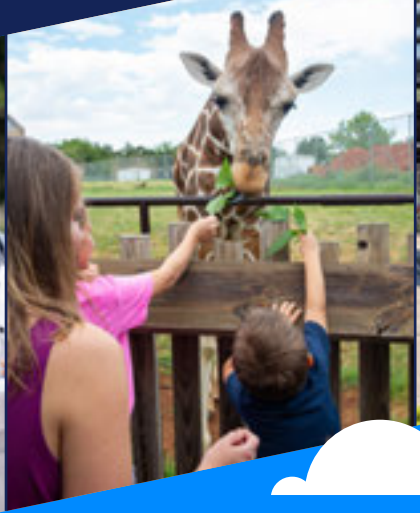
MAPS 4 | EMBARK

PROJECT M4-TTG20

MAPS 4 TRANSIT PLANNED GROWTH BRT ALTERNATIVES ANALYSIS

Connecting Northeast and South Oklahoma City

September 2024 | FINAL



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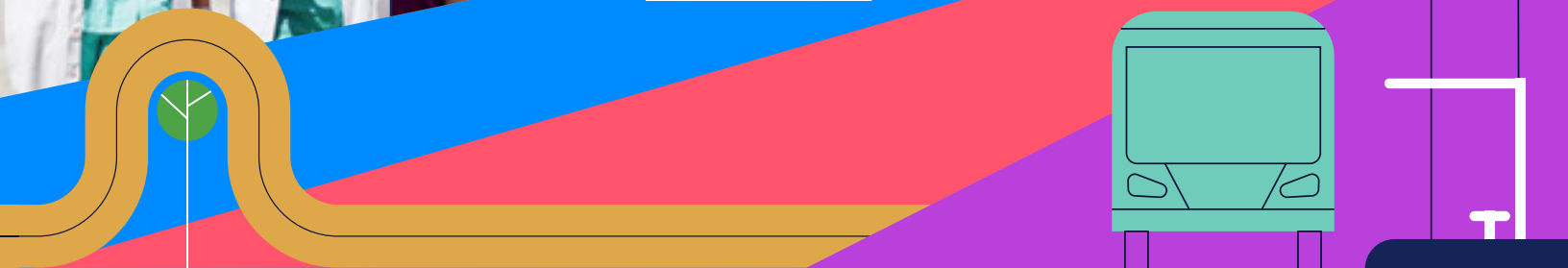

THE CITY OF OKLAHOMA CITY

APPROVAL SHEET

Project M4-TTG20

MAPS 4 Transit Planned Growth BRT Alternatives Analysis

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APPROVED by the Council of the City of Oklahoma City this _____ day of _____, 2024.

ATTEST:

THE CITY OF OKLAHOMA CITY

_____
City Clerk

_____
Mayor

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1 Project Overview

BRT has the ability to build meaningful connections among communities of people, businesses, and destinations.

The Alternatives Analysis (AA) will identify the preferred route for two corridors that are critical in establishing a network of high-capacity rapid transit in Central Oklahoma.

Transforming Transit in the City

Since the adoption of the 2005 Fixed Guideway Study, Oklahoma City has witnessed a period of unparalleled growth in planning for the region's transit operations. Oklahoma City and the Central Oklahoma Region have produced several studies and initiatives that have contributed to the advancement of transit planning in Central Oklahoma and were influential in developing this AA. These efforts have been building toward the creation of a robust transit network that progresses towards the goals and objectives outlined in the efforts below.

For a deeper dive into each of these plans and how they relate to the Alternatives Analysis, see **Appendix A: Review of Previous Plans and Studies**.

2005

Fixed Guideway Study

The Fixed Guideway Study (FGS) outlined a 2030 System Plan Vision including a combination of local bus, BRT, streetcar, and commuter rail to serve the region holistically by improving connections to activity centers and enhancing economic development.

The FGS identified a need for transit in both the Northeast and South corridors. The AA will build upon the work completed in the FGS to provide high capacity transit options to Oklahoma City residents and visitors.

2015

Commuter Corridor Study

The Commuter Corridors Study, led by ACOG, defines transit solutions to offer mobility choices for Central Oklahoma including commuter rail and a streetcar extension.

plan**okc**

This policy document projects future growth, outlines the underlying deficiencies of the street network, and identifies the shifting community preference for alternative means of transportation, including transit and active transportation.

2018

OKC Streetcar Launch

bikewalk**okc**

This marks the first bicycle and pedestrian master plan to identify routes for alternate means of transportation to prioritize safe first- and last-mile connections.

2021

MAPS 4 Implementation Plan

The MAPS 4 Implementation Plan outlines specific projects and timelines associated under six major categories: Civil Rights Center, Community, Connectivity, Innovation District, Neighborhoods, and Venues. A number of transit projects were identified under the Connectivity category.

BRT was identified in the MAPS 4 Implementation Plan as the community-preferred transit mode for the Northeast and South corridors.

RTA Transit Systems Plan

The Regional Transportation Authority identifies regional corridors to be served by high-capacity regional transit to expand the regional transit network. Corridors include: North/South, East, Airport, and West.

2022

OKC Moves Bus Study

OKC Moves, led by EMBARK, identifies systemic deficiencies in the transit network and proposes a short-term and long-term vision for services needed to expand efficiently.

2023

Northwest Rapid Launch

Project Overview

The community has recognized the need to continue investing in high-quality transit solutions and has just launched the City's first Bus Rapid Transit (BRT) line—Northwest RAPID (*RAPID*^{NW}). BRT is a cost-effective, high-quality, bus-based transit service that provides safe, reliable, and frequent rides.

The Northeast and South corridors are the two major remaining transit gaps in the existing high-capacity network and will build upon the momentum and success of the *RAPID*^{NW} to provide new quality connections for the existing population as well as support future growth in the community.

What is MAPS 4?

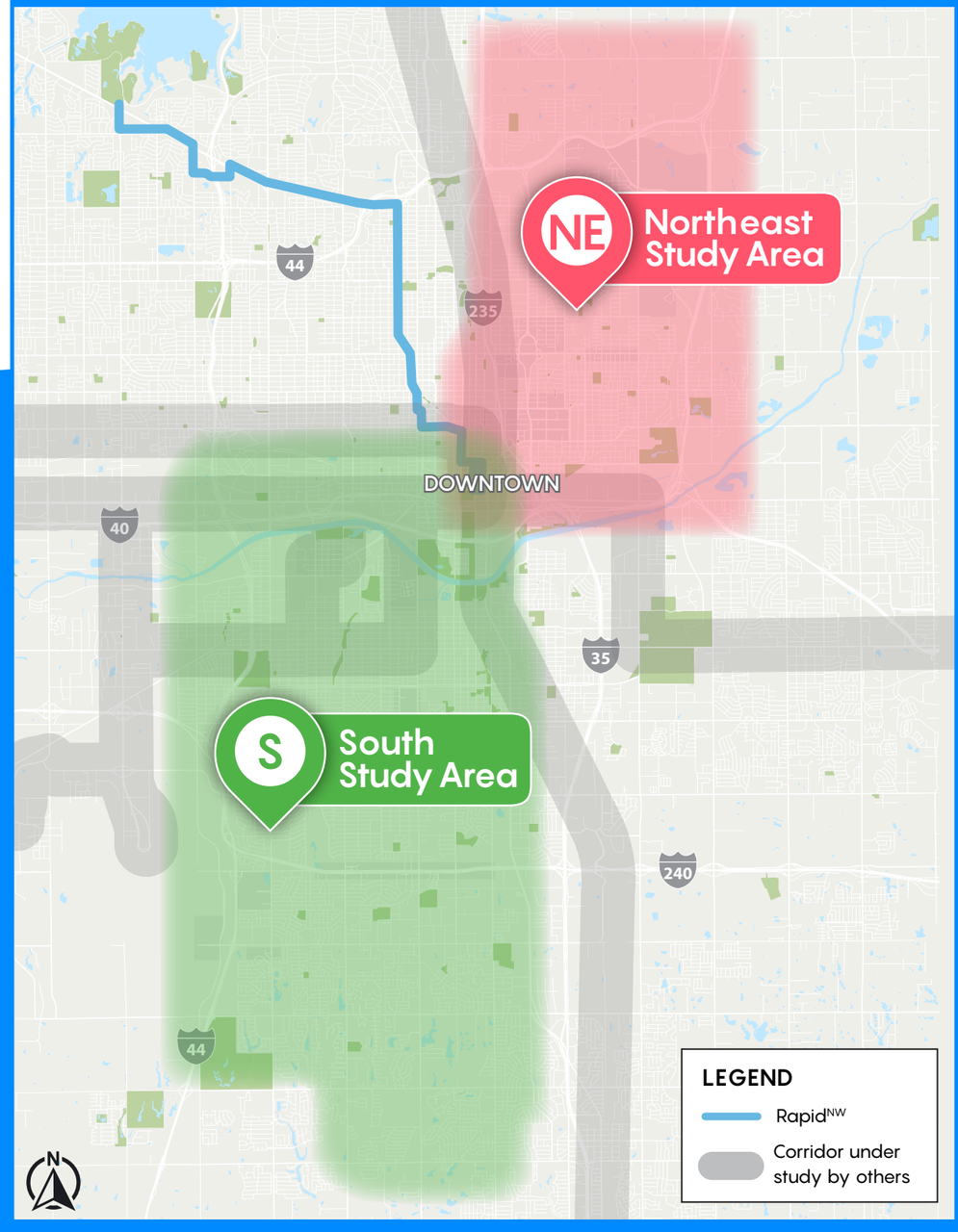
The Metropolitan Area Projects (MAPS) Program was created in 1993 to improve the quality of life within Oklahoma City and provide key community investments in parks, schools, outdoor facilities, transit, and more. Since its inception, MAPS has funded projects that have resulted in immeasurable growth in the City.

Most recently, MAPS 4, a voter-approved debt-free public improvement program funded by a temporary penny sales tax, was enacted to publicly fund 16 different projects—including projects designed to improve connectivity within the community.

"For the purpose of continuing the transformation of our city's public transit system, it is the intent of the Council to pursue numerous dramatic improvements to the public transit services provided to our residents. It is the intent of the Council to further allocate $60 million to advanced transit options to include one or more of the following options: Bus rapid transit lines from downtown to south Oklahoma City, prioritizing connectivity with Capitol Hill and/or other points to the south; and to northeast Oklahoma City, prioritizing connectivity with locations such as the Health Sciences Center, Northeast 23rd Street, the Adventure District, and other points to the northeast."

- Resolution of intent of the mayor and council of the city of Oklahoma City setting forth a new maps program to be known as "MAPS 4"

Figure 1.1 - Project Study Areas



Project Goals and Performance Measures

This Alternatives Analysis (AA) selects a Locally Preferred Alternative (LPA) for the Northeast and South corridors where high capacity, rapid transit will be provided.

Based on previous planning efforts as well as input from the project development team, five project goals were developed to guide the development of the Alternatives.

Connect Communities and Resources
Provide a better connection between where people live and work and increase access to schools, healthcare, recreation, as well as other critical community destinations.

Facilitate Prosperity and Economic Growth
Support small businesses within the community as well as future growth in development, employment, and population.

Expand Equitable Mobility Options
Promote equitable transportation systems and ensure that underrepresented populations and communities in need are served.

Move People Efficiently
Provide high quality BRT service and promote efficient travel methods for transit and non-transit users alike.

Utilize Available Resources
Analyze how available resources might impact the feasibility and costs associated with planning, design, construction, operations, and maintenance.

Project Partners

While the planning phase of this project is largely led by the MAPS 4 Program (project team), Central Oklahoma has many regional and local entities that will support the delivery of transit to connect communities throughout the region.

Project Development Team

The City of Oklahoma City Planning Department works to improve the welfare of people and the community.

MAPS 4, a city-run public improvement program, planned and will construct the Northeast and South BRT projects.

EMBARK is the public transit agency that operates existing local service and will operate and maintain the Northeast and South BRT projects.

Regional Government and Transit Operations

The Association of Central Oklahoma Governments is a regional Metropolitan Planning Organization that facilitates local government cooperation.

The Regional Transportation Authority (RTA) is understaking region-wide efforts to implement commuter rail and other high-speed transit lines.

Corridor-Specific Stakeholders

The Northeast and South Study Areas span approximately 30 and 50 square miles, respectively. Both Study Areas are located in areas of Oklahoma City that have been historically disadvantaged. As part of the public engagement process, additional stakeholders were identified to conduct targeted outreach and more fully engage those who have not been actively engaged in the past.

