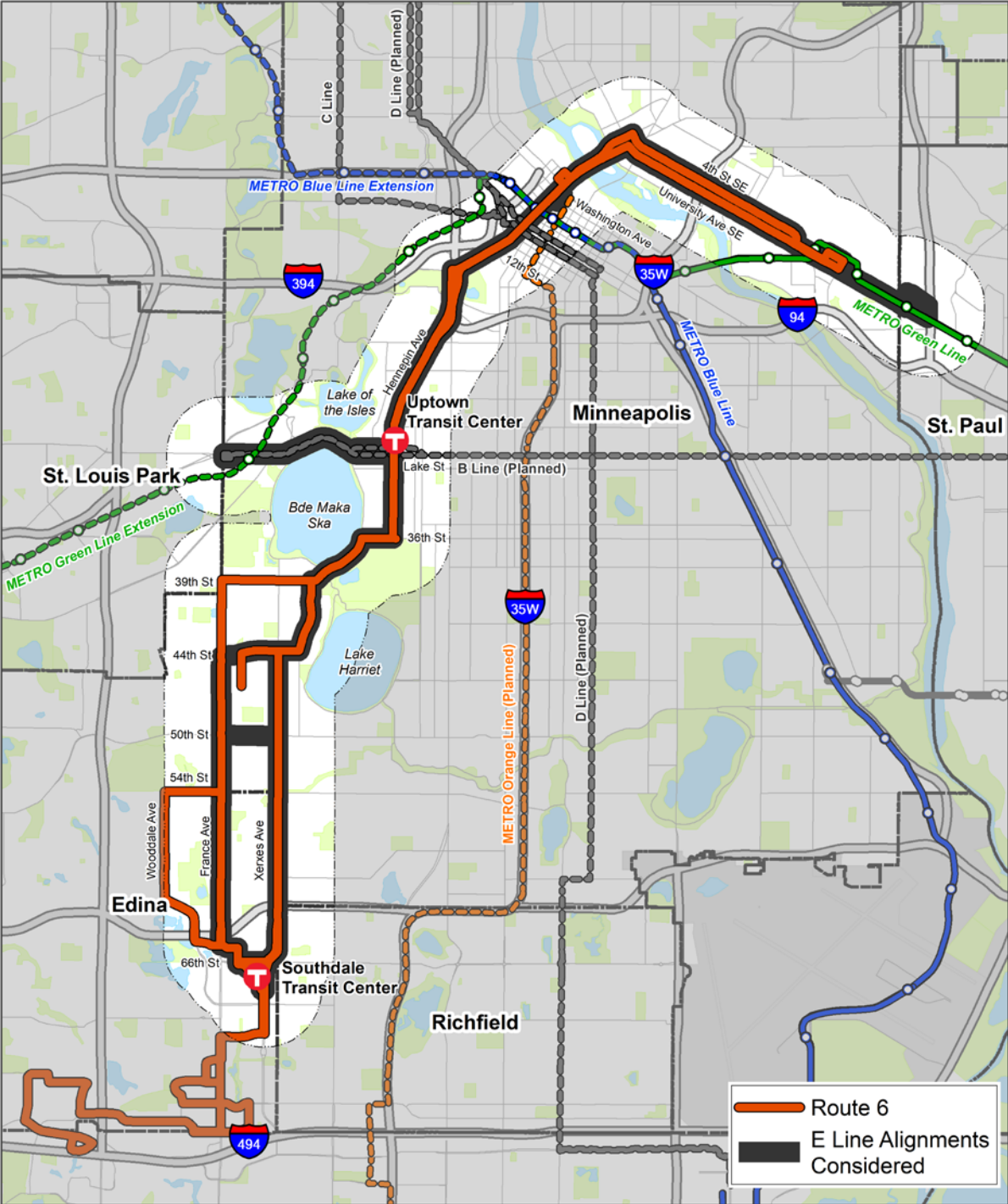
Study Area

The E Line Corridor study area primarily follows the Route 6 corridor (see Figure 5). It consists of the area within 1/2 mile of an E Line alignment alternative to be considered in the E Line Corridor Study.

It runs north to south from the METRO Green Line Westgate Station along 4th Street SE and University Avenue SE through downtown Minneapolis and Uptown via Hennepin Avenue. From Hennepin Avenue and Lake Street, it includes both the segment of West Lake Street from Hennepin to the future Green Line West Lake Street Station and continues south through the Chain of Lakes to Southdale Transit Center via France Avenue and Xerxes Avenue.

The study area is primarily located within the cities of Minneapolis and Edina. It also includes small sections of Saint Louis Park, Richfield, and Saint Paul.

Figure 3: Corridor Study Area



Population Characteristics

Population Density

118,488 people live within the E Line Corridor study area, 26.2 percent of the combined population of the cities of Minneapolis and Edina, and 4 percent of the population of the 7-county metro area. Figure 5 shows population density in the study area.

The study area includes a wide range of residential densities including some of the densest neighborhoods in the region. Population densities are highest along Hennepin Avenue between downtown Minneapolis and 36th Street and near the University of Minnesota, with most block groups exceeding 12,000 people/ sq. mi. with pockets over 20,000 people/ sq. mi.

Population density tends to be lower in the study area south of 36th Street. In general, population densities in this segment are between 4,500 and 8,000 people/sq. mi. Higher density pockets in this area include the Linden Hills neighborhood of Minneapolis and Southdale neighborhood in Edina. Along France Avenue south of 54th Street population density falls below 4,500 people/ sq. mi.

Racial and Ethnic Composition

Whites are the largest racial and ethnic group in the study area, making up 78.3 percent of the population. Asians and Black/ African Americans are the second and third largest racial and ethnic groups at 6.8 and 6.4 percent respectively.

Table 1: Racial and Ethnic Composition

	Corridor Total	White	Asian	Black / African American	Hispanic	Native American	Other
<i>Population</i>	118,488	92,757	8,072	7,634	5,234	572	147
<i>Percentage</i>	100	78.3	6.8	6.4	4.4	0.5	0.1
<i>(ACS 2016, 5-year sample)</i>							

Figure 6 shows the distribution of populations of color within the study area. White people are distributed across every block group in the study area while people of color are more geographically clustered. Areas where people of color make up at least 25 percent of the population include the Westgate and Stadium Village Station areas, downtown Minneapolis, the Southdale neighborhood of Edina, and the neighborhood around Xerxes and 56th Street.

Areas that are more than 90 percent white include Hennepin Avenue South of Lake Street, the west side of Hennepin Avenue near Lake of the Isles, and the area west of France Avenue between 46th Street and 56th Street.

Median Household Income

Figure 7 shows median household incomes throughout the study area. The highest earning households in the study area are generally located south of 36th Street and west of Hennepin Avenue. Median household incomes in these areas are generally above \$80,000 per year. Along the west side of France Avenue median household incomes are over \$160,000 in some areas.

The lowest median household incomes in the corridor, those earning less than \$40,000 per year, are generally located along 4th Street SE and University Avenue SE near the University of Minnesota, in downtown Minneapolis, and along the east side of Hennepin Avenue between Franklin Avenue and 26th Street.

Car-free Households

16.3 percent of all households in the study area are car-free, with most households having access to at least one car. However, strong concentrations of car-free households in the study area exist in downtown Minneapolis and near the University of Minnesota, with fewer than 50 percent of households in these areas owning a car. Other areas with high percentages of car-free households include south Minneapolis east of Hennepin Avenue, the future West Lake Street Station area, and the Southdale area of Edina. Car-free households are generally found in areas with higher residential density and along existing high-frequency transit service.

Fewer than 5 percent of households are car-free for most areas in southwest Minneapolis and Edina. Smaller pockets of car-free households exist along Xerxes Avenue near 56th Street. See Figure 8 for a map showing distributions of car-free households in more detail.

Population Under 16 or Over 65 of Age

20.4 percent of the population within the study area are under 16 or over 65 years old. See Figure 9 for a map showing the distribution of this population. People under 16 or over 65 years old live throughout the corridor and are generally concentrated west of Hennepin Avenue and along France and Xerxes Avenues south of 39th Street.

