

# East Metro Transit Network Opportunities



For  
**East Metro**  
STRONG

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# 1

## Introduction

The Twin Cities and the East Metro have long understood the need for a high-quality transit system to connect people with jobs, education, shopping, and recreation. Elected officials and community leaders have worked hard to fund and build better transit like the Green Line and Saint Paul Union Depot. These serve existing riders better and are attracting new riders in record numbers. The proposed Gold Line, Riverview, and Rush Line transitways all have approved Locally Preferred Alternatives and are moving ahead.

### Need to Evaluate the East Metro Transit Network

Effective transit, though, works as a network, and the rest of the network has not received the attention that new and planned transitways have. Over 70% of Metro Transit's ridership is on bus routes. Many of these routes date back a century to streetcar routes, and while the network has been expanded and individual routes have been adjusted, the overall system structure still reflects earlier development patterns and trip needs. Much of the system is infrequent and thus inconvenient to people, and many of the routes are complex and difficult to understand.

Now is the time to take a new look at the bus network. Ridership fell by 5% on the local bus network and 7% on the express network from 2017 to 2018, even as rail and Bus Rapid Transit ridership increased by 2% and 4%, respectively.

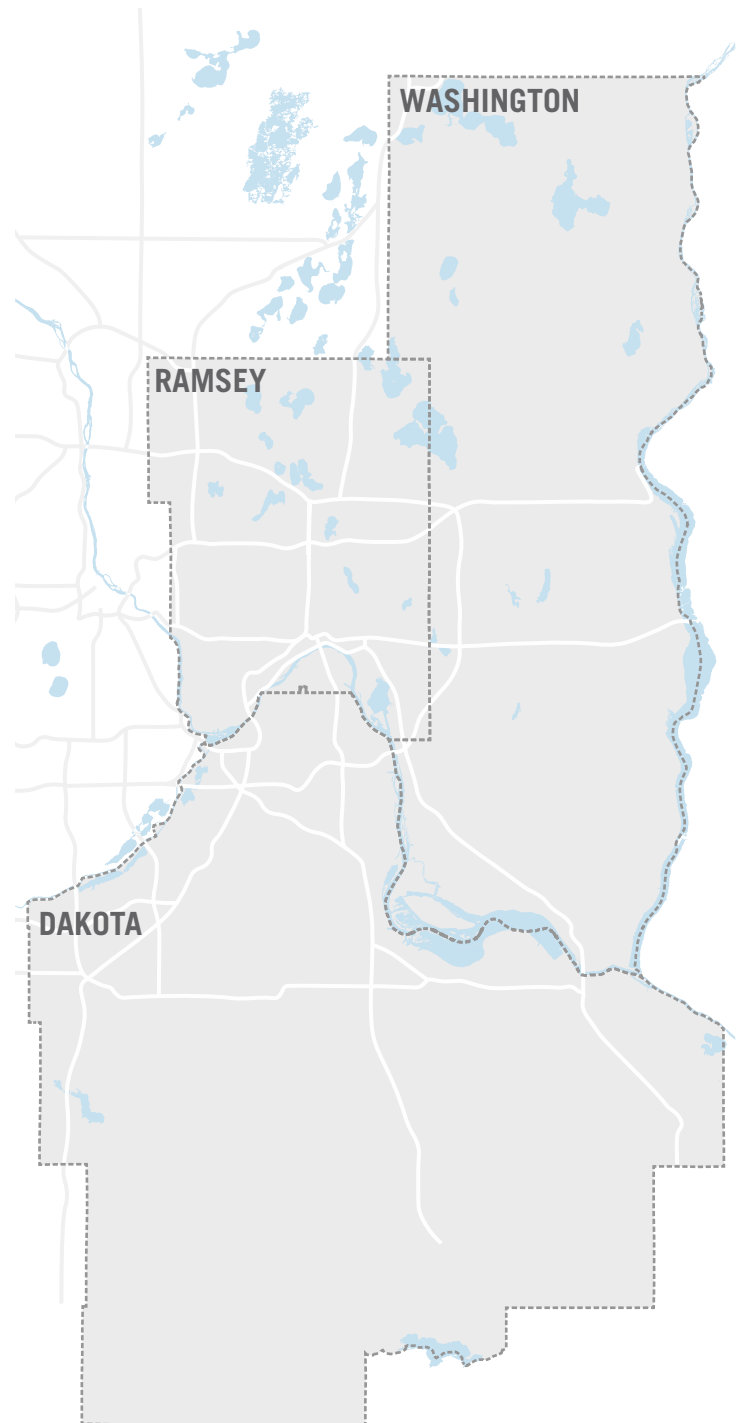
Regions that have taken a new look at their networks have seen increases in ridership and user satisfaction. While every region is different, and Metro Transit has made network adjustments that other regions had not always made before beginning their re-examinations, now is a good time to ask what opportunities are available to improve regional connections and service for East Metro residents and employers.

### Opportunities to Improve Service in the East Metro

The board of East Metro Strong, who represent a variety of stakeholders on the east side of the Twin Cities, initiated this work to understand what improvements in the transit network might be worth further exploration. In April 2018, East Metro Strong held a stakeholder workshop to analyze existing conditions and begin a conversation on transit-related opportunities for the East Metro in particular.

No East Metro jurisdiction or employer can implement a transit project by itself. Any changes to the network or capital improvements will need to be led by Metro Transit, the Metropolitan Council, and/or other public entities like cities and counties. Before those entities make changes, they will need to get public input. East Metro Strong recognizes that it does not represent all stakeholders. Decisions about transit need to be made with the full input of everyone affected, including current users and the communities most in need of improved transit.

East Metro Region



Thus, this effort is a first step, describing possibilities in order to support a larger public discussion. This report does not make recommendations. This report:

- Analyzes current conditions
- In response to those conditions, describes options that can be further evaluated and presented to the public, to see which are worthwhile, and to prompt a discussion that will surely identify additional ideas.

## Structure of this Report

### Existing Conditions

This study builds on the work presented at the April 2018 workshop. For the convenience of readers, much of the previous “Existing Conditions Report” is included here in Section 3: Existing Conditions. This includes a look at the current transit network in the East Metro region to see how it aligns with population and employment density. It is based on publicly available data (including Metro Transit’s GIS files). A special thank you to Metro Transit for making available these and other resources and data.

The existing conditions review found *significant opportunities for transit improvement in the transit network*. The East Metro has:

- relatively dense residential areas not served by frequent service,
- multiple employment nodes that are hard to reach with the current network, and
- opportunities to leverage new transitways (like the Green Line) as well as future transitways to improve the network.

Next, the report analyzes existing conditions with a careful look at the current routes, their all-day frequencies, on-time performance estimates, and walkable access to bus stops.

### Options for Improvement

The report then presents *options* for projects in the East Metro to improve the network. Choosing which set of these options to pursue should involve a broad set of stakeholders. This report does not make specific project recommendations.

Finally, the last section offers potential next steps.

## Opportunities and Next Steps for the East Metro

Metro Transit’s Service Improvement Plan (SIP) identifies bus routes for added service. The opportunities described here overlap the Metro Transit SIP in that they include some new routes. The opportunities described here go beyond the Metro Transit SIP in that:

- Many opportunities can be led by jurisdictions other than Metro Transit.

- Many opportunities can be implemented for less cost than new or additional service.

Overall, the Metro Transit SIP takes the current network *and its overall design* as a given, and asks what additional service can be added to that. The options presented here start from a different perspective.

Metro Transit has shown that improved local bus service within the existing network can build a more useful and efficient network and draw more riders. The A Line bus service has increased ridership in its corridor by 35%. Some of the service improvement on the A Line comes from Metro Transit investment in additional bus frequency. But the reliability and speed improvements are largely a function of investment in improvements other than buses:

- intersection design improvements,
- signal timing improvements, and
- station design improvements.

These kinds of improvements are available on *any* route, with or without additional frequency.

Improving streets, intersections, and bus stops to increase the reliability and speed of local bus routes can *reduce the cost of operating service*, freeing up funds to increase off-peak service or add service elsewhere.

Thus, where other service improvement options start from a place of increasing total operating costs as a means to improved service, these options hold the possibility of reducing some operating costs while improving service.

Even bigger improvements can come from systematically looking at the entire network. Houston did this, redesigning all of its local bus routes, and was able to double the people served by frequent service and increase ridership by deploying existing resources more efficiently, with no significant increase in budget. Houston’s successful redesign, plus a growing awareness of the need for change generally, has led numerous regions of various sizes (larger, smaller, and similar to Minneapolis-Saint Paul) to redesign all or part of their networks (including New York City, Richmond, VA, Austin, TX, Columbus, OH, and Indianapolis, IN). This set of options does not go that far, but offers examples of what such a full re-examination could include.

In sum: the options in this report are offered to support the next level of conversation about how to improve the network in order to:

- better serve current users,
- serve neighborhoods and employers better so that additional people will find it useful and convenient to use Metro Transit, and
- make the area more economically competitive.

# 2

## Process

### Workshop Summary

In April 2018, East Metro Strong held a stakeholder workshop to analyze existing conditions and begin a conversation about what goals might inform work to improve those conditions. The discussion was rich and varied but no consensus was reached on goals.

The Post-it exercise and following discussion revealed that the goals of the stakeholders covered a little of everything, from a large number of frequency-related goals to bridging the suburb-core divide. While some wanted to see an increase in ridership, which would mean increasing service on high-ridership routes and cutting low-ridership ones, others wanted to see more service coverage, which would likely come at the cost of responding to ridership.

The *common goals* were:

- to reduce cars on the streets and
- to increase overall transit usage.

Other conversations centered around

- creating a culture shift to a default use of public transit, at least within the core area;
- increasing safety at bus stops;
- maintaining affordability of the system;
- increasing user-friendliness;
- increasing reliability; and
- supporting multi-modal transportation.

Workshop participants identified ways in which they would like to see the transit system improve. These were grouped, as much as possible, into clusters of related goals.

### Stakeholder Post-it Notes on Network's Weaknesses





# 3

## Existing Conditions

### Existing East Metro Development Patterns

The key to successful transit is identifying and then serving nodes and corridors that have the density of population and jobs to support frequent service. Every transit stop creates a zone roughly ¼-mile in radius within which people are under a 5-minute walk of service. The more people there are in this zone, the more potential ridership there is. The higher the ridership, the more service can be justified. More service, in turn, drives even more ridership.

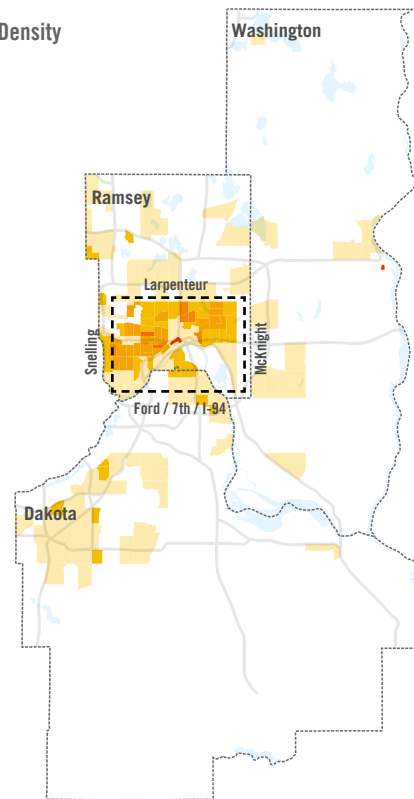
In the East Metro area, the densest population is within and near the City of Saint Paul. A continuous area bordered by McKnight Road to the east, Larpenteur Avenue to the north, Snelling Avenue and the Mississippi River to the west, and Ford Parkway, 7<sup>th</sup> Street, and I-94 to the south (as indicated on the maps), has population densities generally over 5,000 people per square mile, with large areas above 10,000. There are also areas of similar density in West St. Paul and South St. Paul. Most of these areas also have street grids, which create direct paths to transit stops, increasing the number of people and destinations within a 5-minute walk.

Employment density is as important as population density. Regardless of whether a transit rider walks from home to transit or uses a park-and-ride lot, he or she must be able to walk to their job on the other end. Downtown Saint Paul is the largest employment center in the East Metro region, but it is not the only one. Several other areas – the Midway Area, Grand Avenue, Energy Park, and Rosedale Center – have similar employment densities. There are also multiple suburban job centers, including the 3M campus area in Maplewood and a series of nodes around the I-694 and I-494 loops, several of which have more than 10,000 jobs.

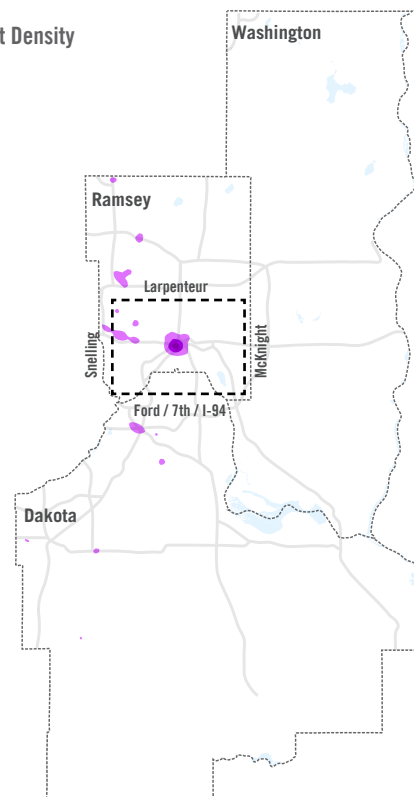
Downtown Saint Paul has 86,000 jobs. This is not nearly as big as downtown Minneapolis – which has 232,000 – but it is one of the 60 largest employment hubs in the entire United States, and one of the 30 densest<sup>1</sup>. It is roughly the same size as downtown Charlotte and Salt Lake City, both of which have major light rail systems centered on them.

<sup>1</sup> DOWNTOWN REBIRTH: DOCUMENTING THE LIVE-WORK DYNAMIC IN 21ST CENTURY U.S. CITIES Prepared for the International Downtown Association by the Philadelphia Center City District, Paul R. Levy and Lauren M. Gilchrist, 2014, (<http://definingdowntown.org>)

