CONNECT NORTHWEST ARKANSAS

10-Year Transit Development Plan

August 2020

This Transit Development Plan was prepared for the
Northwest Arkansas Regional Planning Commission

in partnership with Ozark Regional Transit and Razorback Transit.

This Transit Development Plan was prepared by Alliance Transportation Group (ATG).

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EXECUTIVE SUMMARY

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Connect Northwest Arkansas (NWA) is a 10-Year Transit Development Plan (TDP) that will serve as a "Blueprint" for improving and expanding transit in the NWA region. The Northwest Arkansas Regional Planning Commission (NWARPC), Ozark Regional Transit (ORT) and Razorback Transit (RT) are committed to ensuring that this plan improves transit by connecting NWA at the regional and local levels, saves people time and ultimately provides the community with greater mobility and freedom.

PROJECT VISION

If you **connect** people and save them **time**, you give them **freedom**.

Transportation opportunities and challenges are regional and cannot be defined by one jurisdiction. NWA is a massive region and spans over 40 miles from south to north with transit needs that vary throughout the linear corridor. Connect NWA focuses on how to improve fixed route transit and builds upon the recent and ongoing success both ORT and RT have had coordinating and expanding service in the four main urban areas and surrounding communities that include (from south to north) Fayetteville, Springdale, Rogers and Bentonville.

WHY TRANSIT?

Connect NWA establishes a shared understanding of what successful transit looks like, how to design effective service and ultimately how to implement it regionally and locally. Transit may not seem like the optimal or most popular mode of travel in the NWA region since the 420,455 people who live in the area only average 8,000 transit boardings a day. However, something is missing from this statistic and the conversation in general: the potential for transit in the region is great and these numbers reflect a transit system that is underfunded and not designed to meet the transit potential of the region. It is critical that the NWA Community understands the following about transit:

- The benefits of transit (why does transit matter)?
- What makes transit effective?
- What supports transit?
- How do you design transit?

Before proceeding it is important to establish a shared understanding about what a transit network is and its most basic components. A transit network is a set of routes that follow specific alignments with stops along the way that operates during certain times of the day and at various service levels. From the time it starts in the morning to the time it stops in the evening is known as its **span**. How often a bus or train arrives at a given stop or departs from a terminal is known as its **frequency**.

Why does transit matter?

Save Money
A household can save $10k by living with one less car.

Environment Friendly
Public transit saves the country 4.16 billion gallons of fuel per year.

Reduce Congestion
Congestion costs Northwest Arkansas residents $103M per year. Transit helps reduce the number of vehicles on roadways.

Travel Safely
Transit is 10x safer than traveling by automobile.

What is effective transit?

Effective Transit...

- TAKES ME WHERE I WANT TO GO
- ...WHEN I WANT TO GO THERE
- IT IS RELIABLE
- IT SAVES ME TIME
- IT GIVES ME FREEDOM

What supports transit?

Density

Transit works best when stops are located near a variety of destinations where people want to go such as job centers, schools, medical facilities, & housing complexes.

Connectivity

Transit should provide seamless transitions to other routes, park & rides, sidewalks, and bicycle routes. This ensures ease and comfort for passengers navigating the system.

Ease of Use

Transit should be easy to navigate and convenient to use. Great transit is integrated with technology to make taking transit an easy choice for travel.

Community Support

Whether you advocate for transit at city hall or simply choose to ride the bus, support from the community encourages local leaders to invest in great transit.

How do you design transit?

Improving transit is often a balancing act of deciding where the bus picks you up, how often the bus comes, and when service runs. In other words, frequency, span of service, and route design are all important aspects of delivering effective transit service.

Frequency
How often the bus comes

Route Design
Where the bus goes and how it gets there

Span of Service
How early service starts & how late service runs

PROJECT OVERVIEW

The study began in January 2019 with a technical analysis that looked at ridership, travel patterns, travel time and on-time performance for the entire NWA study area. The first major milestone of the project was to develop a Public Engagement Plan that would ensure the entire study area had an opportunity to learn about transit and provide input to directly inform the recommendations of the Connect NWA TDP.

Parallel to the public engagement effort was the existing conditions analysis that consists of the following technical analyses:

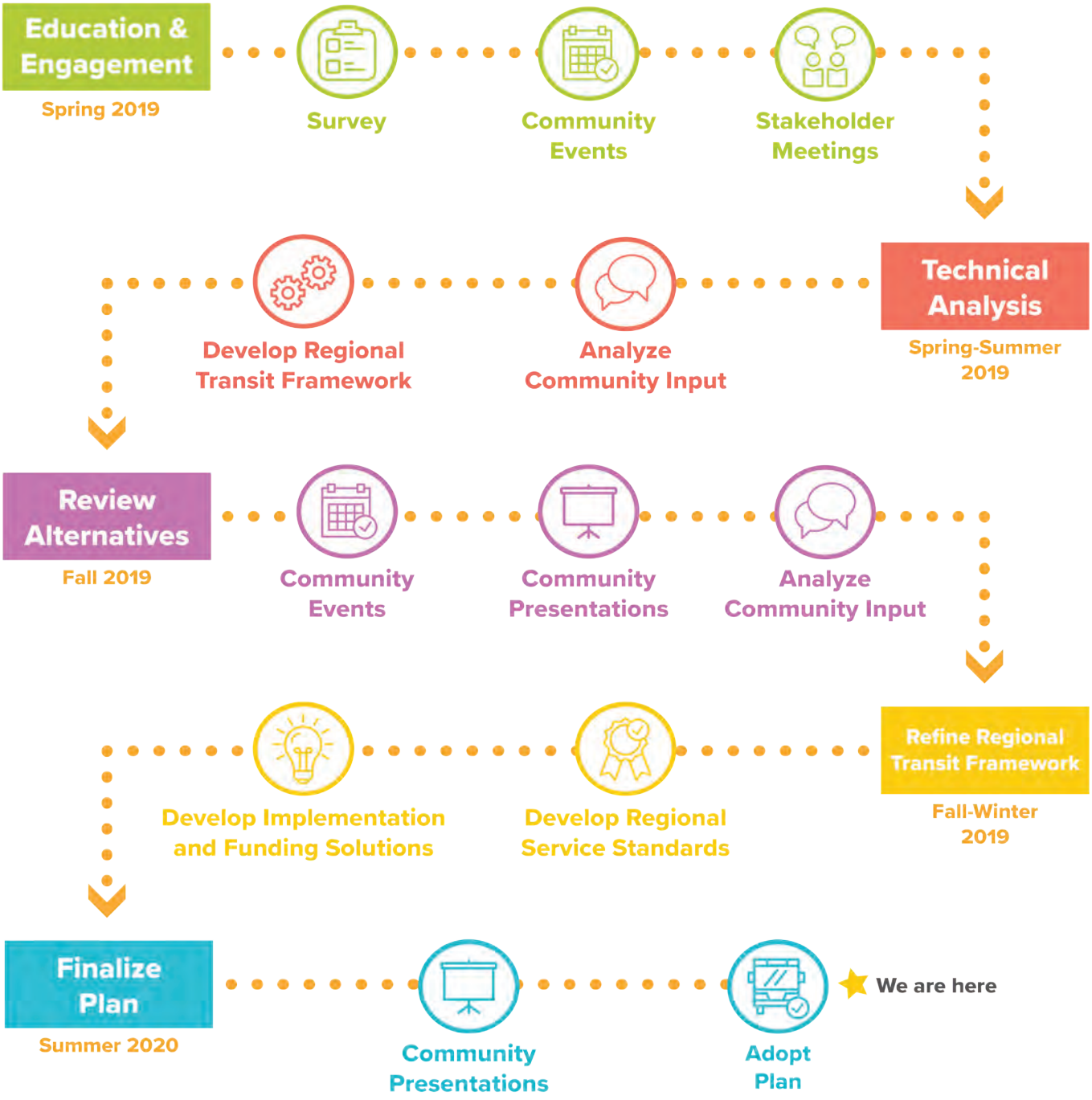
- Benchmarking Review
- Market Analysis
- Fixed Route Transit Operational Analysis

The next steps in the process involved the development of a Regional Transit Framework that included recommendations for regional and local transit solutions with service level and route alignment modifications and additions. The project team organized and hosted two major events in each of the counties in the study area that provided an opportunity for the community to give input on the recommendations. The project team used this input to develop a Preferred Alternative (PA) for both the region and each individual community.

The final steps of the TDP included the development of three critical elements to help guide and implement Connect NWA:

- Regional Service Standards
- Detailed implementation plan with prioritized routes and phasing
- Funding recommendations on allocating Federal and Local funds.

Connect NWA represent a complete 10-Year TDP for region and is made up of many individual components that can stand on their own and serve as tools to help advance and implement the plan.


Education & Engagement
Spring 2019
Survey
Community Events
Stakeholder Meetings
Technical Analysis
Spring-Summer 2019
Analyze Community Input
Develop Regional Transit Framework
Review Alternatives
Fall 2019
Community Events
Community Presentations
Analyze Community Input
Refine Regional Transit Framework
Fall-Winter 2019
Develop Regional Service Standards
Develop Implementation and Funding Solutions
Finalize Plan
Summer 2020
Community Presentations
Adopt Plan
We are here

PUBLIC ENGAGEMENT

The Connect NWA public engagement effort revealed that the NWA community supports transit and wants more of it. Public engagement is one of the most critical components of Connect NWA and will need to remain constant as the plan is implemented over the next 10 years.

PHASE I

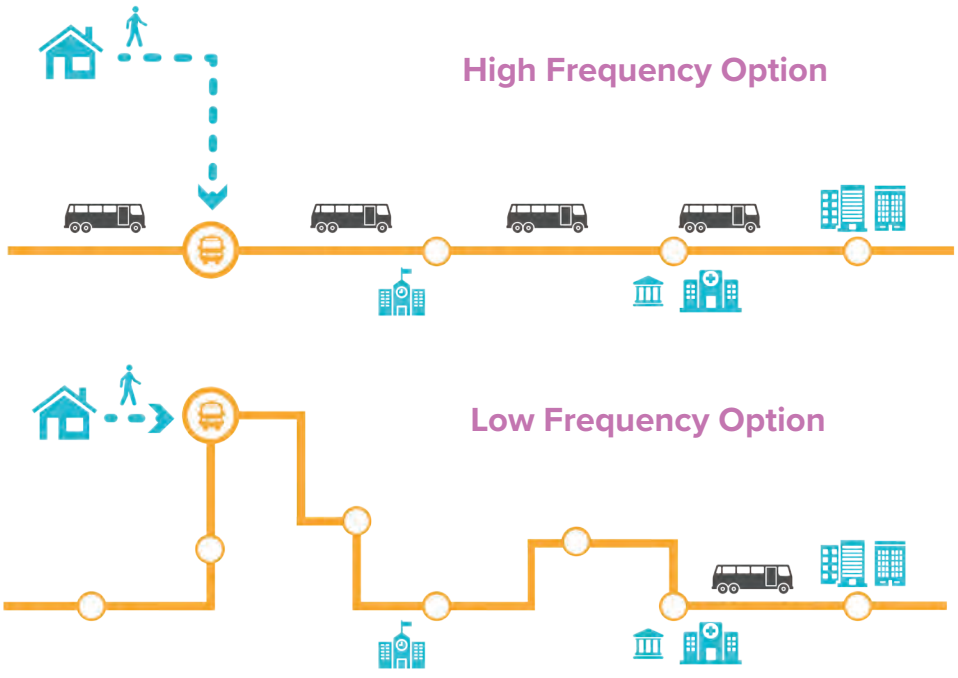
The public engagement effort consisted of two main phases. The first phase consisted of a week-long series of public engagement opportunities from April 2-6, 2019. The project team coordinated nine public events throughout the region in a wide variety of locations meant to capture all types of transportation users (e.g. Fayetteville Farmers Market, Springdale Walmart, NWACC). A public input survey was administered both in hard copy and online from April through May.

A total of 1,299 surveys were received by the project team. The survey revealed critical findings from the public and used these discoveries to align recommendations with the discussion about what makes transit effective.

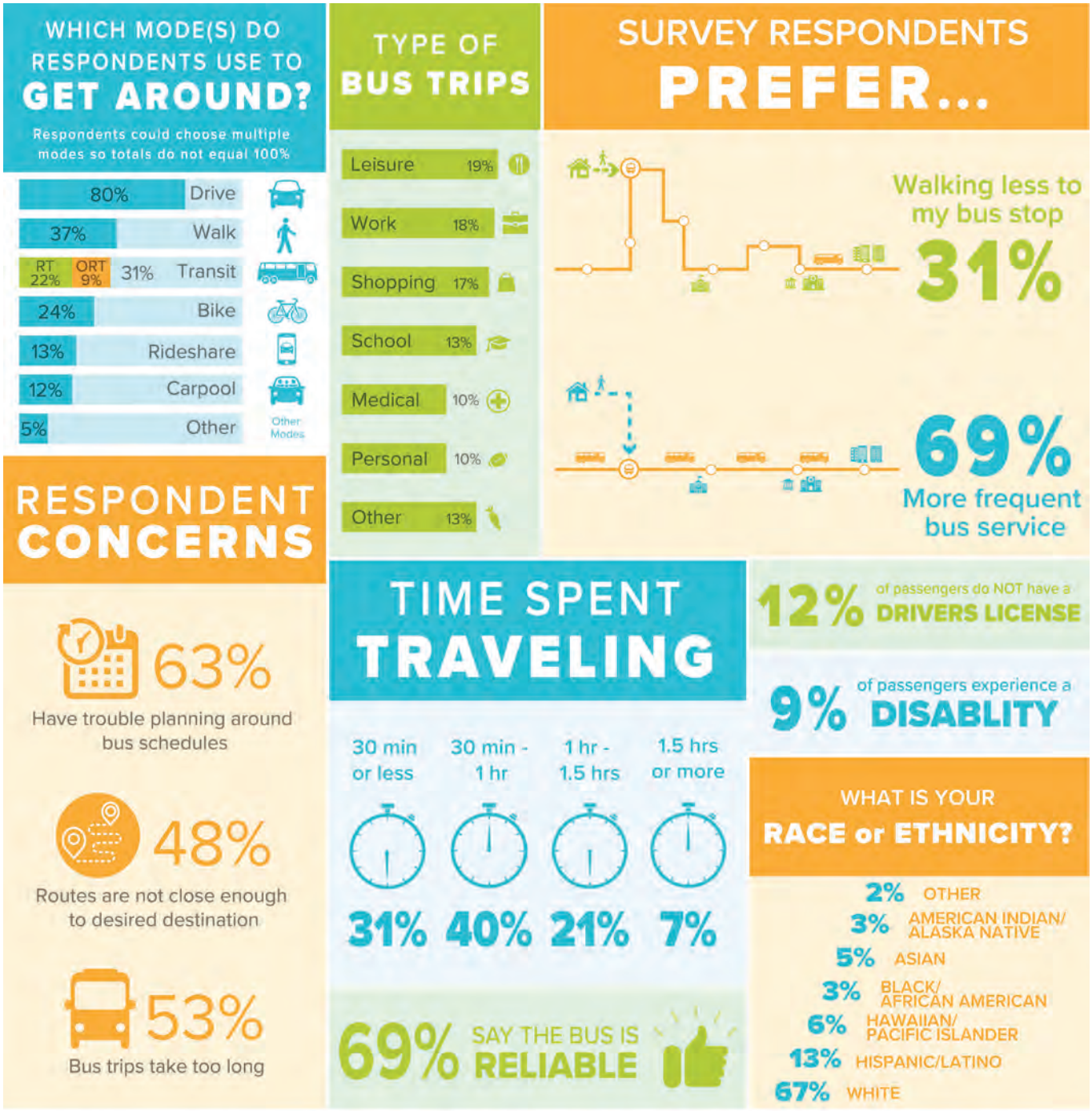
PHASE II

Phase two involved two major community outreach events and a survey that enabled the team to capture detailed feedback on the recommendations in the Regional Transit Framework. What was important about this process was that the community did not have to choose between alternatives. Instead, they were able to provide input about what they did and did not like about the recommendations. The project team was able to isolate the strengths and eliminate the weaknesses of the recommendations to determine the Preferred Alternative (PA) that has community support and will help shape the future of transit in the region.

The entire public engagement effort revealed that NWA wants a transit system that is reliable, allows for spontaneous travel, saves them time and gives them freedom.



Public Survey Results for NWARPC 10-Year TDP



EXISTING CONDITIONS

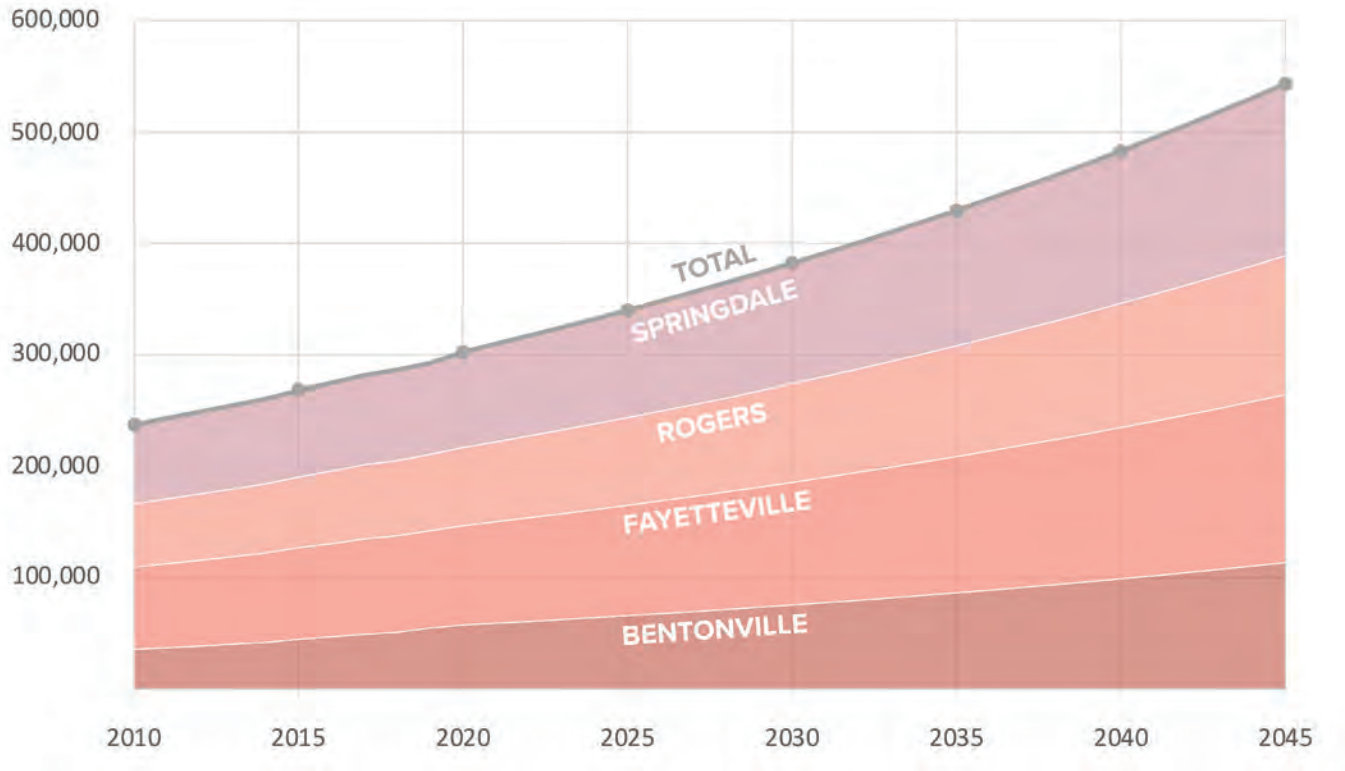
The Market and Operational analyses provided an in-depth and detailed review of the existing conditions under a 'transit lens' in NWA. However, this section is intended to highlight some of the broad takeaways that the project team discovered to date.

REGIONAL GROWTH

In order to understand future growth in the NWA region and align Connect NWA recommendations with the direction in which the community is growing, the project team utilized data from the 2019 Arkansas Economic Development Institute (AEDI) State Cohort Component Model to visualize population growth. With a 2005 base year and 2045 horizon year, the NWA region is estimated to nearly double in size by 2045. This means nearly 500 thousand residents living in Bentonville, Rogers, Springdale, and Fayetteville in roughly 25 years.

This growth supports the need for expanded and improved transit solutions to help prepare the region as transportation demand increases in tandem with estimated population growth.

Regional Population Growth



THE STATE OF TRANSIT

The review of past plans and ongoing studies that both directly and indirectly relate to transit ensured that the project team respected existing planning processes underway for the area and captured insight from the ongoing community dialogue. The review included plans and programs across a variety of disciplines including land use, economic development and other relevant topics.

From this review the project team concluded that transit improvements are needed, and that Connect NWA's vision and goals align with the previous and ongoing studies, plans and initiatives of the region. The following excerpts help capture the shared understanding of the important role that transit will play in NWA:

> ***Build better connectivity*** *among regional employers, the University of Arkansas, and entrepreneurial support organizations to capitalize on the organic growth potential of the region's three Fortune 500 companies and a Class I Carnegie research institution.*

> *Access to people, places, products, and services fosters economic and social mobility. The Northwest Arkansas Council should* ***ensure that the services and funding of Razorback Transit and Ozark Regional Transit keep up with rapid population growth and the long-term needs of Northwest Arkansas.*** *That includes assisting both systems as they explore ways to provide more trips.*

— Greater Northwest Arkansas Development Strategy, Northwest Arkansas Council

Guiding Principles of the Northwest Arkansas Design Excellence Program:

> ***Strengthen Public Life:*** *Create opportunities for people to spend quality time in public – moving or staying, alone or with others.*
>
> ***Elevate Standards of Sustainability and Resilience:*** *Adhere to standards of sustainability, elevate ambitions and demonstrate relation of resilience to people and place.*
>
> ***Celebrate Local Cultures and Place:*** *Enhance and respond to local social history and cultures as well as climate and geography.*
>
> ***Build Regional Capacity:*** *Raise local ambitions and build knowledge and skills among design community and public.*

— Northwest Arkansas Design Excellence Program, Walton Family Foundation

> *Northwest Arkansas communities should work with NWARPC to* ***improve its existing public transit service and to get 'Transit Ready.'***

— Northwest Arkansas Transportation Alternatives Analysis

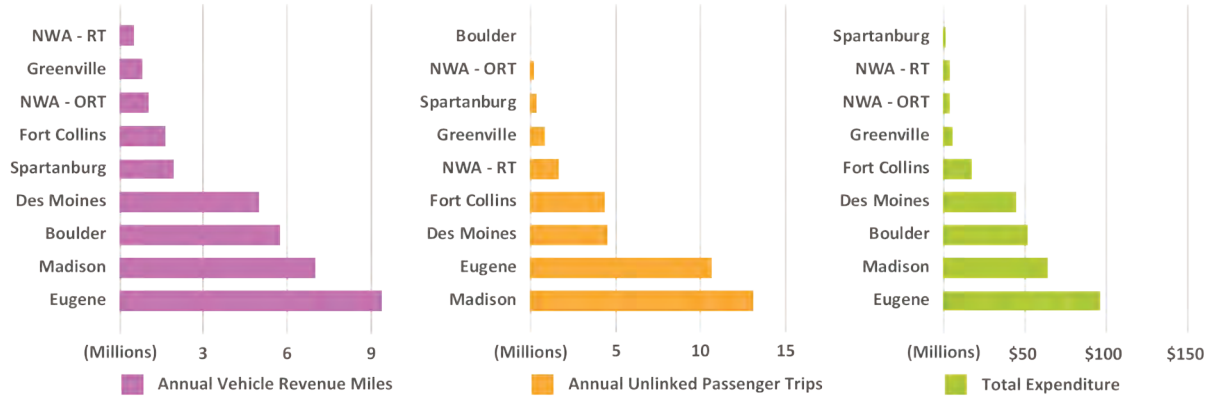
BENCHMARKING ANALYSIS

The Benchmarking Review observes how cities and agencies who face similar challenges and opportunities as NWA are providing and funding transit for the communities they serve and how NWA can use these examples and strategies to create their own, homegrown service delivery options and strategies.

Key findings

- **Ridership and Funding** – In order for transit to work efficiently and effectively it must be properly funded. The cities with the highest expenditures also have the highest ridership.
- **Innovation and Transit** – Agencies should use technology and innovation to create a toolbox of transit service provision solutions in order to customize transit for the varied communities and populations they are serving.

Comparison of Ridership & Expenditures

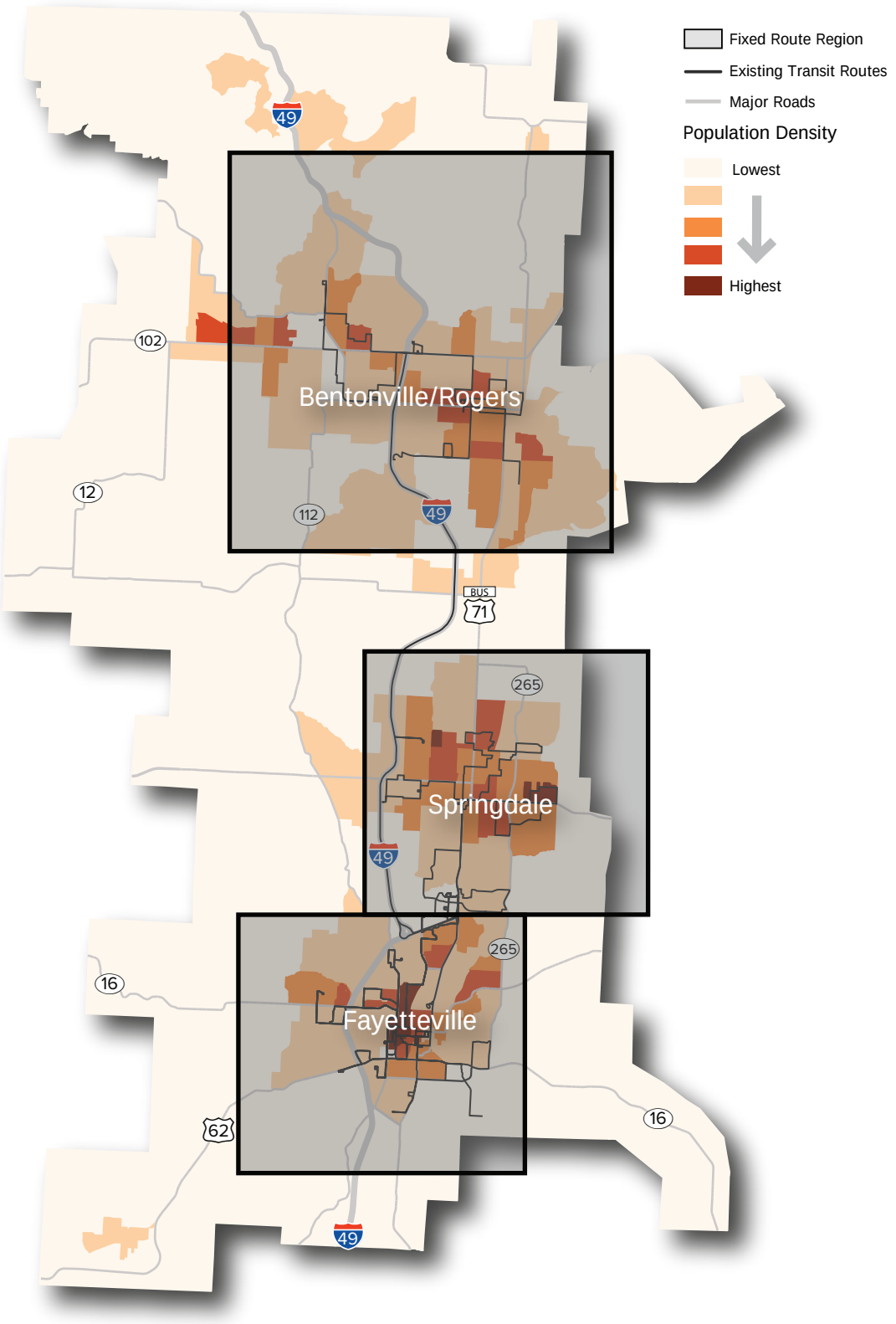


MARKET ANALYSIS

The market analysis revealed the locations of the existing and future markets that currently support or will support transit due to demand and potential. The region is host to many large institutions and employers such as the University of Arkansas in Fayetteville, Walmart's Headquarter (HQ) in Bentonville, Tyson Foods' HQ in Springdale, and JB Hunt's HQ in Lowell. Many areas are undergoing a transformation and cities like Rogers have begun to support and invest in transit supportive land use that can be seen in the development occurring at the AMP or in downtown Rogers.

The market analysis identified both transit potential and need and ensured that while Connect NWA would work towards improving transit for everyone in the region, the study must take measures to maintain and improve connectivity for the most vulnerable populations of the region. This transit need is characterized by identifying areas with greater portions of the population who are low income, minorities, elderly, disabled, and others and may face challenges related to transportation.

NWA Transit Service Region & Population Density

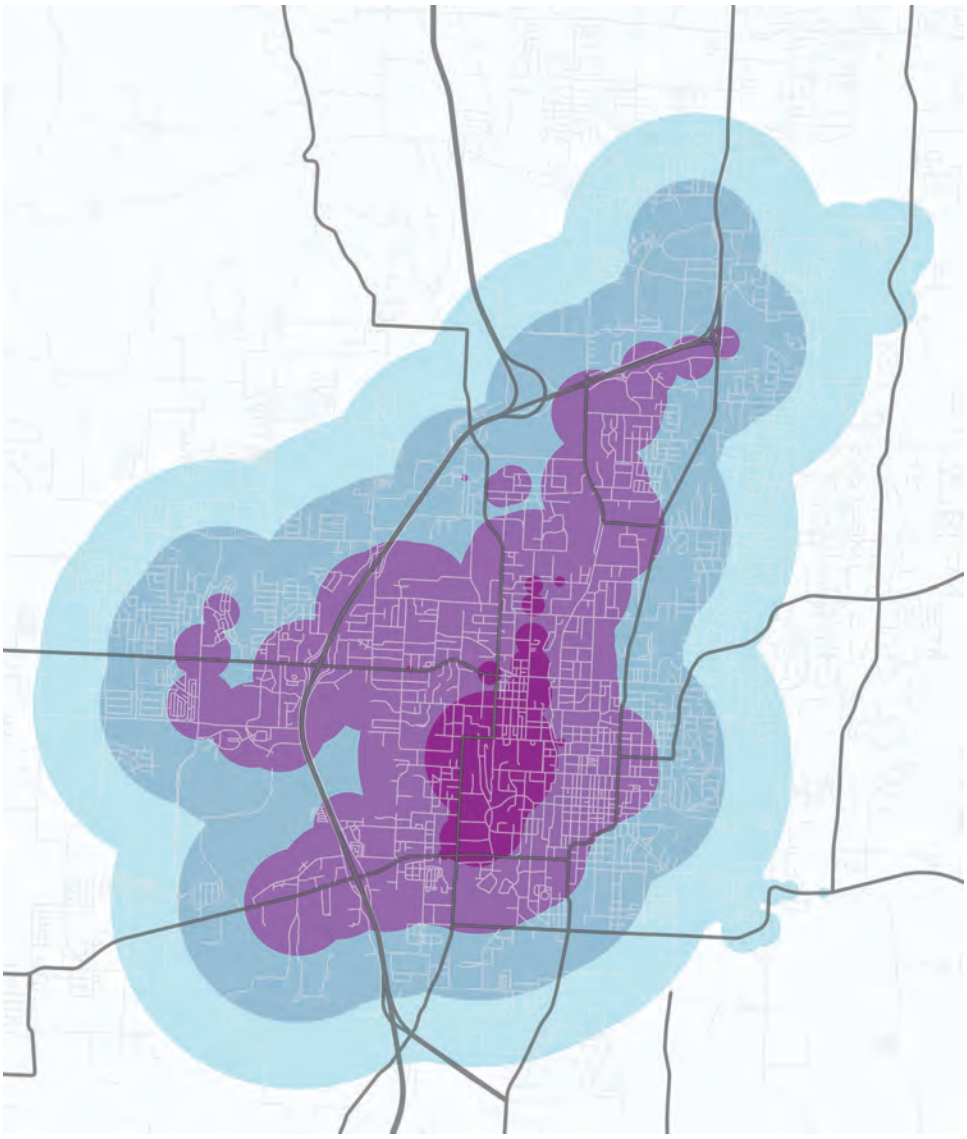


OPERATIONAL ANALYSIS

The NWA region is served by two separate transit providers (Ozark Regional Transit and Razorback Transit) that work in conjunction with each other to move people safely and efficiently throughout the area. The operational analysis explores how both services provide regional and local connectivity and provides both system- and route-level analysis to generate a better understanding of the NWA region's existing transit service. In addition to a technical analysis, the project team rode the individual routes throughout the regional transit network. The project team made important discoveries during these analyses that will help shape the recommendations in ways that build upon the strengths of the existing transit network.

The operational analysis provided benchmarks for each agency, route and community in terms of Key Performance Indicators (KPI) such as travel time, level of service, reliability, ridership, connectivity, funding, population and employment served and travel patterns. These KPIs established a baseline that the project team will use in the development of both regional and local service standards.

Travel Time Areas



RECOMMENDATIONS

REGIONAL TRANSIT FRAMEWORK SUMMARY

The Regional Transit Framework takes the shape of customized route and network recommendations built upon the technical analysis and informed by the public engagement process. The project team identified key transit corridors that provided enhanced connectivity and direct routing focused on moving NWA residents in an intuitive, time efficient manner that was not restricted by political boundaries. The draft recommendations were provided to the public for comment through both a series of community events and online and paper surveys to obtain public feedback about the proposed changes. Following the public outreach phase of the alternatives development, feedback was incorporated back into the draft recommendations to create a locally preferred alternative (LPA) truly supported by the community. The results shown in below are a product of the final recommendations comprised of level of services, route modifications, new routes, new mobility zones and proposed mobility hub locations.

REGIONAL TRANSIT BENEFITS OF CONNECT NWA

Connect Northwest Arkansas

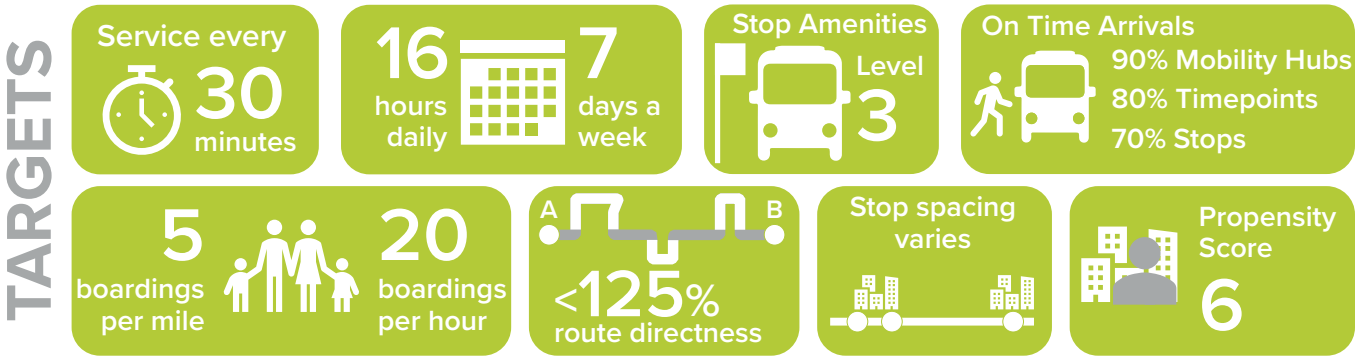
	Bentonville		Fayetteville		Rogers		Springdale		Region	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
System Characteristics										
Transit Routes #	1	6	15	15	3	9	4	6	19	29
Peak Buses #	1	12	27	39	4	21	5	15	32	75
Service Coverage										
# People & Jobs	31,823	51,328	73,230	81,553	27,082	43,687	47,454	59,007	179,589	235,575
Frequent Service Coverage (30 minutes or better)										
1/4 mile Walkshed	0	36,466	59,459	67,439	0	23,450	0	37,038	59,459	164,393
Travel Time to Mobility Hubs										
Minutes / People & Jobs										
Travel Time Zone 60 #	61,000	125,827	80,646	129,189	23,859	113,578	68,727	155,710	234,233	524,305
45 #	44,247	81,604	47,290	76,793	14,787	45,767	45,507	98,931	151,831	303,094
30 #	33,580	41,908	24,886	37,189	8,042	12,860	23,562	38,614	90,069	130,571
15 #	13,009	14,739	6,408	6,474	2,533	2,583	8,686	9,916	30,636	33,712

REGIONAL SERVICE STANDARDS

As the NWA area continues to grow, it is important that transit providers understand how to allocate resources effectively, and which markets will utilize the provided services. The regional service standards offer a unique set of service provision types, technology standards, and system designs for the NWA region to use for ongoing operation, expansion and the implementation of transit services. They are intended to serve as a living tool that both compliments Connect NWA and stands on its own. Regional Service Standards will serve as both an internal and external resource that will explain how and why transit is delivered in NWA.

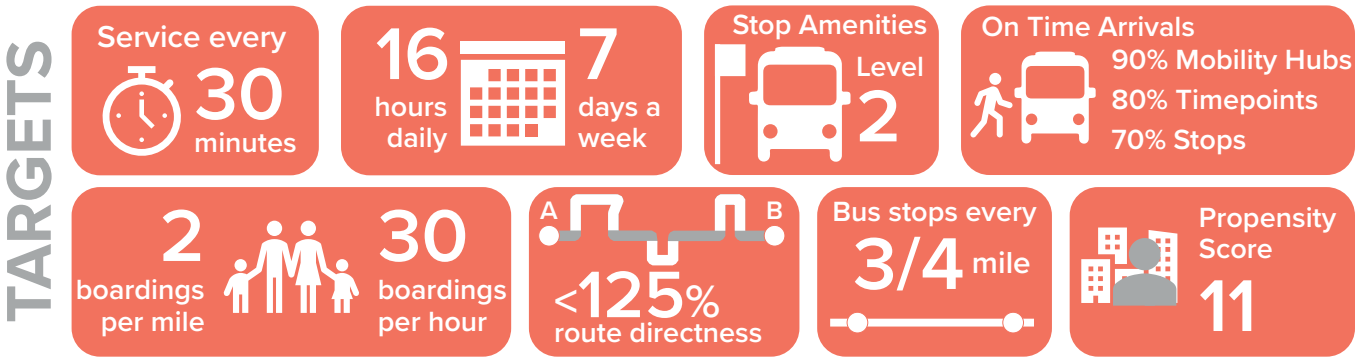
Regional Service Standards

Regional Connectors are a fixed route transit service that provide service from city to city along a major arterial at high frequencies with limited stops. These routes cover key areas and give users increased accessibility and connectivity to multiple urban areas in a region.



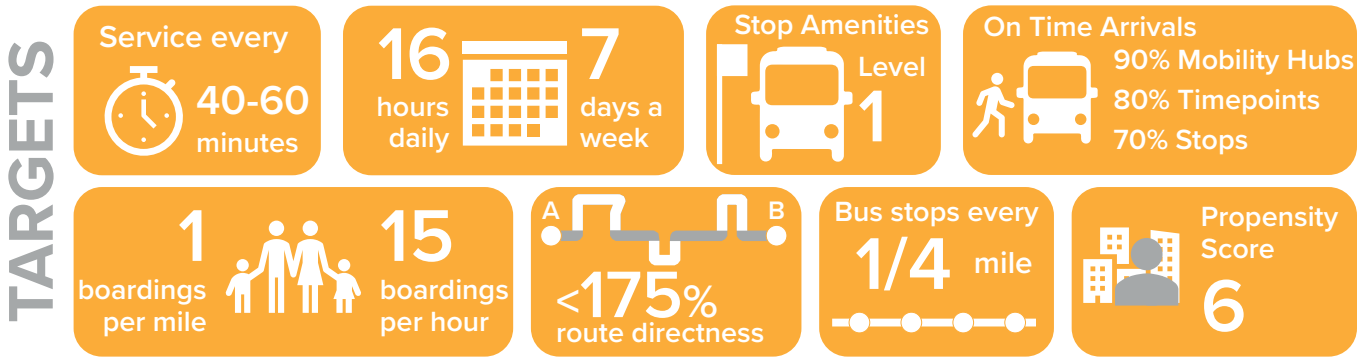
Frequent Service

Fixed route service that has demand for more frequent service due to destinations and/or ridership. Accordingly, frequent fixed route service refers to transit that stays within denser, more urban areas where transit demand tends to be concentrated.



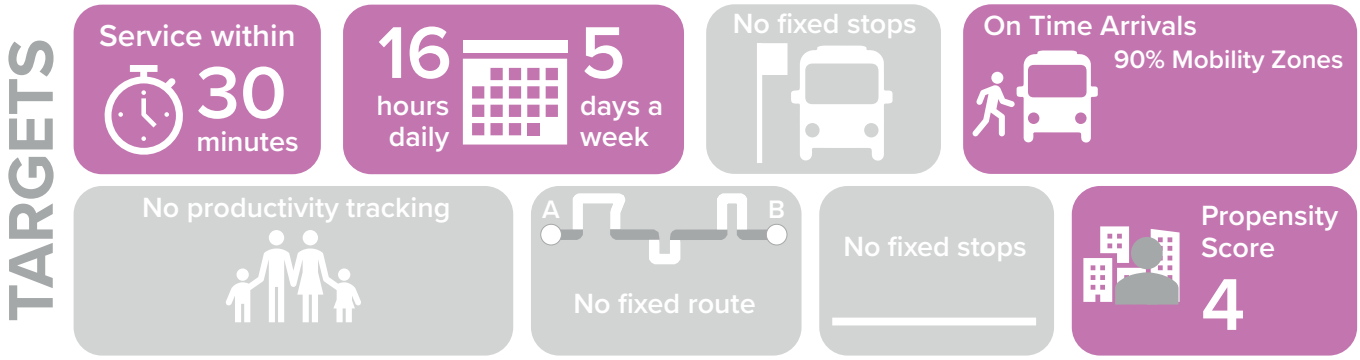
Coverage Service

Coverage service refers to transit with a set route alignment, designated stops, and a fixed operating schedule.



Mobility Zones

Mobility zones are designated areas with demand response service available to help provide first-last mile solutions for system users. Mobility zones are coverage areas set in the place of unproductive fixed routes/deviations. This allows for the provider to maintain market coverage in an efficient, cost effective way.

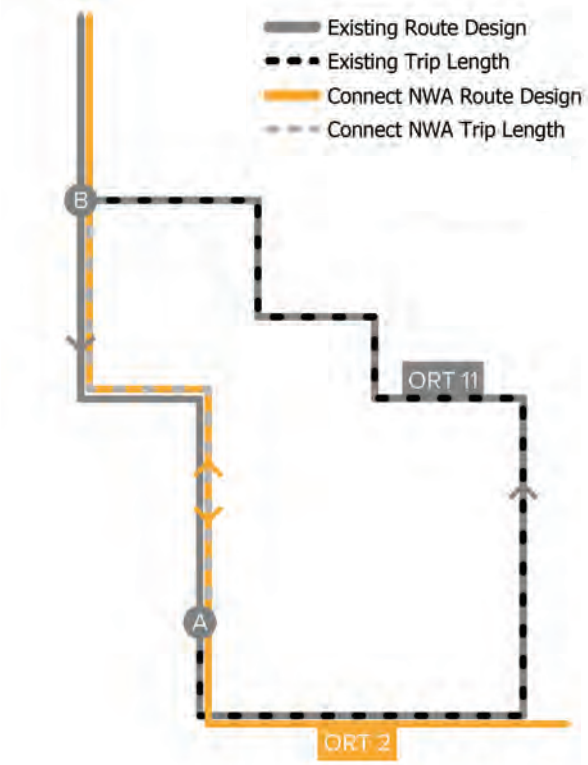


USER PROFILES

Bentonville Resident

Connect NWA cuts my trip from Point A to Point B (S. Walton Dr. Walmart) by **40 minutes (83% decrease)**. Compared to Route 11, Connect NWA provides **15 minute frequency**, and also serves me **Monday through Sunday**. The new system even connects me to Downtown Rogers with no transfers.

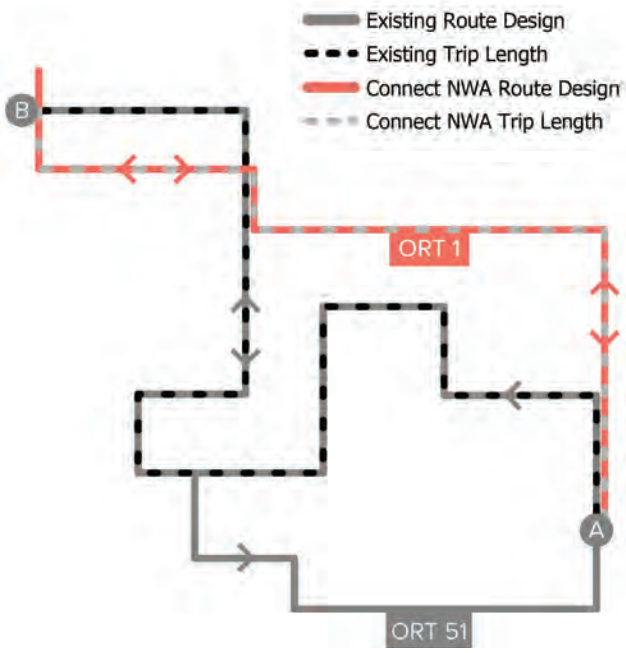
BEFORE		AFTER	
Travel Time	Span	Travel Time	Span
48 min	M - F	8 min	M - Sun
Frequency	7:04 to 5:04	Frequency	6:00 to 10:00
60 min		15 min	



Rogers Resident

Route 51 used to provide service no later than 5 pm. As an NWACC student, this allowed me to only take public transportation to class. I then had to rely on rideshare or taxi service to get home. Connect NWA now provides **high quality transit** until **10 pm**, allowing me to use **ORT** for both trips.

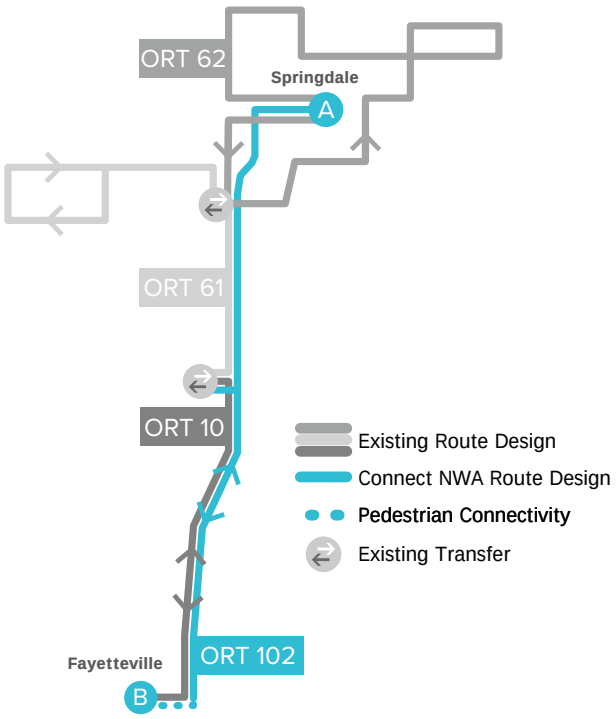
BEFORE		AFTER	
Travel Time	Span	Travel Time	Span
33 min	M - F	15 min	M - Sun
Frequency	7:04 to 5:04	Frequency	6:00 to 10:00
60 min		15 min	



Springdale Resident

Before Connect NWA, I had to transfer twice, using three routes to get from Downtown Springdale to Downtown Fayetteville. Now Route 102 gets me from Point A to Point B in **35 minutes** with **no transfers**. Connect NWA also provides convenient routes in between which help me get around the NWA region more **efficiently**.

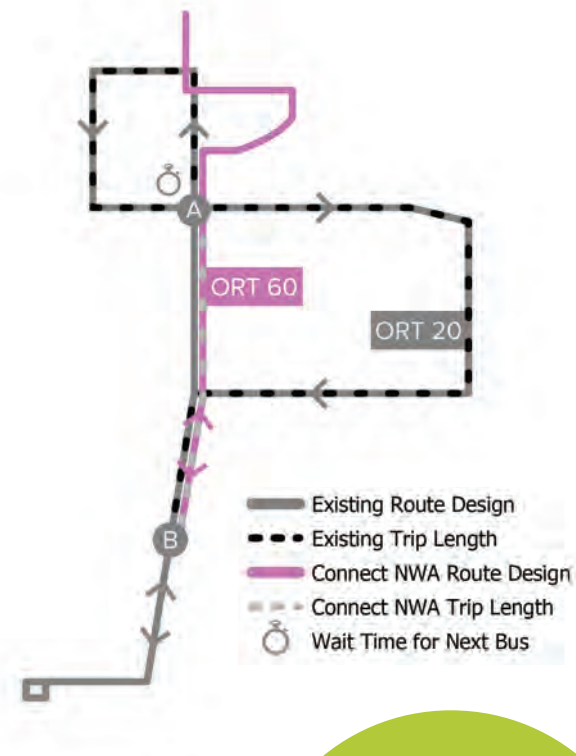
BEFORE		AFTER	
Travel Time	Span	Travel Time	Span
>60 min	M - F	35 min	M - Sun
Frequency	6:00 to 7:00	Frequency	6:00 to 10:00
30/60 min		20 min	



Fayetteville Resident

If I missed Route 20 on my way to the Arkansas Research and Technical Center, I would have to wait an entire hour before getting picked up. Connect NWA provides me a **direct route** with a **quick travel time**, with a **high frequency**. Now if I'm not on time, it isn't a big deal because service is **frequent** and **reliable**.

BEFORE		AFTER	
Travel Time	Span	Travel Time	Span
74 min	M - F	24 min	M - Sun
Frequency	6:00 to 7:00	Frequency	6:00 to 10:00
60 min		15 min	

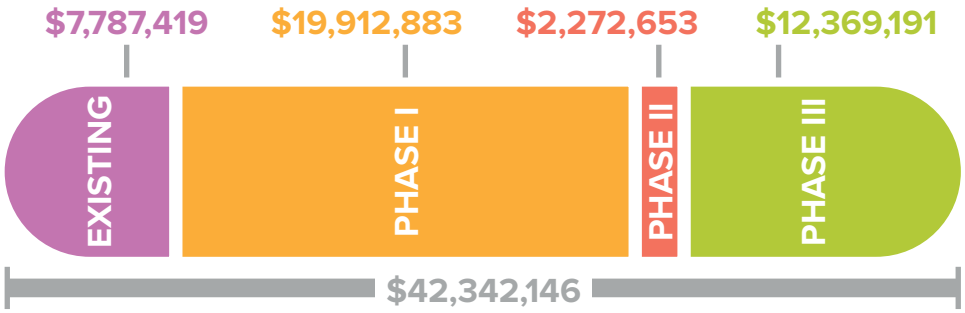


IMPLEMENTATION & FUNDING

Connect NWA recommendations take the shape of a phased implementation plan derived from previous technical analyses, proven transit concepts, and public and staff input. This implementation plan will work in tandem with the Regional Service Standards to successfully and sustainably implement the recommendations that will create high quality transit throughout the entire NWA region. The implementation plan is separated into three phases:

- Phase I: 1 to 2 years
- Phase II: 2 to 5 years
- Phase III: 5 to 10 years

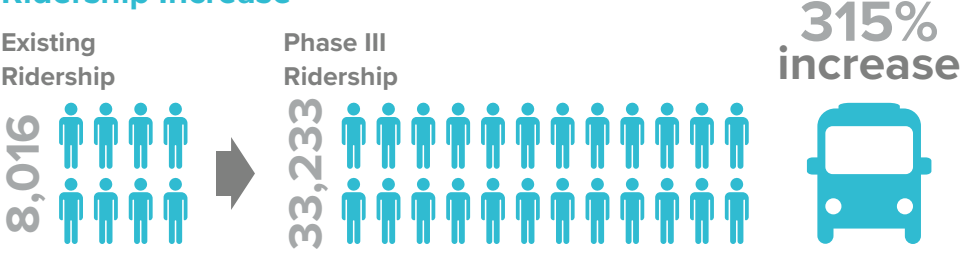
Phased Transit Investment



Each phase is further prioritized to provide a more detailed structure for future implementation. Three main components informed the prioritization and ensured that the process supports the vision of this plan by connecting people and saving them time.

- Transit Propensity: Where will transit work? Transit propensity represents the sum of population and employment within a quarter mile route buffer of each route.
- Transit Needs: Who depends on Transit? Transit needs population represents the sum of Transit-Dependent Population and Target Transit Rider Population totals (refer to Chapter 2) found within the same quarter mile route buffer used to capture transit propensity.
- Ridership: How many people will be using the service on an average weekday? Ridership estimates were generated through the Federal Transit Administration (FTA) Simplified Trips On Project Software (STOPS) modeling, which compares ridership generated for base (existing routes) and future (implemented route recommendations) scenarios.

Ridership Increase

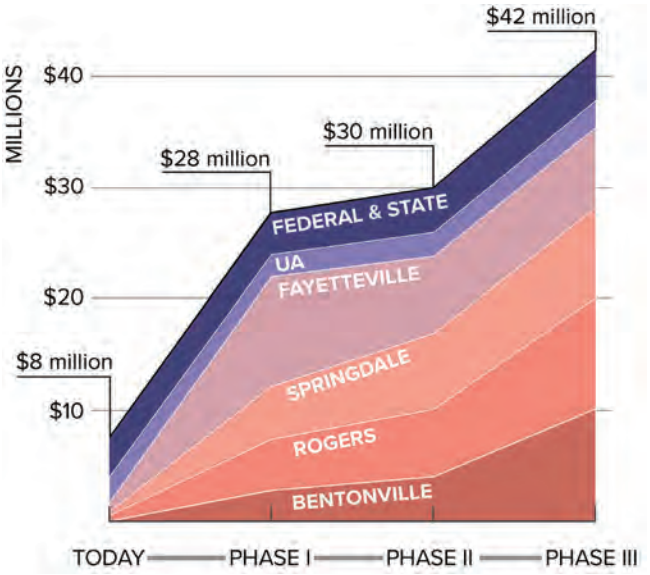


FUNDING SOURCES

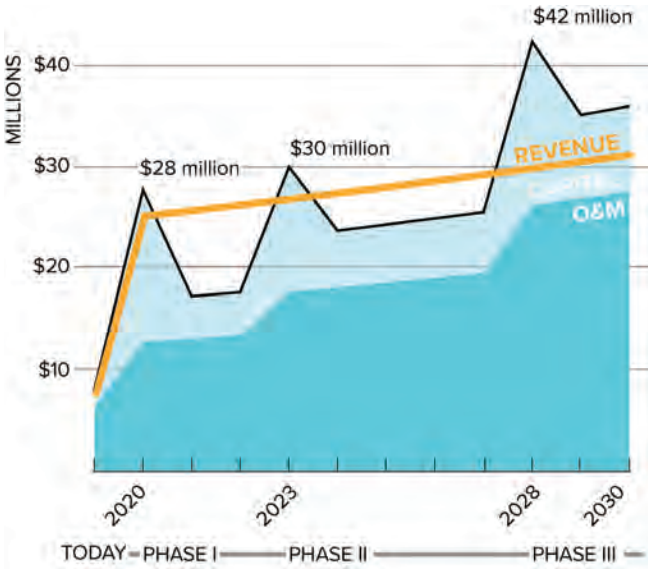
The identification of sustainable funding sources to support transit system costs is critical to the success of transit operations. To achieve the Connect NWA vision of full mobility for all travelers, the region must invest in transit at a significantly higher rate than it currently does and must work to identify a dedicated local funding source that does not completely rely on Federal and State funding.

The Transit Investment Chapter of Connect NWA provides the region with recommendations that layout a set of financial projections showing anticipated revenue sources and total system expenditures for a three phased implementation plan. The recommendations provide information that will help ORT and RT to implement service changes in a fiscally responsible manner throughout all three of the project's phases.

Funding Contributions by Phase

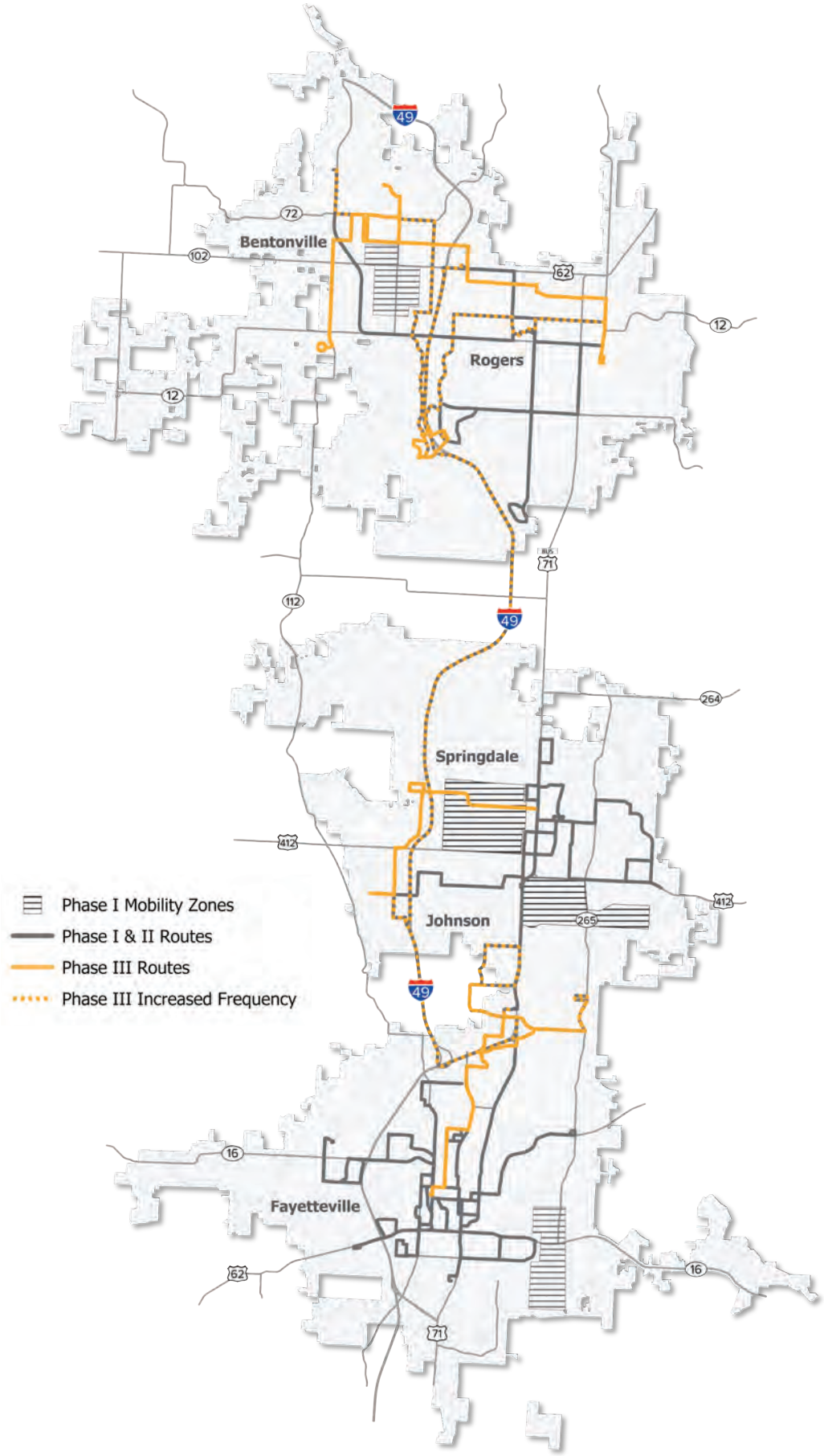


Regional Transit Costs and Revenues



In order to implement and successfully operate Connect NWA, the urbanized region made up of the four major cities will need to identify a dedicated local funding source. To achieve the funding levels necessary to implement a service investment of this magnitude, the urbanized region will need to implement a ¼ cent sales tax under the Special Local Sales and Use Tax – Election (ACA 26-73-111) for the residents within the boundaries of the four major urban cities in the region. This funding mechanism would provide fiscal capacity to operate and maintain the system through Phase II. After the implementation of Phase II the project partners will also be able to better evaluate the projected Phase III shortfall and decide, on the basis of observed results, whether to supplement the funding, implement only the fiscally sustainable parts of Phase III, or delay Phase III until revenues reach a level when implementation is feasible. Chapter 7 provides a detailed breakdown of all the assumptions used in the development of this transit investment recommendation.