Northeast Stakeholders

1. Northeast Neighborhood Coalition and Northeast OKC Renaissance Inc.
2. Black Chamber of Commerce
3. Adventure District
4. City-County Health Department
5. MetroTech Springlake Campus
6. Innovation District
7. OU Health University of Oklahoma Medical Center
8. Veterans Affairs Health Care System
9. Automobile Alley

South Stakeholders

10. South OKC Chamber
11. Capitol Hill Civic Group
12. Hispanic Chamber of Commerce
13. Amazon
14. Oklahoma City Community College
15. INTEGRIS Health Southwest Medical Center
16. SW 29th District Association
17. Calle Dos Cinco in Historic Capitol Hill

Both Corridors

18. Oklahoma City Housing Authority
19. Regional Transportation Authority
20. Oklahoma Department of Transportation
21. City of Oklahoma City- City Council Ward 7
22. City of Oklahoma City Planning Department

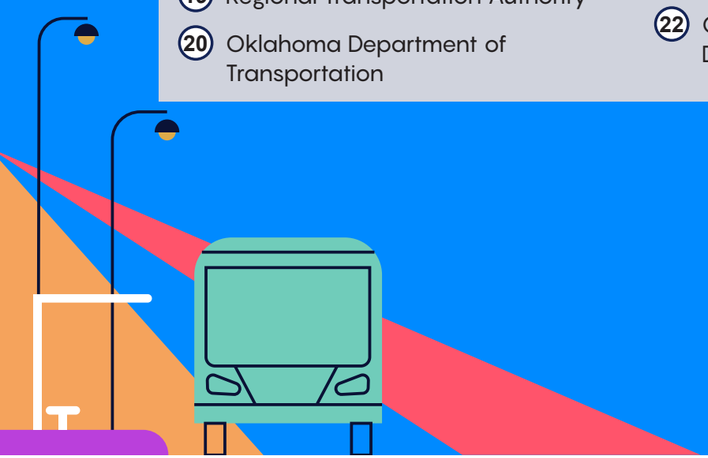
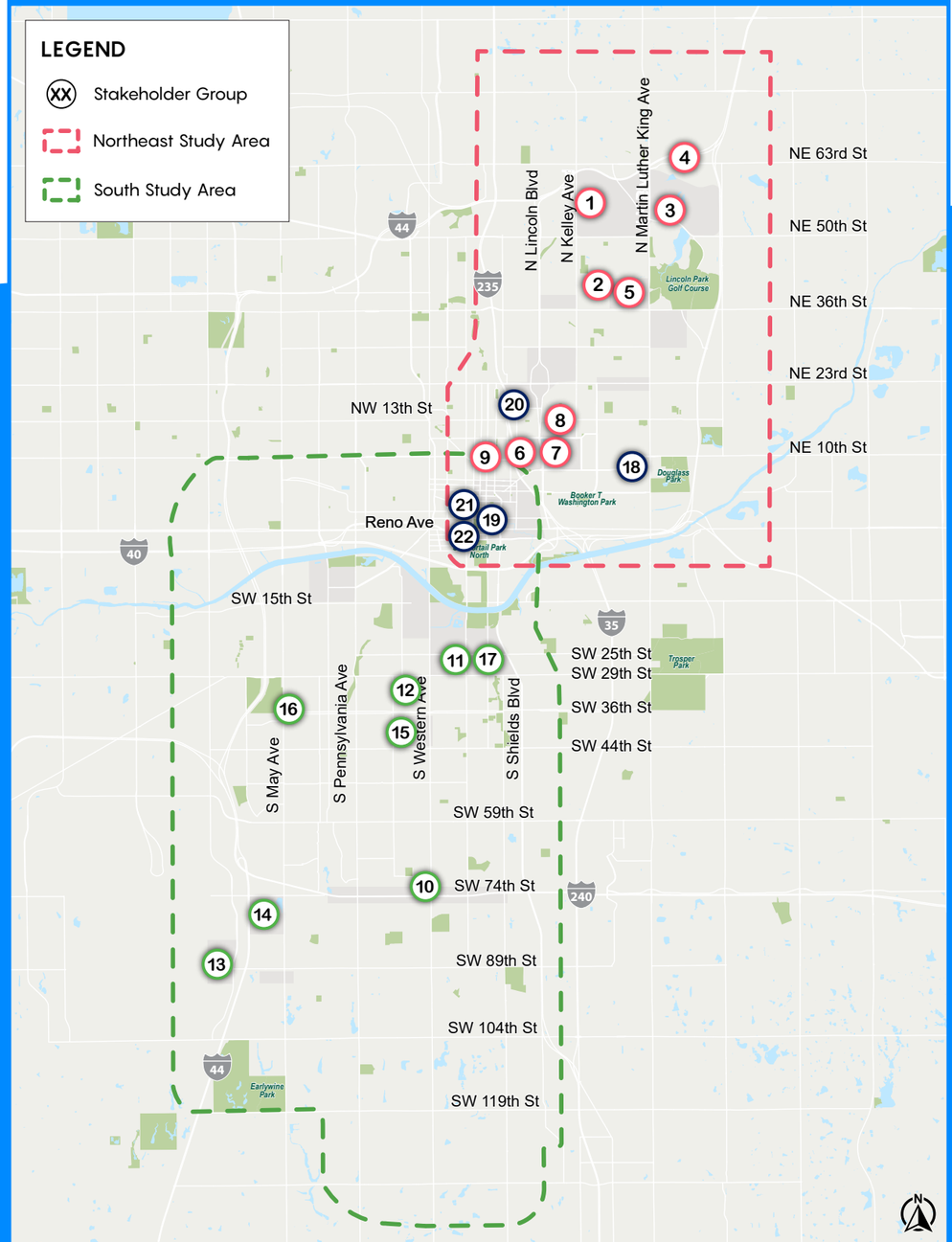


Figure 1.2 - Corridor-Specific Stakeholders



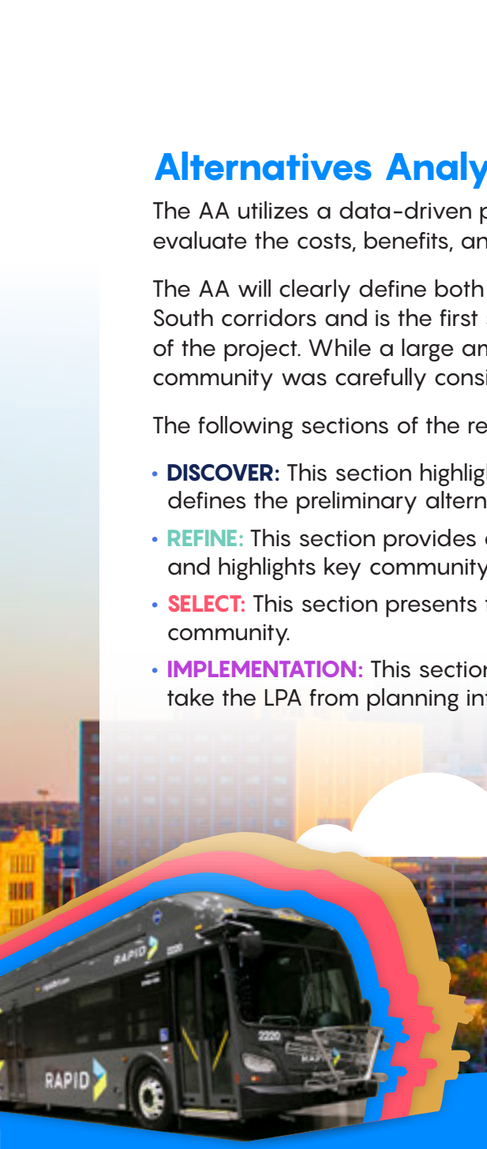
Alternatives Analysis (AA) Process

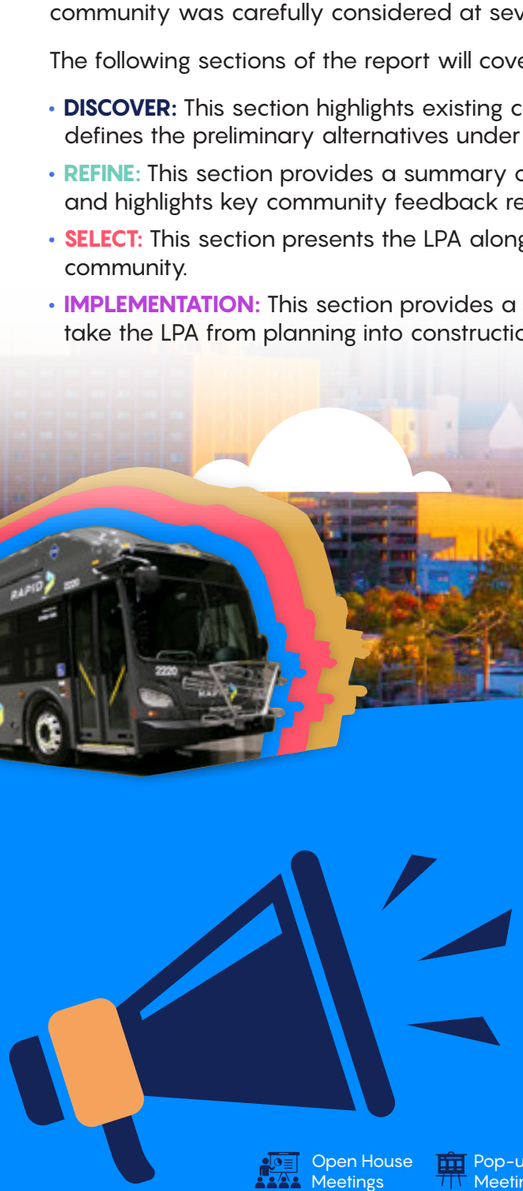
The AA utilizes a data-driven process combined with a community-centric approach to evaluate the costs, benefits, and impacts of BRT implementation within these corridors.

The AA will clearly define both the mode and alignment of the LPA for the Northeast and South corridors and is the first step needed to secure federal dollars for the construction of the project. While a large amount of technical analysis fueled the study, input from the community was carefully considered at several major milestones of the project.

The following sections of the report will cover each of the major steps that feed into the AA:

- **DISCOVER:** This section highlights existing conditions, identifies community needs, and defines the preliminary alternatives under consideration in the AA.
- **REFINE:** This section provides a summary of the evaluation of each preliminary alternative and highlights key community feedback received.
- **SELECT:** This section presents the LPA along with key characteristics and benefits to the community.
- **IMPLEMENTATION:** This section provides a set of recommendations for actions needed to take the LPA from planning into construction.





ROUND 1: JAN-FEB '23

6 Open House Meetings · 5 Pop-up Meetings · 1 Survey · 11 Stakeholder Meetings

- Where is BRT service needed?
- What would make transit more realistic for your schedule?
- How can BRT service benefit the community?

ROUND 2: MAY-JUL '23

7 · 10 · 1 · 11

- What BRT and BRT station amenities are you looking forward to?
- What specific key destinations are most important to you?

ROUND 3: APR-MAY '24

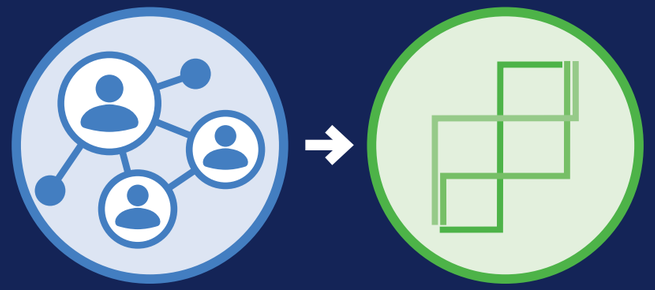
6 · 3

- What excites you most about this project?
- As the project advances, do you have any comments for the project team?

Please see **Appendix E: Public Involvement Report** for a summary of all engagement activities.

2 Discover

The Discover phase process consists of two major steps.



Community-based, data-driven, transit-needs assessment

Development of High Potential Alternatives for evaluation

The transit needs assessment explored existing conditions, stakeholder input, and public feedback to identify where transit needs in the Northeast and South Study Areas are the greatest. Using the identified transit needs as well as the project goals outlined in **Chapter 1** as inputs, six High Potential Alternatives were developed for evaluation in subsequent phases.

Transit Needs Assessment

A key component of the Discover phase is to identify transit needs within the Northeast and South corridors. The project team utilized both community-driven and data-driven processes to identify where existing transit is successful, where there is a propensity for transit, and what destinations the community wants to connect to with the new BRT system.

Corridor Characteristics

Northeast Study Area		South Study Area	
38,000 Population	**100,000** Jobs	**170,000** Population	**100,000** Jobs
28% Poverty	**13%** No Car Household	**20%** Poverty	**7%** No Car Household
10% Limited Mobility	**68%** Minority	**9%** Limited Mobility	**57%** Minority

A Transit Propensity Index and the existing transit network assessment were developed to help better identify transit needs within the community based on underlying characteristics.

**Source: 2019 LEHD LODES, 2021 US Census Bureau American Community Survey*

For more information on how the various datasets we explored as part of the analysis, see **Appendix B: Existing Conditions Report**

Transit Propensity

Transit Propensity helps us understand where higher concentrations of population and employment are located while also considering various equity factors.

Population and job density are typically the most important factors influencing demand for transit service and the resulting ridership. The presence of equity groups can also contribute to ridership as they tend to have fewer mobility options available increasing the need for transit service. The Transit Propensity Index—comprised of an Activity Index and an Equity Index—recognizes that both sets of factors play a significant role in identifying areas where transit can be most successful and needed in the region.