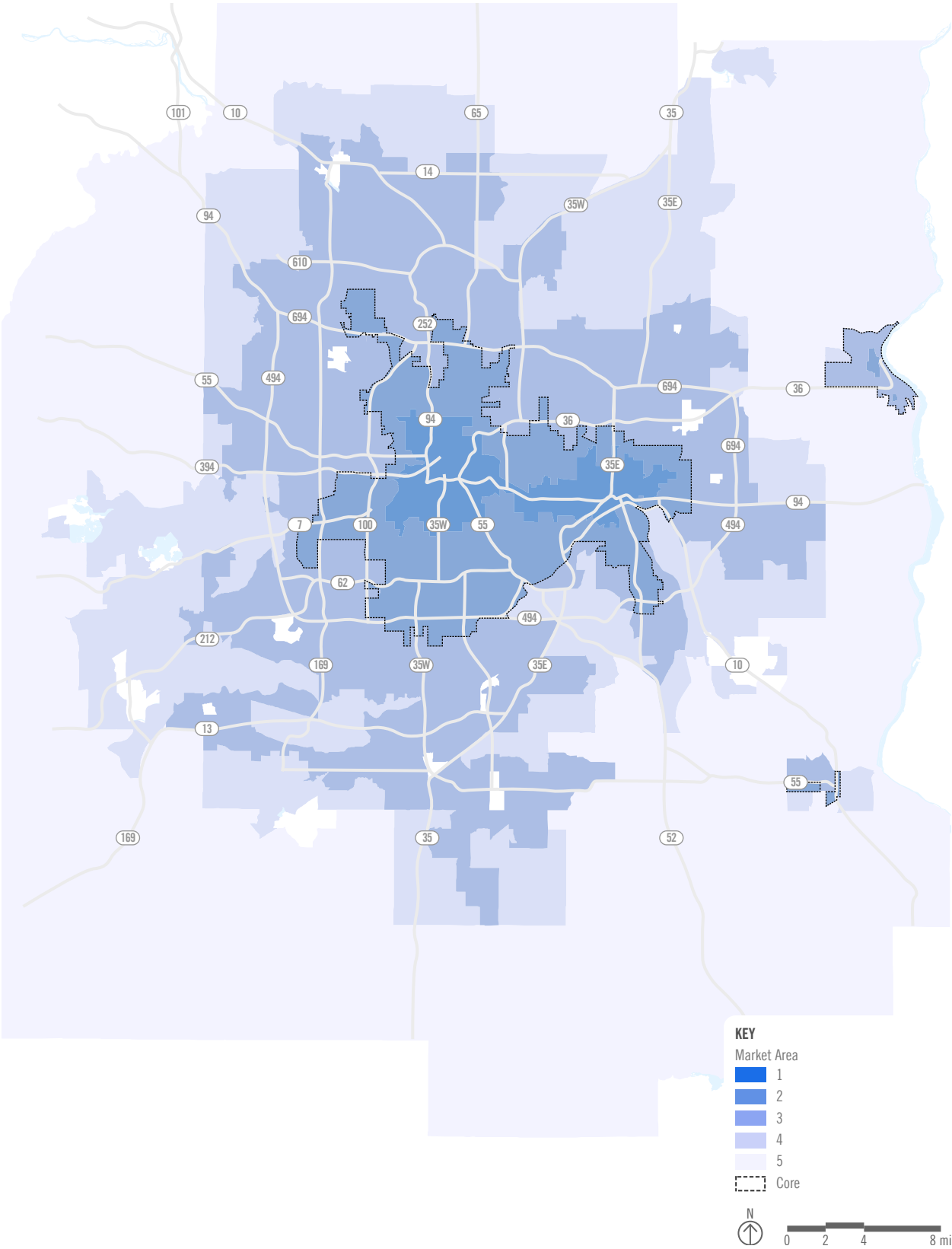
Population Density



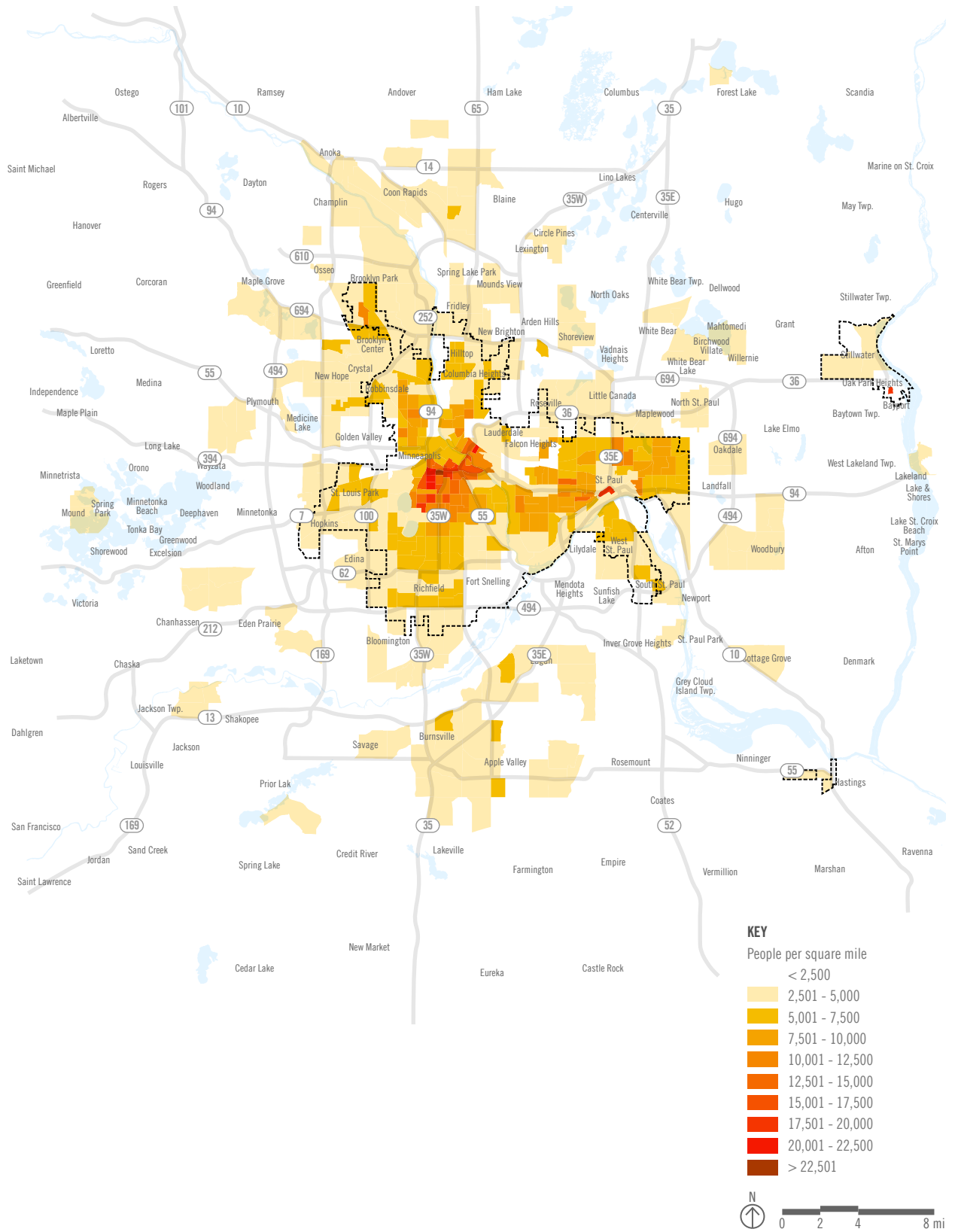
Employment Density



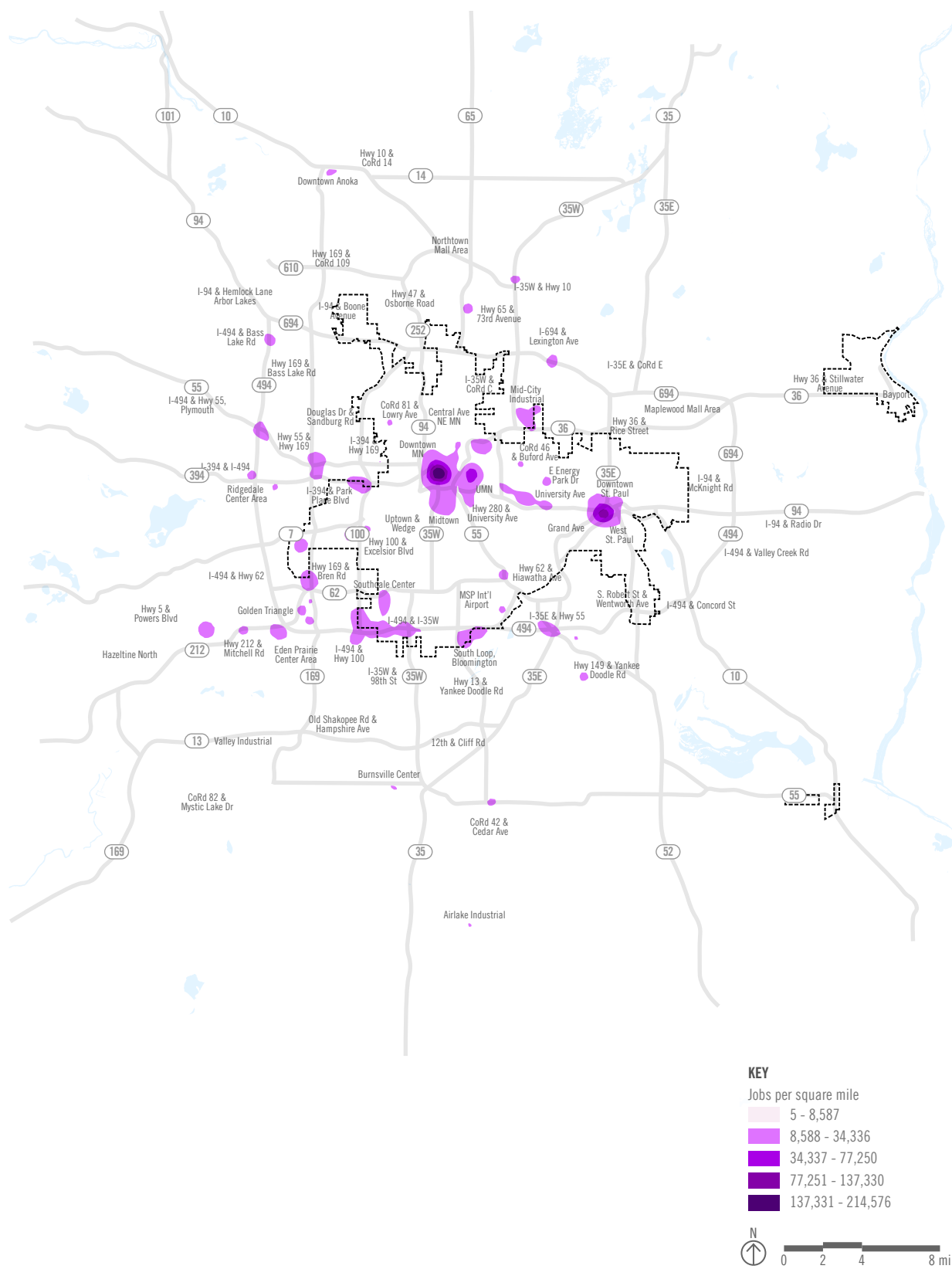
Transit Market Areas Defined by Metropolitan Council



## Population Density

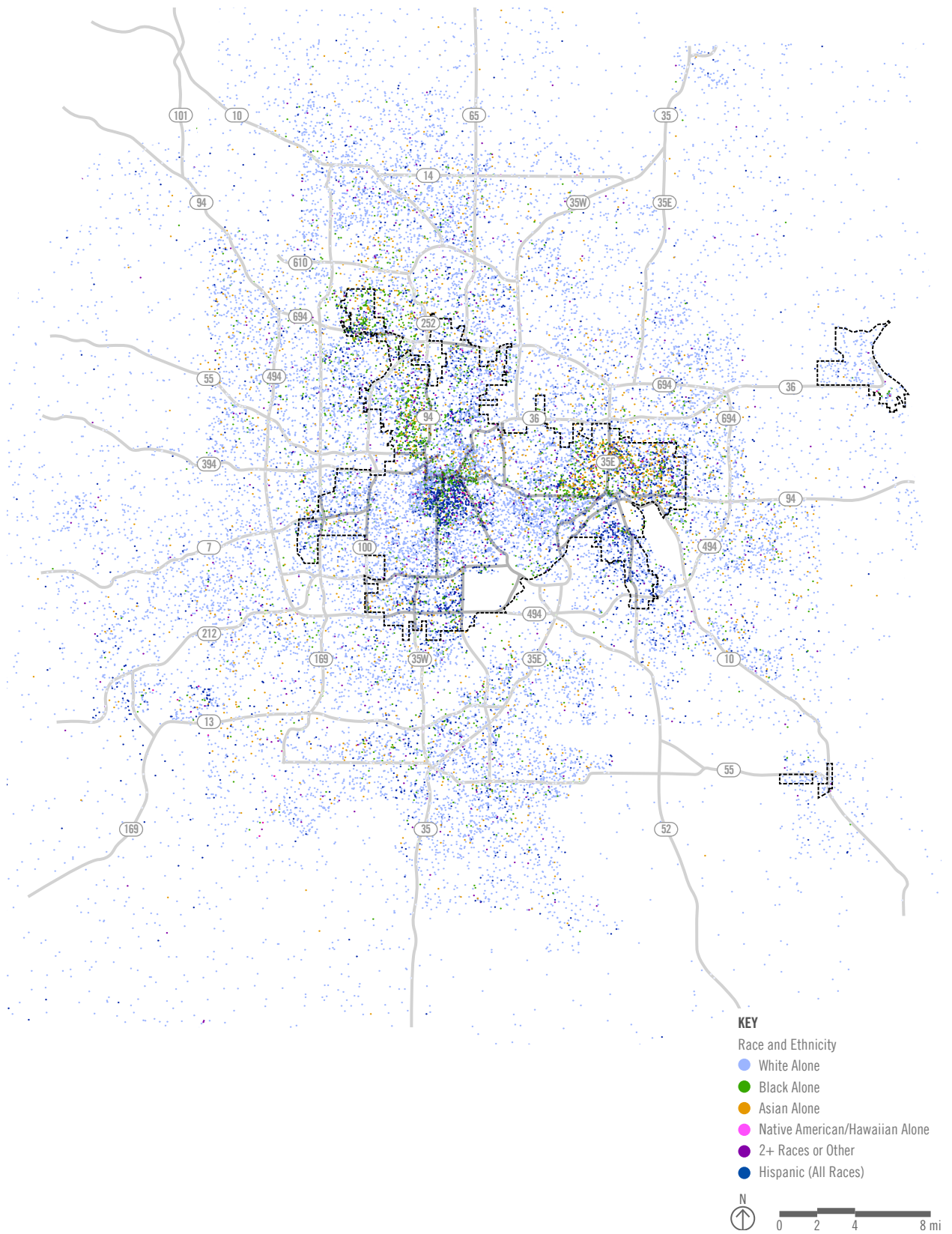


# Employment Density

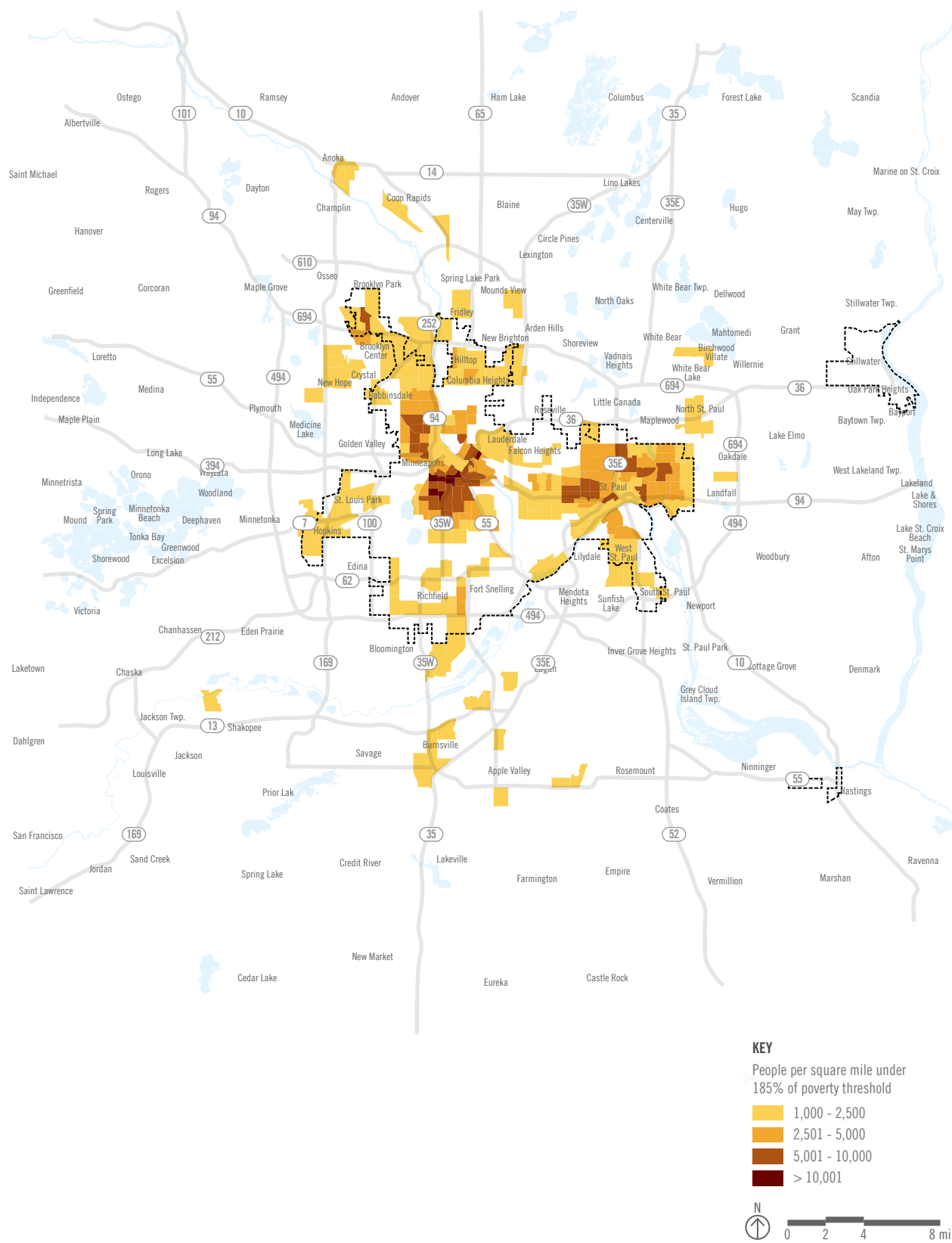




## Race



## Concentrated Areas of Poverty



## Existing Transit Network

While it is easy to break down the transit network by mode, it is more useful to see the network as three interconnected systems.

### Core Local

The Core Local Network is designed to serve all kinds of trips – home to work, home to school, shopping, errands, and leisure trips – 7 days a week. It operates in both directions from early morning to late evening. Stops are spaced fairly closely – every few blocks to every ¼-mile. Service typically operates every 15 minutes during peak hours and every 15 to 30 minutes at other times. Generally, service that operates every 15 minutes or better allows people to ride without worrying about schedules or advance planning; less frequent service requires more planning.

The Core Local Network in the East Metro includes a rail line (the Green Line), an arterial BRT service (the A Line), three local bus routes that are designated part of the High Frequency Service Network, and another nine local bus routes. Much of this service is within the city of Saint Paul, but several routes extend into northern Ramsey County, Washington County, and Dakota County.

The Core Local Network provides transit that is useful enough that it can be a desirable alternative to driving for all daily trips for some people.

### Coverage Local

The Coverage Local Network extends the Core Network into areas that have lower transit demand. Due to limited resources, this service generally operates only hourly for much of the day. Service at rare intervals is critically important to many, but unlikely to attract substantial numbers of people.<sup>1</sup>

The Coverage Local Network consists entirely of bus routes. Some fill in areas between Core Local routes while others extend further into low-density suburban areas.

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<sup>1</sup> This class of routes raises the debate over ‘choice’ and ‘dependent’ riders, a debate that is beyond the scope of this report to engage in. Suffice it to say that the majority of “dependent” riders use Core Local services and benefit from its availability and frequency. Furthermore, everyone has choices – if service is bad enough someone who can’t afford a car may find a different job, carpool with a coworker, or take on a risky subprime car loan. All transit riders benefit from better service, and none should be taken for granted. The better the service, the more likely that people will choose transit, and choose not to spend the money to drive and add to regional congestion. The positive ripple effects of such choices include greater personal and regional wealth, less regional congestion and road costs, greater regional labor mobility, and greater regional labor availability.

### Express

The Express Network is tailored to long-distance commuters. It generally operates during peak hours in peak directions only. Morning service originates at suburban park-and-rides or in suburban neighborhoods, then uses freeways to make fast trips to job centers. The afternoon trips do the reverse. Some routes have as little as 2 trips in the morning and 2 trips in the afternoon; others may be as frequent as every 10 minutes at peak. Some routes offer mid-day service at lower frequencies and non-peak direction service.

Express service can be provided by buses, by commuter rail (like Northstar in Minneapolis), by BRT, or by light rail. All of the express routes in the East Metro are buses.

Most of the express routes in the East Metro go to or from downtown Saint Paul. A few travel to downtown Minneapolis. Only a handful serve the other employment centers in the East Metro.

### System Connectivity

All three networks should work together. Many coverage riders will make part of their trips on the Core Network. Express riders, too, benefit from connectivity. The local network links the express routes to more jobs on the inner end of the routes. Local routes can also serve as feeders to the express system. Overall, the majority of riders will make a connection from one route to another on their trip<sup>2</sup>.

The transit network in the East Metro is strongly radial. Nearly every route, be it local bus, express bus, or light rail, runs to and from downtown Saint Paul. The downtown area, in particular the 5th, 6th, and Cedar/Wabasha corridors, is not only a major transit destination but a major transfer point.

There are other transfer points outside of downtown Saint Paul. Some are transit centers, like Maplewood Mall and Sun Ray. Others are simply intersections, like University and Snelling, where the Green Line meets the A Line, bus line 16, bus line 21, and bus line 84.

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<sup>2</sup> <https://www.metrotransit.org/Data/Sites/1/media/blog/metro-transit-rider-survey-2014---final.pdf>, p. 96

# 4

## Network Analysis

### Strengths

The Twin Cities generally have a strong and successful transit system. Total transit ridership exceeds that of some significantly larger metropolitan areas. The Green and Blue light rail lines carry 3,200 riders per day per mile, 50% more than Portland and twice that of Salt Lake City or Charlotte. The A Line is nationally regarded as a model for improving bus service on arterials.

For “growing ridership, expanding access, advances in sustainability and overall success in system safety,” Metro Transit was selected as the American Public Transit Association 2016 System of the Year.

Specifically, to the subject of this work, Metro Transit both regularly examines regional needs and its network, and reorients routes especially to serve new investments such as the Green Line and the A Line.

### Weaknesses

However, there are reasons to be concerned. Overall system ridership is down 3% from 2017 to 2018 despite a strong economy. New services, like rail and the A Line, continue to perform well – both increased ridership in this period – but the existing bus network has lost riders each of the last 4 years.

The success of the A Line shows that the fundamental issues with transit in the Twin Cities are not based on mode. Buses and rail alike can perform well and attract new riders. The key is providing high quality service – transit that is frequent, fast, reliable, comfortable, and easy to understand, where people need it.

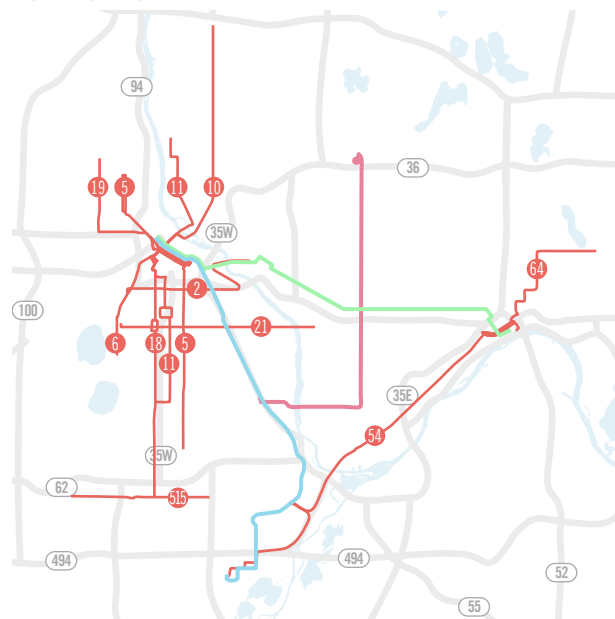
Overlaying transit service onto East Metro population and employment makes several things readily apparent:

#### **The High Frequency network does not serve all the areas of high population density.**

Currently, the only routes on the designated High Frequency Service Network are the 64 to northeast Saint Paul, the 54 along West 7th, the Green Line along University, and the A Line on Snelling Avenue and Ford Parkway. Route 62 along Rice Street also has service roughly every 15 minutes all day but is not designated as part of the High Frequent network. Similarly, dense areas along 3rd Street East, northeast and southeast of downtown Saint Paul, in West St. Paul, and in South St. Paul do not have frequent service. *In general, the East Metro has fewer frequent routes than similarly dense parts of Minneapolis.*

The Metro Transit Service Improvement Plan (SIP), approved in April 2015, addresses this issue by proposing additional service on several existing bus routes. The High Frequency Service Network proposed in the SIP aligns fairly well with population density.

High Frequency Service Network



#### **The High Frequency network does not serve all the areas of high employment density.**

Downtown Saint Paul is connected very well with bus and rail. However, other employment areas are not. Currently, the only areas of dense employment outside of downtown that have frequent service are those along the Green Line and the A Line. Thus, people working in the East Metro outside downtown Saint Paul are unlikely to find good transit options.

The SIP proposes to significantly improve the High Frequency network and adds frequent service to several of these employment centers. However, others are not addressed. These include suburban employment areas like Mendota Heights but also urban ones like the Grand Avenue corridor in Saint Paul.

#### **The Express Network does not serve employment outside downtown.**

The Express Network is focused on downtown Minneapolis and downtown Saint Paul. Other employment centers do not get the same connections. For example, routes 351, 353, 355, and 375 from the Woodbury and Lake Elmo pass within a few hundred feet of the 3M headquarters on their way to Saint Paul, but do not stop. Getting to 3M from either of these suburbs would require taking the bus all the way to Saint Paul, then catching a local bus to 3M, a detour of more than 45 minutes.

The radial network structure forces nearly all riders to connect in downtown Saint Paul.

Nearly every bus route in the East Metro runs into downtown Saint Paul. There are few cross-town routes, and the ones that do exist are often infrequent. At some times of day, the fastest transit route between Little Canada and Maplewood Transit Centers, a 15-minute drive, takes 1 hour and 20 minutes via downtown; the direct bus, the 223, runs only every 90 minutes and not after 6:00 p.m. or on weekdays.



## Off-peak service is inadequate.

Many bus routes run infrequently or not at all mid-day, evenings, and weekends. For example, the Lone Oak Drive area in Eagan is served by two routes, but both are weekday only and none run mid-day or after 6:30 p.m. Employees working late, or in jobs that are not typically 9-to-5, cannot use transit.

## Many routes are confusing.

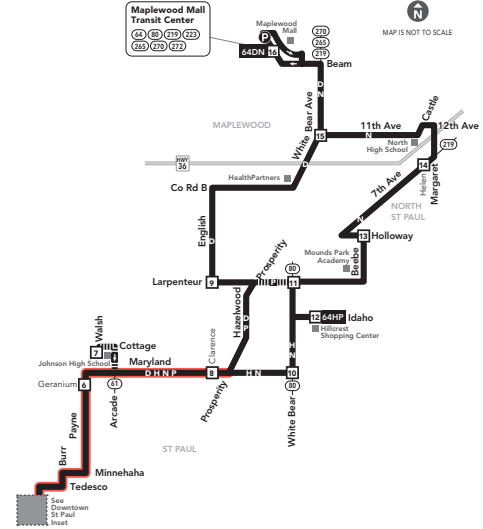
Many Metro Transit bus routes feature a large number of branches and different service patterns. The 64, for example, is actually four different routes – 64H, 64D, 64P, and 64N. The D and N end at Maplewood Mall, while the H and P end at Hillcrest Shopping Center. The D and P turn off of Maryland on Hazelwood, while the H and N continue to White Bear. On one segment of White Bear the N goes south to get to downtown while the H goes north. On top of that, two morning trips and two afternoon trips serve Johnson High School, creating another service pattern that is not given a letter.