Connect NWA Full Implementation



CHAPTER 1

PUBLIC ENGAGEMENT

CHAPTER 1: PUBLIC ENGAGEMENT

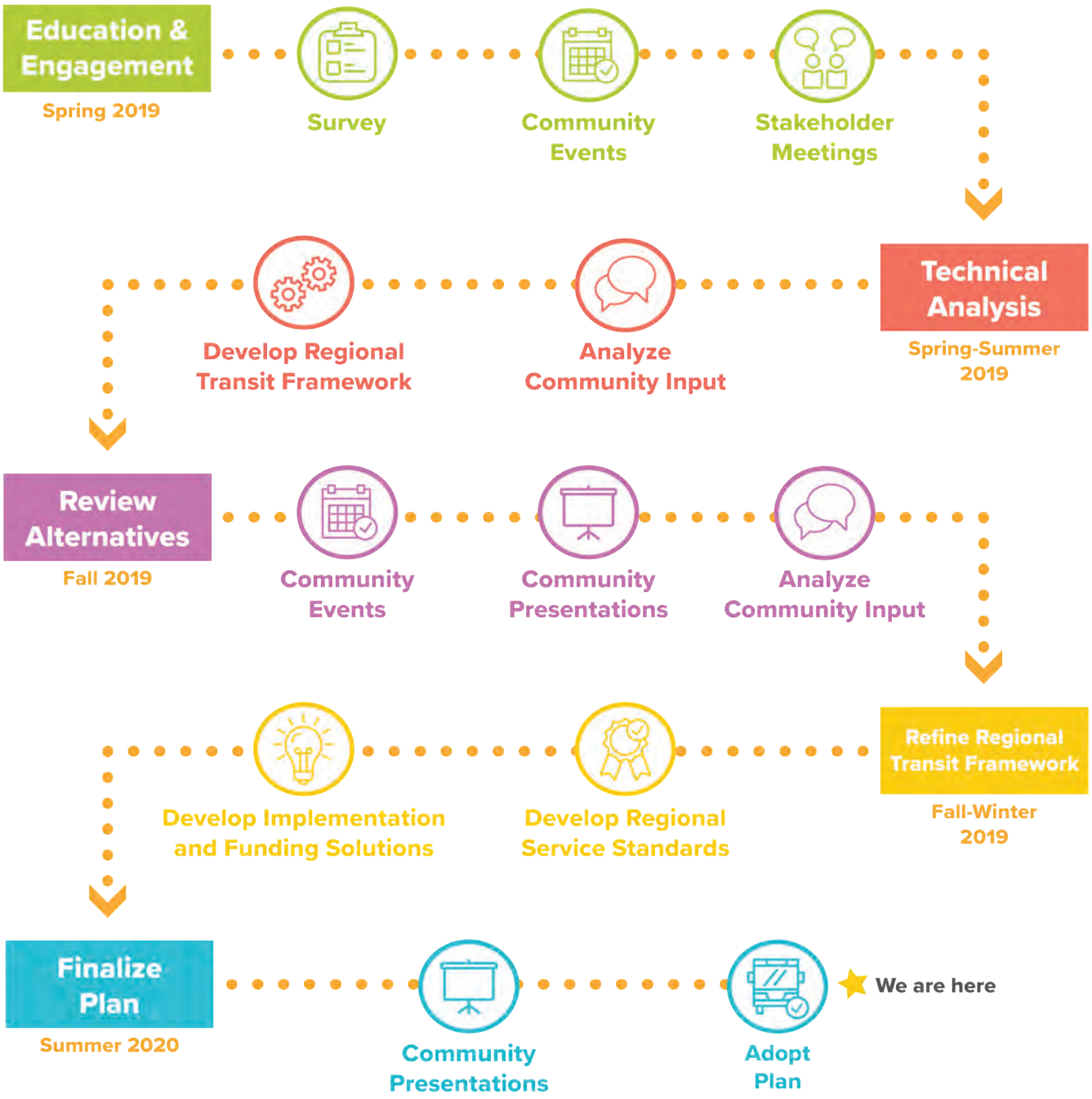
INTRODUCTION

Public engagement is a critical part of the planning process, and if done correctly, will result in a strong, resilient Transit Development Plan (TDP). The public engagement process for Connect NWA began in March 2019 and continued throughout the plan development phase until the plan is presented for adoption in early 2020. Together, Northwest Arkansas Regional Planning Commission (NWARPC), Ozark Regional Transit (ORT), and Razorback Transit (RT) used several strategies throughout the engagement process to ensure a broad audience was reached and given an opportunity to provide input about what works well with transit today and what needs improvement. The goal of the Public Engagement Plan for Connect NW Arkansas is to:

> *"Create an interactive and engaging process that enables the public to provide input, learn about the benefits of transit, and help shape the future of a connected transit system for Northwest Arkansas."*

Online engagement, a public survey, and in-person meetings were the core elements used to gain insight into the transportation needs and desires within the NWA community. This engagement process involves two main phases. The first phase consisted of public engagement events along with a public survey. The second phase will involve a similar strategy with the goal of gathering input on the scenarios and recommendations that the team produces using the results of the first phase public engagement effort coupled with a technical analysis. Figure 1.1 shows the timeline for the public engagement process as well as the steps that have been completed to-date.

FIGURE 1.1: PUBLIC ENGAGEMENT TIMELINE



WHO IS THE "PUBLIC?"

This plan is not just looking for existing transit riders to fill out a survey; rather, it will engage a variety of groups listed below listed below:

- **The General Public:** The team will engage with anyone throughout the NW Arkansas region to develop an understanding of the state of transit, and how we can improve it. ATG and the project team will look to capture the input that helps us improve transit for existing users and makes it more appealing for non-users. The plan will be exhaustive and ensure that the Transit-Dependent and Target Rider Population's input is captured by making the process accessible to everyone. This can be done by working with community leaders who represent these populations and can serve as a voice for their concerns and desires.
- **Key Stakeholders (see Appendix A for list):** The project team will keep an open dialogue with the key stakeholders to ensure that they are a part of the process and can serve as stewards for the TDP with the community. More information on Stakeholder Outreach is located below.
- **City Leadership:** Each city plays a crucial role in the region. It will be paramount to learn about the transit needs of each city so that the team can develop customized solutions for each of the following communities:
  - Bentonville
  - Bethel Heights
  - Fayetteville
  - Johnson
  - Lowell
  - Rogers
  - Springdale
- **Universities:** The two major higher education organizations in the region influence transit trips through high demand by students, faculty, and staff. Outreach to these groups will be an important aspect of this plan. Engagement will occur with the following institutions:
  - NW Arkansas Community College – Students, Faculty and Staff
  - University of Arkansas – Students, Faculty and Staff
- **Major Employers:** The team will reach out to major employers throughout the region to learn about the travel patterns of their employees, and how they can better connect them to the community. ATG staff will document in detail concerns and feedback from stakeholders regarding their respective organizations. For a list of major employers in Northwest Arkansas, see Table 1.1.
- **Transit staff and leadership:** No one knows or sees more than the front-line team dedicated to delivering transit service to the community. The PEP will ensure that staff and leadership from each transit agency and the MPO has helped frame the current state of transit and provided input to help shape the future of transit for the region.

TABLE 1.1: NORTHWEST ARKANSAS MAJOR EMPLOYERS

COMPANY	INDUSTRY
Bentonville School District	Education
Cargill (Springdale)	Food Processing
Fayetteville School District	Education
JB Hunt	Transportation
McKee Foods (Gentry)	Food Processing
Mercy Hospital	Healthcare
Ozark Mountain Poultry (Rogers)	Food Processing
PAM Transport	Transportation
Rogers School District	Education
Simmons Foods (Siloam Springs)	Food Processing
Springdale School District	Education
Tyson Foods	Food Processing
University of Arkansas	University
Walmart	Retail
Washington Regional Medical Center	Healthcare

PUBLIC ENGAGEMENT PLAN OBJECTIVES

To accomplish the goal set out by the PEP, the following objectives have been established. These objectives are specific actions that will contribute to fully realizing the PEP goal.

- Develop an understanding of the current state of transit for the region and each individual community.
- Gain a deeper understanding of how the community uses the existing transit system.
- Educate the public about the freedom associated with great transit and the tools needed to achieve it.
- Enhance a shared awareness throughout the region about benefits associated with transit investment.
- Present sustainable, and implementable transit solutions in a simple and transparent way that demonstrate the benefits, and drawbacks associated with each proposed option.
- Develop a shared understanding with the public about how each proposed transit option will impact the community.
- Make recommendations that are informed by the public engagement process, customized for each community, and result in a regional transit system that provides freedom of movement.

PUBLIC ENGAGEMENT EVENTS

FIRST PHASE EVENTS

The first phase of public engagement events was held in NWA from April 2nd to April 6th. The project team coordinated nine public events throughout the region in a wide variety of locations meant to capture all types of transportation users (e.g. Fayetteville Farmers Market, Springdale Walmart, NWACC, etc.). The goal of the first phase of engagement events was to create a process that was interactive and provided opportunity for the public to provide input on transit, and for the public to learn about the benefits of transit, in order to better shape the future of the transit system in NWA. Figure 1.2 shows the events that happened during the first phase of engagement. Table 1.2 shows paper surveys that were received from each of the first phase events. The most surveys came from Union Station in Fayetteville on the University of Arkansas campus and in Downtown Bentonville during the First Friday event. Events were spread throughout the study area, and community members from all cities within the study area had an opportunity to leave input. The following provide a short description of each event.

University of Arkansas Baseball Game

The project team attended a baseball game at Baum-Walker Stadium to gather feedback on the transit system in Fayetteville and the connections to the region. 52 paper surveys were received at the event.

Northwest Arkansas Community College (NWACC)

NWACC is the regional post-secondary educational institution. The project team engaged students and staff in Burns Hall at the Bentonville campus and received 75 paper survey responses.

Walmart Supercenter

The Springdale Walmart acts as a transfer station for ORT buses. A transit bus was placed at the entrance to draw attention, and the project team received 40 paper surveys during the engagement event near the entrance of the store.

Walmart outreach.

University of Arkansas

Union Station acts as the hub of the RT network and the project team received the most in person feedback at this location due to the large amount of transit transfer activity.

Promenade Shopping Center

A regional destination for shopping, the Promenade Shopping Center attracts residents from across the region. The project team stationed in a plaza space to engage the public and ask for input. 13 paper survey responses were received from this location. While this number of surveys is small it was an important event designed to capture input from non-transit users at a destination that currently doesn't have transit service yet shows a high potential for transit.

FIGURE 1.2: FIRST PHASE ENGAGEMENT EVENTS

TABLE 1.2: PAPER SURVEYS RECEIVED FROM FIRST PHASE EVENTS

EVENT	SURVEYS RECEIVED	% OF TOTAL EVENT SURVEYS
University of Arkansas Baseball Game	52	7%
Northwest Arkansas Community College	75	9%
Springdale Walmart	40	5%
Promenade Shopping Center	13	2%
University of Arkansas	177	22%
First Friday Bentonville	130	16%
Hogeye Marathon & Expo	30	4%
Fayetteville Farmers Market	43	5%
Marshallese Festival	82	10%
Cinco De Mayo	83	10%
*Other	83	10%
Total Surveys from Events	**808**	**100%**

**Other surveys reflect those that were conducted while riding buses or surveys that were used without an event code.*

First Friday Bentonville

A strong community building event, the First Friday celebration in the square of downtown Bentonville was a highly attended event with a multi-generational crowd. The theme of the First Friday was 'Growing Greener', which coincided perfectly with Connect NW Arkansas. The project team solicited feedback for nearly 8 hours and received 130 paper survey responses.

Hogeye Marathon Expo

The Hogeye Marathon is an annual event that happens in downtown Springdale and draws people from across the region. The Expo event occurred the evening before the race in the Jones Center, also in downtown Springdale. The project team engaged marathon attendees, families, and support groups, and received 30 paper survey responses.

Fayetteville Farmers Market

The project team attended the first outdoor Fayetteville Farmers Market of the year at the square of downtown Fayetteville. The event was well attended and received 43 paper survey responses.

Hogeye Marathon

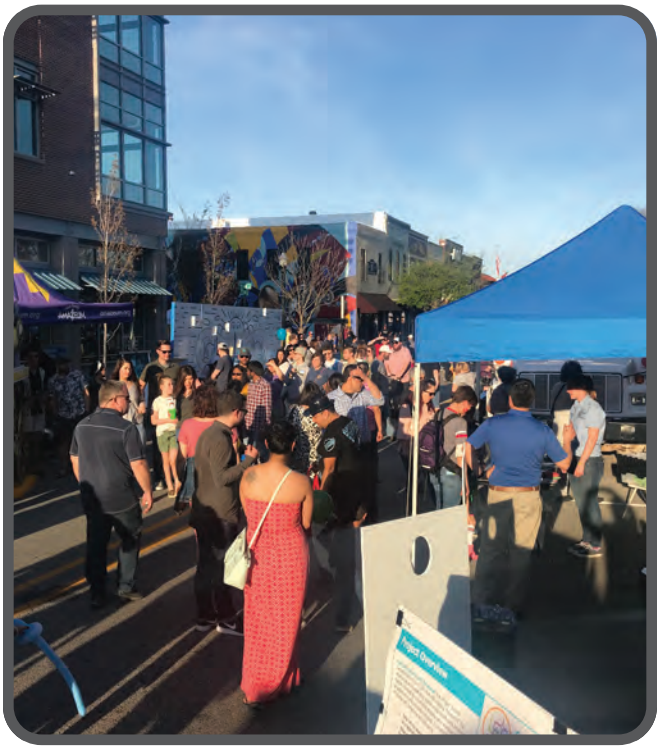
Vendors at the Expo event also had an opportunity to attend race day events. The project team tabled along with other vendors at the after-race section of the event.

First Friday Bentonville - Growing Greener.

Hogeye Marathon.

Marshallese Festival

The Northwest Arkansas Marshall Islands 38th Jemenei Celebration presented an opportunity for Connect NWA to gather input for the attendees of the festival and ensure that local Marshallese population had the opportunity to learn more about transit and provide input. Marshallese translated surveys were available during the Memorial Day weekend festival consisting of a kickoff event at the Jones center, field day games, a parade, and a pageant show where they crowned the Jemenei Day Pageant likatu.



First Friday Bentonville booth.

Cinco de Mayo Festival

The project team provided Spanish surveys for the family oriented Cinco de Mayo celebration. This opportunity helped Connect NWA capture input from the Latino community while they enjoyed live entertainment, food from different cultures, games and booth vendor information.

Cinco de Mayo Festival.

EDUCATIONAL COMPONENT

A component of the public engagement process was to provide information to the public about what makes a great transit system, and the tools used to get there. This was done through a project fact sheet and a citizen's guide to transit. Both were available at every engagement event. Figure 1.3 shows the citizen's guide available at all events. The project team also took the opportunity at events to share information to the public in a face to face context about the tools used to create great transit. This helped provide the public a better understating of how the transit system could be improved.

RIDING OZARK REGIONAL TRANSIT & RAZORBACK TRANSIT

Riding a transit system is an effective way to develop a local understanding of the transit system, and also solicit feedback directly from transit users. The project team did just that during the first phase of events in early April. Each route of each transit provider, Ozark Regional Transit and Razorback Transit was ridden to look for opportunities to improve route efficiencies and to encourage transit riders to provide feedback for Connect NW Arkansas.

STAKEHOLDER INVOLVEMENT

A critical strategy of this Public Engagement effort was to engage key community groups, employers, businesses and non-profits so that we could gather input from them and so that they could serve as a voice for their community and the people they serve and represent. Connect NW Arkansas coordinated with over 300 stakeholders. The following categories were included in this stakeholder engagement process:

- Businesses
- Chambers
- City staff and Representatives
- Community Partners
- Educators
- Elected Officials
- Employers
- Housing Developers
- Real Estate Investors
- Realtors
- State Legislators
- Visitors Associations

The project team met one on one with City Leadership from each of the four main cities in the fixed route study area and had a meeting with NWA Council where various major employers from around the region attended to learn more about Connect NW Arkansas and provide input about their specific transit needs. This meeting helped Connect NW Arkansas, NWAR Council and the major employers that attend develop a shared understanding how better connect and serve the region and the project team was able to capture feedback that will directly inform the development of recommendations.

FIGURE 1.3: EDUCATIONAL TOOL USED AT EVENTS

A Citizen's Guide to Transit Planning

The transit planning process should not be out of reach for Northwest Arkansas residents. A key component to Connect Northwest Arkansas is giving you the tools to understand what makes a great transit system and the ability to take part in the planning process. The purpose of this guide is to help you understand the key principles of transit planning. We hope this knowledge inspires confindence in evaluating how transit can work best for the region and encourages you to actively engage throughout the project.

Why does transit matter?

Save Money
A household can save $10k by living with one less car.

Reduce Congestion
Congestion costs Northwest Arkansas residents $103M per year. Transit helps reduce the number of vehicles on roadways.

Environment Friendly
Public transit saves the country 4.16 billion gallons of fuel per year.

Travel Safely
Transit is 10x safer than traveling by automobile.

What is great transit?

Great transit...

- TAKES ME WHERE I WANT TO GO
- WHEN I WANT TO GO THERE
- IT IS RELIABLE
- IT SAVES ME TIME
- IT GIVES ME FREEDOM

What supports great transit?

Density

Transit works best when stops are located near a variety of destinations where people want to go such as job centers, schools, medical facilities, & housing complexes.

Connectivity

Transit should provide seamless transitions to other routes, park & rides, sidewalks, and bicycle routes. This ensures ease and comfort for passengers navigating the system.

Ease of Use

Transit should be easy to navigate and convenient to use. Great transit is integrated with technology to make taking transit an easy choice for travel.

Community Support

Whether you advocate for transit at city hall or simply choose to ride the bus, support from the community encourages local leaders to invest in great transit.

How do you design great transit?

Improving transit is often a balancing act of deciding where the bus picks you up, how often the bus comes, and when service runs. In other words, frequency, span of service, and route design are all important aspects to delivering great transit.

Frequency

How often the bus comes

Route Design

Where the bus goes and how it gets there

Span of Service

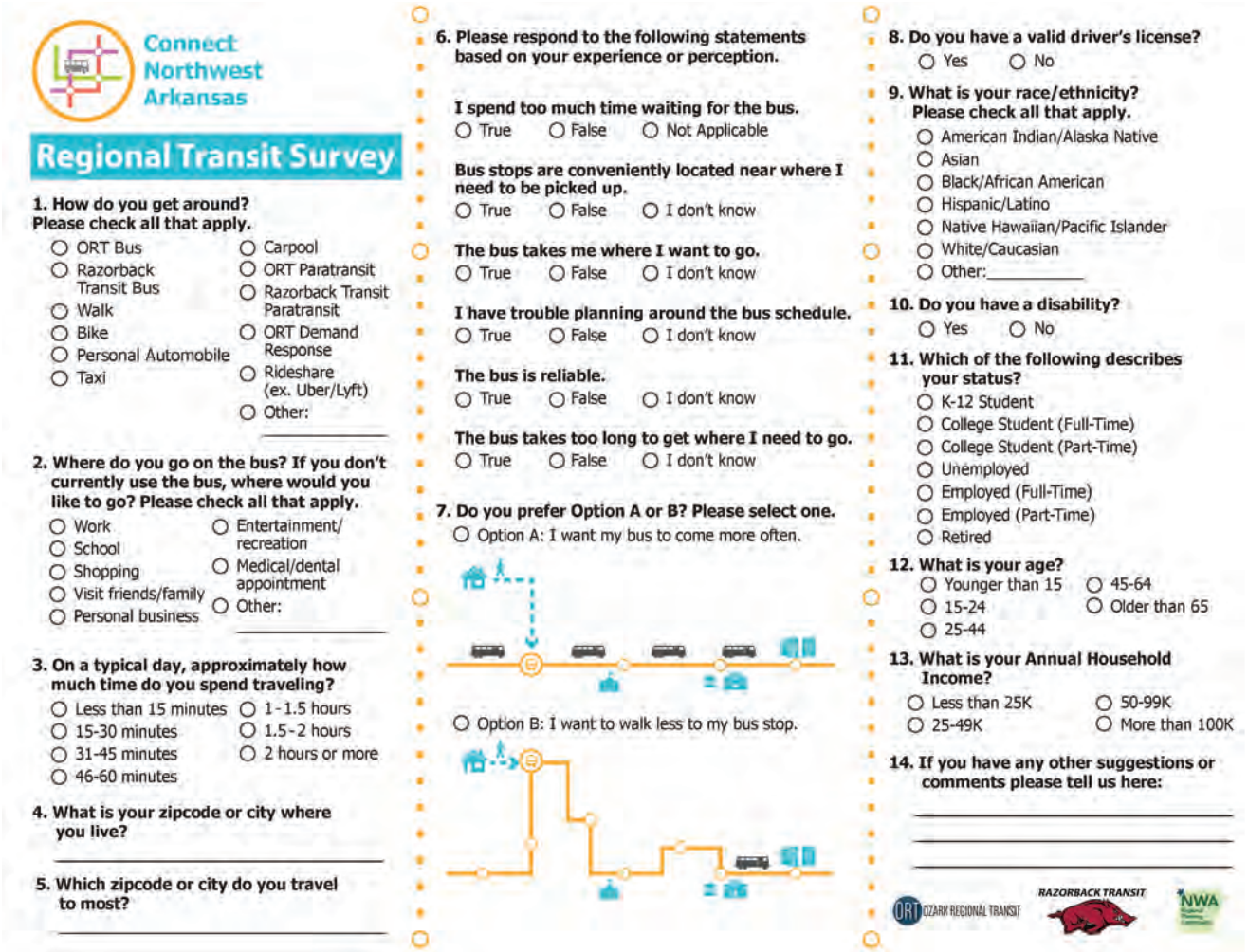
How early service starts & how late service runs

PROMOTING PUBLIC ENGAGEMENT

SURVEY

A public survey developed by the project team acted as a backbone to the public engagement process. The survey allowed the project team to better understand the needs and desires of NWA residents. The survey consisted of fourteen questions with a combination of true or false, multiple choice, and one question for open responses. Questions ranged from demographic details such as race or ethnicity and annual household income, to specific questions about how respondents feel the transit system preforms. The survey was available to take online in Spanish or English and on paper in either English, Marshallese or Spanish. Figure 1.4 shows the paper version of the survey that was available at each event. Survey results are listed in the public engagement results section below.

FIGURE 1.4: PAPER VERSION OF PUBLIC SURVEY



Connect Northwest Arkansas

Regional Transit Survey

1. How do you get around? Please check all that apply.
- ORT Bus
- Razorback Transit Bus
- Walk
- Bike
- Personal Automobile
- Taxi
- Carpool
- ORT Paratransit
- Razorback Transit Paratransit
- ORT Demand Response
- Rideshare (ex. Uber/Lyft)
- Other: _____

2. Where do you go on the bus? If you don't currently use the bus, where would you like to go? Please check all that apply.
- Work
- School
- Shopping
- Visit friends/family
- Personal business
- Entertainment/ recreation
- Medical/dental appointment
- Other: _____

3. On a typical day, approximately how much time do you spend traveling?
- Less than 15 minutes
- 15-30 minutes
- 31-45 minutes
- 46-60 minutes
- 1-1.5 hours
- 1.5-2 hours
- 2 hours or more

4. What is your zipcode or city where you live? _____

5. Which zipcode or city do you travel to most? _____

6. Please respond to the following statements based on your experience or perception.

I spend too much time waiting for the bus. ○ True ○ False ○ Not Applicable

Bus stops are conveniently located near where I need to be picked up. ○ True ○ False ○ I don't know

The bus takes me where I want to go. ○ True ○ False ○ I don't know

I have trouble planning around the bus schedule. ○ True ○ False ○ I don't know

The bus is reliable. ○ True ○ False ○ I don't know

The bus takes too long to get where I need to go. ○ True ○ False ○ I don't know

7. Do you prefer Option A or B? Please select one.

○ Option A: I want my bus to come more often.

○ Option B: I want to walk less to my bus stop.

8. Do you have a valid driver's license? ○ Yes ○ No

9. What is your race/ethnicity? Please check all that apply.
- American Indian/Alaska Native
- Asian
- Black/African American
- Hispanic/Latino
- Native Hawaiian/Pacific Islander
- White/Caucasian
- Other: _____

10. Do you have a disability? ○ Yes ○ No

11. Which of the following describes your status?
- K-12 Student
- College Student (Full-Time)
- College Student (Part-Time)
- Unemployed
- Employed (Full-Time)
- Employed (Part-Time)
- Retired

12. What is your age?
- Younger than 15
- 15-24
- 25-44
- 45-64
- Older than 65

13. What is your Annual Household Income?
- Less than 25K
- 25-49K
- 50-99K
- More than 100K

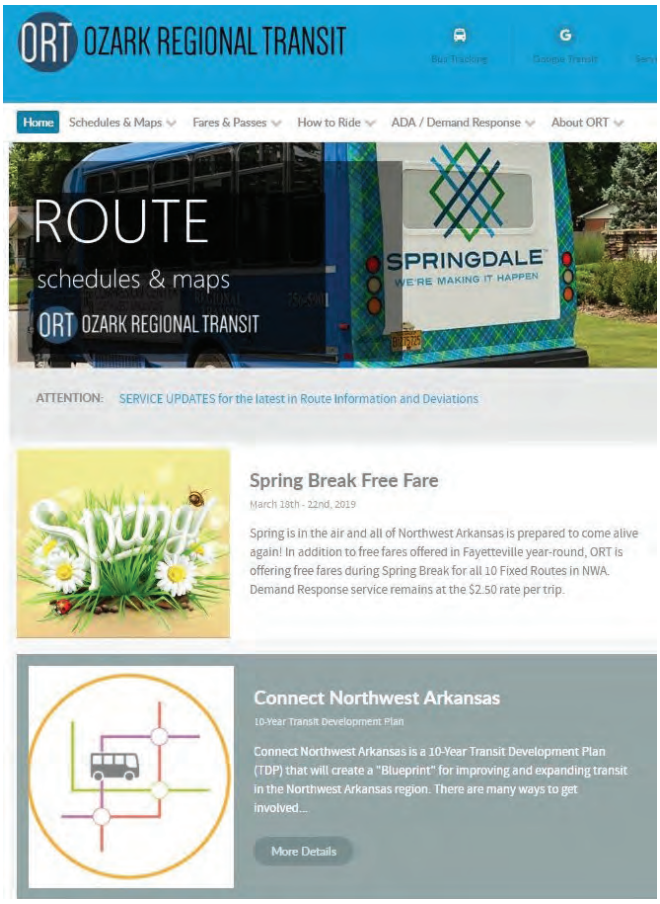
14. If you have any other suggestions or comments please tell us here: _____

ORT OZARK REGIONAL TRANSIT · RAZORBACK TRANSIT · NWA

WEBPAGE

The NWARPC along with ORT and the City of Springdale hosted information for the TDP on their webpage. Each webpage contained graphics created by the project team, along with a link to participate in the online survey. A clip of the ORT webpage is shown below in Figure 1.5.

FIGURE 1.5: ORT WEBPAGE PROMOTING CONNECT NORTHWEST ARKANSAS

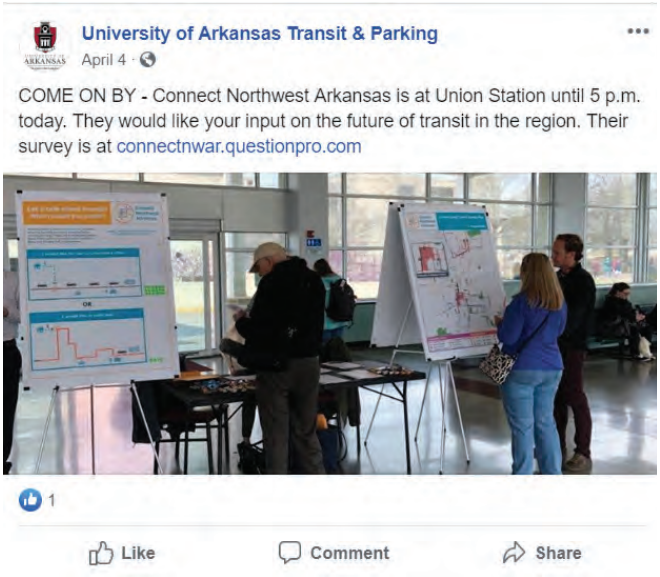


SOCIAL MEDIA

Project partners shared information about the TDP on their respective social media platforms which promoted the public survey and encouraged followers to attend events to leave input. Figure 1.6 shows a Facebook post by Razorback Transit promoting the event at Union Station and gives a link to the survey. Social media posts promoting public engagement for the TDP came from the following organizations:

- City of Springdale
- Ozark Regional Transit
- Razorback Transit
- Northwest Arkansas Regional Planning Commission

FIGURE 1.6: FACEBOOK POST BY RAZORBACK TRANSIT PROMOTING UNION STATION EVENT



PRINT

NWARPC promoted the first phase of engagement events and the public survey through a display in a local newspaper. The ad contains each of the nine events, along with a link to the public survey. Two newspaper articles were also written about the TDP by the Northwest Arkansas Democrat-Gazette on January 24th and 28th. In addition, an editorial was published about the project in February by the same newspaper.

Large display boards were printed and used at all the events to help engage with the public and give context to the project. Boards included:

- **Project Overview:** Reviewed project timeline, Project study area, and elements that support great transit.
- **Route Design Preference:** Board asked if you prefer to walk less to your stop, or if you'd like your bus to come more often.
- **Local Service Map:** Each event has a map of transit service in the local area.

PUBLIC ENGAGEMENT RESULTS

SURVEY RESULTS

A total of 1,299 surveys were received by the project team. 491 online surveys were received, and 808 paper surveys were collected in person during the first phase of public engagement events. The project team analyzed responses to develop a graphic to easily depict key results from the public survey. Figure 1.7 shows a summary of key survey results. A majority of respondents get around by personal vehicle on a day to day basis, while 22% use RT and 9% use ORT. 24% also responded that they use a bike. Nearly 70% of respondents thought the transit system was reliable. When asked the type of trip respondents take or want to take on the bus, leisure (19%), work (18%), and shopping (17%) were all top responses.

One of the most important insights discovered from the survey was the fact that overwhelmingly throughout the region respondents would prefer more frequent bus service as opposed to walking less to their bus stop and having less frequent service. Nearly 70% preferred more frequent bus service. Figure 1.8 shows the different options in bus service frequency.

Concerns for survey respondents included trouble planning around transit schedules (63%), trouble accessing destinations from transit (48%), and transit trips taking too long (53%).

FIGURE 1.7: PUBLIC SURVEY KEY RESULTS

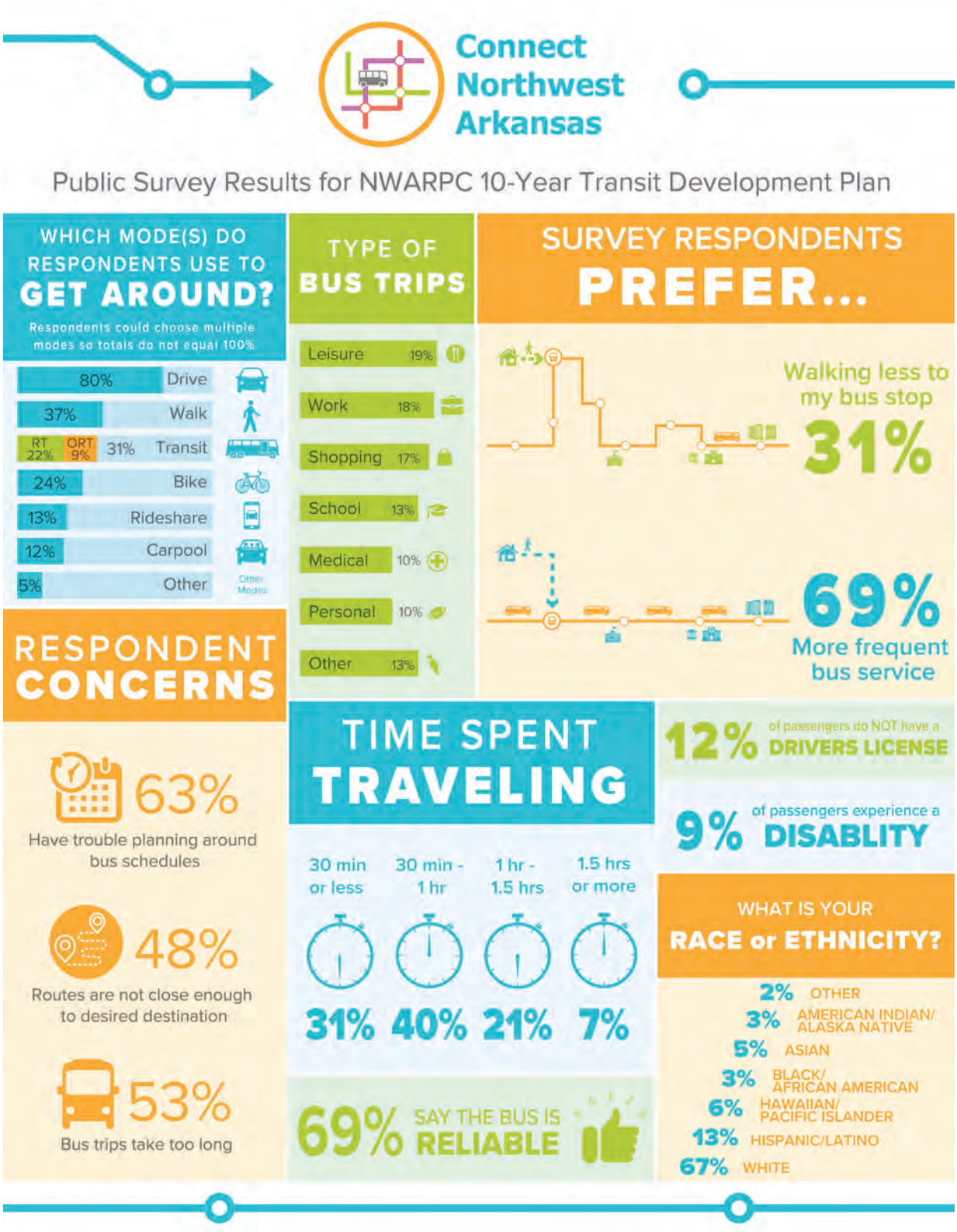
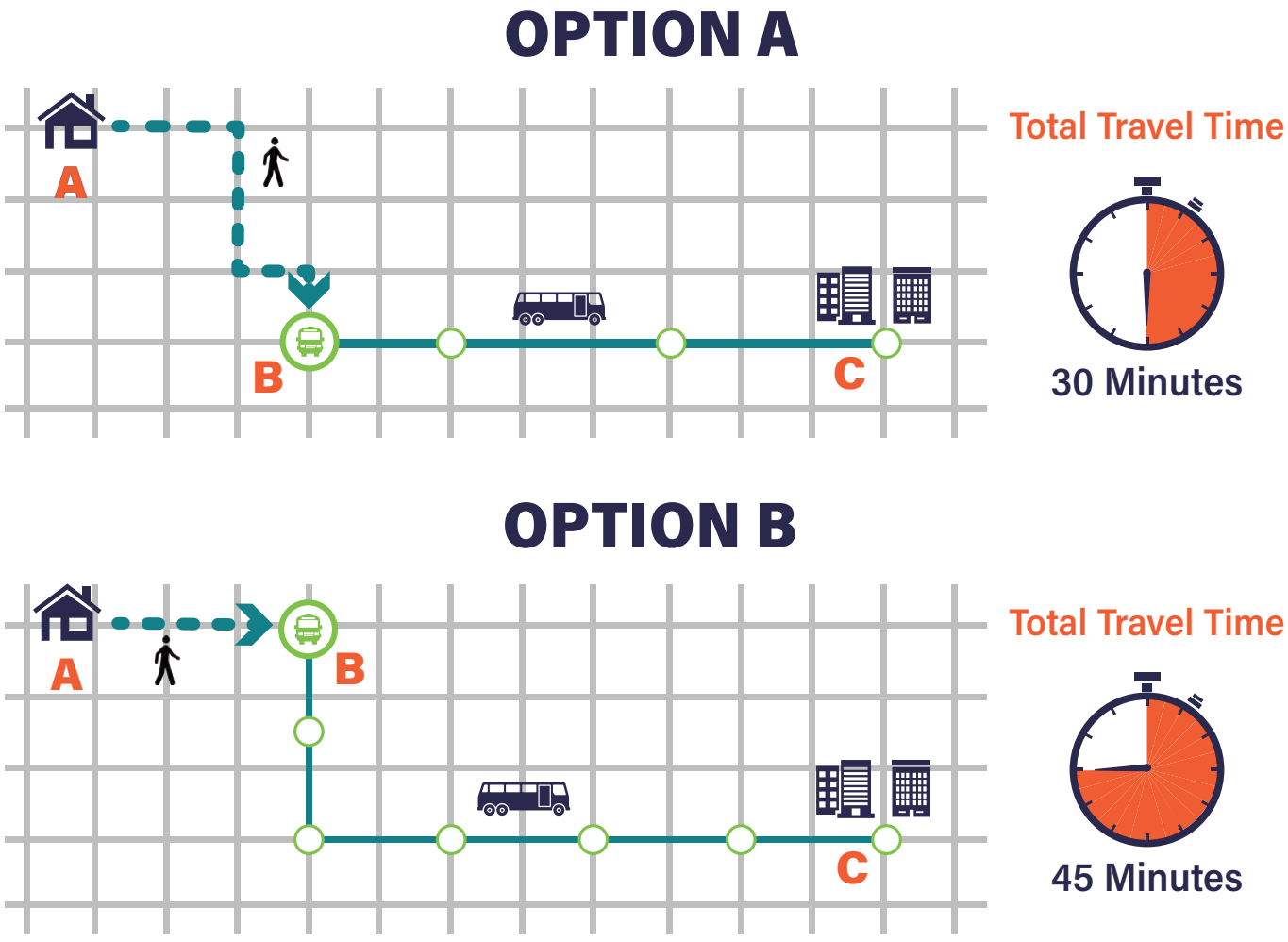


FIGURE 1.8: BUS SERVICE FREQUENCY OPTIONS



This figure shows the different options in bus frequency. The trade-offs between the two options include the distance to walk to the bus stop and distance the bus must travel between the stop and the final destination. Comparing the two options shows that Option A returns a lower total travel time.

Open Responses

A total of 347 open responses were received from the last question of the survey. Open responses were received in English, Spanish and Marshallese. The project team looked for themes and patterns throughout the open response section as they analyzed the data. Themes were grouped and counted noting the number of responses received. Themes that arose most often throughout the open responses were:

More frequent service

Greater regional connections

Train or light rail systems

Below is a sample of some of the responses from the open response section of the public survey.

"...There just aren't any alternatives to driving in the Rogers/Bentonville area, let alone getting to Fayetteville without having to pay for an Uber/Lyft. I currently am unable to use the bus from where I live on the west side of Bentonville, but wish it were an option. Thank you for conducting the survey!"

"Frequent and reliable public transit from Fayetteville to Bentonville would make a big difference for many families."

"Stoked to see public transit hit our area!"

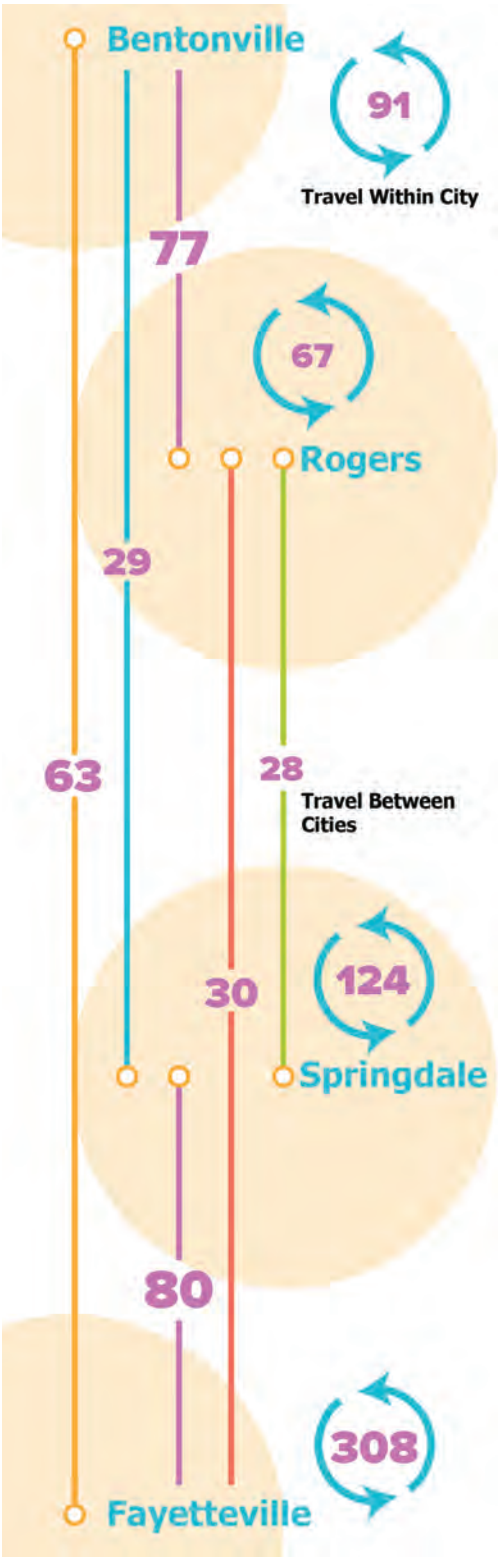
RESPONDENT TRAVEL PATTERNS

The survey contained two questions asking where respondents live, and where they travel the most. Responses were in either zip code or city format. Zip code responses were assigned to a city using a percentage of the zip code within city limits. Table 1.3 shows responses for home and destination locations. By joining unique combinations of responses between cities, the project team created a matrix of the movement between cities, and where survey respondents traveled to most. Fayetteville had the most travel within a city at 308, while travel between Springdale and Fayetteville was the most between cities. Figure 1.9 illustrates survey respondent travel patterns.

TABLE 1.3: HOME & DESTINATION LOCATION RESPONSES

CITY	HOME LOCATION	DESTINATION LOCATION
Bentonville	176	252
Fayetteville	428	436
Other	214	116
Rogers	168	168
Springdale	273	190
Total	**1,259**	**1,162**

FIGURE 1.9: TRAVEL AMONG CITIES BASED ON SURVEY RESPONSE

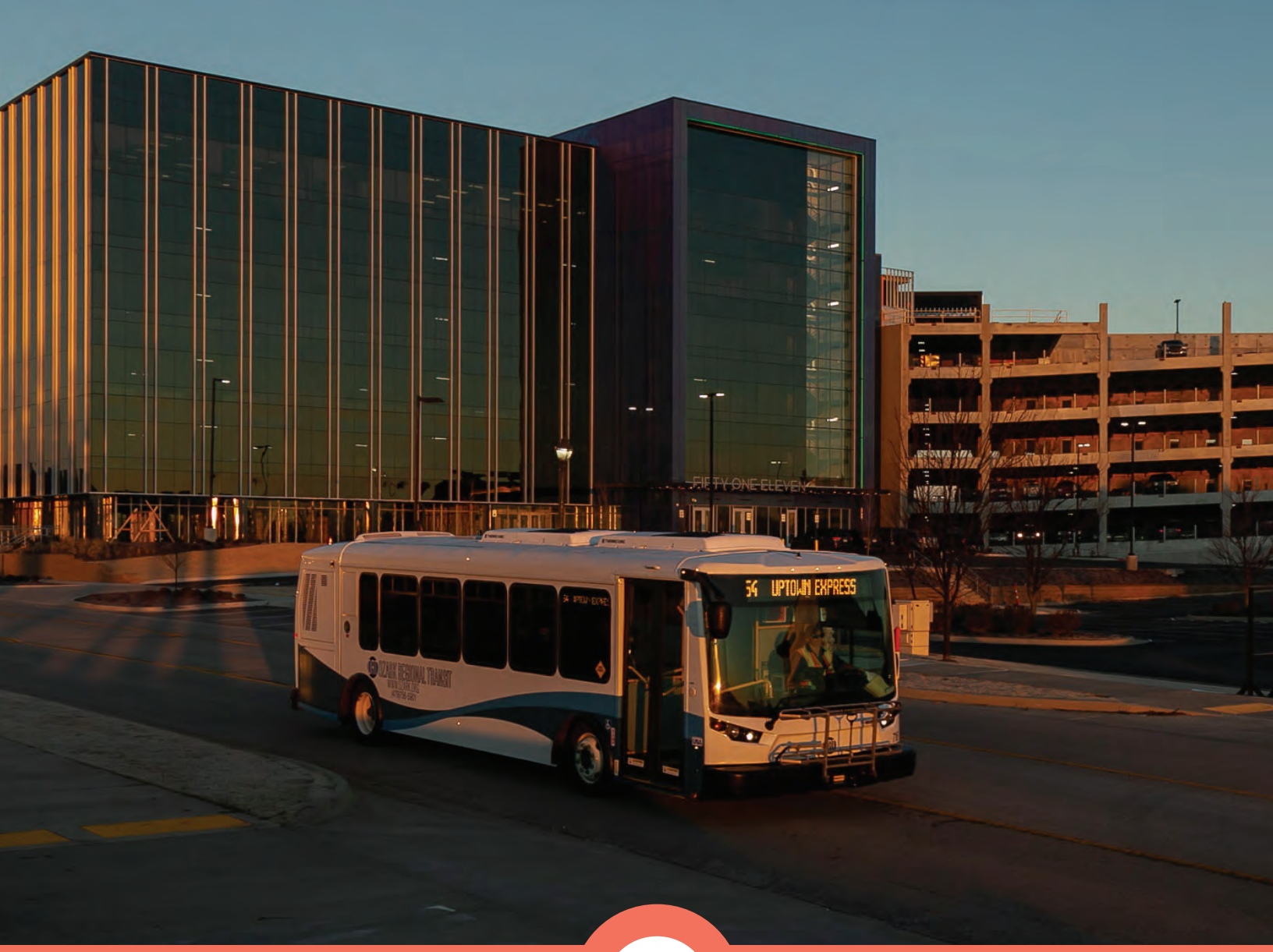


PHASE II PUBLIC ENGAGEMENT

The second phase of public engagement occurred in October 2019, and featured two public open houses. The events were dispersed between Benton and Washington counties to provide equal representation and opportunity for citizens to voice their opinion. The events were held to provide the public with a chance to review the alternative recommendations and to provide feedback as seen necessary. The project team used newspaper ads, project website updates, promotional and stakeholder emails, social media updates, and another survey (both electronic and hard copy) to alert the public and gain a better understanding of community needs. This phase of engagement is discussed in further detail in Chapter 4 of the TDP. Event findings and resultant changes made to the recommendations are provided.

CONCLUSION

A thorough assessment of survey results, stakeholder desires, and public input at events concluded that residents of NWA are generally supportive and excited to see transit grow along with their community. They stressed specific concerns and needs as the system plans for development over the next 10-year period and beyond. A developing system must strive to improve reliability. It must also have greater frequency and greater regional connection between cities, as to be more convenient and to save transit user time. Local routes must also bring people to where they need and want to travel, with greater frequency and more direct and efficient routes.



CHAPTER 2
MARKET ANALYSIS

CHAPTER 2: MARKET ANALYSIS

INTRODUCTION

The purpose of the market analysis is to analyze demographic, economic, and social characteristics of the Northwest Arkansas community to identify areas suitable and in need of transit, and to help inform service development and implementation decisions.

The Connect Northwest Arkansas market analysis examines various demographic, economic, and social characteristics of the community to determine whether existing transit service adequately meets existing community needs. The process identifies where market potential is currently underutilized and where community needs are not met. Such analysis ultimately identifies opportunities for improving transit service for the cities within the study area and provides the foundation upon which the recommendations for this TDP are built.

The Market Analysis for the NWA TDP includes three primary steps which will be discussed further in the methodology section:

1. **Transit Potential:** Employment and population values which identify areas that can support transit based off population/employment densities.
2. **Transit Need:** Transit need is represented by specific demographic subgroups who inherently have a higher demand for public transportation, such as those in poverty, citizens without access to a personal automobile, citizens with disabilities, etc. These subgroups are represented by census block groups.
3. **Transit Supply and Gap Analysis:** Transit supply is represented by the level of service provided by a transit route including frequency and span. Transit Gaps are represented by areas with high transit demand and low to no transit supply.

Results of the Market Analysis are used to determine recommendations for improving Ozark Regional Transit (ORT) and Razorback Transit (RT) service in the region.

STUDY REGIONS

For the purpose of the market analysis, the NWA study area (referred to as “study area” for the remainder of the Market Analysis) consists of a combination of urban areas found in NWA extending from Bella Vista to Prairie Grove/Elkins to the south; these urban boundaries have been smoothed to create one contiguous geographical area for regional analysis (Figure 2.1).

In order to better understand the complexities of the transit potential, supply, and demand, the study area has been divided into regions based on existing fixed route transit service. The extent of both Ozark Regional Transit and Razorback Transit’s regional coverage, as well as the unique cities which make up the linear study area, allowed the project team to divide the region into three subareas, referred to as fixed route regions as follows (Figure 2.2):

- Bentonville/Rogers
- Springdale
- Fayetteville

FIGURE 2.1: NORTHWEST ARKANSAS STUDY AREA

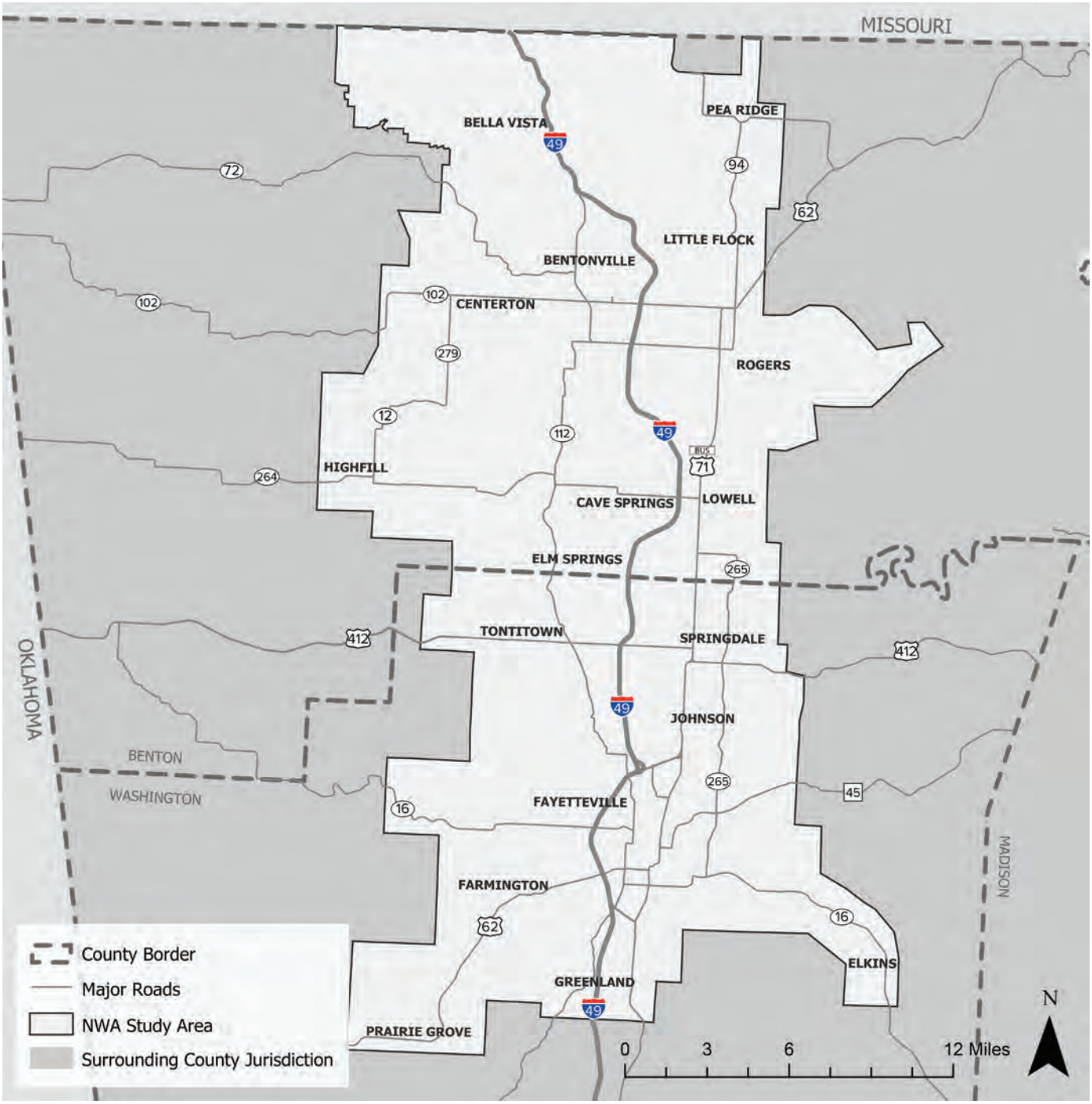
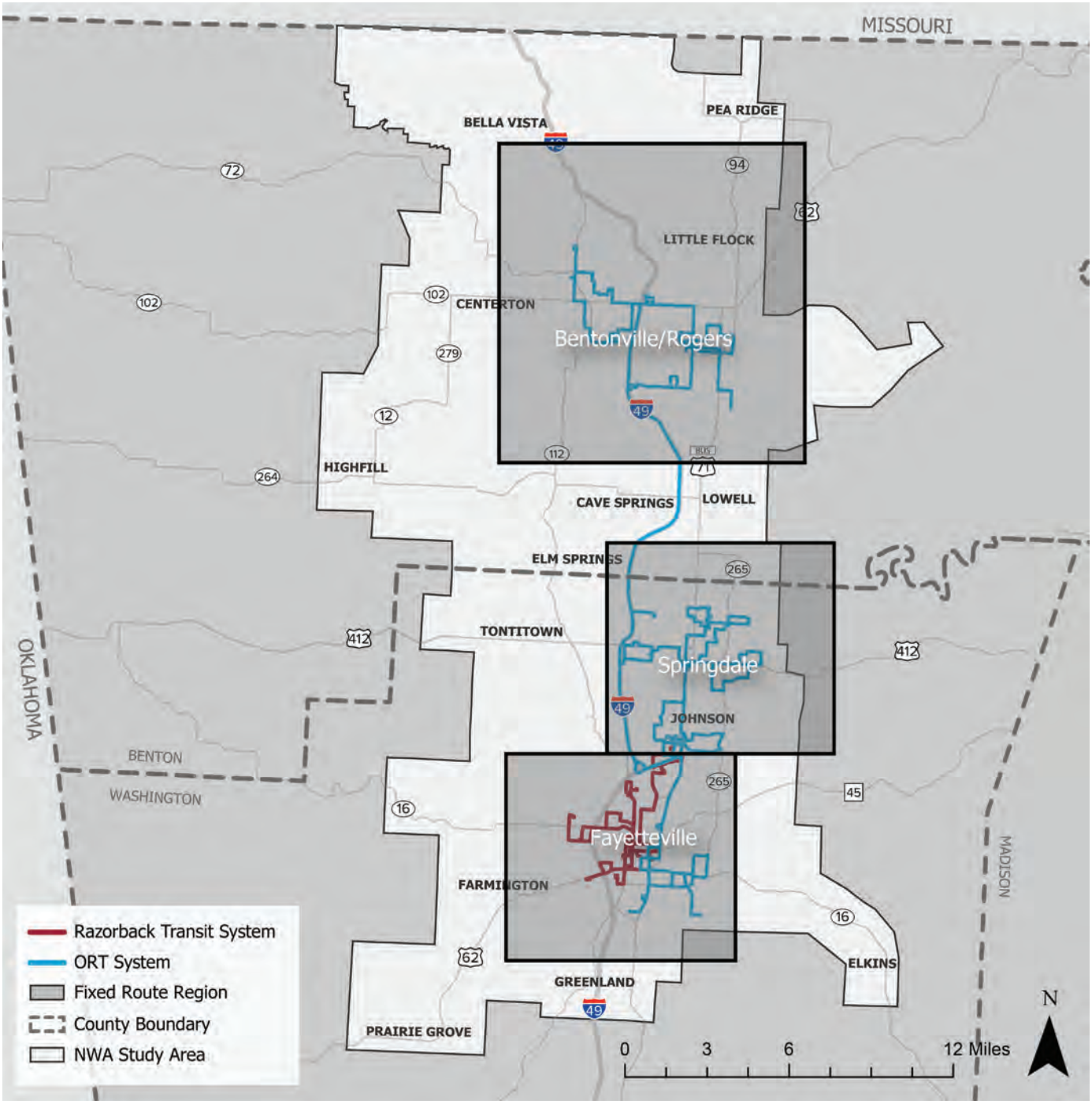


FIGURE 2.2: FIXED ROUTE REGIONS



METHODS

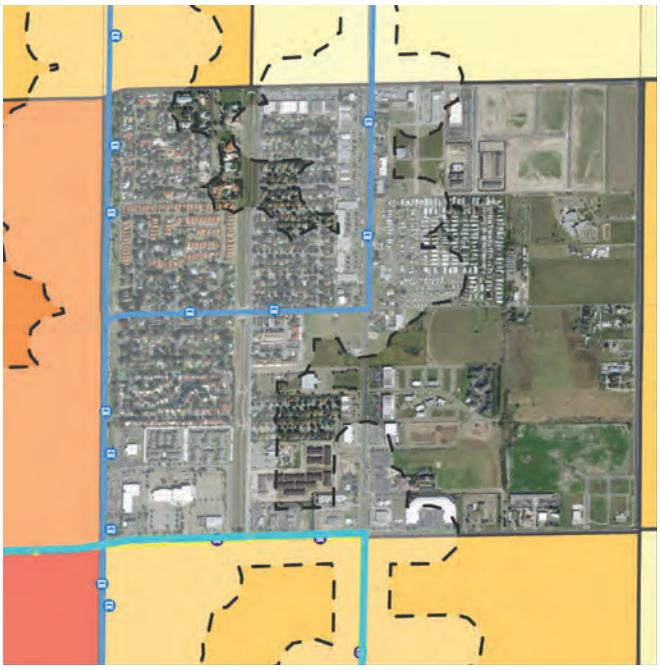
The following sections will define and discuss the methods behind all measures and processes utilized to create the market analysis.

SERVICE COVERAGE

In order to analyze service coverage in the study area, the project team considered ways citizens typically access transit service. For this analysis, it was assumed that people will access transit by walking to their nearest bus stop; a quarter-mile distance is typically considered reasonable when considering how far citizens are willing to walk to reach a transit amenity. Accordingly, a quarter-mile walkshed buffer was used to determine the service coverage. The walkshed buffer differs from a standard stop buffer in that it uses existing infrastructure and barriers to represent a quarter-mile buffer that one could travel by foot. This walkshed service coverage buffer provides the area for which transit demand/need data are overlaid to complete the market analysis (e.g. Transit-Dependent Population within service coverage).

Various demographic subgroup densities representing transit demand/need were developed using data sources from the 2017 American Community Survey (ACS) and the 2010 Census at the block group level. However, the interaction of service coverage and demographics is not as simple as an overlay analysis suggests (i.e. the percentage of the block group total within the walkshed buffer). For example, while a block group may represent a total of 100 elderly citizens, the distribution of this subgroup of citizens is typically not spatially uniform. This means using the distribution of elderly residents divided by the block group area within the walkshed buffer could give an inaccurate value representing transit coverage in the area. Accordingly, the project team compared block groups with up to date aerial imagery and considered the distribution of land use development (i.e. is the land within the walkshed residential or is the buffer capturing commercial, undeveloped, or other land uses?). Coverage percentages, and therefore totals, were then adjusted appropriately based on the land uses within the walkshed to more accurately depict transit coverage in the region. This land use overlay analysis allows for a mixture of quantitative and qualitative methods to provide final coverage totals. Figure 2.3 below provides an example of the walkshed utilized to capture transit demand/need data, as well as the aerial overlay method used to ensure proper capture values.

FIGURE 2.3: NWA WALKSHED COVERAGE EXAMPLE



TRANSIT POTENTIAL

Identifying transit potential in the study area is a strategy for looking at locations that need and can support transit service. For this study, transit potential is identified through examining population and employment density. Population and employment densities are displayed at the census block group level and at a per acre basis. Current American Community Survey (ACS) census data for population and Longitudinal Employer-Household Dynamics (LEHD) data for employment were analyzed to represent existing transit potential in the study area. This critical component of the analysis will also serve as a Key Performance Indicator (KPI) used to evaluate service recommendations and inform service standards for ongoing evaluation and improvement of transit.

TRANSIT NEED

The transit need analysis assesses the study area's demographic characteristics to understand where people who are more likely to be dependent on public transportation are located throughout the region.

Two subsets of the study area population were defined in order to generate a better understanding of the region's transit needs: Transit-Dependent Population and Target Transit Rider Population (TTRP). These subsets create a measure of the regional population who are more likely to rely on transit in comparison to the rest of the community. Transit-Dependent Population and TTRP measures are critical to the transit planning process because they show where in the study area transit service accessibility is important for everyday mobility.