Measuring Propensity

Activity Index

Highlights where people live and where people work

- Population
- Jobs

Equity Index

Highlights where four different equity groups live and considers them equally

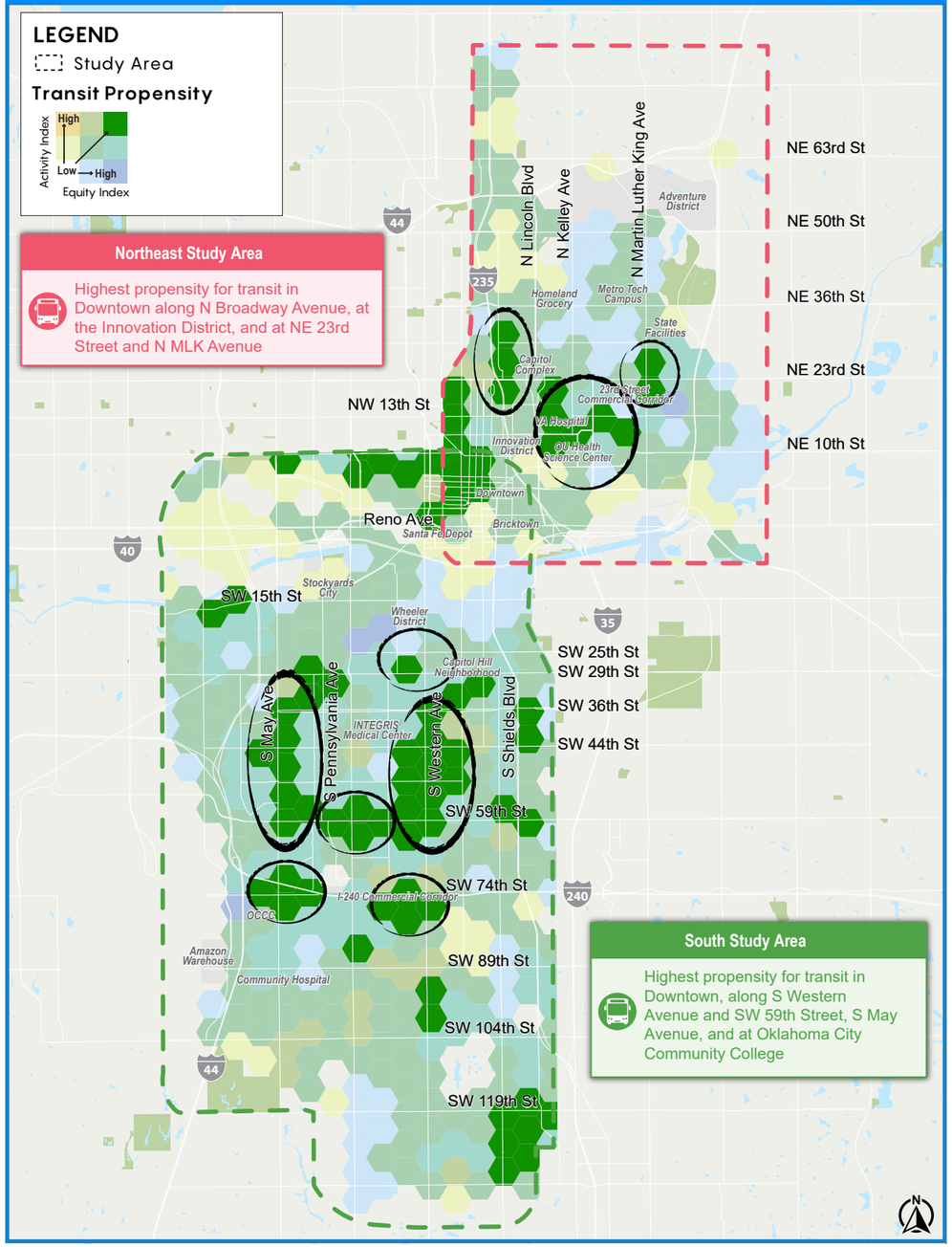
- Minority Population
- Limited Mobility Population*
- Low-Income Households

*Limited mobility populations are comprised of individuals aged 16-64 with a disability or individuals 65 years and over.

Source: U.S. Census, American Community Survey, 5-Year Estimates (2021)

Figure 2.1 shows the Transit Propensity Index and highlights areas with the highest propensity for transit.

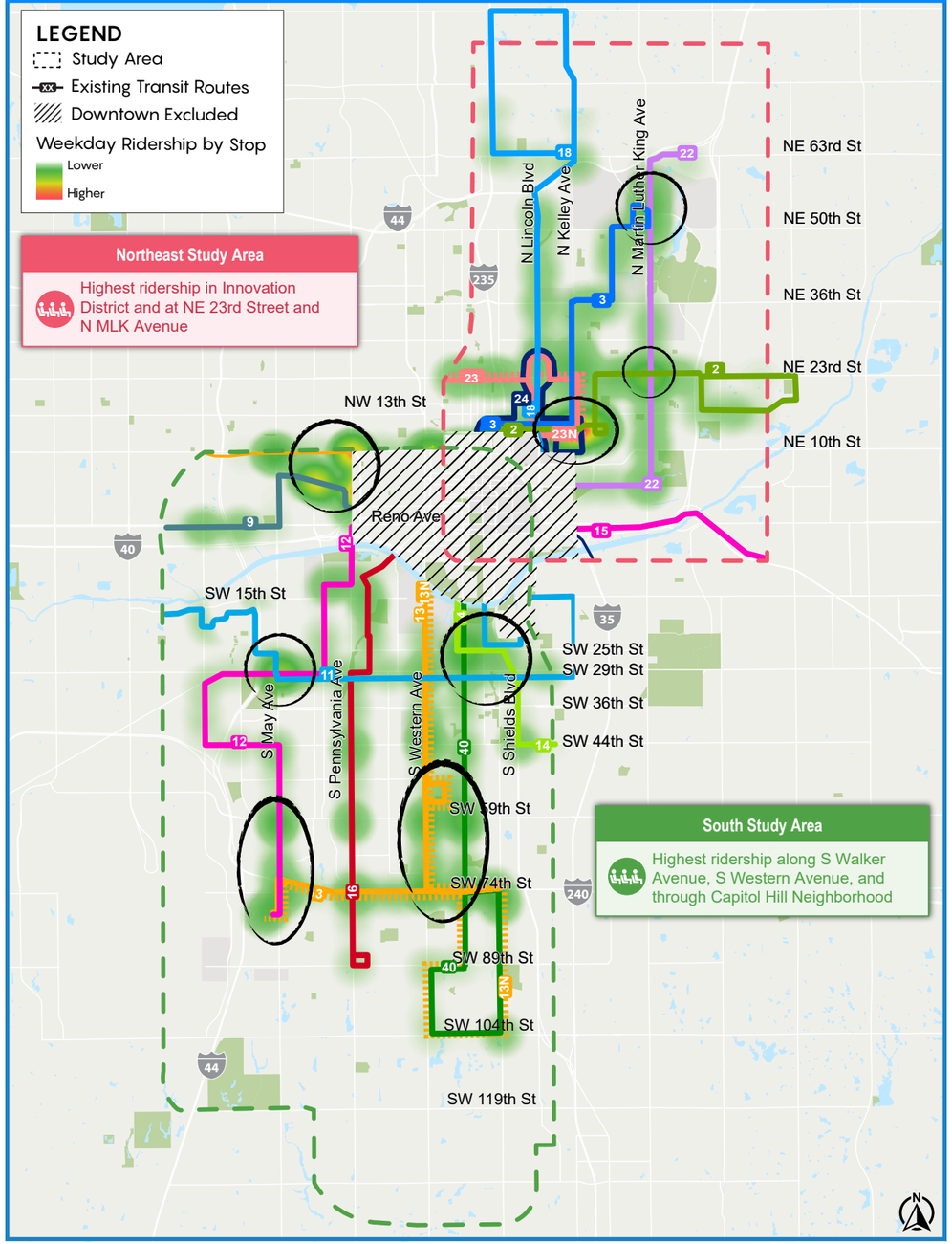
Figure 2.1 - Transit Propensity



Existing Transit Network

Figure 2.2 (next page) shows the existing transit network that operates using pulse service in a hub-and-spoke pattern. The network map helps us understand areas that are currently served by transit and where ridership is highest. BRT deployments have historically achieved the highest ridership in areas where existing demand for local bus is the highest. This can be associated with areas where latent demand typically exists, which could be served with a higher capacity service.

Figure 2.2 - Existing Transit



Engagement Spotlight: Community-Identified Transit Needs

The needs assessment was rooted in data, but informed and refined based on community input which was essential in the discovery of transit needs in the Northeast and South corridors. Community-driven feedback helped to further define key destinations the community would like the new BRT service to serve.

Overall Project Takeaways:

Desire for greater connectivity to schools and small businesses

Increased reliability and safer transit options to access community destinations

Northeast

- Desire for transit to enhance access to health and wellbeing centers like OUHSC, community centers, and parks
- Need for reliable and quick access to grocery stores due to limited existing grocery stores
- Desire for enhanced connection from Downtown to the Adventure District

South

- Desire to provide connection to the Capitol Hill Neighborhood — a residential and employment hub with rich cultural history
- Need for connection to INTEGRIS Southwest Medical Center and Oklahoma City Community College
- Desire for transit to serve areas of low-income housing and senior centers

For more information on how we involved the community and which stakeholder groups we met with, see **Appendix E: Public Involvement Report.**

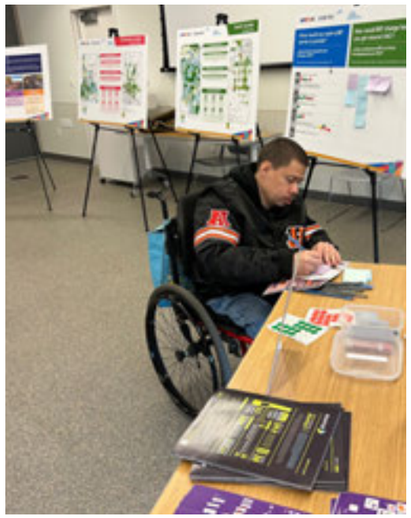
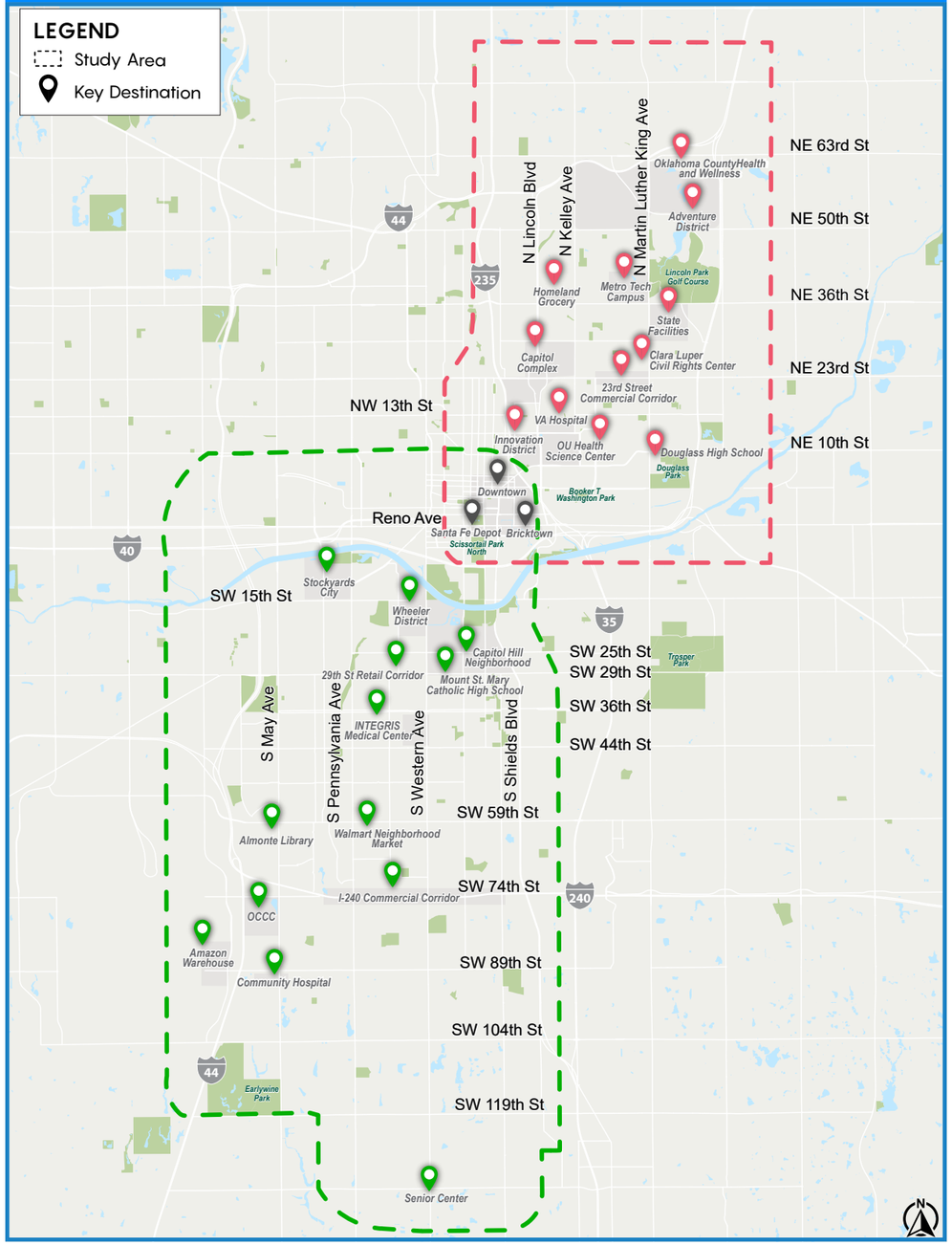


Figure 2.3 - Key Destinations



Developing High Potential Alternatives

To properly evaluate and compare various options for BRT, High Potential Alternatives, a combination of alignment, operating environment, service plan, and station placement were developed.

