



# Bus Service Allocation Study

Project Overview

TAC Planning

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# AGENDA

- Study Purpose
- Stakeholder Engagement
- Existing Conditions
- Scenario Analysis
- Coverage Guidelines
- Next Steps

# STUDY PURPOSE

**Facilitate** regional discussion with policy makers on transit priorities



**Understand** region-wide need for better mobility options



**Develop and evaluate** a series of expansion scenarios that reflect regional goals



**Document** regional values to inform future service investment

# STAKEHOLDER ENGAGEMENT

# SUMMARY OF STAKEHOLDER ENGAGEMENT

- Transit Network Design and Service Tradeoffs Workshop - July 2019
- Public Transit Agency Staff Interviews – Early 2020
- Policymaker Workshop: Existing Conditions - April 2020
- Policymaker Workshop: Scenario Evaluation – December 2020



# JULY SERVICE TRADEOFF WORKSHOP

- Service allocation workshop with Met Council and TAB Members
- Developed route network using limited resources in hypothetical city
- Key themes:
  - Leveraged pre-existing rail network
  - Focus on sociodemographic equity
  - Job access to outlying suburban areas
  - Focus on medical and higher education destinations
  - 15-minute service frequency in core areas



# PUBLIC TRANSIT AGENCY INTERVIEWS

- All transit agencies use similar industry standard performance metrics to measure:
  - Service efficiency
  - Revenue effectiveness
  - Cost effectiveness
- All transit agencies focus on quality service to areas with highest ridership potential
- All transit agencies noted challenges in providing service in areas with need, but lower ridership demand
- Social equity is important, but applied inconsistently in existing service allocation processes
- Not all agencies have written service allocation processes, but all agencies engage in service allocation annually

# EXISTING CONDITIONS



# APRIL 22 POLICY-MAKER WORKSHOP

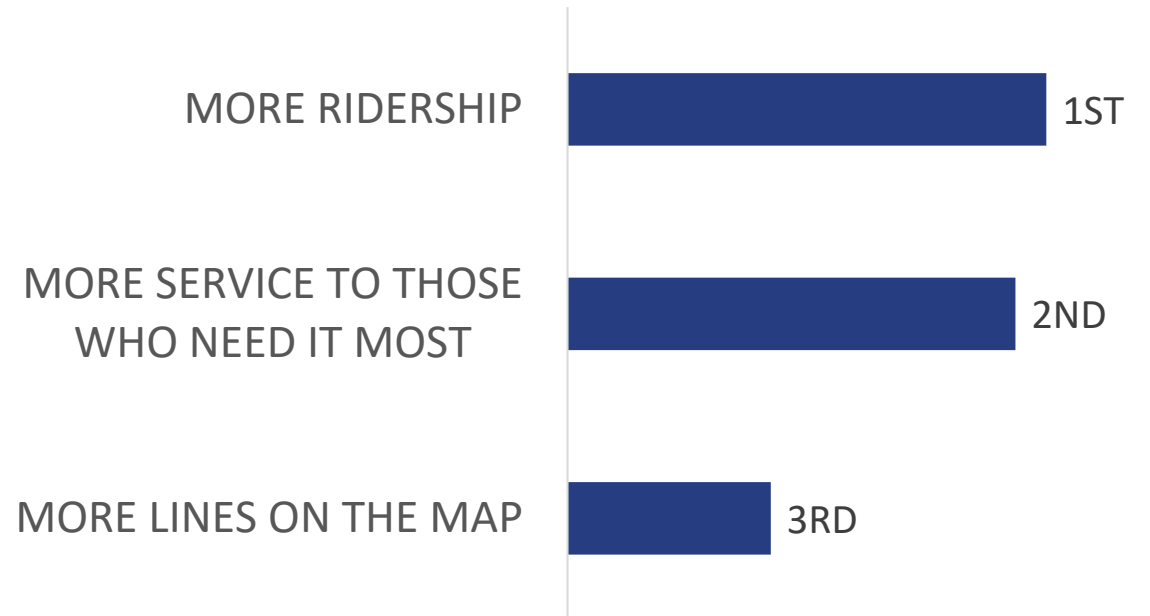
- **Presentation included:**

- Characteristics of current riders
- Summary of agency interviews
- Population and employment served within region
- Level of socioeconomic groups are served within region
- Trade-off questions

- **Discussion of Priorities**

## Workshop Survey Results

*What does success look like for area transit?*



# STUDY ANALYSIS ROUTE CLASSIFICATIONS

- **High Frequency Service**

- Service every 15 minutes or better
- Includes bus, Bus Rapid Transit, and Light Rail
- Convenient for all trip types, no schedule necessary

- **Local Service**

- Service at least every 30 minutes
- Requires a schedule
- Less flexible than high frequency service, but will support discretionary trips

- **Basic Service**

- Service more than every 30 minutes
- Requires a schedule
- Not conducive to convenient trip making

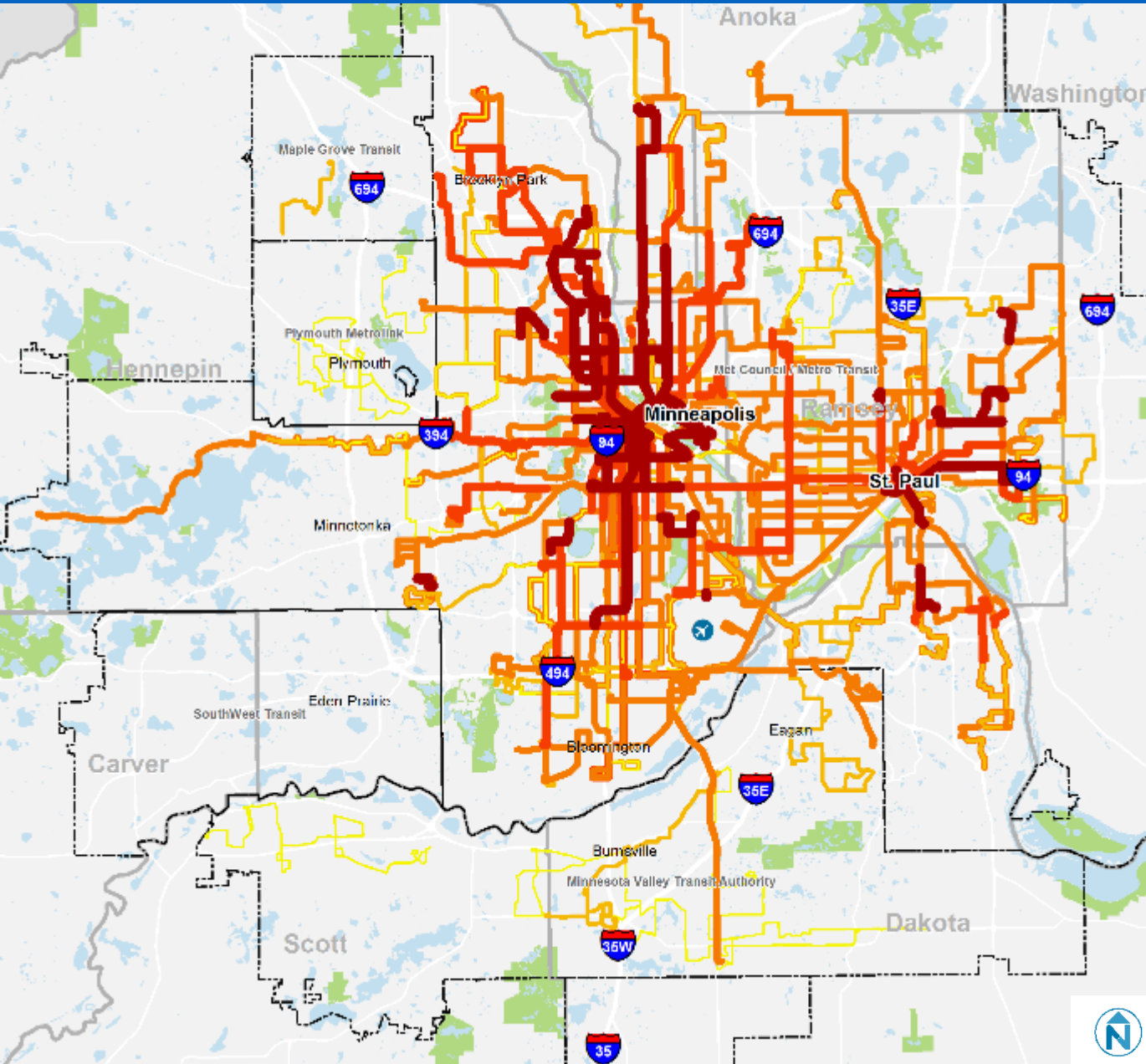
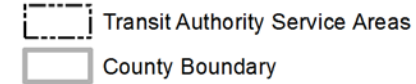
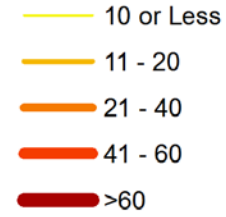
- **Commuter & Express Service**