## Routes have not evolved efficiently along with cities.

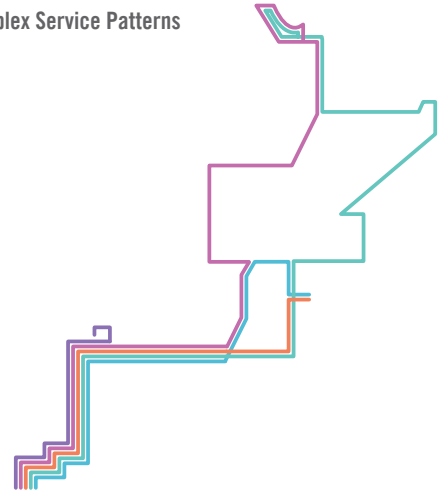
Most transit networks have evolved slowly, adding routes one at a time and occasionally extending or rerouting existing routes. A 1947 streetcar map bears a startling resemblance to today's transit map. The radial network and specific routes have stayed the same over 70 years. The 72 bus, for example, turns from George Street onto Ohio and then Winifred, rather than taking the direct route down George, likely because that's what the #2 streetcar did long ago. In theory, a bus route would be easy to move; in practice, it's easier to change as little as possible.

When systems don't change, but the cities they serve do, transit becomes less useful. The East Metro is a very different place than it was 70 years ago, and in some cases the transit system has not adapted.

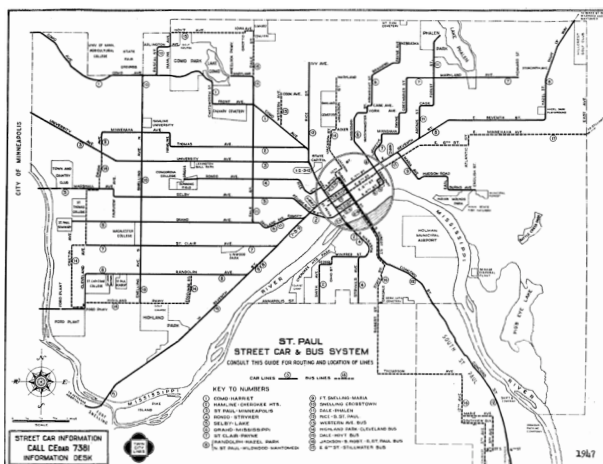
Route 64 Metro Transit Map



Route 64 Complex Service Patterns

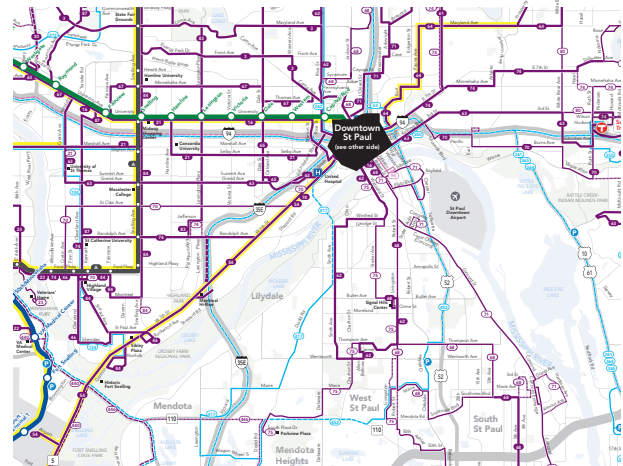


1947 Streetcar System Map



Routes used in 1947.

Current System Map



Many buses today follow the same paths as the 1947 streetcars.

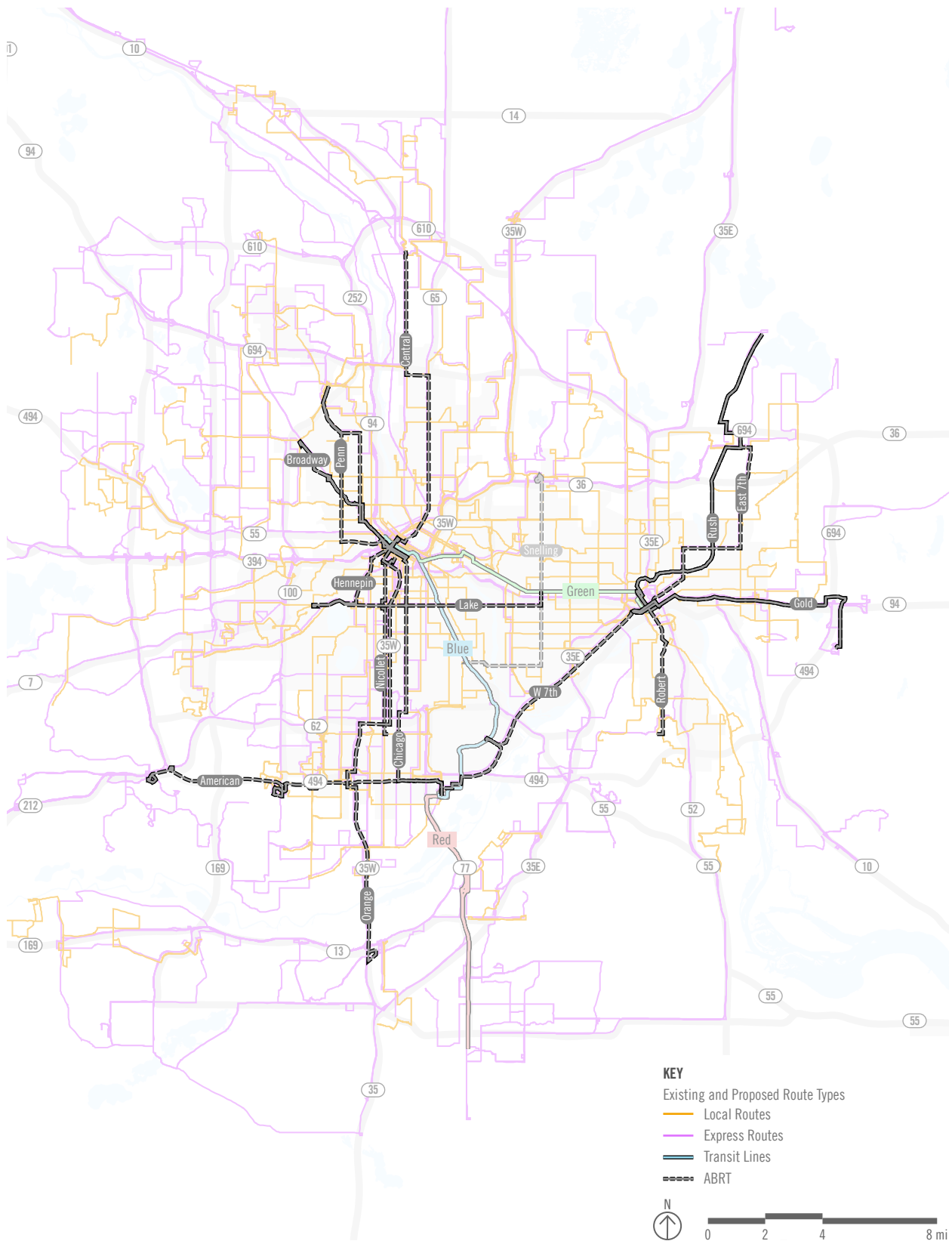
**KEY**

- Existing and Proposed Route Types
- Local Routes
- Express Routes
- Transit Lines
- ABRT

0 2 4 8 m

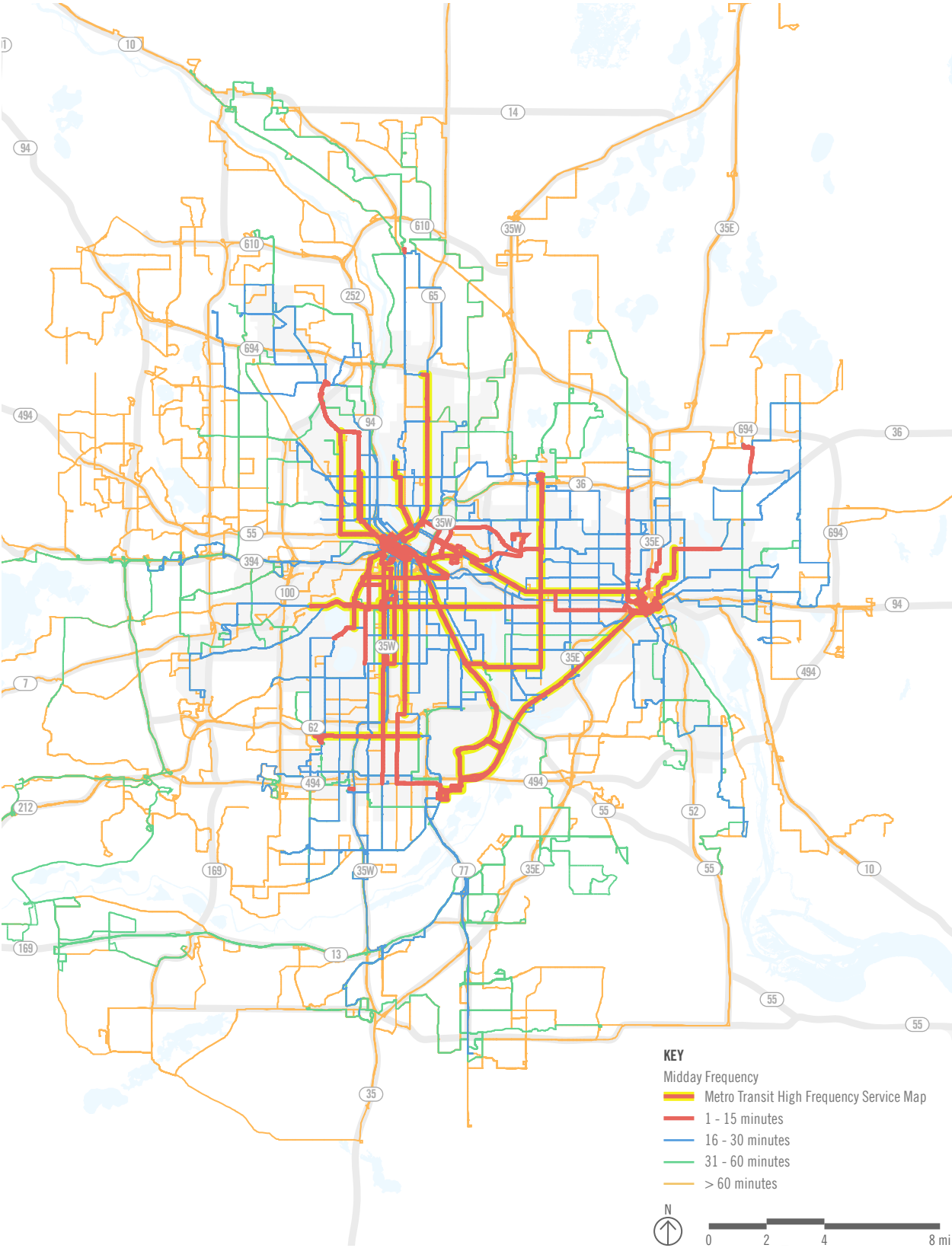
## Under Consideration Routes by Type

Based on Metro Transit Service Improvement Plan 2015 and under consideration aBRTs



Existing Routes by Frequency

Based on Metro Transit "Transit Trip Count Headway by Route," 2015





Based on Metro Transit Service Improvement Plan 2015 and under consideration aBRTs

**KEY**

Midday Frequency

Metro Transit High Frequency Service Map

1 - 15 minutes

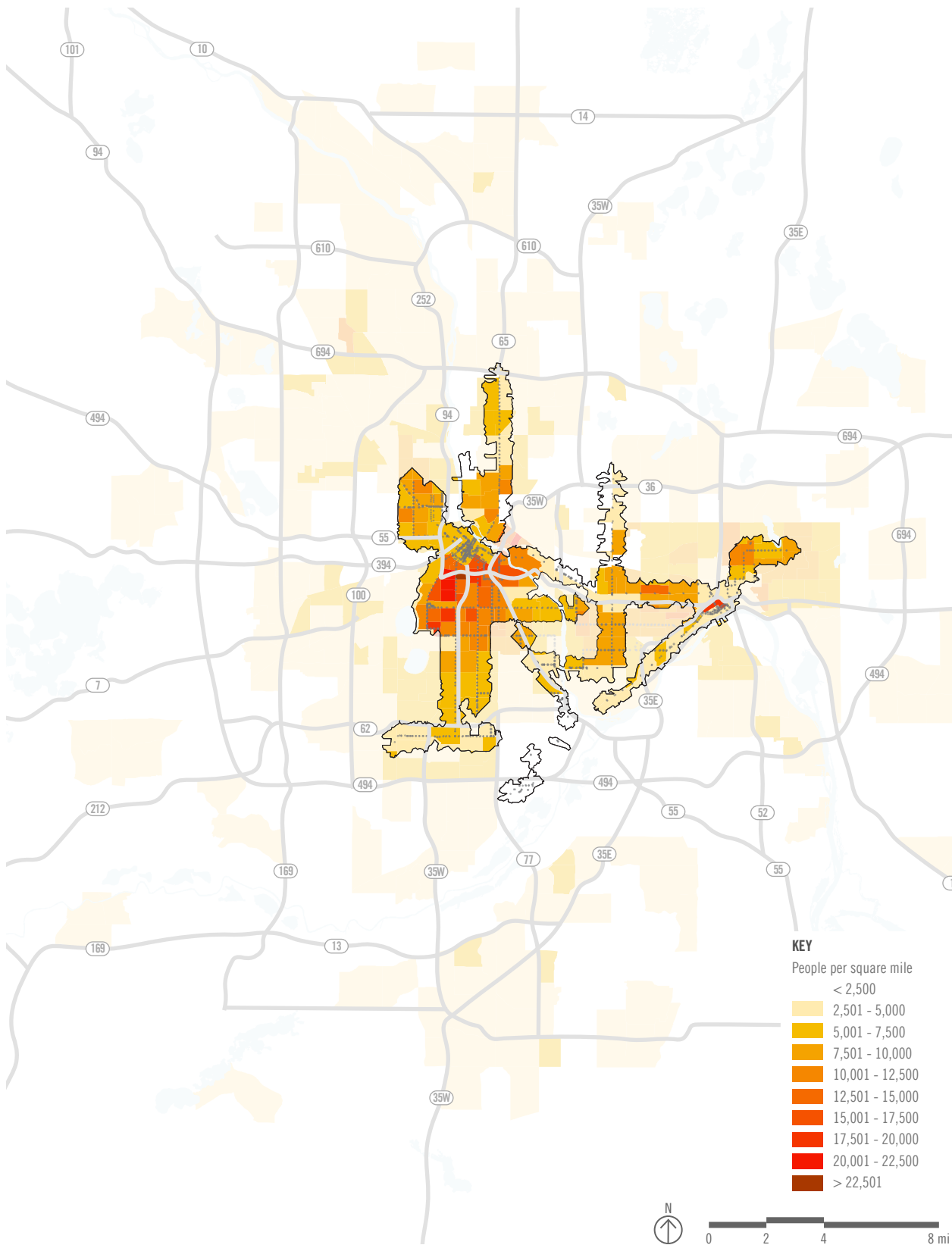
16 - 30 minutes

31 - 60 minutes

> 60 minutes

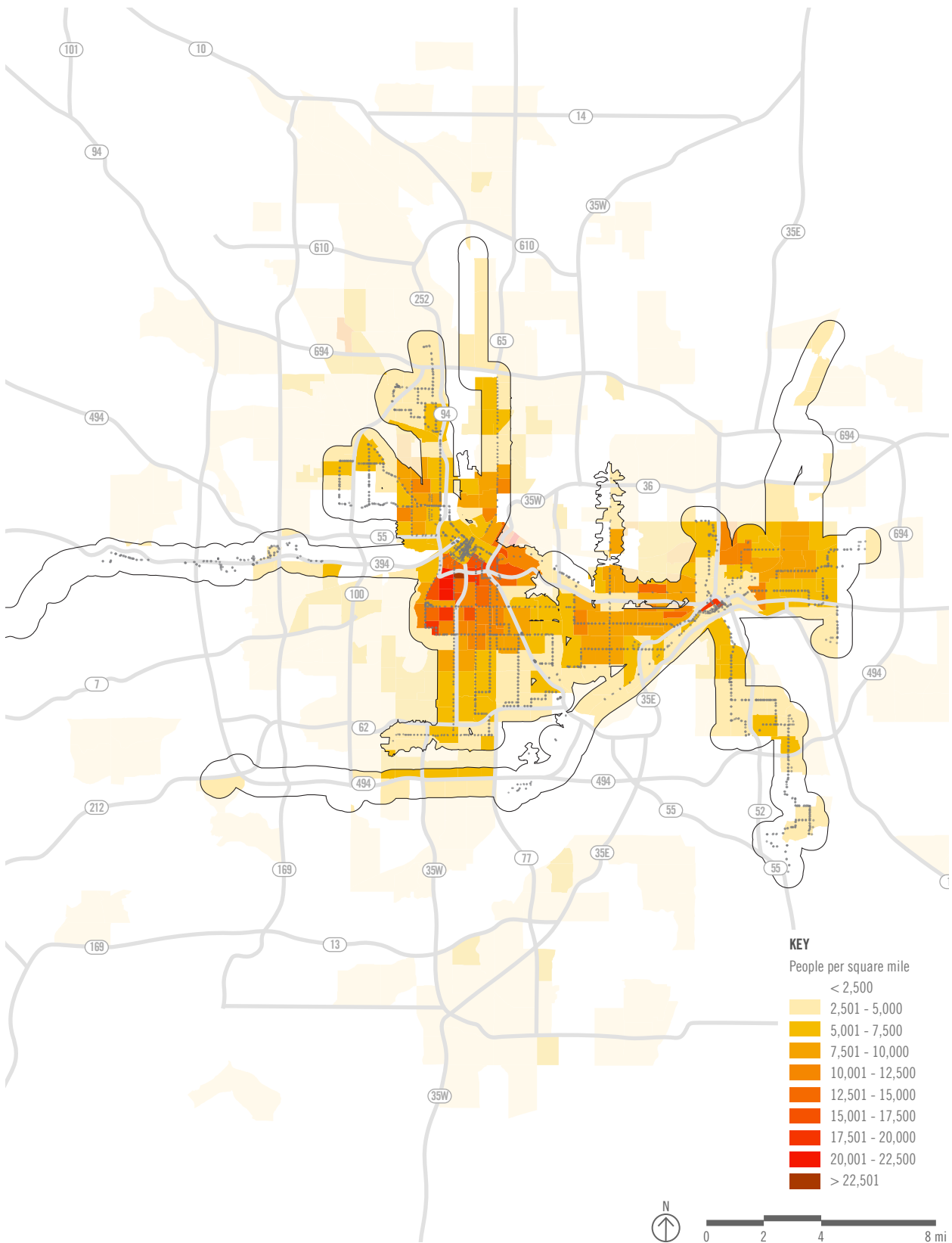
0 2 4 8 m

## 1/2-Mile Access to Existing High Frequency Network (with Population Density)

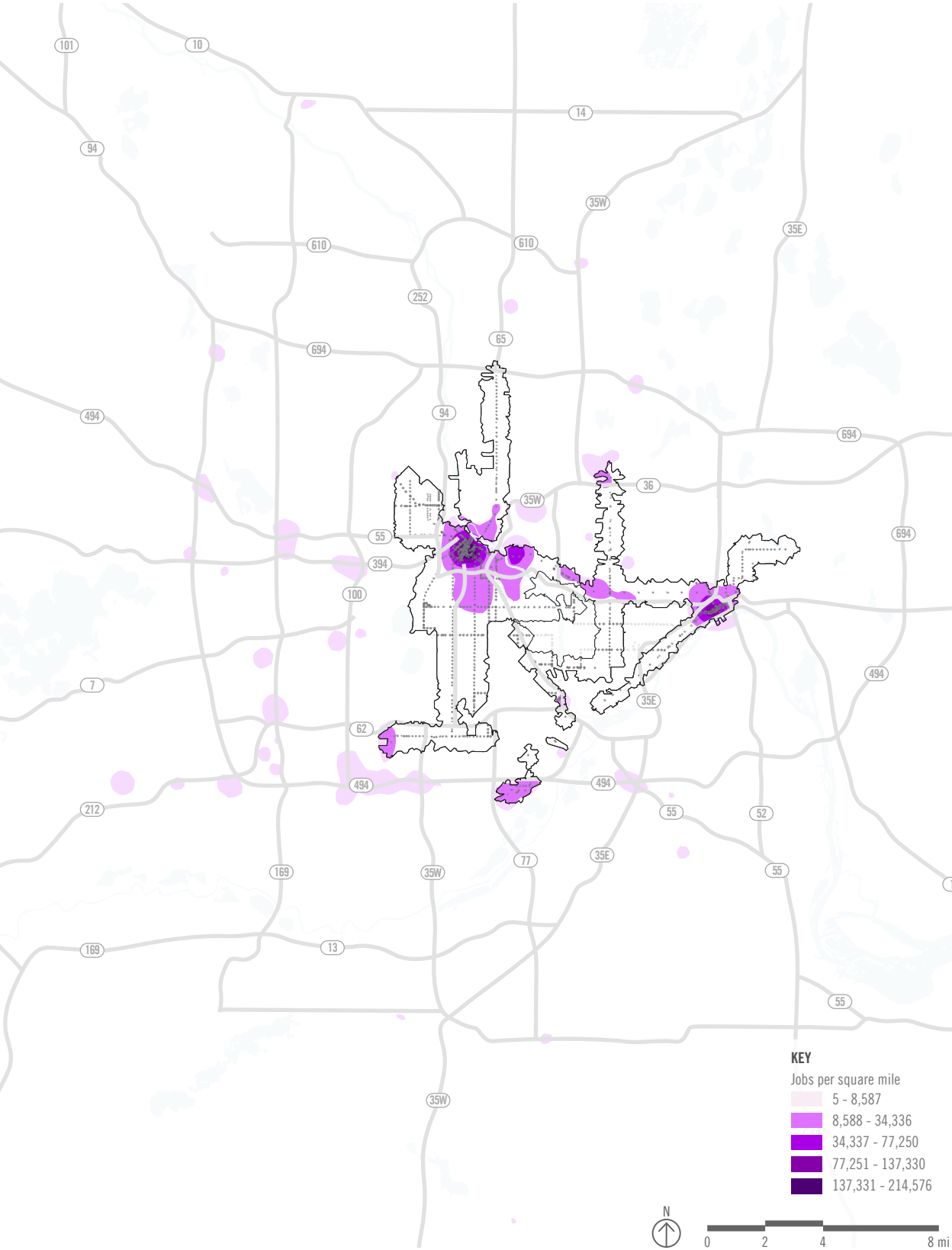


## 1/2-Mile Access to Proposed High Frequency Network (with Population Density)

Based on Metro Transit Service Improvement Plan 2015 and under consideration aBRTs