The data and community feedback generated during the transit needs assessment were used as inputs to develop each component of the High Potential Alternatives.

ALIGNMENT

Defines the specific route BRT will take through the community

OPERATING ENVIRONMENT

Defines the physical environment for how BRT will operate in the roadway

High Potential Alternative

SERVICE PLAN

Proposes the times of day and frequency for BRT service

STATIONS

Determines general areas where the community will be able to access BRT service

ALIGNMENT

A screening methodology was applied to each Study Area to identify locations that exhibited the most consistency with Project goals identified in **Chapter 1**.

Figure 2.4 shows the areas with the highest consistency with Project goals based on the methodology outlined below. Additionally, since BRT routes typically operate along simple and direct routes to maximize efficiency and legibility, potential segments of roadway that could achieve this have been highlighted.

Connects Communities and Resources	Access to Key Destinations	Lower – Higher
Facilitate Prosperity and Growth	Concentration of Jobs	Lower – Higher
Expand Equitable Mobility Options	Concentration of Equity Populations	Lower – Higher
Move People Efficiently	Existing Transit Markets & Transit-Supportive Land Use	Lower – Higher
Utilize Available Resources	Compatible roadways with space to implement BRT	

Santa Fe Depot has been identified as a regional intermodal hub that will connect many high-capacity transit routes. Additionally, with the uptick in development in the surrounding area, Santa Fe Depot was determined to be best location for the Northeast and South BRT terminii. Using Santa Fe Depot as the terminus, the project team reviewed roadway configurations, land uses, and existing EMBARK transit routes to identify roadways with enough capacity and demand drivers for BRT service.

Figure 2.5 shows the potential alignments out of Downtown based on the review.

Figure 2.4 - Potential Alignments through Downtown

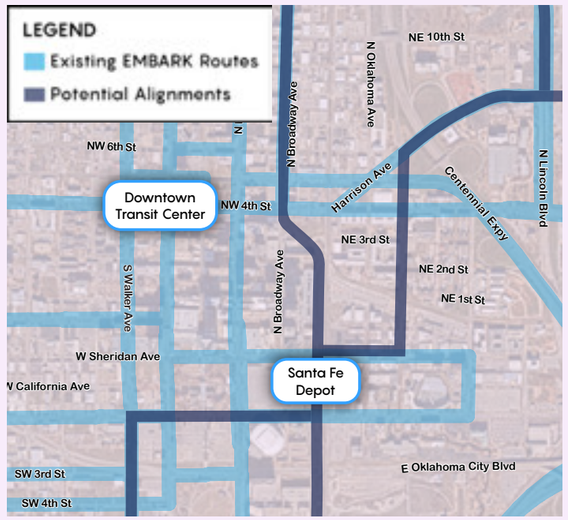
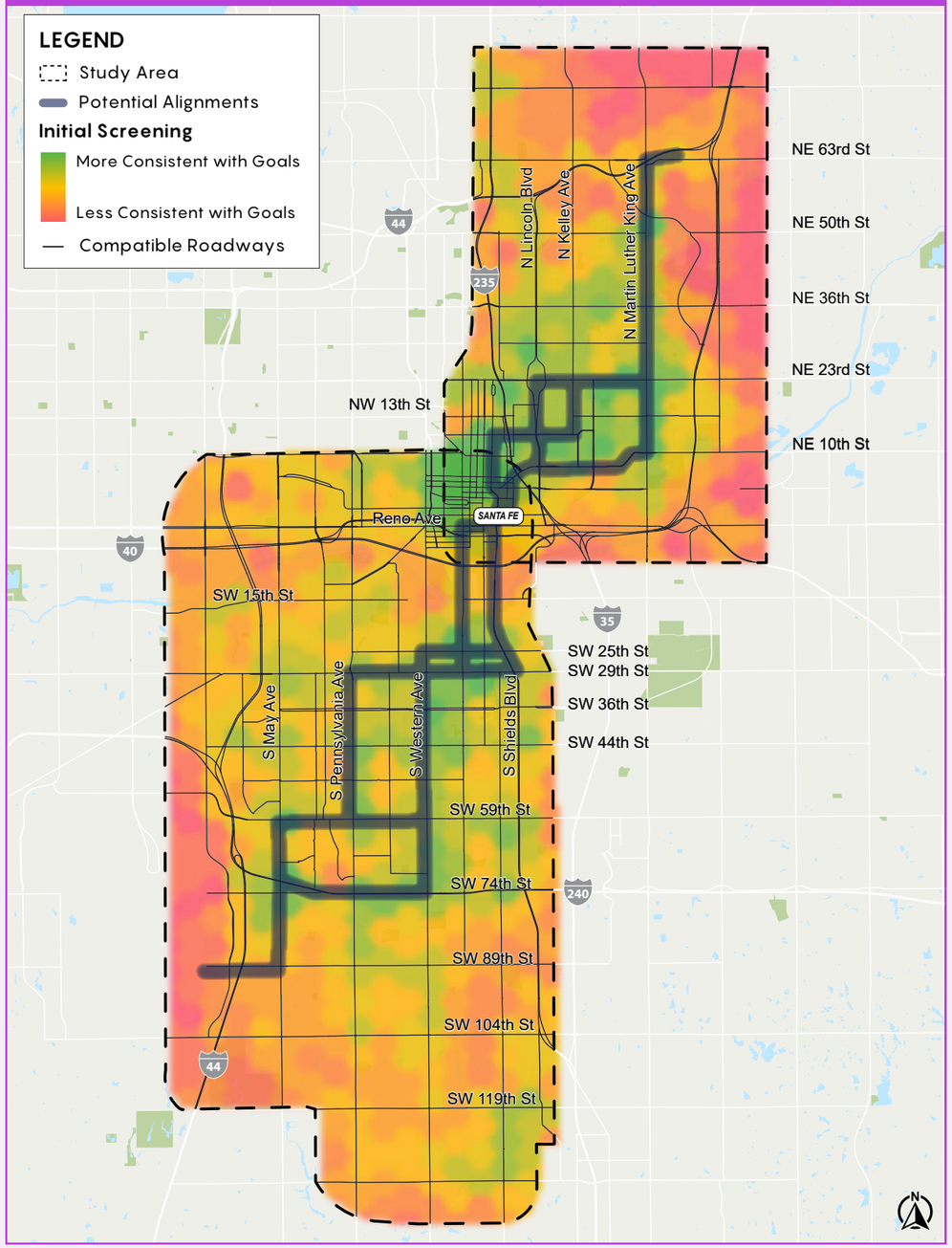


Figure 2.5 - Potential Alignments



OPERATING ENVIRONMENT

There are various types of operating environments for BRT systems that could be implemented to serve the Northeast and South communities.

The tradeoffs and most suitable environment for each type of operating environment are outlined below.

Mixed Flow Traffic

Lanes that are used by both buses and regular traffic

+ Little to no new infrastructure needed, easy implementation
− Decrease in time reliability, general traffic affects buses

Successful Environments

- Numerous conflicts with driveways and left turn lanes
- Highly constrained roadway

Center-Running Bus Lane

Bus lanes possibly physically separated along the road median

+ Reduced traffic conflict, improved travel times and reliability
− Expensive infrastructure

Successful Environments

- Numerous left turn conflicts
- Large existing median
- Overdesigned roadway

Curbside Bus Lane

Bus lanes that give priority access to transit; can include Business Access and Turn Lanes

+ Reduced traffic conflict, improved travel times and reliability
− May displace parking and/or pedestrian and bike paths

Successful Environments

- Numerous driveway conflicts
- Overlapping local bus service
- Constrained roadway

Engagement Spotlight

We heard that those who live, work, and travel in the Northeast and South corridors are looking for improvements to two major components of transit: **Access** and **Service**.

Access

- Connect to places I want to go
- Accessible by all groups of people

Service

- Frequent service
- On-time service
- Growth in the business community

Based on these comments, the community desires a faster and more reliable transit option that will provide a viable alternative to driving with a focus on serving equity populations in the community.

Funding Considerations

The Federal Transit Administration (FTA) provides transit agencies with annual funding. Typically, systems that have more than 50% of dedicated bus facilities receive a larger share of funding available through FTA's programs.

The operating environment will determine the type of system implemented on each segment for each alignment. Based on the service and funding benefits from infrastructure that provides priority access to transit, local context was evaluated to determine where each operating environment might be most successful.

Evaluation of Local Context

- **Curb-to-Curb Width** to determine whether underlying segments have the capacity for transit priority facilities
- **Driveway Conflicts** to determine potential turning movement conflicts on roadway segments
- **Congestion** to determine the potential traffic impacts transit priority infrastructure may cause on underlying roadway segments
- **On-Street Parking** to determine whether any parking removal would be necessary to accommodate transit priority infrastructure

Recommended Operating Environment

The local context evaluation supported that each alignment could accommodate at least 50% on lanes that give priority access to transit. Additionally, due to the high number of driveways and the relatively low congestion in the Study Area, Businesses Access and Turn (BAT) lanes are recommended on segments of the alignments that can accommodate transit priority infrastructure during the peak period.

SERVICE PLAN

The project team assumed the same operating parameters as the *RAPID*[NW] BRT system to stay consistent with EMBARK's preferred operating plan.

Buses Arrive Every

Weekdays *Friday Extended Service*

20min	12min	30min	30min

5am 6:30am 7pm 12am 2am

Weekends *Saturday Extended Service*

	15min	30min	30min	

5am 7am 7pm 10pm 2am

With the new BRT service, riders will be able to catch a ride every **12-15 minutes** during the day!

Vehicle Assumptions

Similar to the *RAPID*[NW], this project assumes a 40' New Flyer that runs on Compressed Natural Gas (CNG) with coach-style seating, ADA all-door access, and a 3-position front bike rack. It is also assumed that these buses will be able to accommodate level-boarding as well as all-door boarding.

STATIONS

Stations Amenities

BRT stations are typically larger than standard bus stops and have a larger footprint for more amenities. **Figure 2.6** below shows the amenities included as part of EMBARK's new RAPID^{NW} service. A similar treatment is assumed for the Northeast and South corridor's BRT system.

Figure 2.6 – Station Amenities

Station Placement

The approximate location of stations is a key component for the definition of High Potential Alternatives as they will determine which communities and key destinations the alternative is able to best serve.

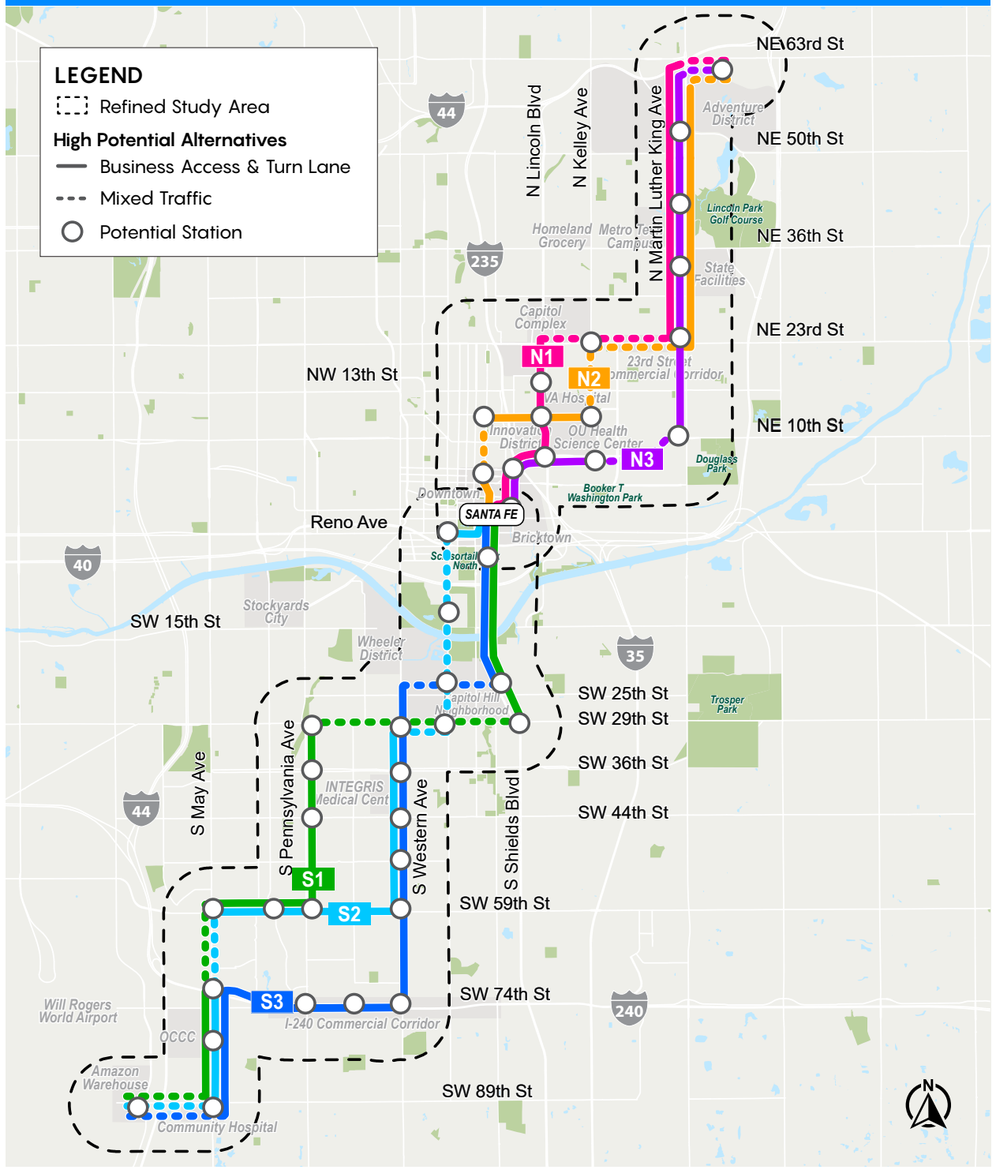
Several industry best practices were applied to develop a station placement methodology—outlined below—that was used to identify general locations that would be suitable for BRT stations.