- Any service that has long, non-stop segments
- Includes peak service to CBD's, reverse commute, and all-day service

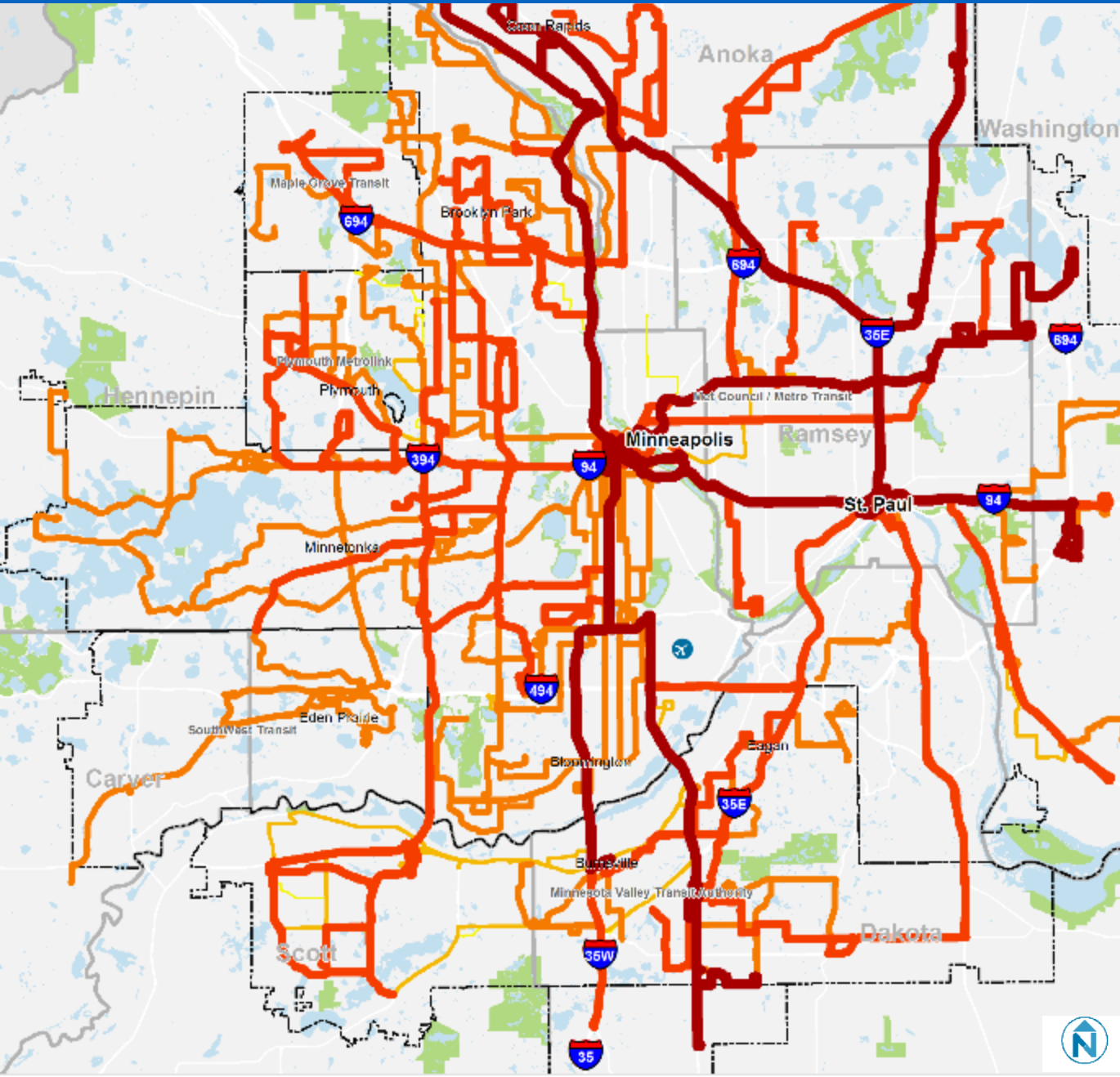
# HIGH FREQUENCY, LOCAL, AND BASIC SERVICE PRODUCTIVITY

## Productivity by Segment for High Frequency Transit, Local, and Basic Transit Service

### Boardings per In Service Hour

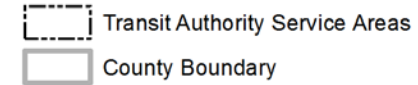
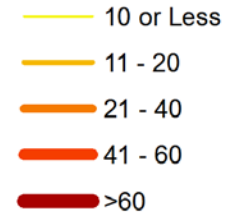


# COMMUTER & EXPRESS PRODUCTIVITY



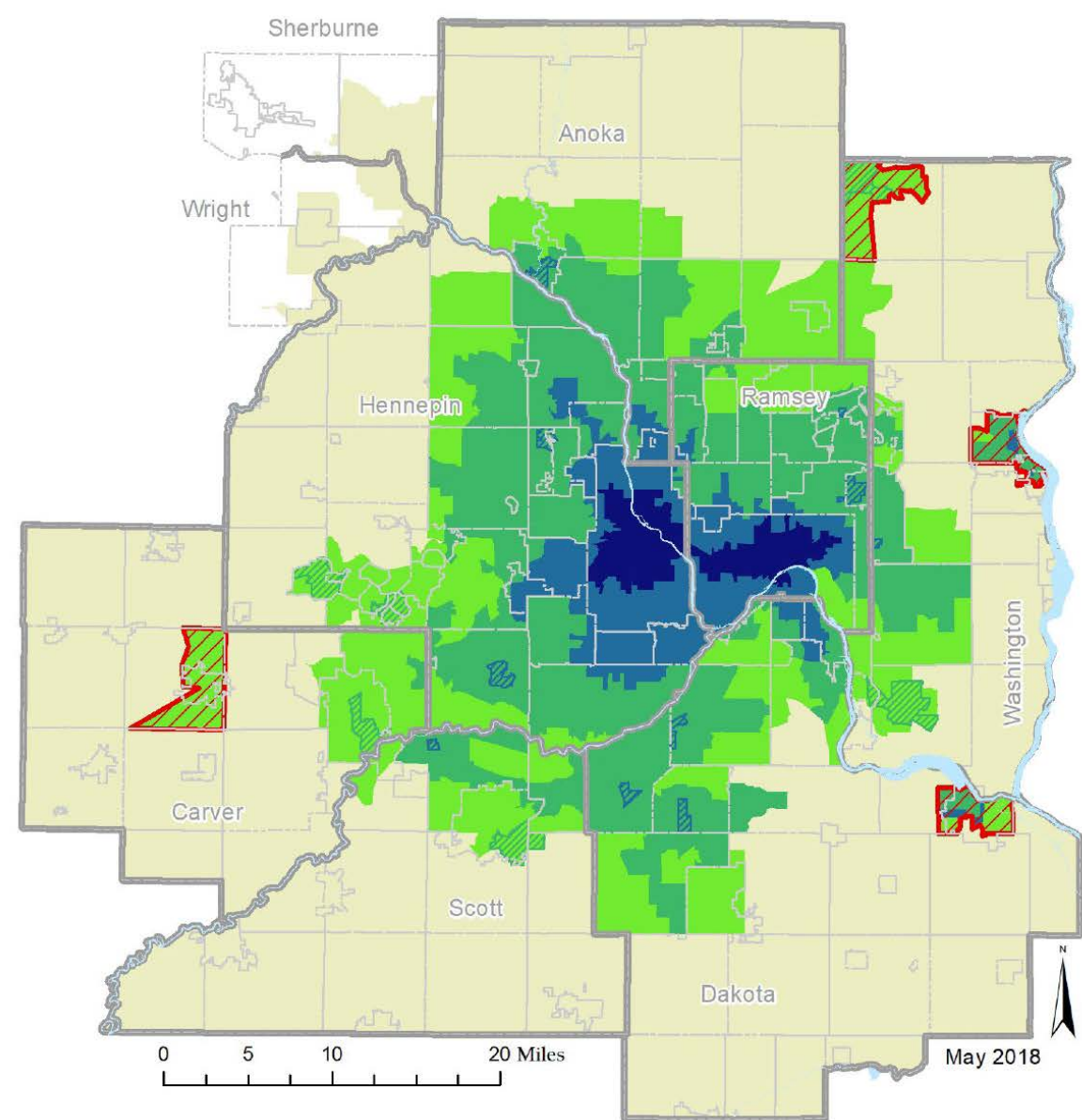
## Productivity by Route for Commuter & Express Service