Areas where fewer than 15 percent of the population are under 16 or over 65 are found primarily east of Hennepin Avenue, in downtown Minneapolis, and along 4th Street and University Avenue SE near the University of Minnesota.

Table 2: Age Group Composition

	Corridor Total	Below 16	16 to 17	18 to 39	40 to 64	65 or over
<i>Population</i>	118,488	12,959	944	62,480	30,832	11,273
<i>Percentage</i>	100	10.9	0.7	52.7	26	9.5
<i>(ACS 2016, 5-year sample)</i>						

Population with a Disability

Figure 10 shows the distribution of the population within the study area that has any disability. Areas where a higher percent of the population has a disability (over 20 percent) include the Southdale neighborhood of Edina and downtown Minneapolis. Other areas where more than 10 percent of the population has a disability include along 4th Street and University Avenue near Central Avenue, near the future West Lake Street Station, and west of Hennepin Avenue north of Franklin Avenue.

Figure 4: Population Density

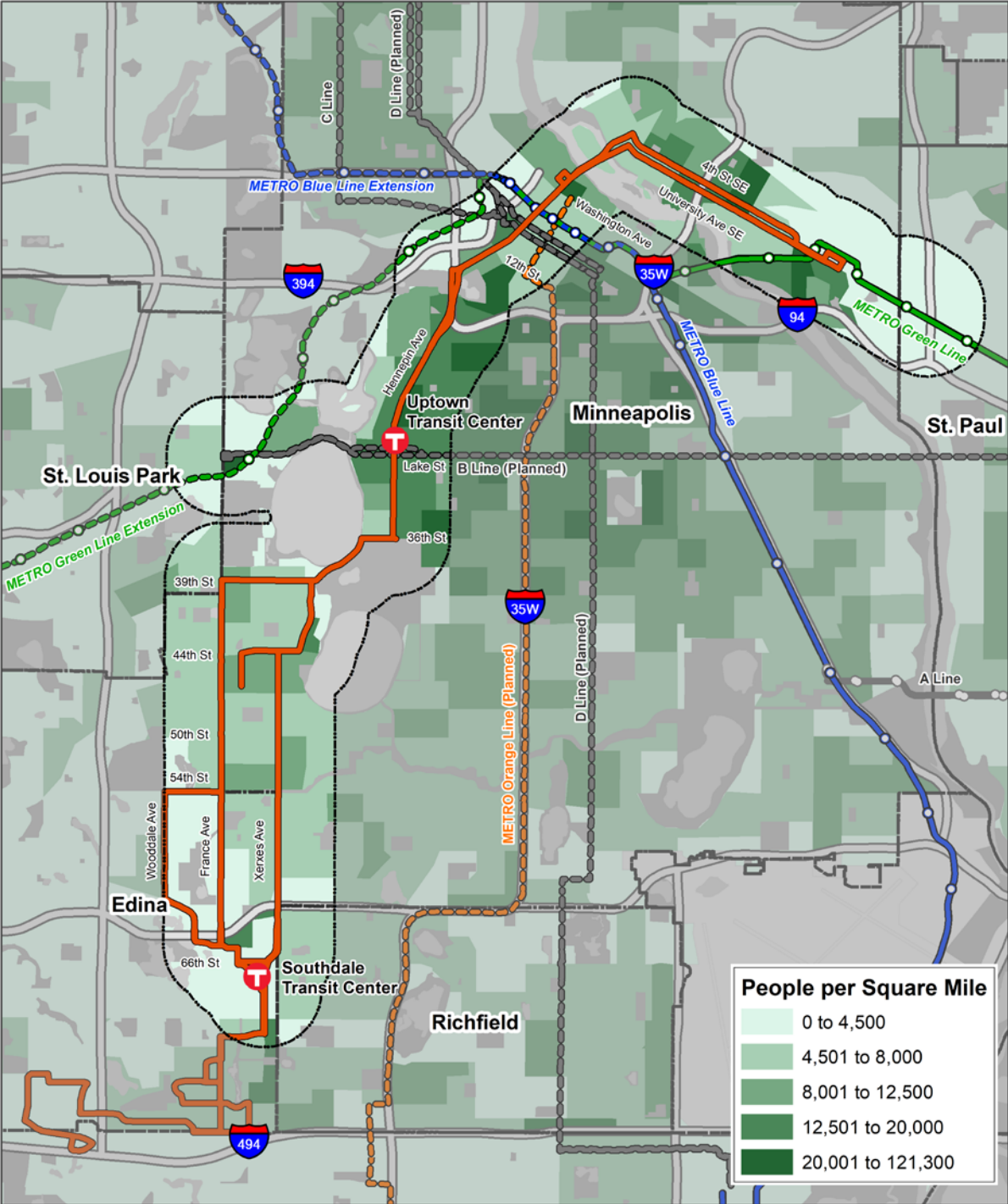


Figure 5: Percent People of Color

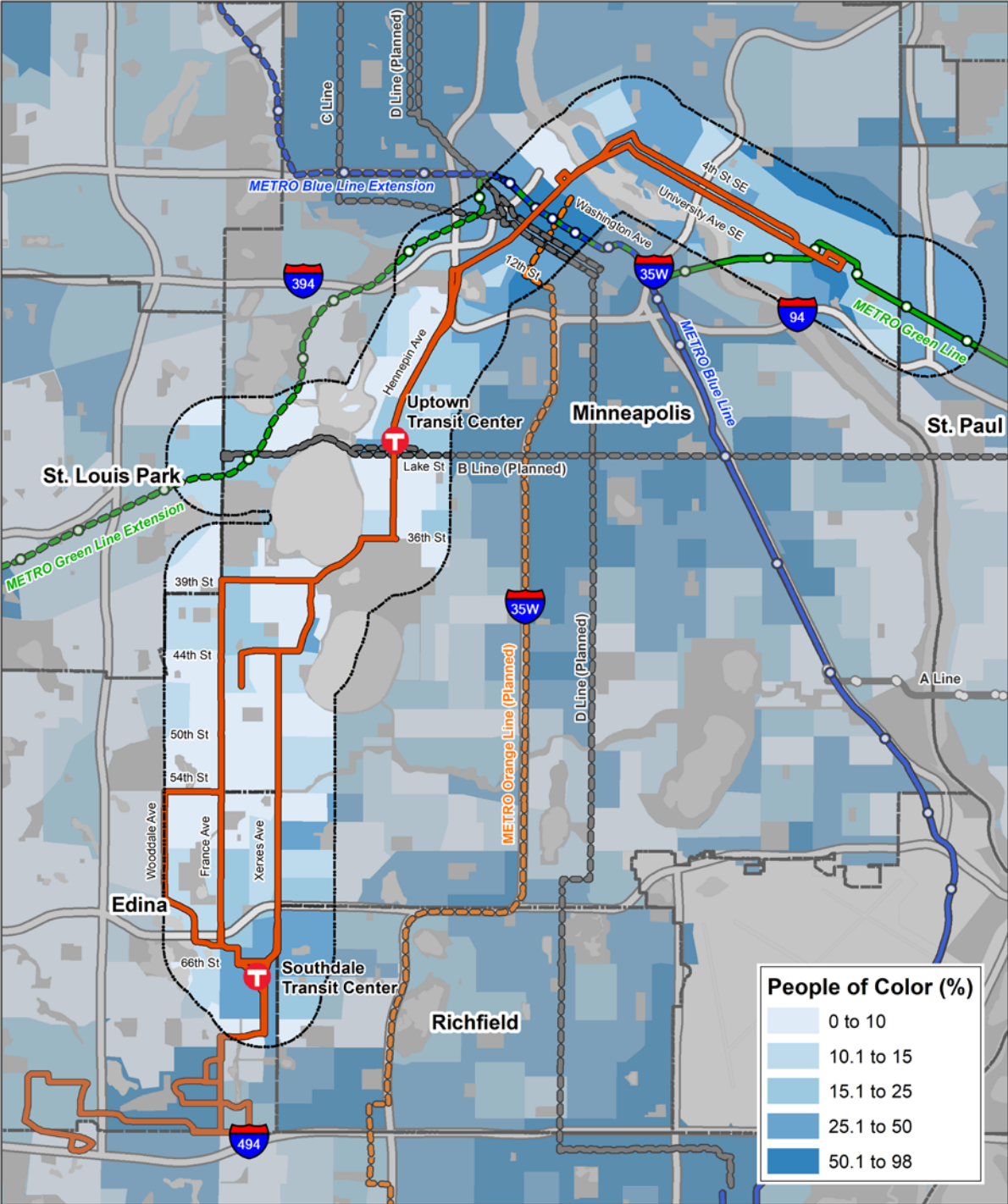


Figure 6: Median Household Income

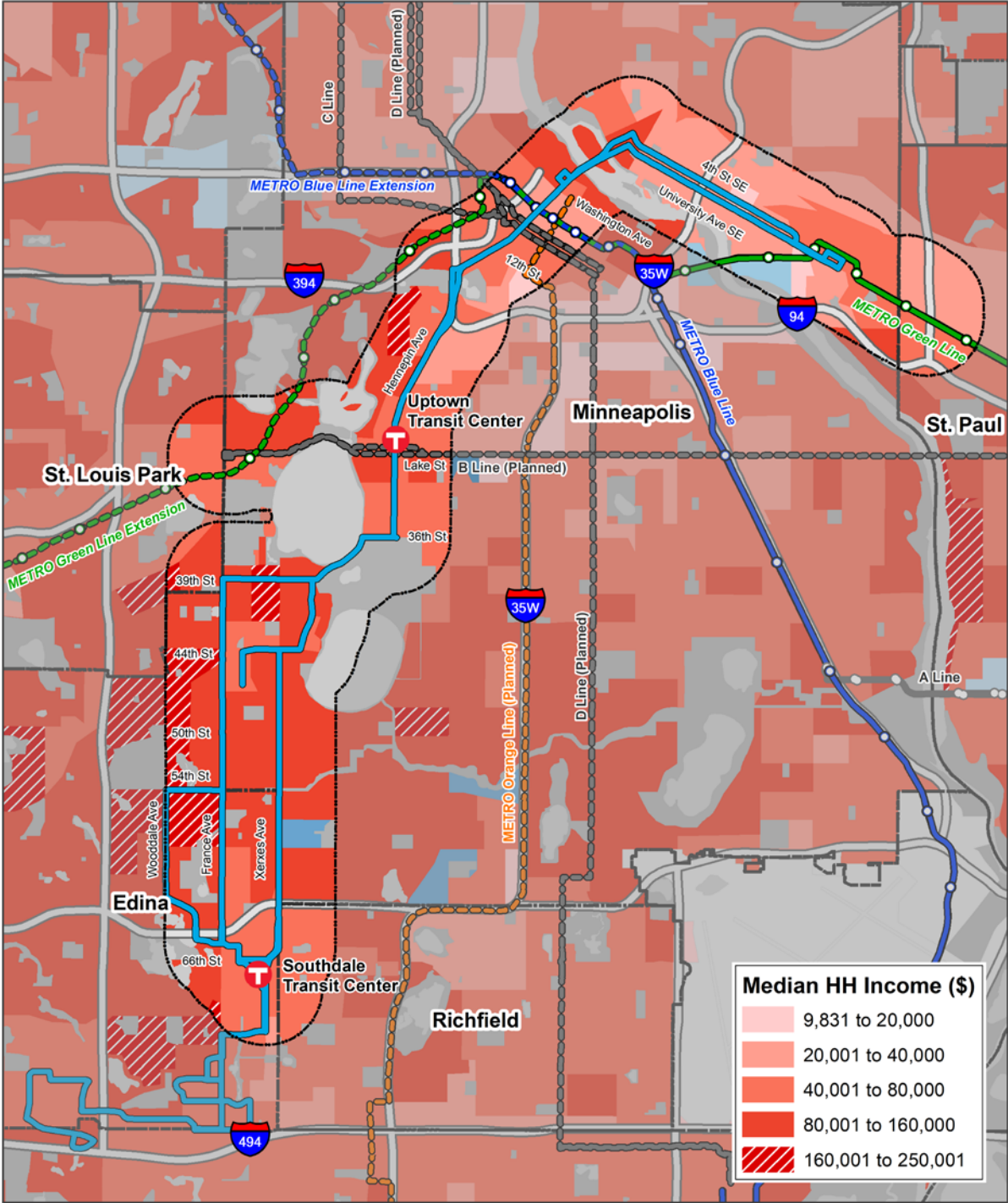