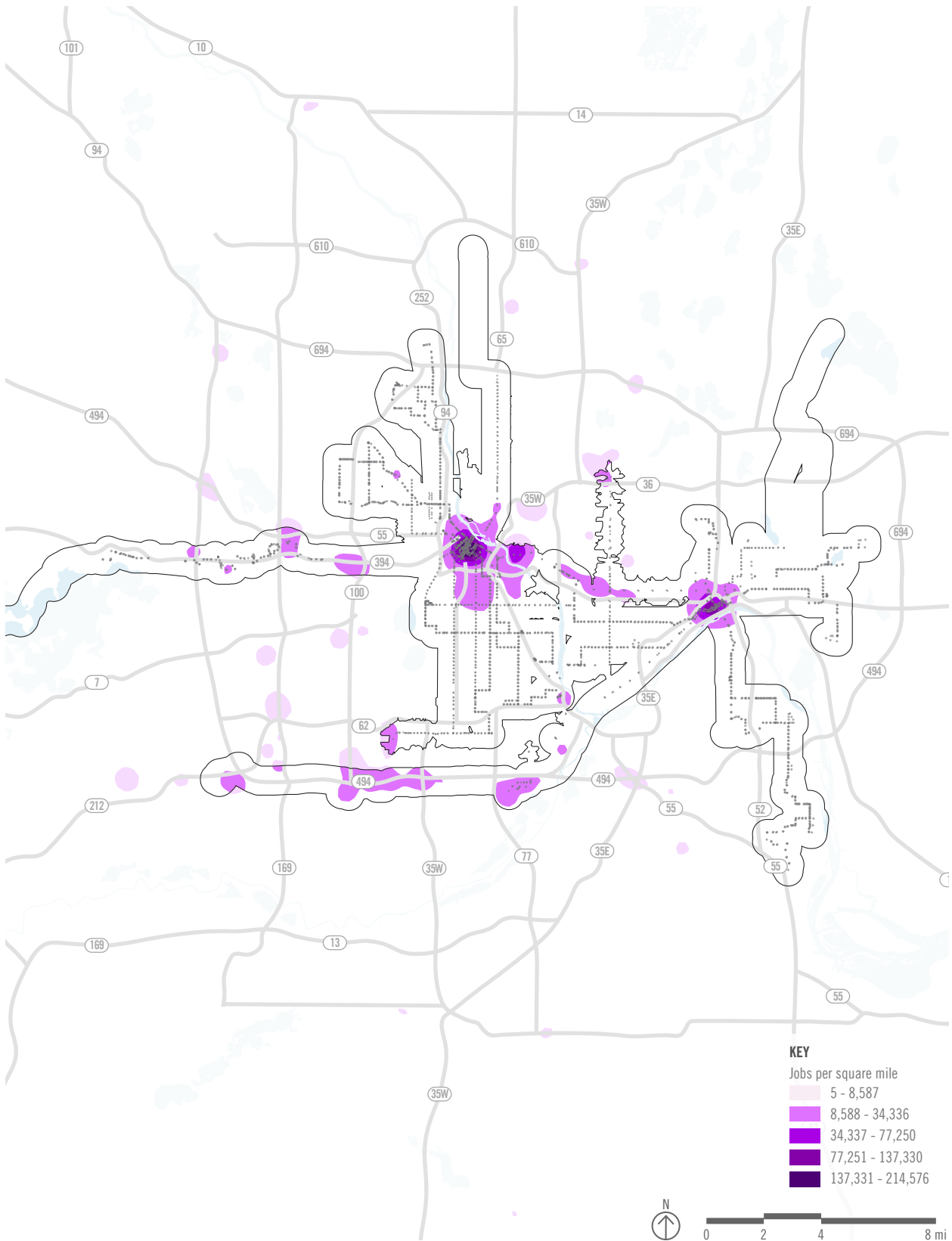


1/2-Mile Access to Existing High Frequency Network (with Job Density)



## 1/2-Mile Access to Proposed High Frequency Network (by Job Density)

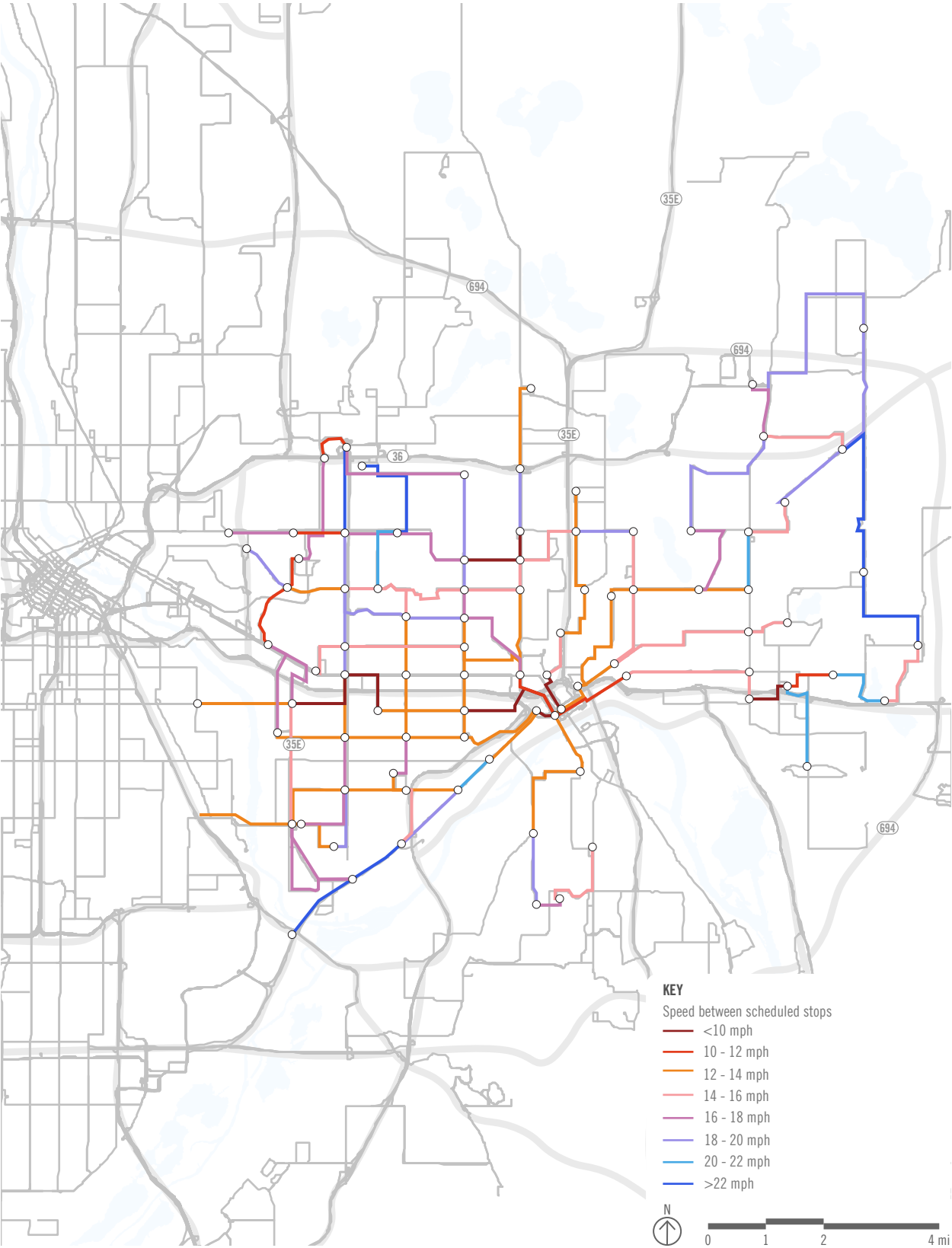
Based on Metro Transit Service Improvement Plan 2015 and under consideration aBRTs



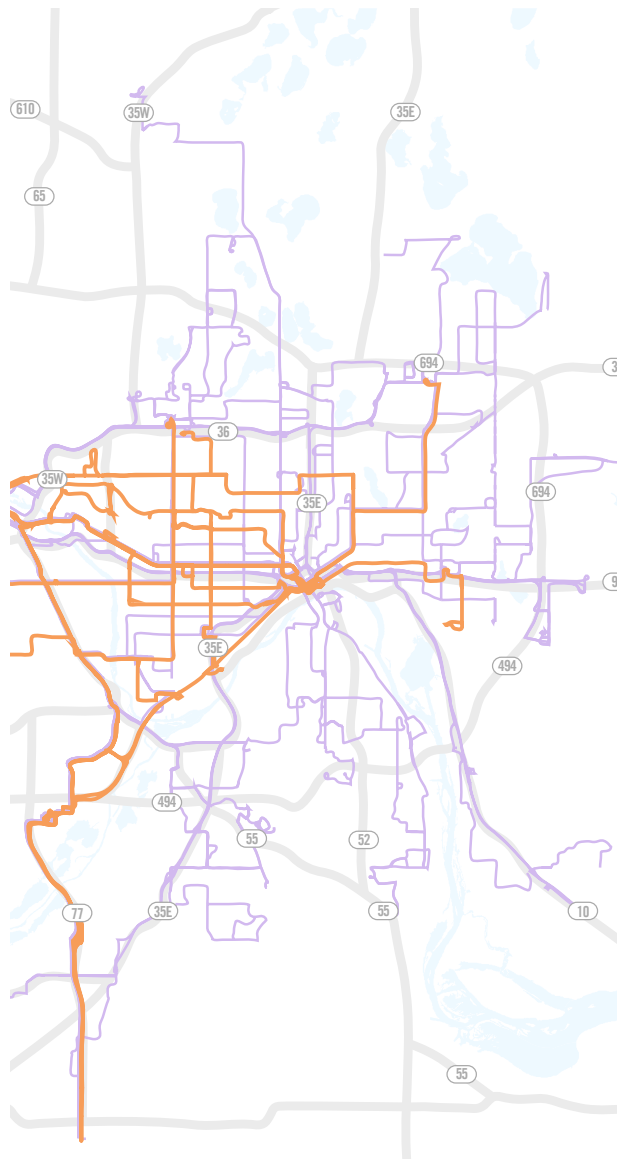




Bus Speed Between Time Stops



## On-Time Performance



### KEY

On-Time Performance

— On time >90% of the time

— On time <90% of the time



0 2 4 8 mi

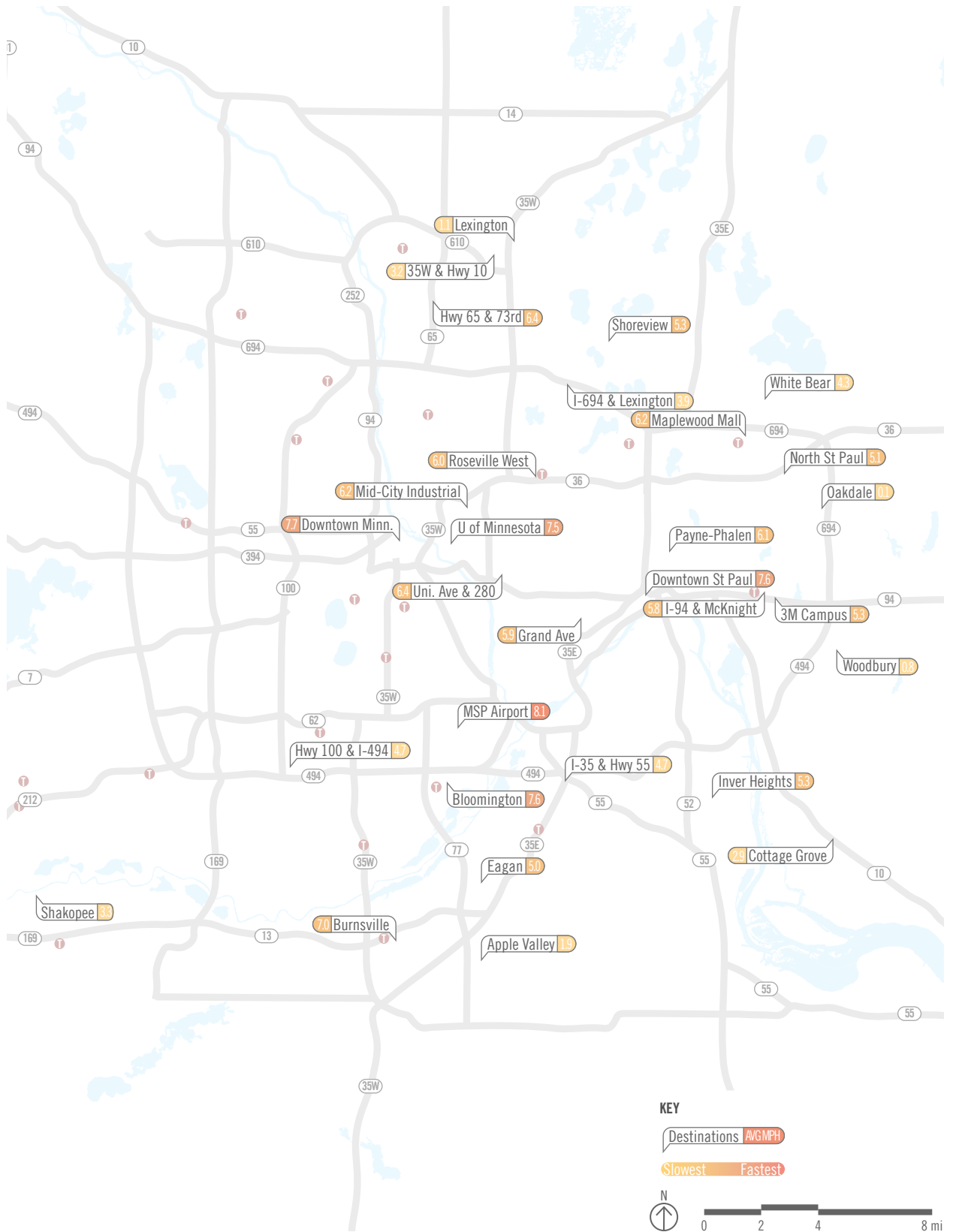
## Where transit will get you - quickly and not quickly

Transit serves most of the urban and suburban portions of the East Metro. To be served, though, is not to be well-connected. Downtown Saint Paul, for example, has direct connections to much of the region. Some other areas are served by only a single all-day route, or only by express service. This can produce a significant difference in useful access.

In the travel speed analysis in the following table, we have identified major destinations – employment centers and universities – across the metro area, as well as a sample of residential areas. We measured total travel time and travel speed between them including waiting, riding, and transferring. Higher speeds indicate a better connection.

Unsurprisingly, areas in the urban core tend to have better access than peripheral areas. But some exceptions stand out. Grand Avenue, a very central location, is much less connected than other parts of the core. I-35 & Highway 55 is significantly slower to reach from most places than are Bloomington, Eagan, or Burnsville.

## Major Destinations



## Travel Speed Between Major Destinations

Numbers in average miles (as the crow flies) per hour during mid-day.

Empty cells indicate either a missing route or a route with more than a 3-hour total travel time.

Slowest Fastest

		Average MPH	RESIDENTIAL DESTINATIONS											
			Burnsville	Payne-Phalen	Inver Heights	Shoreview	North Saint Paul	Eagan	White Bear	Cottage Grove	Apple Valley	Lexington	Woodbury	Oakdale
ORIGIN FROM RESIDENTIAL LOCATIONS	Burnsville	7.0		9.6	5.3	9.8		3.6			2.7	8.8		
	Payne-Phalen	6.1	9.6		6.9	6.2	5.4	9.0	6.6	12.0				
	Inver Heights	5.3	5.3	6.9		9.0	5.7	4.1	6.7		3.6			
	Shoreview	5.3	9.8	6.2	9.0		4.1	8.0	3.3			8.0		
	North Saint Paul	5.1		5.4	5.7	4.1			7.0	6.5				
	Eagan	5.0	3.6	9.0	4.1	8.0			8.2		2.3			
	White Bear	4.3		6.6	6.7	3.3	7.0	8.2						
	Cottage Grove	2.9		12.0			6.5							
	Apple Valley	1.9	2.7		3.6			2.3						
	Lexington	1.1	8.8											
	Woodbury	0.8				8.0								
	Oakdale	0.1												
ORIGIN FROM OTHER KEY LOCATIONS	MSP International	8.1	7.2	10.9	6.1	9.7	11.0	6.6	9.2	10.7		7.3		
	Downtown Minneapolis	7.7	14.2	9.3	9.9	6.9	8.9	8.7	6.5		10.5			
	Downtown Saint Paul	7.6	9.0	5.5	9.9	11.0	8.3	9.9	7.0			4.1		
	Bloomington	7.6	6.9	10.7	6.6	10.3	10.8	4.6	9.2		6.1			
	University of Minnesota	7.5	14.5	6.3	10.2	7.2	8.9	7.1		13.3	8.0		7.2	
	65 & 73rd	6.4	13.6	7.9	8.4	3.5	7.1	10.9	4.6					
	University Ave & 280	6.4	9.4	7.0	7.6	7.9	8.6	6.0	6.7					
	Mid-City Industrial	6.2	9.9	8.7	7.8	6.5	8.4	6.5	6.0	10.0		4.1	4.3	
	Maplewood Mall	6.2	9.4	8.4	8.6	4.2	5.9	9.4	2.7	9.5		6.8		
	Hwy 100 & I-494	6.0	5.2	8.9	6.4	8.6	7.4	4.9	8.1		5.0			
	Roseville West	6.0	9.2	6.2	7.8		6.5	6.2	5.0		7.8	3.1		
	Grand Avenue	5.9	7.8	4.9	5.8	7.3	7.2	4.4	6.0	10.5				
	I-94 & McKnight	5.8	9.1	4.5	5.1	7.2	4.8	8.4	6.8	6.8		2.7		
	3M Campus	5.3	8.0	4.7	5.0	7.4	5.3	6.9	7.3					
	I-35 & Hwy 55	4.7	4.3	5.1	2.1	6.2	6.2	2.4	5.2	4.3	4.1			
	Lexington & 694	3.9	8.1	4.1	5.9	2.0	3.1	7.7	2.7					
	Shakopee	3.3	6.5	8.8							5.5			
	I-35 & 10	3.2	9.3									2.5		



Slowest Fastest

		OTHER KEY DESTINATIONS																	
		MSP International	Downtown Minn.	Downtown St. Paul	Bloomington	University of Minn.	65 & 73rd	Uni. Ave & 280	Mid-City Industrial	Maplewood Mall	Hwy 100 & I-494	Roseville West	Grand Avenue	I-94 & McKnight	3M Campus	I-35 & Hwy 55	Lexington & 694	Shakopee	I-35 & 10
ORIGIN FROM RESIDENTIAL LOCATIONS	Burnsville	7.2	14.2	9.0	6.9	14.5	13.6	9.4	9.9	9.4	5.2	9.2	7.8	9.1	8.0	4.3	8.1	6.5	9.3
	Payne-Phalen	10.9	9.3	5.5	10.7	6.3	7.9	7.0	8.7	8.4	8.9	6.2	4.9	4.5	4.7	5.1	4.1	8.8	
	Inver Heights	6.1	9.9	9.9	6.6	10.2	8.4	7.6	7.8	8.6	6.4	7.8	5.8	5.1	5.0	2.1	5.9		
	Shoreview	9.7	6.9	11.0	10.3	7.2	3.5	7.9	6.5	4.2	8.6		7.3	7.2	7.4	6.2	2.0		
	North Saint Paul	11.0	8.9	8.3	10.8	8.9	7.1	8.6	8.4	5.9	7.4	6.5	7.2	4.8	5.3	6.2	3.1		
	Eagan	6.6	8.7	9.9	4.6	7.1	10.9	6.0	6.5	9.4	4.9	6.2	4.4	8.4	6.9	2.4	7.7		
	White Bear	9.2	6.5	7.0	9.2		4.6	6.7	6.0	2.7	8.1	5.0	6.0	6.8	7.3	5.2	2.7		
	Cottage Grove	10.7				13.3			10.0	9.5			10.5	6.8		4.3			
	Apple Valley		10.5		6.1	8.0					5.0	7.8				4.1		5.5	
	Lexington	7.3							4.1	6.8		3.1							2.5
	Woodbury			4.1		7.2								2.7					
	Oakdale								4.3										
ORIGIN FROM OTHER KEY LOCATIONS	MSP International		13.3	13.7	8.1	9.1	11.9	8.4	8.7	10.5	6.3	10.8	6.8	10.3	10.5	4.2	7.6	7.7	9.0
	Downtown Minneapolis	13.3		13.0	12.8	4.0	10.1	9.1	4.9	9.2	9.5	6.3	6.9	11.3	8.3	9.0	4.7	7.6	7.3
	Downtown Saint Paul	13.7	13.0		12.7	12.6	8.6	11.6	10.2	8.5	9.7	9.1	5.0	7.9	7.7	4.5	5.5	9.4	7.0
	Bloomington	8.1	12.8	12.7		9.7	11.9	9.1	9.8	10.7	9.4	11.1	8.7	10.4	10.1	3.6	8.0	7.8	
	U of Minnesota	9.1	4.0	12.6	9.7		10.7	9.8	5.8	8.0	7.5	6.3	7.8	9.7	9.5	7.1	4.3	7.0	7.1
	65 & 73rd	11.9	10.1	8.6	11.9	10.7		8.6	7.4	5.2	10.0	7.3	7.7	8.0	7.9	9.1	3.3		2.8
	University Ave & 280	8.4	9.1	11.6	9.1	9.8	8.6		5.7	7.8	6.2	5.6	6.8	7.8	9.0	5.9	4.4	7.0	9.1
	Mid-City Industrial	8.7	4.9	10.2	9.8	5.8	7.4	5.7		7.6	6.1	4.7	6.1	7.1	8.4	4.8	4.0		6.5
	Maplewood Mall	10.5	9.2	8.5	10.7	8.0	5.2	7.8	7.6		9.0	5.6	6.3	6.4	5.3	6.3	3.0		4.8
	Hwy 100 & I-494	6.3	9.5	9.7	9.4	7.5	10.0	6.2	6.1	9.0		8.0	6.5	9.3	8.0	4.7	6.2	4.2	
	Roseville West	10.8	6.3	9.1	11.1	6.3	7.3	5.6	4.7	5.6	8.0		8.3	6.7	7.1	7.5	4.3	8.0	4.9
	Grand Avenue	6.8	6.9	5.0	8.7	7.8	7.7	6.8	6.1	6.3	6.5	8.3		7.8	7.5	5.2	5.7	7.6	6.3
	I-94 & McKnight	10.3	11.3	7.9	10.4	9.7	8.0	7.8	7.1	6.4	9.3	6.7	7.8		1.2	4.7	4.7		
	3M Campus	10.5	8.3	7.7	10.1	9.5	7.9	9.0	8.4	5.3	8.0	7.1	7.5	1.2		4.9	4.6		
	I-35 & Hwy 55	4.2	9.0	4.5	3.6	7.1	9.1	5.9	4.8	6.3	4.7	7.5	5.2	4.7	4.9		6.2		7.6
	Lexington & 694	7.6	4.7	5.5	8.0	4.3	3.3	4.4	4.0	3.0	6.2	4.3	5.7	4.7	4.6	6.2			2.5
	Shakopee	7.7	7.6	9.4	7.8	7.0		7.0			4.2	8.0	7.6						7.3
	I-35 & 10	9.0	7.3	7.0		7.1	2.8	9.1	6.5	4.8		4.9	6.3			7.6	2.5	7.3	

# 5

## Opportunities for Transit Improvements

In this section we present a series of possible objectives for transit within the East Metro region, and then identify available strategies that can be used to implement suggested potential projects, which will help achieve these objectives.