Transit-Dependent Population

The Transit-Dependent Population results are determined based on a formula which quantifies the amount of people in a community who are most likely to depend heavily on transit as their primary mode of transportation. Accordingly, Transit-Dependent Population measures captive riders (i.e. those whose mobility is almost entirely dependent on public transportation), therefore quantifying regional transit demand. The Transit-Dependent Population formula used in this analysis incorporates characteristics related to the legal ability (i.e. too young to drive) and access to a personal vehicle. The study used a three-step formula derived from the U.S. Department of Transportation (USDOT) to locate larger concentrations of driving-age citizens with limited to no access to personal automobiles. The analysis used information from the census block group level and the 2017 American Community Survey (ACS). The ACS data provides detailed demographic information applicable to Transit-Dependent Population calculations not attainable from the decennial census. The following displays the USDOT formula step by step:

1. **Household Drivers = (Population Aged 18 and Over) - (Persons Living in Group Quarters)**
2. **Transit-Dependent Household Population = (Household Drivers) - (Vehicles Available)**
3. **Transit-Dependent Population = (Transit-Dependent Household Population) + (Population Aged 17 or Under) + (Non-Institutionalized Population Living in Group Quarters)**

Step 1 of the formula identifies the number of people living in households who are legally eligible to drive based on their age. Population in Group Quarters is subtracted in this part because group quarters are not considered households. It is important to note that even though 16- and 17-year-olds may be legally eligible to drive, they are less likely to have regular access to a personal vehicle to accommodate most of their transportation needs. The ACS also does not provide data sets with breaking points at the age of 16.

Step 2 of the formula uses the results from **Step 1** to identify the number of eligible drivers who do not have a personal vehicle available to them. This group of people will be more likely to rely on transit.

Step 3 of the formula determines the final Transit-Dependent Population by adding the results of **Step 2** to the population who is legally too young to drive or have regular access to a vehicle, as well as the population living in non-institutionalized group quarters. While people living in institutionalized group quarters are not able to drive for legal or health reasons, people living in non-institutionalized group quarters may be eligible to drive but are less likely to do so. It should

be noted that the 2017 ACS data on group quarters does not distinguish between institutionalized and non-institutionalized, so these figures were estimated using the group quarters data from the 2010 decennial census based on proportions per block group. The combination of the three demographic groups that make up **Step 3** of the formula identifies the total number of people that are either unable to drive or highly unlikely to drive, making them more dependent on transit.

Target Transit Rider Population

Although Transit-Dependent Population is crucial for estimating the need for public transportation services, there are other groups who may have special needs when it comes to transportation. Referred to in this analysis as "Target-Transit Rider Population" (TTRP), the metric is used to represent regional transit demand. This population differs from Transit-Dependent Population in that it represents those who are more likely to need transportation services in comparison to the general public, representing some of the largest barriers to personal mobility. These characteristics representing TTRP include the following groups:

- People aged 65 years or older (older adults)
- People aged 17 years or younger (youth population)
- People with limited English-speaking ability (LEP)
- People representing minority populations
- People with disabilities
- People with low income

To calculate TTRP, the six groups discussed above were summed at the block group level, representing the total number of TTRP in each block group. This is a much less conservative estimate for transit demand compared to Transit-Dependent Population; due to the nature of these demographic characteristics, it is possible that some people belong to more than one of the population subsets used in the calculation (e.g. someone older than 65 years of age may also have a disability). This means that some people may have been counted more than once in the TTRP totals. The chance of "double-counting" people with the TTRP calculation method is unavoidable because it is impossible to identify which demographic characteristics apply to each individual person in the community. However, for the purposes of this analysis, double counting can be considered a positive outcome because it considers people who may face more than one barrier to personal mobility.

Transit Needs Index

The transit needs index (TNI) is a combination of Transit-Dependent Population and TTRP per block group as a percentage of a given block group's total population. The TNI Calculation is shown below:

Transit Needs Index =
(Block Group Transit-Dependent Population + Block Group Target Transit Rider Population) / Block Group Total Population

As acknowledged in the previous section, the likelihood of double counting a person by demographic characteristic in this process is probable and beneficial to identifying barriers to populations dependent on transit. That is, where someone might be elderly, disabled, and below the poverty line, they are facing cascading factors affecting their mobility. The effects of this double counting are represented by block groups where the index value exceeds 1.

Transit Supply & Transit Gaps

Transit supply is quantified by measuring various characteristics of the region's transit system. This includes characteristics such as frequency (or how often the bus comes) and hours of operation (span). For this analysis each route (Ozark Regional Transit and Razorback Transit) were assigned a score from 1 – 5 to quantify the quality of service. The final score was created by weighting frequency and span scores, in turn generating a final weighted average for each route. A route may receive a score of 1 if it has a low frequency and operates minimal hours of the day, while a different route may receive a score of 5 if it operates at a high frequency and runs early in the morning, late at night, or both.

Scores were assigned to each route and overlaid with the ORT/RT walkshed buffer and the region's block groups with significant transit need index (TNI) values to identify gaps in the existing transit service. It must be noted that the ORT 490 route was not scored due to it being a commuter route.

For this part of the analysis, transit supply was compared to transit demand, meaning that areas where transit demand is high (block groups with high TNI values) and where supply is low (low scoring routes) constitute transit gaps. Further, these two measures were used to pinpoint corridors that traverse high demand areas but currently are not a part of a route configuration. These "Transit Analysis Corridors" have been highlighted in the regional maps. These are not suggested route alignment changes; however, these corridors warrant further analysis and consideration for potential transit improvements. Destinations have been included in the region maps for better understanding of existing route alignments. This analysis will help with route design in future stages of the Transit Development Plan.

STUDY AREA OVERVIEW

It is important to consider transit propensity and demand at the regional level as municipalities within the study area strive for better connectivity and accessibility. The following briefly discusses market analysis measures in the context of the study area. All measures for propensity and demand will be discussed in further detail in each fixed route region's section.

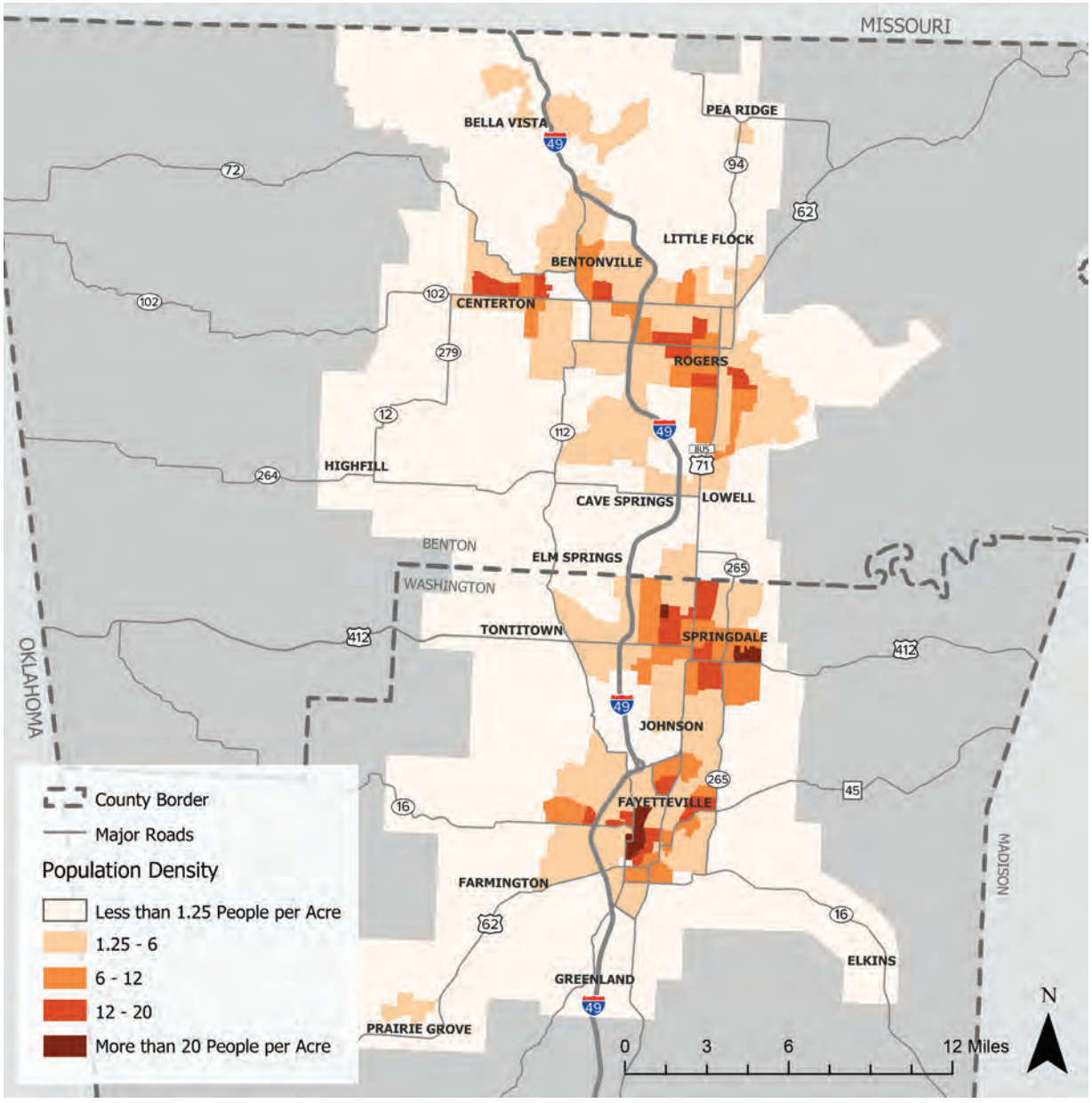
TRANSIT POTENTIAL

The study area is a fast-growing region, containing large institutions and employers such as the University of Arkansas in Fayetteville, Walmart HQ in Bentonville, Tyson Foods HQ in Springdale, and JB Hunt HQ in Lowell. Because of sustained economic and population growth, it is important to understand where transit is viable in the study area. Population and employment data were analyzed to create a snapshot of the study area's existing transit potential. High population and employment densities can be indicative of development/land uses that influence residents of the region to travel to concentrated areas within the study area. In turn, it can be assumed that these areas with concentrated densities are more suitable for transit service.

Study Area Population Density

Population density in the study area (Figure 2.4) tends to be concentrated in the four major municipalities; Bentonville, Rogers, Springdale, and Fayetteville. Fayetteville differs in that it contains the University of Arkansas which innately creates denser, more centralized living patterns with on-campus housing, high density student housing, and mixed-use development. Further, while the population density is higher near city centers and arterial/highway road infrastructure, Figure 2.4 displays moderate density near the I-49 corridor which connects the entire study area.

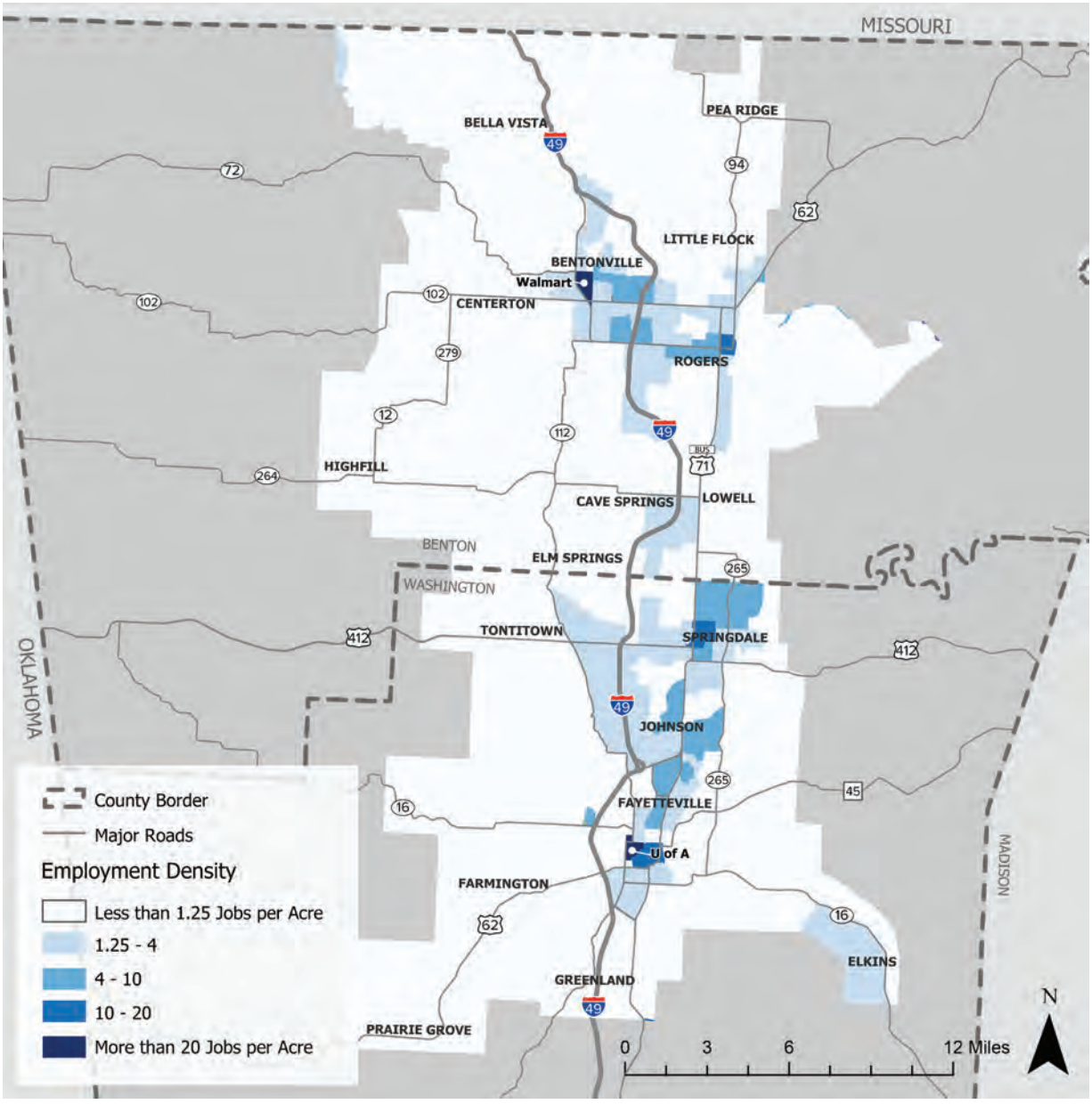
FIGURE 2.4: STUDY AREA POPULATION DENSITY BY ACRE



Study Area Employment Density

Like population density, the study area's employment density (Figure 2.5) is highly concentrated amongst the four primary cities within the area in a linear fashion. The study area's highest densities are found in Bentonville and Fayetteville, where Walmart HQ and the University of Arkansas are located.

FIGURE 2.5: STUDY AREA EMPLOYMENT DENSITY BY ACRE



TRANSIT DEMAND

The study area fosters a diverse population as existing institutions, employment centers, and amenities continue to stimulate population and employment growth. Because of this climate, it is important to understand where transit demand is located at the regional scale. Table 2.1 below displays the study area's capture for population, employment, as well as Transit-Dependent Population and Target Transit Rider Population (TTRP) measures. All measures are also represented by the study area's regional transit service walkshed capture (the given measure's amount found within the quarter-mile walkshed for Ozark Regional Transit and Razorback Transit services found in the region).

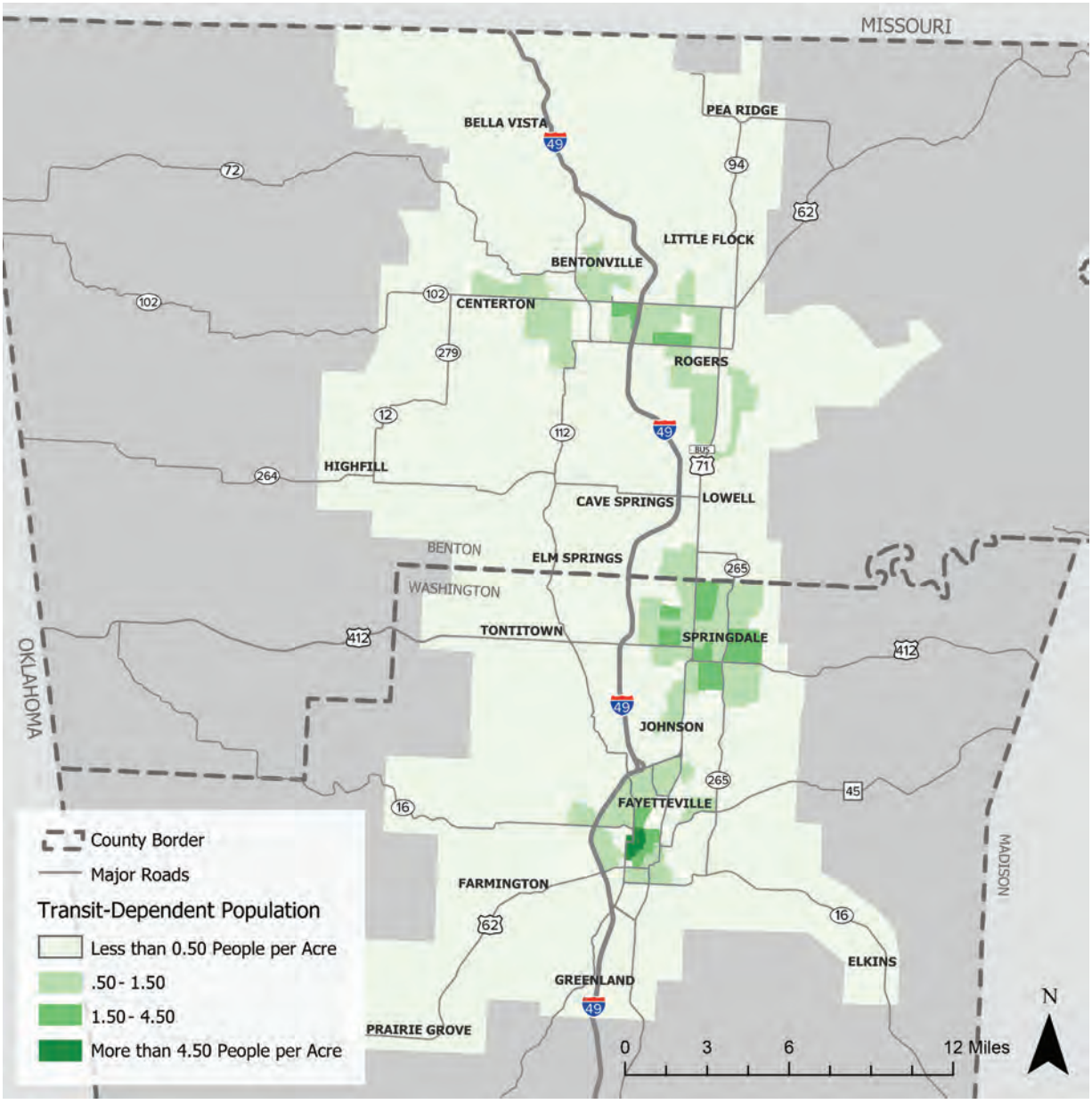
TABLE 2.1: STUDY AREA TRANSIT DEMAND

	NWA STUDY AREA	WITHIN TRANSIT WALKSHED	% COVERED BY TRANSIT
TOTAL POPULATION	420,455	65,348	15%
TOTAL EMPLOYMENT	203,062	58,598	29%
TRANSIT-DEPENDENT POPULATION	71,941	17,450	24%
TARGET TRANSIT RIDER POPULATION	349,421	58,225	17%

Study Area Transit-Dependent Population

As displayed by Figure 2.6, the study area's Transit-Dependent Population density remains concentrated around the area's four primary municipalities; Bentonville, Rogers, Springdale, and Fayetteville. Once again, this measure is indicative of where citizens without the ability to drive a car or access to a personal automobile are living, and thus represents potential transit demand. Figure 2.6 shows that Fayetteville has the highest density of Transit-Dependent Population in comparison to other study area cities.

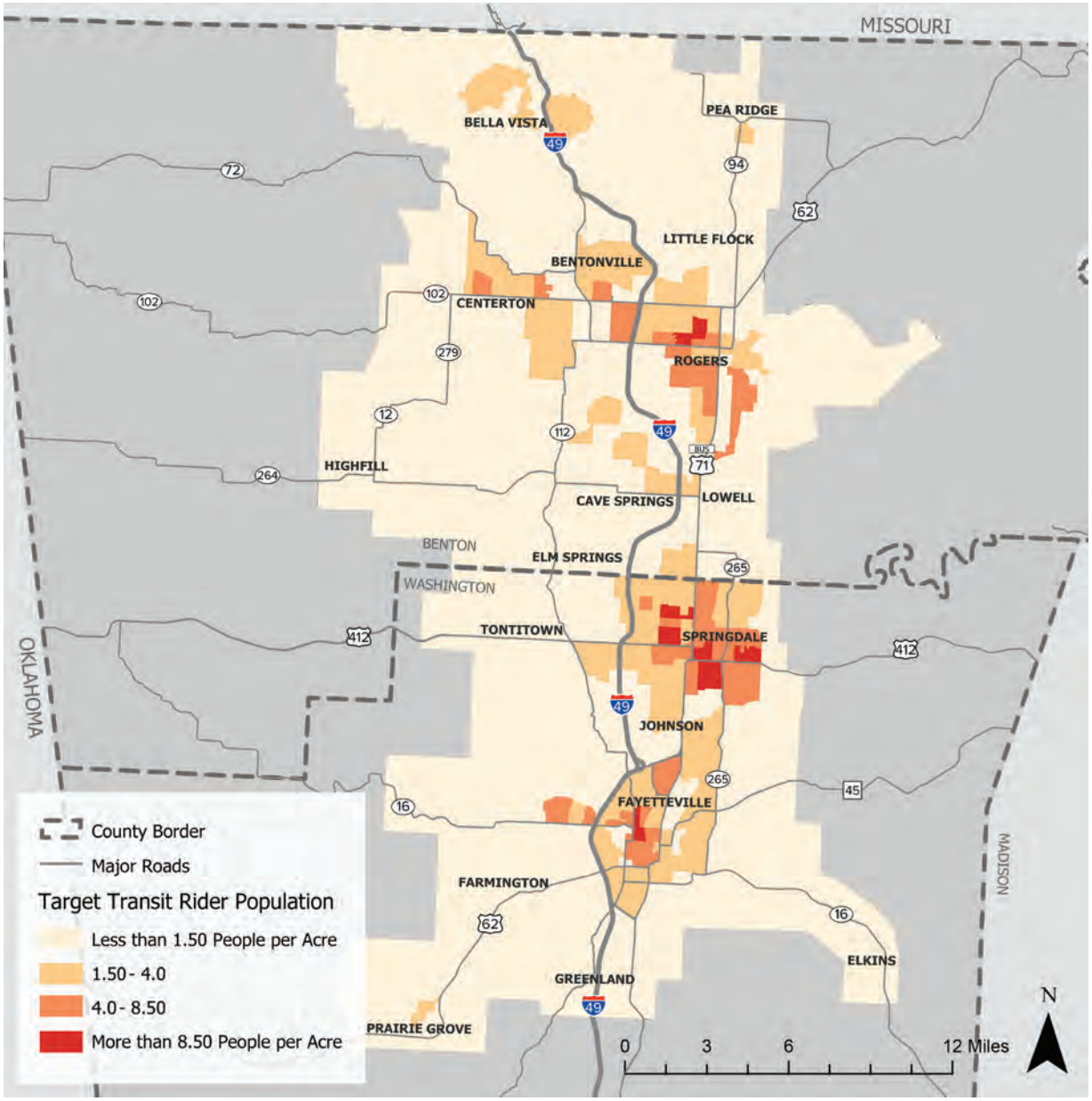
FIGURE 2.6: STUDY AREA TRANSIT-DEPENDENT POPULATION PER ACRE BY BLOCK GROUP



Study Area Target Transit Rider Population

Figure 2.7 below displays regional Target Transit Rider Population (TTRP) density. Compared to Transit-Dependent Population, TTRP groups demographic and socioeconomic characteristics that represent populations in need of transit due to physical, social, and financial barriers. While TTRP is also concentrated around the study area's primary cities, density concentrations are also seen extending outward. Figure 2.7 displays Springdale as containing the highest TTRP densities in the study Area.

FIGURE 2.7: STUDY AREA TARGET TRANSIT RIDER POPULATION

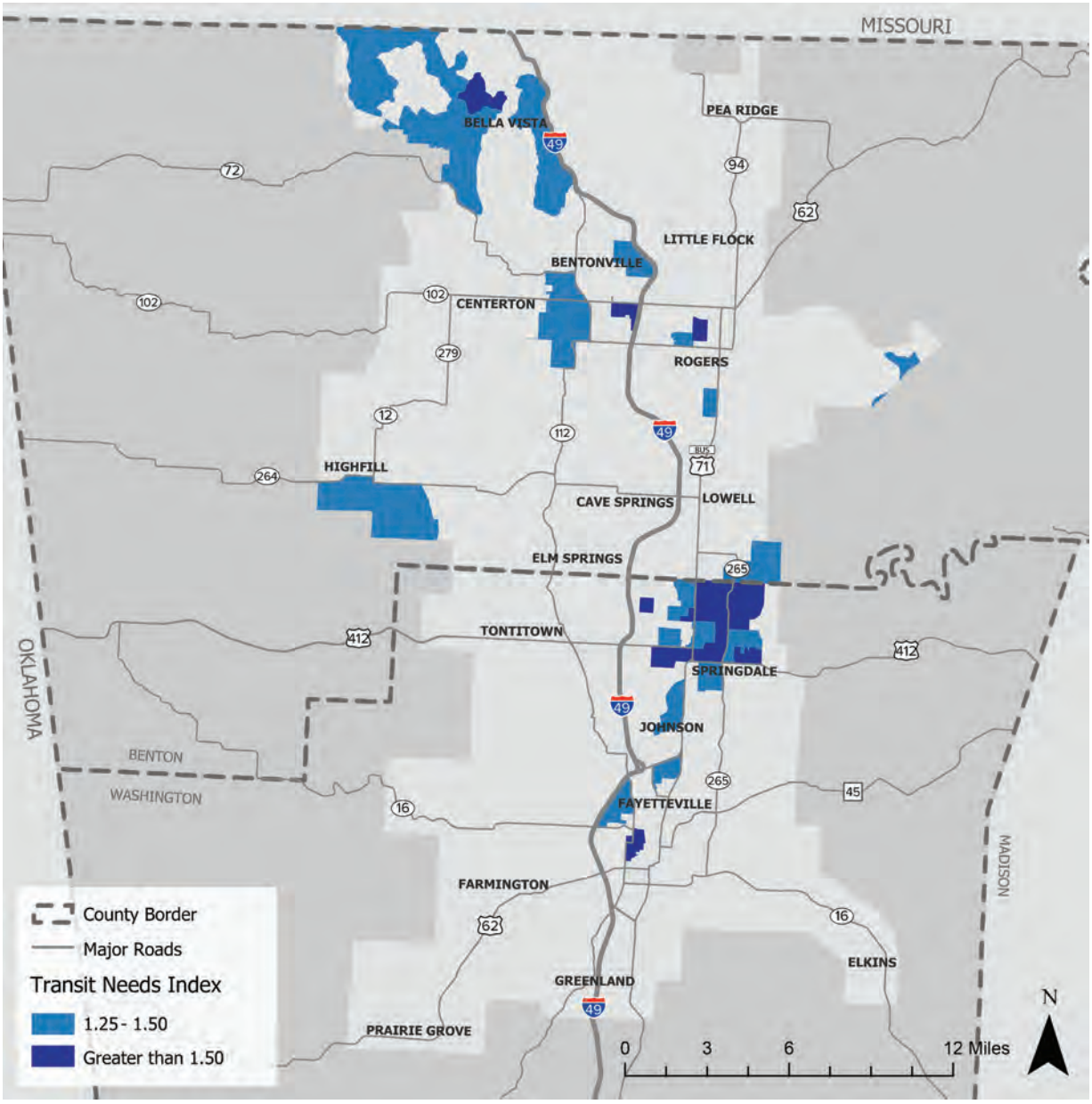


Study Area Transit Needs Index

The Transit Needs Index (TNI) groups Transit-Dependent Population and Target Transit Rider Population (TTRP) to create a comprehensive transit needs score per block group. This measure provides a regional view of areas with the highest count of demographic and socio-economic measures which represent transit demand.

Figure 2.8 shows regional TNI. Springdale is shown to contain a substantial amount of block groups with high TNI scores in comparison to other study area cities. Areas with high transit needs scores also appear in Bella Vista, South Bentonville, Rogers, and Central Fayetteville.

FIGURE 2.8: STUDY AREA TRANSIT NEEDS INDEX



STUDY AREA TAKEAWAYS

The following points provide key takeaways for the study area regarding transit propensity and demand:

- Population Density is concentrated around the study area's four primary cities, suggesting potential markets remain in these major areas.
- Fayetteville contains the most centralized population density as the University of Arkansas creates conditions more conducive to dense living conditions.
- Substantial employment densities also occur in the four primary cities of the study area, further strengthening the case for each city's respective markets.
- Employment density occurs in a more confined, linear fashion with the highest densities occurring in Bentonville (Walmart HQ location) and Fayetteville (University of Arkansas).
- The University of Arkansas' high population and employment densities marks it as the leading market for existing and future transit service.
- Transit-Dependent Population density is lower than Target Transit Rider Population throughout the study area suggesting adequate automobile availability in the area; Fayetteville contains the highest density in the study area.
- Target Transit Rider Population density tends to be concentrated around the study area's major cities, with the most significant densities occurring in and around Springdale.
- Springdale also contains the most block groups with significant Transit Needs Index scores; this suggests that the area contains the most significant Transit-Dependent and Target Transit Rider Populations in the study area.

FIXED ROUTE REGION ANALYSIS

Because the study area contains four primary cities, it is crucial to analyze each fixed route region individually as they currently contain different levels of existing transit service, as well as unique characteristics driving transit demand. In order to provide a transit system that establishes regional connectivity, each fixed route region must be understood individually to strengthen the study area as a whole. The following sections will discuss the transit propensity, demand, supply, and gaps of the three main fixed route regions more closely to draw comparisons and pinpoint areas of need regarding transit service.

BENTONVILLE/ROGERS

The Bentonville/Rogers fixed route region is in the northernmost part of the study area and currently contains three Ozark Regional Transit routes (#11 in Bentonville and #51/52 in Rogers). The region contains state of the art recreational and cultural amenities (e.g. Crystal Bridges Museum of American Art and the Promenade Shopping Center), as well as major employers such as the Walmart HQ and the NWA Community College. Table 2.2 below displays the Bentonville/Rogers fixed route region capture for population, employment, as well as Transit-Dependent Population and Target Transit Rider Population (TTRP) measures. All measures are also represented by the study area's regional transit service walkshed capture (the given measure's amount captured within the quarter-mile walkshed for Ozark Regional Transit and Razorback Transit services found in the region).

Transit Potential

Population Density

Population density in the Bentonville/Rogers fixed route region is dispersed throughout, suggesting ample opportunity to expand existing transit service. Figure 2.9 displays the areas in the region with high market potential:

A. West Bentonville/Centerton along the AR Hwy. 102 corridor bordered by AR Hwy. 72 to the north; this area contains dense residential land use with open land for more growth

B. The block groups bordered by US Hwy. 71B and AR Hwy. 102 containing the Walmart HQ, Downtown Bentonville, adjacent to Bentonville High School

C. West Rogers along the US Hwy. 71B corridor which contains large residential land use

D. The block groups which contain or connect to the Elmwood Middle School, the Rogers Heritage High School, and the Tyson's Distribution Center

E. The area west of US Hwy. 71B which contains dense residential land use and Veterans Park

Employment Density

Employment density in the Bentonville/Rogers region is less dispersed than population density, with significant concentrations in the region listed as follows (Figure 2.10):

A. The block group at the US Hwy. 71B and AR Hwy. 102 junction; where the current Walmart HQ is located

B. The area bordered by AR Hwy. 102, AR Hwy. 72, and I-49; this area contains Walmart facilities and is the site of the future Walmart HQ

C. The block groups near the I-49 and US Hwy. 71B junction where several large retailers and commercial centers (e.g. Sam's Club Home Center) are located, as well as the Northwest Medical Center in Bentonville

D. The area along the US Hwy. 71B corridor in Rogers where large retail and commercial centers are located, as well as government offices

E. The area containing Downtown Rogers

TABLE 2.2: BENTONVILLE/ROGERS FIXED ROUTE REGION TRANSIT DEMAND

	BENTONVILLE/ROGERS FIXED ROUTE REGION	WITHIN TRANSIT WALKSHED	% COVERED BY TRANSIT
TOTAL POPULATION	96,311	15,953	17%
TOTAL EMPLOYMENT	76,572	25,186	33%
TRANSIT-DEPENDENT POPULATION	16,297	3,092	19%
TARGET TRANSIT RIDER POPULATION	83,562	15,896	19%

FIGURE 2.9: BENTONVILLE/ROGERS FIXED ROUTE REGION POPULATION DENSITY BY ACRE

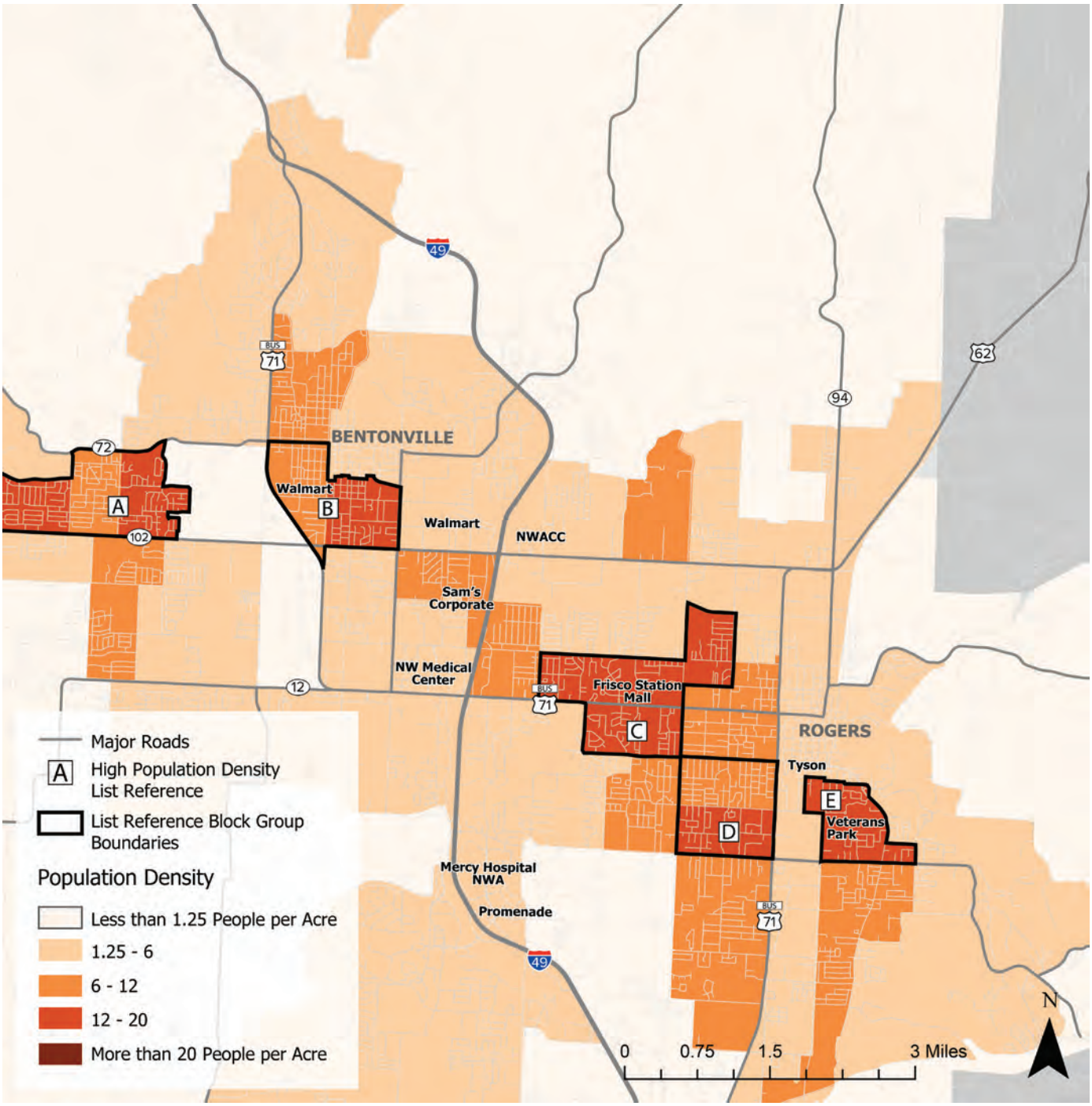
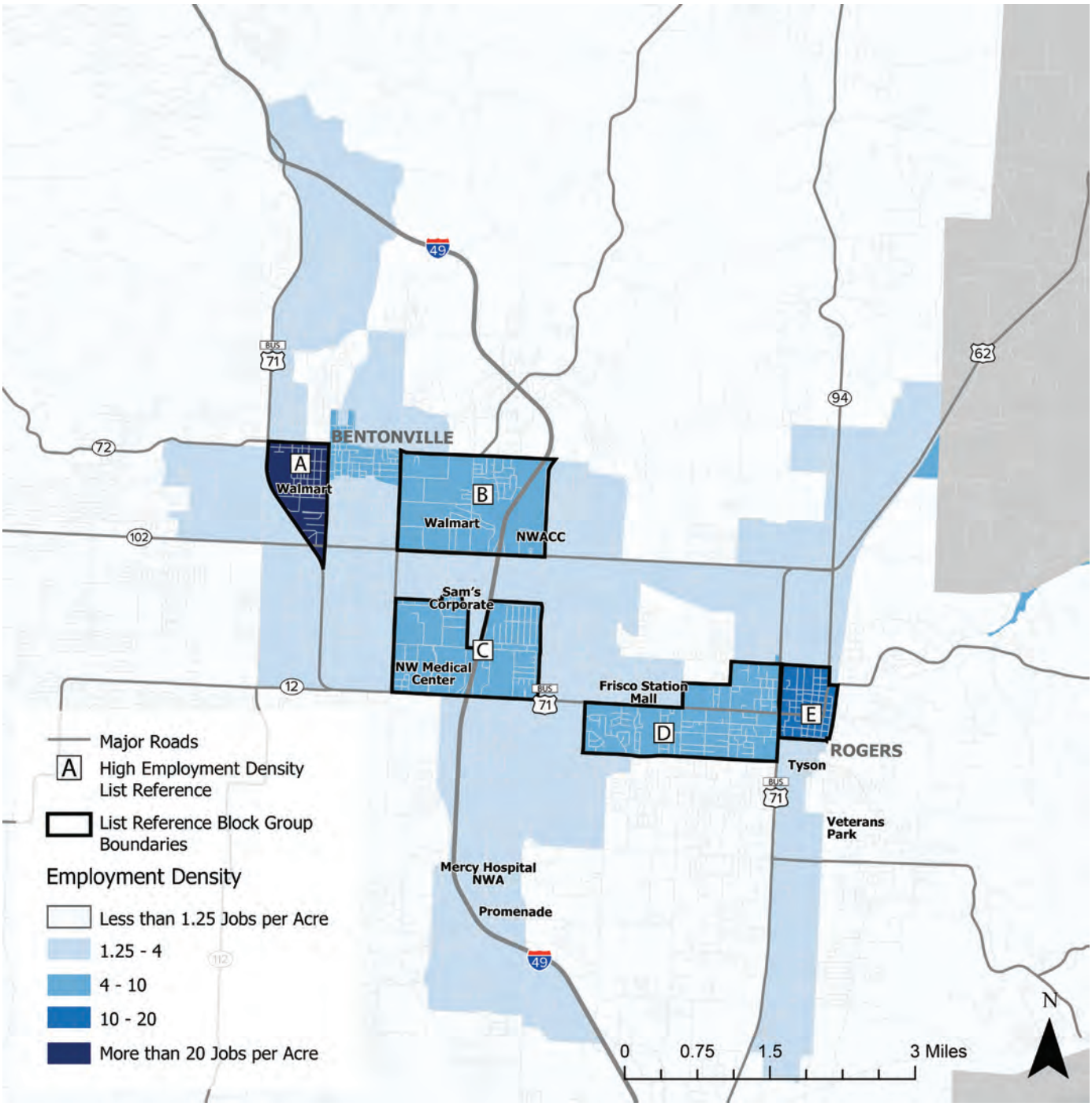


FIGURE 2.10: BENTONVILLE/ROGERS FIXED ROUTE REGION EMPLOYMENT DENSITY BY ACRE



Top Potential Markets

In order to further understand potential markets in the Bentonville/Rogers fixed route region, population and employment totals were combined and ranked to identify specific block groups with high transit potential. Figure 2.11 displays the region's top potential market areas based on housing and job availability. Table 2.3 lists key destinations/characteristics within each block group.

FIGURE 2.11: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - BENTONVILLE/ROGERS FIXED ROUTE REGION

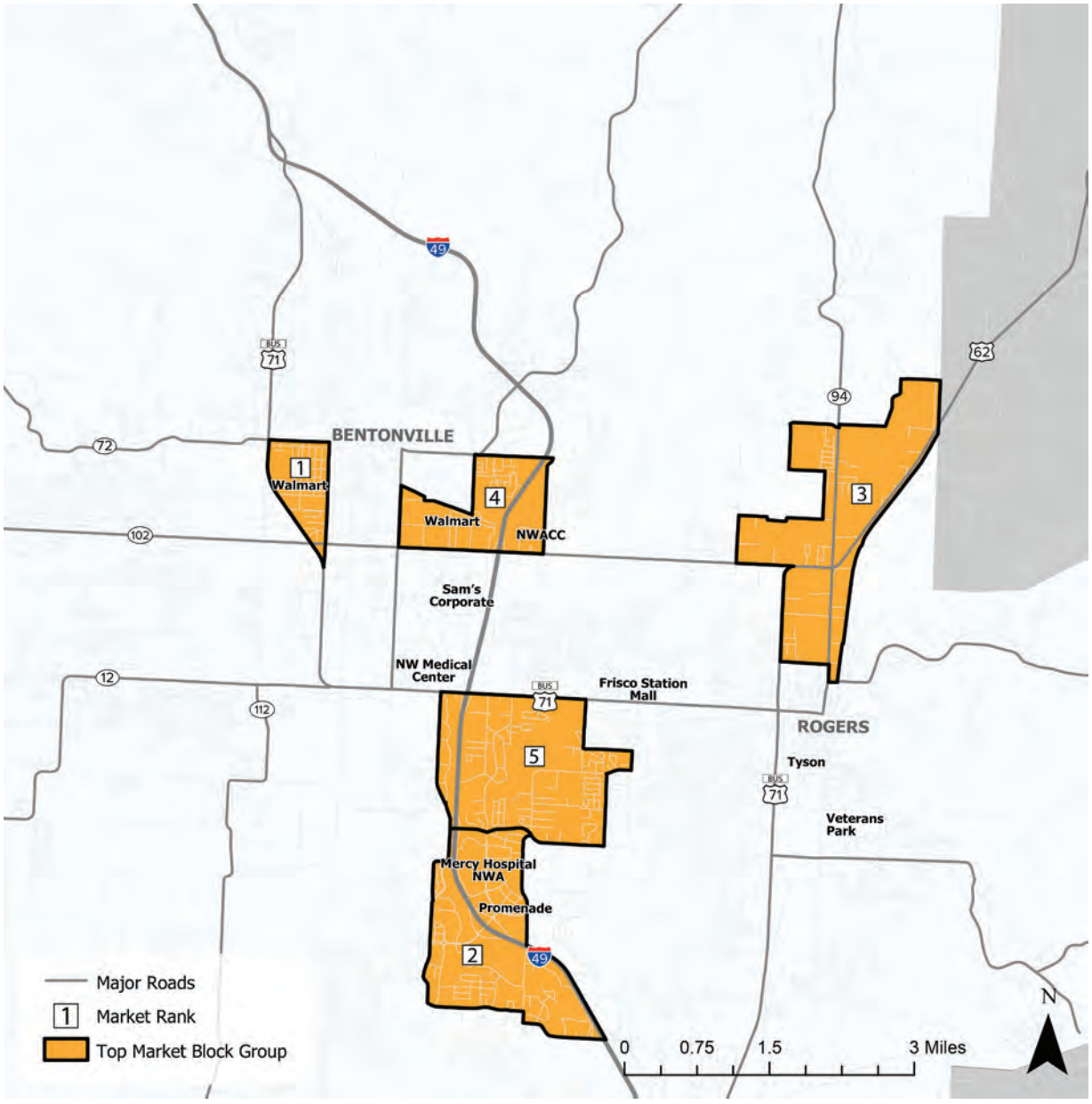


TABLE 2.3: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - BENTONVILLE/ROGERS FIXED ROUTE REGION

RANK	KEY DESTINATIONS & CHARACTERISTICS
1	Walmart HQ Facilities, Bentonville Plaza, Downtown (partial), single family residential
2	Pinnacle Hills Promenade, The Arkansas Music Pavilion, Mercy Hospital NWA, John Q Hammons Center
3	Light Industrial/Industrial land uses, single family residential
4	Walmart Facilities, NWA Community College, single family residential
5	Single and Multi-family residential, dispersed commercial on periphery near highway/arterial infrastructure

Transit Need

Transit-Dependent Population

Transit-Dependent Population in the Bentonville/Rogers region is less concentrated than the other two fixed route regions in the study area. Regarding Bentonville and Rogers, the municipalities display a few concentrations which are listed below:

A. The block group west of I-49 and south of AR Hwy. 102 containing Bentonville High School and the Sam's Club Home Office

B. The block group east of I-49 and north of US Hwy. 71B

Figure 2.12 displays the Bentonville/Rogers Transit-Dependent Population.

Target Transit Rider Population

Concentrations of Target Transit Rider Population (TTRP) in Bentonville and Rogers are dispersed throughout both municipalities. The following areas currently contain the highest densities of TTRP (Figure 2.13):

A. West Bentonville/Centerton extending north of AR Hwy. 102

B. The block group north of US Hwy. 62, adjacent to Walmart HQ

C. The area west of I-49 containing Northwest Medical Center, Sam's Club Home Office, and Bentonville High School

D. Northwest Rogers bordered by US Hwy. 71B and AR Hwy. 94

E. The block groups north of US Hwy. 71B containing the Frisco Station mall

F. The block groups south of US Hwy. 71B containing the Rogers Walmart Supercenter and residential land uses

G. The area immediately west of US Hwy. 71B which contains Elmwood Middle School and the Rogers Health and Rehabilitation Center

H. The area east of US Hwy. 71B which contains Veterans Park, dense residential subdivisions, and other commercial and retail land uses

FIGURE 2.12: TRANSIT-DEPENDENT POPULATION PER ACRE BY BLOCK GROUP - BENTONVILLE/ROGERS

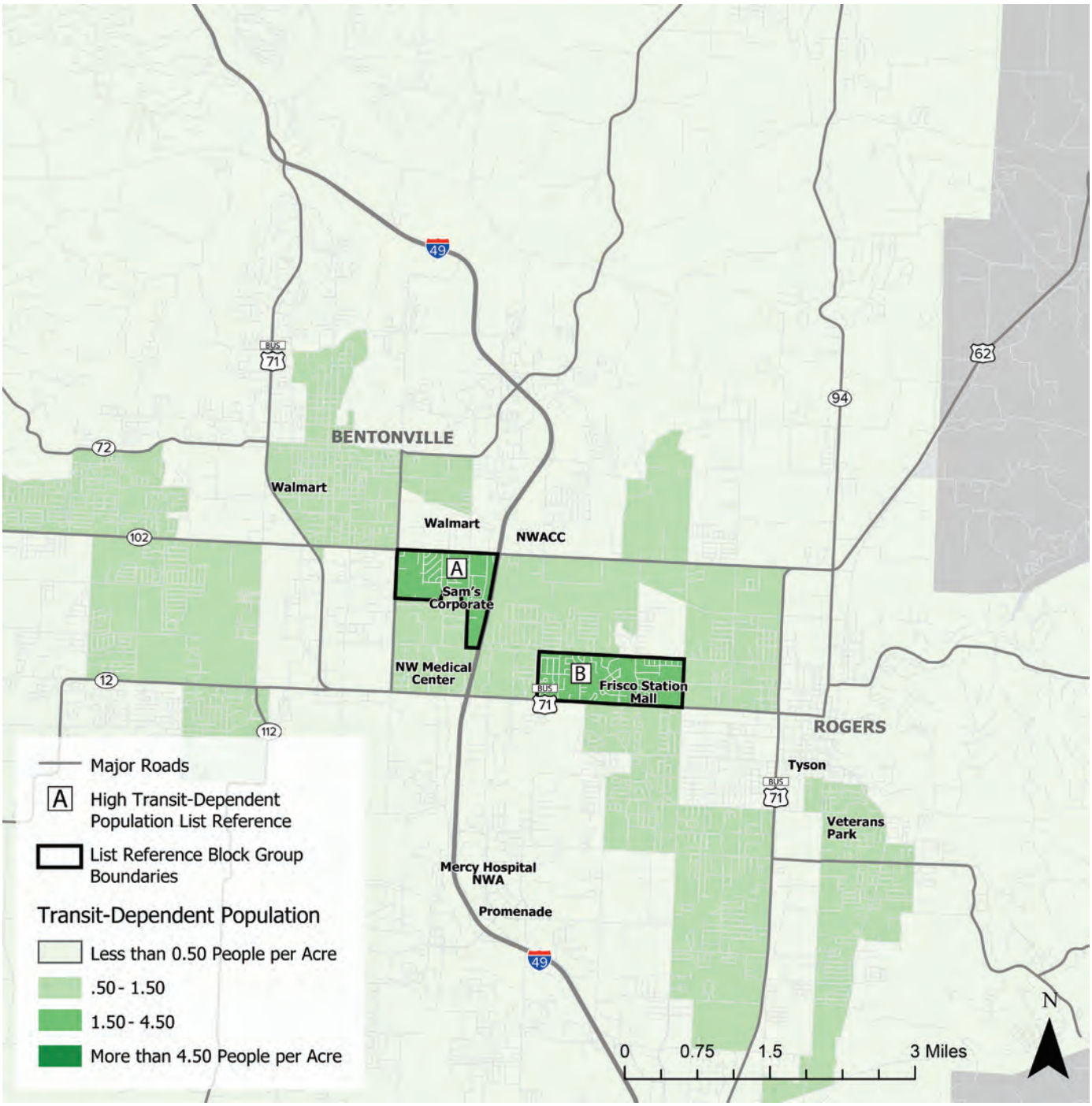
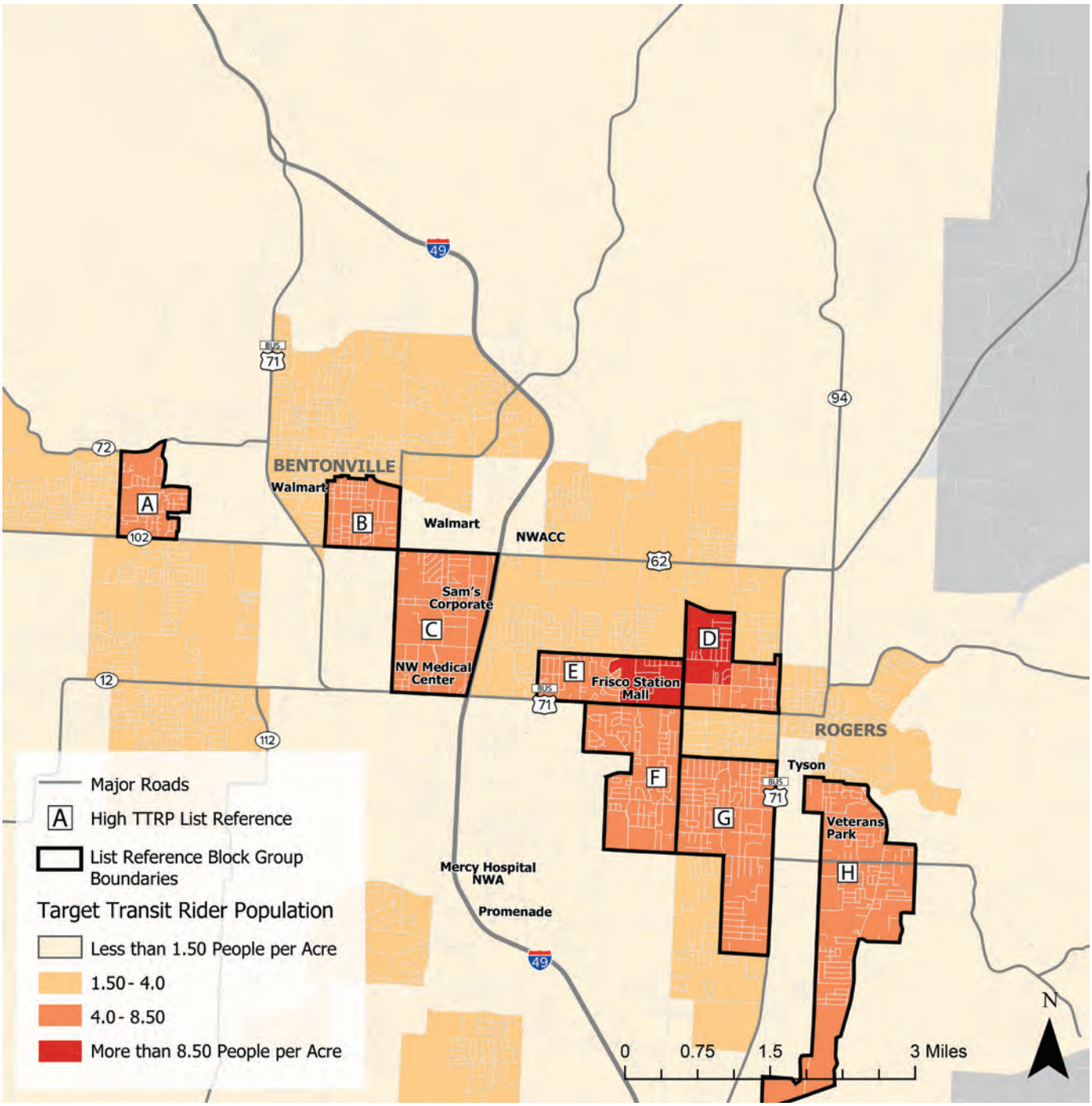


FIGURE 2.13: TARGET TRANSIT RIDER POPULATION PER ACRE BY BLOCK GROUP - BENTONVILLE/ROGERS



Transit Needs Index

Areas with high Transit Needs Index (TNI) values are dispersed throughout the Bentonville/Rogers fixed route region. Significant TNI values occur not only near/within the municipalities, but also in developments along highway infrastructure or in rural areas. The following lists high TNI areas in the Bentonville/Rogers fixed route region (Figure 2.14):

A. Bella Vista northwest of Bentonville

B. North Bentonville west of I-49 containing residential land uses and organizations such as the Boys and Girls Club

C. The block group south if AR Hwy. 102 and north of Northwest Medical Center, containing Bentonville High School and the Sam's Club Home Office

D. Northwest Rogers bordering US Hwy. 71B containing the Frisco Station Mall

E. Northeast Rogers

F. South Rogers along US Hwy. 71B

G. West Bentonville from AR Hwy. 72 to AR Hwy 112 south

Transit Supply & Gaps

The Bentonville/Rogers fixed route region currently provides relatively low transit supply to the current population. With an existing low level of service and block groups with significant TNI values, the fixed route region contains corridors which could possibly better serve those in need of transit. The following lists possible Transit Analysis Corridors:

A. SW. I St. (south of AR Hwy. 102) and AR Hwy. 12

B. SE. J St. extending south from AR Hwy. 102 towards Northwest Medical Center

C. W. Easy St.

D. The southern extension along US Hwy. 71B

Figure 2.15 displays transit supply and transit demand with the Transit Analysis Corridors highlighted (refer to methodology section for detailed explanation). Transit gaps are represented where an overlay of a significant TNI block group(s) and route with a low route score occurs.

FIGURE 2.14: SIGNIFICANT TRANSIT NEEDS INDEX BLOCK GROUPS - BENTONVILLE/ROGERS

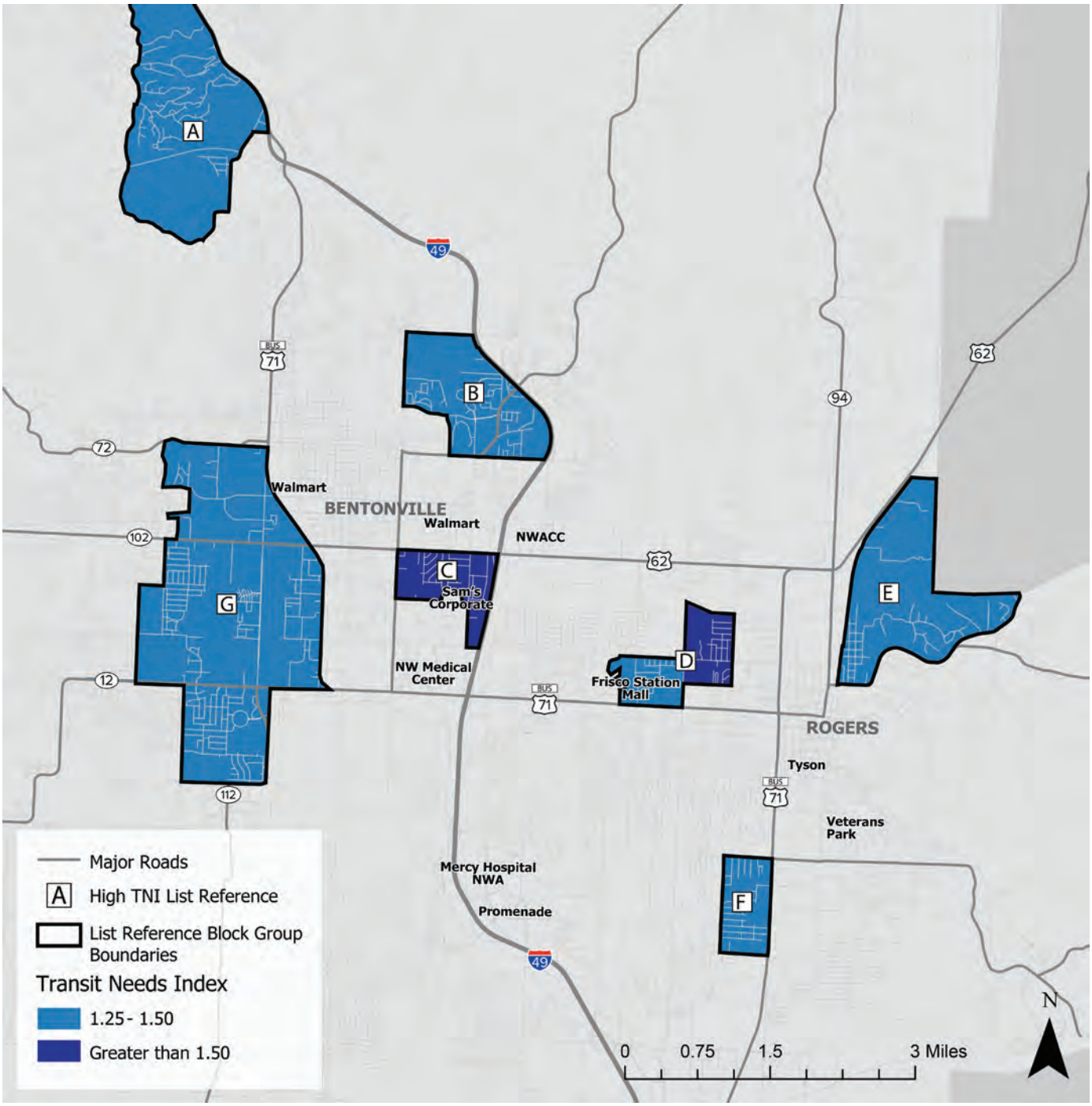
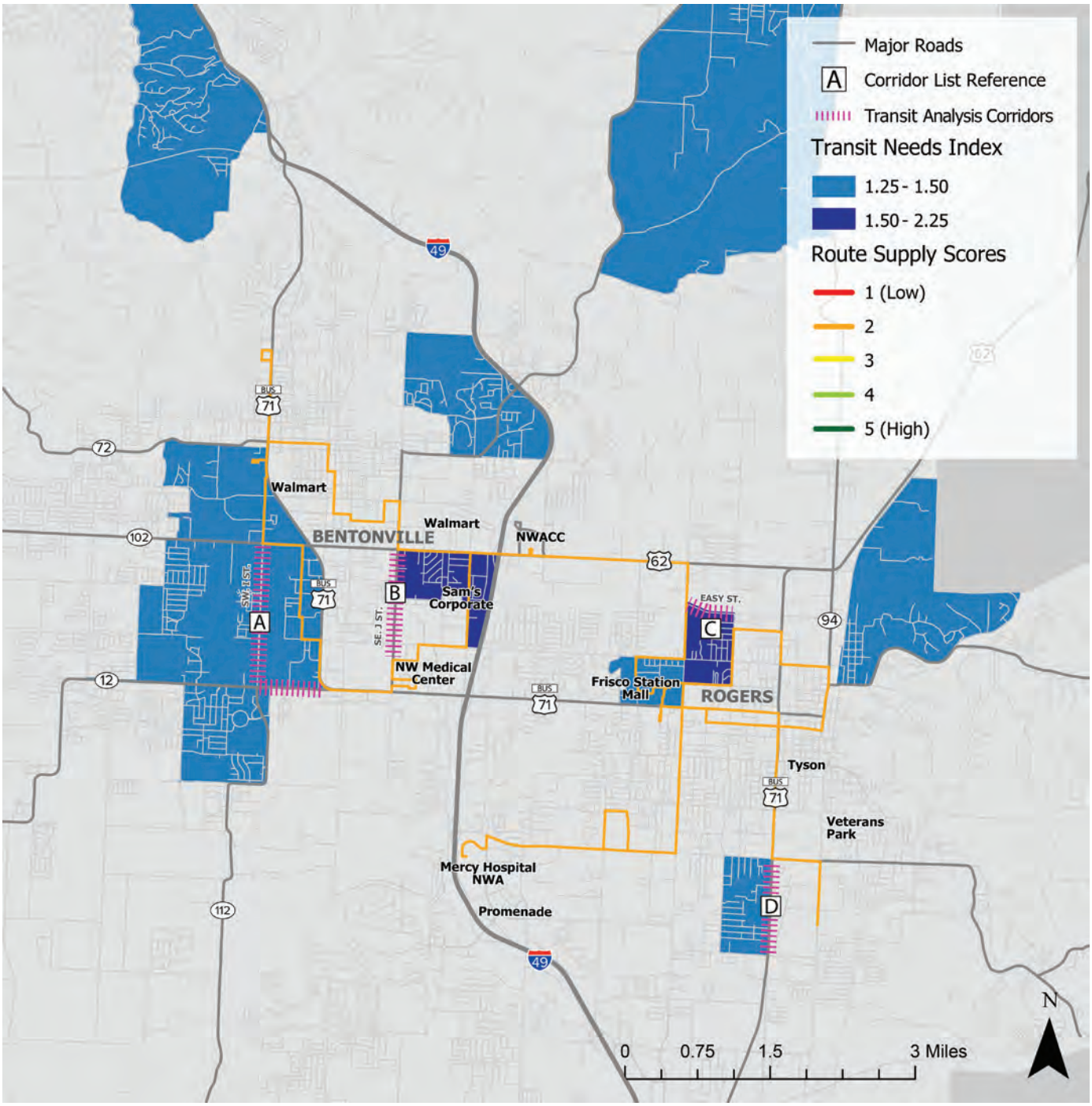


FIGURE 2.15: BENTONVILLE/ROGERS TRANSIT ANALYSIS CORRIDORS



SPRINGDALE

The Springdale fixed route region is central to the study area and currently contains three Ozark Regional Transit Route (#61/62/63) and provides connectivity with Razorback Transit (#26) at the Northwest Arkansas Mall. Table 2.4 displays the Springdale fixed route region's transit capture for population, employment, as well as Transit-Dependent Population and Target Transit Rider Population (TTRP) measures. All measures are also represented by the study area's regional transit service walkshed capture (the given measure's amount captured within the quarter-mile walkshed for Ozark Regional Transit and Razorback Transit services found in the region).