### Boardings per Trip

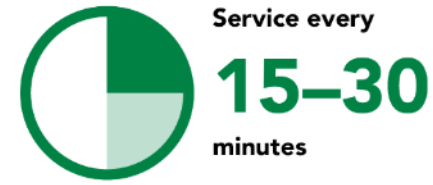


# MARKET AREAS

- The seven-county metro region is divided into Transit Market Areas representing different levels of potential transit demand
  - Market Area 1 = highest level of transit demand
  - Anticipated demand in Market Area 2 = half of Area 1
  - Anticipated demand in Market Area 3 = half of Area 2



# GUIDELINES FOR TRANSIT SERVICE LEVELS



**45+** residents per acre  
**25+** employees per acre



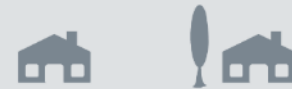
**30-45** residents per acre  
**15-25** employees per acre



**15-30** residents per acre  
**10-15** employees per acre



**10-15** residents per acre  
**5-10** employees per acre



**<10** residents per acre  
**<5** employees per acre

Source: Thresholds are based on research by Nelson\Nygaard.

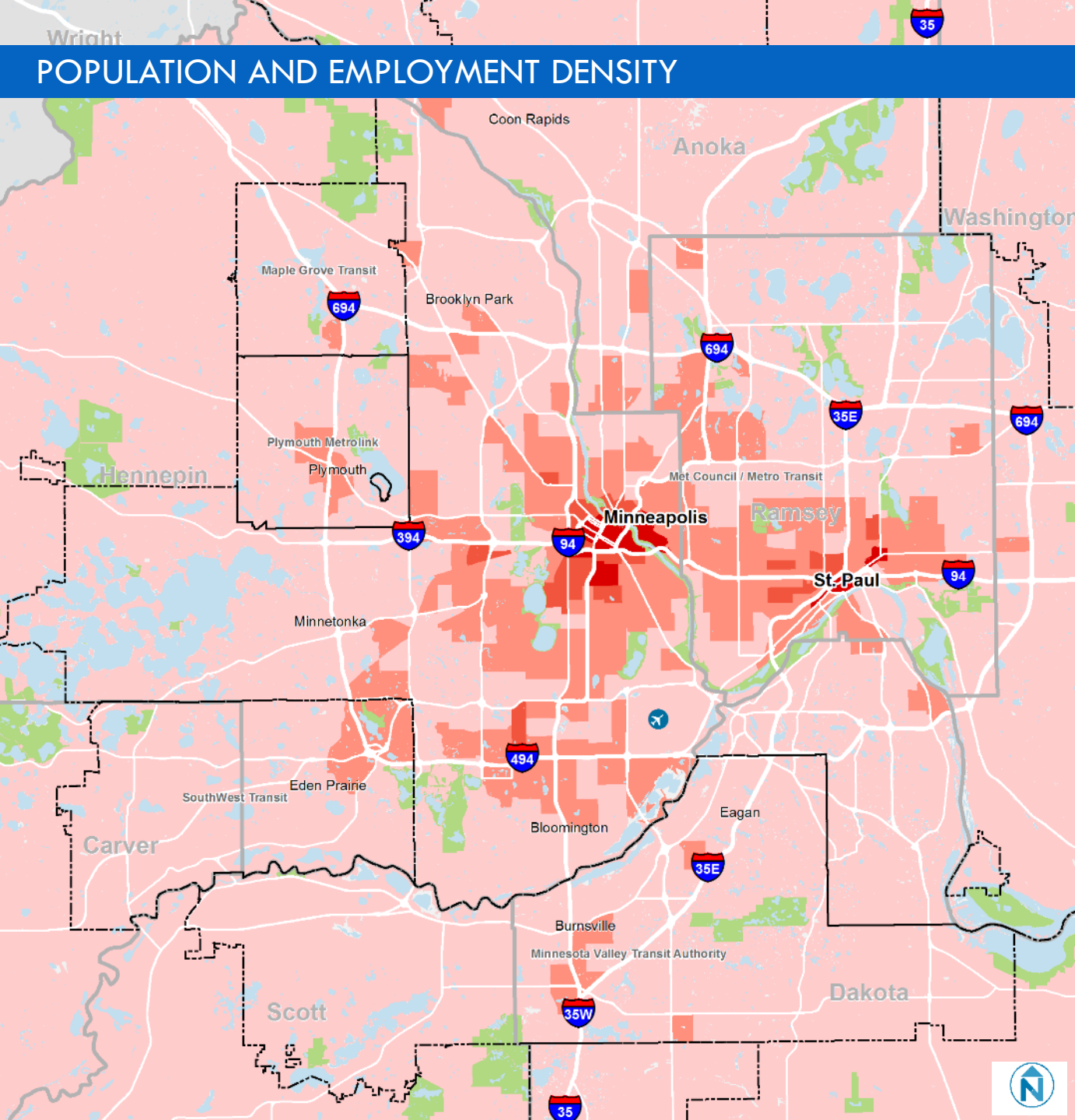


# POPULATION AND EMPLOYMENT DENSITY

## Residents and jobs per acre (service frequency supported)

- Less than 10 (flexible and demand response services)
- 10 - 25 (service every 30 - 60 minutes)
- 25 - 45 (service every 15 - 30 minutes)
- More than 45 (service every 15 minutes or better)