There are many opportunities to improve transit service in the East Metro. There are proven ways to address all the gaps identified by our analysis. Obviously, the funds available for transit improvements are limited. Fundamentally, transit planning is a decision about what to prioritize.

Transit can serve many different purposes. All are worthwhile, some are complementary, and some are not. Different constituencies have different needs: a low-income service worker from an urban neighborhood who works a variety of shifts through the week is looking for very different transit service than a white-collar employee in a suburb on a predictable 8-to-5 schedule. It is also possible that these locations are reversed: a hospital executive rides the core route from Mac-Groveland or Como and a clerical employee rides the suburban service.

Because resources are limited, different objectives can directly conflict. The same additional budget that could make current routes more frequent could also be used to add new routes in areas not currently served.

On the other hand, it is possible to make changes that make everyone better off. As discussed above, improving signal timing (for example) can improve service on a given route and reduce operating costs on that route, freeing up funds to improve service on other routes.

To continue the example, improving signal timing on a core downtown route that serves a downtown hospital can reduce costs on that route. That frees up funds that can improve service on a suburban express route. It doesn't matter who rides each service. Everyone is better off.

## Possible Objectives

This is a list of possible objectives for the region. An actual program of transit improvements should not try to achieve all of the following objectives but instead begin by defining priorities. The most important objectives should drive where money is invested.



### Increase Connectivity and Decrease Travel Time

Build a strong network in the densest parts of the region so that transit is a convenient option all-day for all daily needs, such as work, school, recreation, and errands.



### Improve Reliability

Improve public transit infrastructure and signal priority for buses and trains to reduce wait times and make transit more predictable.



### Increase Service to Suburban Job Destinations

Add reverse commute service that connects the core to suburban employment, with a particular focus on connecting low-income residents to service jobs.



### Increase Service to Suburban Residential Areas

Add local bus routes in lower density residential neighborhoods outside the core and express service connecting suburban park-and-ride lots to regional employment centers.



### Better Legibility and Navigability

Improve legibility of the network so that it is easy to use for first time users and for riders who make a variety of trips to a variety of destinations.



### Increase Safety and Comfort

Improve the transit experience so that riders feel safe and comfortable from door to door.



### Improve Usefulness and Convenience of Connections between Modes

Extend the usefulness of public transportation by facilitating people using it together with walking, biking, and car share.

## Available Strategies

Following is a list of strategies and tools that can be employed to achieve stated objectives. Combinations of these strategies can be used in different parts of the region as driven by economy and feasibility. For example, where existing infrastructure precludes new transitways, aBRTs may make sense.



### Route Restructure

Redesign the network and routes to be simpler and to improve service.



### High-Frequency Network

Add more routes that operate every 15 minutes or better through most of the days, offering riders flexibility to travel without planning ahead and making transfers more seamless.



### Transitways

Build new light rail or bus rapid transit routes with dedicated lanes and high quality stations.



### Arterial BRT

Create routes with less frequent stops than a local buses and some traffic priority.



### Transit Center

Build new transit centers as hubs for bus transfers, starting and ending routes, break areas for bus drivers, and safe waiting places for riders.



### Express Bus

Create routes that use freeway corridors to connect commuters to key destinations with few intermediate stops.



### First & Last Mile

Improve pedestrian and bike facilities on either end of a transit trip to make it easier, safer, and more comfortable for people to access transit.



### All-Day Service

Add local bus routes that run from early morning to late evening, 7 days a week, serving areas that either currently have no transit or that currently have only peak hour service.

## Projects

There are many different ways of improving transit. Some are capital projects, like new transitways; some are operating projects like increased service or more routes. Some are big, like a new BRT line; some are lots of little projects, like improved bus stops. Often, the best project is a combination of these projects.

The following 16 possible projects are ideas that would improve transit service and usefulness in the East Metro. For each, the objectives it meets and the strategies it uses are identified. This is a menu of options, not recommendations – all these projects are possible and would improve transit, but which should be prioritized should be based on community priorities.

Some of these options can be pursued and implemented almost immediately; some would be much longer-term projects. Some of these options can be pursued by individual jurisdictions or agencies; most will require collaboration. These options represent a range for East Metro stakeholders to consider.

- P1** Locate New Jobs and Housing along High Quality Transit
- P2** Increase Frequency within the Core
- P3** Redesign the All-Day Network
- P4** Create a South Robert aBRT and West St. Paul Transit Center
- P5** Create an East 7th / MSP BRT
- P6** Create an I-35 / Highway 55 Transit Center
- P7** Extend B Line to Downtown Saint Paul
- P8** Increase Service from Little Canada to Shoreview
- P9** Improve Bus Lanes & Intersections in the Core
- P10** Improve Bus Stops across the Core
- P11** Improve Transit Centers
- P12** Increase Bike Parking, Bike Share, and Car Share at Transit Stops
- P13** Improve Crosswalks and Sidewalks on Frequent Routes
- P14** Improve Pedestrian and Bike Infrastructure at Suburban Jobs
- P15** Open Gold Line BRT with Multiple Routes
- P16** Implement Short-Run Transit Improvements for Downtown Saint Paul, Study Long-Run Redesign

## **P1** Locate New Jobs and Housing along High Quality Transit

The best way to improve transit access to employment and population requires neither action by a transit agency, nor immediate transit funding: locate new jobs, new housing, and critical services in places that already have high quality transit. (Over time, additional growth may require additional service. Typically, given ridership and distances, this service will be relatively low-cost.)

Locations near the heart of the transit network and near major transit centers will have great connectivity, and so will locations on transitways, which offer faster and more reliable service. New development here can immediately benefit local residents by increasing economic opportunities and housing choices, and it also saves taxpayers money since the service is already in place.

In "The Vision of Growth for the East Metro", March, 2016, East Metro jurisdictions said that they would like to grow faster along transit. Substantial amounts of new and redevelopment occurring in the East Metro are locating on high-quality transit lines. And most East Metro jurisdictions are planning for faster growth along existing and future lines.

However, transit is (also) often chasing new development, trying to serve new job centers and neighborhoods once they have been built. This proves difficult because more service hours are required, because locations at the outer fringes of the transit network make for longer trips from most places, and because the infrastructure around new development often has not been planned to accommodate transit service or make it easy to walk from a transit stop to a destination.

Instead, new jobs and housing should be located along high-quality transit to provide residents with greater opportunities to work in various parts of the metro area, and to increase the number of potential employees that employers have access to. Greater MSP, the regional economic development organization, highlights access to jobs via transit as a key determinant of regional economic competitiveness. A fast and certain way to increase that access is to locate jobs on existing good transit. Both the Metropolitan Council and individual East Metro jurisdictions are identifying potential employment and development sites that are well served by transit, marketing them to employers and developers, and targeting incentives to sites where the cost of providing transit is lowest could be effective. Local jurisdictions should especially focus this strategy for services like retail, government offices, and education.



## P2 Increase Frequency within the Core

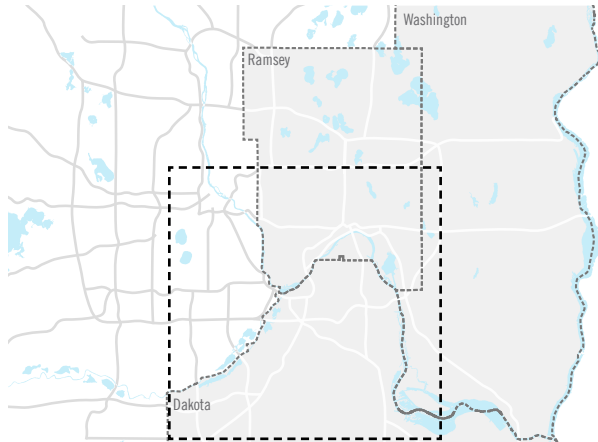
Increase the number of high-frequency bus routes within the core by adding service on current routes.

More high-frequency routes allow people to travel more spontaneously, without prior planning. Increasing the frequency on popular existing routes will encourage ridership within the core for daily trips aside from home-to-work commutes.

Generally, the areas within Metro Transit's defined Market Area 1 can yield decent ridership on high-frequency service. In the East Metro, this includes high population density areas across most of Saint Paul, West St. Paul, and South St. Paul. It also includes major employment areas in downtown Saint Paul, near I-35 and Highway 55, in Roseville, and other major destinations such as Grand Avenue and Maplewood Mall.

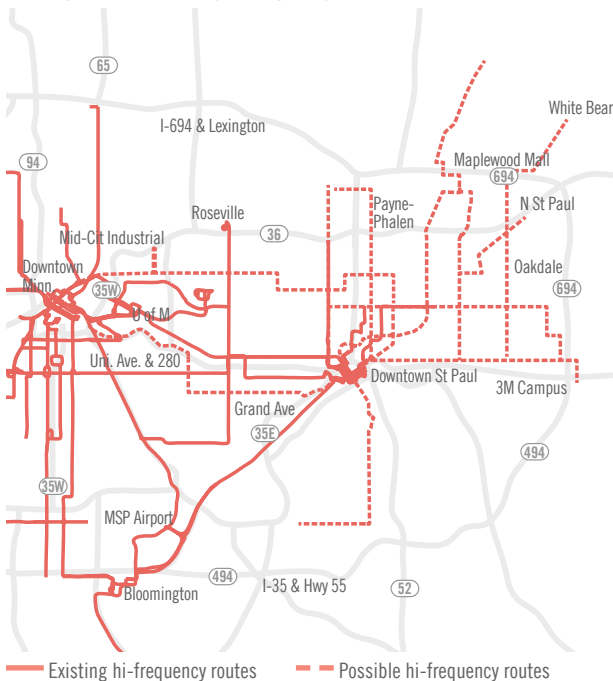
Higher frequency can be achieved by increasing service on existing bus routes including 61, 74, and 270. Redesigning the core network (project #2) may make it easier to increase the frequent network by concentrating service on fewer routes. Transitways and aBRTs also provide high-frequency service.

The fundamental constraint on service is available resources. Metro Transit uses route performance metrics to determine which routes should have increased frequency, decreased frequency, or should be cut. Compared to other cities, Metro Transit has a fairly low subsidy per passenger, which indicates that the criteria for adding service and cutting routes are fairly stringent. A level of

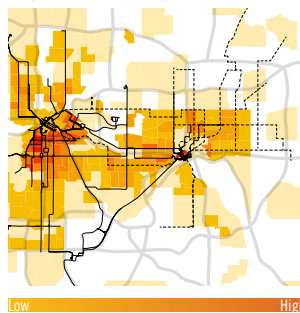


ridership that would justify frequent service in other cities may not meet Metro Transit's criteria. Existing route performance is also not a reliable predictor of performance with increased frequency; some people will simply not ride transit if service is infrequent, or will use alternate routes.

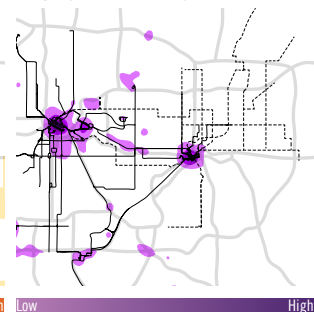
Existing and Possible High-Frequency Routes



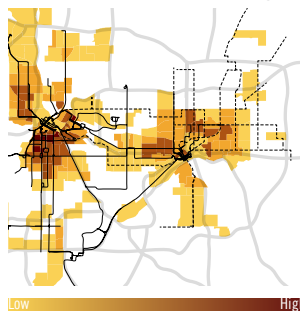
Population Density



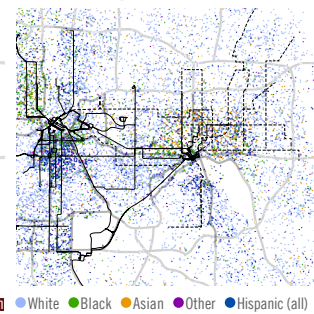
Employment Density



Areas of Concentrated Poverty



Race Density

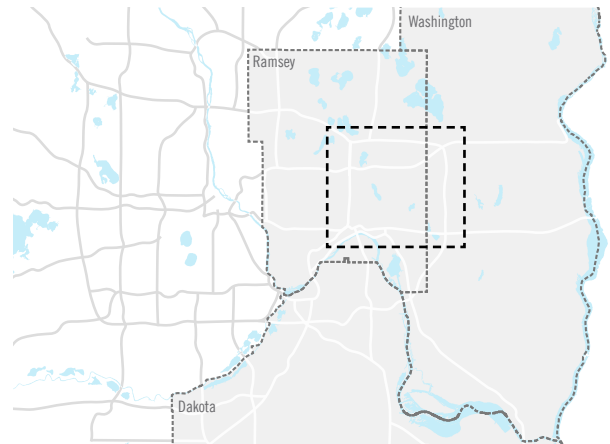


### P3 Redesign the All-Day Network

Redesigning the network – changing which routes go where, rather than just adding routes, eliminating routes, or changing frequency – can be transformative for a transit network, making it more useful to more people. A redesign can simplify the network, making it more legible and easier to use for first time users and for people making new trips. It can eliminate duplication of service, allowing those resources to be redeployed for more frequency. It can better connect key destinations without necessarily going through downtown Saint Paul, reducing the stress on infrastructure in and out of downtown and allowing more direct travel.

The maps below show the opportunity for redesign by looking at what might be possible in the eastern portion of Ramsey County.

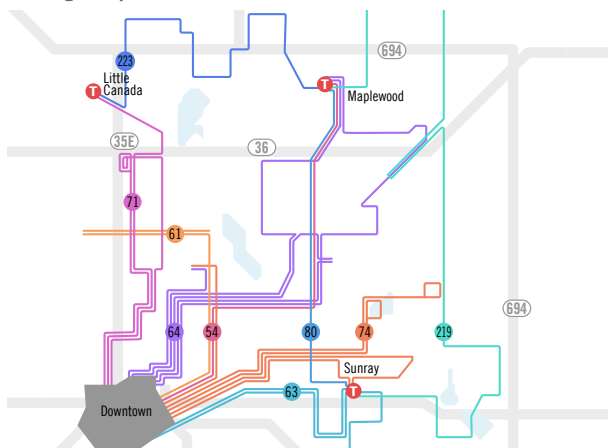
- The current network is on the left. Each color represents a numbered bus route; each line is a separate service pattern on that route, most of which are distinguished by letters after the numbers. The complexity of the network is immediately apparent; just this quadrant has 20 patterns. This is a huge deterrent to new riders and existing ones traveling to new places. Furthermore, the large number of different service patterns means that service has to be spread across more patterns, resulting in nearly all these patterns being infrequent.
- On the right is a potential redesign serving the same area. Nearly every street retains service, but there are only 8 patterns, so service can be more legible and more frequent. This is a much easier to use system. Furthermore, new cross-town connections are created. Instead of only having radial routes originating in downtown, there are major cross-town routes intersecting to create a grid pattern, thereby setting up connection opportunities. This also shows the potential for the Gold Line (P4); high-frequency routes can branch north from the planned Gold Line to Little Canada, Maplewood Mall, and White Bear neighborhood. East-west high-frequency routes



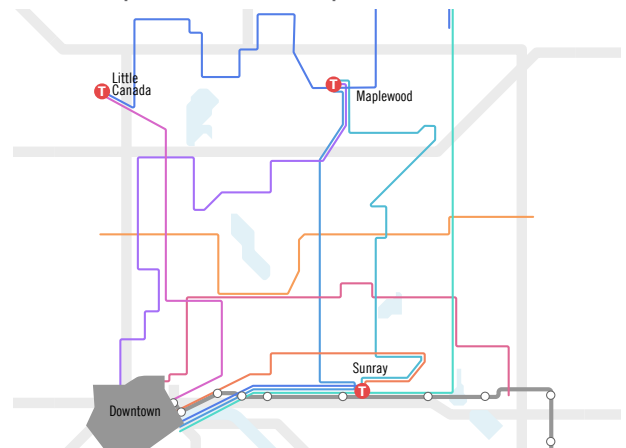
could cross the north-south lines strategically to create simple transfers and connect all high population density areas and high employment areas. Other areas have similar existing service patterns and similar opportunities for change.

A redesign requires careful analysis of travel patterns and intense public input. This illustration should not be seen as a proposal; it demonstrates that there is real potential for improvement through rethinking the network structure. Such a restructuring could increase ridership without increasing costs. The new routes drawn here create a grid. Not all are straight lines – they jog to retain service on streets that currently have service and where the street network is interrupted by lakes – but each of the east-west routes crosses each of the north-south routes, creating many connection opportunities.

### Existing Complex Network



### Possible Simplified Network with Proposed Gold Line

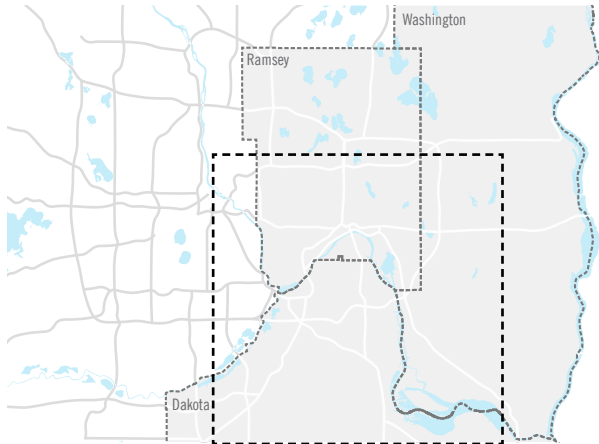


## P4 Create a South Robert aBRT and West St. Paul Transit Center

Create a new aBRT line on South Robert, as identified by Metro Transit, and create a new transit center at the southern end of the route.

South Robert runs through relatively high-density and low-income neighborhoods in Saint Paul, South St. Paul, and West St. Paul. It extends southwards to suburban job areas that provide employment opportunities for residents across Saint Paul and the East Metro. aBRT service here would improve trips for many existing transit riders and make service useful to other residents not currently using transit.

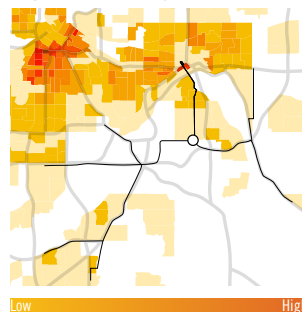
A new transit center at the south end of this route could be an anchor for bus routes, serving the southeast side of Ramsey County and into Washington County. New routes connecting here could serve residential areas in the south and southeast suburbs as well as to suburban employment centers. The aBRT would allow residents of Saint Paul, South St. Paul, and West St. Paul to reach jobs in these suburban areas, provide suburban residents with an all-day link into Saint Paul, and facilitate connections from one suburb to another.