Transit Potential

Population Density

Springdale displays moderate to high population density throughout the region, and contains potential in the following areas (Figure 2.16):

A. The residential area north of US Hwy. 412 and west of US HWY. 71B which contains the Elmdale Elementary School, Westwood Elementary School, and is adjacent to Springdale High School and the Tyson Information Systems office

B. North Springdale along the US Hwy. 71B corridor containing residential and industrial land uses, including Tyson distribution facilities

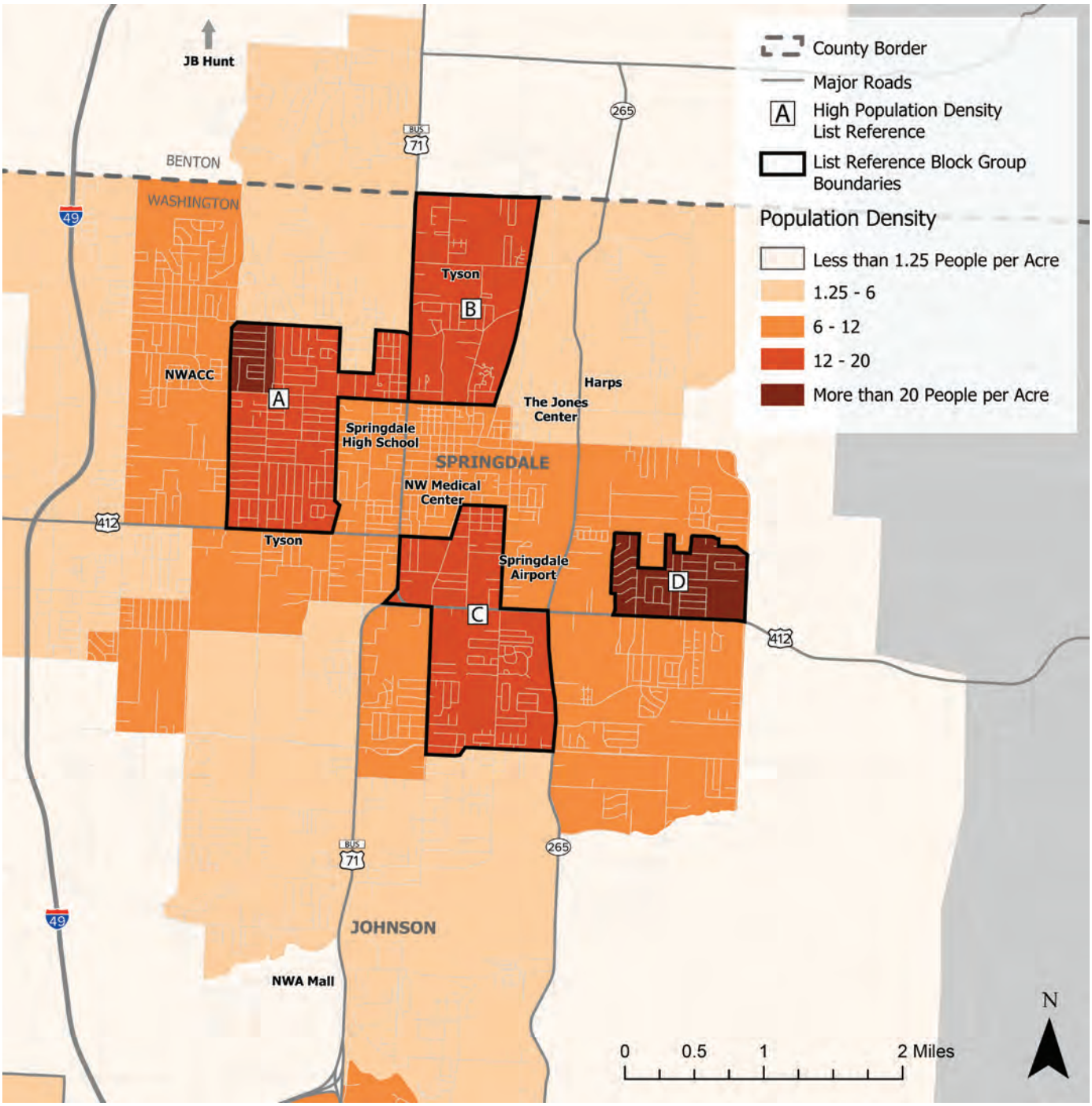
C. The block groups both north and south of US Hwy. 412 containing dense residential land use, as well as George Elementary School, and George Junior High School; this area is adjacent to the Springdale Airport

D. The area east of AR Hwy. 265 containing dense residential land use and Parsons Hills Elementary School

TABLE 2.4: SPRINGDALE FIXED ROUTE REGION TRANSIT DEMAND

	SPRINGDALE FIXED ROUTE REGION	WITHIN TRANSIT WALKSHED	% COVERED BY TRANSIT
TOTAL POPULATION	79,566	19,816	25%
TOTAL EMPLOYMENT	37,707	15,637	41%
TRANSIT-DEPENDENT POPULATION	15,780	4,480	28%
TARGET TRANSIT RIDER POPULATION	82,305	23,344	28%

FIGURE 2.16: SPRINGDALE FIXED ROUTE REGION POPULATION DENSITY BY ACRE



Employment Density

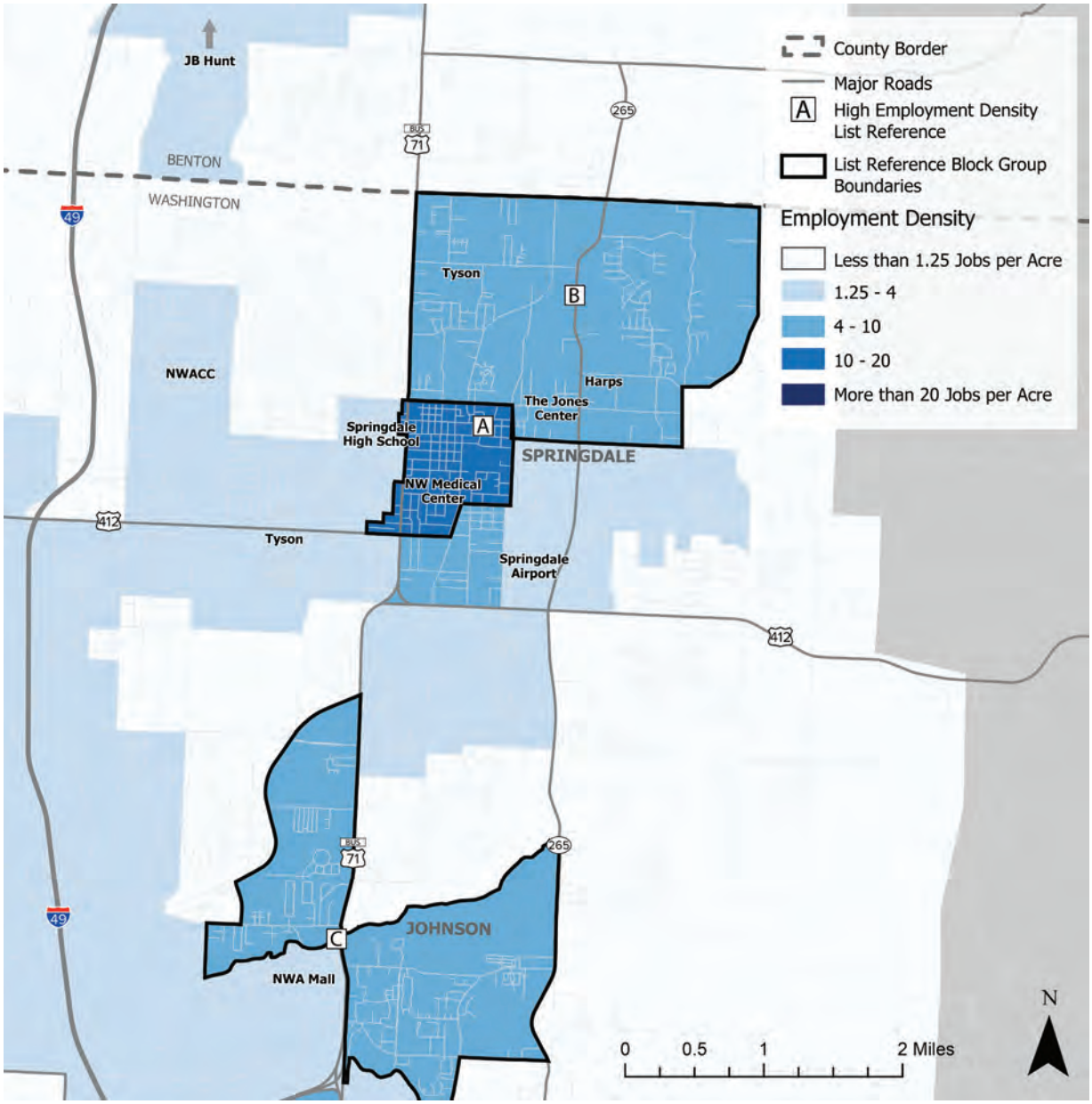
Employment density in the Springdale fixed route region is centralized and typically follows the US Hwy. 71B corridor. The following lists potential market areas based on employment density (Figure 2.17):

A. The area directly east of US Hwy. 71B containing commercial/retail and Northwest Medical Center – Springdale

B. The area surrounding AR Hwy. 265, both east and west, containing industrial land uses including Tyson facilities

C. The Johnson area near the Northwest Arkansas Mall

FIGURE 2.17: SPRINGDALE FIXED ROUTE REGION EMPLOYMENT DENSITY BY ACRE



Top Potential Markets

In order to further understand potential markets in the Springdale fixed route region, population and employment totals were combined and ranked to identify specific block groups with high transit potential. Figure 2.18 displays the region's top potential market areas based on housing and job availability. Table 2.5 lists key destinations/characteristics within each block group.

FIGURE 2.18: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - SPRINGDALE FIXED ROUTE REGION

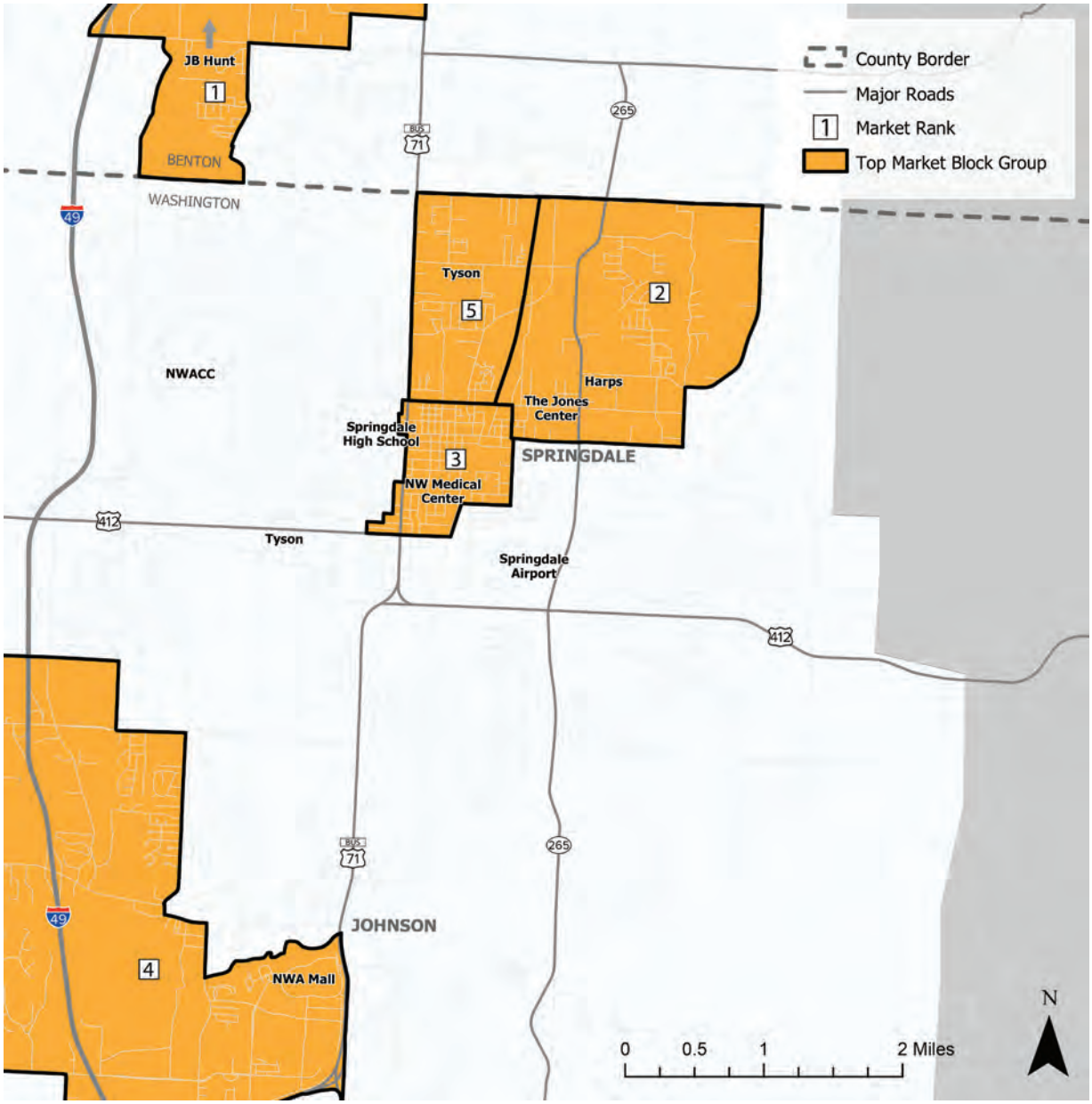


TABLE 2.5: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - SPRINGDALE FIXED ROUTE REGION

RANK	KEY DESTINATIONS & CHARACTERISTICS
1	Commercial and light industrial (including JB Hunt Facilities due north in Lowell), single family residential
2	Light industrial including Harps Distribution Center, dense single family residential, the Jones Center
3	Downtown Springdale
4	The NWA Mall and both single family/multi-family residential
5	Light industrial including Tyson Foods facilities

Transit Need

Transit-Dependent Population

The Springdale fixed route region contains the highest density Transit-Dependent Population concentration block groups in the study area. These areas are listed below (Figure 2.19):

A. The block group east of US Hwy. 71B (containing Tyson distribution facilities) with subdivision development surrounded by industrial land uses

B. Block groups north of US Hwy. 412 containing Elmdale and Westwood elementary schools, as well as residential land uses

C. The area block groups surrounding US Hwy. 412 containing a mix of commercial, retail, and residential land uses, with George Elementary and Junior High schools

D. The area north of US Hwy. 412, which contains dense residential development in the lower portion and industrial land uses in the upper portion

Target Transit Rider Population

Similar to Transit-Dependent Population, the Springdale fixed route region displays the highest concentrations of Target Transit Rider Population (TTRP) density in the study area. Areas within this region containing significant TTRP densities include the following (Figure 2.20):

A. The residential area north of US Hwy. 412 and west of US Hwy. 71B which contains the Elmdale Elementary School, Westwood Elementary School, and is adjacent to Springdale High School and the Tyson Information Systems office

B. The block groups both north and south of US Hwy. 412 containing dense residential land use, as well as George Elementary School and George Junior High School (adjacent to the Springdale Airport)

C. The area east of AR Hwy. 265 containing dense residential land use and Parsons Hills Elementary School

FIGURE 2.19: TRANSIT-DEPENDENT POPULATION PER ACRE BY BLOCK GROUP - SPRINGDALE

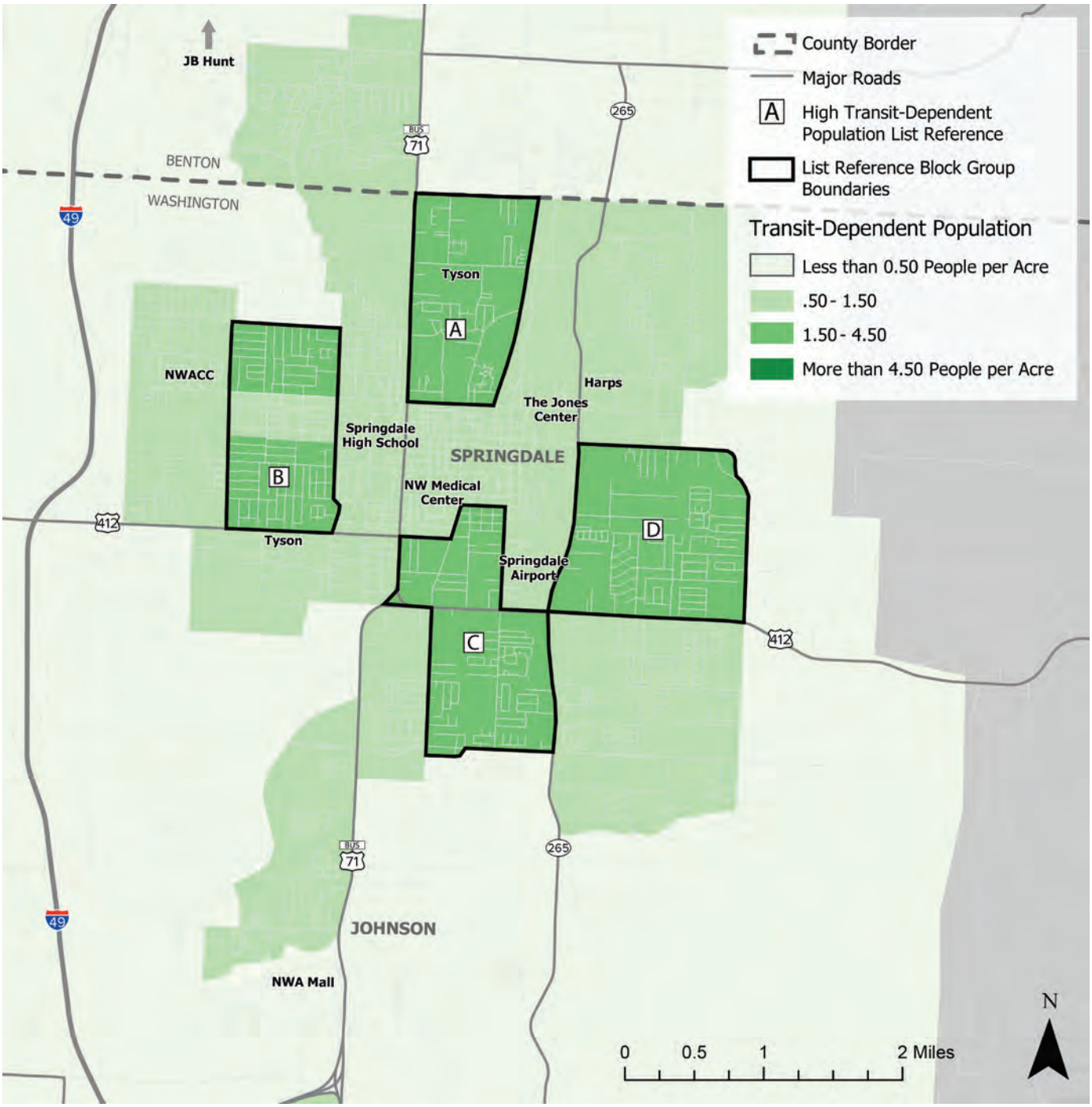
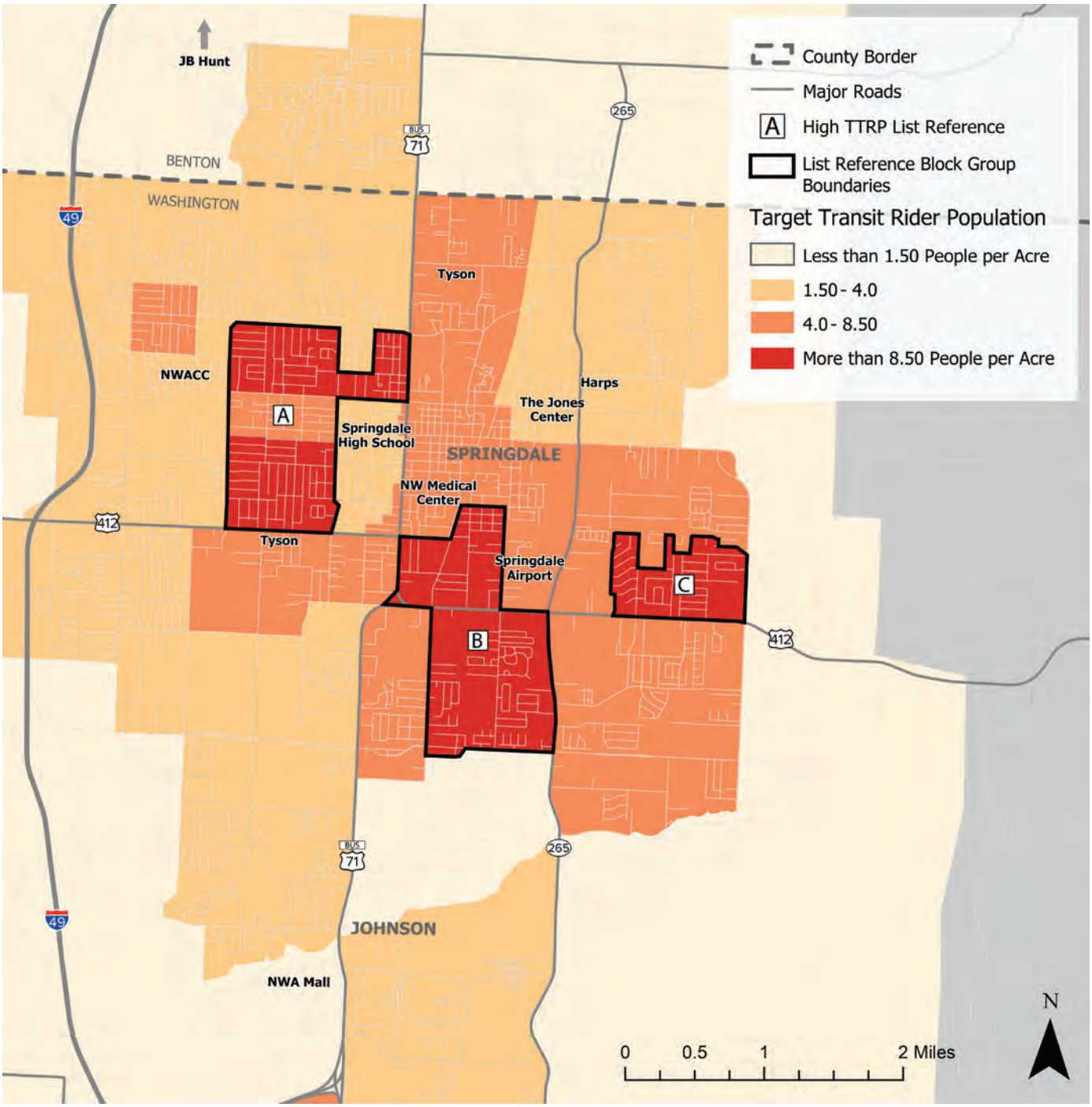


FIGURE 2.20: TARGET TRANSIT RIDER POPULATION PER ACRE BY BLOCK GROUP - SPRINGDALE



Transit Needs Index

This fixed route region contains the most contiguous high Transit Needs Index (TNI) block groups out of the entire study region. The majority of Springdale has a TNI value of 1.25 or higher, suggesting most of the City has more Transit -Dependent Population and TTRP population than total block group population. The areas with the most significant TNI values are listed below (Figure 2.21):

A. Land adjacent to the AR Hwy. 265 corridor throughout Springdale, containing Harps distribution, the Jones Center, and the Springdale Airport

B. Land adjacent to US Hwy. 71B (containing Tyson distribution facilities) with subdivision development surrounded by industrial land uses

C. The area west of US Hwy. 71B and south of US Hwy. 412, containing the Tyson Information Systems office

D. The area east of AR Hwy. 265 containing dense residential land use and Parsons Hills Elementary School

E. The dense residential development north of the Springdale NWACC campus

Transit Supply & Gaps

The region has the highest concentration of significant TNI block groups, and therefore provides more Transit Analysis Corridors than the other two regions. Corridors that do not connect existing routes have been included into block groups that currently have no transit connectivity. This may allow for further analysis and a better understanding of these block groups with high transit needs. The following lists Transit Analysis Corridors in the Springdale region:

A. Along US Hwy. 71B from Backus Ave. north to County Line Rd.

B. Randall Wobbe Ln. from US Hwy. 71B to AR Hwy. 265

C. Along AR Hwy. 265 from Freezer Dr. to County Line Rd.

D. AR Hwy. 265 from the Jones Center south to US Hwy. 412

Figure 2.22 displays the region's transit supply and transit demand with the Transit Analysis Corridors highlighted (refer to methodology section for detailed explanation). Major gaps are represented where an overlay of a significant TNI block group(s) and route with a low route score occurs.

FIGURE 2.21: SIGNIFICANT TRANSIT NEEDS INDEX BLOCK GROUPS - SPRINGDALE

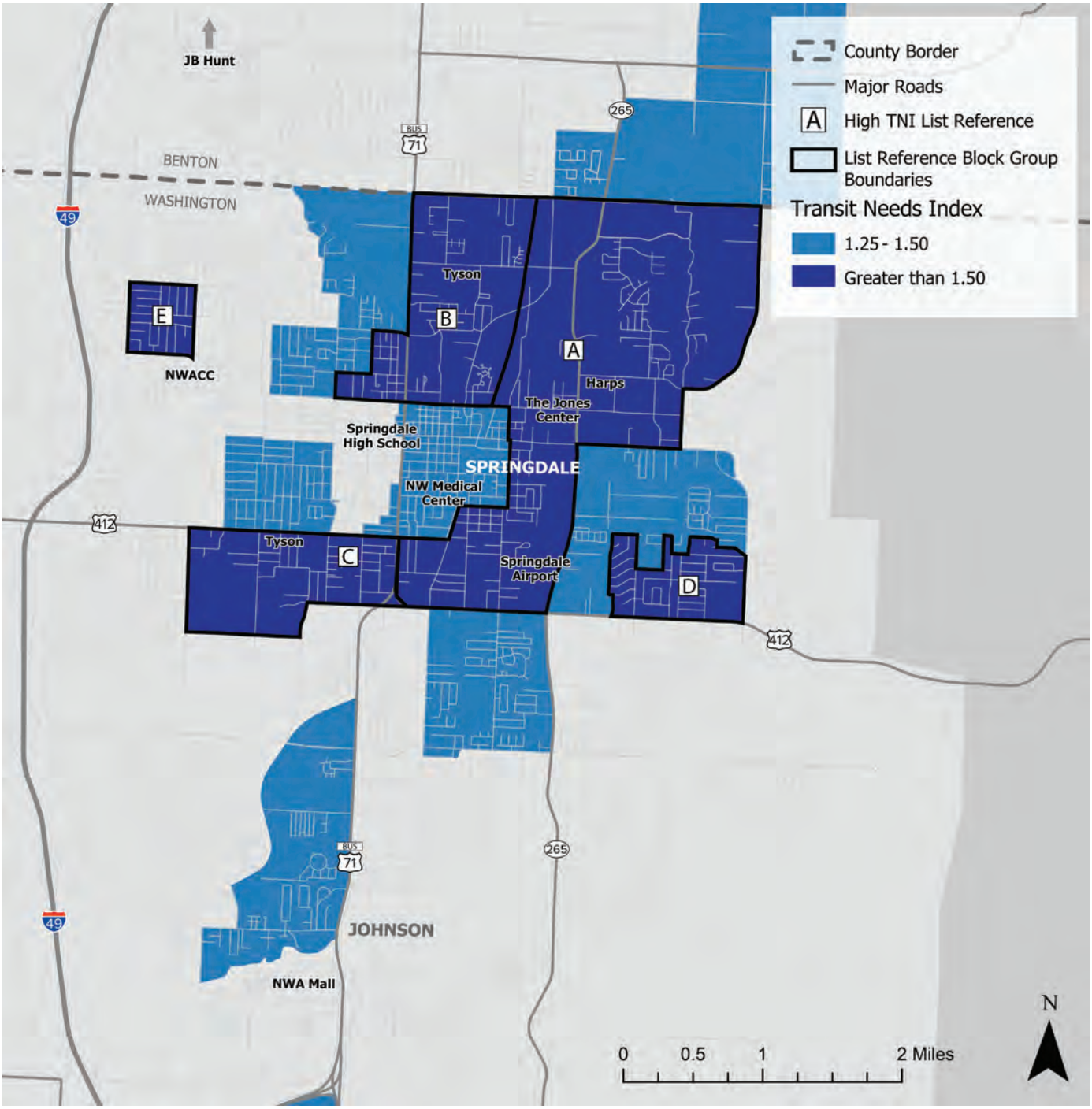
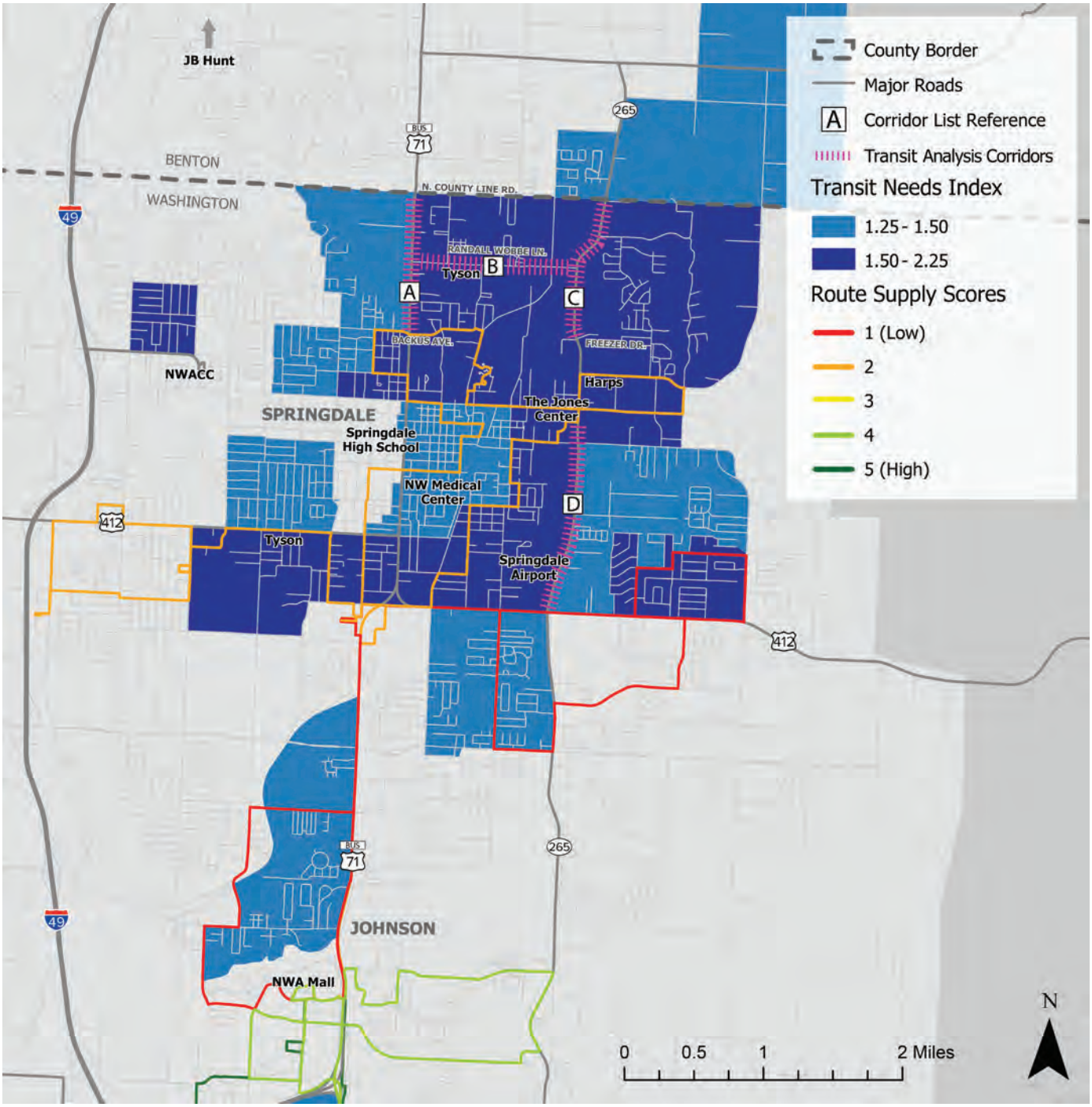


FIGURE 2.22: SPRINGDALE TRANSIT ANALYSIS CORRIDORS



FAYETTEVILLE

The Fayetteville fixed route region is the study area's most populous city. The University of Arkansas campus in Fayetteville contributes to both population and employment in the region. The region contains all Razorback Transit routes, and three Ozark Regional Transit routes (#10/20/30). Razorback Transit provides connectivity to Ozark Regional Transit through Route 26 which connects at the Northwest Arkansas Mall. Table 2.6 below displays the Fayetteville fixed route region capture for population, employment, as well as Transit-Dependent Population and Target Transit Rider Population (TTRP) measures. All measures are also represented by the study area's regional transit service walkshed capture (the given measure's amount captured within the quarter-mile walkshed for Ozark Regional Transit and Razorback Transit services found in the region).

Transit Potential

Population Density

The highest population densities in the region area around the University of Arkansas campus. The following lists specific areas with transit potential due to substantial population density (Figure 2.23):

A. The University of Arkansas campus and the adjacent block groups containing a mixture of residential, commercial, and retail land uses (e.g. Dickson Street), and Fayetteville High School

B. Block groups containing dense single and multi-family residential land uses north of the University of Arkansas campus along AR Hwy. 112 and AR Hwy. 16

C. North Fayetteville west of US Hwy. 71B containing dense residential land use adjacent to the block group containing Washington Regional Medical Center

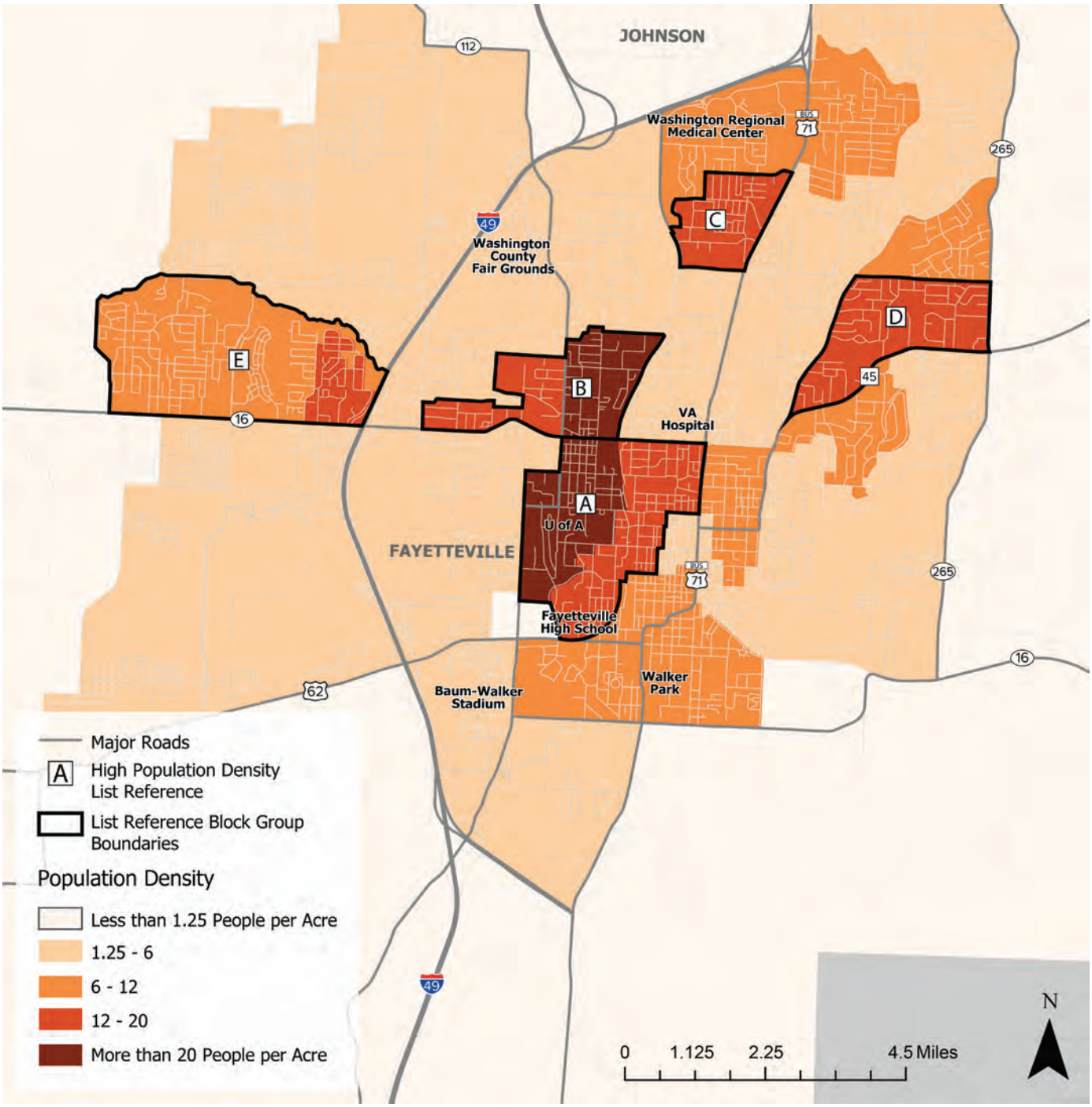
D. Northeast Fayetteville with majority residential land use

E. West Fayetteville adjacent to I-49 containing dense single and multi-family residential developments

TABLE 2.6: FAYETTEVILLE FIXED ROUTE REGION TRANSIT DEMAND

	FAYETTEVILLE FIXED ROUTE REGION	WITHIN TRANSIT WALKSHED	% COVERED BY TRANSIT
TOTAL POPULATION	78,207	31,341	40%
TOTAL EMPLOYMENT	62,080	18,698	30%
TRANSIT-DEPENDENT POPULATION	16,458	10,147	62%
TARGET TRANSIT RIDER POPULATION	53,143	20,688	39%

FIGURE 2.23: FAYETTEVILLE FIXED ROUTE REGION POPULATION DENSITY BY ACRE



Employment Density

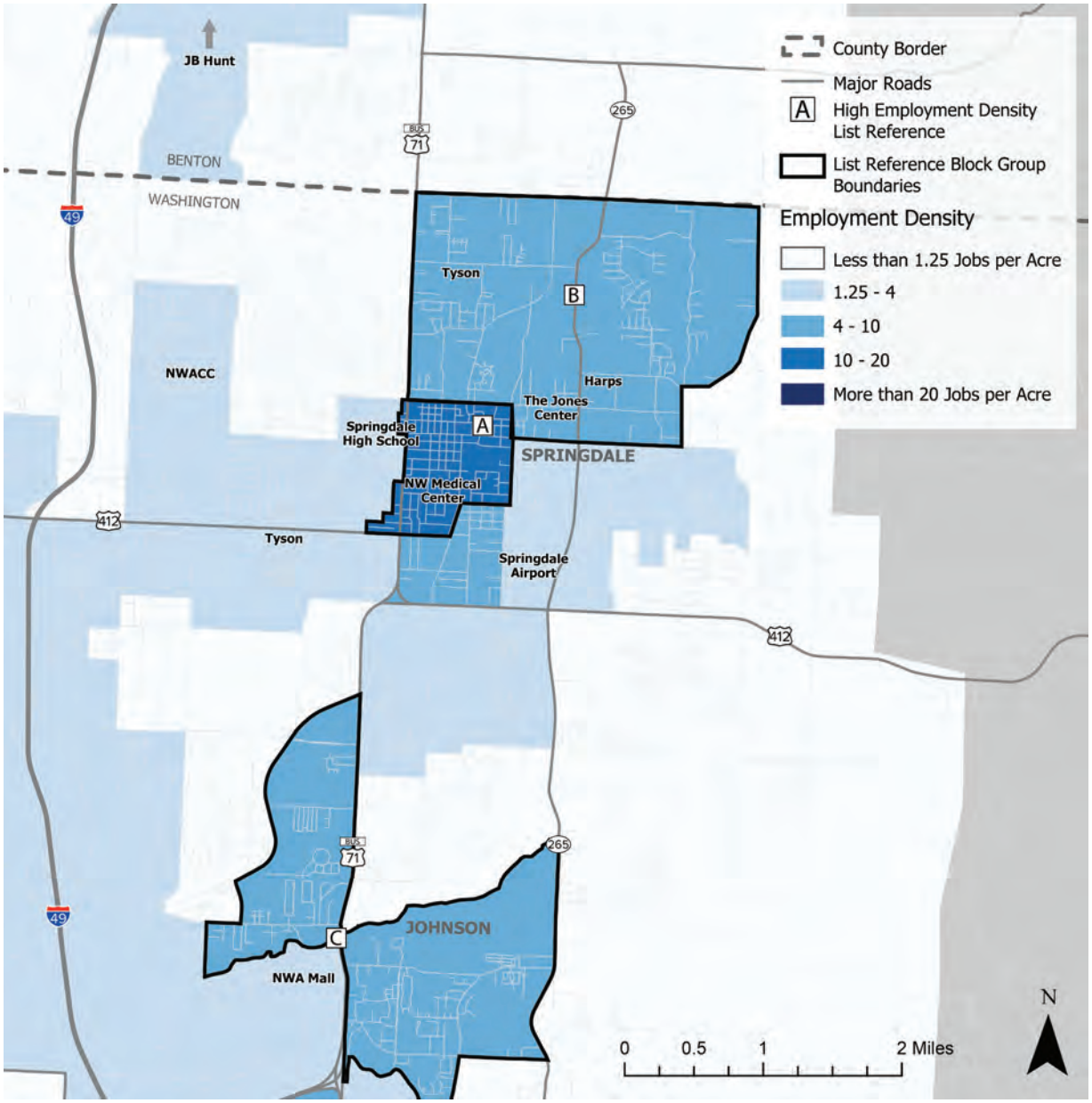
Figure 2.24 displays the Fayetteville fixed route region's employment density. The University of Arkansas provides the most significant employment density, and therefore will continue to be seen as a strong transit market. The following lists Fayetteville's strongest markets:

A. The University of Arkansas

B. The area east/southeast adjacent to the University campus including Dickson St. and Downtown Fayetteville

C. North Fayetteville extending north of AR Hwy. 16 west of US Hwy. 71B, including the VA Hospital and Washington Regional Medical Center

FIGURE 2.24: FAYETTEVILLE FIXED ROUTE REGION EMPLOYMENT DENSITY BY ACRE



Top Potential Markets

In order to further understand potential markets in the Fayetteville fixed route region, population and employment totals were combined and ranked to identify specific block groups with high transit potential. Figure 2.25 displays the region's top potential market areas based on housing and job availability. Table 2.7 lists key destinations/characteristics within each block group.

FIGURE 2.25: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - FAYETTEVILLE FIXED ROUTE REGION

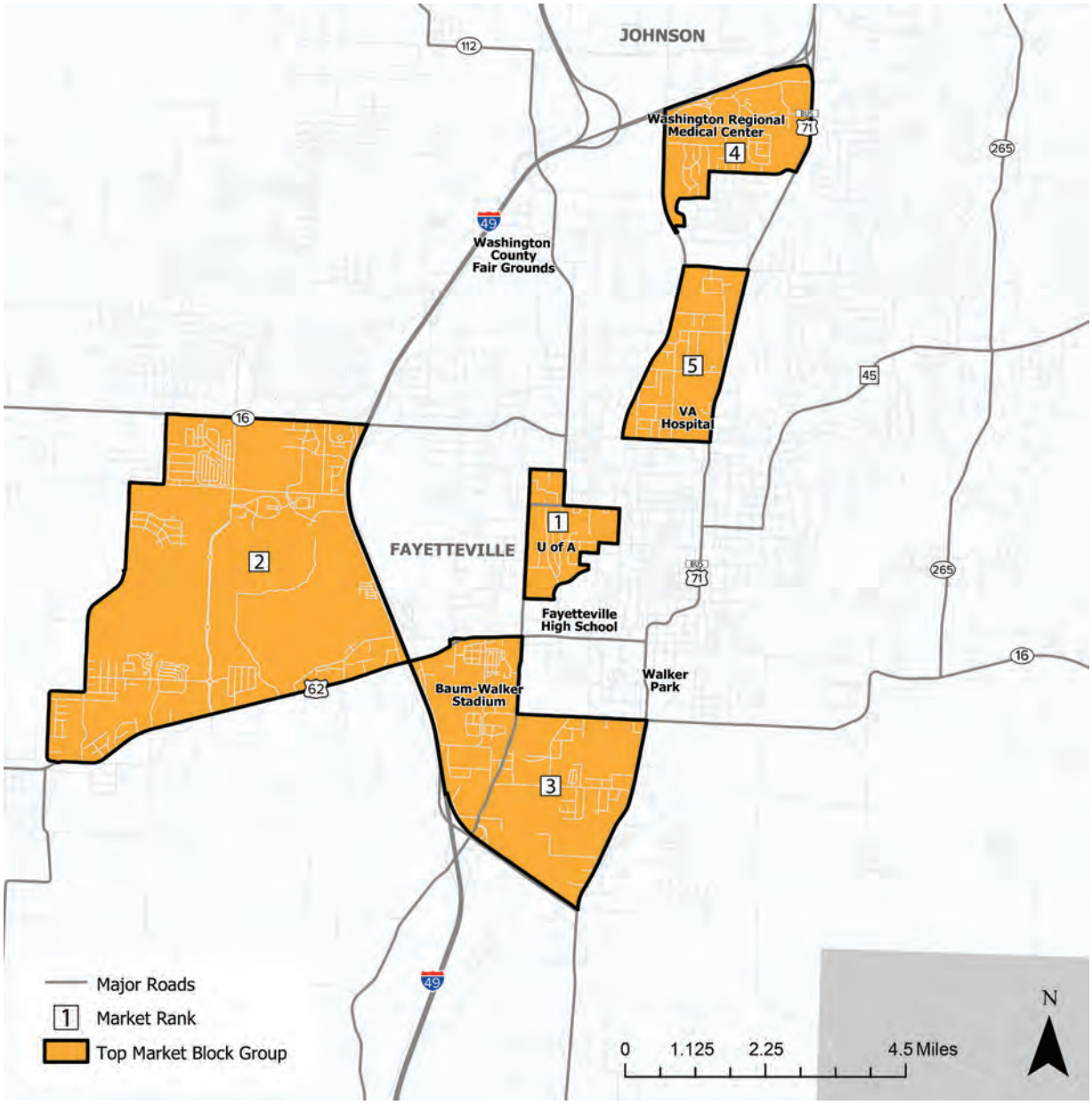


TABLE 2.7: TOP POTENTIAL TRANSIT MARKET BLOCK GROUPS - FAYETTEVILLE FIXED ROUTE REGION

RANK	KEY DESTINATIONS & CHARACTERISTICS
1	The University of Arkansas
2	Commercial/retail centers, single family, multi-family residential
3	Light Industrial/industrial land uses, large multi-family residential complexes, Baum Walker Stadium
4	Washington Regional Medical Center, single and multi-family residential
5	VA Hospital, commercial/retail centers, single family residential

Transit Need

Transit-Dependent Population

The Fayetteville fixed route region displays Transit-Dependent Population density concentrated around the University of Arkansas campus. This is by far the densest Transit-Dependent Population area in the study area. The following lists all areas where significant Transit-Dependent Population densities are located (Figure 2.26):

A. The University of Arkansas and the block groups immediately north containing dense residential land use

B. Block groups adjacent east of campus containing Fayetteville High School and mixed-use development such as the Dickson St. corridor

C. The area north of AR Hwy. 16 containing majority residential land use

Target Transit Rider Population

The Fayetteville fixed route region also shows high density Target Transit Rider Population (TTRP) areas in central locations. However, areas west of the downtown core appear to contain TTRP as well. The following lists areas with significant TTRP (Figure 2.27):

A. The area north of campus containing dense residential land use

B. Block groups containing the University of Arkansas, Dickson St., Downtown Fayetteville, and Fayetteville High School

C. North Fayetteville east of US Hwy. 71B containing a mixture of land uses, including several medical facilities (e.g. Washington Regional Medical Center)

D. West Fayetteville adjacent to I-49 and north of AR Hwy. 16 containing dense single and multi-family residential developments

FIGURE 2.26: TRANSIT-DEPENDENT POPULATION PER ACRE BY BLOCK GROUP - FAYETTEVILLE

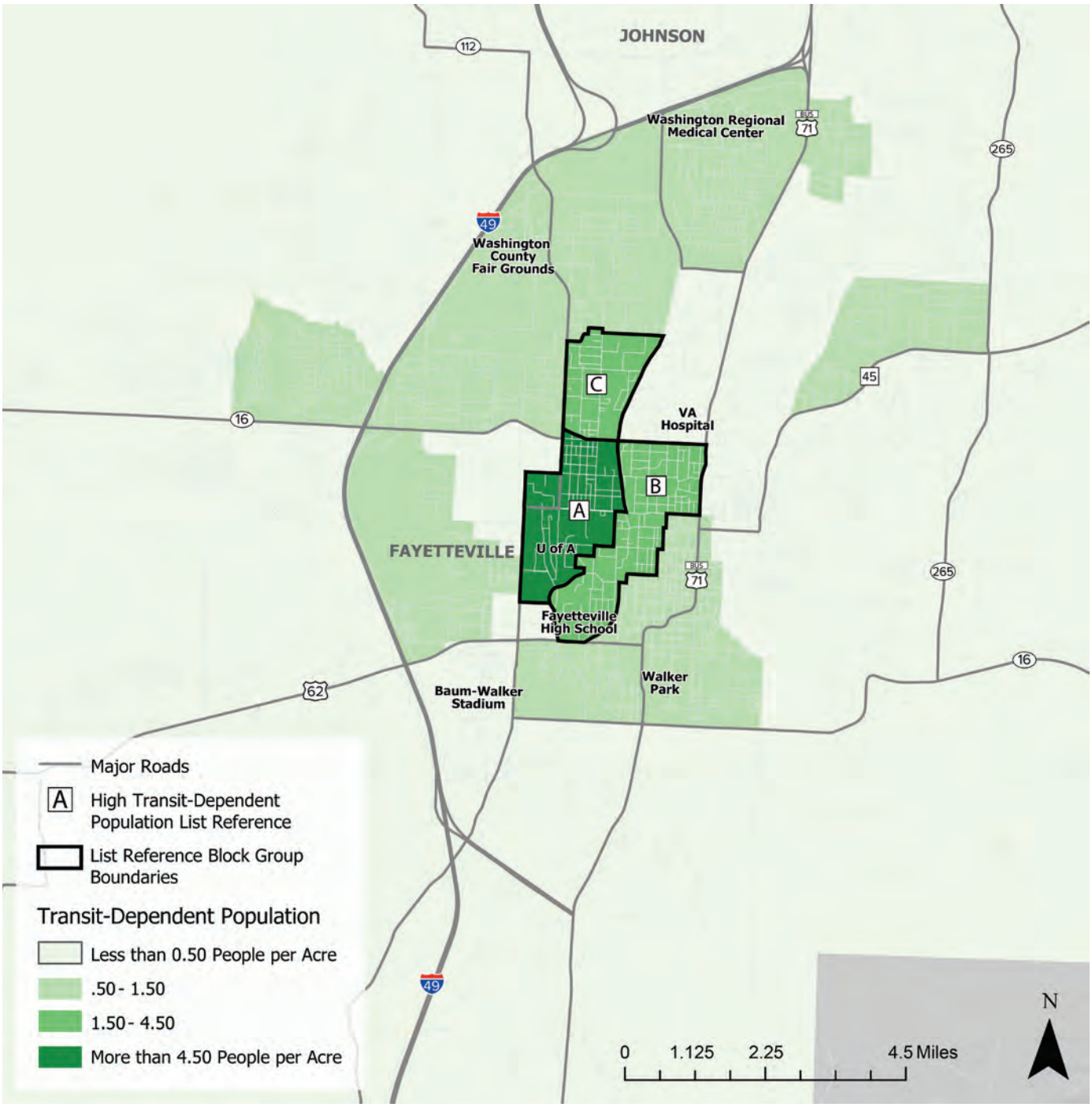
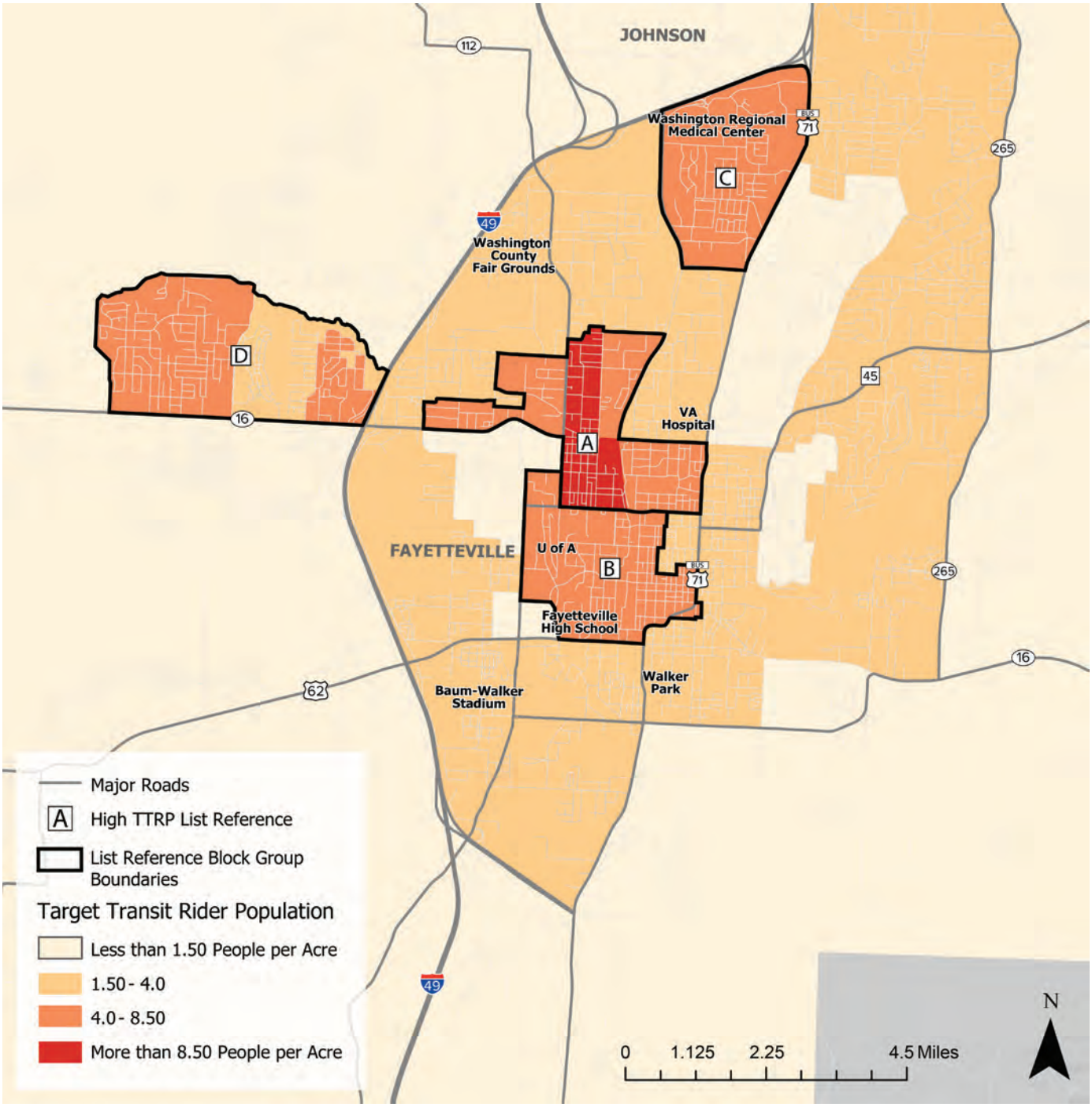


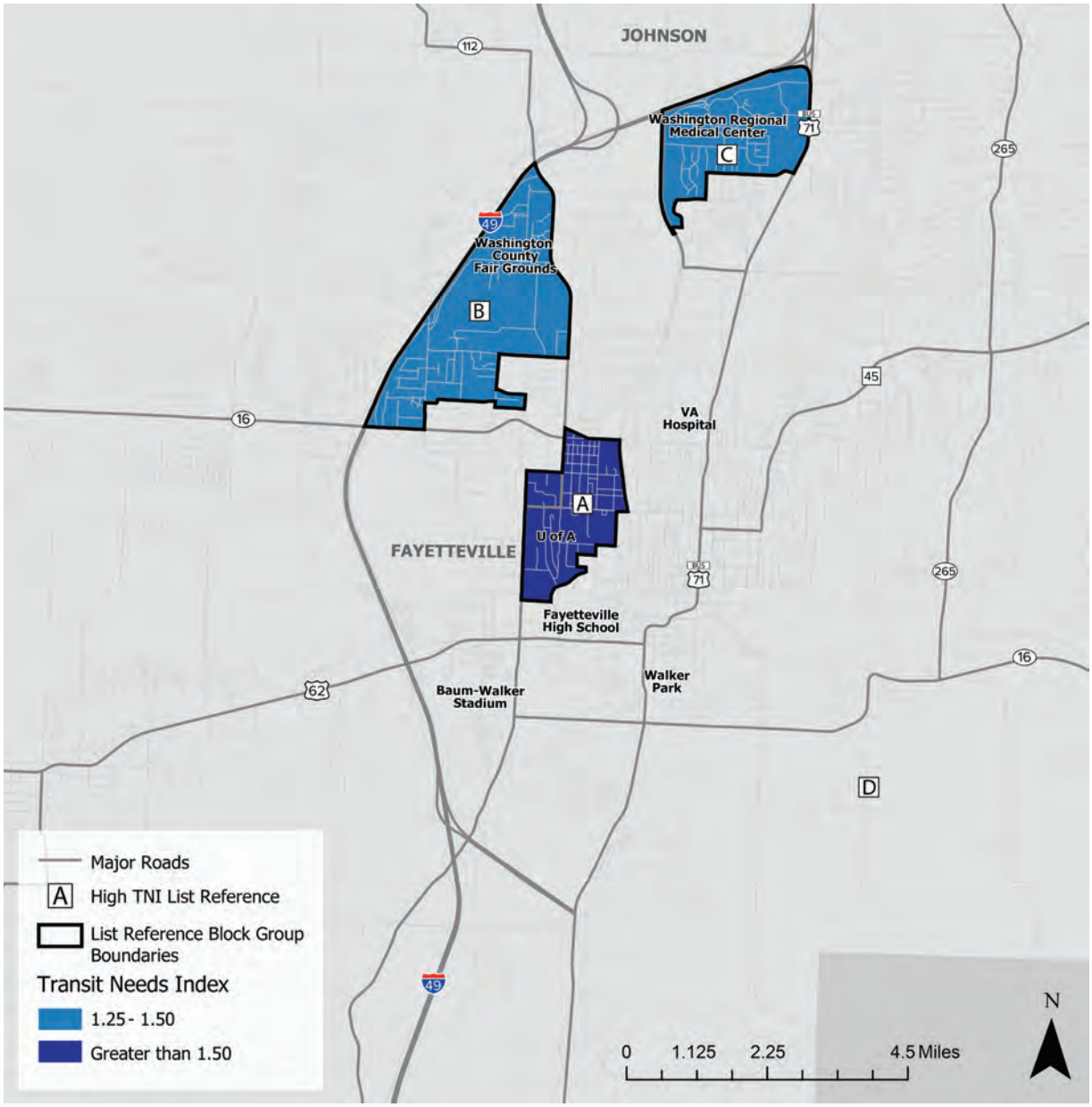
FIGURE 2.27: TARGET TRANSIT RIDER POPULATION PER ACRE BY BLOCK GROUP - FAYETTEVILLE



Transit Needs Index

The Fayetteville region contains fewer significant Transit Needs Index (TNI) value block groups than other regions in the study area. However, the fixed route region does contain the block groups within and adjacent to the University of Arkansas campus which includes some of the highest need block groups regarding public transportation. Other significant areas include block groups following the I-49 corridor as well as the Business 71 corridor, and southeast Fayetteville (Figure 2.28).