- Transit Authority Service Areas
- County Boundary



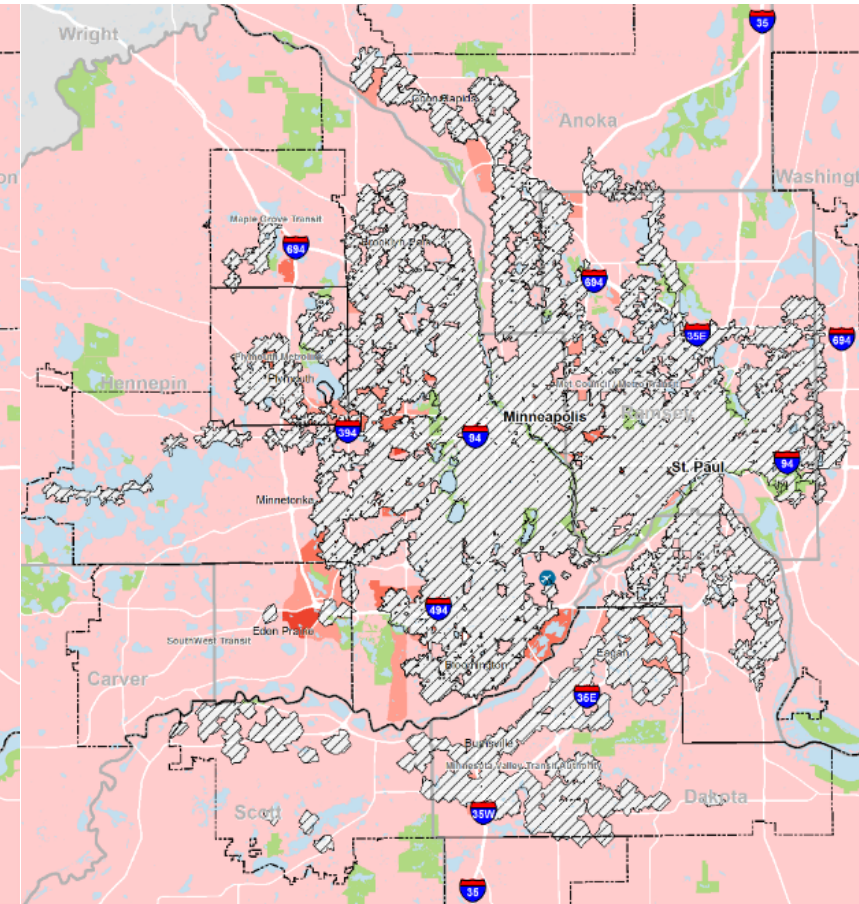
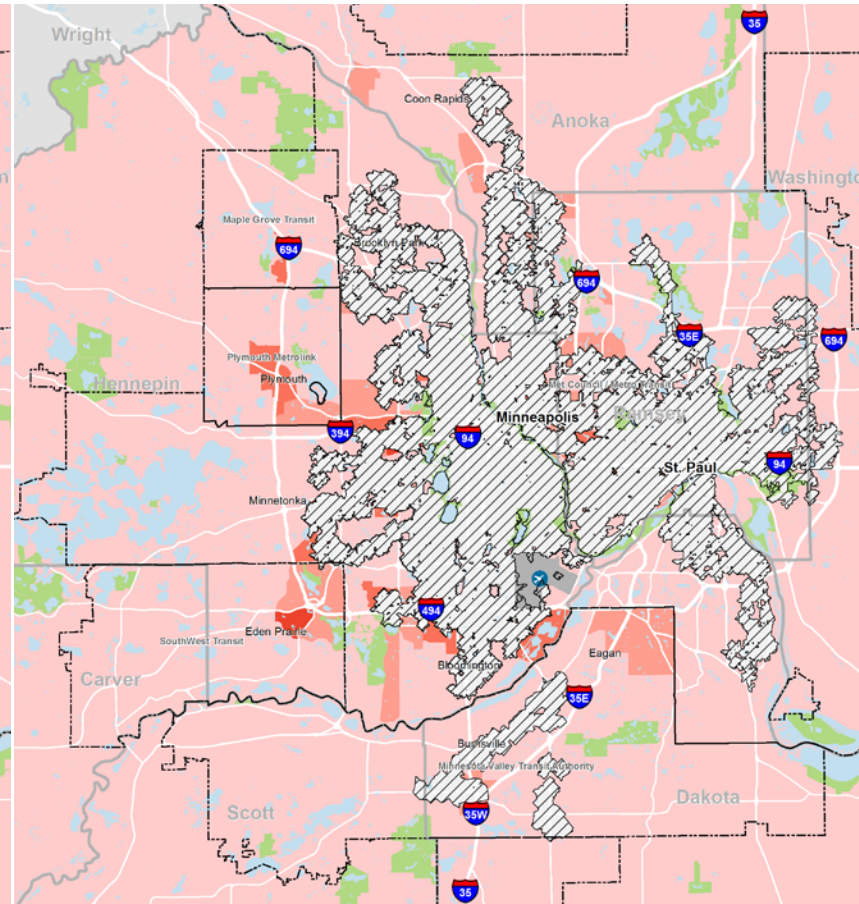
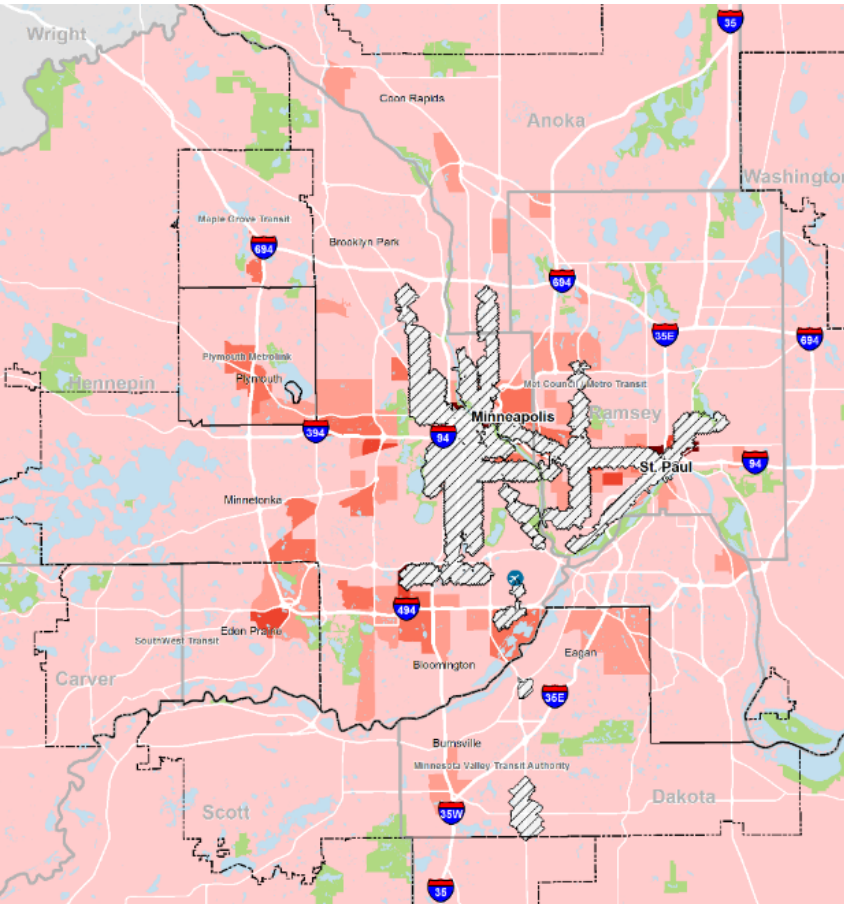
# EXISTING CONDITIONS

## Percent of total population served by transit

Service	Market Area 1	Market Area 2	Market Area 3	Market Area 4	Market Area 5
<b>High Frequency and High Capacity Transit</b> (<15-min frequency)	72%	25%	1%	0%	0%
<b>Local Service</b> (<30-min frequency)	97%	84%	21%	<1%	0%
<b>Basic Service</b> (>30-min frequency)	97%	87%	41%	6%	<1%
<b>Commuter &amp; Express Transit</b>	97%	89%	57%	16%	1%
<b>No Transit Access</b>	3%	11%	43%	84%	99%

# TOTAL EMPLOYMENT

## Total jobs not served by transit



**Areas Not Served by High Frequency Service Network**

**Jobs per acre**  
 Less than 5  
 5 - 10  
 10 - 15  
 15 - 25  
 More than 25

High Frequency Network 10-Minute (800m) Walkshed  
 Transit Authority Service Areas  
 County Boundary

Miles 0 2 4



**Areas Not Served by Local Service Network**

**Jobs per acre**  
 Less than 5  
 5 - 10  
 10 - 15  
 15 - 25  
 More than 25

Local Network 10-Minute (800m) Walkshed  
 Transit Authority Service Areas  
 County Boundary