Figure 7: Percent of Households Without a Car

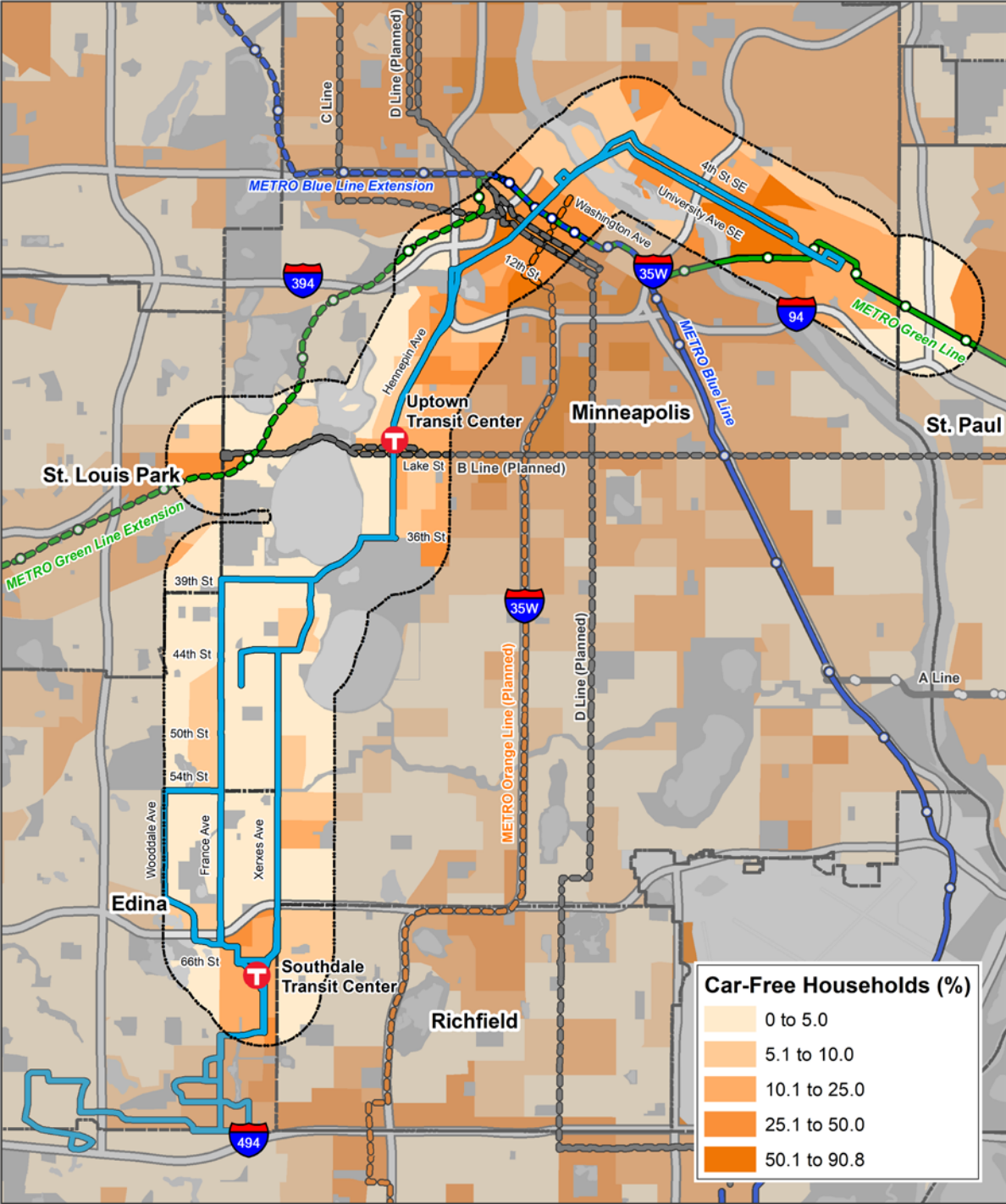


Figure 8: Percent of Population Under 16 or Over 65

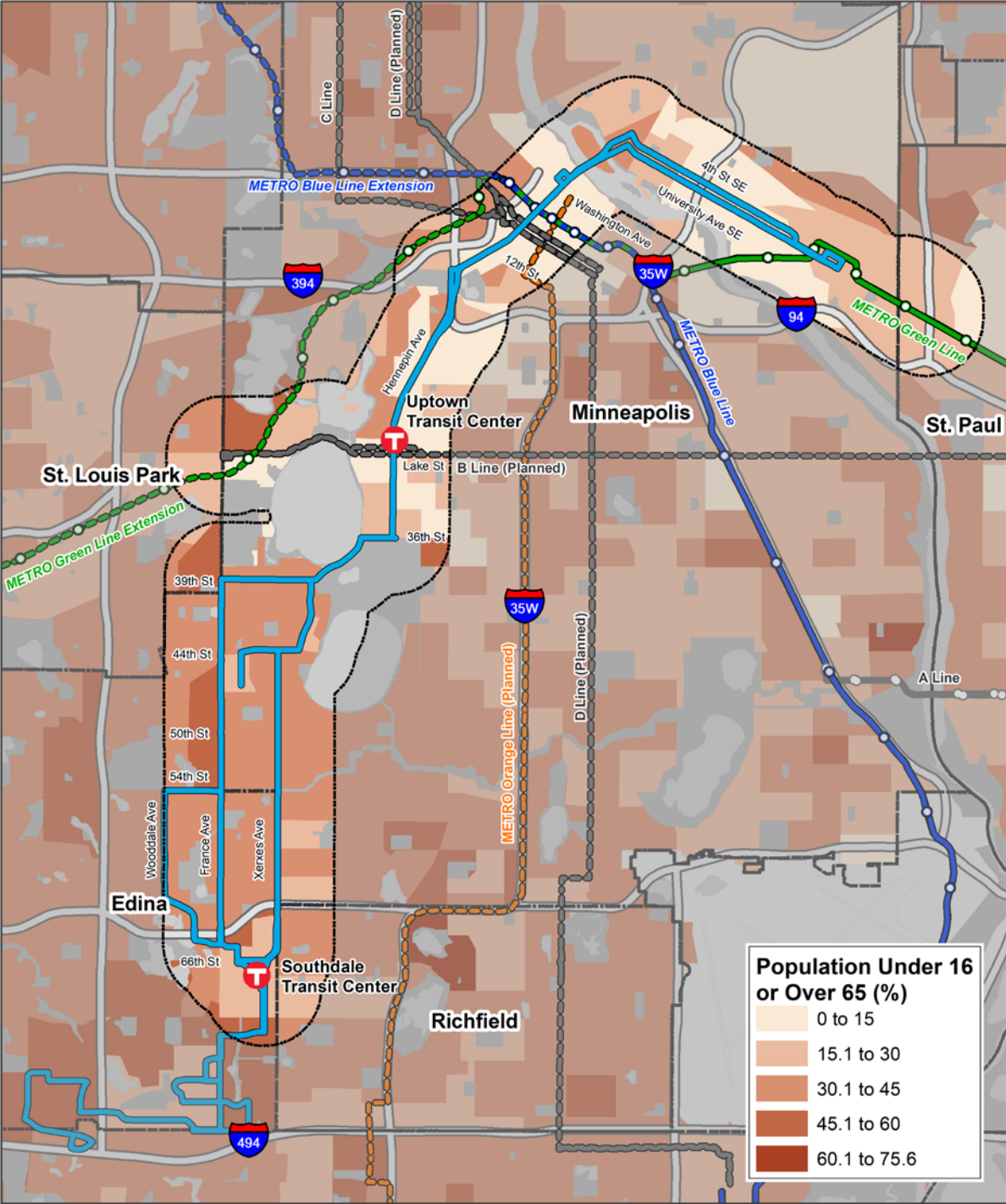
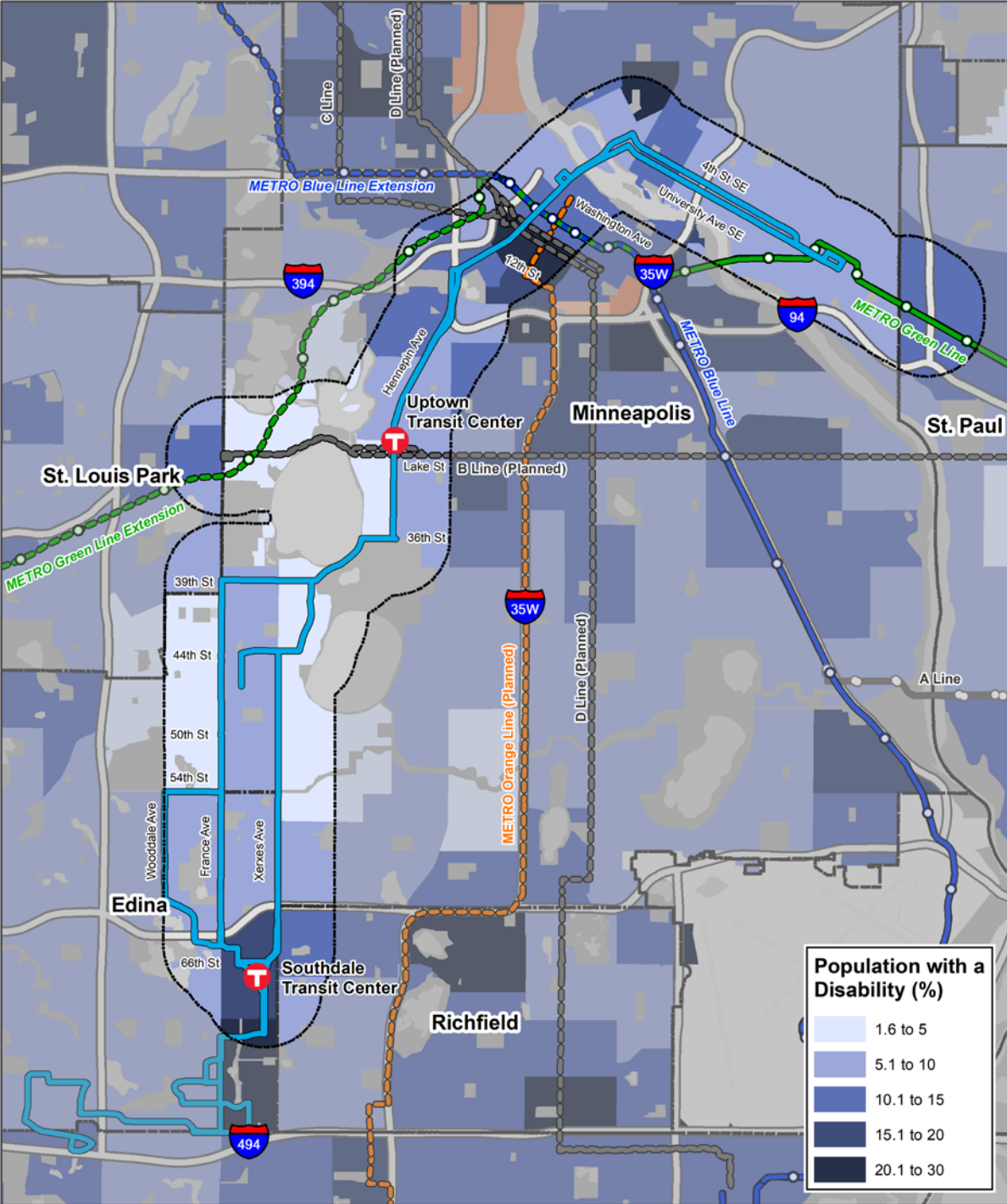


Figure 9: Percent of Population with Any Disability



Employment Characteristics

Low-Wage Worker and Low-Wage Job Density

As shown in Figure 11, workers earning less than \$40,000/year primarily live east of Hennepin Avenue between Franklin Avenue and 36th Street. This area is among the highest concentration of low-wage workers in the metro region.