Best Practices	Station Placement Methodology
Locate at major intersections	Major cross streets
Utilize existing bus stop infrastructure where possible	High ridership stations
Consider mid-block stations in areas with major activity generators	High density of key destinations
Locate every 1/2 to 3/4 mile	Adjacent transit-supportive land uses

High Potential Alternatives

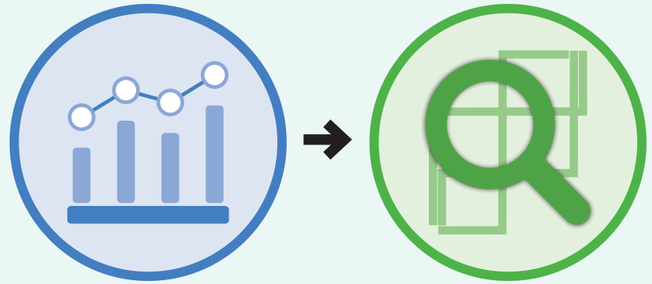
Figure 2.7 shows the alignment, operating environment, and approximate station locations for each of the High Potential Alternatives. These High Potential Alternatives will be evaluated in the next chapter and provide a basis for the LPA recommendation.

Figure 2.7 – High Potential Alternatives



3 Refine

This chapter takes the High Potential Alternatives identified in the Discover phase and analyzes them using an Evaluation Framework that was developed to reflect project goals. The data generated from the technical analysis was translated into relative ratings indicating how well each Alternative performs against project goals. These ratings, as well as other key information and feedback gathered from stakeholders and the public are summarized on each Alternative's scorecards (showcased on subsequent pages).



Analyze each Alternative using the Evaluation Framework

Define the segments with the highest opportunity for BRT

Evaluation Framework

The Evaluation Framework consists of 24 different performance measures organized by project goal that are intended to measure relative performance. These metrics are typical of transit planning efforts, and while they are tailored to reflect the priorities of the community, many align with federal funding source methodologies.

Connect Communities and Resources	Facilitate Prosperity and Economic Growth	Expand Equitable Mobility Options	Move People Efficiently	Utilize Available Resources
Connects to Key Destinations	Projected Employment Growth	Serves Persons with Disabilities	Travel Time	Environmental Scan
Serves Existing Population	Projected Employment Growth	Serves Minority Populations	Traffic Implications on Existing Roadways	Estimated Capital Construction Cost
Serves Existing Workers	Serves Small Businesses	Serves Households below the Poverty Line	Minimizes Turn Movement Conflicts	Estimated Operations and Maintenance Cost
Connects to Existing Transit Routes	Adjacent to Transit-Supportive Land Uses	Serves Households with Zero Vehicle Access	Maximizes Future Ridership	Right-of-Way Impacts
Provides First/ Last Mile Connections	Adjacent to Developable Land			Potential Utility Conflicts
				Potential Constraints

The following pages summarize key metrics from the evaluation, the relative performance for each goal, and key findings on an annotated map. After completing the evaluation, the information was synthesized into two opportunity maps for further consideration—one for the Northeast and one for the South. These summary metrics were analyzed at a planning-level and provide a helpful basis for comparison. However, these metrics are subject to change as the project advances through environmental and preliminary engineering.

The next chapter will highlight the LPA that was selected as a result of the evaluation and second round of engagement activities. The Alternative selected represents the best opportunity to meet the high-capacity transit needs in both corridors and effectively compete for necessary federal funding.

Interested in taking a deeper dive into the Evaluation Framework and its results?
See Appendix D: Detailed Evaluation

Alternative N1

Sheridan Avenue – Lincoln Boulevard – 23rd Street – N Martin Luther King Avenue

Alternative N1 provides efficient transportation options for residents, workers, students, and tourists alike. It promotes connectivity by serving key community destinations such as Bricktown, Ralph Ellison Library, Metro Tech Campus, and the Adventure District. N1 also serves large employment centers including OUHSC and the State Capitol Complex.

Total Population Served
7,800 Residents

Total Jobs Served
43,700 Jobs

Equity Population Served
8,900 Residents or Households

Estimated Ridership
1,100 Average Weekday Riders

Goal	Performance
Connects Communities and Resources	Lower – Higher
Facilitate Prosperity and Growth	Lower – Higher
Expand Equitable Mobility Options	Lower – Higher
Move People Efficiently	Lower – Higher
Utilize Available Resources	Lower – Higher

Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information

Alternative N2

Broadway Avenue – N Kelley Avenue – 23rd Street – N Martin Luther King Avenue

Alternative N2 provides efficient transportation options for residents, workers, students, and tourists alike. It promotes connectivity by serving key community destinations such as Downtown, the Innovation District, Ralph Ellison Library, Metro Tech Campus, and the Adventure District. N2 also serves large employment centers including OUHSC and the VA Hospital.

Total Population Served
9,500 Residents

Total Jobs Served
46,900 Jobs

Equity Population Served
10,000 Residents or Households

Estimated Ridership
1,400 Average Weekday Riders

Goal	Performance
Connects Communities and Resources	Lower – Higher
Facilitate Prosperity and Growth	Lower – Higher
Expand Equitable Mobility Options	Lower – Higher
Move People Efficiently	Lower – Higher
Utilize Available Resources	Lower – Higher

Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information

Alternative N3

Sheridan Avenue – NE 8th Street – N Martin Luther King Avenue

Alternative N3 provides efficient transportation options for residents, workers, students, and tourists alike. It promotes connectivity by serving key community destinations such as Bricktown, the Innovation District, Ralph Ellison Library, Metro Tech Campus, and the Adventure District. N3 also serves employment centers including OUHSC and the State Facilities.

Total Population Served
6,800 Residents

Total Jobs Served
35,300 Jobs

Equity Population Served
7,900 Residents or Households

Estimated Ridership
800 Average Weekday Riders

Goal

Performance

Goal	Performance
Connects Communities and Resources	Lower – Higher
Facilitate Prosperity and Growth	Lower – Higher
Expand Equitable Mobility Options	Lower – Higher
Move People Efficiently	Lower – Higher
Utilize Available Resources	Lower – Higher

Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information

Alternative S1

S Shields Avenue – SW 29th Street – S Pennsylvania Avenue – SW 59th Street – Logistics Hub

Alternative S1 provides efficient transportation options for residents, workers, students, and visitors alike. It promotes connectivity by serving key community destinations such as the South Capitol Hill Neighborhood, OCCC, and multiple shopping centers. S1 also serves the Amazon Distribution Warehouses- a major employment center.

Total Population Served
29,000 Residents

Total Jobs Served
24,800 Jobs

Equity Population Served
18,800 Residents or Households

Estimated Ridership
1,200 Average Weekday Riders

Goal

Performance

Goal	Performance
Connects Communities and Resources	Lower – Higher
Facilitate Prosperity and Growth	Lower – Higher
Expand Equitable Mobility Options	Lower – Higher
Move People Efficiently	Lower – Higher
Utilize Available Resources	Lower – Higher

Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information

Alternative S2

S Walker Avenue – SW 29th Street – S Western Avenue – SW 59th Street – Logistics Hub

Alternative S2 provides efficient transportation options for residents, workers, students, and visitors alike. It promotes connectivity by serving key community destinations such as the center of Capitol Hill Neighborhood, OCCC, and multiple shopping centers. S2 also serves employment centers including INTEGRIS Southwest Medical Center and the Amazon Distribution Warehouses.

Total Population Served
27,600 Residents

Total Jobs Served
36,600 Jobs

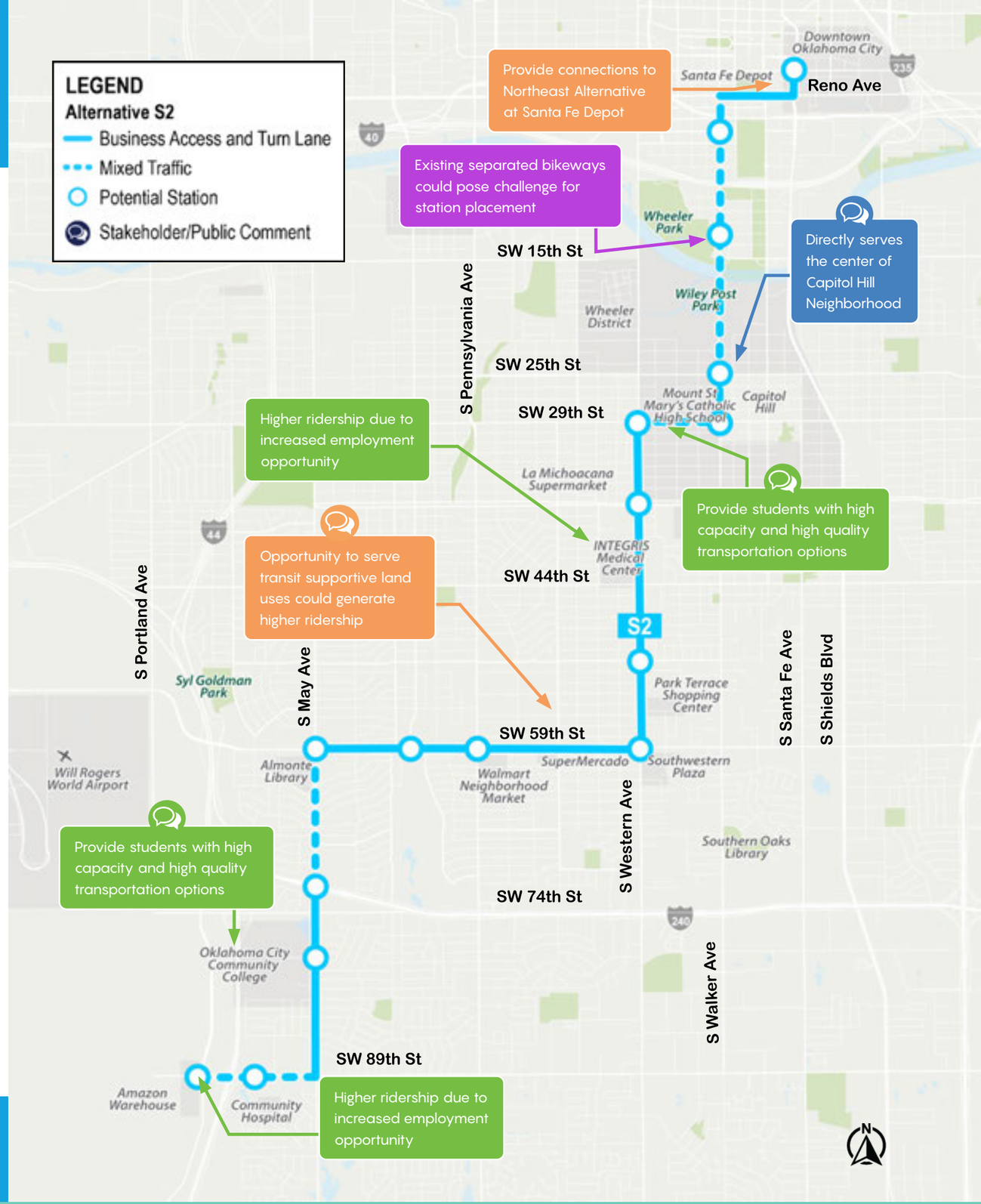
Equity Population Served
19,000 Residents or Households

Estimated Ridership
1,600 Average Weekday Riders

Goal

Performance

Connects Communities and Resources	Lower	Higher
Facilitate Prosperity and Growth	Lower	Higher
Expand Equitable Mobility Options	Lower	Higher
Move People Efficiently	Lower	Higher
Utilize Available Resources	Lower	Higher



Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information

Alternative S3

S Shields Avenue – SW 25th Street – S Western Avenue – SW 74th Street – Logistics Hub

Alternative S3 provides efficient transportation options for residents, workers, students, and visitors alike. It promotes connectivity by serving key community destinations such as central Capitol Hill Neighborhood, OCCC, and the I-240 Commercial Corridor. S3 also serves employment centers including INTEGRIS Southwest Medical Center and the Amazon Distribution Warehouses.