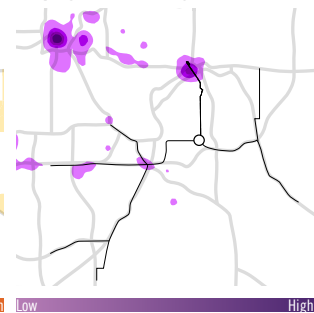
Possible Connections Through New Transit Center



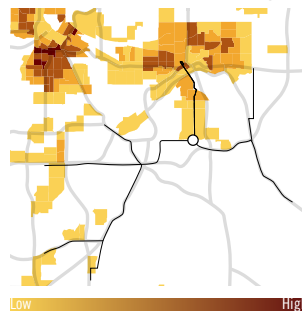
Population Density



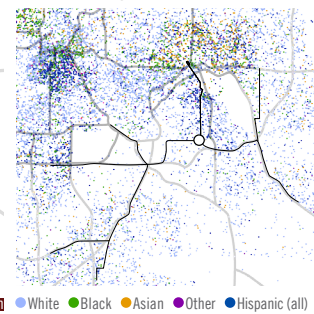
Employment Density



Areas of Concentrated Poverty



Race Density



# P5 Create an East 7<sup>th</sup> / MSP BRT

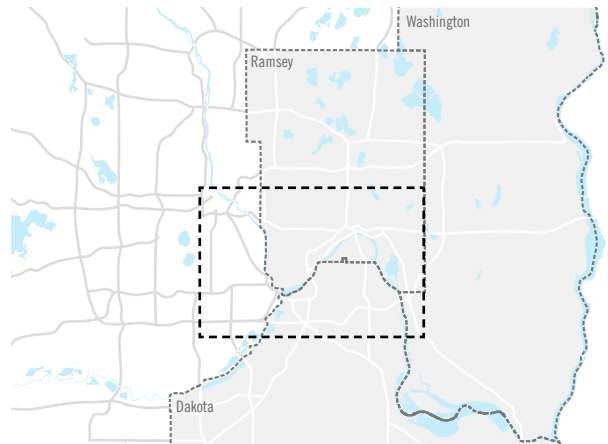
Two of the busiest and most important transit corridors in Saint Paul are Riverview (Route 54) and East 7<sup>th</sup>/White Bear (54/64/74).

The Riverview Corridor has high ridership and connects downtown to high density residential neighborhoods and businesses. It also plays a regional role in connecting downtown Saint Paul to the airport and Mall of America.

An extensive planning process for the corridor produced a Locally Preferred Alternative of a modern streetcar to serve this corridor. This streetcar will significantly improve trips within Saint Paul. Trips to MSP airport, however, would be slower by streetcar than the current bus. Since MSP is both a major connection point to suburban job centers and a destination in its own right, the streetcar could be complemented by an express bus service, running parallel to the streetcar, perhaps along Shepard Road. The parallel service would connect with the streetcar on both ends but not make intermediate stops.

On the east side of downtown Saint Paul, the East 7<sup>th</sup> corridor serves some of the densest neighborhoods in Saint Paul and extends on to Maplewood Mall, a key connection point for the northern suburbs. Recognizing its importance, Metro Transit recently extended the 54 limited stop service through the East 7<sup>th</sup> corridor. Metro Transit has also proposed an aBRT along East 7<sup>th</sup>. The recently implemented A Line aBRT has shown that a combination of improved stops, all-door boarding, optimized stop spacing, and traffic signal priority can significantly improve transit service and thus ridership. The East 7<sup>th</sup> corridor, in spite of its recent upgrade, still does not have the service that would respond to its key connections, high ridership, and dense adjacent populations.

An East 7<sup>th</sup> aBRT can be a short-term and relatively inexpensive project. ABRT improvements can be implemented across an entire corridor at once (as it was on the A Line) or segment by segment. ABRT can also provide additional benefits to existing local service through shared traffic signal priority or improved stops. Because all the required improvements are in city right-of-way, the City of Saint Paul lead the way by implementing some of these improvements itself. Unlike the A Line, which largely improved the function of a

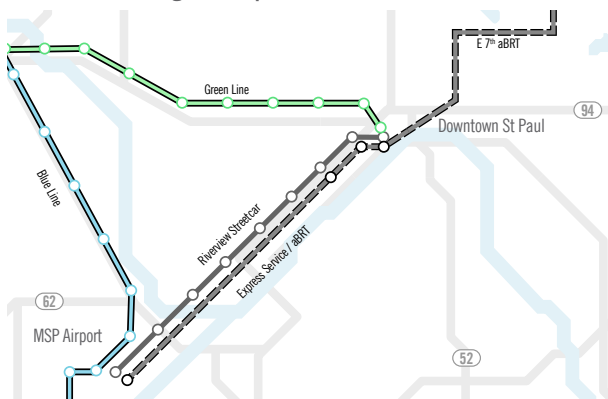


single local route, the East 7<sup>th</sup> corridor is served by multiple routes and branches of routes. Thus, coupling this project with a network redesign (P3 in this report) could make aBRT easier to implement and more beneficial to the overall network.

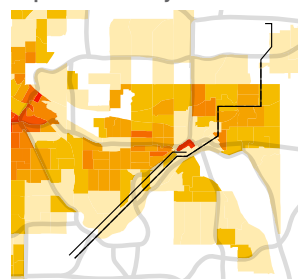
East 7<sup>th</sup> and Riverview naturally complement each other and, as such, integrating them could be useful. The East 7<sup>th</sup> aBRT could be extended as the express service in the Riverview corridor, replicating Metro's Transit recent extension of the 54.

Metro Transit plans to revise its 2012 aBRT recommendations. That and related discussions will certainly elevate other potential aBRT corridors.

Possible aBRT Alongside Proposed Streetcar in Riverview Corridor

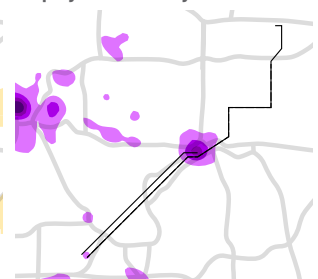


Population Density



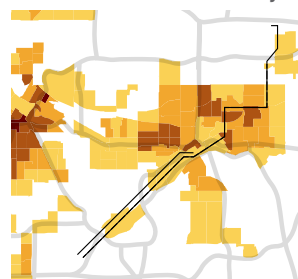
Low High

Employment Density



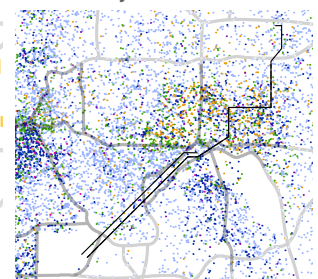
Low High

Areas of Concentrated Poverty



Low High

Race Density



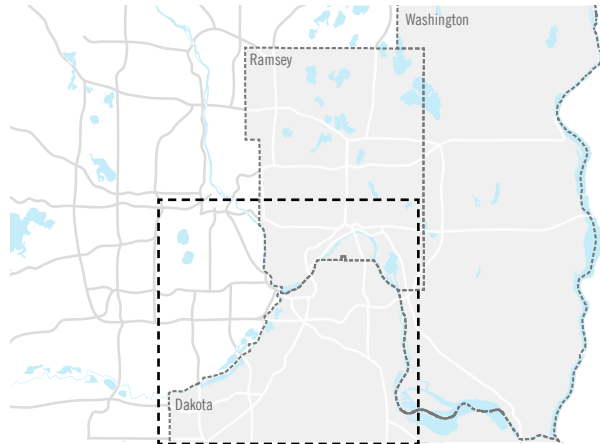
White Black Asian Other Hispanic (all)

## P6 Create an I-35 / Highway 55 Transit Center

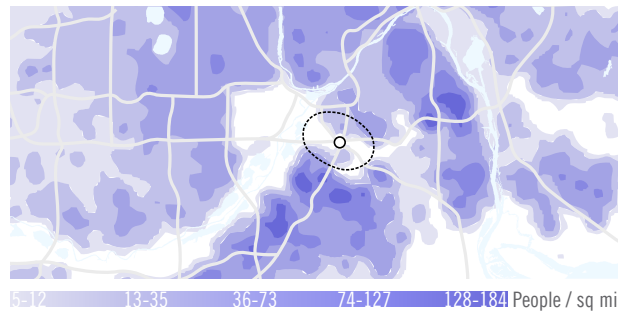
The office parks and distribution facilities that cluster around Highway 55 where it meets I-35E and 494 employ nearly 26,000 people. Almost 24% of the employees around this intersection commute from Washington or Ramsey County. Additionally, 31% of Ramsey County residents and 56% of Washington County residents work outside their respective counties. Today these residents have a hard time reaching their jobs by transit, and some residents can not take advantage of these jobs because of the lack of transit connections.

A new transit center at the intersection of I-35 and Highway 55 could serve this area of high employment as well as become the focal point of several routes connecting major destinations and employment centers, including Cottage Grove, South St. Paul, West St. Paul, Snelling, Fort Parkway, Mall of America, and Shakopee. The transit center would increase job opportunities for Ramsey and Washington County residents by increasing connectivity to employment centers to the south and southwest.

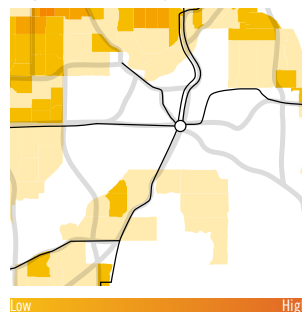
While there already exists a transit center 2.5 miles south of here, the Eagan Transit Center, it is too far south to serve the employment center well and would be a significant detour for new east-west routes. There are multiple current routes that come near I-35 and Hwy 55 that do not make it to Eagan. Hence, a new transit center at this location could serve the region well.



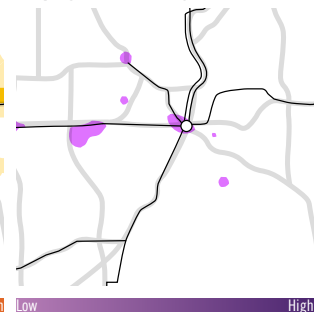
Where employees within I-35 and Hwy 55 area live



Population Density



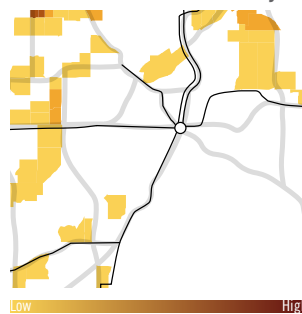
Employment Density



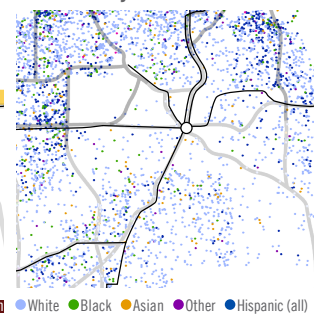
Routes connecting to Possible Transit Center at I-35 and Hwy 55



Areas of Concentrated Poverty



Race Density





## P7 Extend B Line to Downtown Saint Paul

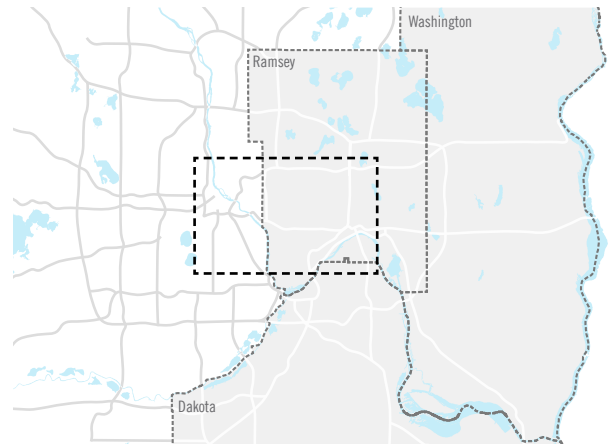
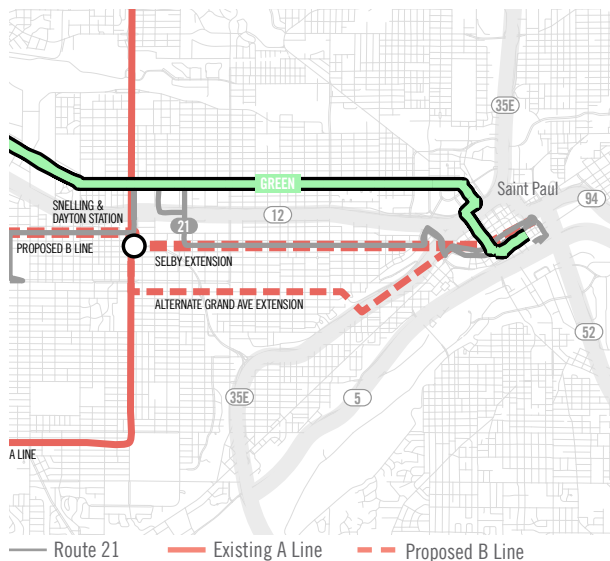
Metro Transit plans to upgrade bus route 21 to aBRT between Uptown Transit Center in Minneapolis and Snelling Station in Saint Paul. This upgrade would follow the model of the current A Line, with optimized stop spacing, traffic signal priority, off-board fare collection, improved stations, and more frequent service. This will significantly improve transit service along Lake Street in Minneapolis and Marshall Street in Saint Paul.

The eastern segment of the 21 along Selby Avenue in Saint Paul, however, is not proposed for upgrade. Today, more than half of route 21 buses continue past Snelling to downtown Saint Paul. With the B Line, as currently proposed, passengers from Lake or Marshall to downtown Saint Paul would need to transfer to the Green Line, and passengers bound to Selby would need to transfer to the remaining 21 service.

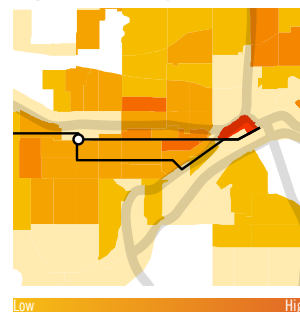
Instead of the terminating at Snelling Station, the B Line could continue directly to downtown Saint Paul, turning right from Marshall onto Snelling, then left onto Selby. This would result in a faster travel time to Saint Paul by avoiding the northwards trip to the station and the transfer. It would also create direct connections from the B Line to buses on Lexington and Dale and to every bus route that serves downtown Saint Paul. It would improve transit service in the Selby corridor, which has nearly 1000 bus boardings today and serves Concordia University, Central High School, and Saint Paul College. It would also avoid the need to terminate buses at the busy Snelling/University intersection. A Line and B Line buses would share the current A Line station at Snelling & Dayton, allowing convenient connections.

Alternately, the B Line could also be extended to Saint Paul along another route. Grand Avenue, for example, is a major business district, and a Grand Avenue route would also serve United and Children's hospitals while creating a direct connection to bus service on West 7<sup>th</sup>.

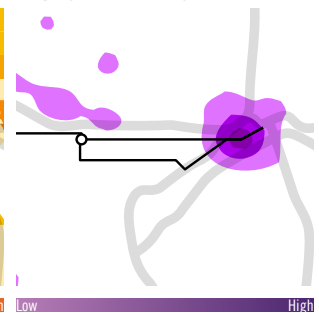
### Possible B Line Extensions to the East of A Line



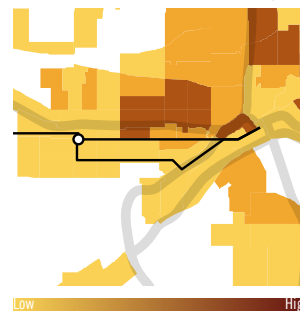
### Population Density



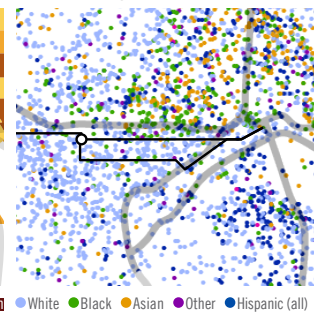
### Employment Density



### Areas of Concentrated Poverty



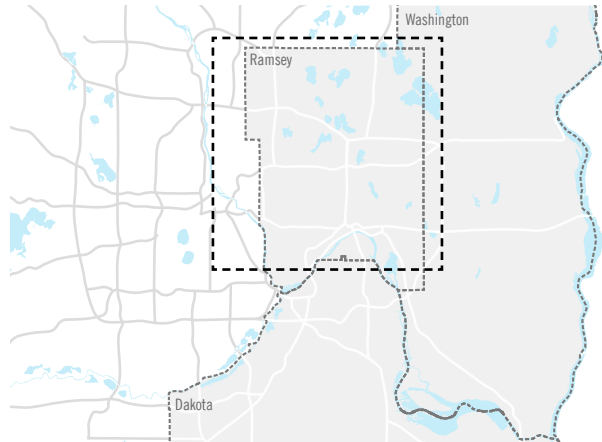
### Race Density



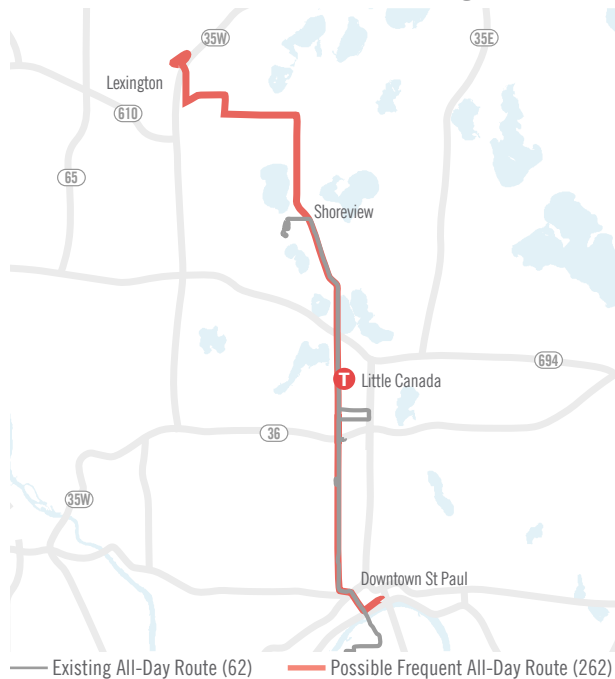


## P8 Increase Service from Little Canada to Shoreview

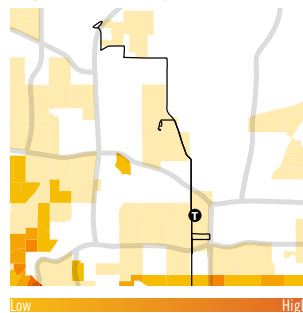
Currently bus number 262 runs from downtown Saint Paul all the way to Lexington, connecting Little Canada and Shoreview, but it only runs twice during rush hours on weekdays. Lexington falls within Metro Transit's Market Area 3, which generally receives all-day service. However, Lexington does not. All-day local bus service ends further south at Shoreview. Lexington is also unique because it is a pocket of high population density in addition to being an employment center. Upgrading the 262 to an all-day route with increased frequency would significantly improve connectivity for the residents in Shoreview to the transit center in Little Canada and major job centers, Lexington and downtown Saint Paul.



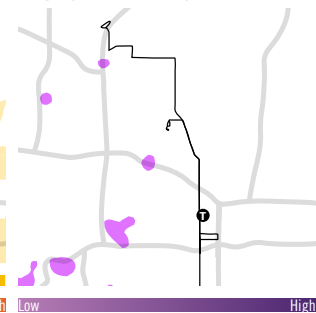
### Possible Increased Service from DTSP to Lexington



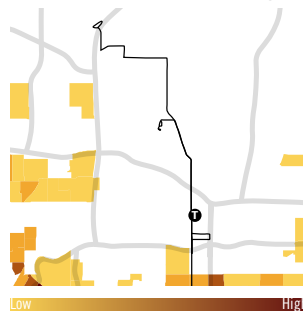
### Population Density



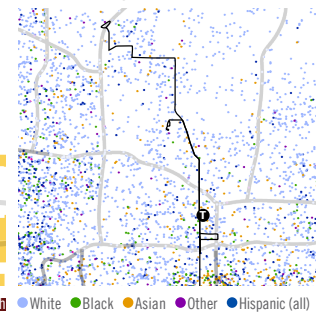
### Employment Density



### Areas of Concentrated Poverty



### Race Density

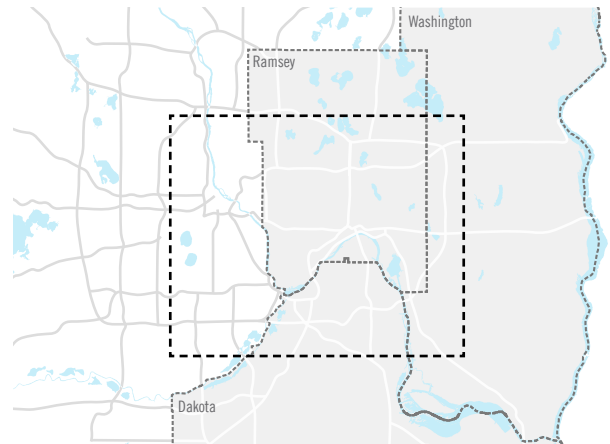


## P9 Improve Bus Lanes & Intersections in the Core

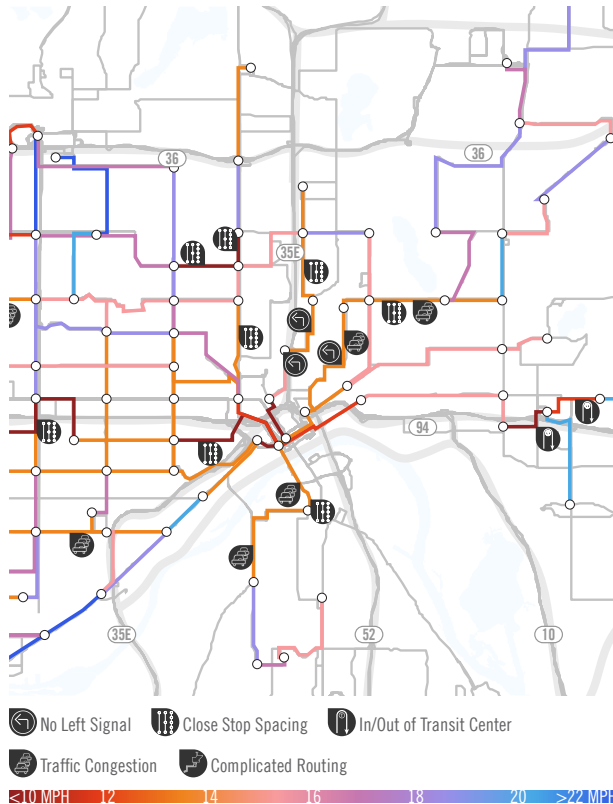
Targeted intersection improvements and bus lanes within the core, especially along frequent routes, can improve the reliability and speed of buses. Metro Transit can use GPS data from buses to identify areas where buses are frequently delayed and then study possible improvements there.