Miles 0 2 4



**Areas Not Served by Lifeline Service Network**

**Jobs per acre**  
 Less than 5  
 5 - 10  
 10 - 15  
 15 - 25  
 More than 25

Lifeline Network 10-Minute (800m) Walkshed  
 Transit Authority Service Areas  
 County Boundary

Miles 0 2 4



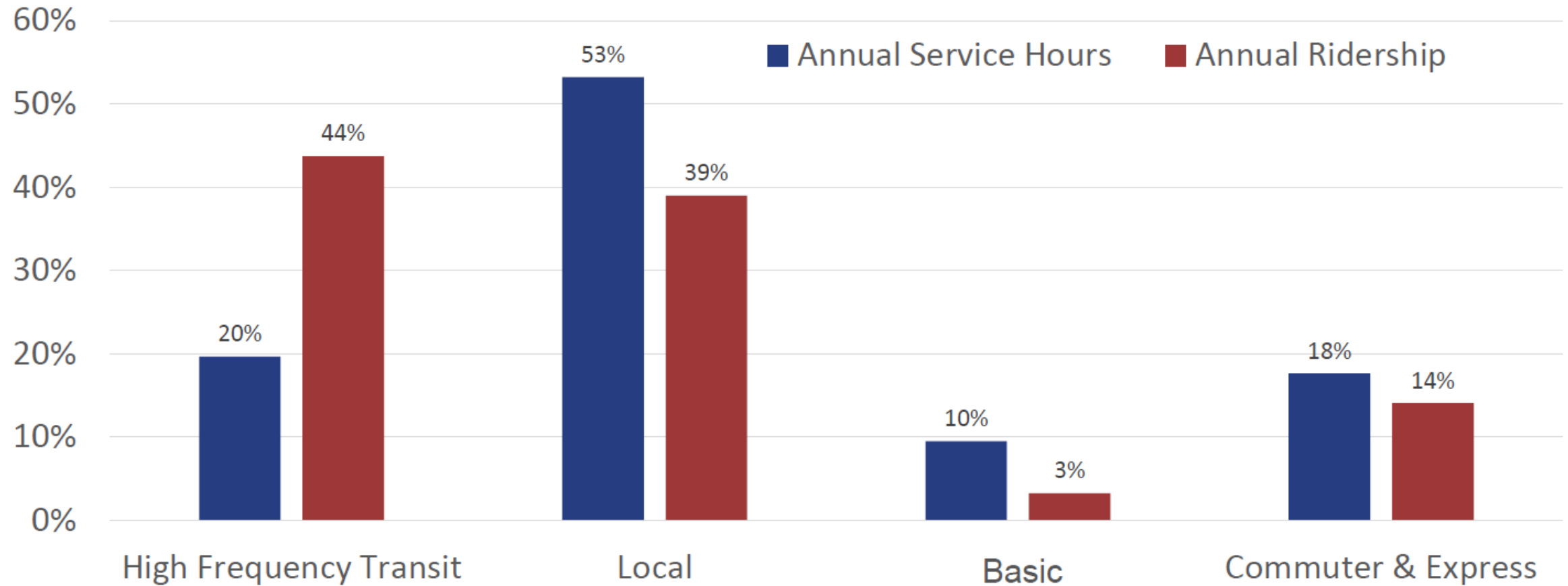
# EXISTING CONDITIONS

## Percent of total jobs served by transit

Service	Market Area 1	Market Area 2	Market Area 3	Market Area 4	Market Area 5
<b>High Frequency and High Capacity Transit</b> ( <b>&lt;15-min frequency</b> )	80%	21%	1%	0%	0%
<b>Local Service</b> ( <b>&lt;30-min frequency</b> )	96%	78%	19%	<1%	0%
<b>Basic Service</b> ( <b>&gt;30-min frequency</b> )	96%	82%	43%	14%	1%
<b>Commuter &amp; Express Transit</b>	97%	85%	59%	23%	3%
<b>No Transit Access</b>	3%	15%	41%	77%	97%

# EXISTING CONDITIONS

## Current Service Distribution by Service Type





# APRIL 22 POLICY-MAKER WORKSHOP

## Key Themes

- Regional transit success looks different for different policymakers.
- Providing service to those who need it most was a top priority for measuring success
- Other themes included increasing ridership, connecting people to destinations, neighborhood coverage, serving high-need communities, and matching service with land use
- The top priorities for service expansion scenarios were:
  - Serving low-income populations
  - Improving job access



# SCENARIO ANALYSIS

# SCENARIO DEVELOPMENT

- **Two different networks** were developed to illustrate different service delivery strategies
- Service built on **pre-COVID network and Met Council Funded transitways** as outlined in 2040 Transportation Policy Plan
- Both scenarios were developed under assumption of **25% service increase** (based on hours of service)

## SCENARIO 1

Invest additional resources in improving transit that serves all trip types

## SCENARIO 2

Invest additional resources in increasing regional access to transit

# SUMMARY OF SCENARIO INVESTMENT STRATEGIES

IMPROVEMENT TYPE	SCENARIO 1	SCENARIO 2
High-frequency routes improved	6	-
Local routes improved to high-frequency	27	-
Basic routes improved to local	-	20
Commuter routes improved	-	4
New reverse commute and suburb-to-suburb routes	-	5
New local routes	5	30
New commuter routes	-	2
Expanded on-demand service	-	✓

## SCENARIO EVALUATION

- Evaluation of the two 2040 expansion scenarios that were developed to illustrate the **potential outcomes of differing investment strategies**
- Criteria were designed to measure how well each network addresses **potential needs of the region**
- The criteria were informed by **feedback from Met Council staff, area transit providers, regional policymakers, key stakeholders, and national experience**

## Ridership Potential

### Access to Transit

Expanded Access to  
All-Day Transit

Improved Transit Service

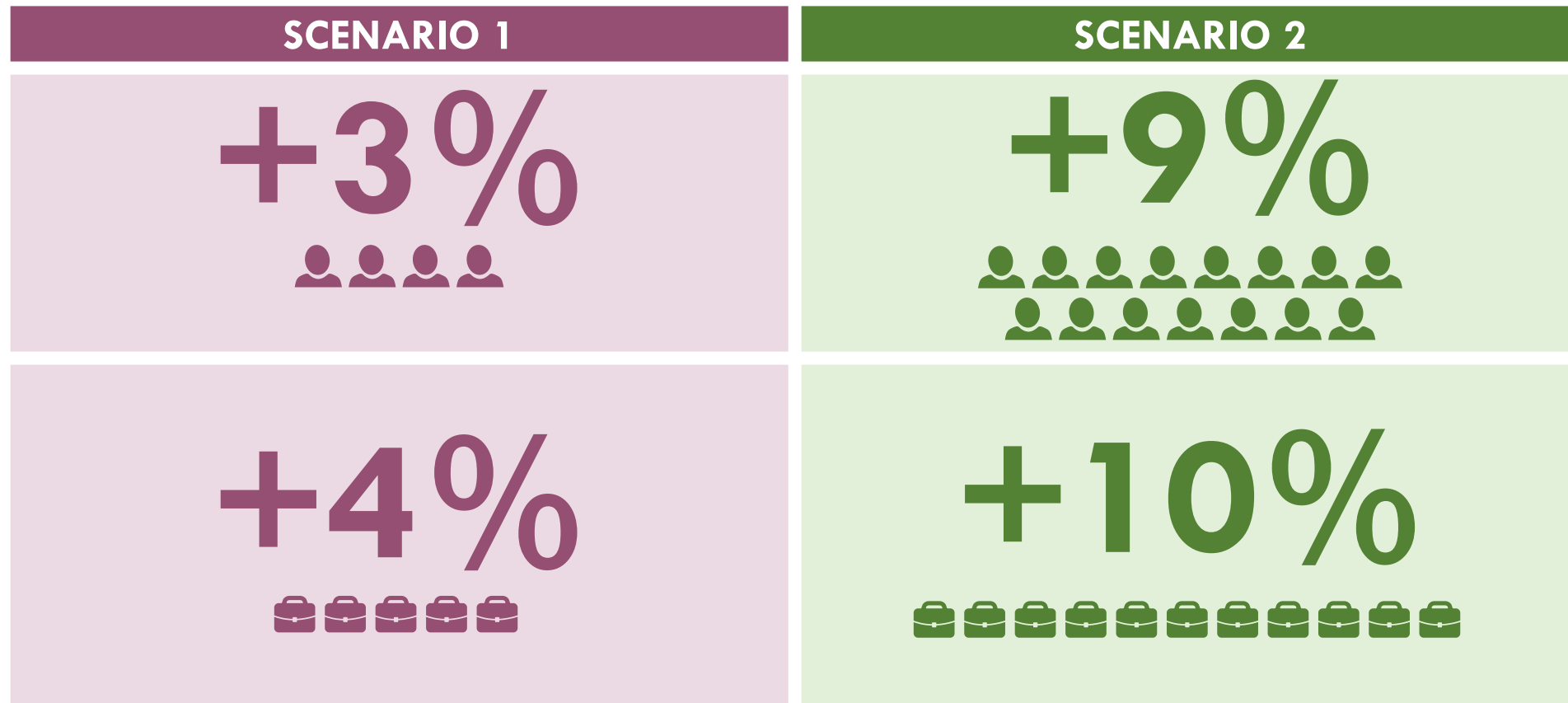
Change in Access to Transit  
by Service Level