Total Population Served
24,700 Residents

Total Jobs Served
27,900 Jobs

Equity Population Served
17,900 Residents or Households

Estimated Ridership
1,200 Average Weekday Riders

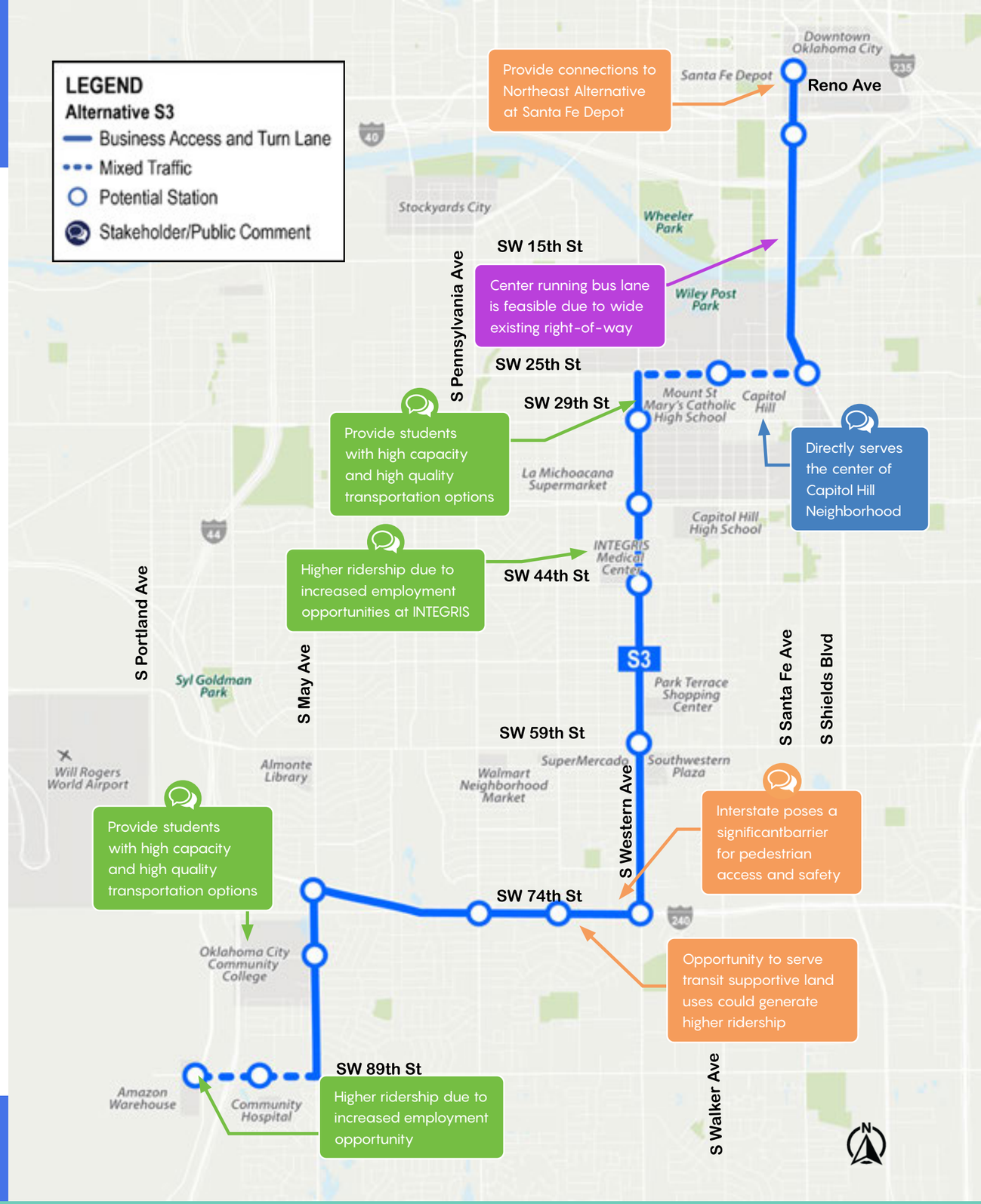
Goal

Performance

Goal	Performance
Connects Communities and Resources	Lower – Higher
Facilitate Prosperity and Growth	Lower – Higher
Expand Equitable Mobility Options	Lower – Higher
Move People Efficiently	Lower – Higher
Utilize Available Resources	Lower – Higher

Alternative Performance Report Card

See Appendix D: Detailed Evaluation Technical Memo for more information



Northeast Opportunities

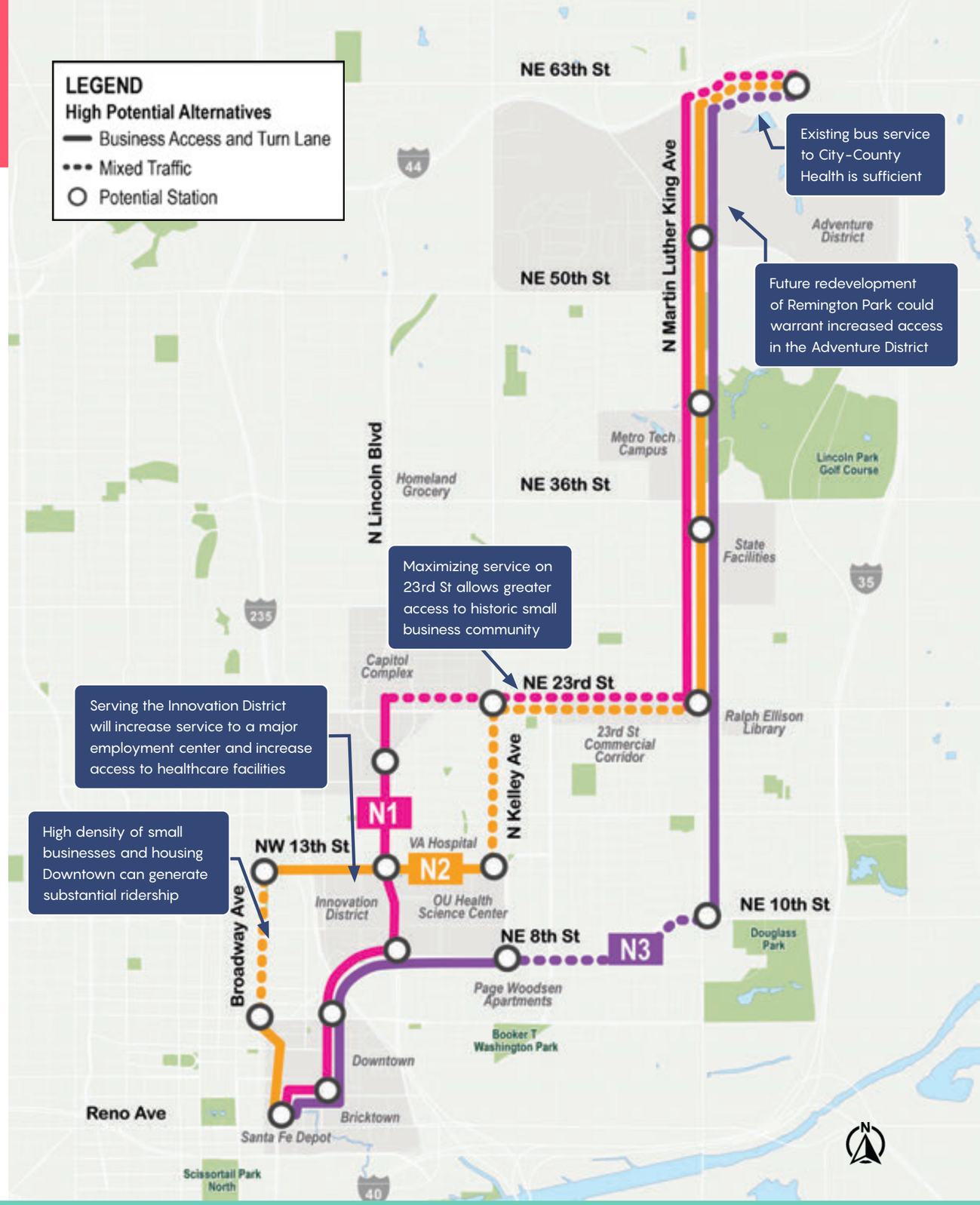
There are many great opportunities to provide high-speed, reliable service to the Northeast corridor. This exhibit highlights the segments most aligned with project goals. These segments will be able to effectively serve all the key destinations that have been expressed by both the public and stakeholders as vital to the community.

OKC Zoo in the Adventure District


Automobile Alley


USA Softball Field in the Adventure District


Innovation District and OUHSC



South Opportunities

There are many great opportunities to provide high-speed, reliable service to the South corridor. This exhibit highlights the segments most aligned with project goals. These segments will be able to effectively serve all the key destinations that have been expressed by both the public and stakeholders as vital to the community.


INTEGRIS Southwest Medical Center


Historic Capitol Hill


Oklahoma City Community College


S Shields Blvd Facing North

4 Select

Based on the detailed evaluation and a preliminary operations analysis, the Northeast and South BRT corridors would be best implemented and constructed together to improve operational efficiencies and provide a one-seat-ride from the Adventure District to the Amazon Logistics Hub.

This chapter will provide details on the MAPS 4 LPA. The selected LPA proved to be a competitive option that received support from stakeholders and the public. This chapter will also highlight potential project benefits.

These renderings completed during the planning phase are for illustrative purposes only

Locally Preferred Alternative

Adventure District to Logistics Hub via Downtown

The MAPS 4 LPA provides an efficient and reliable service connecting residents, workers, students, and visitors in the Northeast and South communities of Oklahoma City. The MAPS 4 LPA 17-mile corridor promotes connectivity by serving key community destinations and major employment hubs such as the Adventure District, Metro Tech Campus, Ralph Ellison Library, Automobile Alley, the Innovation District, Capitol Hill, INTEGRIS Medical Center, OCCC, and the Amazon Warehouses.

Total Population Served
47,000 Residents

Total Jobs Served
50,000 Jobs

Equity Population Served
39,000 Residents or Households

Estimated Ridership
2,700 Users

Community Benefits

- More jobs during the construction of improvements
- Increased property values from access to new stations
- Better connectivity with planned regional transit services

Corridor Benefits

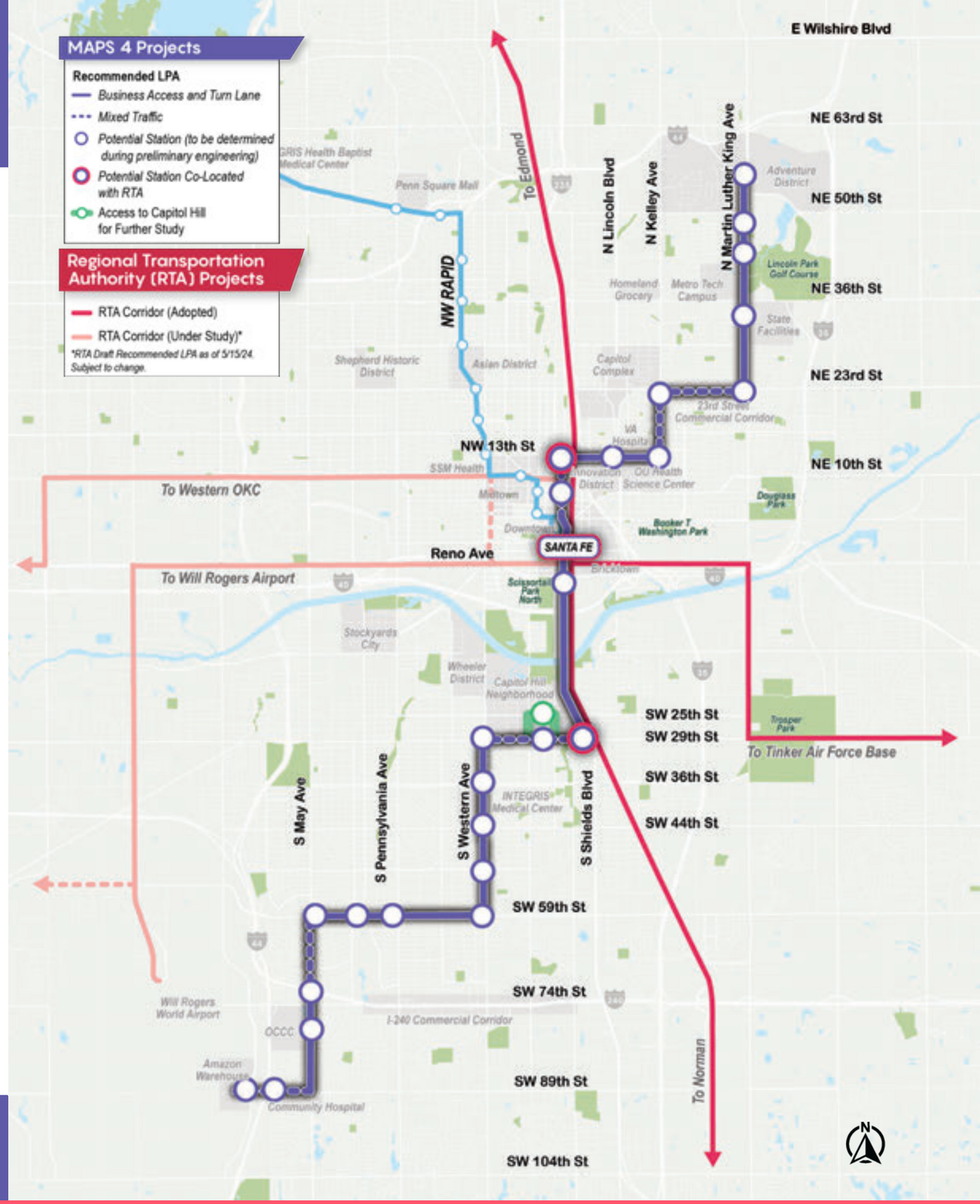
- Reduced noise and congestion from less driving
- Cleaner air due to reduced emissions from fewer cars
- Increased safety from pedestrian improvements and fewer cars