Smaller concentrations of low-wage workers are located along 4th Street and University Ave in Marcy Holmes, near the METRO Green Line Westgate Station, and along Xerxes Avenue at 44th Street, 56th Street, and 66th Street.

Figure 12 shows the distribution of jobs paying less than \$40,000/year in the study area. Low-wage jobs are primarily located in downtown Minneapolis, the University of Minnesota, and around Southdale Center. Smaller concentrations of low-wage jobs exist around Lake Street and Hennepin Avenue and Central Avenue and University Avenue SE.

Employment Density and Composition

There are approximately 187,000 total jobs in the E Line Corridor study area. As shown in Figure 13, the largest concentrations of jobs are downtown and the University of Minnesota, each with over 40 jobs per acre. Approximately two-thirds (123,615) of the jobs within the study area are located downtown, and an additional 44,393 jobs are located at and around the University of Minnesota.

Southdale Center is the third-largest concentration of jobs in the study area, with over 20 jobs per acre. Other areas with at least 10 jobs per acre include 50th and France, Uptown, and the area around Central Avenue and University.

Table 3 below shows the job distribution by industry within the study area. Driven primarily by downtown Minneapolis, Professional, Scientific, and Technical Services and Finance and Insurance are the top two industry classifications in the corridor. The University of Minnesota and Fairview Southdale Hospital generate most jobs in Educational Services and Health Care and Social Assistance, the third and fourth most represented industries. Retail Trade is concentrated at Southdale Center and Uptown.

Table 3: Study Area Employment Industry Composition

Industry	Count	Percent of total
Professional, Scientific, and Technical Services	33,410	17.87
Finance and Insurance	24,564	13.14
Educational Services	23,264	12.44
Health Care and Social Assistance	17,074	9.13
Accommodation and Food Services	14,579	7.8
Management of Companies and Enterprises	13,898	7.43
Public Administration	10,662	5.7
Retail Trade	10,622	4.73
Administration & Support, Waste Management and Remediation	8,755	4.68
<i>Longitudinal Employer-Household Dynamics, 2015</i>		