FIGURE 2.28: SIGNIFICANT TRANSIT NEEDS INDEX BLOCK GROUPS - FAYETTEVILLE

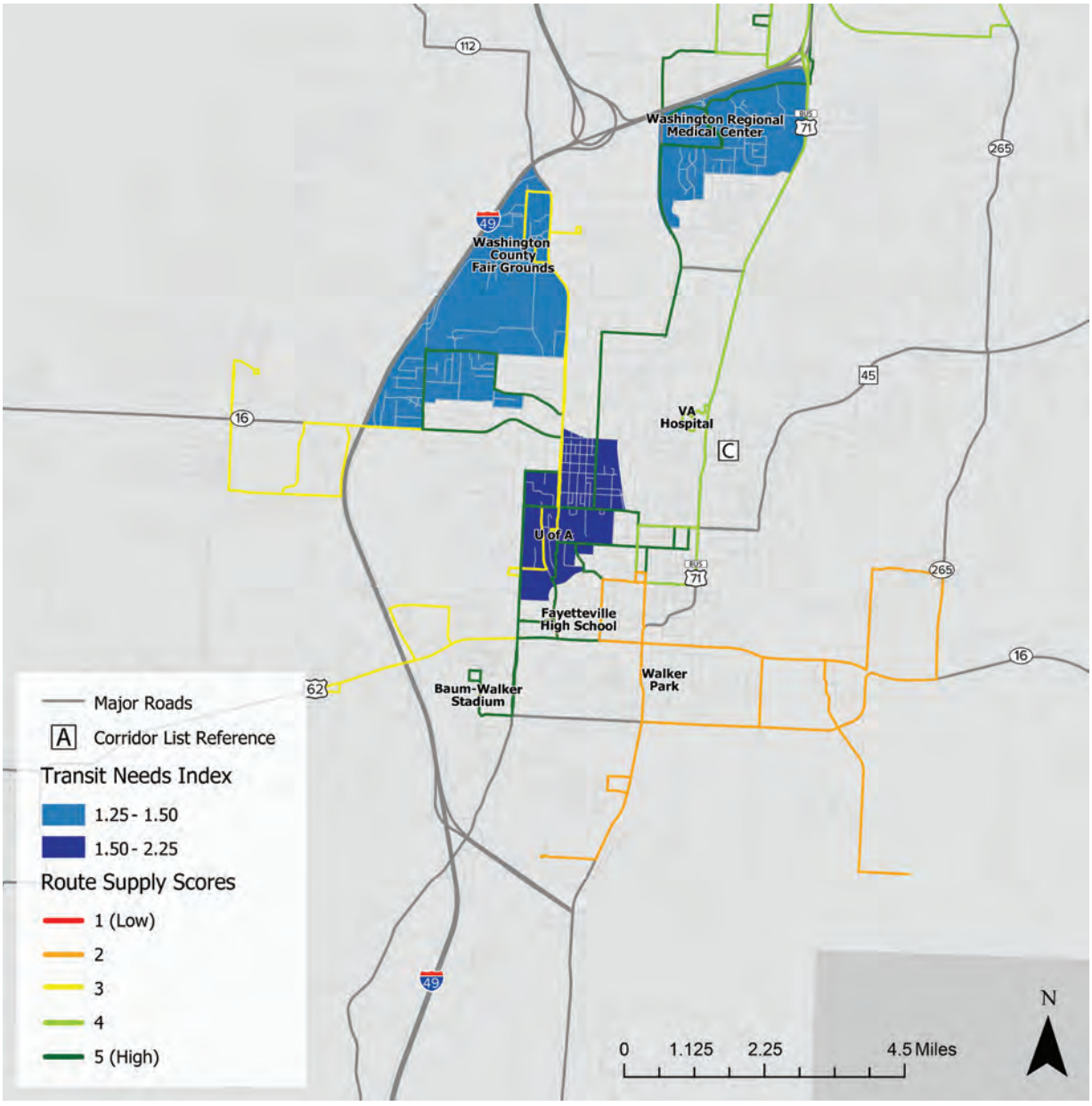


Transit Supply Gaps

The Fayetteville region has fewer high value TNI block groups paired with higher quality transit supply. No specific corridors have been highlighted as there are no obvious thoroughfares where transit routes do not already exist.

Figure 2.29 displays TNI and existing transit route supply scores for the Fayetteville fixed route region (refer to methodology section for detailed explanation).

FIGURE 2.29: FAYETTEVILLE TRANSIT ANALYSIS CORRIDORS



FIXED ROUTE REGION KEY TAKEAWAYS

The following points provide key takeaways for the fixed route regions regarding transit propensity and demand:

- Population densities tend to be dispersed throughout the three fixed route regions with high densities surrounding the urban cores.
  - University of Arkansas is a driving force for centralized, high-density multi-family and mixed-use development.
- Employment densities in all fixed route regions tend to be concentrated centrally and or along highway/arterial roadway infrastructure.
  - Major employers and institutions (e.g. Walmart HQ and the University of Arkansas) generate the highest densities in the regions.
- It will be important to not only consider how to connect peripheral population densities (and central employment densities) within each fixed route region, but also how to connect these densities throughout the region.
- All the fixed route regions contain areas with high transit potential which are typically anchored by a mix of key destinations (e.g. event centers, medical facilities, employment centers, educational facilities) and residential land uses.
- The Fayetteville fixed route region contains the most significant Transit-Dependent Population densities (possibly caused by the University of Arkansas' population), suggesting the region contains many citizens who are limited to public transportation because of age or do not have access to a personal automobile.
- Springdale has the most significant Target Transit Rider Population, suggesting the highest concentration of citizens with social and physical mobility barriers.
  - Rogers also displays high concentrations of Target Transit Rider Population central to the city just not to the extent of the Springdale region).
- Springdale has the most significant and contiguous block groups with high Transit Needs Index scores.
- Due to the Springdale fixed route region's low transit supply scores, the area also has the most significant transit gaps in comparison to Bentonville/Rogers and Fayetteville.
- All three fixed route regions have transit gaps due to high demand and low supply, that warrant further analysis. Transit Analysis Corridors will be used to address the transit gaps and to inform decisions moving forward.

CONCLUSION

Due to Northwest Arkansas' unique characteristics which foster rapid economic and population growth, it is crucial that the study area focus on regional and local transit connectivity moving forward. This market analysis serves as a starting point to generate a fixed route system that better meets the community needs by identifying areas with transit potential based on existing population and employment, as well as markets that display transit demand through socio-economic data. All results will be used to inform the scenario development and service development/implementation tasks of the Transit Development Plan moving forward.

CHAPTER 3

OPERATIONAL ANALYSIS

CHAPTER 3: OPERATIONAL ANALYSIS

INTRODUCTION

Two transit providers, Ozark Regional Transit and Razorback Transit operate in the Northwest Arkansas (NWA) region. These agencies work in conjunction to move people safely and efficiently throughout the area. The following operational analysis discusses how both agencies provide regional and local connectivity and provides both system- and route-level analysis to generate a better understanding of the NWA region's existing transit service.

SYSTEM OVERVIEW

NWA is home to Ozark Regional Transit (ORT) and Razorback Transit (RT) that together provide service from Bentonville south to Fayetteville. ORT operates ten fixed routes throughout the entirety of the study area (i.e. the Bentonville, Rogers, Springdale, and Fayetteville regions), while Razorback Transit (RT) provides service to Fayetteville through nine fixed routes. The following subsections provide high-level system overviews, as well as discuss transit service provided by ORT and RT in the designated fixed route regions (Figure 3.1).

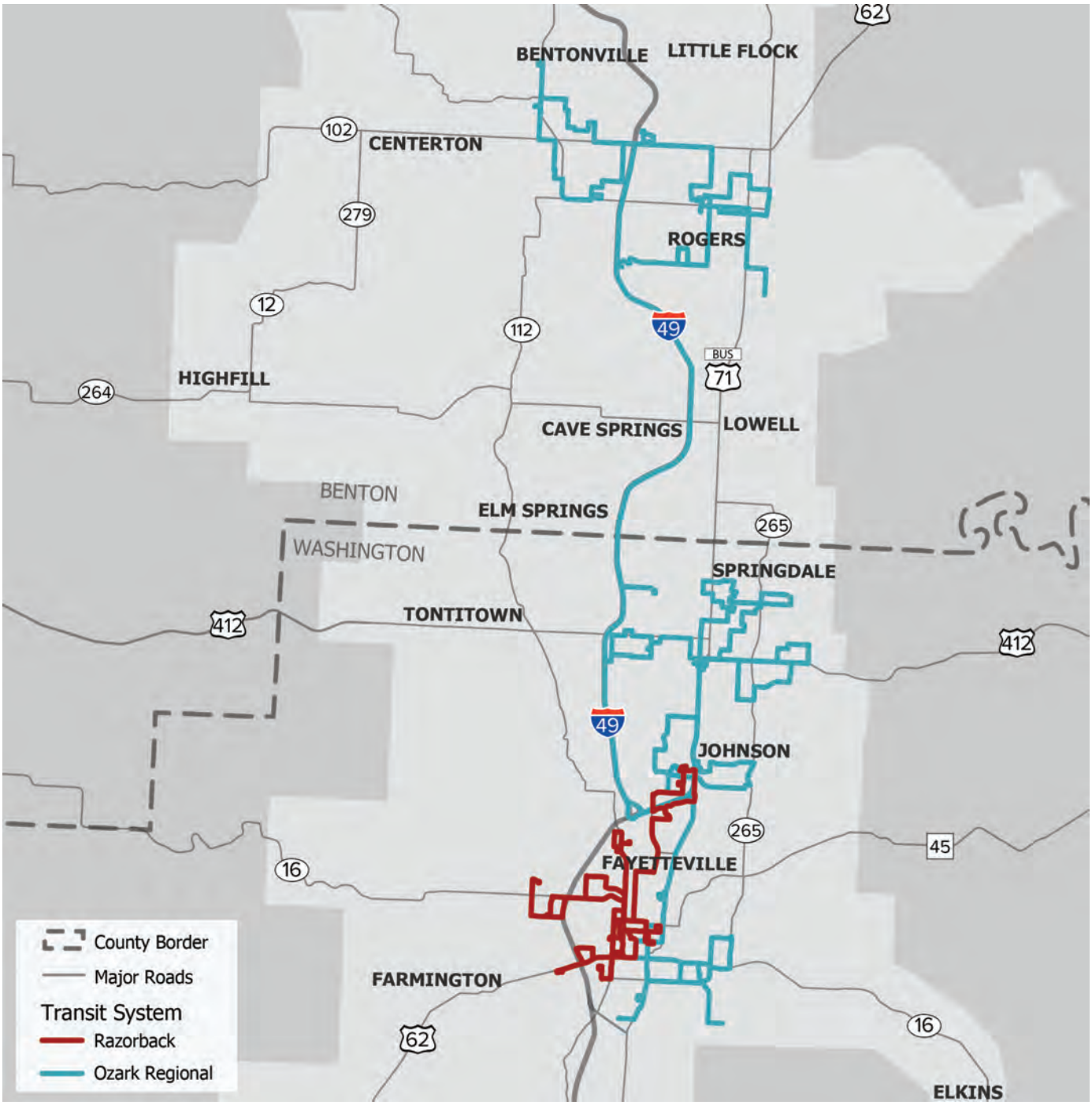
OZARK REGIONAL TRANSIT

ORT operates a total of 10 fixed routes based out of Springdale, however there is no dedicated transit center. Seven of the ORT routes run 60-minute frequencies (#11/20/51/52/61/62/63), two run 30-minute frequencies (#10/30), and Route 490 runs an extended frequency due to its commuter designation. All ORT routes run five days a week, Monday through Friday. Table 3.1 summarizes ORT's service characteristics.

TABLE 3.1: SUMMARY OF OZARK REGIONAL TRANSIT SYSTEM SERVICE

SERVICE NAME	SERVICE DAY(S)	SPAN OF SERVICE	SERVICE FREQUENCY
ROUTE 10	Monday - Friday	6:30 am - 7:30 pm	30 Minutes
ROUTE 11	Monday - Friday	7:05 am - 5:45 pm	60 Minutes
ROUTE 20	Monday - Friday	6:00 am - 7:30 pm	60 Minutes
ROUTE 30	Monday - Friday	6:30 am - 7:30 pm	30 Minutes
ROUTE 51	Monday - Friday	7:05 am - 5:35 pm	60 Minutes
ROUTE 52	Monday - Friday	7:05 am - 5:35 pm	60 Minutes
ROUTE 61	Monday - Friday	6:30 am - 7:30 pm	60 Minutes
ROUTE 62	Monday - Friday	5:45 am - 7:20 pm	60 Minutes
ROUTE 63	Monday - Friday	6:00 am - 4:22 pm	60 Minutes
ROUTE 490	Monday - Friday	7:00 am - 11:25 am 2:45 pm - 7:10 pm	> 60 Minutes

FIGURE 3.1: NWA REGION FIXED ROUTE SYSTEM



RAZORBACK TRANSIT

Razorback Transit (RT) currently operates a maximum of nine fixed routes which originate at the Union Station located on Garland Ave. just south of the University of Arkansas Student Union and east of Donald W. Reynolds Razorback Stadium. While RT provides fare-free service to all Fayetteville residents, level of service changes in relation to the University of Arkansas' academic calendar; accordingly, RT runs the maximum nine fixed routes during fall/spring sessions (referred to as "peak" service) and drops to seven fixed routes during Summer sessions and school breaks such as winter break (referred to as "non-peak" service). No service is provided Sundays, during University holidays, or any other days the campus is closed. Table 3.2 summarizes RT's service characteristics.

TABLE 3.2: SUMMARY OF RAZORBACK TRANSIT SYSTEM SERVICE

SERVICE NAME	SERVICE TYPE	SERVICE DAY(S)	SPAN OF SERVICE	SERVICE FREQUENCY
ROUTE 11	Peak	Monday - Friday	6:30 am - 6:00 pm	6 or 9 Minutes*
		Monday - Friday (Nights)	6:00 pm - 10:27 pm	40 Minutes*
		Saturday	7:20 am - 10:27 pm	40 Minutes*
	Non-Peak	Monday - Friday	N/A	N/A
		Saturday	N/A	N/A
ROUTE 13	Peak	Monday - Friday	7:00 am - 6:14 pm	15 or 30 Minutes*
		Monday - Friday (Nights)	6:30 pm - 10:09 pm	60 Minutes
		Saturday	7:30 am - 10:09 pm	30 or 60 Minutes*
	Non-Peak	Monday - Friday	7:00 am - 6:03 pm	30 Minutes
		Saturday	7:00 am - 6:03 pm	30 or 60 Minutes*
ROUTE 17	Peak	Monday - Friday	6:30 am – 6:00 pm	15
		Monday - Friday (Nights)	N/A	N/A
		Saturday	N/A	N/A
	Non-Peak	Monday - Friday	N/A	N/A
		Saturday	N/A	N/A
ROUTE 21	Peak	Monday - Friday	7:00 am - 6:00 pm	30 Minutes
		Monday - Friday (Nights)	6:00 pm - 10:39 pm	60 Minutes*
		Saturday	7:00 am - 10:39 pm	30 or 60 Minutes*
	Non-Peak	Monday - Friday	7:00 am - 5:55 pm	30 Minutes
		Saturday	7:00 am - 5:55 pm	30 or 60 Minutes*
ROUTE 26	Peak	Monday - Friday	6:15 am - 6:29 pm	15 Minutes*
		Monday - Friday (Nights)	6:00 pm - 10:39 pm	30 Minutes*
		Saturday	7:00 am - 10:09 pm	30 or 60 Minutes*
	Non-Peak	Monday - Friday	6:40 am - 6:20 pm	20 Minutes*
		Saturday	7:00 am - 6:20 pm	30 or 60 Minutes*

TABLE 3.2 CONTINUED: SUMMARY OF RAZORBACK TRANSIT SYSTEM

SERVICE NAME	SERVICE TYPE	SERVICE DAY(S)	SPAN OF SERVICE	SERVICE FREQUENCY
ROUTE 33	Peak	Monday - Friday	6:26 am - 6:29 pm	20 or 30 Minutes*
		Monday - Friday (Nights)	6:20 pm - 10:34 pm	40 Minutes*
		Saturday	7:00 am - 10:34 pm	40 Minutes*
	Non-Peak	Monday - Friday	7:10 am - 5:53 pm	30 Minutes
		Saturday	7:40 am - 10:49 pm	30 or 60 Minutes*
ROUTE 35	Peak	Monday - Friday	6:40 am - 6:07 pm	20 or 30 Minutes*
		Monday - Friday (Nights)	5:30 pm - 10:49 pm	40 Minutes*
		Saturday	6:50 am - 10:34 pm	40 Minutes
	Non-Peak	Monday - Friday	7:00 am - 6:04 pm	30 Minutes
		Saturday	7:00 am - 6:04 pm	30 Minutes*
ROUTE 44	Peak	Monday - Friday	6:30 am - 6:00 pm	15 or 30 Minutes*
		Monday - Friday (Nights)	6:00 pm - 10:39 pm	30 Minutes
		Saturday	7:30 am - 10:39 pm	30 Minutes*
	Non-Peak	Monday - Friday	7:00 am - 5:54 pm	30 Minutes
		Saturday	7:30 am - 5:54 pm	30 Minutes*
ROUTE 48	Peak	Monday - Friday	6:15 am - 6:14 pm	15 Minutes
		Monday - Friday (Nights)	6:00 pm - 10:39 pm	30 Minutes
		Saturday	7:00 am - 10:39 pm	30 Minutes*
	Non-Peak	Monday - Friday	7:00 am - 5:52 pm	15 Minutes
		Saturday	7:00 am - 5:52 pm	30 Minutes

**Indicates occasional deviations in frequency due to buses available and variation in layover time*

"15 or 30" indicates a bus runs either 15 or 30-minute frequencies; the frequency changes at specific periods of the day due to demand.

CITY PROFILES

The following section contains city profiles that provide an overview of existing transit service within each city: Bentonville, Rogers, Springdale, and Fayetteville. The city profiles contain figures that have been organized to display information about the fixed routes, origin and destination of transit trips, and estimated travel times from a central location in each city. This section demonstrates the travel trends happening between and within each of these cities in the NWA region. Interpretation pages have been created to help readers locate and understand the metrics found within each city profile.

ORIGINS & DESTINATIONS

In the city profiles, the analysis of origin and destinations provides an overview of regional transit connectivity and transit user trends in the NWA study area. The purpose of this section is to better understand the role of transit (from both ORT and RT) in each of the urban regions through the analysis of user-specific information. Accordingly, findings from the 2018 Northwest Arkansas Regional Planning Commission (NWARPC) System Wide Origin and Destination Survey were used to create detailed profiles for each urban area with fixed route service (Bentonville, Rogers, Springdale, Fayetteville). Each city profile summarizes the following information:

- How many citizens are traveling between cities in the study area
- How many citizens are traveling within each city
- Where are citizens going
- When citizens are using transit
- What transportation modes are being used to connect to transit service
- The characteristics of transit users (e.g. age)
- How often are citizens using transit

TRAVEL TIME

Travel time analysis provides a way of measuring level of service and accessibility provided by a transit agency. The following section displays total population and employment captured within transit travel time zones, in which existing ORT and RT transit service can reach a chosen destination within a certain time frame.

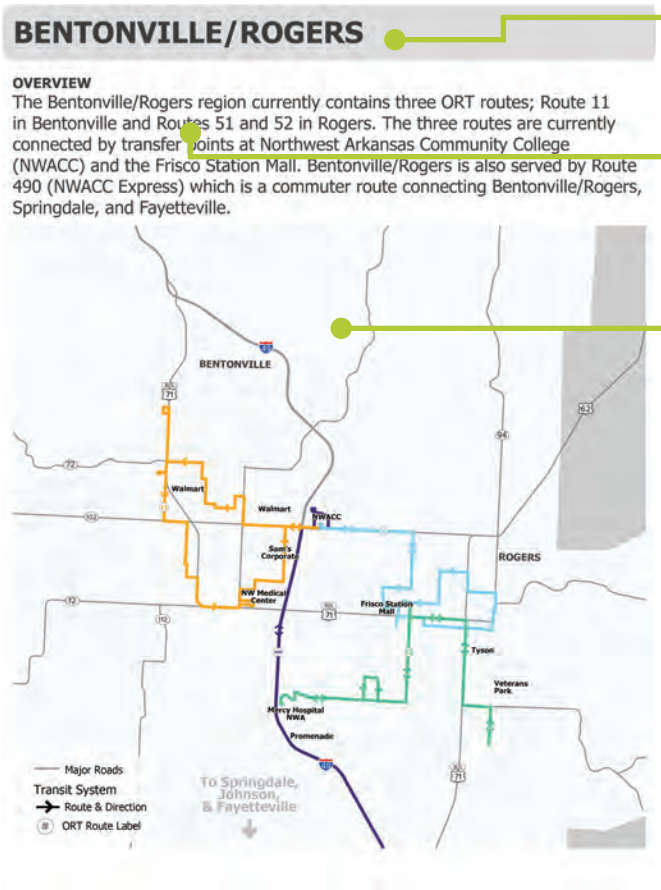
For this analysis, the travel time zones identified include 15- , 30- , 45- , and 60-minute coverages, which are represented by polygons with a scaled color symbology. The total population and employment within each zone were then calculated to display the number of people and jobs with access to a specific destination based on the aforementioned travel times (i.e. level of service). Population and employment totals are displayed for both the study area and for the four main urban regions. The following four destinations were chosen to represent central locations within each urban region and to generate time zones for analysis:

- Downtown Bentonville
- Downtown Rogers
- Downtown Springdale
- Union Station in Fayetteville

Results from the travel time analysis will be used to help inform future stages of the TDP as a similar analysis will be run for all alternative scenarios.

INTERPRETING CITY PROFILES

pg-1



CITY NAME

Identifies the city/region for which the values, maps, and text represent.

CITY SERVICE OVERVIEW

Provides a description of fixed route service available in the city, including major points of interest served.

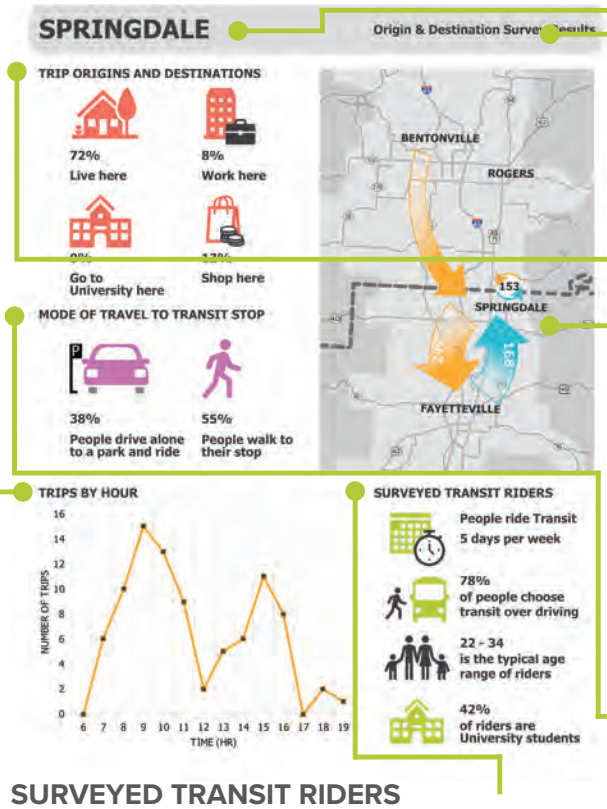
CITY FIXED ROUTE MAP

Provides a map of fixed route service routes available in the city. Ozark Regional Transit (ORT) is represented by a circle label with the route number and Razorback Transit (RT) is represented by a square label with the route number in it. Key destinations are also labeled on the map.

Major Roads	(#) ORT Route Label
Route & Direction	[#] RT Route Label

INTERPRETING CITY PROFILES

pg-2

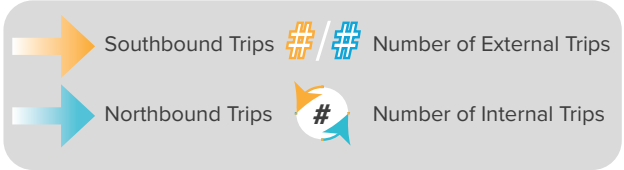


SURVEYED TRANSIT RIDERS

Understanding the habits and characteristics of transit riders can provide insight into appropriate types of service improvements. This section provides information on how often people ride transit per week, how many could have taken a personal vehicle (but chose to take transit instead), the typical age range of riders, and percent of riders that are University students.

TRIPS BY HOUR

The number of trips taken in an hour can help to identify the busiest time of day for transit use in the city. This helps to further identify how and when the transit service is being utilized in the city.



CITY NAME

Identifies the city/region for which the values, maps, and text represent.

DATA SOURCE

The values and charts represented on the transit origin and destination pages of the city profiles are from the Northwest Arkansas Regional Planning Commission 2018 Regional Transit Onboard Origin and Destination Survey.

TRIP ORIGINS AND DESTINATIONS

When a transit rider takes a trip in or out of a city the starting location of that trip is considered the trip origin and the ending location is considered the destination. Trips can be separated into different trip types. In the Northwest Arkansas region, the more common types of trips that occur include: home, work, university, and shopping. This section provides the percentage of each of these trip types for trips starting or ending in the city.

MODE OF TRAVEL TO TRANSIT STOP

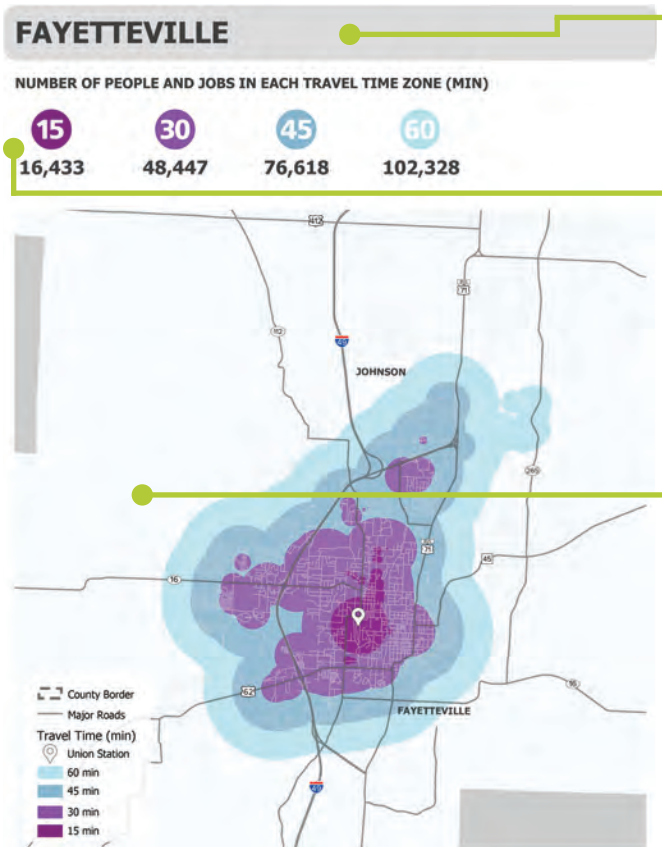
In order to reach a transit stop riders must make a choice of how they will travel to their preferred stop; this is known as their mode of travel. In the Northwest Arkansas region, the more common modes of travel include: drive alone (to a park and ride), or walking. This section provides the percentage of each mode of travel for all trips starting or ending in the city.

TRIP FLOW MAP

This map displays the movement of transit trips or the flow of trips in and out of a city as well as the quantity of trips. The number of trips is annotated on the map, as well as the direction. The blue shade indicates trips heading north, while the orange shade indicates trips heading south. The width of the arrow is affected by the quantity of trips (i.e. the larger the arrow, the more trips being made). Trips that are made within that city are annotated on the map as well.

INTERPRETING CITY PROFILES

pg-3



CITY NAME

Identifies the city/region for which the values, maps, and text represent.

NUMBER OF PEOPLE AND JOBS IN EACH TRAVEL TIME ZONE (MIN)

The values in the color-coded circles represent the travel time zone/number of minutes and match the zones in the map below. The value in gray is the approximate number of people and jobs (combined) who are within those travel time zones for that city.

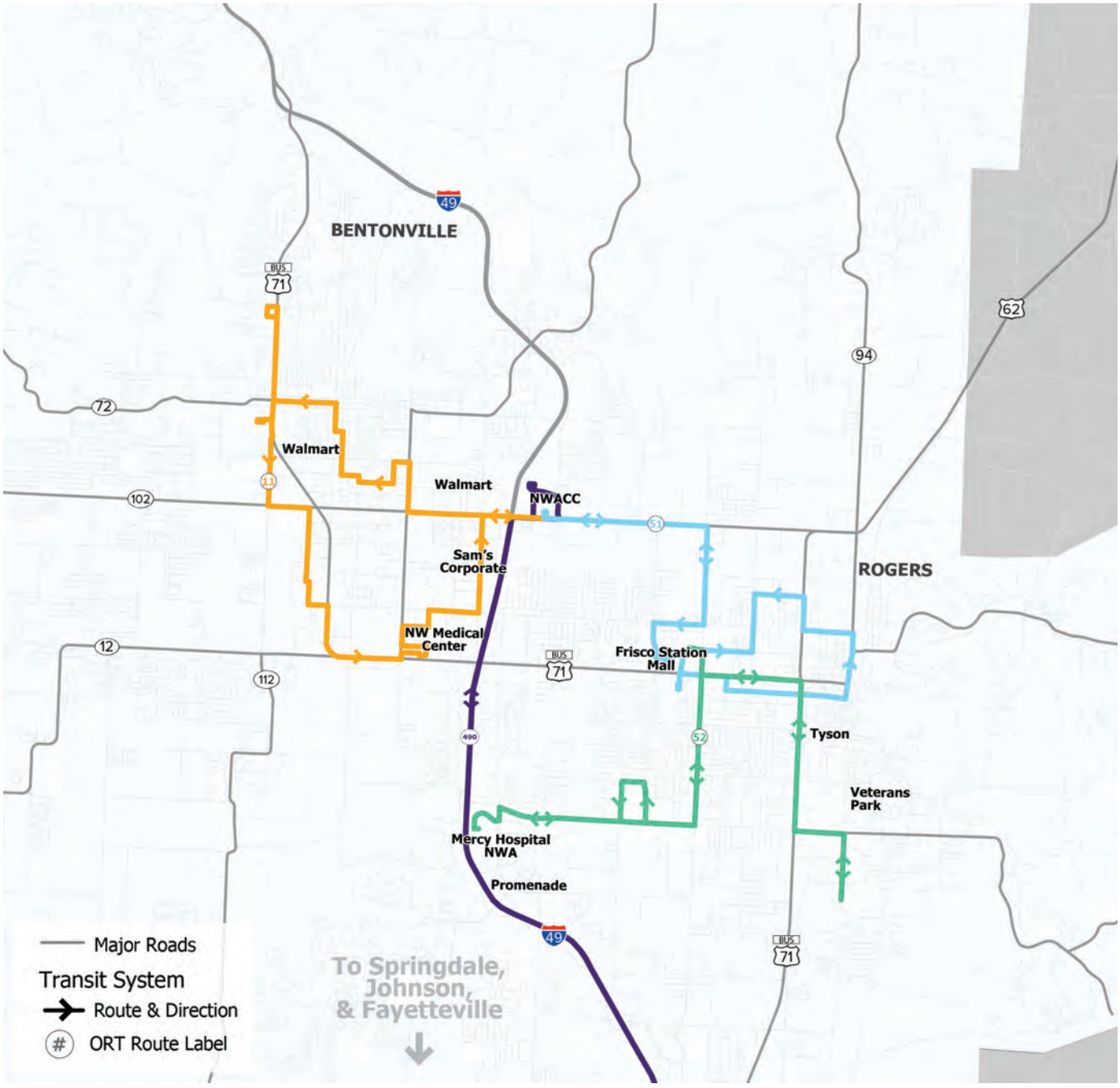
TRAVEL TIME MAP

This map provides the travel time to the central point for each city, downtown for Springdale, Bentonville and Rogers, and Union Station for Fayetteville. Each circle represents travel times ranging from 15 minutes - 60 minutes to that location.

BENTONVILLE/ROGERS

OVERVIEW

The Bentonville/Rogers region currently contains three ORT routes; Route 11 in Bentonville and Routes 51 and 52 in Rogers. The three routes are currently connected by transfer points at Northwest Arkansas Community College (NWACC) and the Frisco Station Mall. Bentonville/Rogers is also served by Route 490 (NWACC Express) which is a commuter route connecting Bentonville/Rogers, Springdale, and Fayetteville.



BENTONVILLE

ORIGINS AND DESTINATION SURVEY RESULTS

TRIP ORIGINS AND DESTINATIONS

26%
Live here

7%
Work here

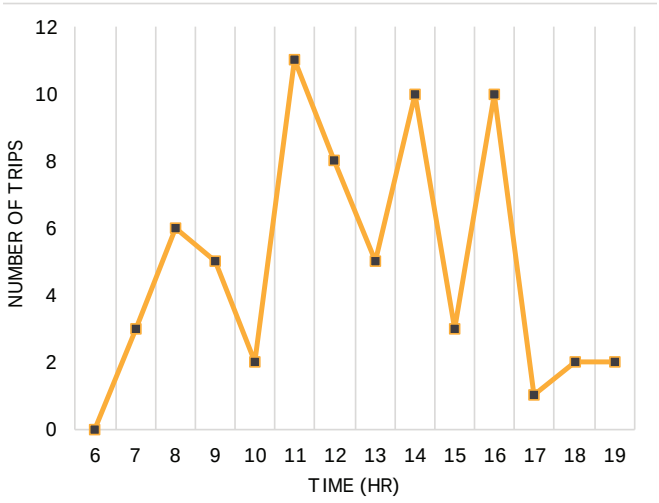
50%
Go to University here

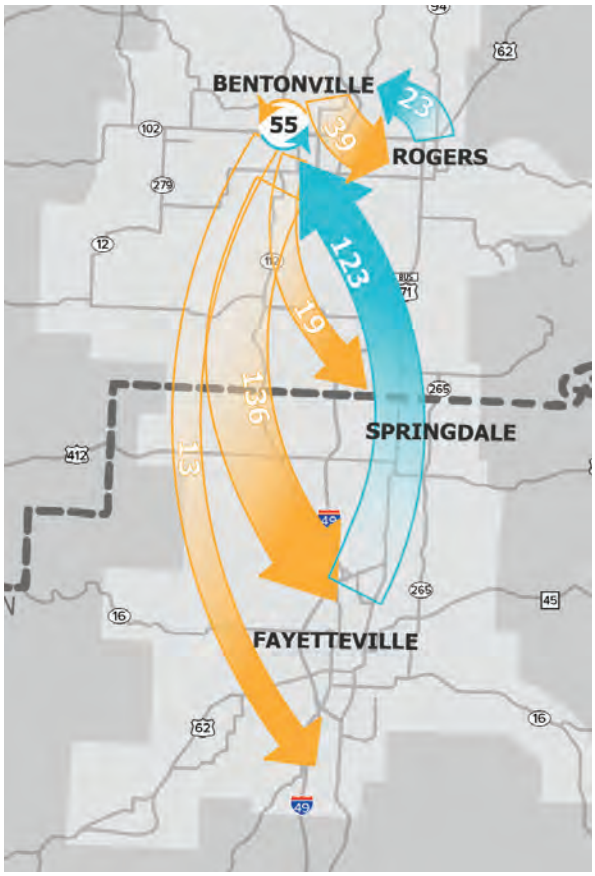
3%
Shop here

MODE OF TRAVEL TO TRANSIT STOP

12%
People drive alone to a park and ride

78%
People walk to their stop





SURVEYED TRANSIT RIDERS

People ride Transit
3-4 days per week

53%
of people choose transit over driving

19-21
is the typical age range of riders

66%
of riders are University students

ROGERS

ORIGINS AND DESTINATION SURVEY RESULTS

TRIP ORIGINS AND DESTINATIONS

70%
Live here

15%
Work here

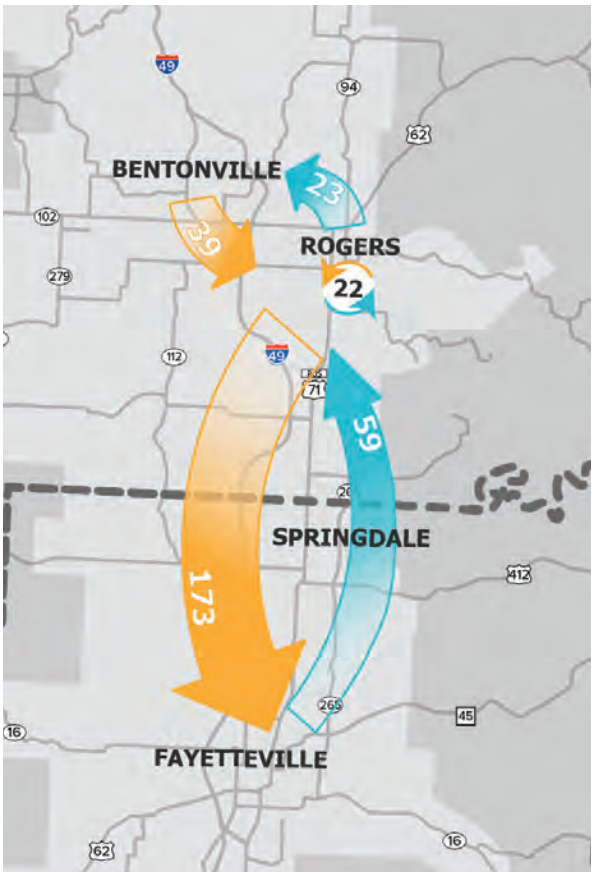
0%
Go to University here

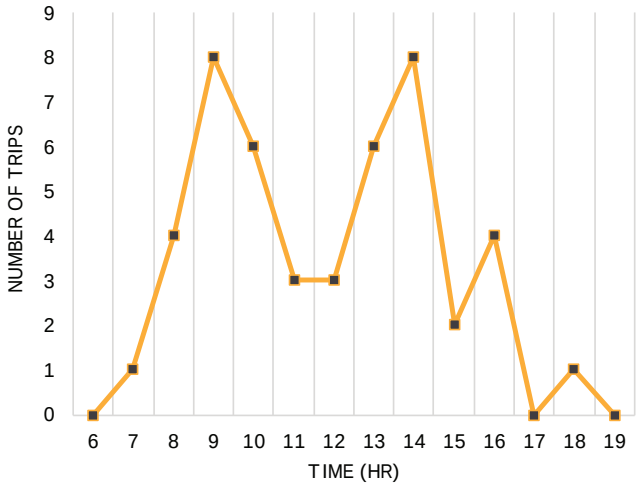
7%
Shop here

MODE OF TRAVEL TO TRANSIT STOP

52%
People drive alone to a park and ride

46%
People walk to their stop





SURVEYED TRANSIT RIDERS

People ride Transit 3-5 days per week

72%
of people choose transit over driving

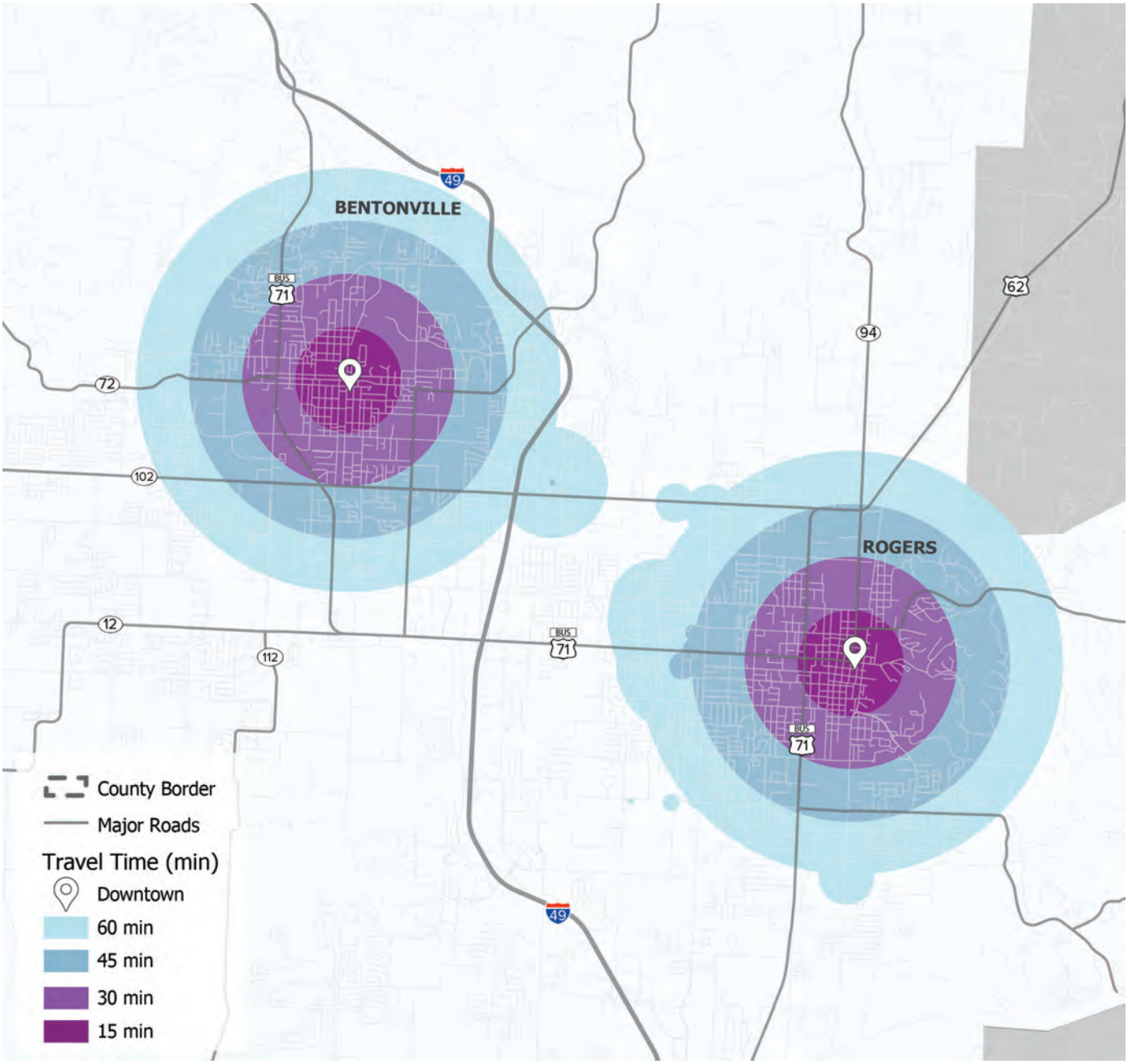
19-21
is the typical age range of riders

65%
of riders are University students

BENTONVILLE/ROGERS

NUMBER OF PEOPLE AND JOBS IN EACH TRAVEL TIME ZONE (MIN)

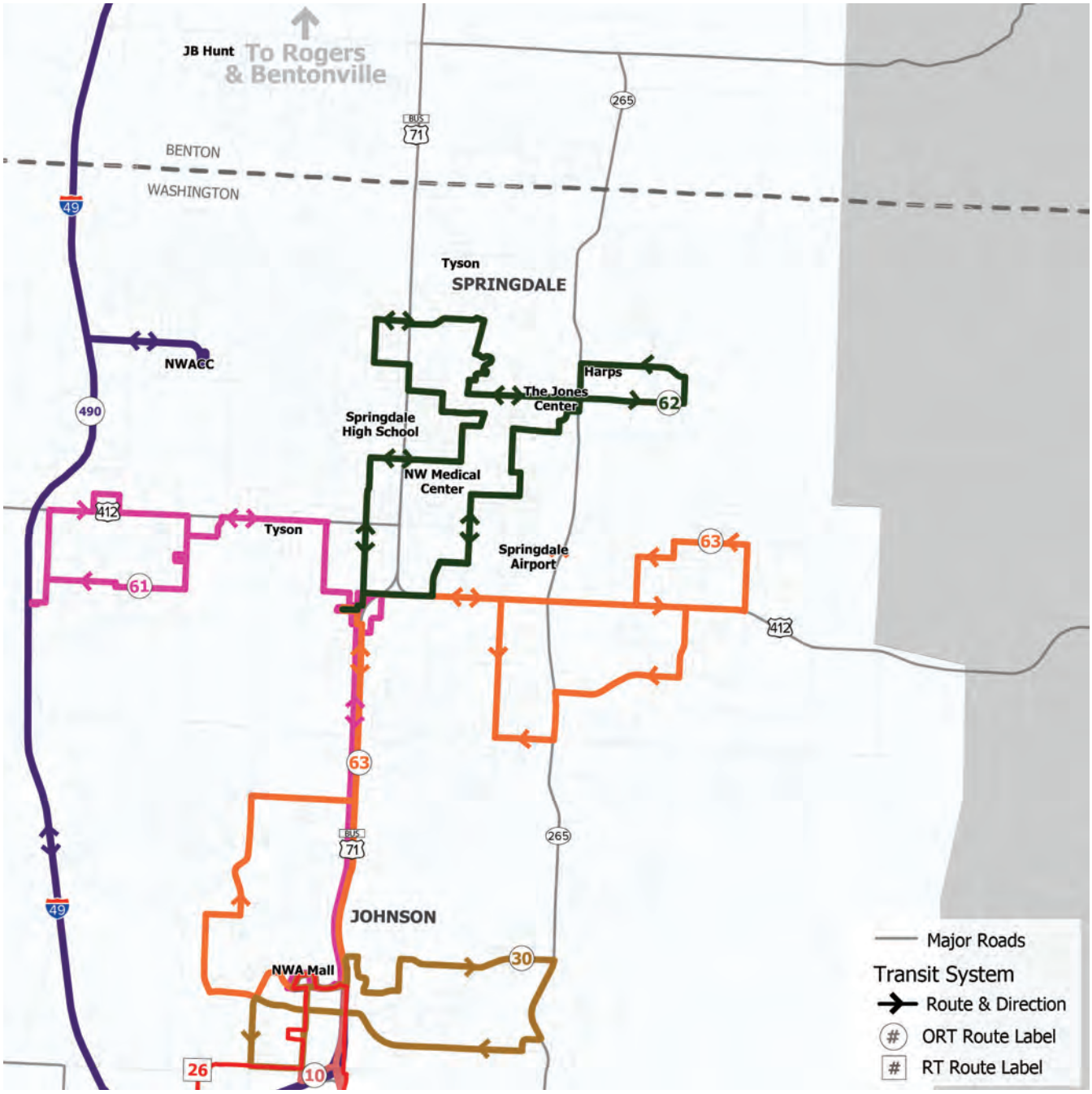
BENTONVILLE				ROGERS			
15	30	45	60	15	30	45	60
10,509	33,105	43,942	59,940	4,809	13,260	26,792	46,551



SPRINGDALE

OVERVIEW

Springdale currently contains three ORT routes (#61/62/63) which all connect at the Pleasant St. Walmart. Route 63 runs by the current ORT office/depot. Routes 61 and 63 provide connectivity to RT Route 26 at the Northwest Arkansas Mall station in North Fayetteville. Further, these three routes connect to Route 490 as it has an origin stop at the Northwest Arkansas Mall.



SPRINGDALE

ORIGINS AND DESTINATION SURVEY RESULTS

TRIP ORIGINS AND DESTINATIONS

72%
Live here

8%
Work here

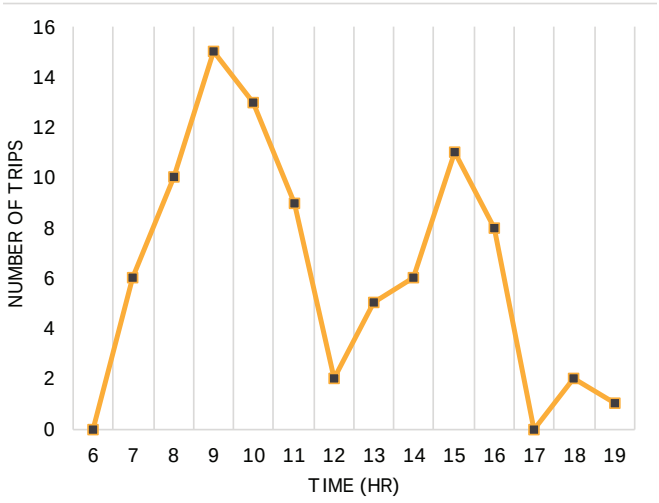
0%
Go to University here

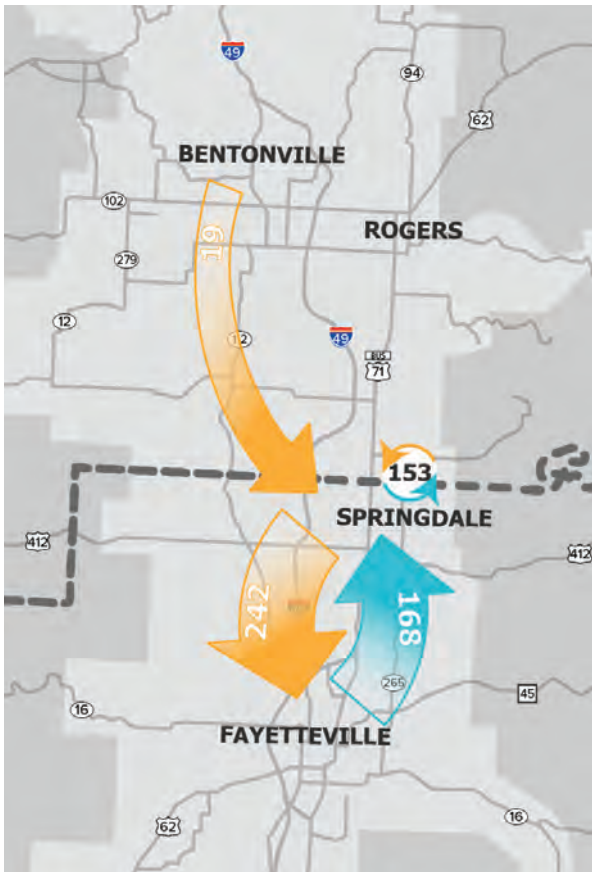
13%
Shop here

MODE OF TRAVEL TO TRANSIT STOP

38%
People drive alone to a park and ride

55%
People walk to their stop





SURVEYED TRANSIT RIDERS

People ride Transit
5 days per week

78%
of people choose transit over driving

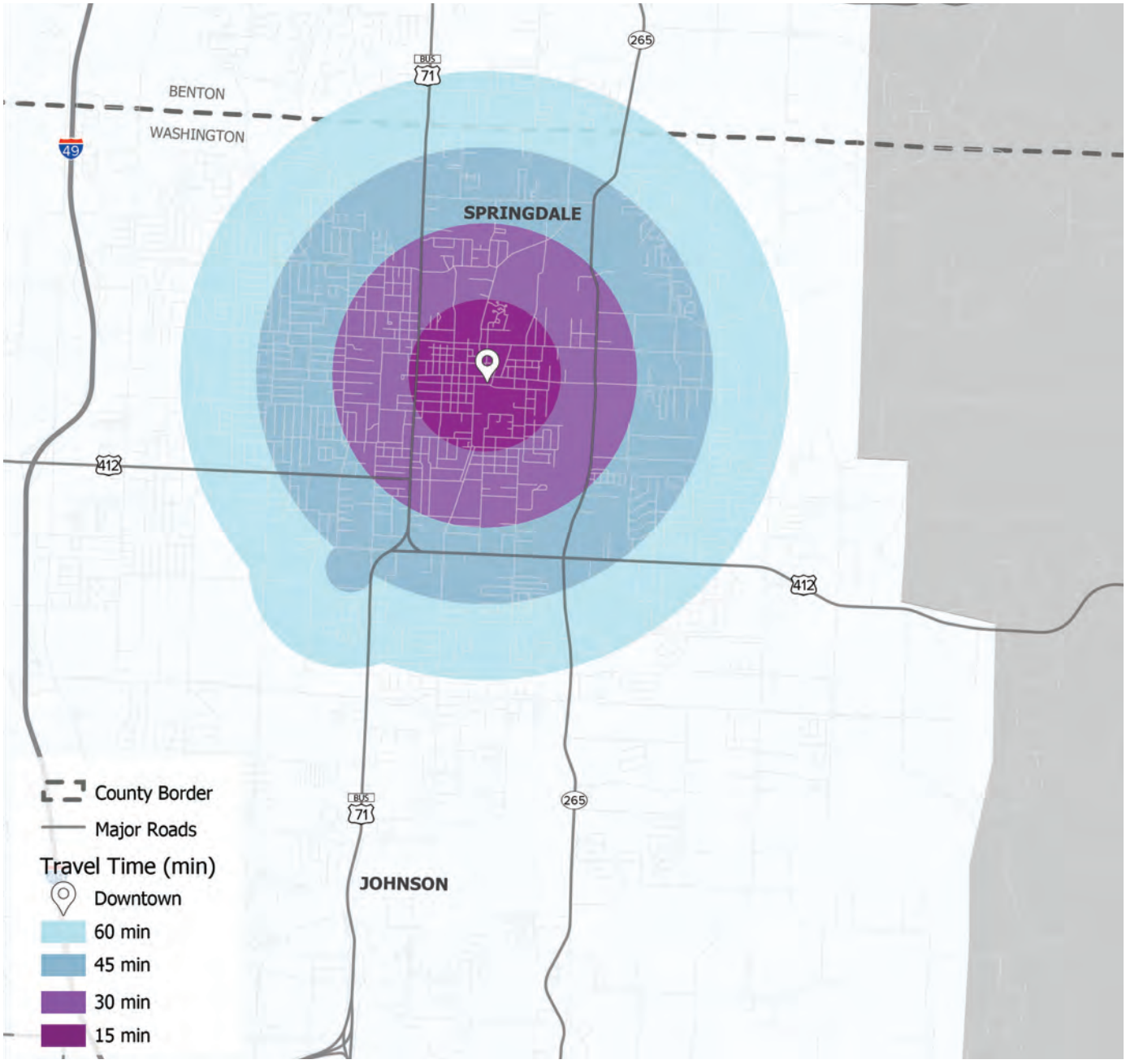
22-34
is the typical age range of riders

42%
of riders are University students

SPRINGDALE

NUMBER OF PEOPLE AND JOBS IN EACH TRAVEL TIME ZONE (MIN)

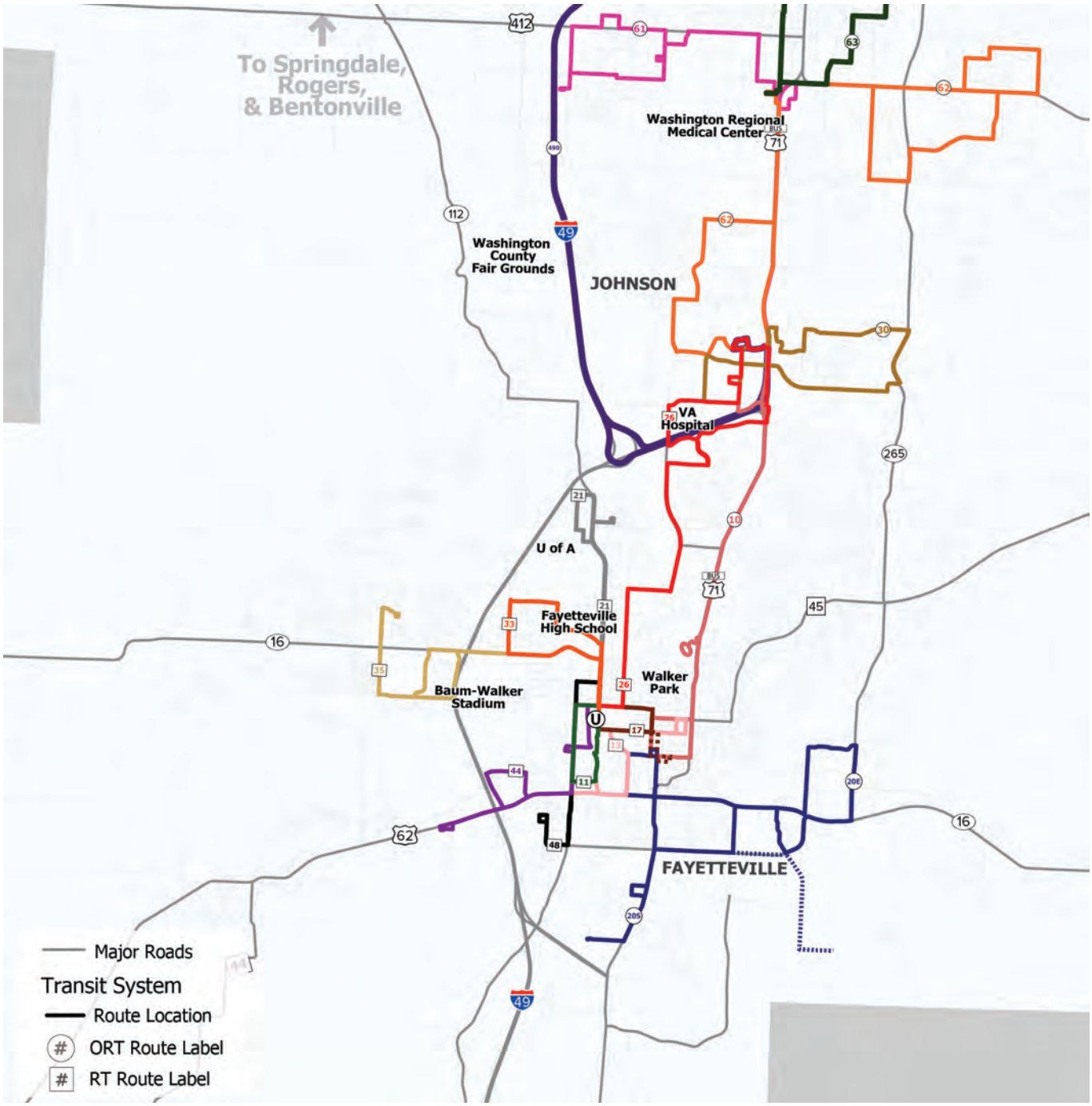
15	30	45	60
9,027	23,792	45,688	69,545



FAYETTEVILLE

OVERVIEW

Fayetteville contains fixed route service from both ORT and RT. ORT currently runs three routes in Fayetteville (#10/20/30); 10 and 30 connect to the Northwest Arkansas Mall while 20 provides service to Southeast Fayetteville. RT provides the public with nine fixed routes (#11/13/17/21/26/33/35/44/48).