Rider Benefits

- A more comfortable ride from higher-quality stations and bus amenities
- Increased reliability and faster bus speeds
- Auto user savings from less wear and tear on personal vehicles

LPA Performance Report Card

See Appendix F: Locally Preferred Alterntive Evaluation for more information



Engagement Spotlight: Serving Communities in Need

In addition to a rigorous technical assessment, extensive public engagement was conducted to align with the community needs in the Northeast and South corridors in Oklahoma City. The MAPS 4 LPA meets the themes identified below:

- Better access to healthcare and educational facilities
- More reliable service
- More connections to employment opportunities
- Access to key districts and neighborhoods
- Service to historically disadvantaged populations*

** Historically disadvantaged populations include households under the federal poverty line, minority residents, zero-vehicle households, and limited mobility residents.*

Promoting Community Vitality

Community vitality benefits can be considered in three categories: economic, social, and environmental. Investments in transit projects like the MAPS 4 LPA directly promote community vitality by:

Supporting local economic growth and development

Facilitating greater access and mobility for all

Fostering a better quality of life

Economic Growth and Development*

For every $1 million of investment in transit:

Approximately **18 jobs** are supported per **$1 million of investment in transit**

- **$2.9 million** of increased sales volume
- **$1.9 million** worker income
- **400K** in federal, state, and local tax revenue

5-to-1 Economic return from long-term transit investments

Residential property values can increase by 6% within a half-mile of each station

Access to broader business markets and more diverse skillsets **increases business productivity**

Reduced traffic congestion from fewer cars leads to **direct travel cost and travel time savings** for employees and businesses

Easy access to transit **increases the desirability of residential and commercial development**

**APTA Economic Report 2020*

Increased Access & Mobility

Public transit can help advance more equitable outcomes in communities by providing affordable and accessible transportation options and by connecting historically disadvantaged communities to greater opportunities.

Equitable Access along the MAPS 4 LPA*

20,000 minority residents

10,000 limited mobility residents

6,000 low-income households

2,500 households with no access to a car

**U.S. Census 2021 5-Year Estimates within a half-mile walkshed of potential station locations*

Taking People Where They Want To Go

The MAPS 4 LPA provides a connection to the following within a half-mile of the station:

- 3 Major Regional Employers
- 4 Healthcare Facilities
- 8 Social Service Centers
- 3 Higher Education Facilities
- 3 Sporting Facilities
- 570 Small Business
- 7 Parks

4 Major Districts Are Served by the MAPS 4 LPA

Expanded Regional Mobility

The implementation of the MAPS 4 LPA will contribute to the larger transit network vision for central Oklahoma through:

- Direct connections to Downtown Streetcar and OKC's first BRT, RAPID^{NW}
- Connections to 4 future high-capacity routes from the RTA Transit Systems Plan

Better Quality of Life

- 313,000 fewer hours driving annually
- Better air quality from reduced emissions
- Increased safety at stations due to pedestrian improvements
- Increased safety from fewer cars
- Less congestion for people who continue to drive
- Taking transit promotes physical activity, which reduces the risk of developing diabetes, metabolic syndrome, heart disease, and stroke*

Major transit investments like the MAPS 4 LPA is a key ingredient to enhancing community vitality. When combined with complementary policies, programs, and projects, these new transit routes will work with the larger network to enhance and bolster community vitality.

*Source: https://www.healthaffairs.org/do/10.1377/hpb20210630.810356/

Launching a Premium BRT Service

Bus Rapid Transit (BRT) will provide a premium level of transit with faster service, enhanced reliability, upgraded vehicles, and high-quality stations. The service is characterized by the following types of premium design features:

Frequency and Capacity

BRT will provide frequent, reliable service. On weekdays, it operates every 12 minutes during peak hours and every 30 minutes during off peak hours. On weekends, it operates every 15 minutes during the day and every 30 minutes in the evening and at night. These increased frequencies will provide increased passenger capacity along the corridor.

Increased Service Span

The BRT service will include a more robust service span from 6AM to 12AM on weekdays, with extended hours on Fridays until 2AM. Weekend service will run from 7AM to 2AM on Saturday and 7AM to 10PM on Sundays.

Premium Vehicles

Modern vehicle amenities include wider doors, a comfortable interior, and low floor buses, which are powered by low-emission compressed natural gas.

Source: Embark @RapidBRT

Level Boarding

Elevated platforms simulate a train station experience and speeds the boarding process. Level boarding better provides access for passengers with wheelchairs, strollers, wheeled luggage, or mobility limitations.

Innovative Technology

Existing technologies include transit signal priority at intersections to ensure vehicles can maintain rapid and reliable movement through the corridor. Intelligent traffic systems will hold green lights longer for buses, ensuring a reliable service, especially during the peak period.

Flexible Operating Environment

A combination of various operating environments takes advantage of Business Access and Turn (BAT) lanes that prioritize transit during the peak period along much of the corridor. These BAT lanes are flexible and allow drivers and emergency vehicles to continue to access businesses and healthcare facilities along the corridor.

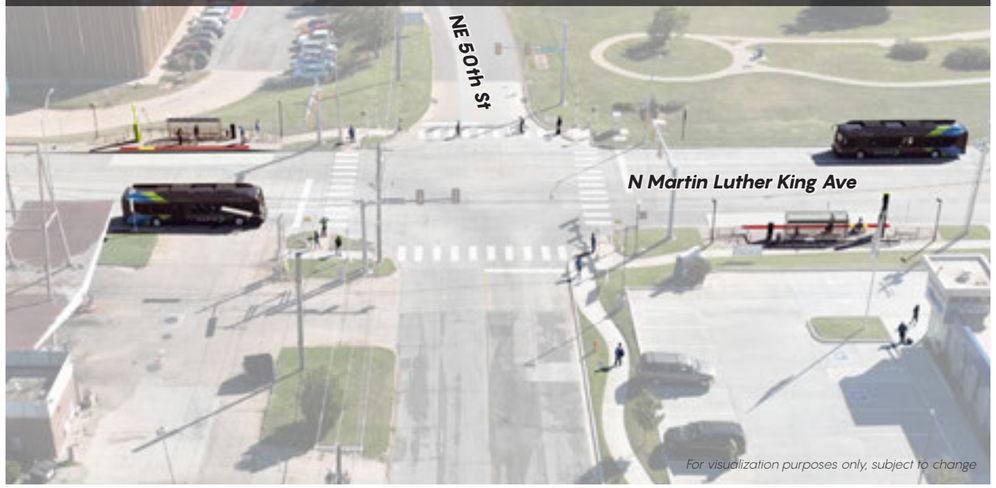
Safety

Stations will have increased lighting, improved sidewalks and crosswalks, as well as high-quality shelters that enhance rider visibility and security.

Providing High Quality Station Amenities

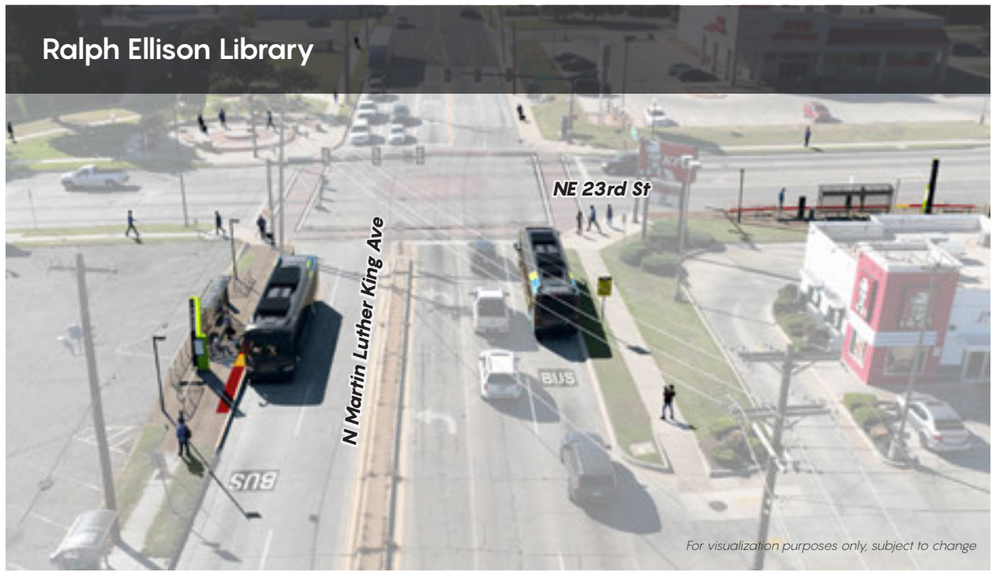
The BRT service will provide enhanced station amenities compared to local bus service. The following images highlight how these amenities could be incorporated into specific areas along the corridor. These renderings completed during the planning phase are for illustrative purposes only and are subject to change based on environmental and preliminary engineering.

Science Museum Oklahoma



For visualization purposes only, subject to change

Ralph Ellison Library



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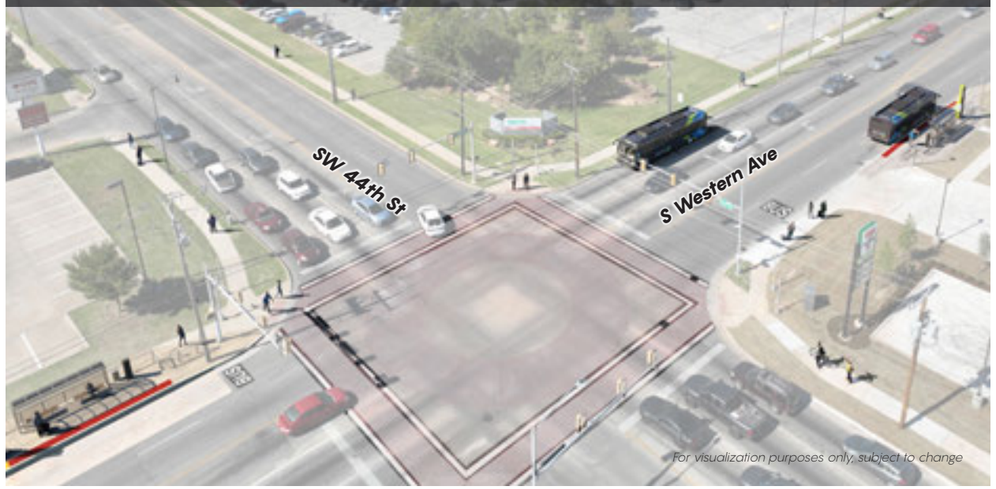
INTEGRIS Southwest Medical Center



For visualization purposes only, subject to change

S Western Ave South of SW 36th St

For visualization purposes only, subject to change

While this report identifies an LPA to provide premium transit in the Northeast and South communities, there are many steps remaining between planning and the opening of service. The next chapter will focus on specific steps and actions necessary to take this project from planning into construction.

5 Implementation

The LPA will achieve project goals by connecting major activity centers to Santa Fe Depot which will serve as a hub for the Regional Transportation Authority (RTA) and other planned transit routes.

This chapter outlines the funding approach and timeline needed to implement the project as well as other key considerations as the project advances into the environmental and preliminary design phase.

Capital Costs

Capital cost estimates based on the Federal Transit Authority's Standard Cost Categories (SCC) were developed for the MAPS 4 LPA. The major cost categories include guideway treatment, stations, systems, vehicles, professional services, and unallocated contingencies to allow for unforeseen project costs. It is estimated that the project will cost $62M to $96M[1].

For more information, see **Appendix F: Locally Preferred Alternative Evaluation.**

Leveraging Federal Funding

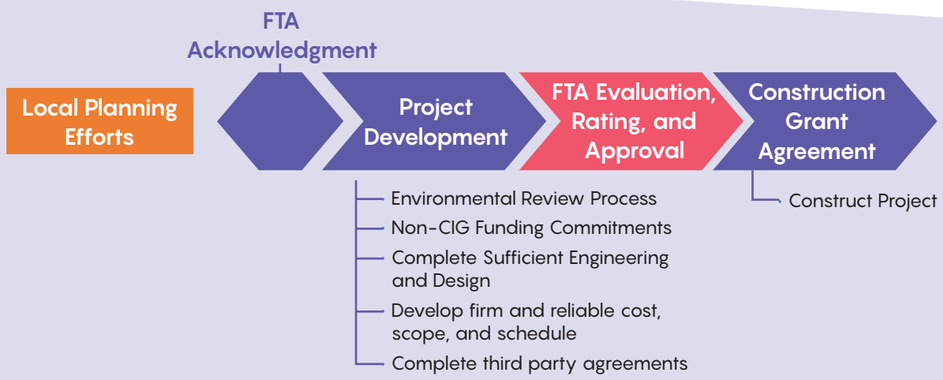
Based on the project's planning-level cost estimate, additional funding will need to be identified to implement the project. The adopted LPA meets FTA's definition of a corridor-based BRT system[2] based on the operating environment and service plan assumptions outlined in **Chapter 4**. Those factors, combined with a total project cost less than $400 million, makes the project eligible to enter into the CIG Small Starts Program.