Figure 10: Low Wage Worker Density

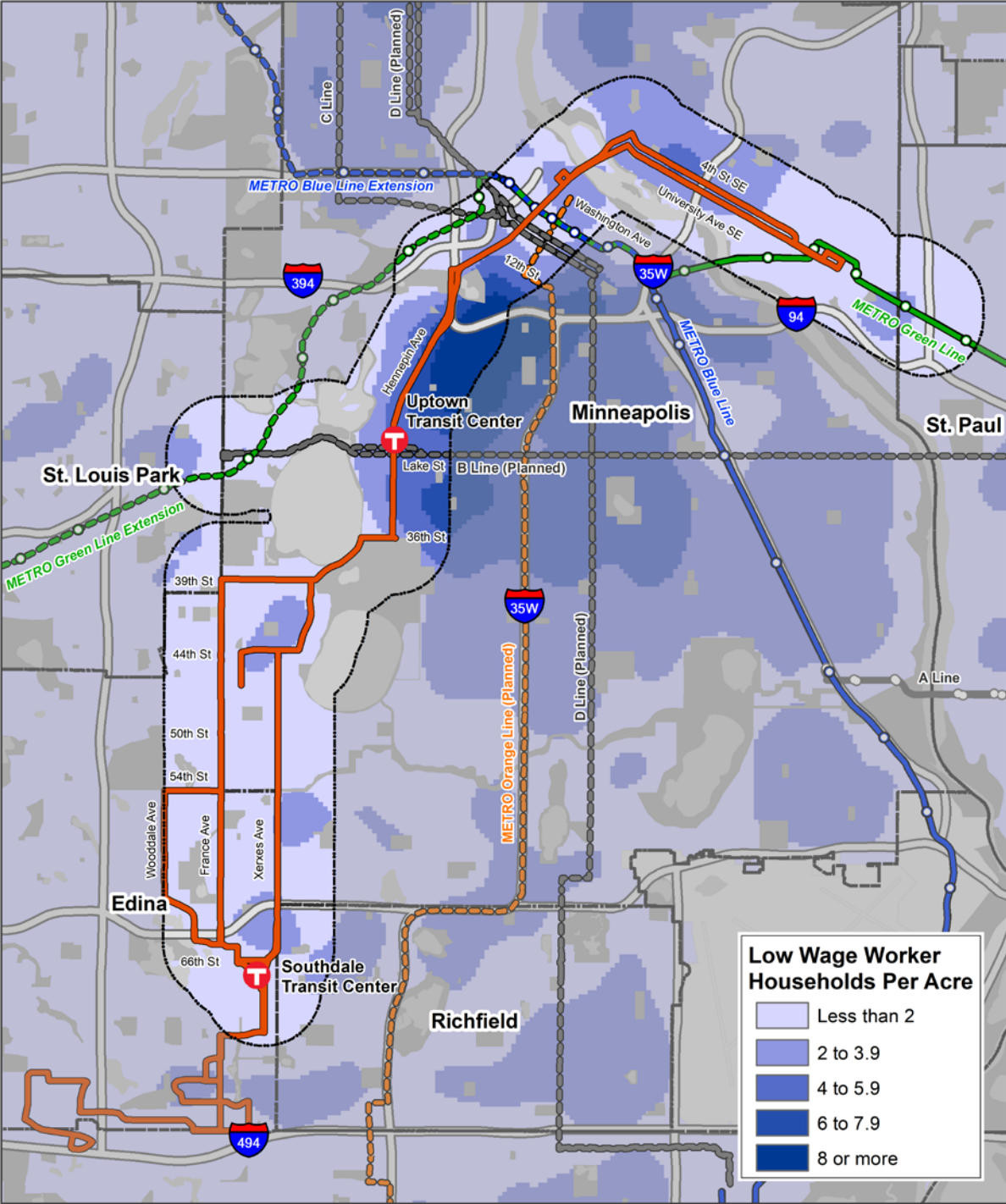


Figure 11: Low Wage Job Density

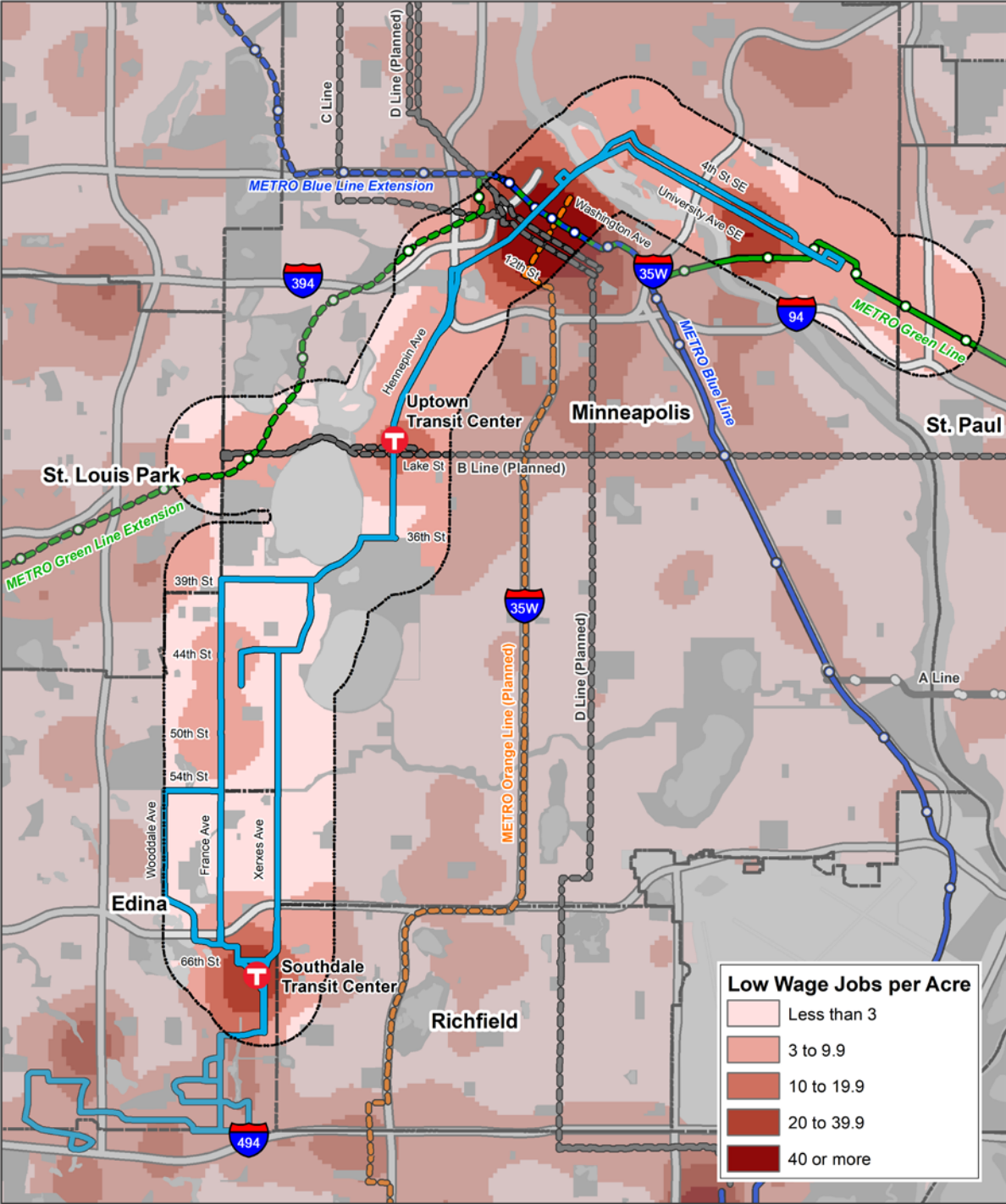
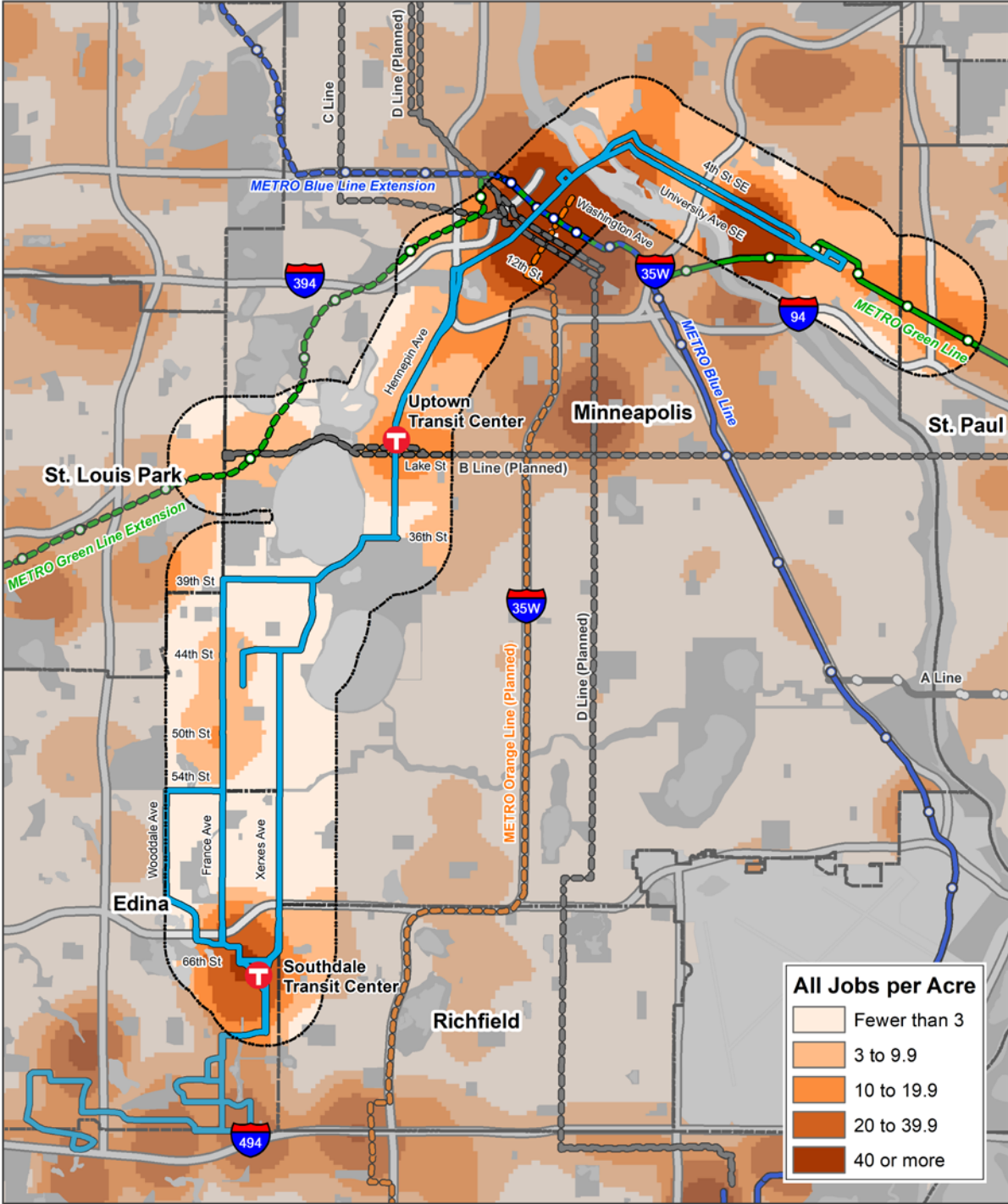


Figure 12: Total Job Density



Transit Service Characteristics

Routes Operating in the E Line Corridor

Six routes operate along significant portions of the E Line corridor (outside of downtown). Figure 14 shows the routes operating in the corridor along with stop-level ridership for each route. The Route 6 is the primary route in the corridor and is planned to be substantially upgraded by the E Line. Other routes in the corridor include Route 2, Route 12, Route 17, Route 23, and Route 114. See Table 4 for route-level performance statistics.

Route 6: U of M – Hennepin – Xerxes / France – Southdale

Route 6 runs from Stadium Village Station at the University of Minnesota along 4th Street and University Avenue SE, through downtown Minneapolis and Uptown via Hennepin Avenue to Southdale Center and the Edina Industrial Park via Xerxes Avenue, France Avenue, and Wooddale Avenue. Over 9,300 people board a Route 6 bus on an average weekday.

Route 2: Franklin Av – Riverside Av – U of M – 8th St E

Route 2 runs from Hennepin Avenue and Franklin Avenue to the University of Minnesota West and East Bank Campus and Marcy Holmes via Franklin Avenue, Riverside Avenue and 4th Street and University Avenue SE. There are approximately 7,100 rides per weekday on Route 2.

Route 17: Minnetonka Blvd – Uptown – Washington St NE

Route 17 runs from Saint Louis Park through Uptown and downtown Minneapolis to Northeast Minneapolis via Minnetonka Boulevard, Hennepin Avenue, Nicollet Mall, Central Avenue and Washington Street NE. Route 17 provides 5,100 weekday rides per day on average.

Route 23: Uptown – 38th – Highland Village

Route 23 averages over 1,700 rides per weekday. It runs from Uptown Minneapolis to the Minnesota Veteran's Home or Highland Park via Hennepin Avenue and 38th Street.