FAYETTEVILLE

ORIGINS AND DESTINATION SURVEY RESULTS

TRIP ORIGINS AND DESTINATIONS

43%
Live here

6%
Work here

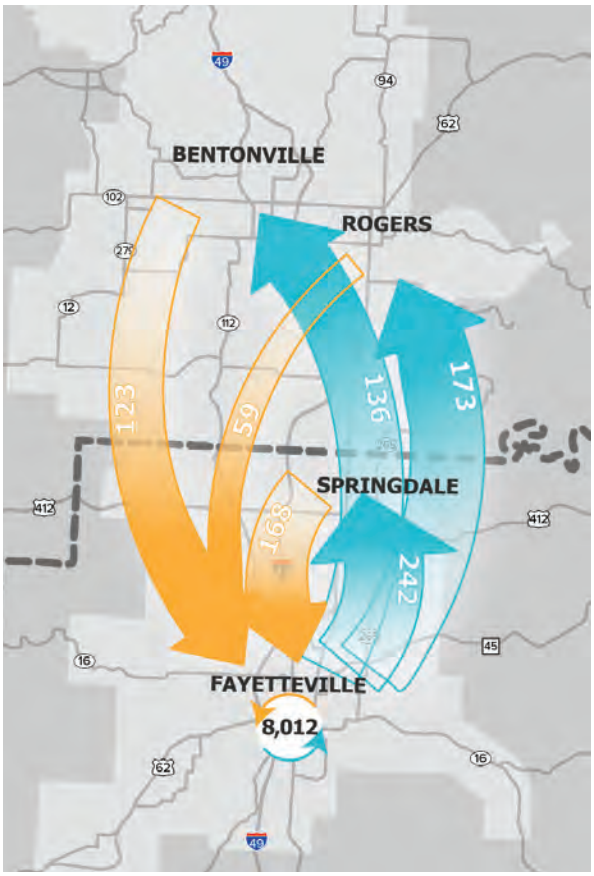
39%
Go to University here

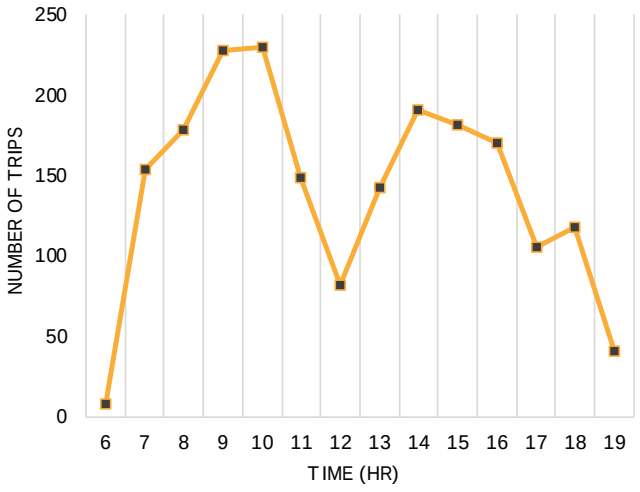
4%
Shop here

MODE OF TRAVEL TO TRANSIT STOP

7%
People drive alone to a park and ride

91%
People walk to their stop





SURVEYED TRANSIT RIDERS

People ride Transit
5 days per week

82%
of people choose transit over driving

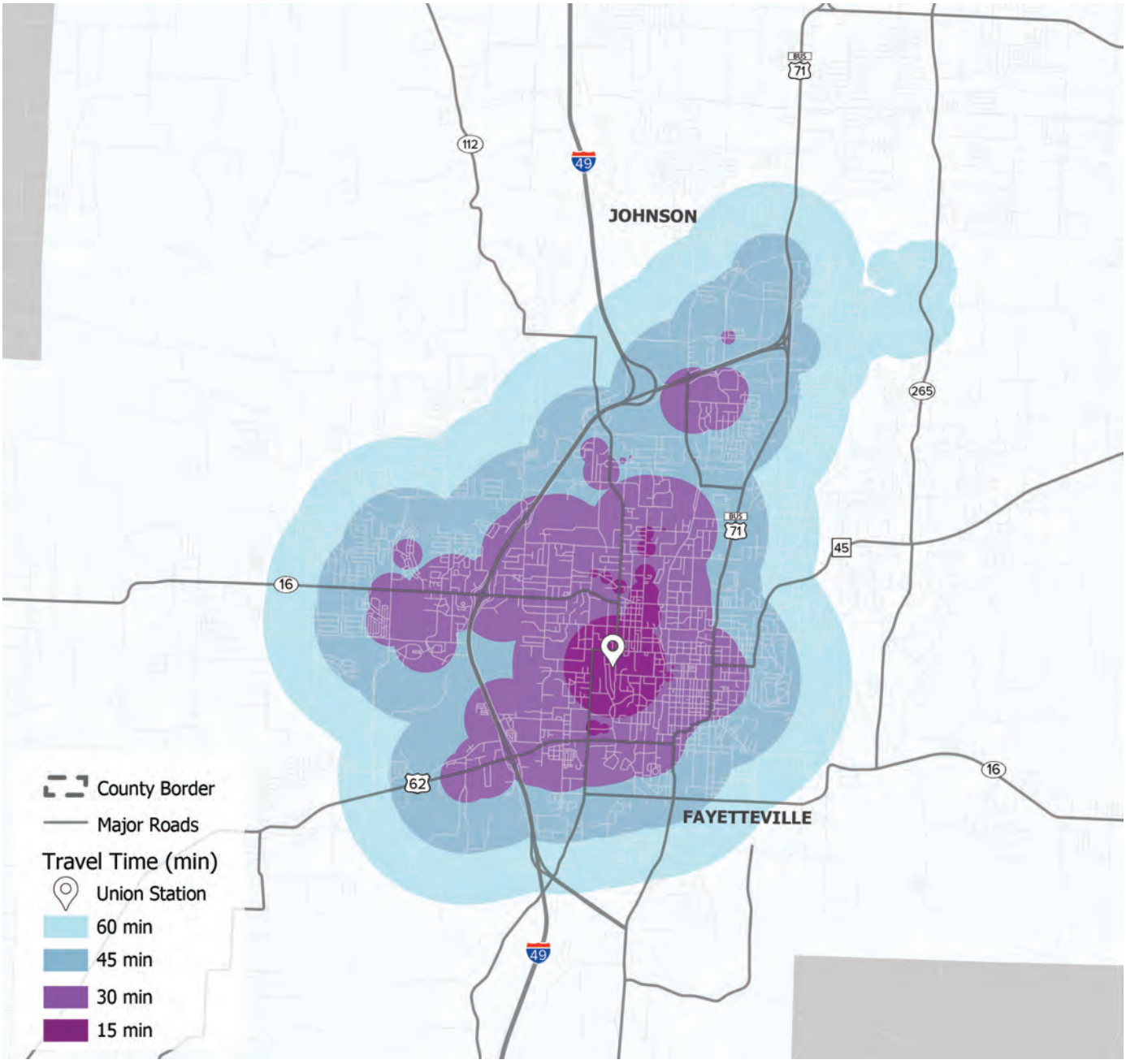
19-21
is the typical age range of riders

78%
of riders are University students

FAYETTEVILLE

NUMBER OF PEOPLE AND JOBS IN EACH TRAVEL TIME ZONE (MIN)

15	30	45	60
16,433	48,447	76,618	102,328



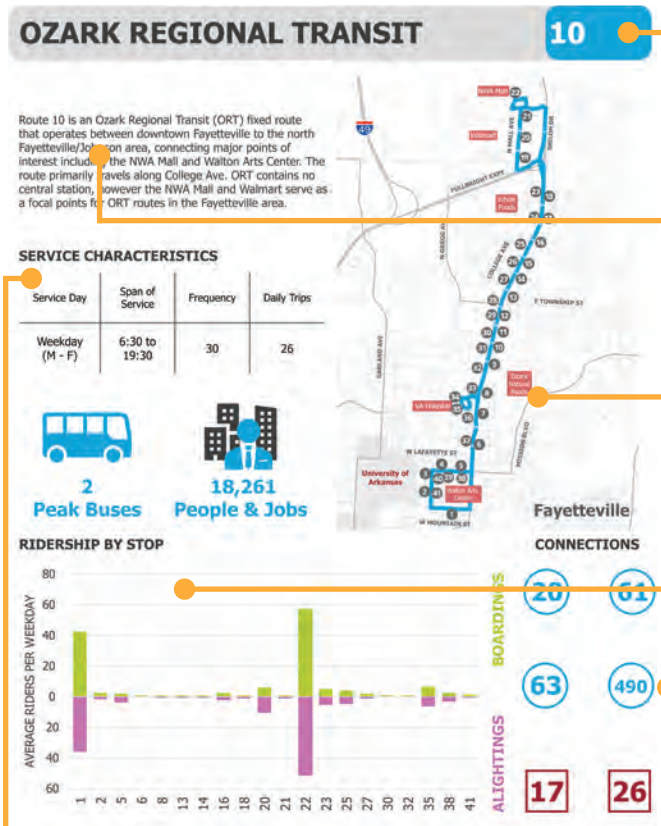
ROUTE PROFILES

The following section contains route profiles that provide detailed analysis of existing service provided by ORT and RT. The route profiles contain maps, graphics, and tables that have been organized to display critical information in an easy-to-read format. This helps provide context for the existing conditions for each individual route while also conveying the route's performance relative to its agency and to the entire region. Each profile includes the following content (unless noted otherwise):

- Route summary
- Route map
- Service characteristics
- Ridership by stop
- Route connections list
- Key destinations
- Productivity map
- Productivity measures
- On time performance (RT only)
- Ridership by hour (RT only)
- Service timepoints (ORT only)

Interpretation pages have been created to help readers locate and understand metrics found within the route profiles. These interpretation pages can be found at the beginning of the route profiles. Following the interpretation pages, there is an ORT overview, ten ORT Route Profiles, a RT overview, and nine RT route profiles.

INTERPRETING ROUTE PROFILES pg-1



SERVICE CHARACTERISTICS

Provides an overview of the route service characteristics including:

- **Service Day:** the days of the week for service
- **Span of Service:** how long the bus runs
- **Frequency (Min):** how often the bus comes
- **Daily Trips:** number of round trips made in a day
- **Peak Buses:** how many buses are operating during peak service
- **People & Jobs:** the sum of population and employment that the existing route captures within its service coverage. For this analysis, the service coverage is defined as the area approximately one quarter-mile surrounding the existing route alignment.

PROVIDER/ROUTE NUMBER

Identifies the service provider and the route number. Ozark Regional Transit (ORT) is represented by blue and Razorback Transit (RT) is represented by cardinal.

ROUTE SUMMARY

Provides a description of route service, including major points of interest served, general connections, and major roads traveled.

ROUTE MAP

Displays route alignment, points of interest, local roadways, route direction, and stop order. Reference the legend below for a better understanding of map elements.

Key Destination	P Park & Ride
ORT Route	U Union Station
RT Route	1 Stop/Order

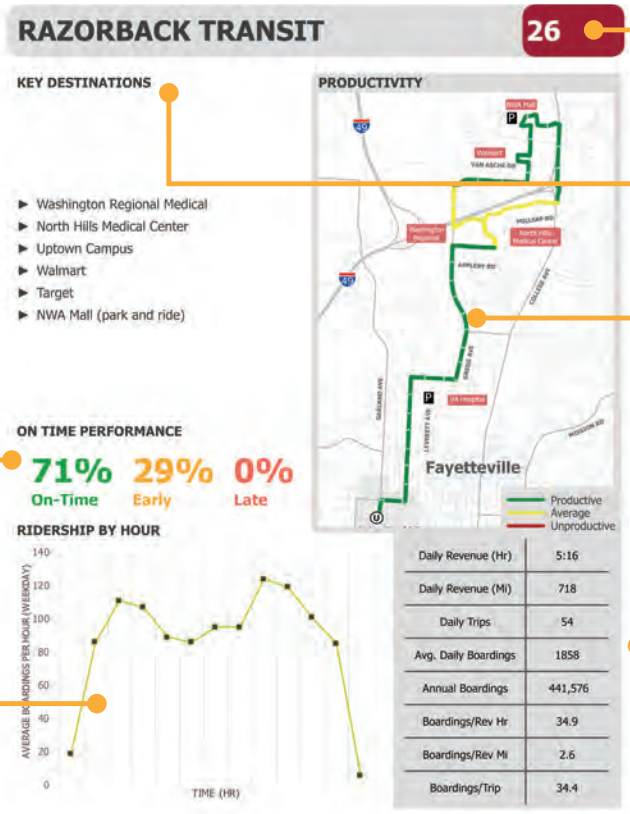
RIDERSHIP BY STOP

This figure displays daily ridership for each stop contained within a given route. The figure reveals which stops are the most productive, as well as which general segments are outperforming other sections of the route.

CONNECTIONS

ORT and RT services provide connectivity both locally and regionally. This section provides an overview of transfer opportunities provided. ORT routes are represented by navy circles and RT routes by cardinal squares. Due to the amount of RT stops connecting at Union Station, the Union Station map element is used to inform readers that there is connectivity to all routes that use the station as a central connectivity hub. If the route shares stops with another route that is considered a transfer opportunity and that route is included as a "connection".

INTERPRETING ROUTE PROFILES



PROVIDER/ROUTE NUMBER

Identifies the service provider and the route number. Ozark Regional Transit (ORT) is represented by navy blue and Razorback Transit (RT) is represented by cardinal.

KEY DESTINATIONS

Provides a list of key destinations found along the route corridor or within walking distance from route amenities.

PRODUCTIVITY MAP

Displays segment productivity within the route; each stop is given a score based on average daily ridership (boardings and alightings which are then aggregated to determine whether a route segment is productive, average, or unproductive). Segment productivity helps inform decisions made in later stages of the TDP regarding scenario development and implementation. Reference the legend below for a better understanding of map elements.

Productive	Key Destination
Average	Park & Ride
Unproductive	Union Station

RIDERSHIP BY HOUR

For RT, there is a comparison of Average Ridership by Hour (Weekdays) to showcase the route's busiest time of day.

ON TIME PERFORMANCE

For RT, On Time Performance is a measure of the route's reliability. A bus is early if it departs more than 30 seconds before the schedule time, and late if it departs more than 5 minutes after it. A route is considered "on time" if a bus leaves within 30 seconds before or up to 5 minutes after the scheduled departure time.

SERVICE TIMEPOINTS

For ORT, in place of Ridership by Hour and On-Time Performance, this section contains detailed schedules for timepoint locations along the route.

- **Daily Revenue (Hr):** how long the bus runs excluding any time spent waiting between trips
- **Daily Revenue (Mi):** total route distance traveled daily in miles
- **Daily Trips**: number of round trips made in a day
- **Avg. Daily Boardings:** average number of people getting on the bus on that route per day
- **Annual Boardings:** number of people getting on the bus on the route in one year
- **Boardings/Rev Hr:** number of people getting on the bus / daily revenue hours
- **Boardings/Rev Mi:** number of people getting on the bus / daily revenue miles
- **Boardings/Trip:** number of people getting on the bus / daily trips

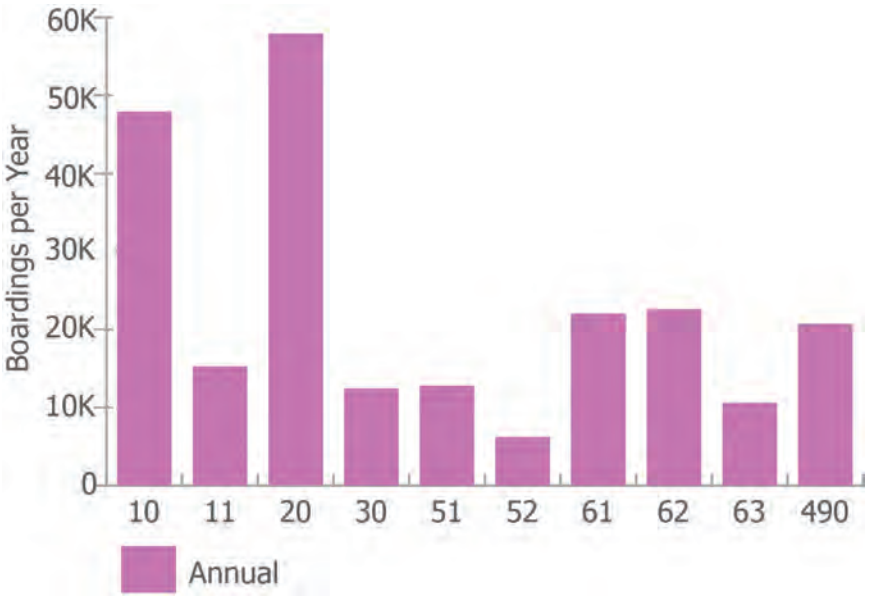
SERVICE TIMEPOINTS

NWA Mall	Walmart Springdale	Ozark Guidance Center	Walmart Springdale	NWA Mall
6:30	6:45	7:00	7:15	7:30
7:30	7:45	8:00	8:15	8:30
8:30	8:45	9:00	9:15	9:30

OZARK REGIONAL TRANSIT

	DAILY REVENUE HOURS	DAILY REVENUE MI	DAILY TRIPS	AVERAGE DAILY BOARDINGS	ANNUAL BOARDINGS	BOARDINGS PER REV HR	BOARDINGS /REV MI	BOARDINGS /TRIP
10	26:00	328	27	188	47,915	7.2	0.6	7.0
11	11:00	153	11	60	15,287	5.5	0.4	5.5
20	13:30	216	14	227	57,896	16.8	1.0	16.8
30	13:30	198	27	49	12,443	3.6	0.2	1.8
51	10:30	146	11	50	12,808	4.8	0.3	4.5
52	10:30	190	11	24	6,242	2.3	0.1	2.2
61	13:00	204	13	86	22,046	6.6	0.4	6.6
62	13:35	153	14	89	22,603	6.6	0.6	6.4
63	8:00	155	9	42	10,612	5.3	0.3	4.7
490	9:00	295	6	81	20,721	9.0	0.3	13.5
ORT	**129**	**2,038**	**143**	**896**	**228,573**	**6.8**	**0.4**	**6.9**

RIDERSHIP BY ROUTE



ROUTES BY CITY

CITY	ROUTES
BENTONVILLE	11
ROGERS	51, 52
SPRINGDALE	61, 62, 63
FAYETTEVILLE	10, 20, 30
REGIONAL	490

OZARK REGIONAL TRANSIT 10

Route 10 is an Ozark Regional Transit (ORT) fixed route that operates between downtown Fayetteville to the north Fayetteville/Johnson area, connecting major points of interest including the NWA Mall and Walton Arts Center. The route primarily travels along College Ave. ORT contains no central station, however the NWA Mall and Walmart serve as a focal points for ORT routes in the Fayetteville area.

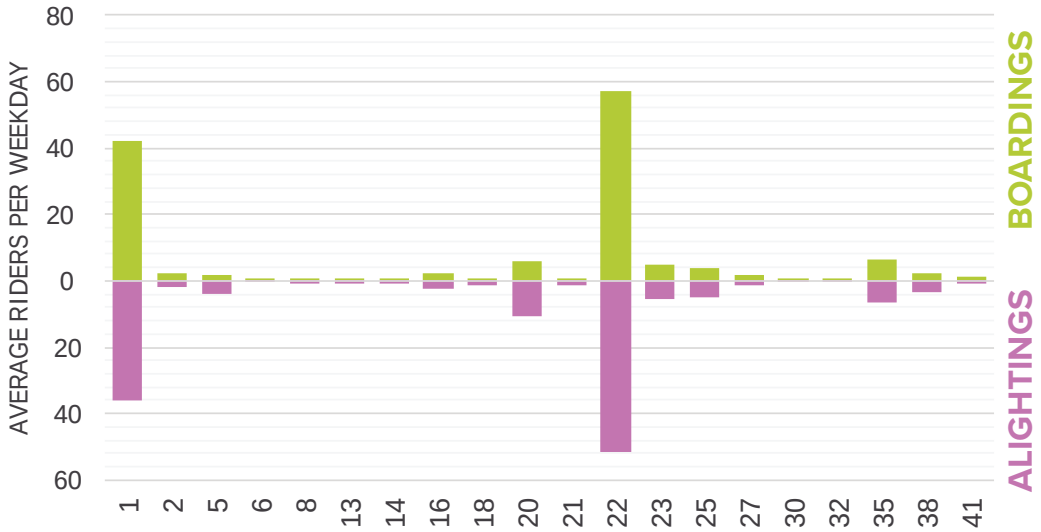
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 19:30	30	27

2
Peak Buses

18,261
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

20	61
63	490
17	26

OZARK REGIONAL TRANSIT 10

KEY DESTINATIONS

- Northwest Arkansas Mall
- Walton Arts Center
- VA Medical Center
- West Ave. and Dickson St. Intersection
- Hillcrest Towers
- Whole Foods
- US Hwy. 71B Corridor

SERVICE TIMEPOINTS

(NORTHBOUND) HILLCREST TOWERS		NWA MALL		(SOUTHBOUND) NWA MALL		HILLCREST TOWERS	
6:30	13:00	7:00	13:30	6:30	13:00	7:00	13:30
7:00	13:30	7:30	14:00	7:00	13:30	7:30	14:00
7:30	14:00	8:00	14:30	7:30	14:00	8:00	14:30
8:00	14:30	8:30	15:00	8:00	14:30	8:30	15:00
8:30	15:00	9:00	15:30	8:30	15:00	9:00	15:30
9:00	15:30	9:30	16:00	9:00	15:30	9:30	16:00
9:30	16:00	10:00	16:30	9:30	16:00	10:00	16:30
10:00	16:30	10:30	17:00	10:00	16:30	10:30	17:00
10:30	17:00	11:00	17:30	10:30	17:00	11:00	17:30
11:00	17:30	11:30	18:00	11:00	17:30	11:30	18:00
11:30	18:00	12:00	18:30	11:30	18:00	12:00	18:30
12:00	18:30	12:30	19:00	12:00	18:30	12:30	19:00
12:30	19:00	13:00	19:30	12:30	19:00	13:00	19:30

PRODUCTIVITY

Daily Revenue (Hr)	26:00
Daily Revenue (Mi)	328
Daily Trips	27
Avg. Daily Boardings	188
Annual Boardings	47,915
Boardings/Rev Hr	7.2
Boardings/Rev Mi	0.6
Boardings/Trip	7.0

OZARK REGIONAL TRANSIT 11

Route 11 is an Ozark Regional Transit (ORT) fixed route that operates in Bentonville, connecting major points of interest including the NW. Health System and Harps. The route primarily travels along SE. 14th St., N. Walton Blvd., SE. Walton Blvd., and SE. Moberly Ln.. ORT contains no central station, however NWACC serves as a focal point for ORT routes in the Bentonville area.

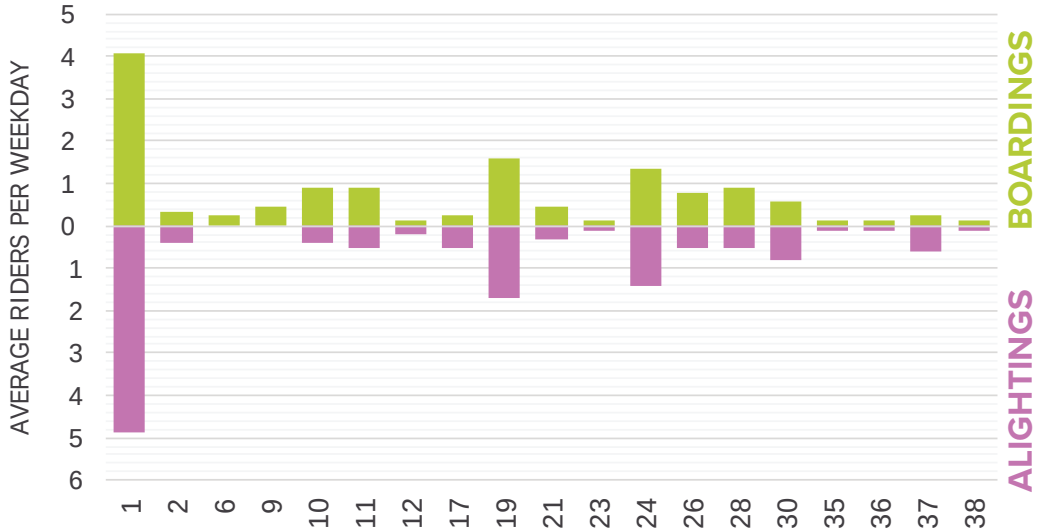
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:05 to 18:05	60	11

1
Peak Buses

36,534
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

51

490

OZARK REGIONAL TRANSIT 11

KEY DESTINATIONS

- NWACC Bentonville
- Bentonville Square
- Bentonville Public Library
- Brightwater Center for the Study of Food
- Touchstone Apartments
- Walton Blvd Walmart
- Benton County Senior Center
- Walton Blvd. Harps
- Northwest Medical Center

SERVICE TIMEPOINTS

NWACC	WALMART SUPERCENTER	BENTON COUNTY SENIOR CENTER
7:05	7:25	7:45
8:05	8:25	8:45
9:05	9:25	9:45
10:05	10:25	10:45
11:05	11:25	11:45
12:05	12:25	12:45
13:05	13:25	13:45
14:05	14:25	14:45
15:05	15:25	15:45
16:05	16:25	16:45
17:05	17:25	17:45

PRODUCTIVITY

Daily Revenue (Hr)	11:00
Daily Revenue (Mi)	153
Daily Trips	11
Avg. Daily Boardings	60
Annual Boardings	15,287
Boardings/Rev Hr	5.5
Boardings/Rev Mi	0.4
Boardings/Trip	5.5

OZARK REGIONAL TRANSIT 20

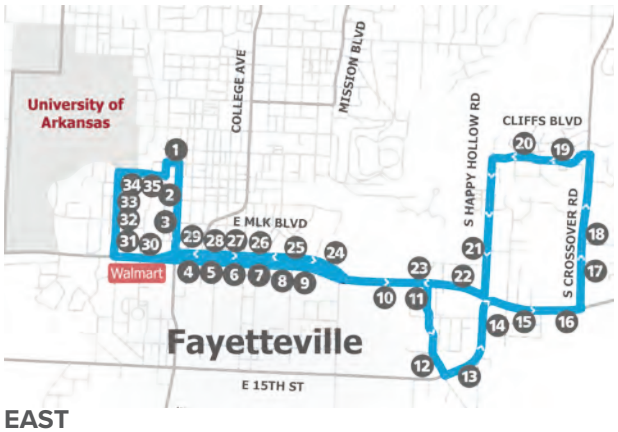
Route 20 is an Ozark Regional Transit (ORT) fixed route that operates in Fayetteville with a South and East route, connecting major points of interest including the Hillcrest Towers and the Walmart Neighborhood Market. The route primarily travels along E. MLK Blvd. and S. School Ave. ORT contains no central station, however Walmart serves as a focal point for ORT routes in the Fayetteville area.

SERVICE CHARACTERISTICS

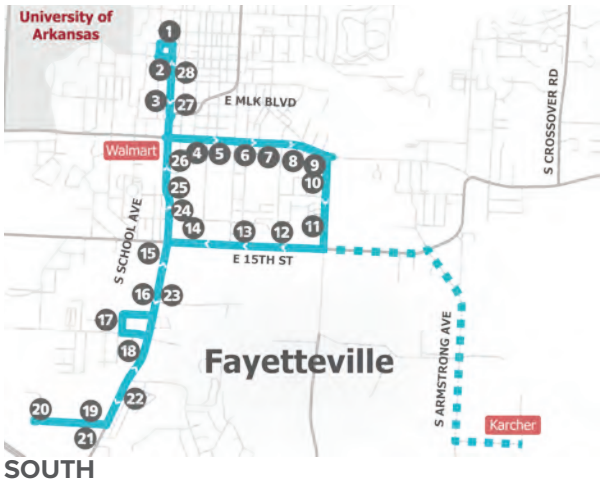
SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:00 to 19:30	60	14

1
Peak Buses

15,073
People & Jobs

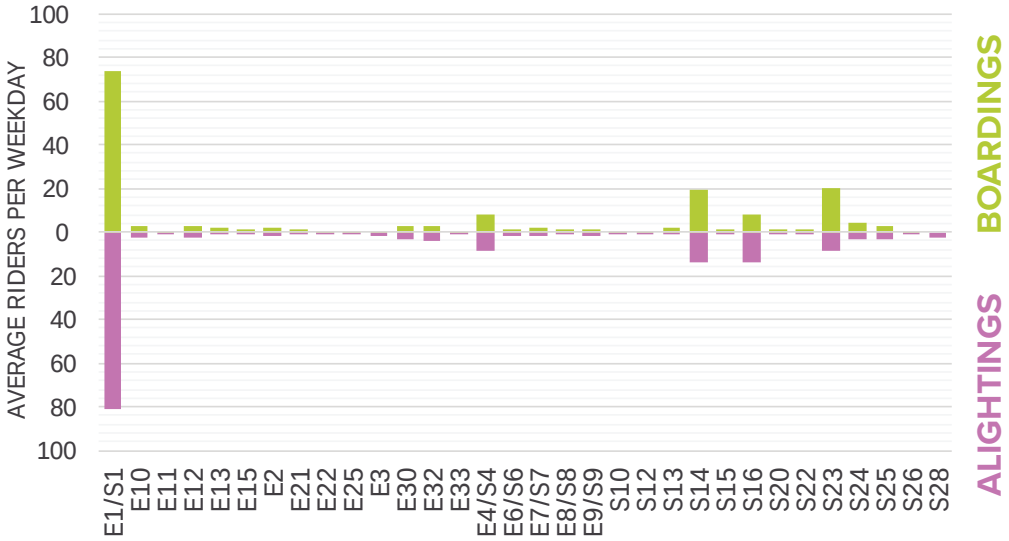


EAST



SOUTH

RIDERSHIP BY STOP



CONNECTIONS

10

13

OZARK REGIONAL TRANSIT 20

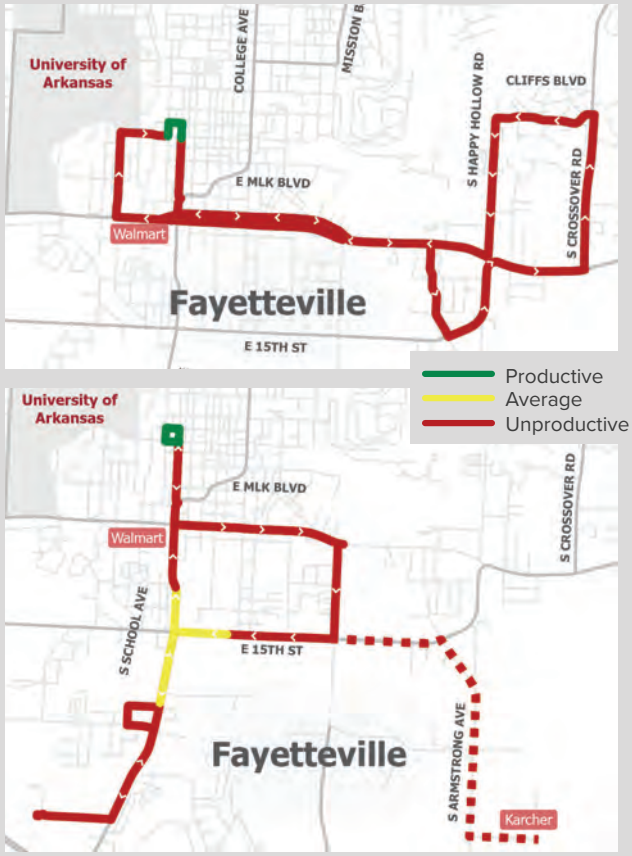
KEY DESTINATIONS

- Fayetteville Public Library
- Fayetteville High School
- Cooperative Emergency Outreach
- Cliffs Apartments
- Hillcrest Towers
- Walker Park
- Adult Education Center
- Walmart Neighborhood Market
- Nantucket Apartments
- M&N Augustine Foundation
- U of A Research Center
- Grandview Apartments
- Life Source

SERVICE TIMEPOINTS

HILLCREST TOWERS	WASHINGTON COUNTY OPERATIONS	HILLCREST TOWERS	HILLCREST TOWERS	CLIFF APARTMENTS	HILLCREST TOWERS
6:00	6:15	6:30	6:30	6:40	7:00
7:00	7:15	7:30	7:30	7:40	8:00
8:00	8:15	8:30	8:30	8:40	9:00
9:00	9:15	9:30	9:30	9:40	10:00
10:00	10:15	10:30	10:30	10:40	11:00
11:00	11:15	11:30	11:30	11:40	12:00
12:00	12:15	12:30	12:30	12:40	13:00
13:00	13:15	13:30	13:30	13:40	14:00
14:00	14:15	14:30	14:30	14:40	15:00
15:00	15:15	15:30	15:30	15:40	16:00
16:00	16:15	16:30	16:30	16:40	17:00
17:00	17:15	17:30	17:30	17:40	18:00
18:00	18:15	18:30	18:30	18:40	19:00
19:00	19:15	19:30			

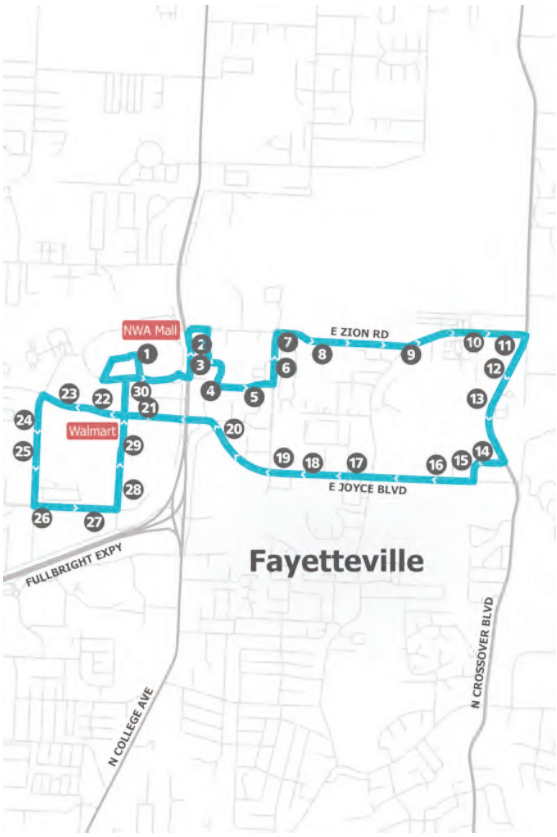
PRODUCTIVITY



Daily Revenue (Hr)	13:30
Daily Revenue (Mi)	216
Daily Trips	14
Avg. Daily Boardings	227
Annual Boardings	57,896
Boardings/Rev Hr	16.8
Boardings/Rev Mi	1.0
Boardings/Trip	16.8

OZARK REGIONAL TRANSIT 30

Route 30 is an Ozark Regional Transit (ORT) fixed route that operates in Fayetteville, connecting major points of interest including the NWA Mall and Walmart. The route primarily travels along E. Joyce Blvd. and E. Zion Rd. ORT contains no central station, however Walmart and NWA Mall serve as a focal points for ORT routes in the Fayetteville area.



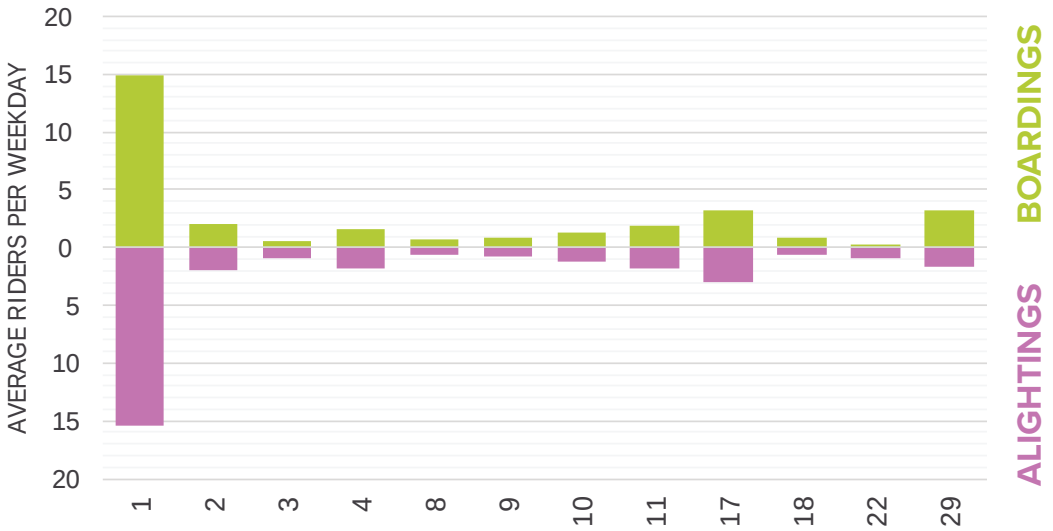
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 19:50	30	27

1
Peak Bus

7,976
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

61
63
490
26

OZARK REGIONAL TRANSIT 30

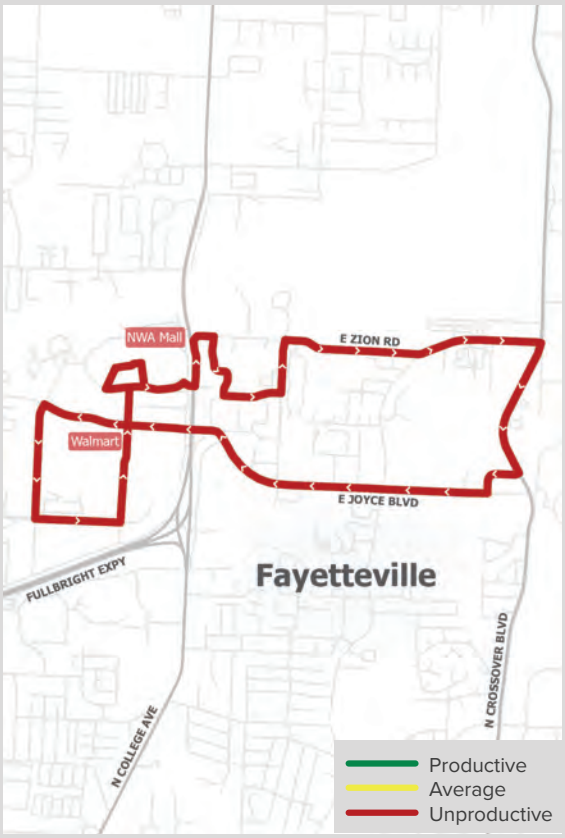
KEY DESTINATIONS

- Department of Human Services
- Valley Lake Apartments
- Fayetteville Athletic Club
- Crossover Terrace
- Social Security Office
- Park Lake Apartments
- US Post Office
- Best Buy
- Malco Razorback Cinema
- Academy Sports
- Courtyard by Marriott
- Walmart Supercenter
- Old Navy

SERVICE TIMEPOINTS

NWA MALL		MILLENNIUM DR.	
6:30	13:30	6:40	13:40
7:00	14:00	7:10	14:10
7:30	14:30	7:40	14:40
8:00	15:00	8:10	15:10
8:30	15:30	8:40	15:40
9:00	16:00	9:10	16:10
9:30	16:30	9:40	16:40
10:00	17:00	10:10	17:10
10:30	17:30	10:40	17:40
11:00	18:00	11:10	18:10
11:30	18:30	11:40	18:40
12:00	19:00	12:10	19:10
12:30	19:30	12:40	
13:00		13:10	

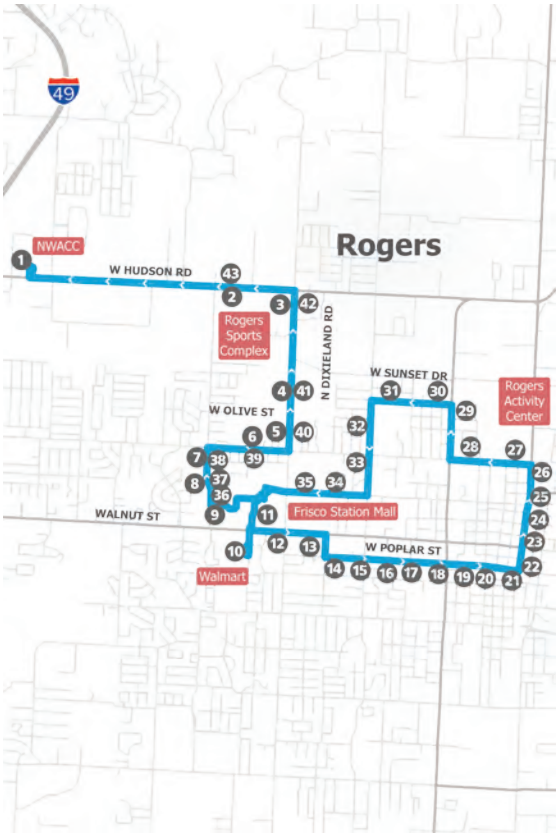
PRODUCTIVITY



Daily Revenue (Hr)	13:30
Daily Revenue (Mi)	198
Daily Trips	27
Avg. Daily Boardings	49
Annual Boardings	12,443
Boardings/Rev Hr	3.6
Boardings/Rev Mi	0.2
Boardings/Trip	1.8

OZARK REGIONAL TRANSIT 51

Route 51 is an Ozark Regional Transit (ORT) fixed route that operates in Rogers, connecting major points of interest including the NWACC and Frisco Station Mall. The route primarily travels along W. Hudson Rd., N. Dixieland Rd., W. Sunset Dr., and W. Poplar St. ORT contains no central station, however the Frisco Station Mall serves as a focal point for ORT routes in the Rogers area.



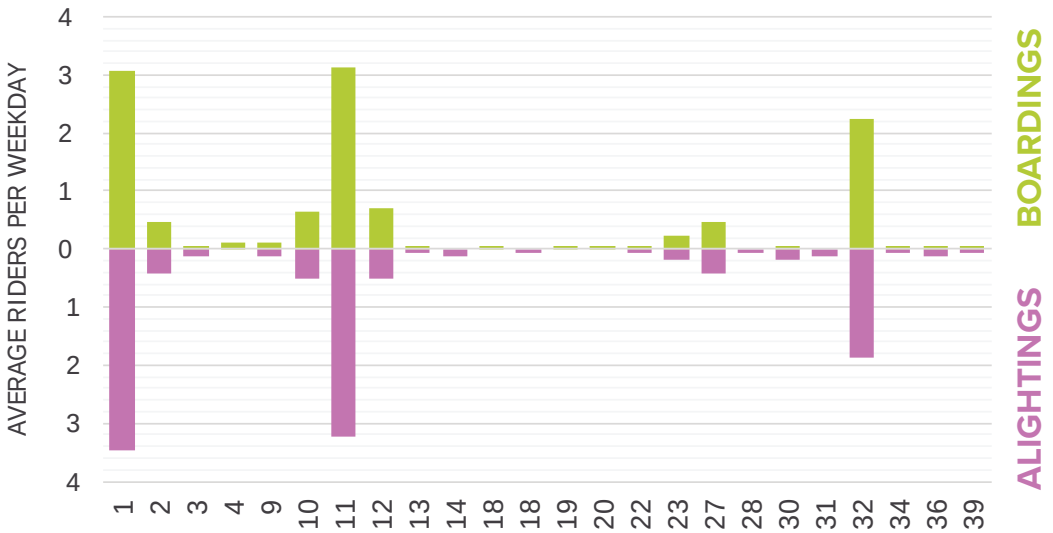
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:05 to 17:35	60	11

1
Peak Buses

19,967
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

11

52

490

OZARK REGIONAL TRANSIT 51

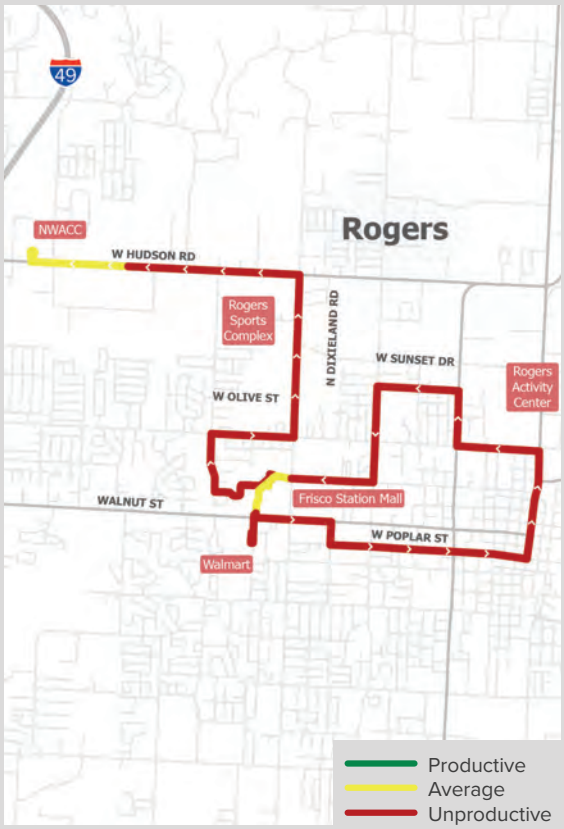
KEY DESTINATIONS

- NWACC Bentonville
- Rogers Activity Center
- Frisco Station Mall
- Downtown Rogers
- Turtle Creek Apartments
- Center for Non Profits
- Rogers Recreational Sports Complex
- Walnut St. Walmart
- Rogers Apartments
- Harps
- Supermercado La Villita
- Northwest Park

SERVICE TIMEPOINTS

NWACC	FRISCO STATION	ROGERS ACTIVITY CENTER	FRISCO STATION	NWACC
7:05	7:20	7:35	7:50	8:05
8:05	8:20	8:35	8:50	9:05
9:05	9:20	9:35	9:50	10:05
10:05	10:20	10:35	10:50	11:05
11:05	11:20	11:35	11:50	12:05
12:05	12:20	12:35	12:50	13:05
13:05	13:20	13:35	13:50	14:05
14:05	14:20	14:35	14:50	15:05
15:05	15:20	15:35	15:50	16:05
16:05	16:20	16:35	16:50	17:05
17:05	17:20	17:35		

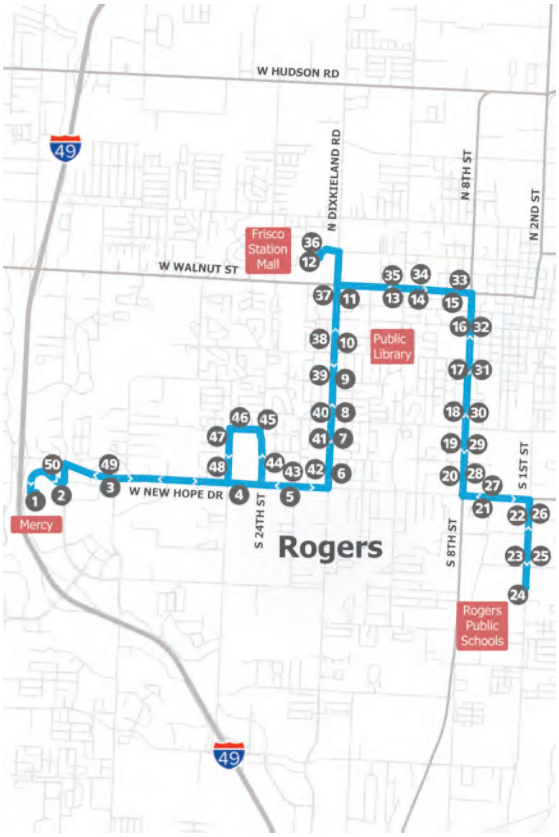
PRODUCTIVITY



Daily Revenue (Hr)	10:30
Daily Revenue (Mi)	146
Daily Trips	11
Avg. Daily Boardings	50
Annual Boardings	12,808
Boardings/Rev Hr	4.8
Boardings/Rev Mi	0.3
Boardings/Trip	4.5

OZARK REGIONAL TRANSIT 52

Route 52 is an Ozark Regional Transit (ORT) fixed route that operates in Rogers, connecting major points of interest including the Mercy Hospital and Rogers Public School. The route primarily travels along S. 8th St., N. Dixieland Rd., and W. New Hope Dr. ORT contains no central station, however the Frisco Station Mall serves as a focal point for ORT routes in the Rogers area.



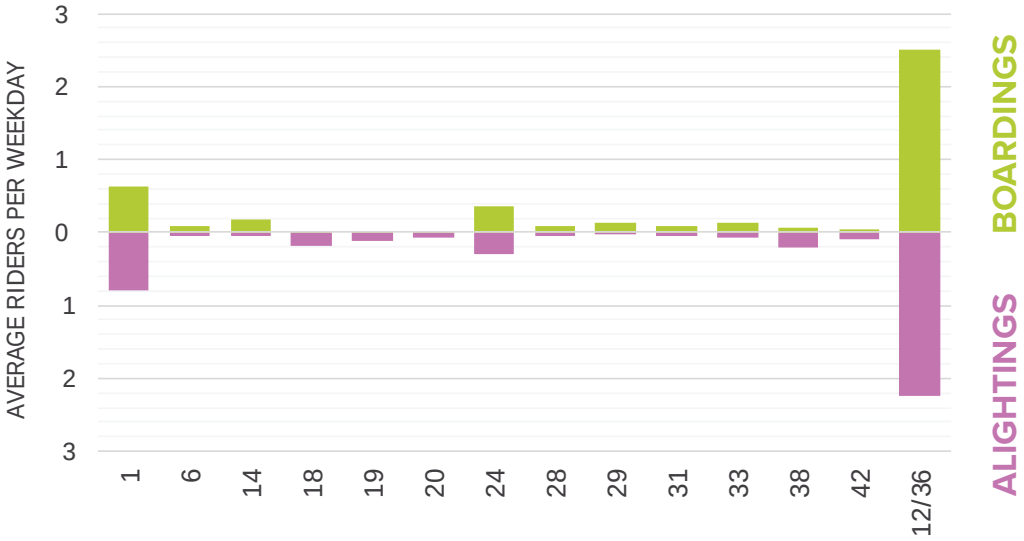
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:05 to 17:35	60	11

1
Peak Bus

16,654
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

51

OZARK REGIONAL TRANSIT 52

KEY DESTINATIONS

- Frisco Station Mall
- Rogers Aquatics Center
- Mercy Medical Center
- Rogers Public Schools
- Rogers Public Library
- Adult Wellness Center
- Neighborhood Market

SERVICE TIMEPOINTS

MERCY MEDICAL CENTER	FRISCO STATION	ROGERS TECH. HS	FRISCO STATION	MERCY MEDICAL CENTER
7:05	7:20	7:35	7:50	8:05
8:05	8:20	8:35	8:50	9:05
9:05	9:20	9:35	9:50	10:05
10:05	10:20	10:35	10:50	11:05
11:05	11:20	11:35	11:50	12:05
12:05	12:20	12:35	12:50	13:05
13:05	13:20	13:35	13:50	14:05
14:05	14:20	14:35	14:50	15:05
15:05	15:20	15:35	15:50	16:05
16:05	16:20	16:35	16:50	17:05
17:05	17:20	17:35		

PRODUCTIVITY

Daily Revenue (Hr)	10:30
Daily Revenue (Mi)	190
Daily Trips	11
Avg. Daily Boardings	24
Annual Boardings	6,242
Boardings/Rev Hr	2.3
Boardings/Rev Mi	0.1
Boardings/Trip	2.2

OZARK REGIONAL TRANSIT 61

Route 61 is an Ozark Regional Transit (ORT) fixed route that operates between Springdale and Fayetteville, connecting major points of interest including the NWA Mall and the Pleasant St. Walmart. The route primarily travels along S. Thompson St., W. Sunset Ave., Luvene Ave., and 48th St. ORT contains no central station, however the Pleasant St. Walmart serves as a focal point for ORT routes in the Springdale area.

SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 19:30	60	13

1
Peak Bus

13,470
People & Jobs

RIDERSHIP BY STOP

CONNECTIONS

10 30 62 63 490 26

OZARK REGIONAL TRANSIT 61

KEY DESTINATIONS

- Pleasant St. Walmart
- NWA Mall
- Ozark Guidance
- Springdale Post Office
- Sunset Ave. Neighborhood Market
- Georges Employment Center
- NWA Convention Center
- Spring Meadows Apartments
- South Coast Baking Company
- FoxFire Apartments
- Links Apartments
- Springdale Revenue Office

SERVICE TIMEPOINTS

NWA MALL	WALMART SPRINGDALE	OZARK GUIDANCE CENTER	WALMART SPRINGDALE	NWA MALL
6:30	6:45	7:00	7:15	7:30
7:30	7:45	8:00	8:15	8:30
8:30	8:45	9:00	9:15	9:30
9:30	9:45	10:00	10:15	10:30
10:30	10:45	11:00	11:15	11:30
11:30	11:45	12:00	12:15	12:30
12:30	12:45	13:00	13:15	13:30
13:30	13:45	14:00	14:15	14:30
14:30	14:45	15:00	15:15	15:30
15:30	15:45	16:00	16:15	16:30
16:30	16:45	17:00	17:15	17:30
17:30	17:45	18:00	18:15	18:30
18:30	18:45	19:00	19:15	19:30

PRODUCTIVITY

Daily Revenue (Hr)	13:00
Daily Revenue (Mi)	204
Daily Trips	13
Avg. Daily Boardings	86
Annual Boardings	22,046
Boardings/Rev Hr	6.6
Boardings/Rev Mi	0.4
Boardings/Trip	6.6

OZARK REGIONAL TRANSIT 62

Route 62 is an Ozark Regional Transit (ORT) fixed route that operates in Springdale, connecting major points of interest including the Northwest Health System and the Jones Center. The route primarily travels along S. Pleasant St., E. Huntsville Ave., E. Mountain Rd., and Crutcher St. ORT contains no central station, however the Pleasant St. Walmart serves as a focal point for ORT routes in the Springdale area.

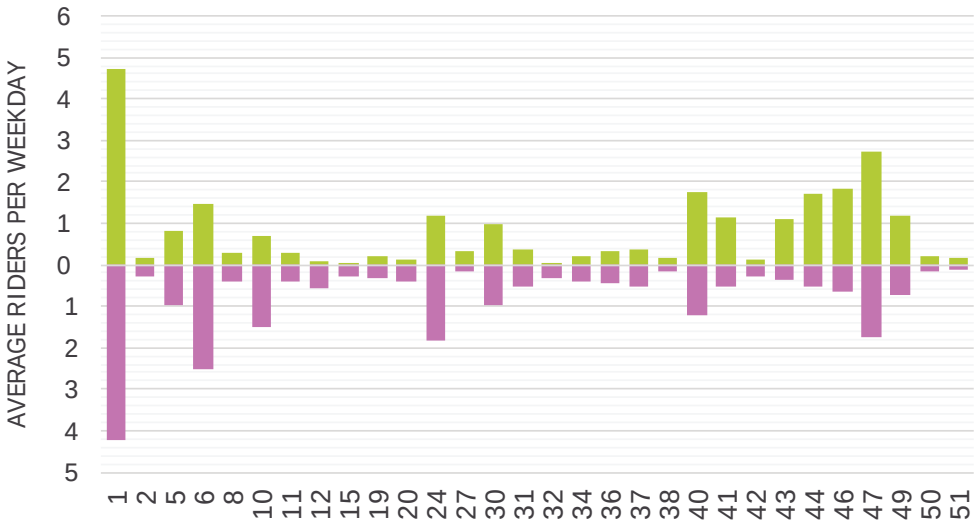
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	5:45 to 19:20	60	14

1
Peak Buses

25,967
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

BOARDINGS

61 63

ALIGHTINGS

64 65

OZARK REGIONAL TRANSIT 62

KEY DESTINATIONS

- Downtown Springdale
- Springdale Public Library
- Springdale Aquatic Center
- Northwest Medical Center
- Shiloh Museum
- Springdale Senior Center
- Applegate Apartments
- Community Clinic
- Westwood Heath and Rehab
- Mill Creek Apartments
- Springdale City Administration
- Decision Point
- Backus Ave. Harps
- Eastwood Apartments

SERVICE TIMEPOINTS

WALMART SUPERCENTER	FIRST UNITED METHODIST CHURCH	THE JONES CENTER	WALMART SUPERCENTER
5:45	6:00	6:20	6:45
6:45	7:00	7:20	7:45
7:45	8:00	8:20	8:45
8:45	9:00	9:20	9:45
9:45	10:00	10:20	10:45
10:45	11:00	11:20	11:45
11:45	12:00	12:20	12:45
12:45	13:00	13:20	13:45
13:45	14:00	14:20	14:45
14:45	15:00	15:20	15:45
15:45	16:00	16:20	16:45
16:45	17:00	17:20	17:45
17:45	18:00	18:20	18:45
18:45	19:00	19:20	

PRODUCTIVITY

Daily Revenue (Hr)	13:35
Daily Revenue (Mi)	153
Daily Trips	14
Avg. Daily Boardings	89
Annual Boardings	22,603
Boardings/Rev Hr	6.6
Boardings/Rev Mi	0.6
Boardings/Trip	6.4

OZARK REGIONAL TRANSIT 63

Route 63 is an Ozark Regional Transit (ORT) fixed route that operates in Springdale, connecting major points of interest including the NWA Mall and Harps. The route primarily travels along Robinson Ave. and S. Thompson St. ORT contains no central station, however the Pleasant St. Walmart serves as a focal point for ORT routes in the Springdale area.

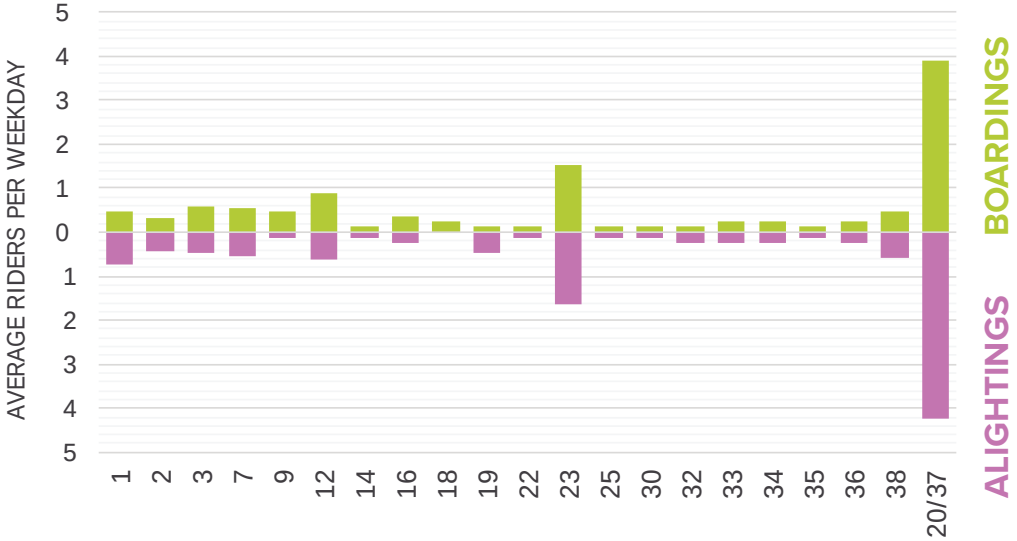
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	8:22 to 16:22	60	9

1
Peak Bus

25,288
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

30 61 62 64 490

OZARK REGIONAL TRANSIT 63

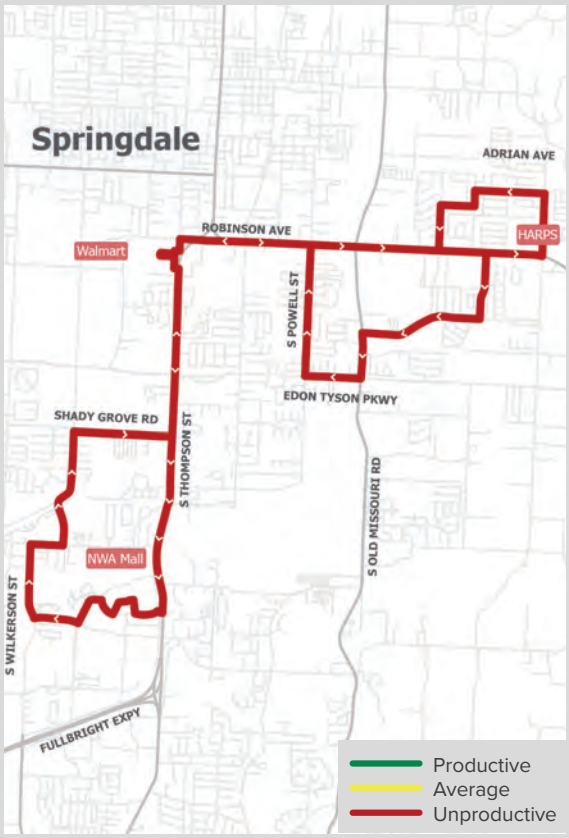
KEY DESTINATIONS

- Pleasant St. Walmart
- Downtown Johnson
- Tyson Headquarters
- Elizabeth Richardson Center
- Oak Glen Mobile Home Park
- 1st Staff
- Brookhaven Apartments
- Keystone Apartments
- Ozark Regional Transit
- Butterfield Coach Rd Harps

SERVICE TIMEPOINTS

NWA MALL	WALMART SPRINGDALE	OZARK REGIONAL TRANSIT	WALMART SPRINGDALE	NWA MALL
		8:22	8:45	8:55
8:55	9:15	9:22	9:45	9:55
9:55	10:15	10:22	10:45	10:55
10:55	11:15	11:22	11:45	11:55
11:55	12:15	12:22	12:45	12:55
12:55	13:15	13:22	13:45	13:55
13:55	14:15	14:22	14:45	14:55
14:55	15:15	15:22	15:45	15:55
15:55	16:15	16:22		

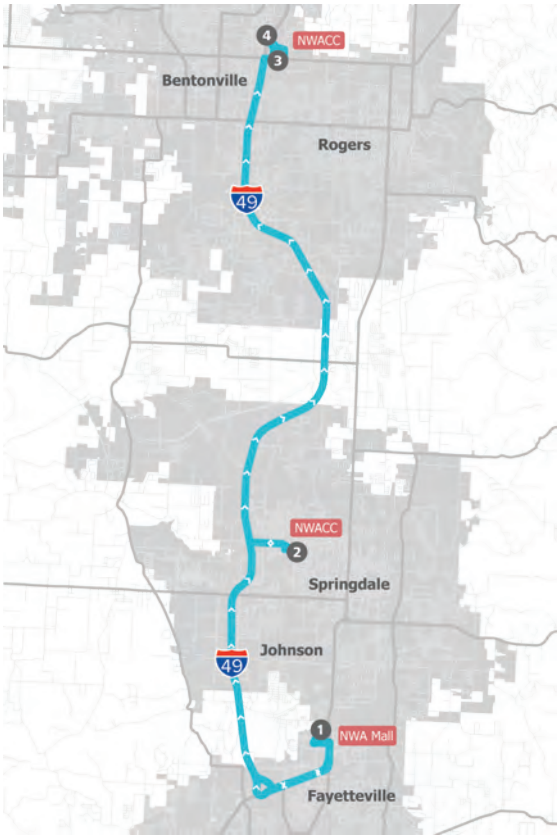
PRODUCTIVITY



Daily Revenue (Hr)	8:00
Daily Revenue (Mi)	155
Daily Trips	9
Avg. Daily Boardings	42
Annual Boardings	10,612
Boardings/Rev Hr	5.3
Boardings/Rev Mi	0.3
Boardings/Trip	4.7

OZARK REGIONAL TRANSIT 490

Route 490 is an Ozark Regional Transit (ORT) commuter fixed route that serves the areas of Fayetteville, Springdale, and Bentonville. The route primarily travels along Interstate I-49, connecting two of NWACC's campuses and the NWA Mall.