These improvements may not need to be extensive: a block of bus lane in a congested area, a "queue jump" where buses can bypass traffic at a busy intersection, or a left turn signal so that buses do not need to wait for a gap in traffic can make a significant difference. Similar work by Metro Transit in Minneapolis led to a trial of bus lanes on Hennepin Avenue. The same approach should be taken in the East Metro.

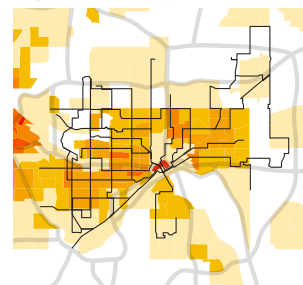
The map below shows locations outside of downtown Saint Paul where transit is currently operating slowly and unreliably. Icons show places where traffic congestion, lack of dedicated left turns, and closely spaced stops may be affecting service. More detailed analysis of the GPS data Metro Transit collects on its buses could be used to quantify the issues and prioritize improvements. Such a study could be done relatively quickly to lead to near-term improvements.



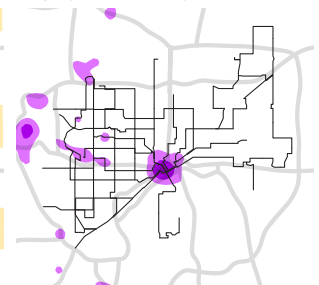
Scheduled Speed Between Time Points



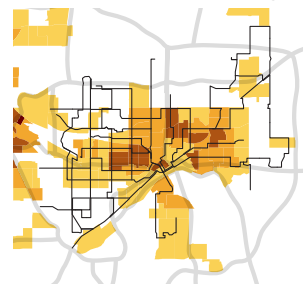
Population Density



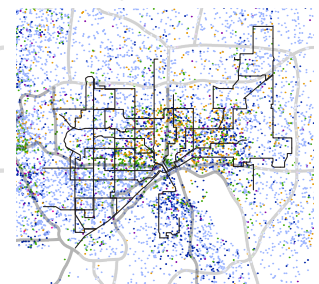
Employment Density



Areas of Concentrated Poverty



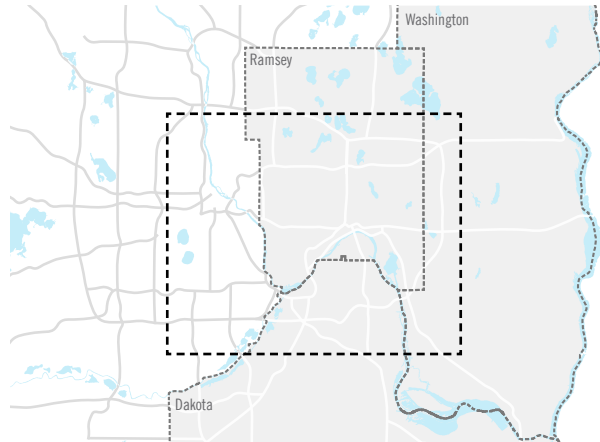
Race Density



## P10 Improve Bus Stops across the Core

Currently most of the bus stops in the densest part of the East Metro do not have shelters, some do not even have benches. Many are not accessible to wheelchairs, and at many the bus pad does not reach the back door, delaying buses as riders have to push their way to the front to deboard. Adding shelters, making stops accessible, and improving boarding areas will improve the passenger experience and likely increase ridership. In areas where stops are closely spaced, these improvements may be combined with stop consolidation, speeding up bus trips.

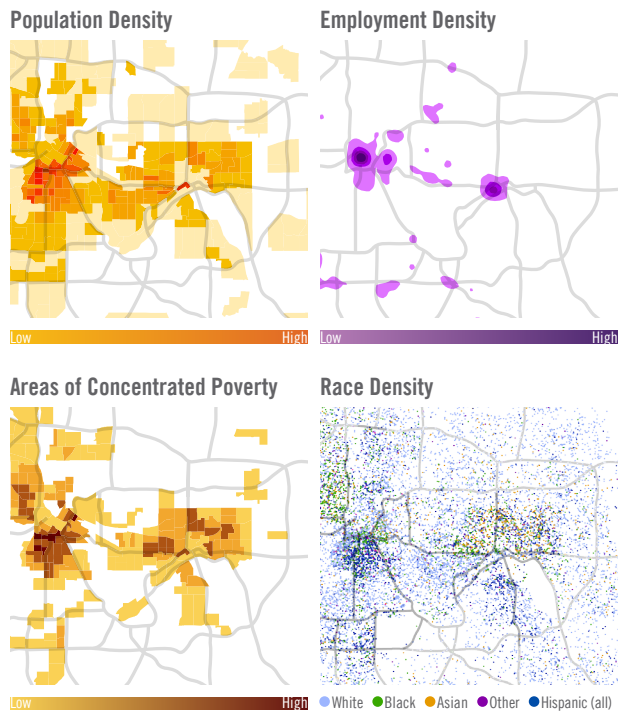
Bus stops should be designed for the safety and comfort of riders. Even the perception of bus stops being unsafe can significantly discourage users. Good design means accessible, brightly lit, heated, and covered stops. It also often includes seating.



### Example of a Good Stop: Rice at Arlington

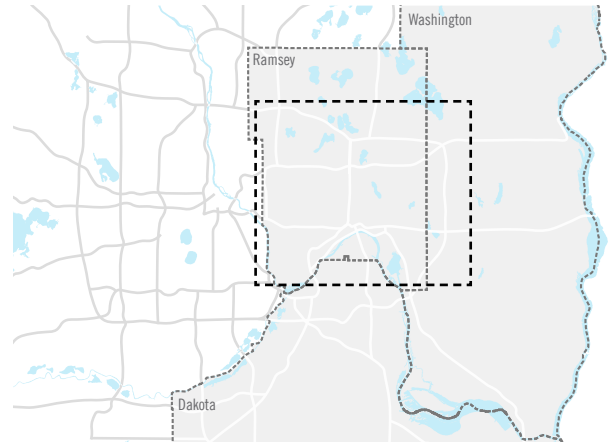


### Example of an Inadequate Stop: Minnesota Ave at 6th Street

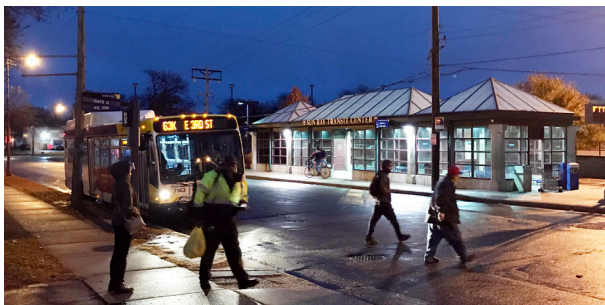


# P11 Improve Transit Centers

Transit centers are the hub of transit and pedestrian activity. As such, they should be designed for a high volume of buses to travel in and out quickly and efficiently. There should be facilities available for bus drivers to take a break, as well as amenities for riders such as restrooms, lighting, heating, seating, bikeshare, bike parking, and retail. Transit centers are also an opportunity for creative design and artwork to engage people more. Currently, Little Canada Transit Center is little more than a bus stop. Maplewood and Sun Ray both have much better passenger amenities than are found at a typical bus stop, including sheltered, heated waiting areas, which are critical. But in both cases some of the bus bays are far removed from the waiting areas, the transit center is isolated from surrounding land uses, and pedestrian and bike connections are uninviting. With urban design interventions, both could be better connected, more human-scaled and more attractive. Each of these transit centers could become hubs of activity, not just for bus routes. Providing additional amenities would improve the experience for users and drivers. A long wait in a winter snowstorm or the heat of summer can be unpleasant at best. Most of these transit centers also lack safe and comfortable pedestrian and bicycle connections to the surrounding neighborhoods, and buses often need to take circuitous paths to access them. Metro Transit has some examples of excellent transit centers, like the Uptown Station in Minneapolis, as models to follow.



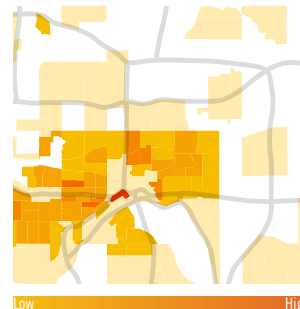
Sun Ray Transit Center



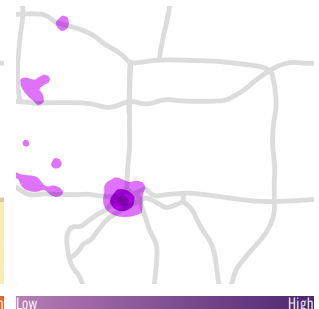
Maplewood Transit Center



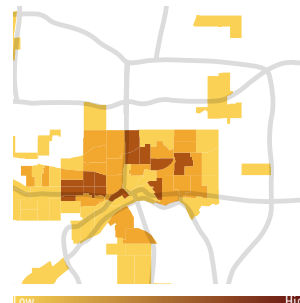
Population Density



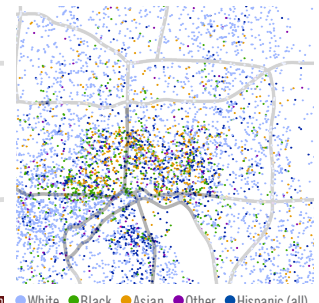
Employment Density



Areas of Concentrated Poverty



Race Density





# P12 Increase Bike Parking, Bike Share, and Car Share at Transit Stops

Given the East Metro's development pattern, transit is unlikely to provide door-to-door service to everyone at all times. Transit is (or should be) a volume service. Public policy should serve residents and destinations (such as employers) by making it possible to cost-effectively provide, and use, that volume service no matter what the final destination. "Last mile" services are an important part of doing so.

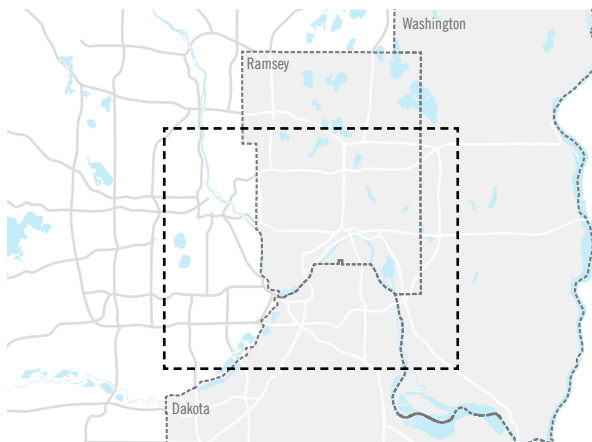
Making that possible includes:

- Ensure adequate bike racks on buses and trains, Metro Transit is generally doing an excellent job of making sure that racks are available on all buses and trains. These have been seeing excess demand and they are often full. A study may be needed to see where exceeding demand warrants additional bike racks. For example, where service is infrequent, a full bike rack could mean waiting another half an hour or more before the next bus.
- Add bike parking on both sides of transit trips.
- Increase bike share hubs at bus stops, especially along frequent routes.
- Add car share hubs at bus stops, especially along frequent routes.

Bikes and car share extend the reach of transit, allowing people outside of walking distance from service to reach transit. Bikes are most often used on the home end of trips, but they can also be used to reach jobs that are away from transit.

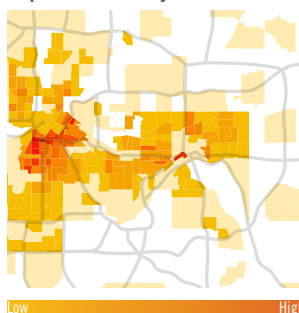
Nice Ride has proven successful in its current docked form, showing that people are eager for shared mobility. Technology and the state of the art are advancing.

## Bike Share Station

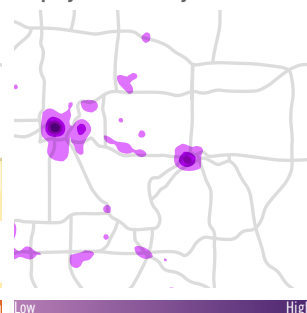


- The East Metro's primary bike share provider, Nice Ride Minnesota, has contracted with Motivate to implement a dockless system using new technology.
- During the transition, Saint Paul contracted with Lime to provide both dockless bikes and dockless electric scooters.
- Saint Paul's work with Lime will increase regional access to transit.

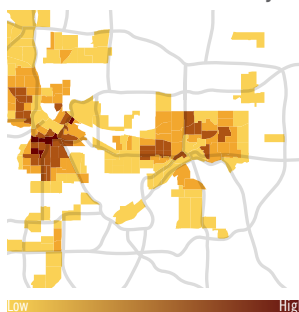
Population Density



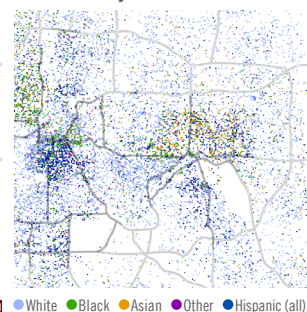
Employment Density



Areas of Concentrated Poverty

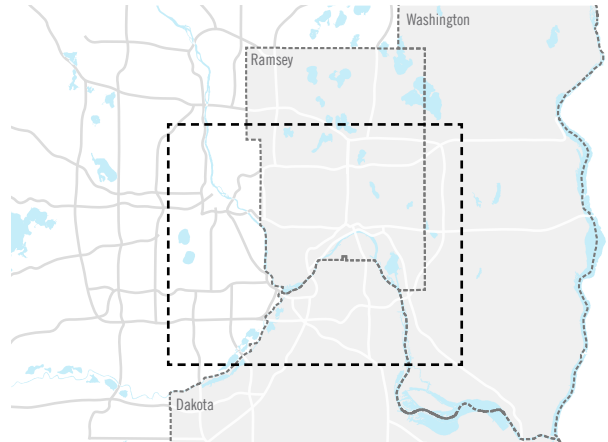


Race Density

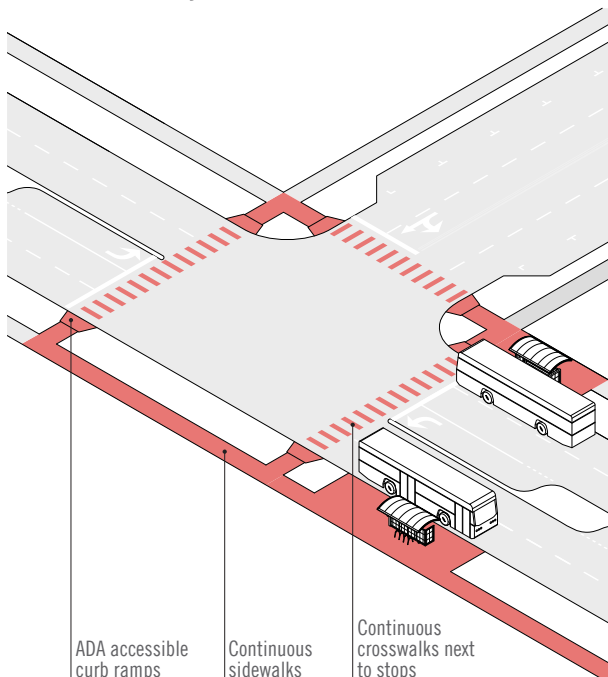


# P13 Improve Crosswalks and Sidewalks on Frequent Routes

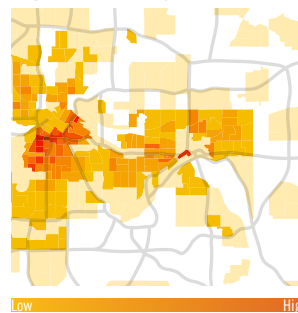
It is common sense to make sure that people who want to use transit are able to. Even on high ridership frequent routes, transit riders often face challenges going to or from the stop. Sidewalks are an essential part of a transit network. As are crosswalks – nearly every transit rider needs to cross the street in one direction of their trip. Sidewalk and crosswalk improvements could be targeted to high ridership stops and areas with high crash rates. Ultimately, every stop should be part of a connected sidewalk network and every stop should have a crosswalk. This can be achieved by coordinating sidewalk improvements with stop consolidation and optimization. These same improvements also benefit all pedestrians. Saint Paul's current Pedestrian Plan effort could be a starting point for these improvements.



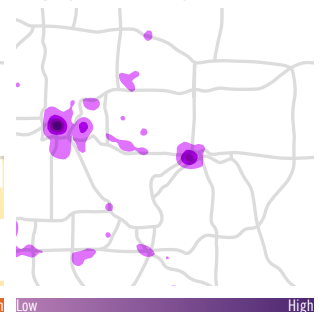
## Pedestrian-Friendly Infrastructure



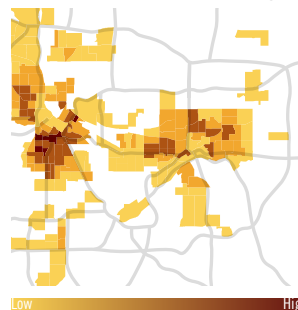
## Population Density



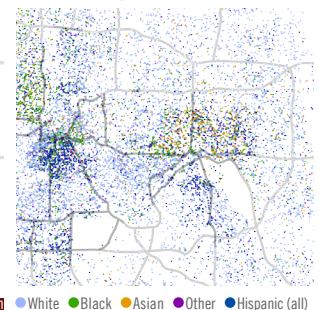
## Employment Density



## Areas of Concentrated Poverty



## Race Density



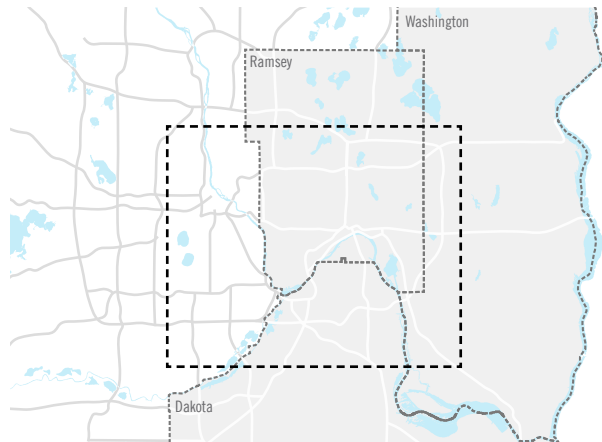


# P14 Improve Pedestrian and Bike Infrastructure at Suburban Jobs

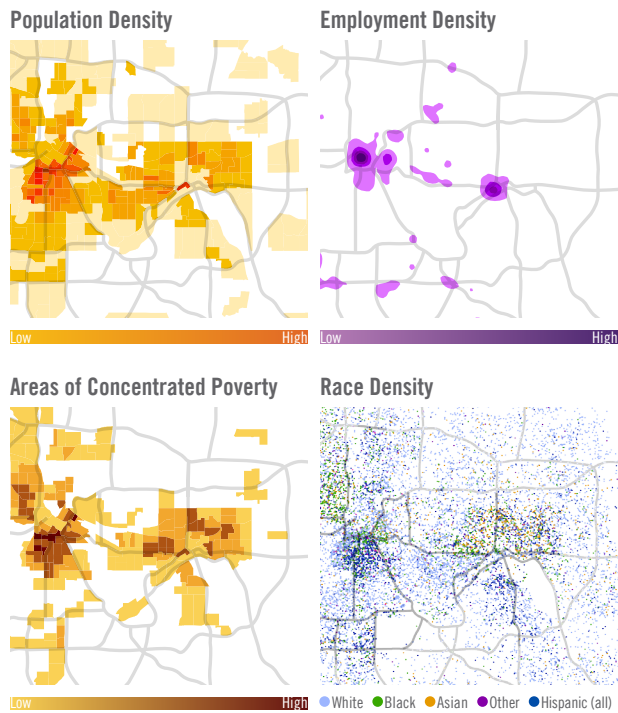
Often, the biggest challenge to using transit to access suburban jobs is getting from a transit stop to a building. Missing sidewalks, long distances between safe crosswalks, no paths to front doors, and the lack of safe bike infrastructure can make transit useless even if it is theoretically within walking distance of a destination. Targeted improvements around bus stops at employment centers can make transit more useful.