Federal Transit Administration's Capital Investment Grant (CIG) Program

The CIG Program is a funding initiative that supports the development and expansion of transit projects. This program plays a critical role in promoting sustainable and efficient transportation solutions in communities across the United States.

If the project achieves acceptable scores on criteria determined by the FTA, the project could secure up to 80% of federal funds through the CIG Program for environmental, design, and construction. Based on the planning-level cost estimates, it is anticipated that the project will require less than 80% of federal funding to construct the project. While the AA itself is not a detailed financial plan, capital cost, and operations and maintenance costs were estimated to inform the total project cost estimate. This estimate can be used to inform the project development phase, which is the first step in securing a grant agreement with FTA. The timeline below outlines the process for entering into the CIG Program. While there is no guarantee of funding, the CIG is a well-established method for funding major transit investments. The analysis completed during the AA suggests that the project could be competitive for federal funding.

[1] All costs were developed in $2023 dollars.
[2] Title 49 Section 5309(a)(3)

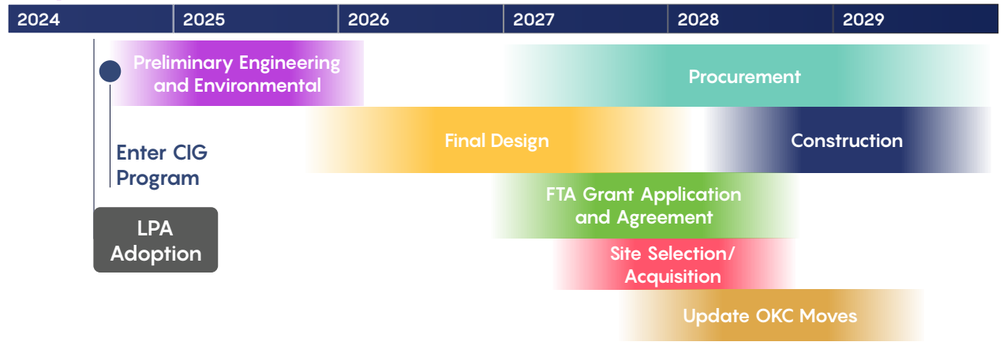


Timeline

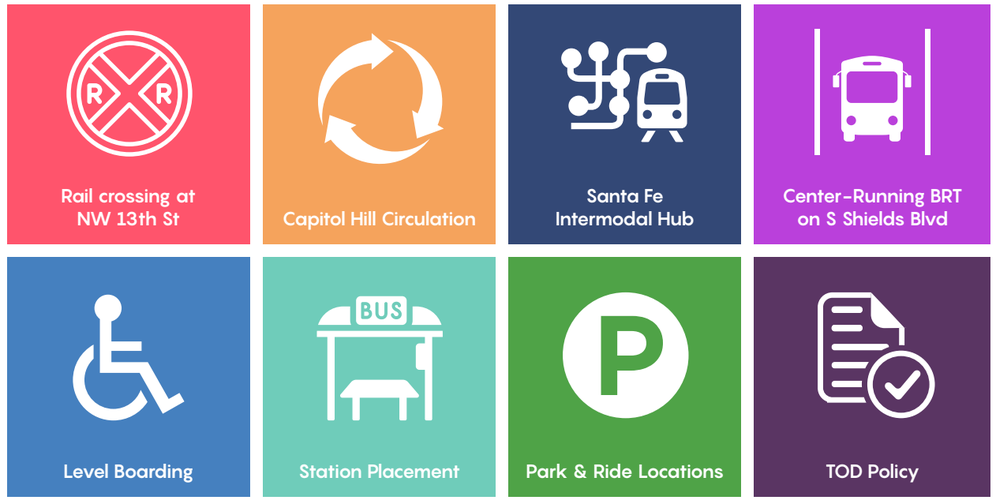
The MAPS 4 LPA was adopted by City Council on July 2, 2024 with the recommendation of the MAPS 4 Connectivity Subcommittee and Citizens Advisory Board as well as support from the Central Oklahoma Transportation and Parking Authority. The MAPS 4 LPA will be reflected in the Association of Central Oklahoma Governments' (ACOG) fiscally constrained long range transportation plan. As the MAPS 4 LPA advances into implemenation, the project will continue to consult the public to ensure that the implemented service achieves a community-supported vision for the Northeast and South BRT corridors.

The timeline below shows key implementation milestones to begin revenue service assuming that the project utilizes CIG funding.

Project Considerations



As the project advances to environmental and preliminary engineering phases, the following considerations will need to be investigated:



Rail Crossing at NW 13th St

The LPA crosses an at-grade rail crossing at NW 13th Street which has challenges as it relates to BRT operations and on-time performance. Currently, freight parking on the rail crossing can cause delays for 40 minutes to one hour, on average, once a day during hours of operation. Additionally, with RTA's planned commuter rail service and the expansion of Heartland Flyer along the corridor, the project should consider long-term measures to achieve the service plan outlined in **Chapter 4**.

The project will consider both short-term and long-term solutions and coordinate with the freight operator to address the impactful freight parking that occurs on the corridor, which will likely lead to a more permanent solution to grade separate.

Capitol Hill Circulation

The Capitol Hill neighborhood was identified through engagement activities as a key destination in Oklahoma City. Therefore, it is important that the LPA provides quality access to the heart of Capitol Hill and areas north of the river.

As the project advances through preliminary engineering, the following options to enhance access to the Capitol Hill community should be considered against implications to travel time and cost:

- Provide an additional station on S Shields Blvd at SW 23rd Street to enhance accessibility to Wiley Post Park and the area north of Capitol Hill.
- Explore a detour from SW 29th Street to SW 25th Street to provide a direct connection to the Capitol Hill community.

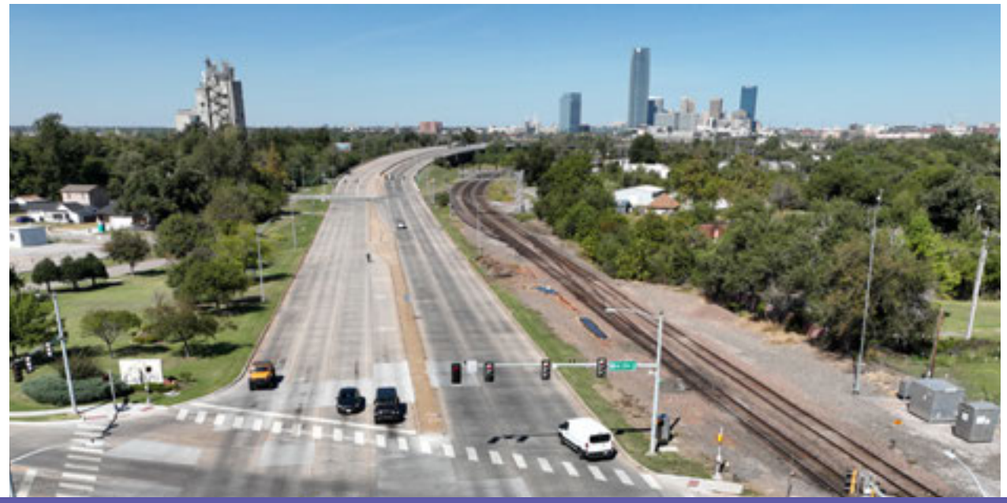
In addition to enhancing service and connectivity to Capitol Hill, overall pedestrian access along the corridor on SW 29th Street will need to be enhanced, particularly for ADA accessibility.

Santa Fe Depot

The RTA is coordinating with the City and EMBARK to provide improvements to the Santa Fe Depot for high-capacity transit service. The long-term objective is for the MAPS 4 LPA to connect to the regional network at the Santa Fe Depot and provide key connections to future destinations such as the new Downtown Arena across from Santa Fe. However, if improvements are not completed prior to the anticipated start of revenue service, an interim routing path and terminus at the Downtown Transit Center will be investigated.

S Shields Boulevard

As part of the Discover phase of the AA, S Shields Boulevard was identified as an underutilized roadway with capacity to support a center-running operating environment for BRT service. As the project advances through preliminary engineering, the feasibility of center-running BRT service as well as the cost, travel time implications, and benefits of removing ramp conflicts should be further explored. As this type of treatment is new in Oklahoma City, education and wayfinding will need to be considered to help the community to acclimate to this type of change.



Level Boarding

The project team explored the tradeoffs of level boarding and near-level boarding. Based on the findings below, near-level boarding is recommended for implementation of the LPA.

Example of Level Boarding for RAPID^{NW}

With **Level Boarding**, the platform height is typically 12-14 inches and matches the floor height of transit vehicles. Transit vehicles must pull in close to the curb to eliminate the gap between the vehicle and rider. Level boarding reduces delay and adds convenience as ramps do not need to be deployed and vehicles do not need to kneel. However, station placement may make it challenging for vehicle operators to pull in to the curb.


Example of Near-Level Boarding for EmX Express

With **Near-Level Boarding**, the platform height ranges from 8-11 inches and the vehicle operator will either kneel the bus or deploy a short bridge plate or ramp. Near-level boarding does not provide as much time savings as level boarding, but does not require the same level of precision for vehicle operators to pull in to the curb.

Station Placement

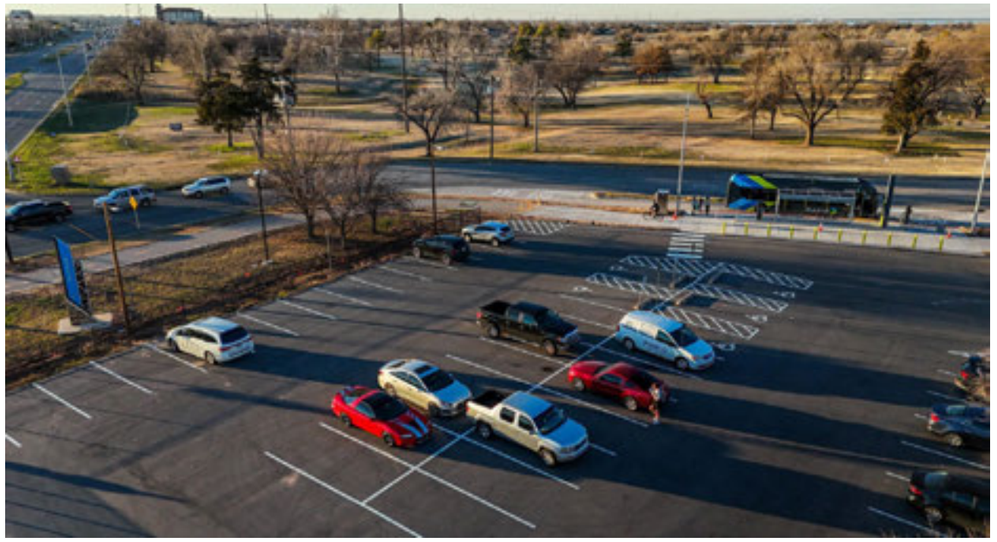
The LPA recommends potential station placement based on local demand drivers as well as industry best practices. Specific station placement will need to be identified during preliminary engineering and the following considerations should be evaluated:

- Vehicle alignment with the station platform
- Bus turning radius
- Roadway modifications or limitations on other vehicle turning movements
- Bicycle and pedestrian safety
- Integration with bikewalk**okc** projects

Park & Ride

Park & Ride facilities are locations where people can park their personal vehicles and transfer to high frequency transit routes to complete their trips. Park & Rides enable people who live further away from transit to take advantage of the benefits of transit services. Additionally, implementing Park & Rides with supportive transit-oriented development policy can stimulate development and bolster the local economy. As part of the AA, two primary factors were considered for Park & Ride suitability:

- Proximity to major travel ways and trip generators
- Proximity to end of line stations



The following locations were identified as having propensity for Park & Ride facilities:

- Remington Park
- Adventure District
- S May Ave at SW 59th St
- SW 74th St/I-240 Frontage Road
- OCCC
- Amazon

As the project advances through preliminary engineering and station locations are finalized, surrounding land uses and travel patterns should be analyzed to inform Park & Ride locations as well as the scale of the Park & Ride facility.

Transit-Oriented Development Policy

Transit-oriented development (TOD) is often characterized as compact, mixed-use development in a walkable environment near transit stations. These developments concentrate jobs, housing, services, and amenities around public transportation hubs and can positively influence the surrounding communities. The following list provides a summary of the types of policies that are typically implemented in successful TODs:

- Eliminating minimum parking requirements
- Requiring ground floor retail at key intersections;
- Establishing density and height requirements that vary based on distance from station
- Adding streets to reduce block sizes
- Limiting low-density housing proximate to station
- Implementing transit-oriented street typologies
- Requiring higher-quality pedestrian facilities surrounding stations
- Requiring a mix of small local tenants as well as large anchor tenants
- Implementing shared parking to be leased separately from buildings
- Providing high-quality amenities such as transit information services, lighting, sidewalk improvements, and bike parking
- Utilizing high-quality materials and design standards to incorporate local identity
- Requiring minimum residential and commercial office densities for new developments
- Reducing setback requirements

Updating the City's municipal code to incorporate TOD-supportive policies will influence and shape what the Oklahoma City community looks like in the future.


MAPS4
EMBARK