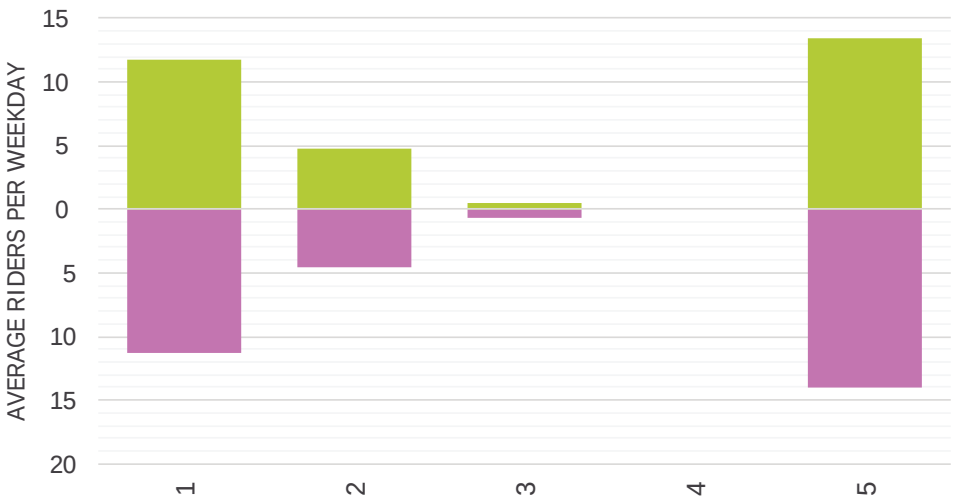
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:00 to 19:10	90	6

2
Peak Bus

2,786
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

BOARDINGS

10 11 30 51 61 63

ALIGHTINGS

26

OZARK REGIONAL TRANSIT 490

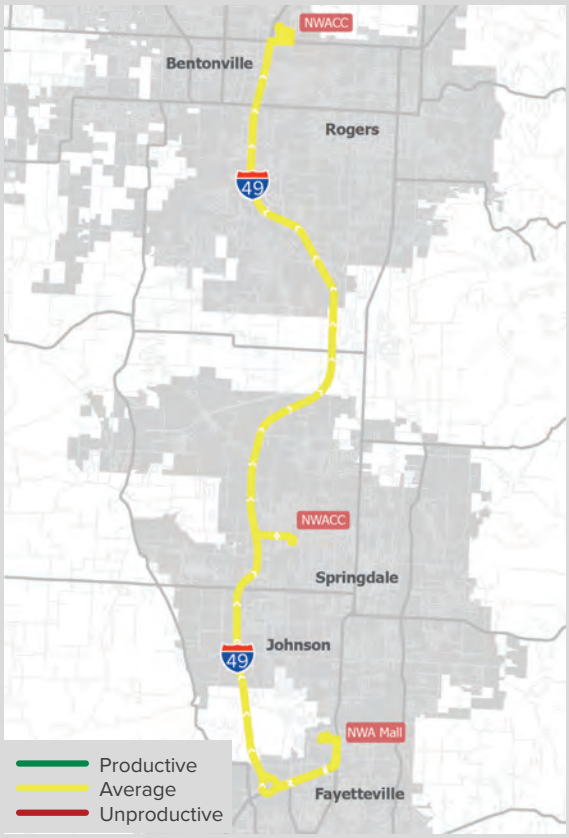
KEY DESTINATIONS

- NWACC Bentonville
- Shewmaker Center
- NWACC Washington County
- NWA Mall

SERVICE TIMEPOINTS

NWA MALL	NWACC WASHINGTON COUNTY CENTER	NWACC BURNS HALL	NWACC BURNS HALL	NWACC WASHINGTON COUNTY CENTER	NWA MALL
7:00	7:15	7:40	7:45	8:10	8:25
8:30	8:45	9:10	9:15	9:40	9:55
10:00	10:15	10:40	10:45	11:10	11:25
OUT OF SERVICE OUT OF SERVICE					
14:45	15:00	15:25	15:30	15:55	16:10
16:15	16:30	16:55	17:00	17:25	17:40
17:45	18:00	18:25	18:30	18:55	19:10

PRODUCTIVITY

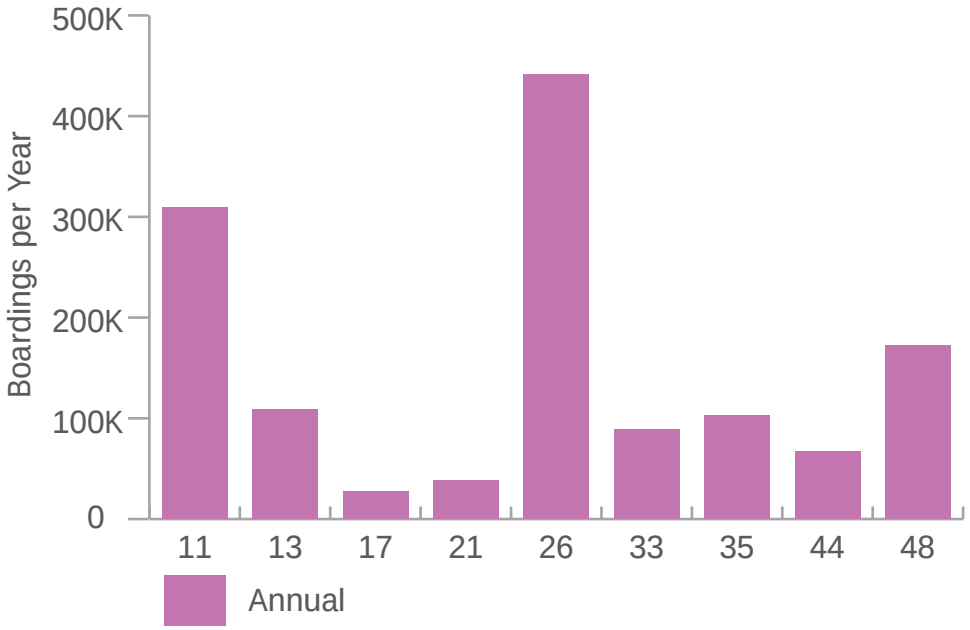


Daily Revenue (Hr)	9:00
Daily Revenue (Mi)	295
Daily Trips	6
Avg. Daily Boardings	81
Annual Boardings	20,721
Boardings/Rev Hr	9.0
Boardings/Rev Mi	0.3
Boardings/Trip	13.5

RAZORBACK TRANSIT

	DAILY REVENUE HOURS	DAILY REVENUE MI	DAILY TRIPS	AVERAGE DAILY BOARDINGS	ANNUAL BOARDINGS	BOARDINGS PER REV HR	BOARDINGS /REV MI	BOARDINGS /TRIP
11	32:10	273	97	1,782	309,254	55.4	6.5	18.4
13	23:23	212	43	578	108,948	24.7	2.7	13.4
17	11:45	77	47	181	26,910	15.4	2.3	3.9
21	16:00	160	27	261	38,425	16.3	1.6	9.7
26	67:00	720	54	1,858	441,576	27.7	2.6	34.4
33	23:27	173	38	459	89,163	19.6	2.7	12.1
35	31:19	323	34	510	102,882	16.3	1.6	15.0
44	25:10	342	49	392	66,639	15.6	1.1	8.0
48	32:15	402	63	964	172,246	29.9	2.4	15.3
RT	**262**	**2,681**	**452**	**6,985**	**1,356,043**	**24.5**	**2.6**	**14.5**

RIDERSHIP BY ROUTE



RAZORBACK TRANSIT 11

Route 11 is a Razorback Transit fixed route that operates on the University of Arkansas campus, connecting major points of interest including the Razorback Stadium and many other university facilities, as well as the Garland Center, the Pat Walker Health Center, and Lot 56 (south campus). The route primarily travels along Garland Ave., Ladyback Dr., Razorback Rd., and Maple St. Route 11 begins at Union Station and provides connectivity to several university sporting facilities.

SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 18:00	6 / 9	97
Nights	18:00 to 22:27	40	7
Saturday	7:20 to 22:27	40	19

4
Peak Buses

11,617
People & Jobs

RIDERSHIP BY STOP

CONNECTIONS

13

26

48

U

RAZORBACK TRANSIT 11

KEY DESTINATIONS

- Donald W. Reynolds Razorback Stadium
- Bud Walton Arena
- Garland Center
- Pat Walker Health Center
- University Recreation - HPER
- Razorback Gardens
- Residence Halls (Pomfret, Gregson, & Gibson Halls)
- University department buildings
- Arkansas Union
- Fayetteville High School
- Razorback Field/Bogle Park
- Lot 56 and other parking facilities

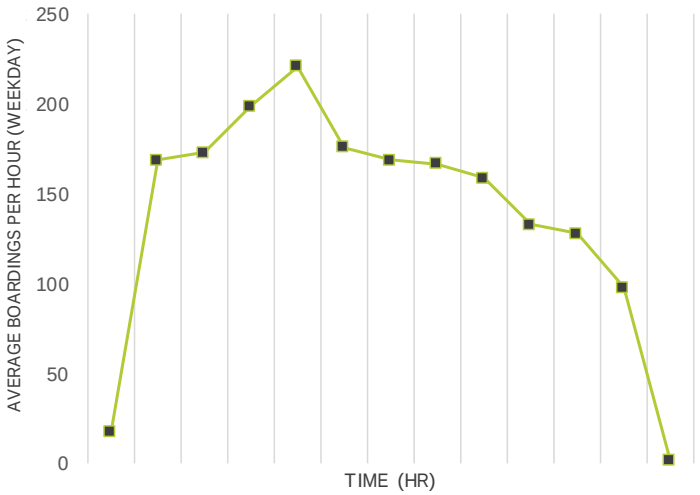
ON-TIME PERFORMANCE

97% On-Time

3% Early

0% Late

RIDERSHIP BY HOUR

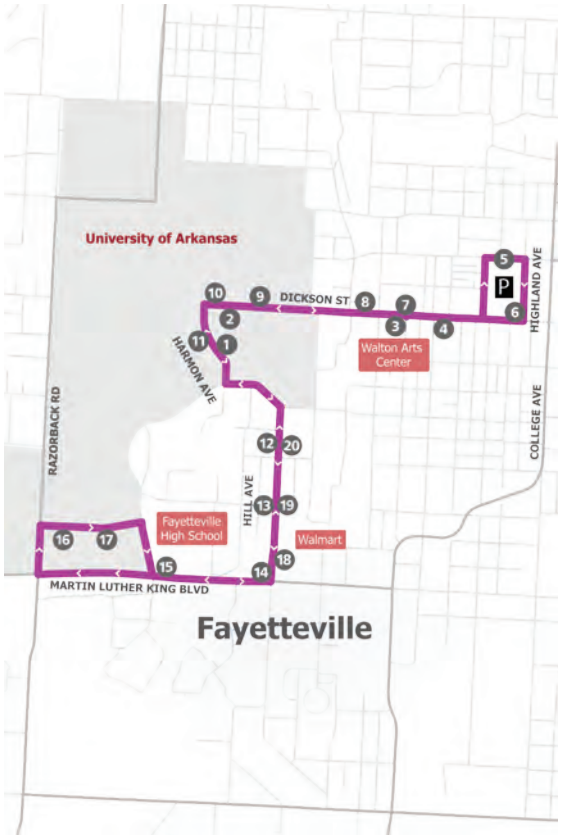


PRODUCTIVITY

Daily Revenue (Hr)	32:10
Daily Revenue (Mi)	273
Daily Trips	97
Avg. Daily Boardings	1,782
Annual Boardings	309,254
Boardings/Rev Hr	55.4
Boardings/Rev Mi	6.5
Boardings/Trip	18.4

RAZORBACK TRANSIT 13

Route 11 is a Razorback Transit fixed route that operates on the University of Arkansas campus, connecting major points of interest including the Razorback Stadium and many other university facilities, as well as the Garland Center, the Pat Walker Health Center, and Lot 56 (south campus). The route primarily travels along Garland Ave., Ladyback Dr., Razorback Rd., and Maple St. Route 11 begins at Union Station and provides connectivity to several university sporting facilities.



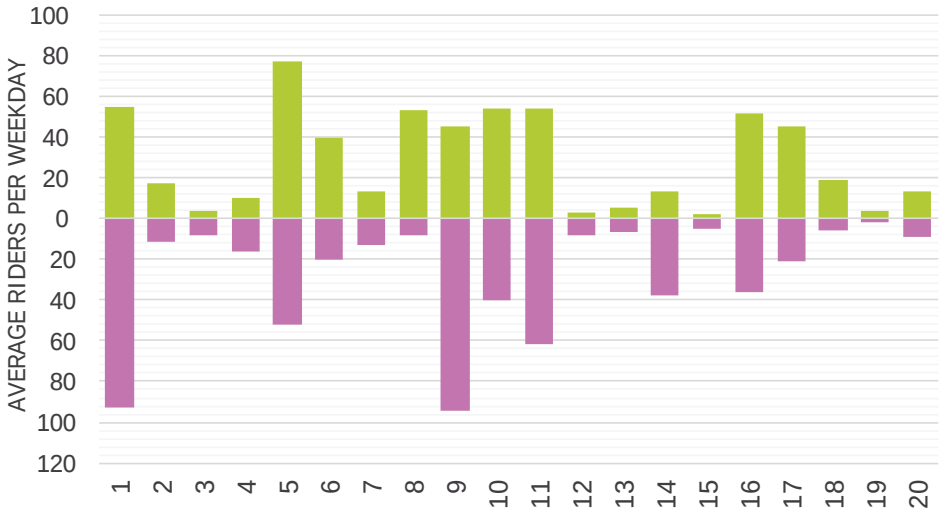
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:00 to 18:14	15 / 30	39
Nights	18:30 to 22:09	60	4
Saturday	7:30 to 22:09	30 / 60	23

2
Peak Buses

14,889
People & Jobs

RIDERSHIP BY STOP



BOARDINGS
ALIGHTINGS

CONNECTIONS

11

44

48

RAZORBACK TRANSIT 13

KEY DESTINATIONS

- Campus buildings and amenities adjacent to Harmon Ave. and Dickson St.
- Dickson St. retail and dining
- The Walton Arts Center
- The U.S. Postal Service
- Collier Drug-Dickson
- Washington County Courthouse
- UMC Garage
- Walmart Neighborhood Market
- Fayetteville High School
- Razorback Field/Bogle Park
- Lot 56

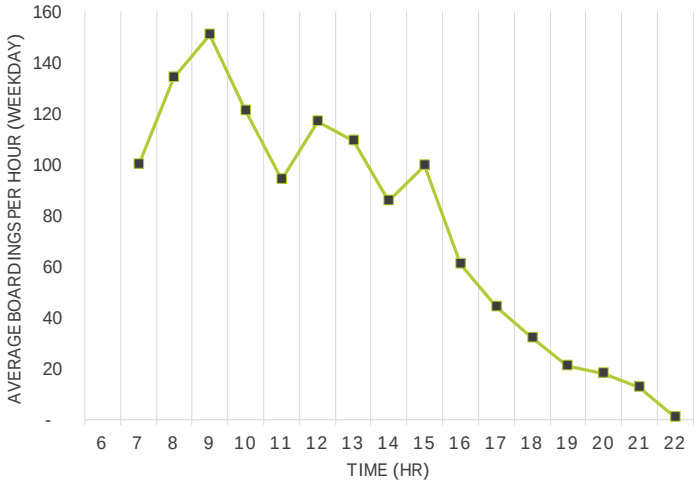
ON-TIME PERFORMANCE

70% On-Time

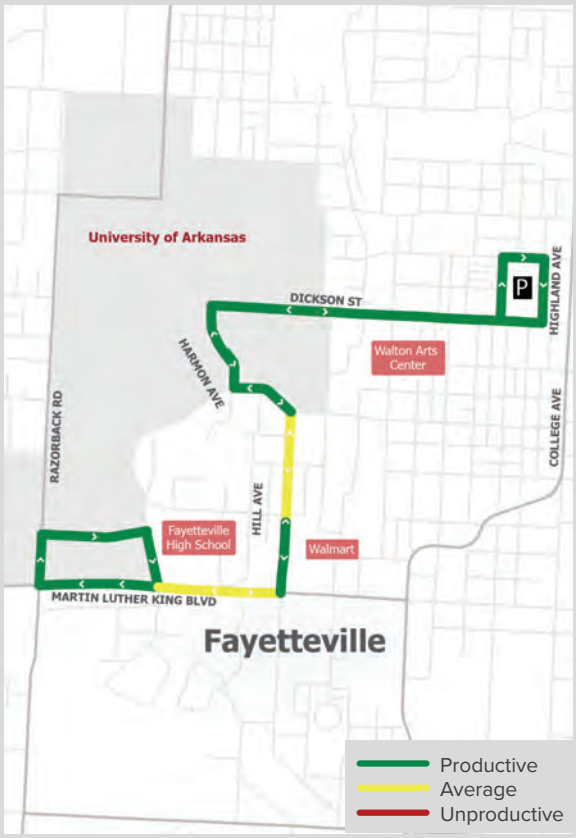
30% Early

0% Late

RIDERSHIP BY HOUR



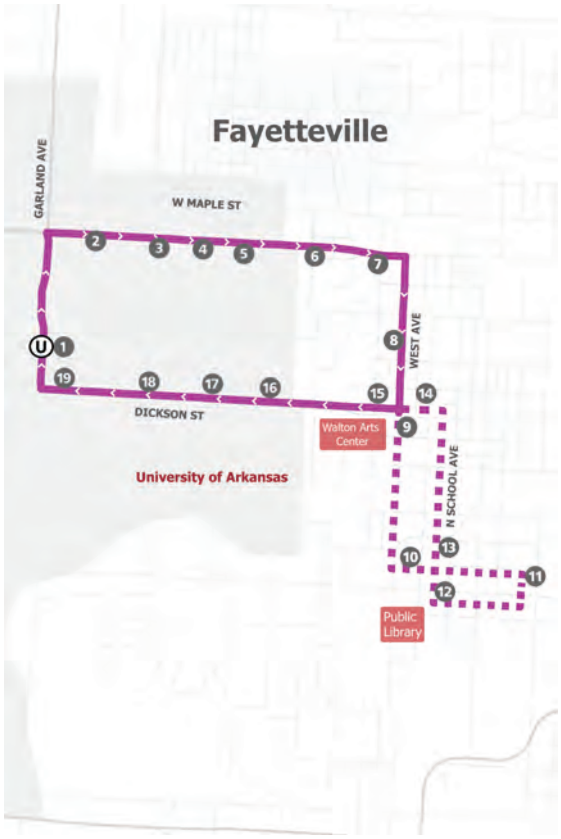
PRODUCTIVITY



Daily Revenue (Hr)	23:23
Daily Revenue (Mi)	212
Daily Trips	43
Avg. Daily Boardings	578
Annual Boardings	108,948
Boardings/Rev Hr	24.7
Boardings/Rev Mi	2.7
Boardings/Trip	13.4

RAZORBACK TRANSIT 17

Route 17 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville east of campus, connecting major points of interest including the Walton Arts Center, Fayetteville Public Library, and Hillcrest Towers. The route primarily travels along Maple St., West Ave., Dickson St., and Garland Ave., with an extension down School Ave. Route 17 provides connectivity to those coming from the downtown Fayetteville area with Union Station in the center of campus.



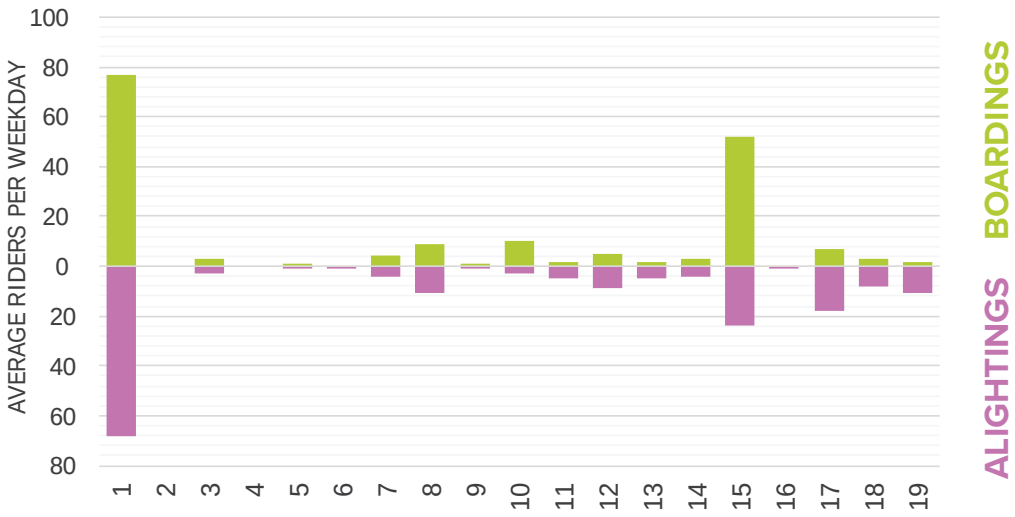
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 19:00	15	47
Nights	--	--	--
Saturday	--	--	--

1
Peak Bus

28,572
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

10 20

13 22

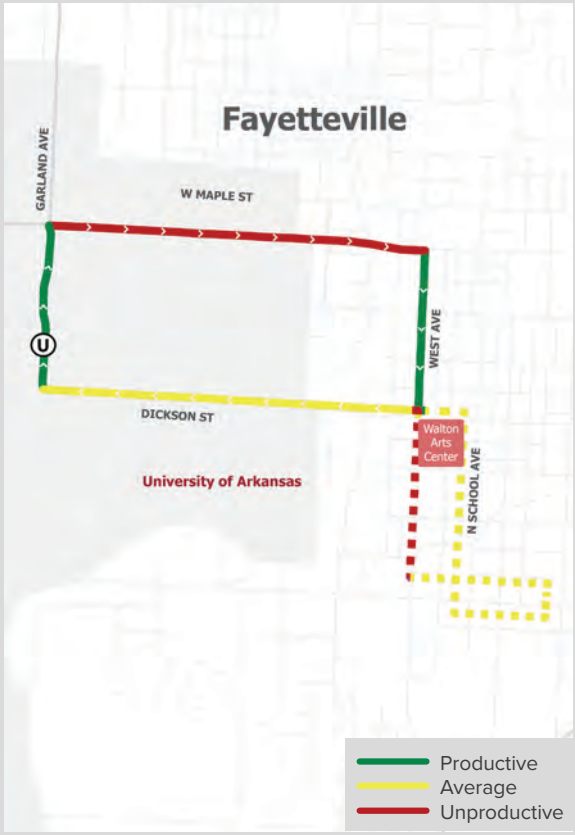
U

RAZORBACK TRANSIT 17

KEY DESTINATIONS

- Hillcrest Towers
- Dickson School
- The Walton Arts Center
- Dickson St. retail and dining
- Fayetteville Public Library
- Downtown Fayetteville Square
- University department buildings
- Residence Halls (Pomfret, Gregson, & Gibson Halls)

PRODUCTIVITY



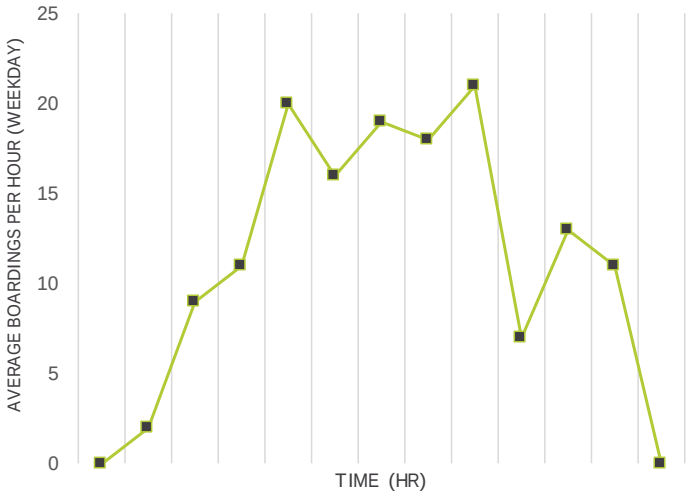
ON-TIME PERFORMANCE

80% On-Time

19% Early

1% Late

RIDERSHIP BY HOUR



Daily Revenue (Hr)	11:45
Daily Revenue (Mi)	77
Daily Trips	47
Avg. Daily Boardings	181
Annual Boardings	26,910
Boardings/Rev Hr	15.4
Boardings/Rev Mi	2.3
Boardings/Trip	3.9

RAZORBACK TRANSIT 21

Route 21 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville north of campus, connecting major points of interest including Washington County Fairgrounds, Harps Food Store, and Garland Avenue Parking Garage (north campus). The route primarily travels along Garland Ave., Drake St., and McConnell Ave. Route 21 provides connectivity to campus for those coming from north Fayetteville with the Fair Park stop and Union Station to the south.

SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	7:00 to 18:00	30	22
Nights	18:00 to 22:39	60	5
Saturday	7:00 to 22:39	30 / 60	24

1
Peak Bus

12,809
People & Jobs

CONNECTIONS

17

U

RIDERSHIP BY STOP

RAZORBACK TRANSIT 21

KEY DESTINATIONS

- Washington County Fairgrounds
- Harps Food Store and retail/dining nearby
- Leverett Elementary
- Lot 40A, 40, & 37
- Garland Avenue Parking Garage
- Arkansas Geological Survey

PRODUCTIVITY

Daily Revenue (Hr)	16:00
Daily Revenue (Mi)	160
Daily Trips	27
Avg. Daily Boardings	261
Annual Boardings	38,425
Boardings/Rev Hr	16.3
Boardings/Rev Mi	1.6
Boardings/Trip	9.7

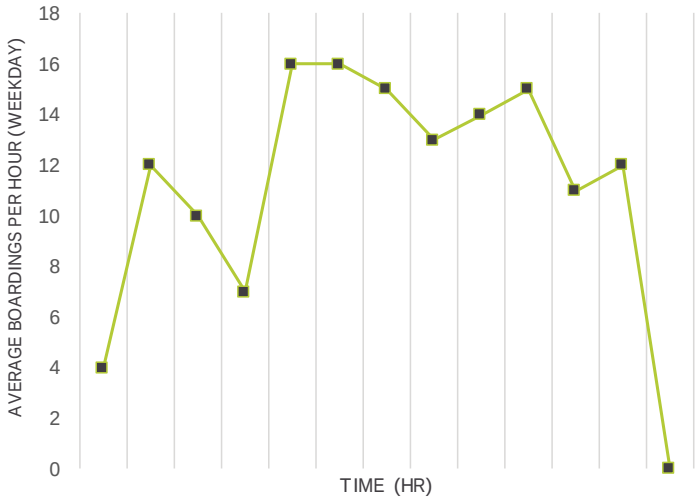
ON-TIME PERFORMANCE

81% On-Time

18% Early

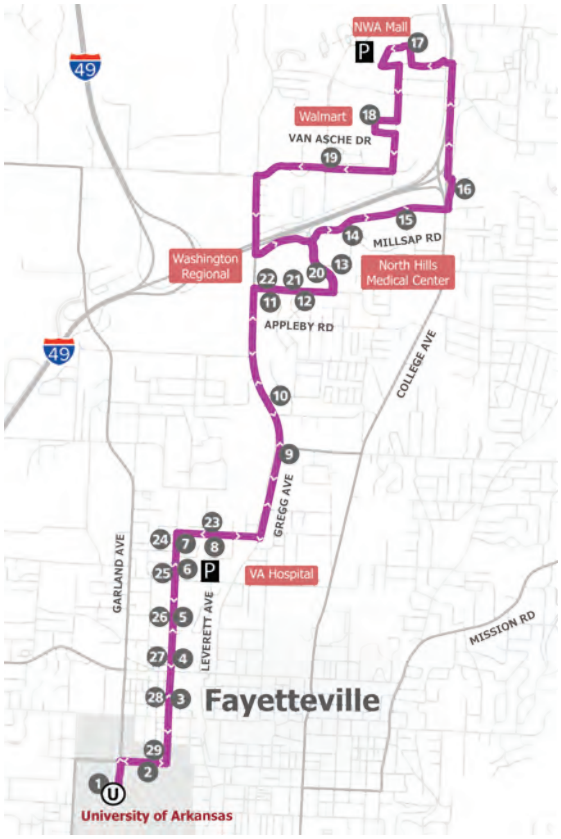
1% Late

RIDERSHIP BY HOUR



RAZORBACK TRANSIT 26

Route 21 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville north of campus, connecting major points of interest including Washington County Fairgrounds, Harps Food Store, and Garland Avenue Parking Garage (north campus). The route primarily travels along Garland Ave., Drake St., and McConnell Ave. Route 21 provides connectivity to campus for those coming from north Fayetteville with the Fair Park stop and Union Station to the south.



SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:15 to 18:29	15	46
Nights	18:00 to 22:39	30	8
Saturday	7:00 to 22:39	30 / 60	27

5
Peak Buses

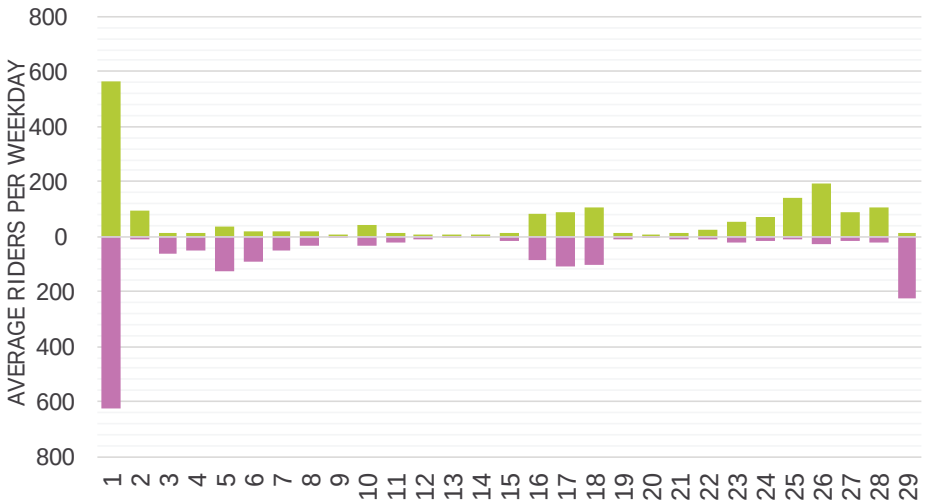
25,105
People & Jobs

CONNECTIONS

17

U

RIDERSHIP BY STOP



RAZORBACK TRANSIT 26

KEY DESTINATIONS

- Washington Regional Medical
- North Hills Medical Center
- Uptown Campus
- Walmart
- Target
- NWA Mall (park and ride)

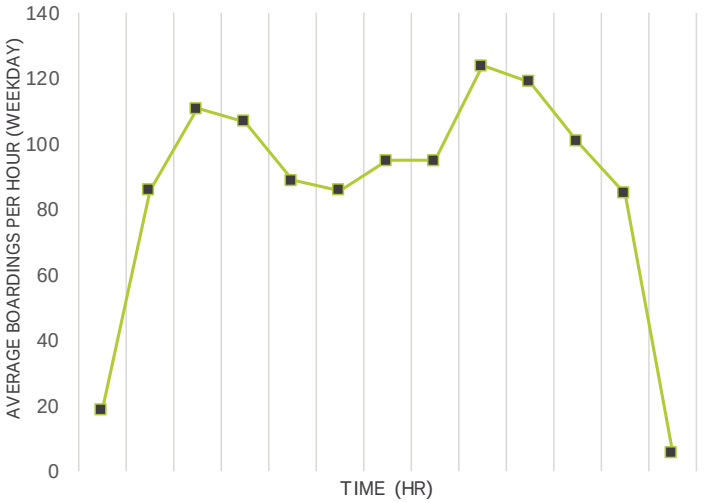
ON-TIME PERFORMANCE

71% On-Time

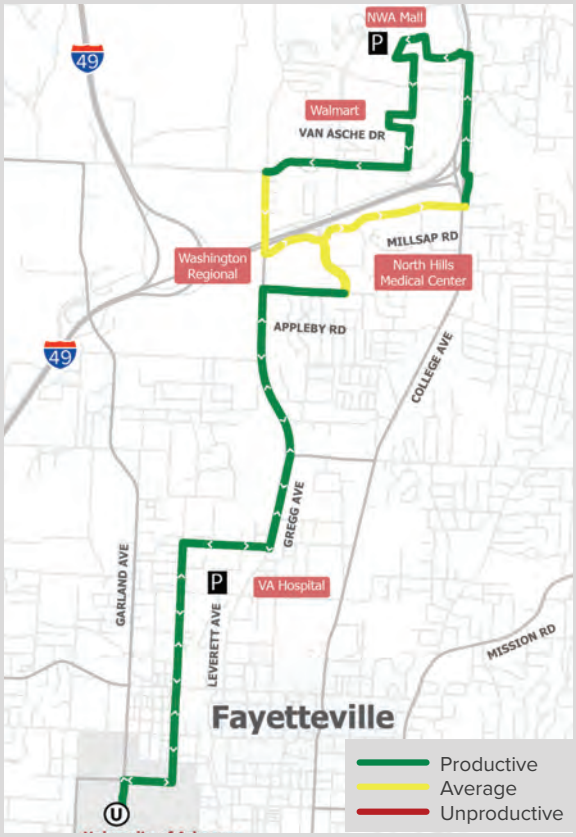
29% Early

0% Late

RIDERSHIP BY HOUR



PRODUCTIVITY



Daily Revenue (Hr)	67:00
Daily Revenue (Mi)	720
Daily Trips	54
Avg. Daily Boardings	1,858
Annual Boardings	441,576
Boardings/Rev Hr	27.7
Boardings/Rev Mi	2.6
Boardings/Trip	34.4

RAZORBACK TRANSIT 33

Route 33 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville west of campus, connecting major points of interest including the Campus Health Center, the Park and Ride at Garland Ave. & Holly St., and Washington Plaza. The route primarily travels along Garland Ave., Mt Comfort Rd. and Dean St., Porter Rd., and Wedington Dr. Route 33 provides connectivity to a large residential area north of campus with the Asbell Park stop to the center of campus at Union Station.

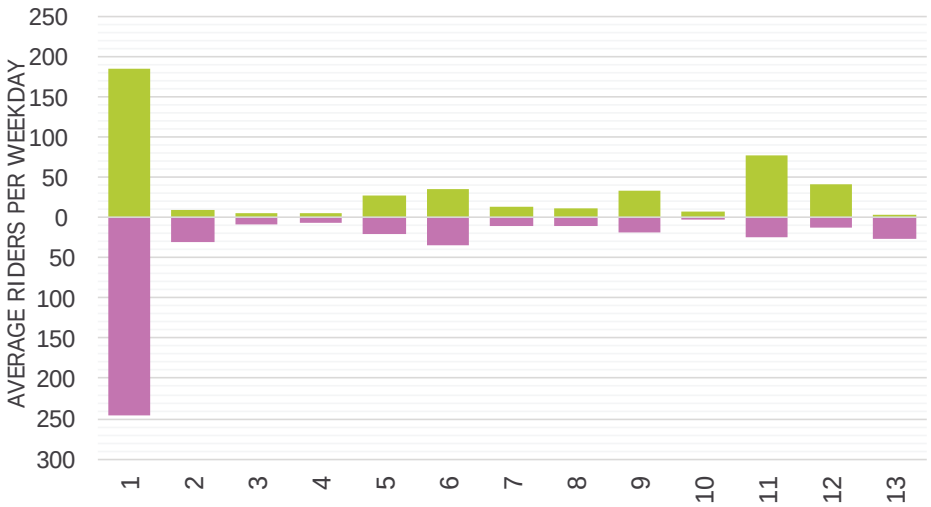
SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:26 to 18:29	20 / 30	31
Nights	18:20 to 22:34	40	7
Saturday	7:00 to 22:34	40	24

5
Peak Bus

12,811
People & Jobs

RIDERSHIP BY STOP



CONNECTIONS

21

35

48

U

RAZORBACK TRANSIT 33

KEY DESTINATIONS

- Campus Health Center
- Park and Ride at Garland Ave. & Holly St.
- Washington Plaza (Park)
- Residential areas surrounding Asbell Park
- Grocery and dining at Garland & Wedington

PRODUCTIVITY

Daily Revenue (Hr)	23:27
Daily Revenue (Mi)	173
Daily Trips	38
Avg. Daily Boardings	459
Annual Boardings	89,163
Boardings/Rev Hr	19.6
Boardings/Rev Mi	2.7
Boardings/Trip	12.1

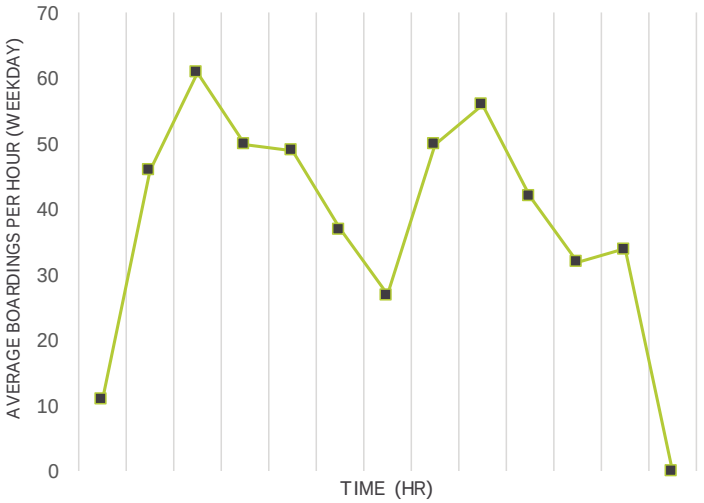
ON-TIME PERFORMANCE

68% On-Time

32% Early

0% Late

RIDERSHIP BY HOUR



RAZORBACK TRANSIT 35

Route 35 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville west of campus, connecting major points of interest including the Walmart Market, Harps Food Store, and a Park and Ride at the Links. The route primarily travels along Garland Ave., Wedington Dr., Persimmon St., and Rupple Rd. Route 35 provides connectivity to those coming from outside of the campus area with the Park and Ride at the Links stop to the west and the Union Station stop to the east.

SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:40 to 18:07	20 / 30	27
Nights	18:10 to 22:49	40	7
Saturday	6:50 to 22:49	40	24

3
Peak Buses

14,783
People & Jobs

CONNECTIONS

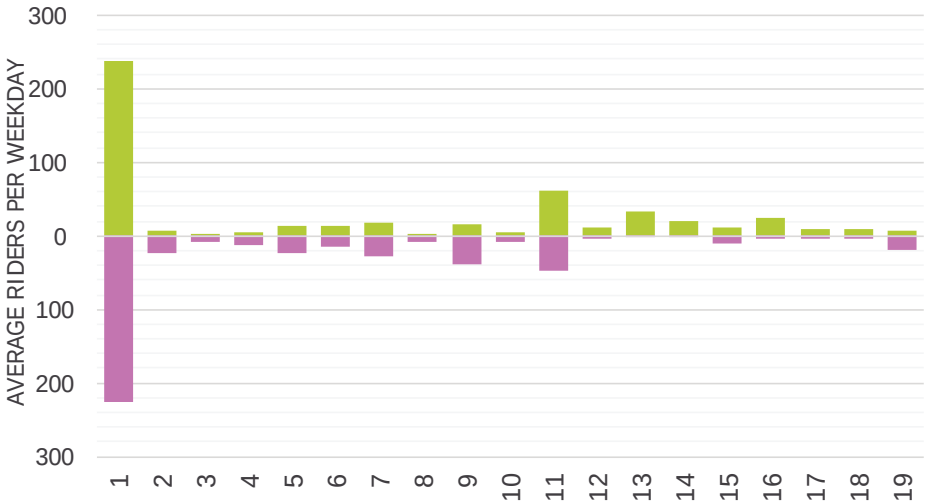
21

33

48

U

RIDERSHIP BY STOP



RAZORBACK TRANSIT 35

KEY DESTINATIONS

- Campus Health Center
- Park and Ride at Harps
- Walmart Market
- Boys & Girls Club
- Walgreens
- Park and Ride at the Links
- Residential areas such as the Links
- Dining and retail along Wedington Dr.
- Campus buildings surrounding Union Station

PRODUCTIVITY

Daily Revenue (Hr)	31:19
Daily Revenue (Mi)	323
Daily Trips	34
Avg. Daily Boardings	510
Annual Boardings	102,882
Boardings/Rev Hr	16.3
Boardings/Rev Mi	1.6
Boardings/Trip	15.0

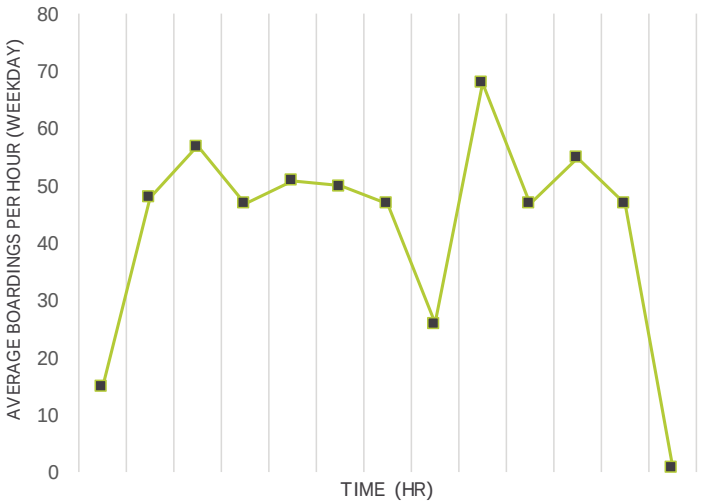
ON-TIME PERFORMANCE

64% On-Time

36% Early

0% Late

RIDERSHIP BY HOUR



RAZORBACK TRANSIT 44

Route 44 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville west of campus, connecting major points of interest including the Walmart, Westgate Shopping Center, and ALLPS Alternative School. The route primarily travels along Stadium Dr., Razorback Rd., and Martin Luther King Jr Blvd., as well as making a loop around the ALLPS Alternative School. Route 44 provides connectivity to those coming from outside of the campus area with the Walmart stop to the west and Union Station to the east.

SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:30 to 18:00	15 / 30	36
Nights	18:00 to 22:39	30	13
Saturday	7:30 to 22:39	30	28

3
Peak Buses

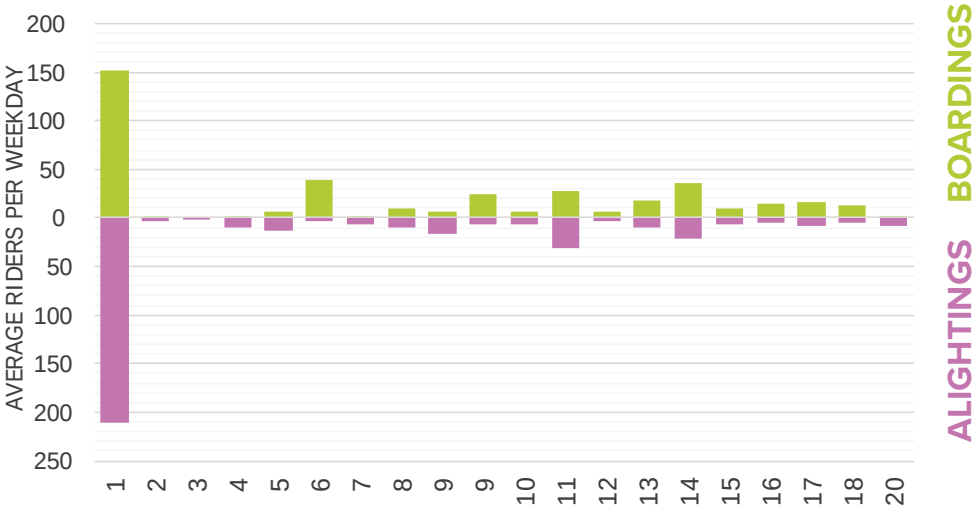
12,050
People & Jobs

CONNECTIONS

48

U

RIDERSHIP BY STOP



RAZORBACK TRANSIT 44

KEY DESTINATIONS

- Walmart
- Westgate Shopping Center
- ALLPS Alternative School

PRODUCTIVITY

Daily Revenue (Hr)	25:10
Daily Revenue (Mi)	342
Daily Trips	49
Avg. Daily Boardings	392
Annual Boardings	66,639
Boardings/Rev Hr	15.6
Boardings/Rev Mi	1.1
Boardings/Trip	8.0

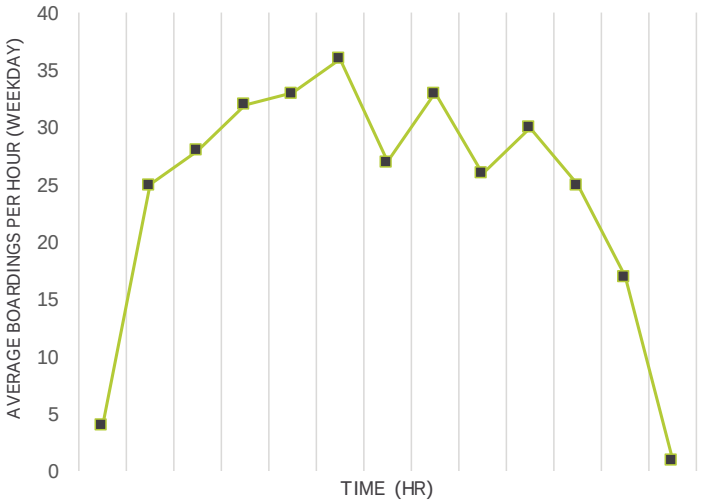
ON-TIME PERFORMANCE

50% On-Time

48% Early

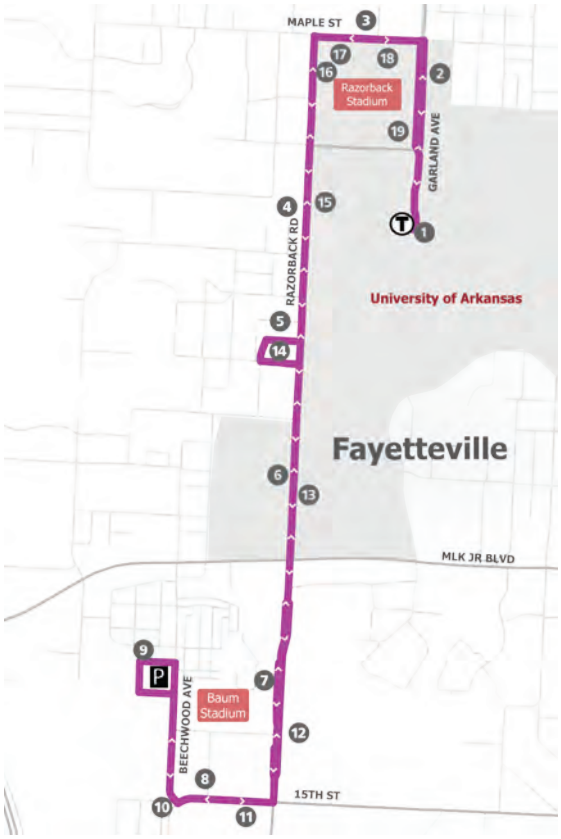
2% Late

RIDERSHIP BY HOUR



RAZORBACK TRANSIT 48

Route 48 is a Razorback Transit fixed route that operates between the University of Arkansas and parts of Fayetteville south of campus, connecting major points of interest including the Razorback Stadium, Baum Stadium, and UARK Remote Parking Lot 99. The route primarily travels along Garland Ave., Razorback Rd., and Beechwood Ave. Route 48 provides connectivity to those coming from outside of the campus area with the Lot 99 (Beechwood) stop to the south and Union Station to the north.



SERVICE CHARACTERISTICS

SERVICE DAY	SPAN OF SERVICE	FREQUENCY	DAILY TRIPS
Weekday (M - F)	6:15 to 18:14	10 / 15	54
Nights	18:00 to 22:39	30	9
Saturday	7:00 to 22:39	30	28

4
Peak Buses

12,277
People & Jobs

CONNECTIONS

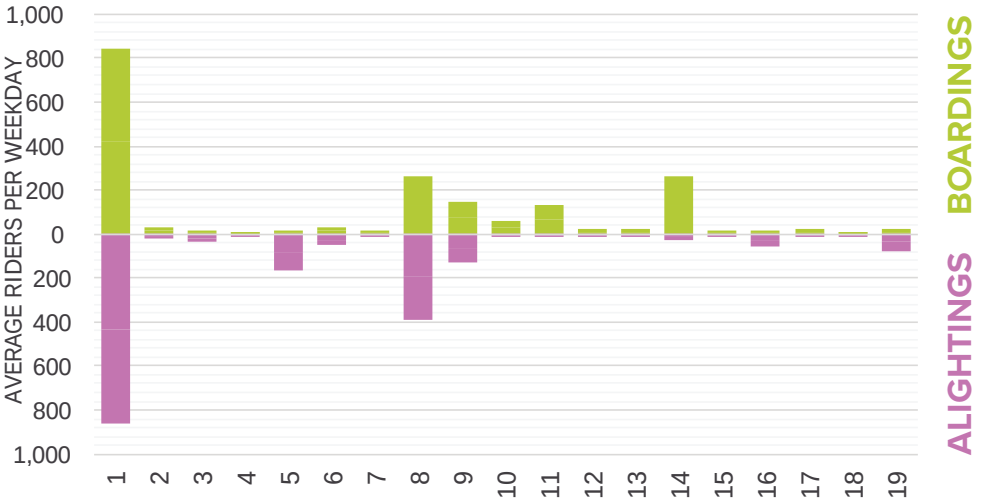
11

13

35

U

RIDERSHIP BY STOP

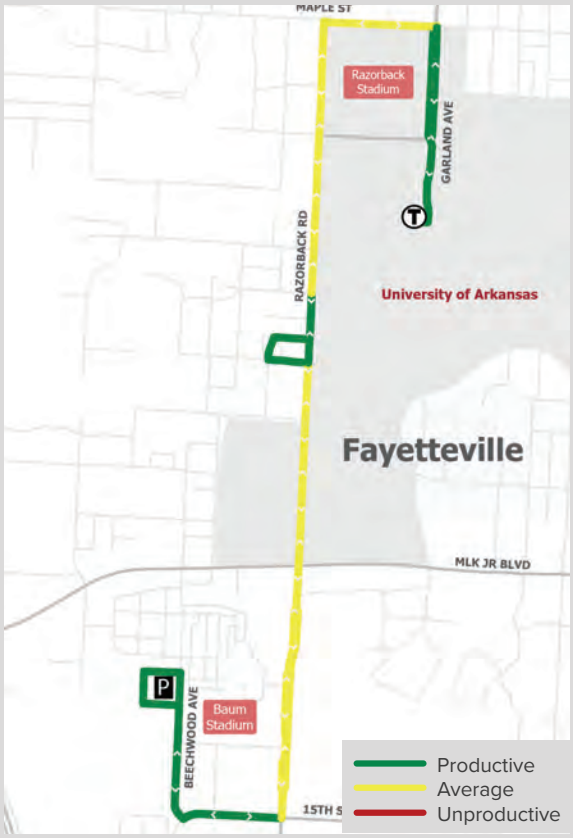


RAZORBACK TRANSIT 48

KEY DESTINATIONS

- Razorback Stadium
- Baum Stadium
- HPER - University Recreation
- Pomfret Hall
- UARK Remote Parking Lot 99

PRODUCTIVITY



Daily Revenue (Hr)	32:15
Daily Revenue (Mi)	402
Daily Trips	63
Avg. Daily Boardings	964
Annual Boardings	172,246
Boardings/Rev Hr	29.9
Boardings/Rev Mi	2.4
Boardings/Trip	15.3

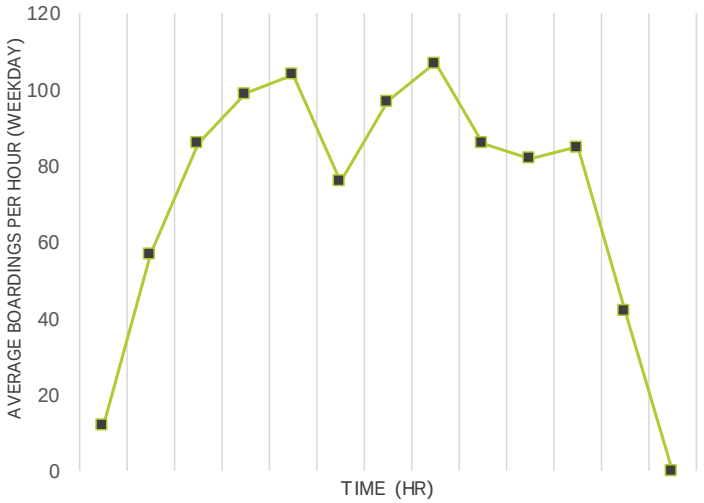
ON-TIME PERFORMANCE

62% On-Time

38% Early

0% Late

RIDERSHIP BY HOUR



CHAPTER 4

REGIONAL TRANSIT FRAMEWORK

CHAPTER 4: REGIONAL TRANSIT FRAMEWORK

INTRODUCTION

The Regional Transit Framework discusses the project team's process in identifying customized route and network recommendations for Bentonville, Rogers, Springdale, and Fayetteville. Both ORT and RT routes were analyzed and realigned to create an optimized and connected transit network at the local and regional level. The identification of key transit corridors that provide enhanced connectivity and direct routing focused on moving NWA residents in an intuitive, time efficient manner, and resulted in community supported recommendations. The alternative development process resulted in recommendations for a mix of fixed route, demand response, and potential high-capacity transit corridors in the latter phase of the Transit Development Plan that balance quality with cost.

Draft recommendations (including both level of service updates and route realignment) were created using findings from in-depth technical analyses (i.e. market and operational analyses) and robust public engagement efforts performed earlier in the TDP process. These recommendations were provided to the public for comment, through both a series of community events and online and paper surveys to obtain public feedback about the proposed changes. Following the public outreach phase of the alternative development, feedback was incorporated back into the draft recommendations to create a locally preferred alternative (LPA). The following sections further discuss the methods and process behind the regional transit framework, as well as the draft and final recommendations that were a result of the analysis.

RECOMMENDATION OVERVIEW

The draft recommendations were generated through close coordination between all involved agencies (NWARPC, ORT, RT), key stakeholders, and the NWA community. Transit service was initially analyzed at the fixed route region level - a geographical extent used in the Chapter 2 Market Analysis - to create level of service, route realignment, and demand response suggestions unique to each community.

INTERNAL REVIEW

Several meetings were held over a four-week period to provide initial recommendations for each fixed route region. Recommendations were strictly based on potential alignments (level of service was analyzed after finalizing the draft). Initial recommendations provided to the agencies contained a phased implementation plan; that is, route alignments categorized into three distinct phases for implementation to help disperse cost and prioritize sustainable phased changes. The phases are listed below:

- **Phase I**: 1 to 2 years
- **Phase II**: 2 to 5 years
- **Phase III**: 5 to 10 years

NWARPC, ORT, and RT were allocated time to review initial recommendations and return feedback for further analysis. Once agency feedback was incorporated, draft alternatives were produced with modified system design. The next round of review was conducted with city leadership from each of the four major cities in the service area. Feedback from each city was gathered and the recommendations were further refined to incorporate City leadership input. Final meetings involving all agencies were then held for each fixed route region prior to draft finalization.

PUBLIC REVIEW

Following the internal vetting of system alternatives, draft alternatives were presented to the NWA public in the form of two public open houses, as well as online and paper surveys. The engagement effort was conducted to obtain public opinion on the preliminary system recommendations. The system was split into recommendations based on fixed route region extents and one displaying Phase III regional corridors. Following public outreach, comments from the open houses and surveys were collected and synthesized for incorporation

into the final alternative. Public input will be discussed in further detail later in this chapter.

METHODOLOGY

In order to develop transit alternatives that provide the region efficient, well connected, more accessible, and more frequent transit service, analyses from earlier stages of the project were utilized. These methods were used to prepare the draft alternative that was presented to the agencies (NWARPC, ORT, RT) for review. The following section discusses methods used for preliminary route realignments.

MARKET ANALYSIS

The market analysis serves as a critical tool for developing transit alternatives as it provides a snapshot of where current transit markets are located. Utilizing previous market analysis efforts allowed the project team to visualize transit demand in the NWA region, and realign the existing system accordingly. Aspects of the market analysis utilized in the recommendation development process are listed below:

- **Transit Demand** displays where the current market for transit ridership currently exists;
- **Transit Supply** displays where current service exists and where service is lacking; and
- **Future Demand** shows where future markets will be located based on the NWA Travel Demand Model (TDM).

For more information on the above market analysis components, refer to the Chapter 2 Market Analysis.

OPERATIONAL ANALYSIS

The operational analysis provided another layer with which the team used to guide the decision-making process. The parameters detailed further in this section provided an in-depth look at the state of existing transit service in NWA, therefore displaying regional levels of transit supply in further detail.

Productivity

In order to develop an understanding of existing travel patterns and potential opportunities to improve connectivity in the NWA region, boarding and alighting data was analyzed at the stop, segment, and network level. The purpose of the analysis was to evaluate current ridership and make observations about route performance to inform the draft alternative.

Boarding and alighting data was provided by ORT and RT staff, and are representative of all stops within the NWA fixed route system. For each stop along each route, the project team analyzed daily boarding and alighting data. The data was aggregated to calculate average daily boarding activity for each stop. Stops were then given a performance classification (Table 4.1) based on the amount of boarding activity compared to other stops found in the regional system. Stops were evaluated on a universal scale applied to ORT and RT.

TABLE 4.1: CONNECT NWA PERFORMANCE CLASSIFICATIONS

STOP LEVEL RIDERSHIP SCORES	DAILY BOARDING ACTIVITY	BUS STOP COUNT
Poor (1)	0 - 5 passengers	406
Moderate (2)	6 - 19 passengers	61
Good (3)	20 - 49 passengers	54
Excellent (4)	50 or more passengers	59

Note that Union Station (Fayetteville) was not included in the analysis to avoid skewing the stop classifications, as the station's daily boarding activity presents itself as an outlier and its importance is already established.