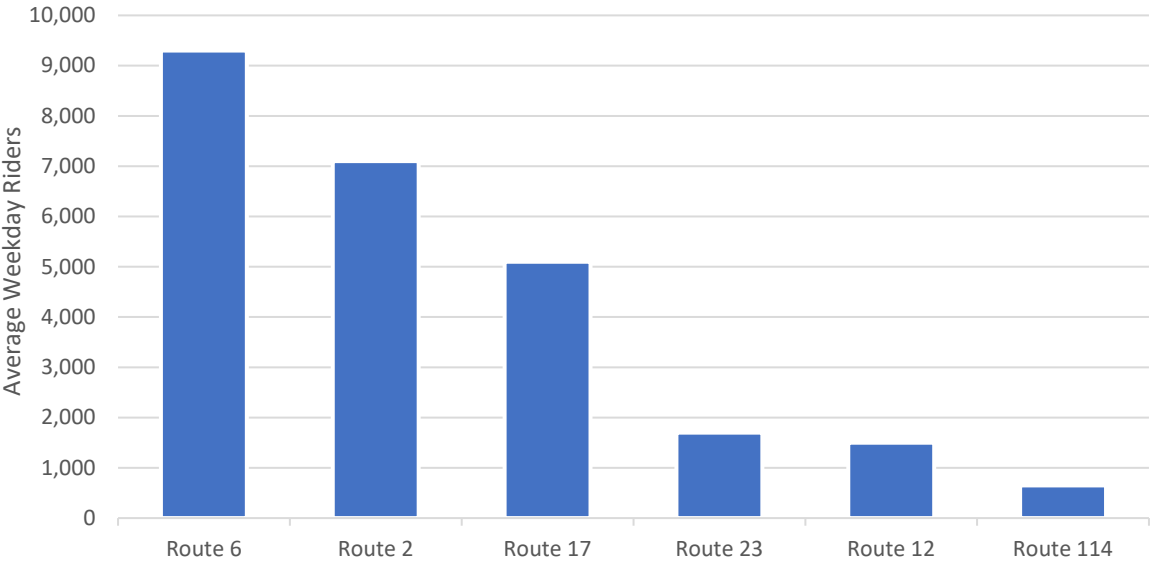
Route 12: Uptown – Excelsior Blvd – Opus

Route 12 operates from downtown Minneapolis to Hopkins and Eden Prairie via Hennepin Avenue and Excelsior Boulevard. It operates in rush hours only and provides limited stop service on Hennepin Avenue in the peak direction. Route 12 provides about 1,500 rides per weekday on average.

Route 114: Excelsior Blvd – Uptown – U of M

Route 114 provides rush hour limited stop service to the University of Minnesota from Uptown and Excelsior Boulevard via Hennepin Avenue and I-94. It provides approximately 650 rides per weekday on average.

Chart 1: Corridor Study Area Route Ridership (Weekday)



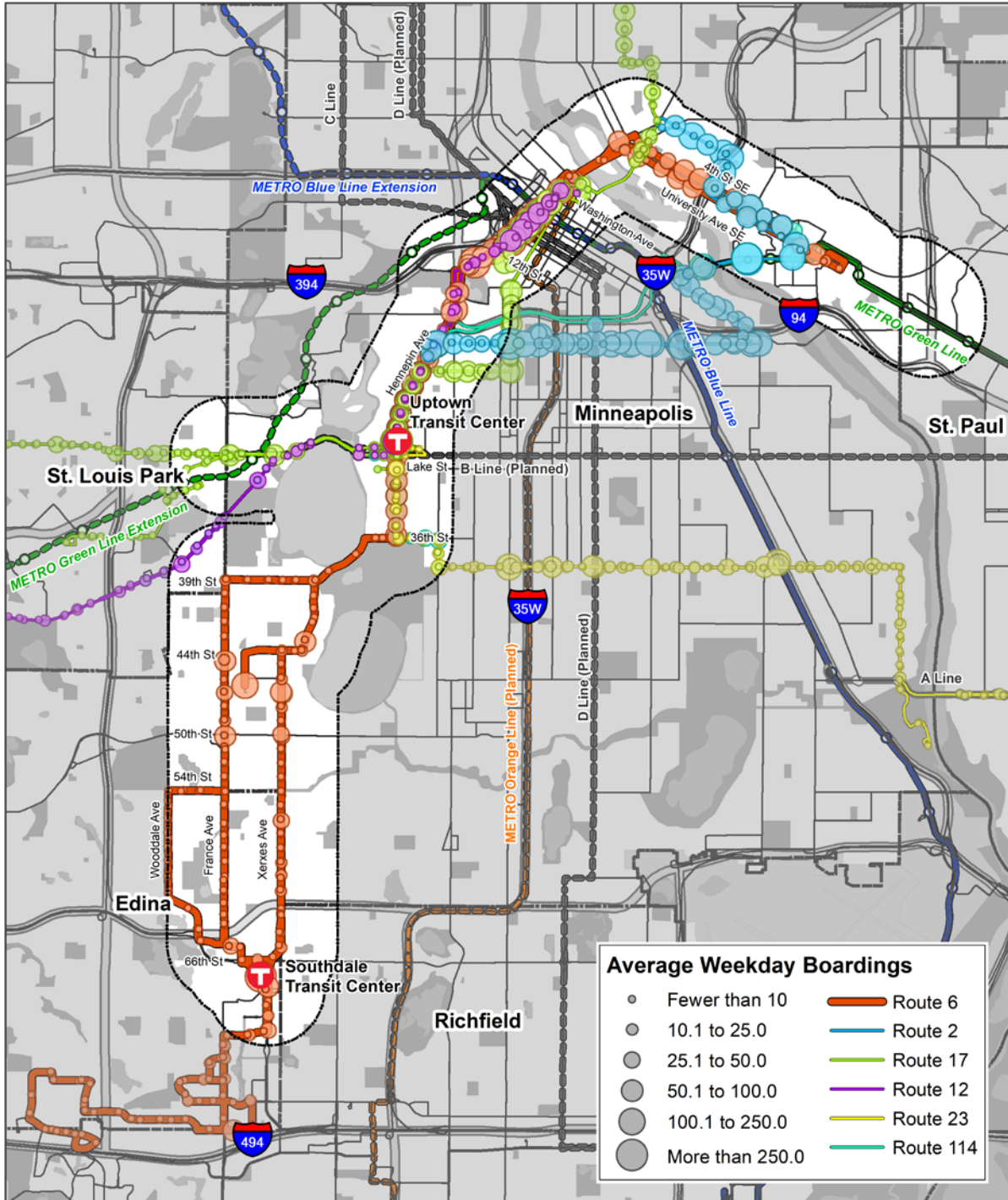
Data are from Metro Transit (Weekday, Fall 2017)

Table 4: Corridor Study Area Route Statistics

	<i>Route 6</i>	<i>Route 2</i>	<i>Route 17</i>	<i>Route 23</i>	<i>Route 12</i>	<i>Route 114</i>
<i>Weekday Rides</i>	9,338	7,158	5,105	1,760	1,498	647
<i>Peak Bus Count</i>	22	11	15	5	9	5
<i>In-Service Hours</i>	223	139	135	56	42	10
<i>Platform Hours</i>	304	178	180	74	58	24
<i>Rides per In-Service Hour</i>	42.1	48.2	37.5	32.0	36.8	63.7

<i>On-Time Performance</i>	80.8%	83.5%	83.9%	81.3%	77.5%	78.5%
<i>Avg Speed (mph)</i>	11.97	9.4	11.3	12.4	13.4	13.5
Data are from Metro Transit (Weekday, Fall 2017)						

Figure 13: Corridor Routes and Ridership



Roadway Characteristics

Roadway characteristics by segment, including current vehicular traffic volumes, number of lanes, on-street parking, bike lanes, and sidewalks, were identified for street segments along potential E Line routings and shown in Table 5

Table 5: Roadway Characteristics

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
University Ave	27th to Oak	10,400-11,000	120	64-70	4 (5 incl. turn lane)	WB only between 23rd & Oak	None	Both sides
University Ave (one-way)	Oak to 11th	12,000	80	40-48	3	Left side between 15th & 13th St only	On-street	Both sides
	11th to 10th	No Data	80	44-52	3	None	On-street	Both sides
	10th to 8th	19,300	80	52	3	Left side between 8th & 10th St only	On-street	Both sides
	8th to Central	20,200	80	44	2	Left side only	On-street	Both sides
	Central to Hennepin	9,500	76	60	4	Both sides	None	Both sides
4th St SE (one-way)	25th to 27th	1,150	80	40	2	Both sides	None	Both sides
	Oak to 10th	9,300-12,500	80	40-48	3	Left side between 15th & 10th St only	On-street	Both sides
	10th to Off-ramp	15,000	80	50	4	None	On-street	Both sides
	Off Ramp to 2nd Ave SE	13,800	80	40	3	Left side only	On-street	Both sides