Targeted improvements include:

- Sidewalks where none exist today.
- Widened sidewalks with landscape buffers to the curb and street trees for safer, more comfortable walking.
- Improved crosswalks with ramps, pedestrian refuges, and clear markings.
- Additional pedestrian signals at bus stops to make it safe to cross the street.
- Pedestrian connections at the end of cul-de-sac streets to avoid circuitous walks.
- Protected bike lanes.



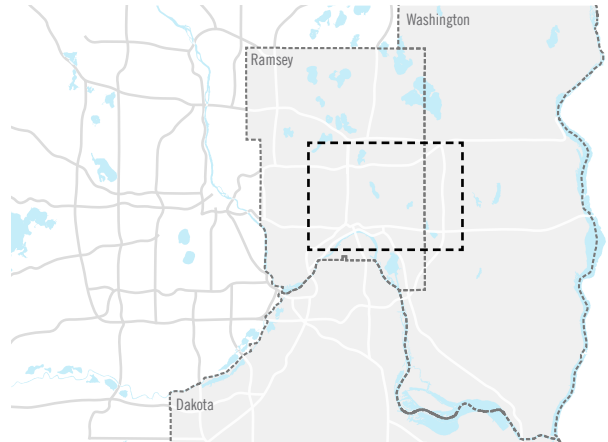
## Missing Paths to Front Doors at St. John's Hospital



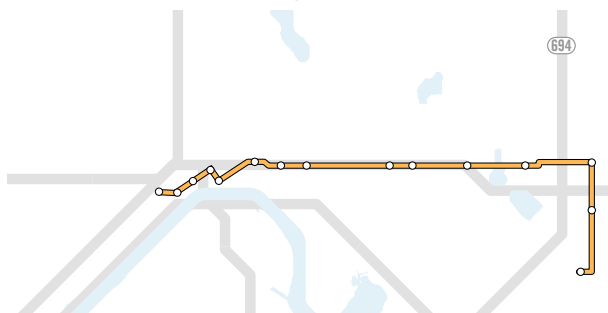
# P15 Open Gold Line BRT with Multiple Routes

The east-west Gold Line connecting downtown Saint Paul, the 3M campus, Sun Ray Transit Center, and Woodbury is currently being planned by Metro Transit, MnDOT, Ramsey County, and Washington County.

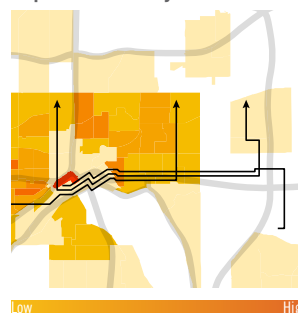
Beyond the Gold Line route itself, the Gold Line guideway, with its high-quality stops and fast, reliable infrastructure could be productively used by additional, non-Gold Line routes. Local routes to Maplewood and Oakdale on the east could converge on Sun Ray and use the guideway instead of local streets as a fast route into downtown, then continue on westward or northward to destinations such as Grand Avenue or Little Canada. Sharing the guideway would speed up all of these routes and offer direct trips between multiple destinations. It would also add service on the busiest part of the Gold Line corridor. Planned headways show capacity in the transitway; access in and out of the Gold Line would need to be studied for any impacts on Gold Line travel time.



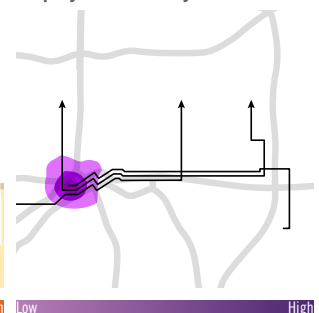
Gold Line as Planned with Existing Connections



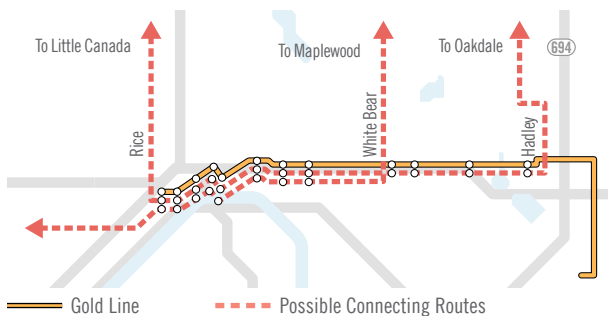
Population Density



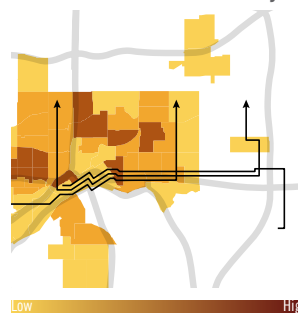
Employment Density



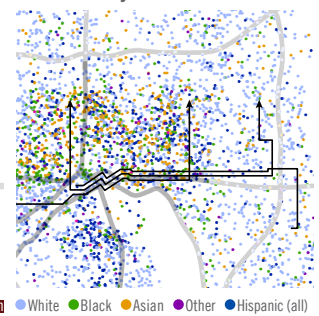
Possible Gold Line Connections



Areas of Concentrated Poverty



Race Density



# P16

## Implement Short-Run Transit Improvements for DTSP, Study Long-Run Redesign

Downtown Saint Paul is the center of the East Metro transit network, with a light rail line, 13 local routes, and 17 express routes radiating in all directions. In the coming years the Gold Line Bus Rapid Transit and the Riverview modern streetcar, plus planned-for additional arterial bus rapid transit, will be added.

Downtown Saint Paul serves three main functions in the transit network:

- As the East Metro's largest employment center, it is a major destination.
- It is also a major transfer point where riders traveling from one part of the metro region to another make connections.
- Finally, it is the end point for many routes.

The accompanying route maps illustrate these functions.

Unlike downtown Minneapolis, downtown Saint Paul has not received significant improvements to bus operations. The addition of the Green Line led to some realignment of bus routes, and the ends of some routes that had previously laid over on streets were brought into the reopened Union Depot, but the overall structure of bus routes remained essentially the same.

Planning for the Gold Line has also not identified any significant changes to the structure of the bus network in Downtown Saint Paul. The Gold Line Locally Preferred Alternative (LPA) route would extend through downtown. The Gold Line process is also studying an alternative that would end at Union Depot. This report takes no position on those options, which remain under evaluation. Each outcome would affect downtown transit and overall travel in different ways. Rush Line and Riverview are also planning to serve downtown.

Downtown currently has significant opportunities for improvement; these planned new services increase the need to take a fresh look at how transit can work in an integrated way to best serve downtown, and its functions in the transit system.

The following opportunities include actions that could be taken in the shorter- and longer-terms.

**Better bus stop shelters would improve the rider experience.** Some stops in downtown Saint Paul have good shelters and bus station amenities such as Central Station, but others have only benches or no facilities at all, such as on 5th street at Jackson. These are some of the most important transit facilities in the East Metro network, serving hundreds of people a day.

**Bus lanes, traffic signal priority, and stop consolidation could speed up buses.** Today, downtown Saint Paul is one of the slowest parts of the bus network. The 71 schedule, for example, takes 7 minutes to travel only 2/3 of a mile from the northern edge of downtown to the center, averaging less than 6 mph.

These slow speeds are caused by a variety of factors, all of which can be changed. Closely spaced stops increase the time the bus spends stopped; the same number of passengers boarding at fewer stops would take less time. Red lights slow buses down. Congestion

due to general traffic as well as from cars, TNCs, and delivery vehicles jockeying for the curb further slows buses down. All of these can be addressed by:

- optimizing stop spacing and locations,
- adding bus-only lanes coordinated with clearly marked curbside loading zones for other vehicles outside the bus lanes, and
- by giving buses traffic signal priority at key intersections.

**Bus-rail transfers could be optimized.** A large number of passengers are transferring between bus and rail, especially at Central Station. The current arrangement of bus stops is dispersed across six blocks and is not easy to understand. Along with redesigned routes and new bus stop locations, wayfinding signage could make these transfers easier to understand,

**The overall route structure could be simplified.** The accompanying maps show a complex route structure that is not easily understood by someone thinking of using transit. And they show a route structure that feeds many routes into and through downtown.

A larger route restructuring, taking advantage of the Green Line, Gold Line, Rush Line, and possible new aBRT corridors, could mean some routes do not need to go downtown at all. Within downtown, routes could be consolidated on fewer streets and simplified. For example, seven local buses use 5<sup>th</sup> and 6<sup>th</sup> streets for east-west travel, while the same number of north-south routes are spread across Wabasha, Cedar, Minnesota, and Robert. Combining these routes on a single pair of streets might make the network easier to understand for riders and make it easier to improve bus stops and bus lanes. It may even make sense to move one or more bus routes into the same streets as light rail, creating transit malls that simplify connections.

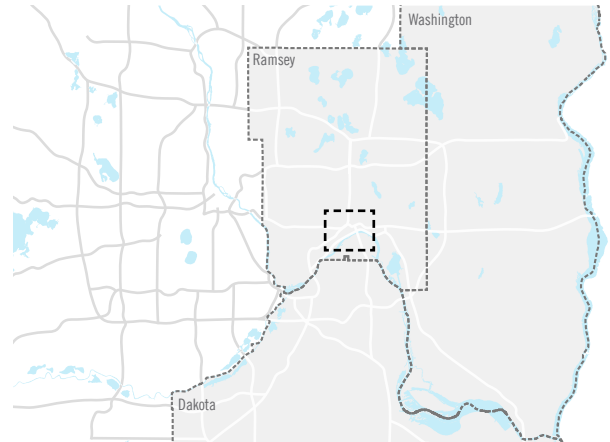
**Union Depot could be used more effectively.** Union Depot is an extraordinary facility, a national exemplar in bringing together multiple modes; in mixed-use, transit-oriented development; and in place-making for economic development. The bus facilities, and thus the experience of transferring between buses, is currently the most pleasant in downtown and probably in the region.

However, Union Depot is currently primarily used as an end-of-route layover rather than a transfer hub. In a new route structure, the depot could play a more significant function, taking advantage of the high quality boarding island, canopies, and concourse amenities. It may make sense to bring some routes more directly into the depot, such as some that do not terminate in downtown, or others that currently terminate elsewhere in downtown.

It may also be useful to make physical improvements to the facility. In particular, a second bus entry/exit from the west would make it easier to bring routes through the depot without detours. The center of downtown will always be a major destination, and in general it makes sense for high ridership routes to run directly to the destinations in the center of downtown without forcing transfers. However, it may be desirable for Union Depot to take on some of the transfer functions that other parts of downtown currently serve.

**Rail and BRT lines could act as downtown circulators.** The Green Line provides a useful connection between Union Depot, the center of downtown, and the Capitol. A Gold Line route into downtown could provide a similar connection between Union Depot, center of downtown, Xcel Energy Center, and the cathedral. Regional routes like the Green and Gold lines are useful for trips within downtown as well as for riders who take the bus or rail into downtown but are headed to a portion of downtown their route does not serve. Thus, both the Green and Gold Lines could serve as — and be marketed as — circulators in much the same way Route 18 does on Nicollet Avenue through downtown Minneapolis. This may also mean that not all local routes have to go through downtown the way they do now. On the other hand, there is an argument to be made for not using higher-speed, regional routes as a circulator.

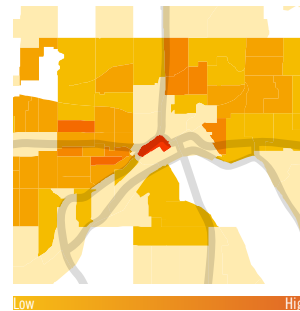
The planned new lines into downtown both reinforce an existing need and create an opportunity to look at the downtown transit network as a whole. A comprehensive downtown study could identify both short-term improvements and long-term strategies for stops, streetscape, traffic management, and route structure.



**Union Depot**

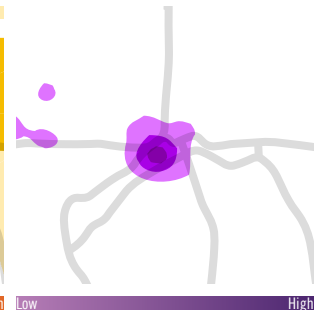


**Population Density**



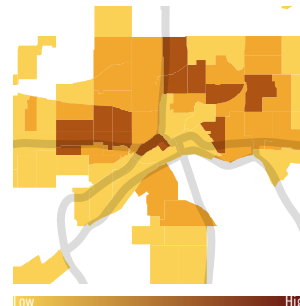
Low High

**Employment Density**



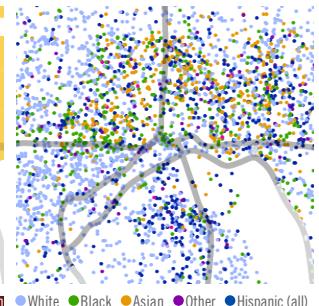
Low High

**Areas of Concentrated Poverty**



Low High

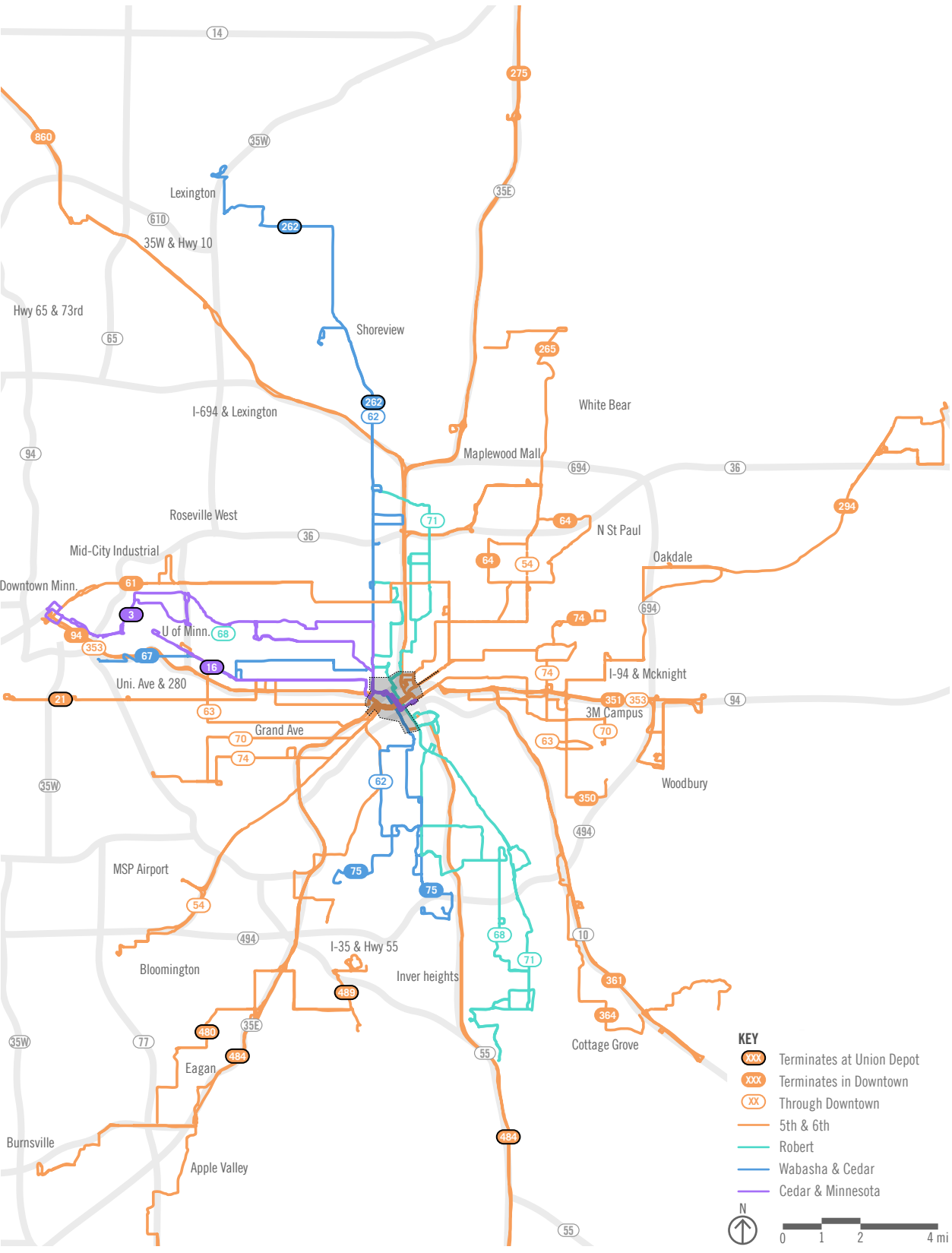
**Race Density**



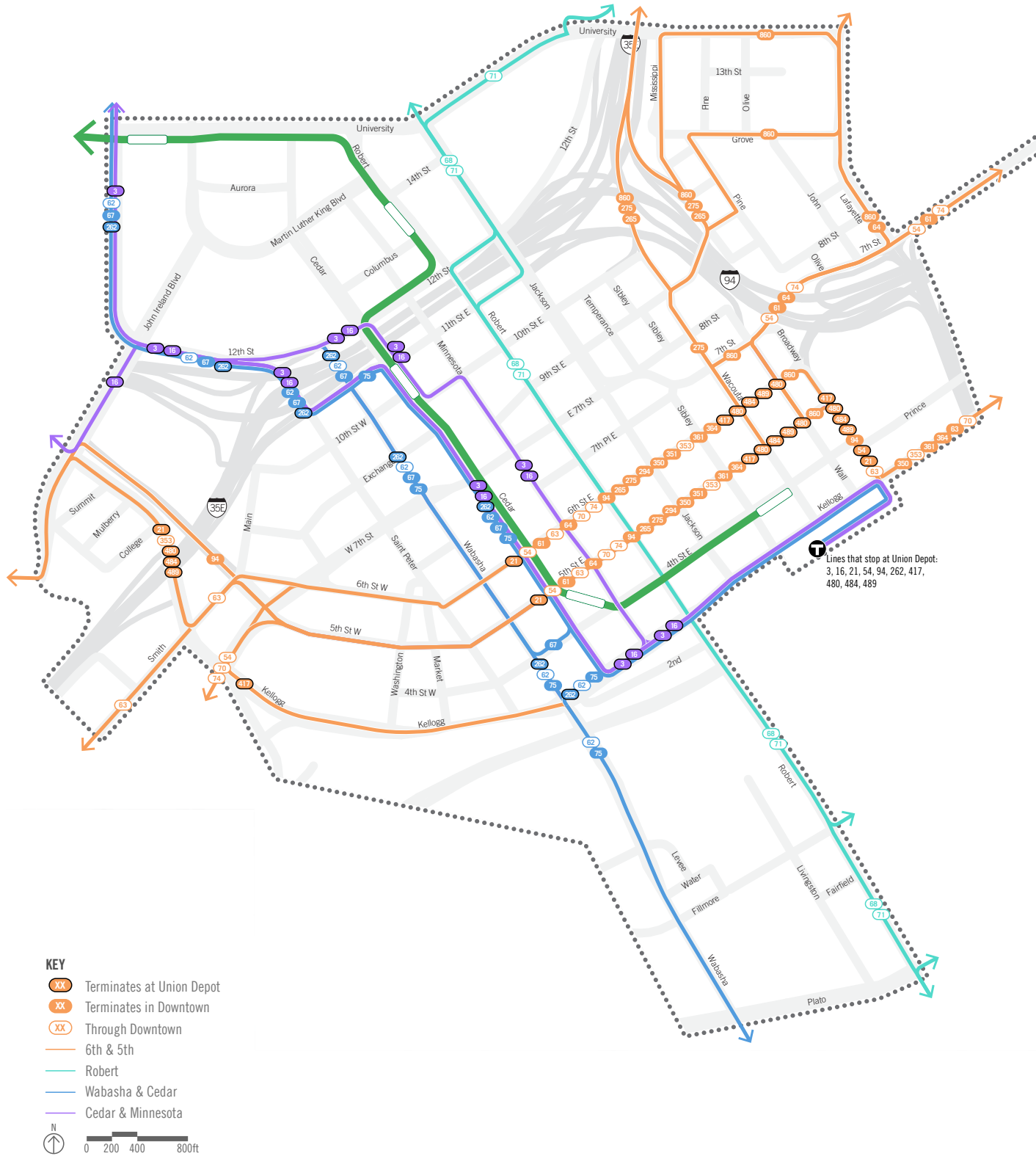
White Black Asian Other Hispanic (all)



# Downtown Saint Paul Routes



## Downtown Saint Paul Routes





# 6

## Next Steps

It is clear that there are many opportunities to improve transit in the East Metro. If the board of East Metro Strong and other stakeholders believe that it is worth moving ahead with pursuing those, the ideas outlined in this report should be starting point for a larger discussion.

- Step 1 **Outreach and vision.** An extensive public outreach program can establish the community's goals and determine the level of interest in different ideas for improvements and surface new ideas. This program needs to be comprehensive enough to reach transit riders and marginalized communities; this will require stakeholder discussions with community leaders, public workshops, and widespread outreach to the public where they are: at community events, transit centers, and online. This outreach should define a vision for transit in the East Metro, clearly stating priorities and identifying which possible improvements are worth further study.
- Step 2 **Data analysis.** To quantify the potential benefits of improvements and identify exactly where improvements (especially targeted improvements like bus stops and intersections) are needed, the ridership and schedule data that Metro Transit already collects needs to be compiled and analyzed. This can happen in parallel with the outreach and vision.
- Step 3 **Coordination with existing planning efforts.** Where planning is already underway — like on the Gold Line and the Metro Transit aBRT program — ideas from this report and from public outreach should be fed into those planning efforts.
- Step 4 **New planning studies.** Based on the visions, Metro Transit, cities, or counties can initiate new transit studies.