## Network Access to Jobs

WHICH SCENARIO BETTER...	SCENARIO 1	SCENARIO 2
Generates ridership	✓	
Improves service for region's population and employment	✓	
Expands new access to all-day transit to population and employment		✓
Serves more diverse population groups	✓	
Expands 15-minute transit to population and employment	✓	
Expands 30-minute transit to population and employment		✓
Better serves Market Areas 1 and 2	✓	
Better serves Market Area 3		✓
Better increases transit access to jobs	✓	

# EXPANDED ACCESS TO ALL-DAY TRANSIT – POPULATION

Scenario 2 expands new all-day transit access to more people and jobs than Scenario 1 compared to the base network.















 = 10,000 jobs     = 10,000 people



# EXPANDED ACCESS TO ALL-DAY TRANSIT – SOCIAL EQUITY

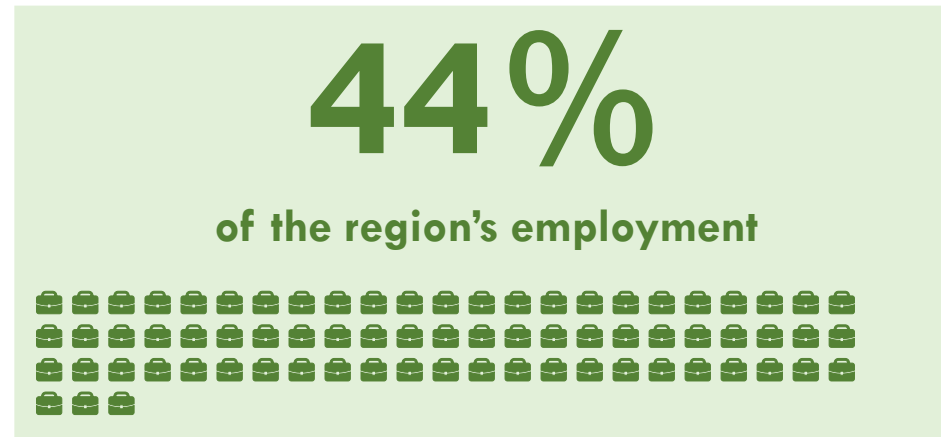
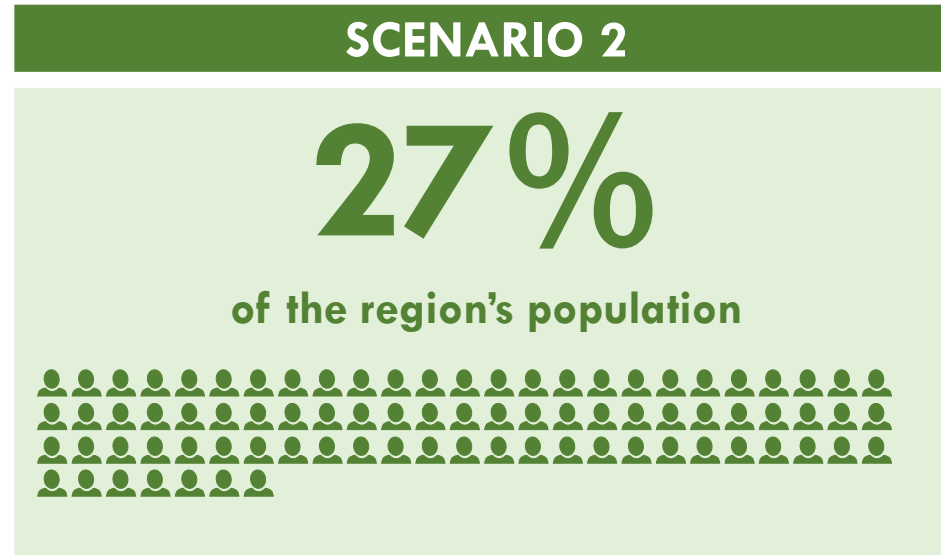
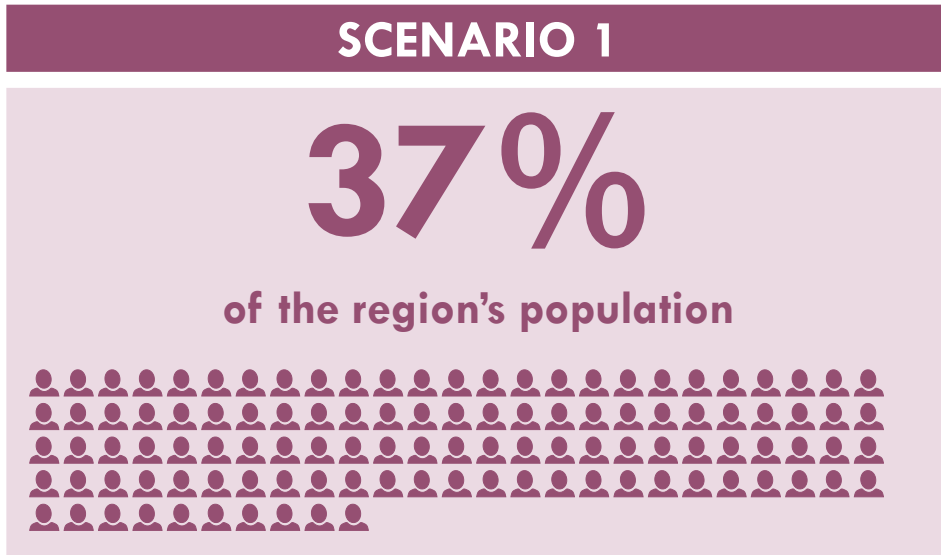
Scenario 2 expands new all-day transit access to more people and jobs than Scenario 1 across all social equity groups compared to the base network.