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
	2nd Ave SE to Central	11,100	80	50	3 (4 incl. turn lane)	None	On-street	Both sides
	Central to 1st Ave NE	5,900	80	52.5	3	Both sides	None	Both sides
1st Ave NE (one-way)	(SB) NE 2nd St to 4th St SE	No Data	80	56	3 (one-way)	None	None	Both sides
	(SB) NE Main St to NE 2nd St	No Data	100	76	4 (5 incl. turn lane)	None	None	Both sides
	(SB) 1st St N to NE Main St	No Data	100	76	4 (5 incl. turn lane)	None	On-street	SB only
Hennepin Ave (one-way)	(NB) 2nd St SE to University Ave SE	24,300	80	60	3 (one-way)	Both sides	None	Both sides
	(NB) NE Main St to 2nd St SE	24,300	55 - 130	38 - 100	3 (one-way)	None	None	Both sides
	(NB) 1st St N to NE Main St	24,300	55 - 130	38 - 100	3 (one-way)	None	On-street	NB only
Hennepin Ave	1st St N to Washington Ave N	26,500	100	76	5 (6 incl. turn lane)	None	On-street	Both sides

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
	Washington to 10th St	18,700-22,700	100	60	4 (5 incl. turn lane)	NB between 6th St & 7th St	Shared	Both sides
	10th St to 16th St N	12,900-24,000	88 (98 near MCTC)	60-72	4 (5 incl. turn lane)	SB between 11th St & Laurel, NB between 16th St & Laurel	Buffer	Both sides
Hennepin Ave (one-way)	(NB) 16th to Oak Grove St	27,500	50 - 60	70 - 85	3 (one-way)	None	Buffer	NB beginning south of 16th St only
	(NB) Oak Grove St to Franklin	31,500	20 - 85	20 - 60	3 (one-way)	NB until overpass	Off-street	NB only
Dunwoody Blvd	(SB) 16th to Lyndale	31,500	150	110	3 (one-way)	None	On-street SB only	Both sides
Lyndale/ Hennepin Ave	(SB) Dunwoody to Franklin	30,500	80	55	3 (one-way)	None	None	SB only
Hennepin Ave	Franklin to Lake	16,500 - 26,500	88	60	4	Both sides	None	Both sides
	Lake to 36th	6,600 - 10,700	66	44	2	Both sides between 31st St & 36th St	On-street	Both sides

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
Lagoon Ave	Hennepin to Knox	14,600	60	44	3 (one-way)	Yes (except library)	None	Both sides
W Lake St	Hennepin to Knox	15,100	80	60	3 (one-way)	Both sides	None	Both sides
	Knox to Excelsior/W lake	33,500	110-120	80-100	8	None	None	Both sides
	Excelsior/W Lake to France Ave	20,500 - 21,900	80 - 95	55 - 80	6	None	None	Both sides
36th St	Hennepin to Richfield	10,500	72	50	2 (3 incl. turn lane)	WB only	Two-way protected, south side	Both sides
Richfield Rd	36th to 39th	7,500 - 10,600	66	36	2	SB only	On street between 36th & William Berry	Both sides
39th St	Richfield to France	2,900 - 5,100	60	32	2	None	None	Both sides
Sheridan	39th to 44th	5,700	60	32	2	NB only	Shared	Both sides
44th St	Sheridan to Xerxes	8,100	80	36	2	EB only	Shared	Both sides

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
Xerxes Ave	44th to Hwy 62	5,700-8,900	60	40	2	Both sides	None	Both sides
	Hwy 62 to 65th	13,200 - 20,200	120	88	4 (5 incl. turn lane)	Both sides	None	Both sides
Xerxes/ York Ave	65th to Southdale	17,600 - 20,200	100	80	6 (7 incl. turn lane)	None	None	NB between 66th and 65th only
France Ave	39th to 42nd	9,600 - 11,200	45	40	2	NB only	None	NB only
	42nd to 50th St	9,600-11,200	54-60	44-48	2 (3 incl. turn lane)	NB only between 42nd & Market St, both sides to 50th	None	Both sides
	50th to 62nd St	10,000-16,600	65	45	2 (3 incl. turn lane)	Both sides	None	Both sides between 50th St & Fuller, SB only to 62nd St
	62nd to Hwy 62	16,600	65	45	2-4	Both sides	None	SB only
	Hwy 62 to 65th	23,500	110	90	6	None	None	SB only
	65th St	France to Drew	4,600	60	42	4	None	None

Roadway	Segment (North to South)	Traffic Volume (AADT)	ROW Width (feet)	Roadway Width (feet)	Number of lanes	Parking	Bike Lanes	Sidewalks
Drew	65th to 66th	No Data	60	45	2 (3 incl. turn lane)	None	None	SB only
66th St	Drew to York	No Data	120	80	6 (8 incl. turn lane)	None	None	WB only
York	66th to Southdale	No Data	100	84	5 (6 incl. turn lane)	None	None	NB only

Initial E Line Alignment Alternatives

Based on existing population, employment, and existing transit ridership and route patterns in the corridor, seven initial alignment alternatives have been identified for the southern end of the corridor and two initial alignment alternatives have been identified for the northern end of the corridor.

Northern E Line Alignment Alternatives

Alternative 1: End in downtown Minneapolis

The first alternative on the northern end of the E Line ends in downtown Minneapolis near Washington Avenue where a significant portion of the current Route 6 service ends today. This alternative corresponds with the initial corridor definition including in the *2012 Arterial Transitway Corridors Study*.

Alternative 2: Serve 4th Street and University Avenue SE

The second northern end alternative continues through downtown along the current Route 6U routing to serve 4th Street SE and University Avenue SE. This alternative would end either at the current Route 6U terminal at 27th Street and University, connecting to the METRO Green Line Stadium Village Station, or continue farther east on University Avenue to Westgate Station.

Southern E Line Alignment Alternatives

Alternative 1: End at 50th St and France Ave via 44th St

The first alternative on the southern end of the E Line corridor ends at 50th Street and France Avenue extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave and 44th St.

Alternative 2: End at 50th St and France Ave via 50th St

The second alternative on the southern end of the E Line corridor ends at 50th Street and France Avenue extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave, Xerxes Ave, and 50th St.

Alternative 3: End at 50th St and Xerxes Ave via Xerxes Ave

The third alternative on the southern end of the E Line corridor ends at 50th Street and Xerxes Avenue extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave, and Xerxes Ave.

Alternative 4: End at Southdale Transit Center via 50th St and France Ave

The fourth alternative on the southern end of the E Line corridor ends at Southdale Transit Center extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave, Xerxes Ave, 50th St and France Ave.

Alternative 5: End at Southdale Transit Center via 44th St and France Ave

The fifth alternative on the southern end of the E Line corridor ends at Southdale Transit Center extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave, Xerxes Ave, 44th St and France Ave.

Alternative 6: End at Southdale Transit Center via Xerxes Ave

The sixth alternative on the southern end of the E Line corridor ends at Southdale Transit Center extending from the known segment end at Lake Street via Hennepin Ave, 36th St, the chain of lakes area, Sheridan Ave, and Xerxes Ave.

Alternative 7: End at the future METRO Green Line West Lake Street Station

The seventh alternative on the southern end of the E Line corridor ends at the future METRO Green Line West Lake Street Station extending from the known segment on Lake Street via West Lake Street. This alternative corresponds with the initial corridor definition included in the 2012 Arterial Transitway Corridors Study.

Next Steps

The alternatives identified in this document will be screened based on evaluation criteria and project goals developed by Metro Transit in coordination with the Community Advisory Committee, Technical Advisory Committee, and additional public feedback. The evaluation and alignments recommended for additional study will be documented in Technical Memo #2.