	SCENARIO 1	SCENARIO 2
BIPOC	+ 	+ 
Low-income population	+ 	+ 
Affordable housing units	+ 	+ 
Low-auto access population	* Less than 2,000 increase	* Less than 2,000 increase
Older people	+ 	+ 
Low-wage jobs	+ 	+ 
High-wage jobs	+ 	+ 

 = 10,000 people,  = 10,000 housing units,  = 10,000 jobs

# IMPROVED TRANSIT SERVICE – POPULATION

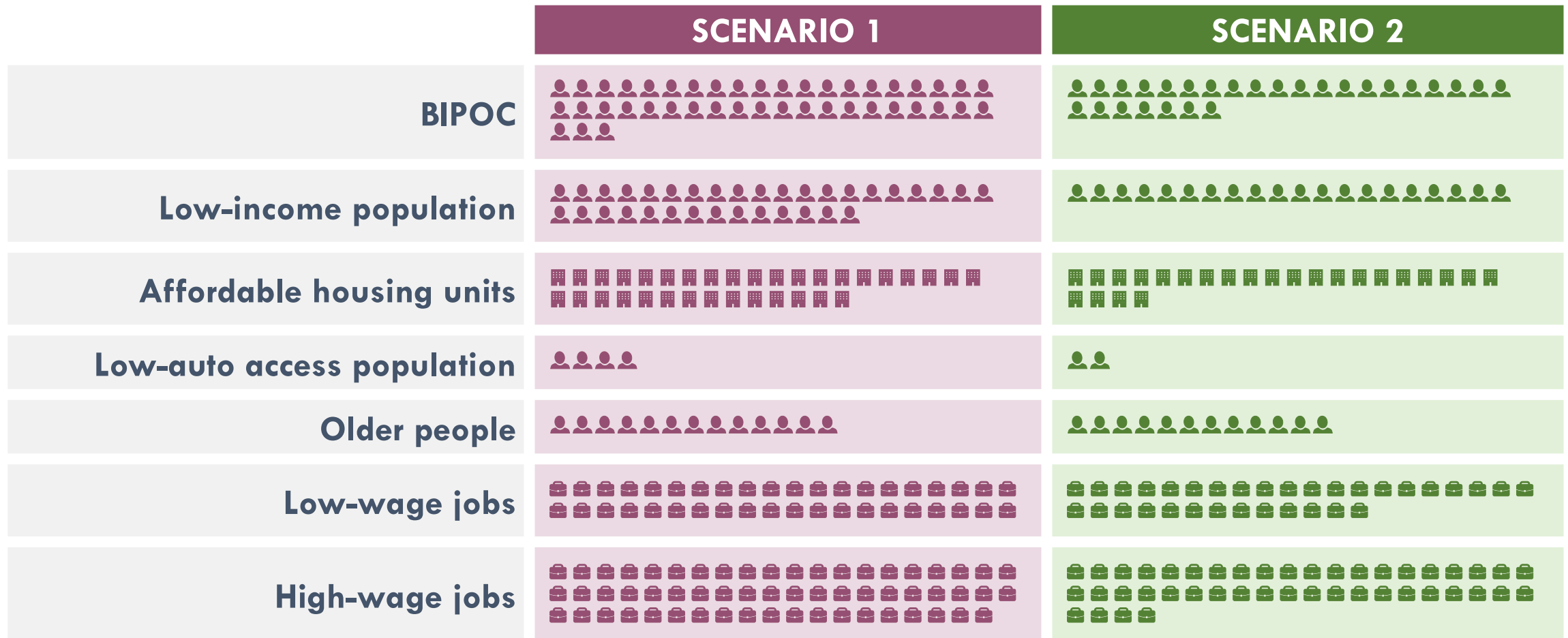
Scenario 1 provides more people and jobs with improved or expanded transit than Scenario 2.



 = 10,000 people  
 = 10,000 jobs

# IMPROVED TRANSIT SERVICE – SOCIAL EQUITY

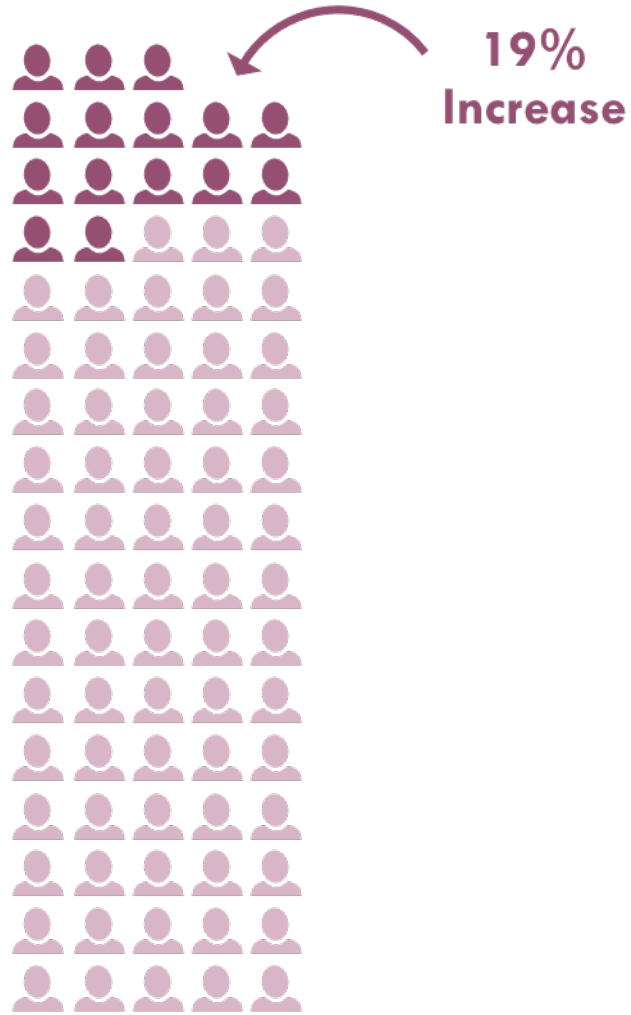
Scenario 1 provides more improved or expanded transit service to more people and jobs within social equity groups than Scenario 2.



= 10,000 people, = 10,000 housing units, = 10,000 jobs

# HIGH-LEVEL RIDERSHIP ESTIMATE

Scenario 1 will generate between 30 and 40% more new ridership than Scenario 2.



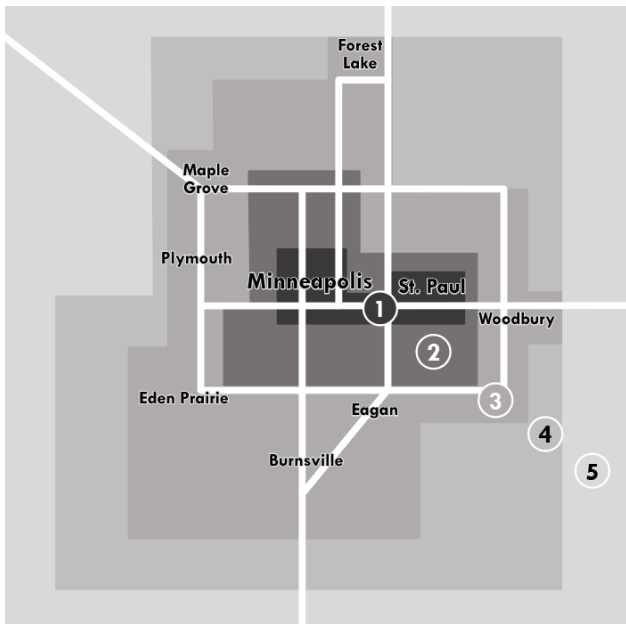
SCENARIO 1



SCENARIO 2

# CHANGE IN ACCESS TO TRANSIT BY SERVICE LEVEL BY MARKET AREA - POPULATION

**SCENARIO 1**



**SCENARIO 2**

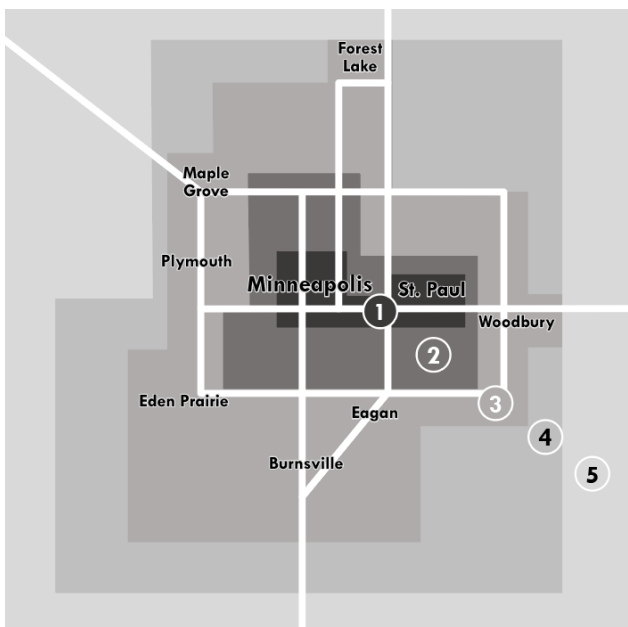


# CHANGE IN ACCESS TO TRANSIT BY SERVICE LEVEL BY MARKET AREA - EMPLOYMENT

**SCENARIO 1**



**SCENARIO 2**



# NETWORK ACCESS TO JOBS

Scenario 1 expands access to more jobs for the average resident than Scenario 2.

	SCENARIO 1 OVER BASELINE	SCENARIO 2 OVER BASELINE	RELATIVE CHANGE SCENARIO 1 OVER SCENARIO 2
30-minute transit trip			7x
45-minute transit trip			3x
60-minute transit trip			2x

*Note: Results are preliminary and in the process of being finalized under contract with University of Minnesota Accessibility Observatory*



## SCENARIO 1

### Ridership Estimate

- Will generate between 30-40% more additional ridership than Scenario 2

### Improved Transit Service

- Improves service for 37% of the region's population and 51% of the region's employment vs. Scenario 2's 27% of the population and 44% of employment
- Improves service for 280,000 more people than Scenario 2, 150,000 of which are low-income people and 160,000 are BIPOC
- Improves service for 120,000 more jobs than Scenario 2, including 60,000 low-wage jobs

### Change in Access to Transit by Service Level

- Provides 400,000 additional people and 220,000 additional jobs with access to high-frequency transit
- Most people and jobs with a change in access are in Market Areas 1 and 2

### Network Access to Jobs

- Scenario 1 expands access to between 2-7 times more jobs for the average resident than Scenario 2

## SCENARIO 2

### Expanded Access to All-Day Transit

- Scenario 2 provides 110,000 more people with access to all-day service, and 20,000 more affordable housing units than Scenario 1
- Scenario 2 provides all-day access to 60,000 more jobs, of which 30,000 are low-income, than Scenario 1

### Change in Access to Transit by Service Level

- Provides 380,000 additional people and 290,000 additional jobs with access to local transit
- Most people and jobs with a change in access are in Market Area 3

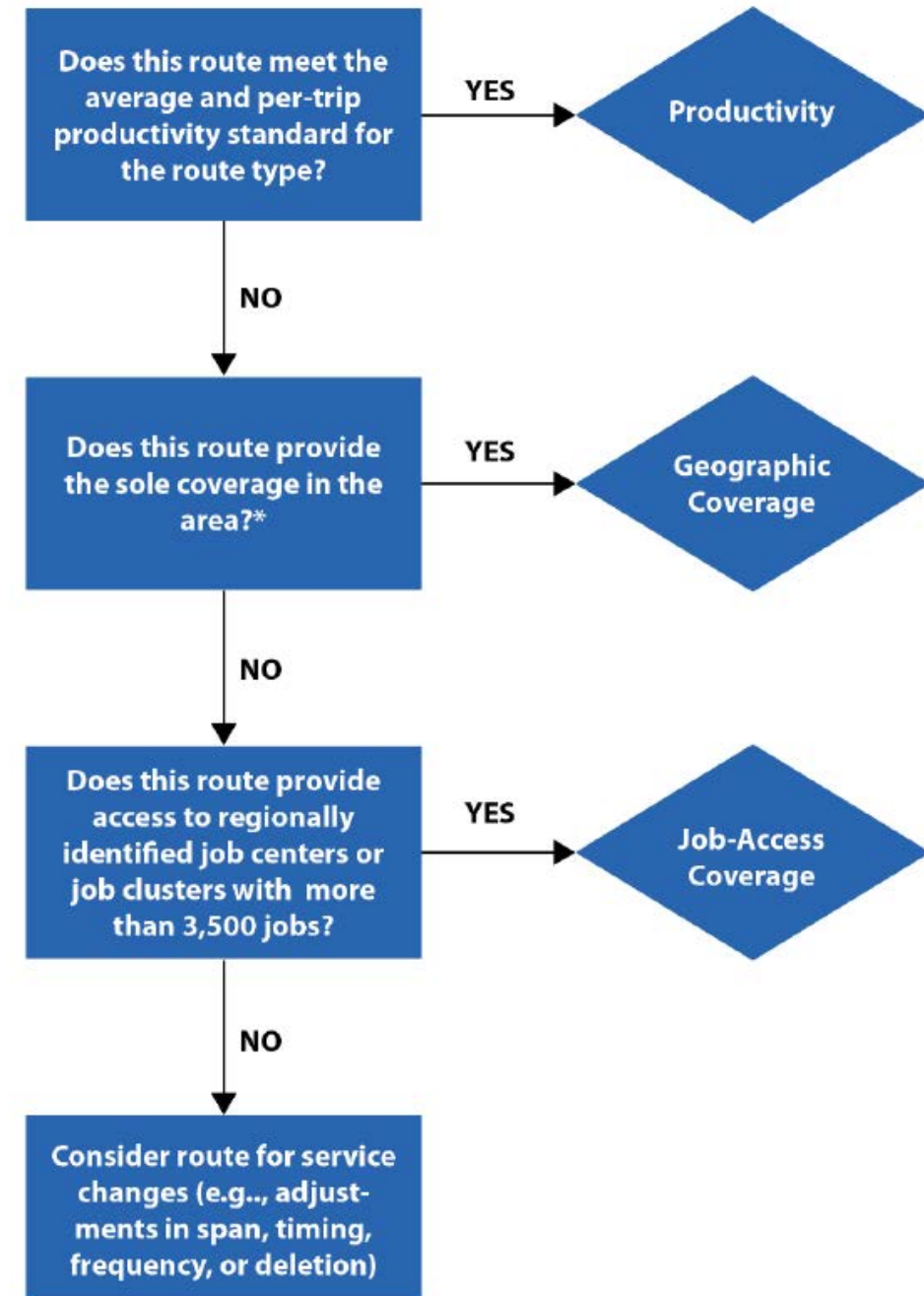
# SCENARIO ANALYSIS WORKSHOP

## Key Takeaways

- Regional policymakers express consistent support for **transit service improvements that prioritize equity**, including service to low-income populations and communities of color
- Policymakers express a moderate preference for **improving transit service frequency over expanding geographic coverage**
- When evaluating future transit expansion options, the region's planning and funding structure should be resilient in a range of possible future travel conditions
- While most **participants preferred a balanced scenario** of some sort, the group expressed a moderate preference for Scenario 1 compared to Scenario 2

# COVERAGE SERVICE GUIDELINES

- Proposed methodology for defining coverage routes
- Proposed evaluation criteria for coverage services
  - Job-access coverage service criteria:
    - At least on-third of the jobs are within 1/4 mile of the route pay \$40,000 or less annually
  - Minimum productivity for Job-Access Coverage Service
    - 5 boardings per hour
  - Minimum Combined Population and Employment Density for New Service
    - New fixed routes: 10 residents or 5 jobs per acre within 1/4 mile of proposed route
    - New on-demand service: 3 residents and/or jobs per acre within 1/4 mile of proposed route



## FINAL TAKEAWAYS

- Providing equitable transit service is important for supporting historically underserved and underrepresented populations. Serving these populations should be used to prioritize future service investment.
- Increasing job access should be an important consideration in expanding the regional transit network
- Future service investment should be coordinated with the continued development of planned transitways, as well as evolving land use patterns
- Service improvements should prioritize providing high-quality and frequent transit service to both increase ridership and provide the region's population with reliable and sustainable mobility options

# NEXT STEPS

- Outreach
- Share results of blended scenarios
  - Working on tool for stakeholders understand the impacts of alternative service allocation scenarios
- Adjusting policies and informing partners of regional values
  - Transit Service Design Guidelines and Performance Standards
  - Regional Solicitation
  - Transit provider service improvement plans
  - Transitway connecting bus service planning
- Keep the conversation going

## QUESTIONS

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