Once boarding activity was classified for all stops, the project team identified and classified segments along each route based on performance (i.e. how much activity occurs at a given location). Segments were identified using a qualitative approach that involved observing stop classifications along a route and identifying where there were similar levels of boarding activity between adjacent stops. For example, if four stops in row were classified as "Excellent", the route segment connecting these stops was considered to be performing well.

For the entirety of each route, segments were identified based on groups of stops with similar performance classifications, and each segment was assigned a second performance classification; productive, average, or unproductive. This resulted in categorized segments by route that served as 'building blocks' used to evaluate real-world solutions. In the map example (Figure 4.1), productive segments are displayed in green, average in yellow, and unproductive in red. From this it is inferred that the productive segments should not be removed. Average and unproductive segments are more likely to be rerouted, realigned, or served using an alternative service delivery method. Conducting this analysis at the route level allowed for the project team to compare both the route's individual productivity and the productivity of the corridor and system as a whole.

Public Engagement

Findings from the team's previous public engagement efforts, held in the Spring of 2019, were also used to inform draft alternatives. This allowed for qualitative, local knowledge to help drive recommendations for the new transit system. Survey results and comments were used to make the recommended alternatives better reflect the region's transit vision. Specifically, outreach played a large role in defining the updated levels of service for both ORT and RT routes. Routes were generally given higher frequencies, more convenient span (e.g. running later in the evenings), and more intuitive route designs based on what the project team heard during these events. Refer to Chapter 1 for further information on previous public engagement efforts.

FIGURE 4.1: ROUTE 17 PRODUCTIVITY MAP

DRAFT RECOMMENDATIONS

Following extensive agency coordination and analysis review, a draft alternative recommendation was displayed at both the regional (1) and fixed route region (3) extents. Coverage measures (i.e. how many people and jobs are covered) comparing existing and future systems were generated to display the potential benefits of the system. These measures were displayed at the city and regional level. The regional draft alternatives were presented as a complete build out, meaning the recommendations showed all routes from the three implementation phases of the TDP. The following sections discuss each part of the draft alternative in further detail.

PRELIMINARY ROUTE ALIGNMENTS & SERVICE LEVELS

Figure 4.2 below displays a summary of the measures used to compare existing service to the proposed alternative service. The figure displays improvements in connectivity and efficiency in transit occurring by city and the overall region if the alternative were implemented. Increases in transit routes and buses are provided for a better understanding of what will be required to achieve these improved measures in the future.

FIGURE 4.2: CONNECT NWA ALTERNATIVE COVERAGE BY REGION & CITY

REGIONAL TRANSIT BENEFITS OF CONNECT NWA

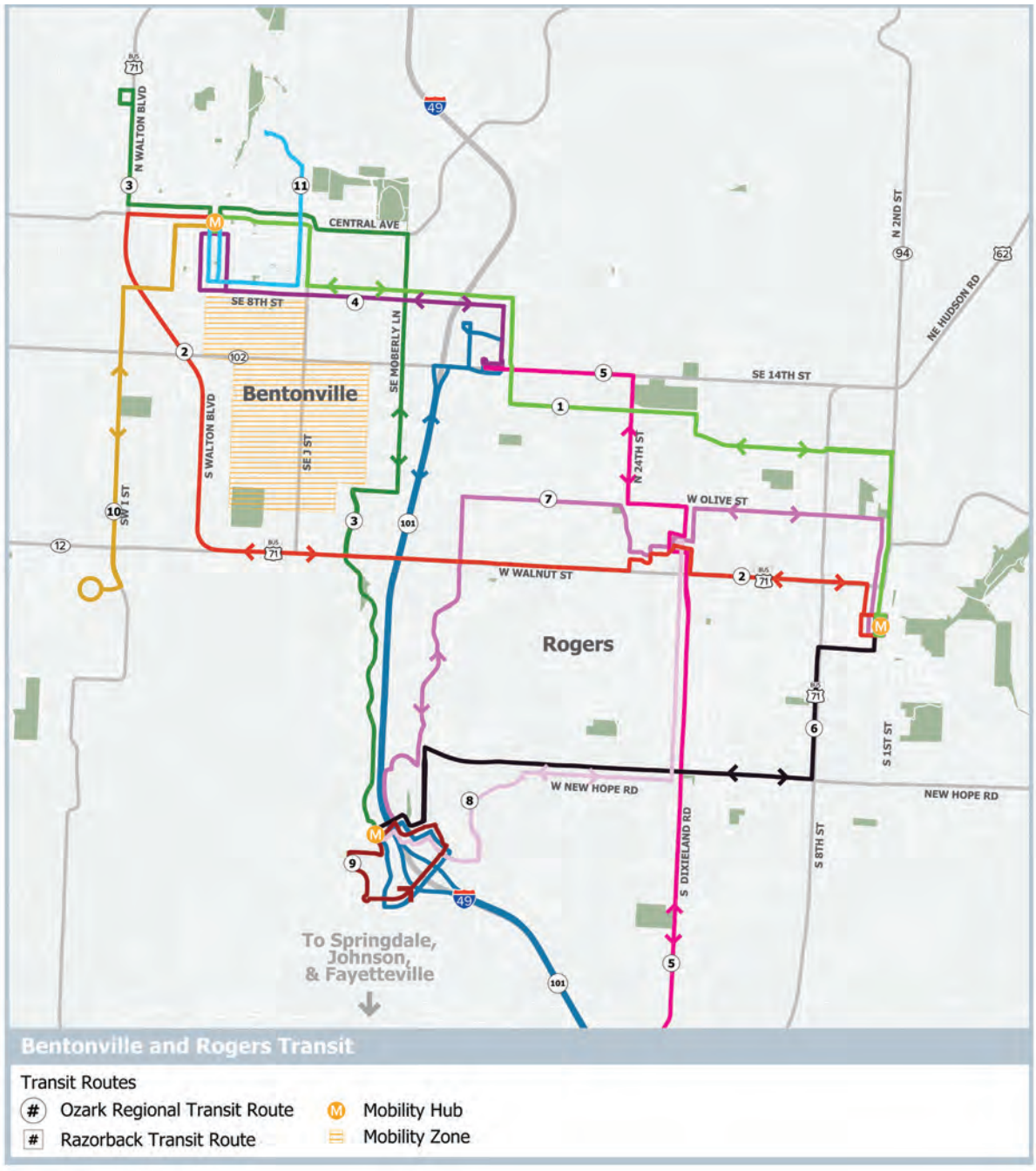
Connect Northwest Arkansas

	Bentonville		Fayetteville		Rogers		Springdale		Region	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
System Characteristics										
Transit Routes #	1	7	15	15	3	8	4	6	23	30
Peak Buses #	1	15	27	40	4	19	5	15	37	68
Service Coverage										
# People & Jobs	31,451	40,426	66,484	67,404	26,045	37,421	45,647	43,713	169,627	188,964
Frequent Service Coverage (30 minutes or better)										
1/4 mile Walkshed	0	33,412	59,357	63,447	0	22,042	0	35,775	59,357	154,676
Travel Time to Mobility Hubs										
Minutes / People & Jobs										
Travel Time Zone 60 #	61,000	125,827	80,646	129,189	23,859	113,578	68,727	155,710	234,233	524,305
45 #	44,247	81,604	47,290	76,793	14,787	45,767	45,507	98,931	151,831	303,094
30 #	33,580	41,908	24,886	37,189	8,042	12,860	23,562	38,614	90,069	130,571
15 #	13,009	14,739	6,408	6,474	2,533	2,583	8,686	9,916	30,636	33,712

Bentonville & Rogers

As shown in Figure 4.3, the Bentonville/Rogers area contains 12 recommended routes with an additional 28 peak hour buses. Frequencies range from 15 to 60 minutes. The draft alternative establishes several linear routes providing more connectivity between Bentonville and Rogers, including mobility hubs at the Arkansas Music Pavilion and both Downtown Bentonville and Rogers.

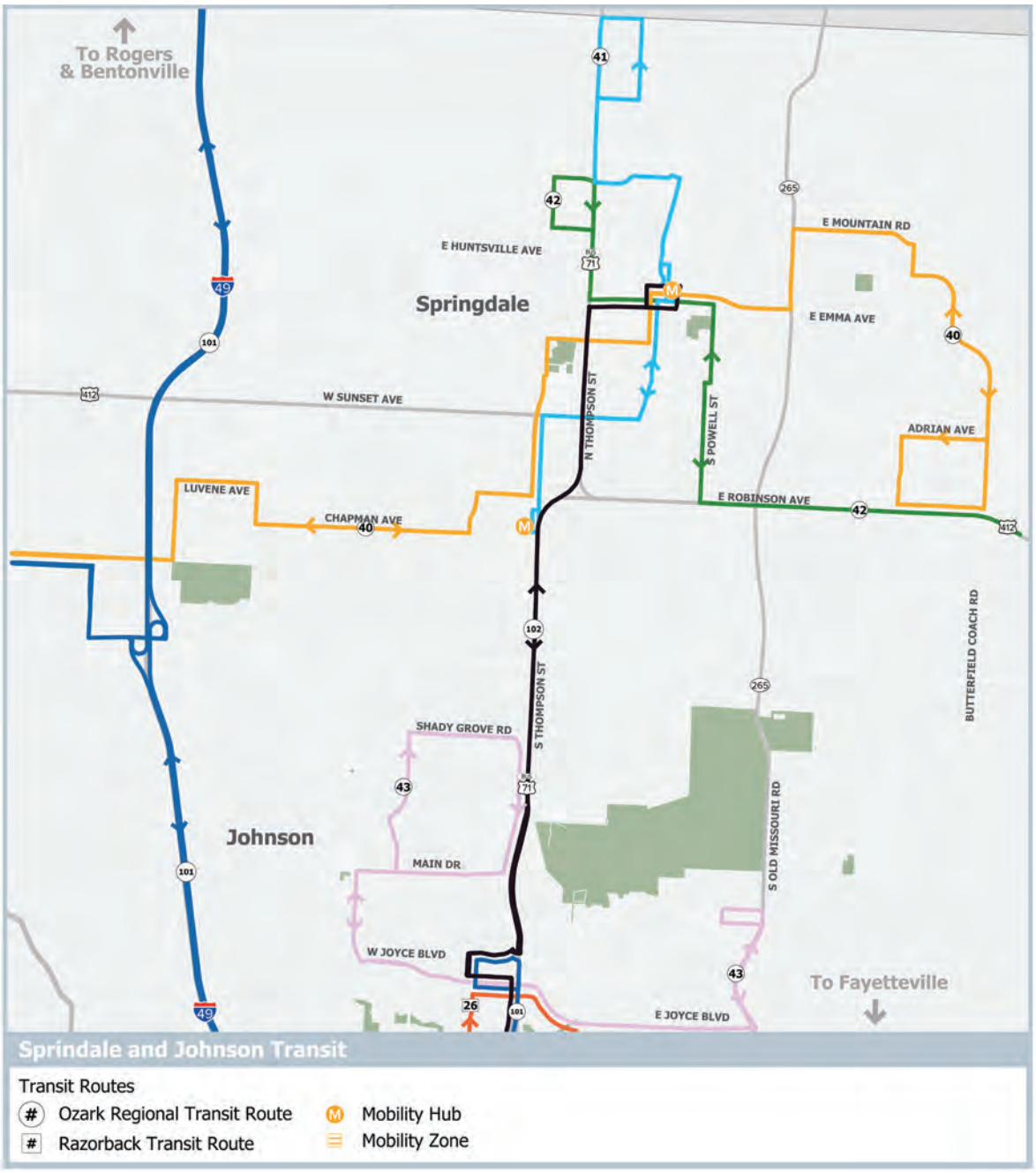
FIGURE 4.3: BENTONVILLE & ROGERS DRAFT ALTERNATIVE RECOMMENDATIONS



Springdale

As shown in Figure 4.4, Springdale adds 2 routes with an addition of 10 peak hour buses. Frequencies range from 15 to 60 minutes; previous service did not provide a route running at or lower than a 30-minute frequency. The draft alternative looks to create major transfer points at Shiloh Square and the future NWACC campus.

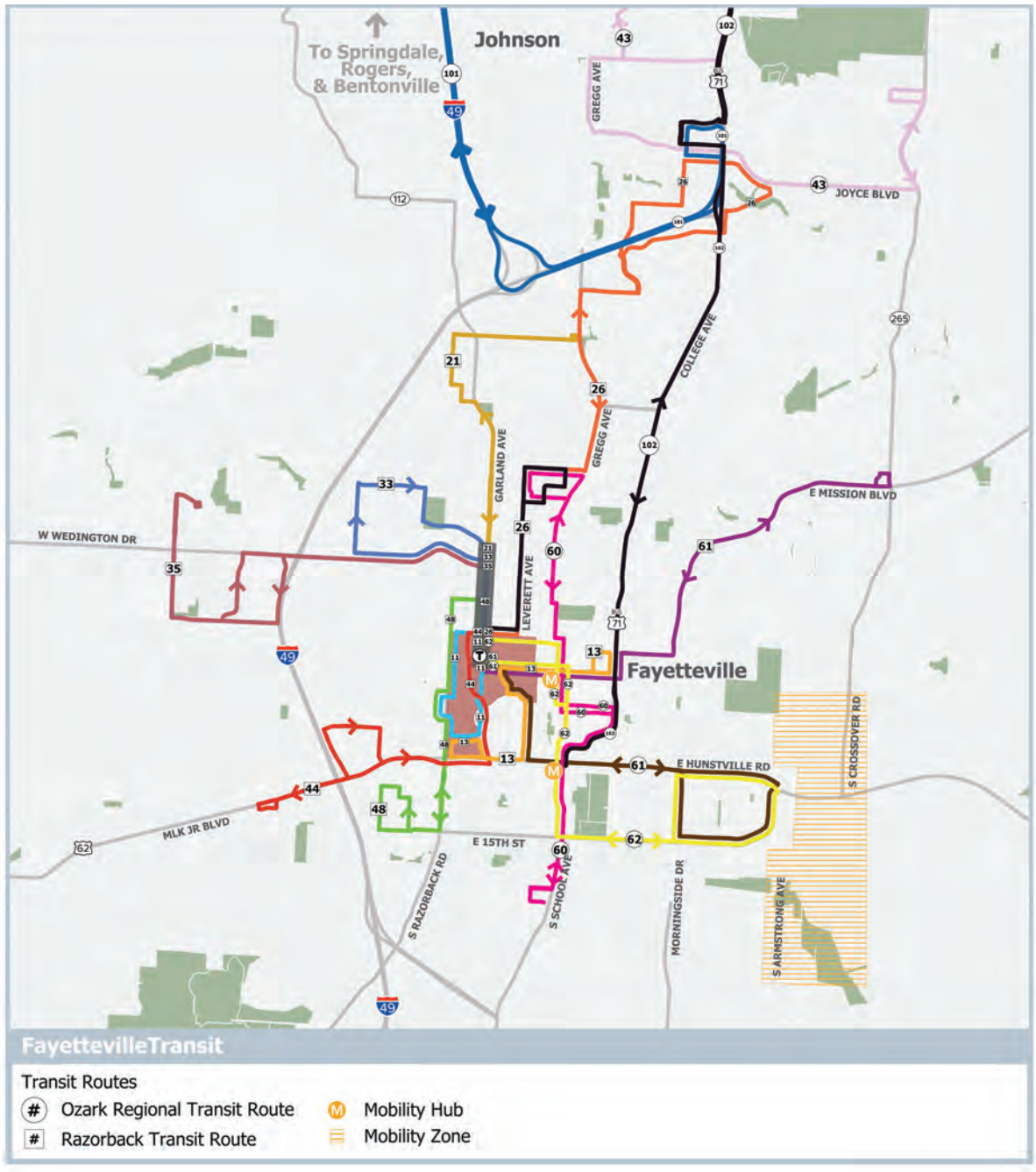
FIGURE 4.4: SPRINGDALE DRAFT ALTERNATIVE RECOMMENDATIONS



Fayetteville

As shown in Figure 4.5, Fayetteville adds no new routes (maintains 15) but adds 12 peak hour buses to existing service, consolidates various route segments and proposes realignment efficiencies. Frequencies range from 15 to 60 minutes. The draft alternative creates a more regionally connected Fayetteville, with proposed ORT routes using Union Station and a high frequency route connecting downtown Fayetteville to Springdale.

FIGURE 4.5: FAYETTEVILLE DRAFT ALTERNATIVE RECOMMENDATIONS



MOBILITY HUBS

Mobility hubs are specific areas or locations within an urban/suburban environment where several modes of travel on varying networks converge to form an integrated, multimodal site that provides users with convenient and connected mobility options. These hubs optimize connections between individual modes and the broader transportation network and serve as anchor points for activity and intraurban travel. Mobility hubs also support and serve as catalysts for Transit Oriented Development (TOD). They provide opportunities for Public Private Partnerships (PPP) and value capture development projects. Mobility hubs will perform a crucial role in Connect NWA and help tie the local and regional transit networks together as well as provide transit supportive land use.

Mobility hubs are best situated at fixed route transit stops and/ or stations that experience high levels of rider boarding and alighting activity. In addition, these hubs should be well connected to active transportation networks, such as sidewalks, bicycle lanes/routes, and shared-use paths, as well as the street network so that options such as carpool/carshare/rideshare, private vehicles, and scooters are accessible. Mobility hubs provide users with connections to various modal networks – they provide spaces for users to appropriately access these modes, such as bus/rail stops, bus bays, bicycle parking, safe curbside spaces for rideshare or carpool pick-up/drop-off, docking stations for options such as bikeshare and carshare, and parking for private vehicles.

PRIMARY CHARACTERISTICS

The primary characteristics that will enable a successful mobility hub include:

- Locating near in-demand destinations and a high-density mix of transit-supportive land uses;
- Creating direct connections to various modal transportation networks;
- Providing the necessary space and infrastructure to allow users to make transfers between the different modes; and
- Integrating the connecting modes using wayfinding and technology, such as mobile apps, to allow users to seamlessly enter and exit the hub.

AMENITIES

Depending on the scale, established mobility hubs typically have several amenities that separate the facility from standard transit stations/centers. This can include amenity types that help support the multiple modes of transportation meeting at the hub, including:

- Open space for aesthetic and recreational purposes
- Retail space
- Bicycle storage/support stations (e.g. repair shops, vendors, etc.)
- Wayfinding
- Real-time information/kiosks
- Wi-fi

The final two amenity types, also referred to as information amenities, allow for better informed and connected users. Taking advantage of the widespread use of smartphone technology can positively impact first-last mile connectivity and allow users to better understand what options are available in the area.

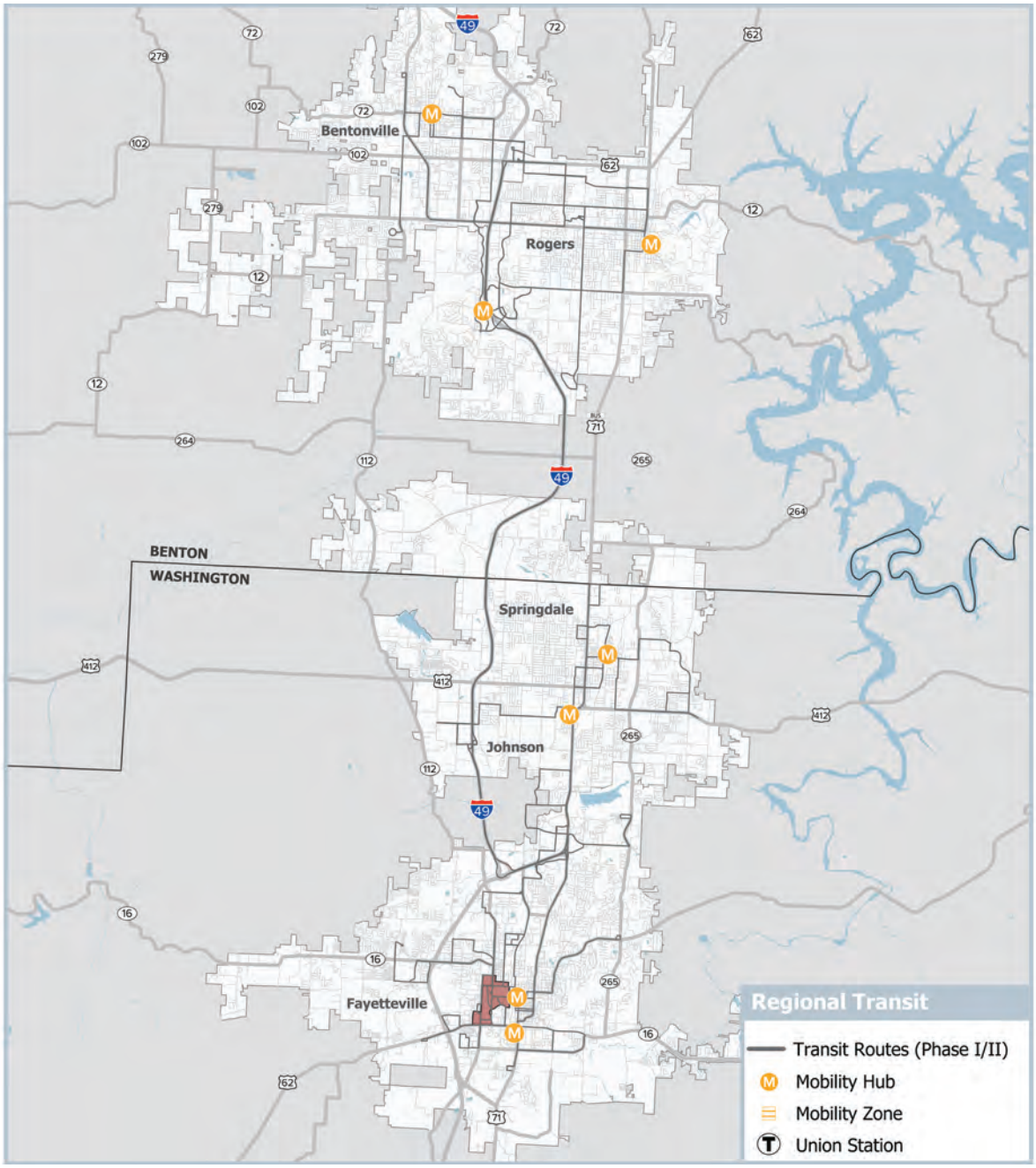
ANALYSIS

While technical work is essential in a location selection exercise, it is equally important to consider local knowledge/qualitative reasoning when defining potential mobility hub locations. Prior to the route alternatives development, participating agencies provided possible mobility hub locations for each of the NWA region's major municipal areas (Bentonville, Rogers, Springdale, Fayetteville) based on local expertise and their understanding of the region.

The areas recommended were based on knowledge of existing transit, active transportation (bicycle and pedestrian infrastructure), and roadway connectivity; available land for development; future development of bond projects; and available right-of-way (ROW) in the immediate area. These recommendations were overlaid and tagged to the Traffic Analysis Zone (TAZ) layer for reference when completing the quantitative analysis. Areas recommended by agency staff are as follows:

- **Bentonville**: The parcel adjacent to SW. Henry St., bordered by SW. A St. and S. Main St. southwest of Bentonville City Square.
- **Rogers**: The land west of I-49 and north of the Arkansas Music Pavilion, as well as Downtown Rogers (W. Cherry St. and S. 1st St.).
- **Springdale**: Shiloh Square and the vacant space within the Pleasant St. Walmart, adjacent to S. Thompson St./US Hwy. 71B.
- **Fayetteville**: The parcel adjacent to the Martin Luther King Jr. Blvd. and S. School Ave. intersection, and the corner of Dickson St. and West Ave. at the Walton Arts Center.

FIGURE 4.6: POTENTIAL MOBILITY HUB LOCATIONS



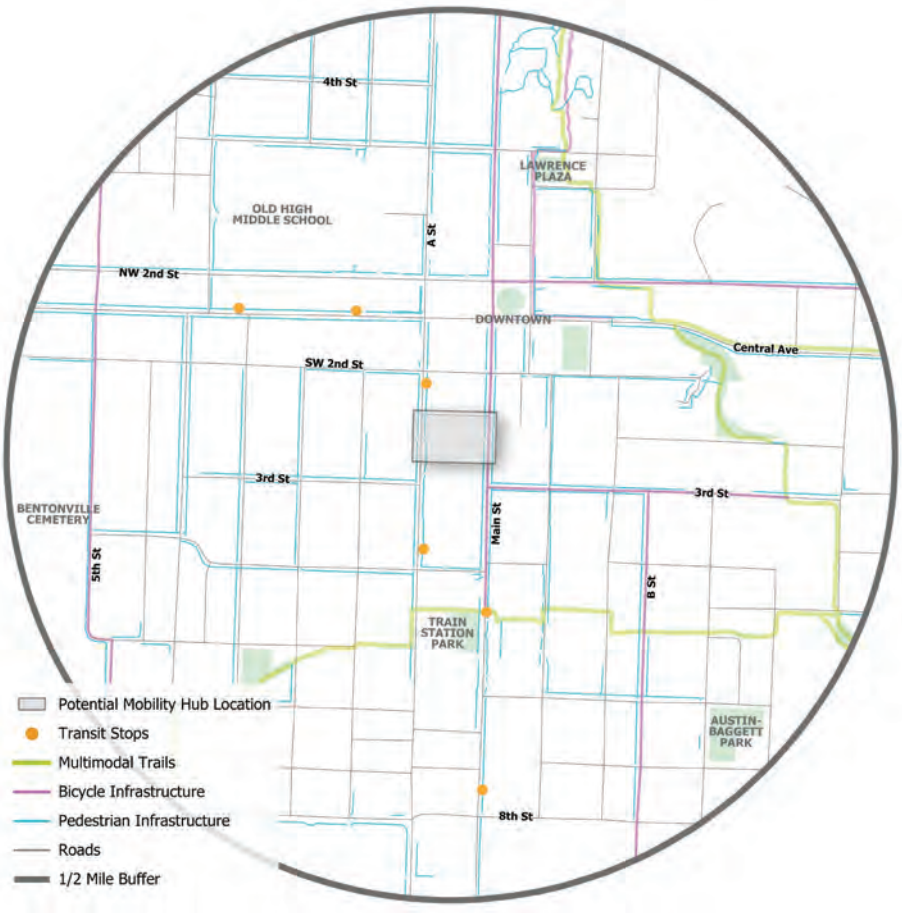
To further analyze potential mobility hubs for the NWA region, the project team paired quantitative and qualitative methods to justify options. The NWA TDM is a tool that forecasts travel patterns throughout the NWA roadway network based on roadway characteristics and transportation demand. The TDM served as the basis of the overall analysis as it provides the geographical areas used to select suitable locations for mobility hubs. These areas are defined as Traffic Analysis Zones (TAZs) and are geographical delineations used to generate TDM outputs. Accordingly, the NWA TDM TAZs allowed the project team to perform a geographical information systems (GIS) analysis using future values in the form of TDM outputs, as well as data available from participating agencies (NWARPC, ORT, RT) representing multimodal connectivity/supply found within the NWA region (e.g. sidewalk line features).

To pair existing and projected multimodal supply/demand with agency recommendations, a quantitative GIS analysis was performed to rank TAZs for mobility hub suitability based on current/future transit markets, current transit activity, and current multimodal connectivity. Using data obtained through local agencies, each TAZ was scored from 0 to 4, with 0 being the lowest possible score (Park & Ride Score was ancillary, and the only metric which utilized a binary score), for the following metrics:

- Future Productions (based on 2040 forecasts)
- Future Attractions (based on 2040 forecasts)
- Future Modal Suitability
- Active Transportation Density
- Transit Ridership
- Park & Ride Connectivity

Figure 4.7 provides an example of the overlay analysis/metrics that went into the GIS analysis.

FIGURE 4.7: BENTONVILLE GIS INPUT EXAMPLE



Individual metric scores were combined to create a comprehensive score, representing overall suitability for a mobility hub at that location (Figure 4.9). Comprehensive scores were then separated into similar breaks (0 to 4), with the two highest classes (scores 3 and 4) being used to identify areas most prime for mobility hub designation, referred to as High Scoring TAZs and Highest Scoring TAZs. These two breaks are composed of the following comprehensive scores:

- **High Score TAZs**: This group consists of TAZs with final scores of 7 and 8.
- **Highest Score TAZs**: This group consists of TAZs with final scores of 9, 10, and 15 (only one TAZ, containing the University of Arkansas, scored a 15 and is understood to be an outlier).

TAZs receiving "High" and "Highest" scoring designations were then reviewed in an overlay analysis using aerial imagery to manually enter binary scores/tags for available land, ROW, and whether the TAZ contained a recommended parcel from the initial qualitative analysis. This process further acknowledges the feasibility of mobility hub implementation (based on available space) while also recognizing the connection and support of local knowledge and presence within the TAZ.

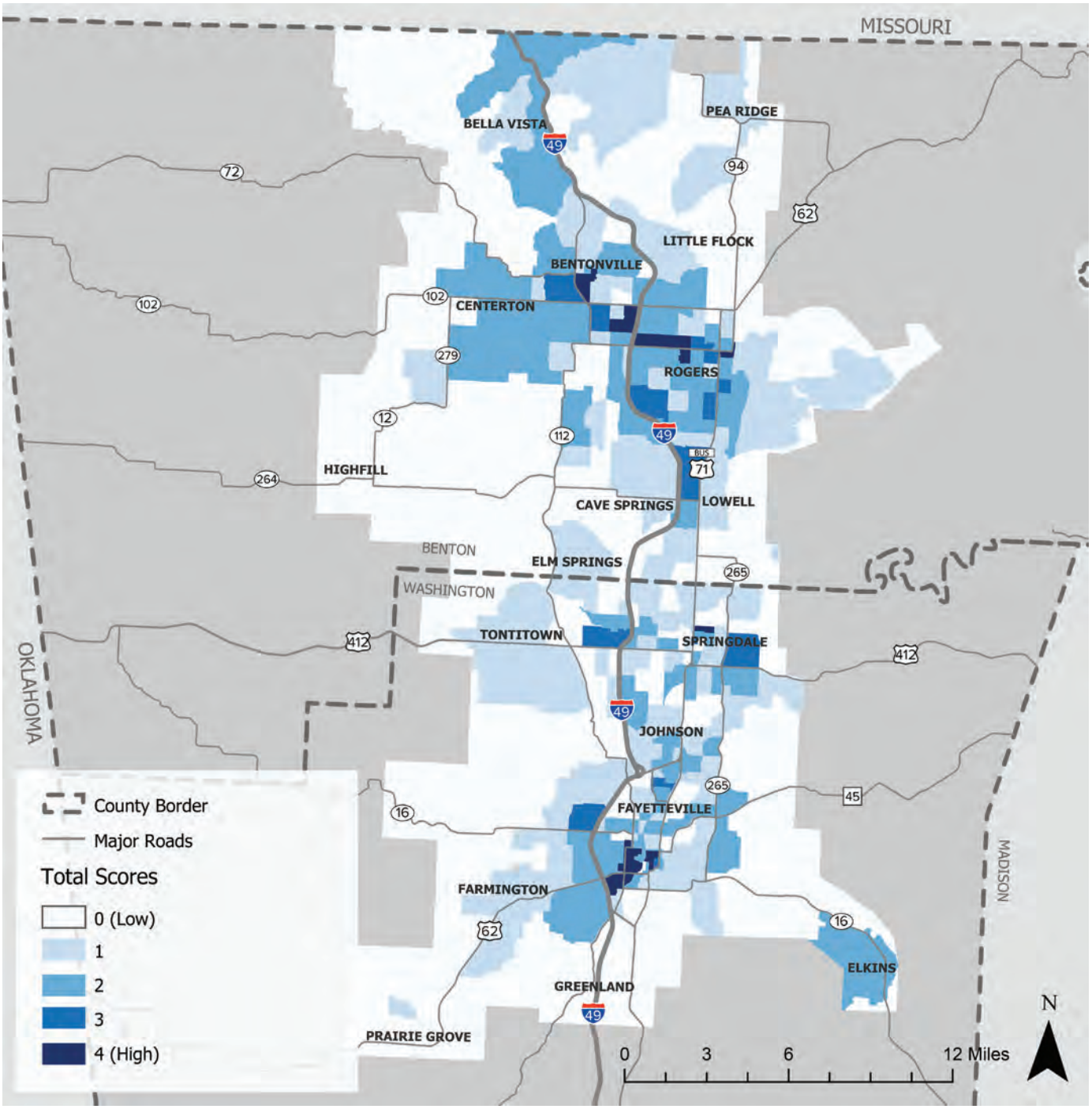
FINDINGS

Of the 7 areas recommended by participating agencies, 5 were found within one of the 29 TAZs achieving either a "high" or "highest" score (the Pleasant St. Walmart in Springdale and Martin Luther King Jr. Blvd. parcel in Fayetteville were not included in those scoring ranges). Due to the latter two's locations and future land uses conducive to transit planning, they were both included along with the other 5 recommended locations in the draft alternative presented to the public. Figure 4.8 displays final mobility hub scores for the NWA region.

It is important to note that mobility hubs are not limited to traditional transit stations but instead take the form of the local area they are connecting. In congested areas they may simply be a section of curb space where multiple frequent bus routes pick up and drop off. This helps transition transit away from timed transfers and hub-and-spoke systems that result in significant capital costs, major right-of-way acquisition, and unreliable service. Figure 4.8 provides an example of a modern mobility hub.

FIGURE 4.8: CONCEPTUAL MOBILITY HUB

FIGURE 4.9: COMPREHENSIVE MOBILITY HUB ANALYSIS SCORES



MOBILITY ZONES

Demand response service was also a product of the alternatives development process. Referred to as mobility zones, these geographical areas are recommended to connect specific markets to the fixed route system with demand response service. This allows for unproductive routes in high demand areas to maintain service coverage, but in a more cost-effective manner (i.e. switching out fixed route service to mobility zone service). Figures 4.10 - 4.11 display the initial mobility zone recommendations for the NWA region. The Bentonville mobility zone captures 5,967 people/jobs, and the Fayetteville mobility zone captures a total of 1,164 people/jobs (7,131 total).

FIGURE 4.10: POTENTIAL BENTONVILLE MOBILITY ZONE

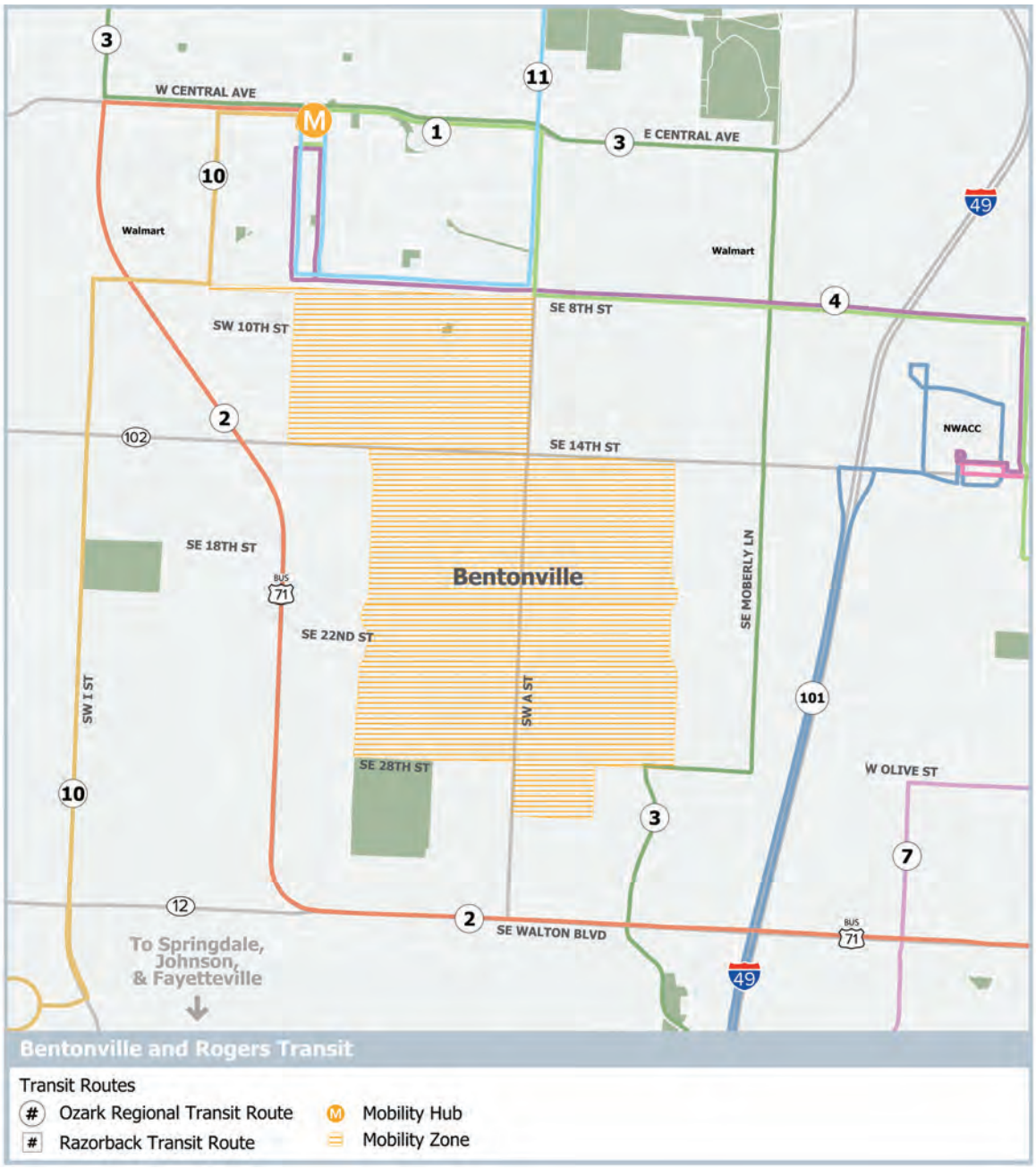


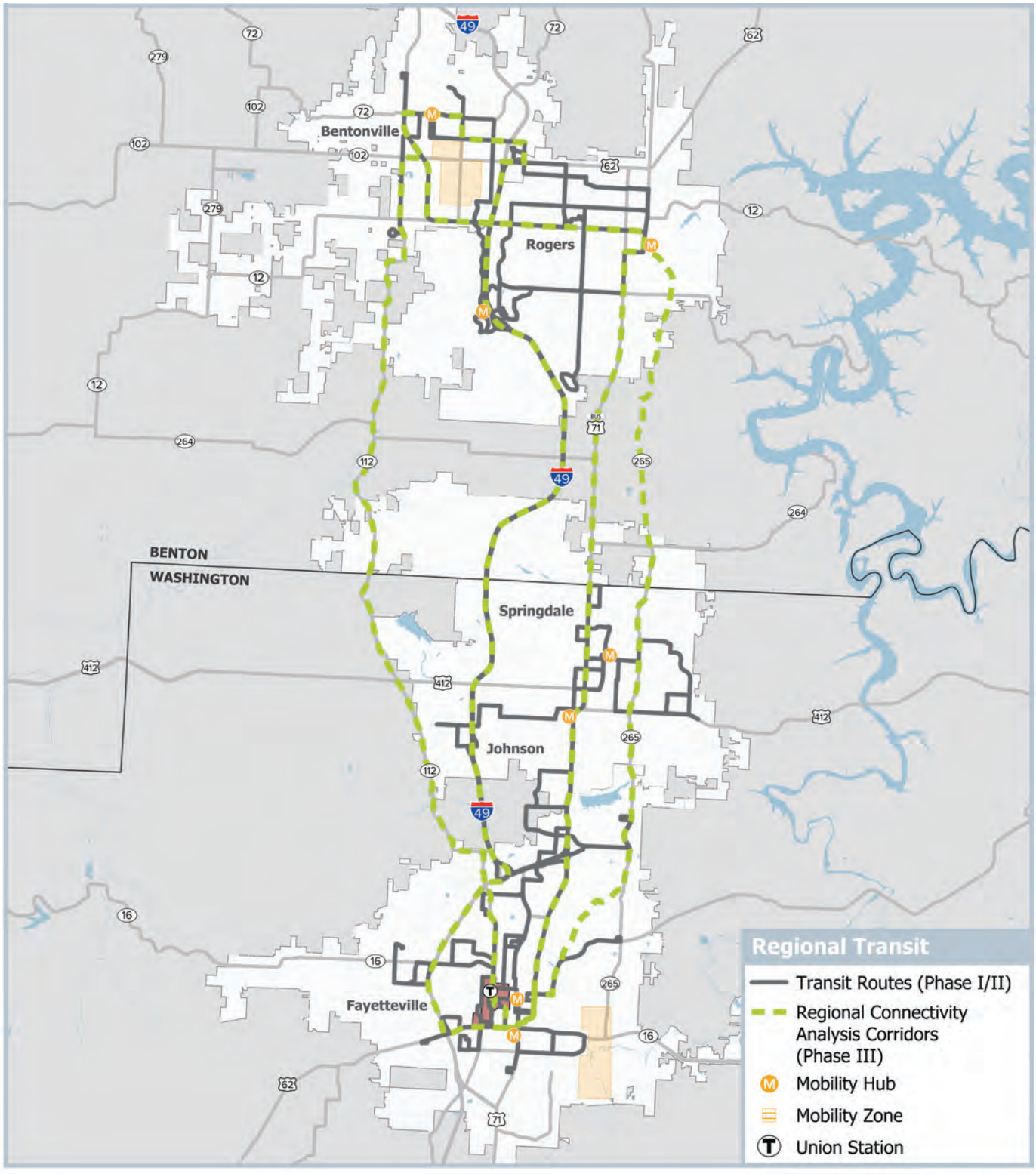
FIGURE 4.11: POTENTIAL FAYETTEVILLE MOBILITY ZONE

REGIONAL CORRIDORS

Regional corridors were identified for consideration in Phase III recommendations that will only be plausible once a strong transit base is derived from the implementation of Phases I and II. Surrounded by frequent, high quality transit, these corridors serve as possible alternatives to connect the entire NWA region through fixed route bus, or even high capacity transit with fully or partially dedicated guideways. Figure 4.12 displays four corridor alternatives based on existing and intuitive linear infrastructure in the region listed as follows (West to East):

- AR Hwy. 112
- I-49
- US Hwy. 71B
- AR Hwy. 265

FIGURE 4.12: PRELIMINARY REGIONAL CORRIDORS



COMMUNITY INPUT PROCESS

The project team organized two major community input events and a public survey to capture the community's input on Connect NWA draft recommendations for route alignments, service levels, and service delivery concepts. The goal was to build on the success of Connect NWA's initial public engagement effort that involved community wide outreach with the focus of bringing the conversation to the community where they work, live, and play. This effort resulted in over 1,200 surveys, 10 public events, onboard riding sessions, and multiple stakeholder meetings.

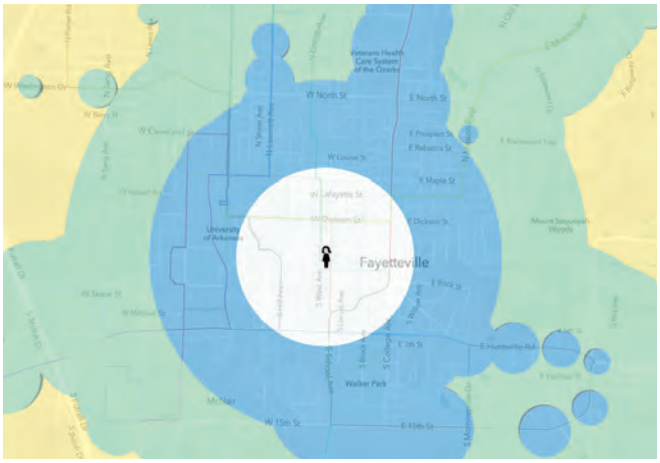
COMMUNITY EVENTS

Two public open houses provided an opportunity for NWA citizens to attend an event in either county of the project study area. In Benton County an open house was held on Wednesday, October 16, 2019 from 4:00 pm to 7:00 pm, at the Rogers Public Library located at 711 S. Dixieland Rd., Rogers, AR, 72758. In Washington County an open house was held on Thursday, October 17, 2019 from 4:00 pm to 7:00 pm at the Fayetteville Town Center located at 15 West Mountain St., Fayetteville, AR 72701. Due to the nature of the material being covered, the need for Wi-Fi and other technology resources, and the time of year the Connect NWA team determined that an open house style of event was the most appropriate method for gathering public input. At the events there were boards and visual aids that presented the draft recommendations and staff on hand to help the public understand the following:

- What the proposed recommendations are;
- Why the recommendations were proposed; and
- The benefits that can be expected from the recommendations if implemented.

There was also an exercise that the public could participate in where they could visually see the difference in travel time between the existing transit systems and the recommendations using a software called Remix. This software used a feature known as 'Jane', shown in Figure 4.13, to display how far someone could travel using transit from a point on the map of their choosing.

FIGURE 4.13: REMIX 'JANE' EXAMPLE



PROMOTION

In order to ensure an equitable outreach effort, the project team used a wide array of promotional mediums to spread the message of the October public open houses. Display ads and public notices were first developed in both English and Spanish formats. After creating a variation of promotional graphics, the project team used several mediums to disperse the open house purpose and location to the public.

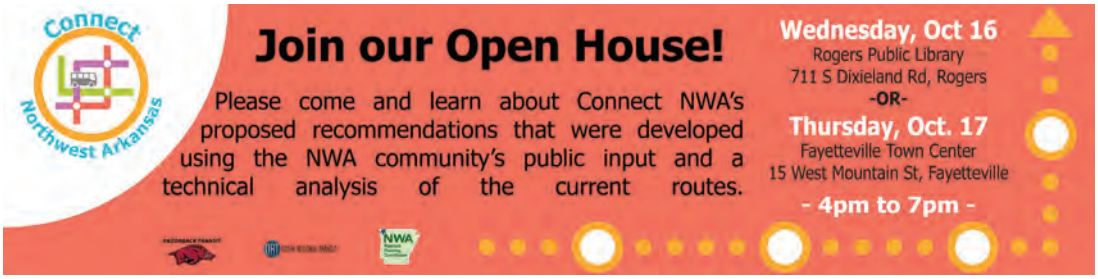
Newspaper

Local newspapers served as an important medium for the promotion of the public open houses. Several newspapers published display ads, legal notices, and summary articles prior to the events. These publications include:

- Two separate legal notices published on October 9th and October 10th.
- A display ad published in Spanish in Springdale's La Prensa Libre on October 10th.
- A display ad published in the NWA Democrat-Gazette on October 13th.
- An article summarizing the events in the NWA Democrat-Gazette on October 13th.

The publication of these ads, notices, and articles roughly one week prior to the events allowed for those without internet/smartphone access to learn about the public involvement efforts.

FIGURE 4.14: WEBSITE SURVEY BANNER



Project Website

The project website has continuously been the hub for all information Connect NWA. This includes project analysis updates, survey links, and project meeting/information bulletins. Weeks prior to the October events, the open house display ad was uploaded to the project website (located within the NWARPC web page). A banner providing a link to an online version of the alternatives survey was also posted (Figure 4.14), compatible with both computers and smartphone devices.

Promotional Emails

In order to ensure continued involvement from stakeholders and other interest groups, the project team sent promotional emails containing the open house display ad and additional information. The first email was sent through the NWARPC listserv on September 18th, while the second was sent to the TAC email list containing the same information.

Social Media

On September 19th, NWARPC staff created a Facebook event for the public open houses. This post/display ad was shared throughout the weeks leading up to the event by NWARPC, as well as other stakeholders actively involved with Connect NWA.

Survey

To stay committed to the project goal of bringing the conversation to the community the project team developed a survey that could be taken online or in hard-copy format to help reach those that were unable to attend one of the public open houses. The survey was designed to provide the public with information about the methods used to improve transit service. The true/false questions provided the community an opportunity to identify the methods of improvements they value the most for their transit system. This included items such as walking less, higher frequency, or whether they needed transit earlier in the morning or later in the evening. Providing input in this manner as opposed to making a participant pick from a handful of scenarios avoids the issue of only capturing the input of those who participate and ending up with an 'all or nothing' scenario. Instead, the project team can identify strengths and isolate the weaknesses associated with the draft recommendations and use this to develop final recommendations that will serve as the Locally Preferred Alternative (LPA).

Findings

Overall, respondents of the survey conveyed that the draft route alternatives improved the region's public transportation. The following provides a summary of survey responses:

- 63% thought the proposed recommendations would save them time;
- 71% thought the recommendations would increase their ability to get where they need to go; and
- 71% thought the proposed recommendations would improve their ability to move around the NWA region.

Primary findings from engagement efforts regarding potential improvements to the recommendations were focused on transit improvements for the Springdale fixed route region. Multiple comments asked for added coverage to the southeast region of the city (surrounding Electric Ave.), as well as the northwest region (between W. Sunset Ave. and Backus Ave).

Adequate market, public transportation to industrial/light industrial jobs, and previous lack of efficient transportation were all reasons cited for service expansion into the areas. Accordingly, the project team, based on public comment and the previous market analysis, decided the addition of both fixed route and demand response service in Northwest Springdale and demand response service in Southeast Springdale would be appropriate for the areas of primary concern.

Numerous comments were also made regarding the general expansion of span (hours of service) and days of service in each city of the NWA region. Reasons for such expansion ranged from better connectivity to employment, better accessibility to health care, and more travel options for recreation. Later service into the night and Saturday service have previously been offered through RT, specifically for Fayetteville. This disparity between ORT and RT days and span of service highlighted the need for similar service regionally. Further, the lack of Sunday service in general was highlighted by the community, and thus will be implemented in Connect NWA's phased implementation plan.

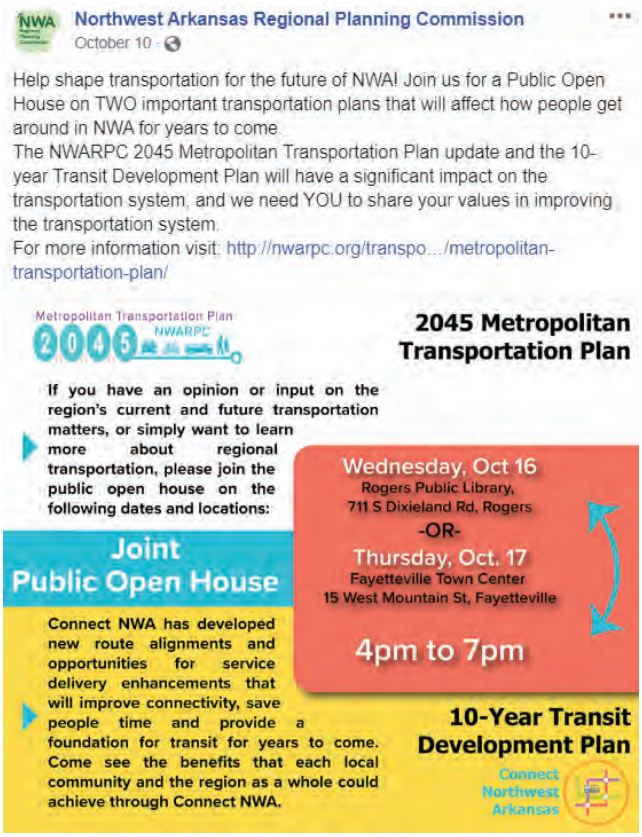
FINAL RECOMMENDATIONS

This section provides a description of elements added to the regional transit recommendation following the October public open houses. Maps are provided to show where realignments and additions were made. Final levels of service are also provided for better understanding of the final recommendation's improved frequencies, span, and days of service.

FINALIZED ROUTE ALIGNMENTS

Route alignments for the final recommendation largely remain the same. However, based off public input, RT 21 was realigned to extend east along west Drake St. in order to provide a new connection with RT 26 as well as capture anticipated development north of Drake St. (Figure 4.16).

FIGURE 4.15: CONNECT NWA ON SOCIAL MEDIA



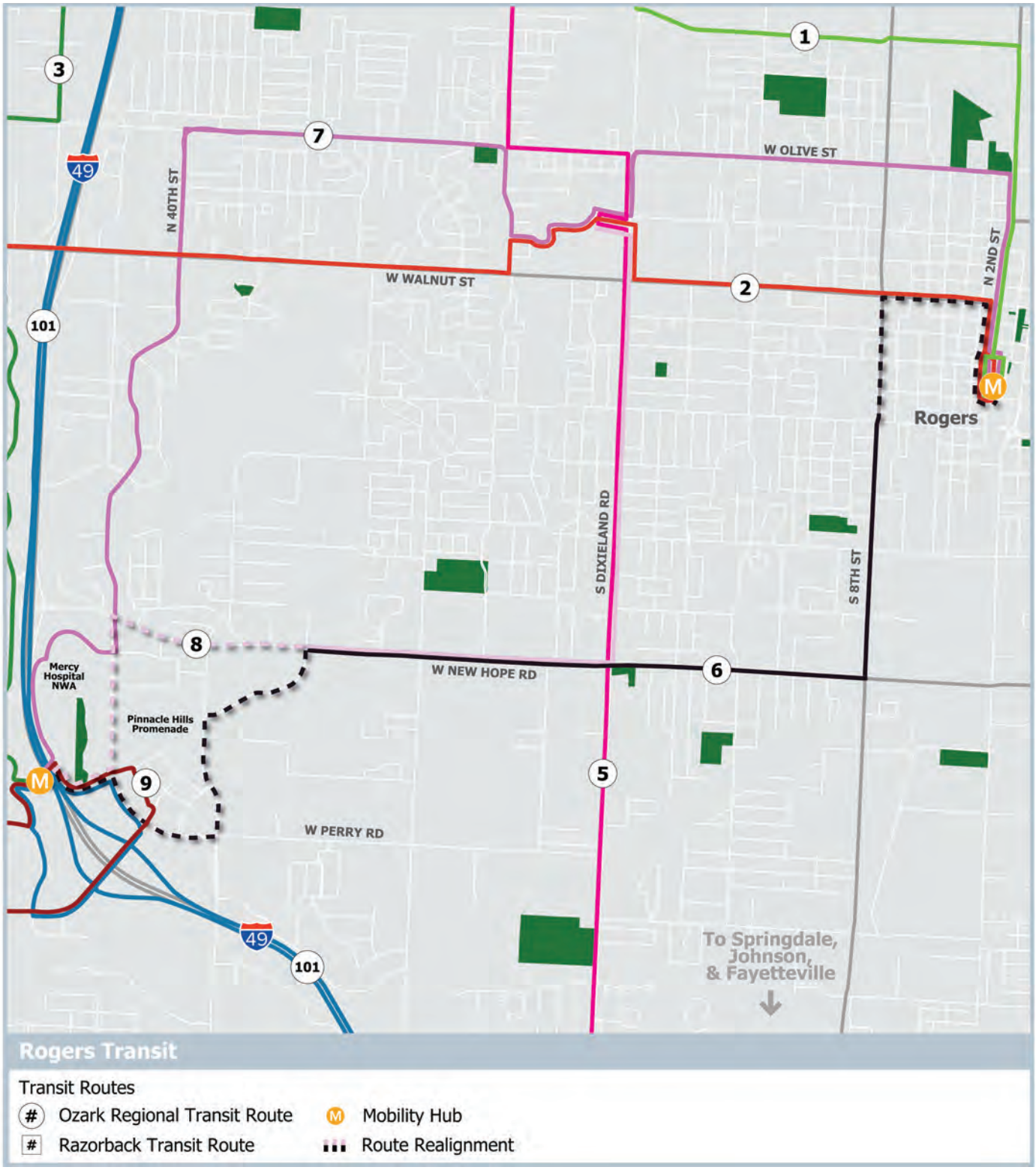
ORT 44 is located in Springdale and was also added as a result of the public engagement process (Figure 4.17). The route provides service to Northwest Springdale, creating transfer opportunities at Shiloh Square and the new NWACC campus. ORT 44 is programmed to be a Phase II/III project in the staged implementation plan, which will be further discussed in the Implementation Chapter.

Minor changes were made to ORT 6 and ORT 8 by switching each route's entry/exit to and from the Promenade and Arkansas Music Pavilion Mobility Hub (Figure 4.18). ORT 6 will now use S. Bellview Rd. (as ORT 8 previously did), and ORT 8 will utilize S. Promenade Blvd. (as ORT 6 previously did). ORT 8 will also connect to the Downtown Rogers Mobility Hub via W. Walnut St. rather than W. Oak St.

FIGURE 4.16: RT 21 REALIGNMENT

FIGURE 4.17: ORT 44 ADDITION

FIGURE 4.18: ORT 6 & 8 REALIGNMENT

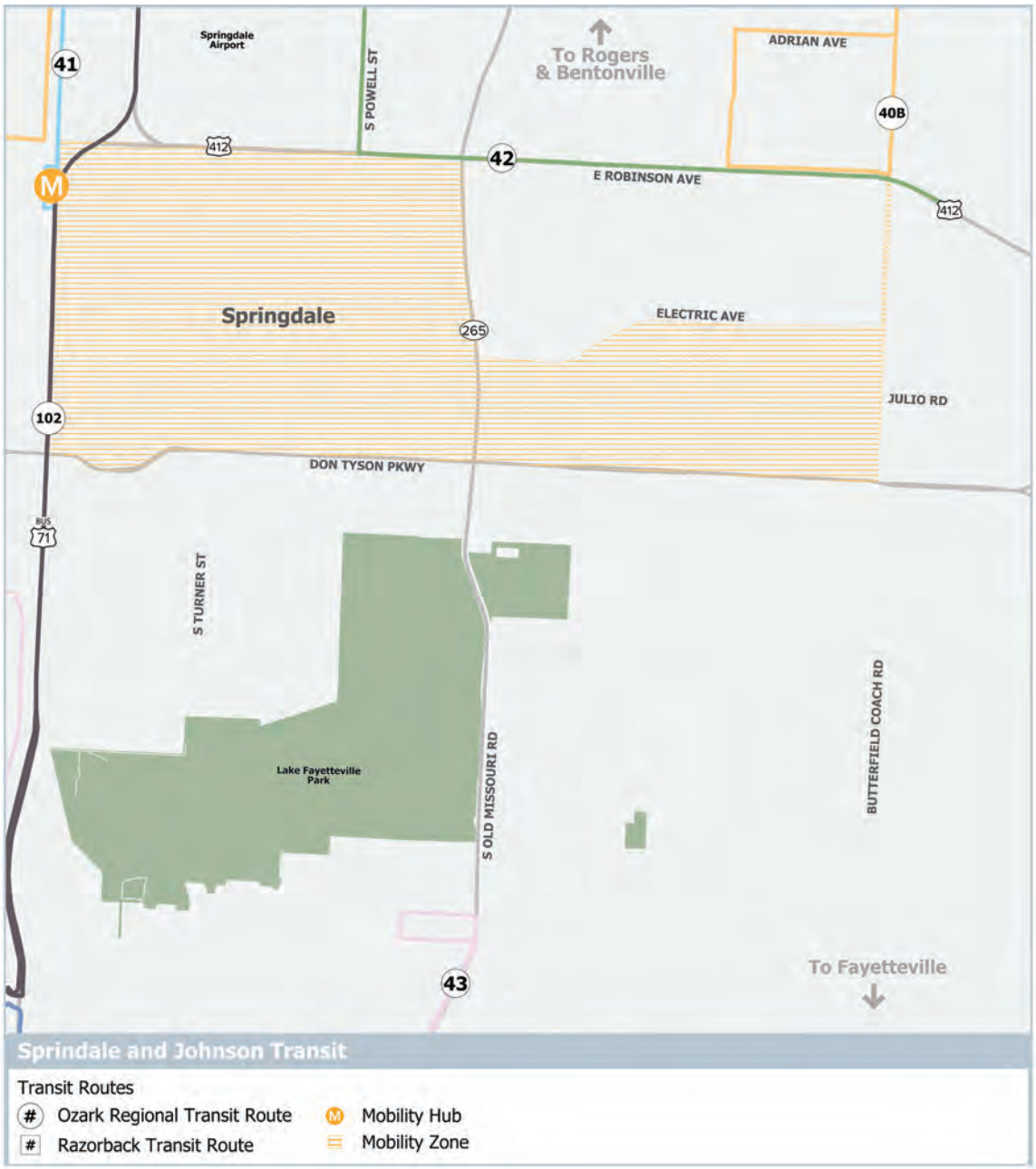


FINALIZED MOBILITY ZONES

Two mobility zones were added to the draft recommendation as a result of the October public input process. One additional mobility zone, covers the southern portion of Springdale, south of Electric Ave. and west to US Hwy. 71B , with northern limits to E. Robinson Ave. (Figure 4.19). The zone captures 9,599 people/jobs.

The second additional mobility zone covers Northwest Springdale, with boundaries of Backus Ave., N. West End St., W. Sunset Ave., and N. 40th St. (Figure 4.20).

FIGURE 4.19: POTENTIAL SPRINGDALE MOBILITY ZONE



This added mobility zone serves to add coverage in tandem with the additional ORT 44. The NW Springdale zone captures 12,755 people/jobs, bringing the overall mobility zone capture (including previously added mobility zones in Bentonville and Fayetteville) to 29,480 people/jobs.

FIGURE 4.20: POTENTIAL SPRINGDALE MOBILITY ZONE

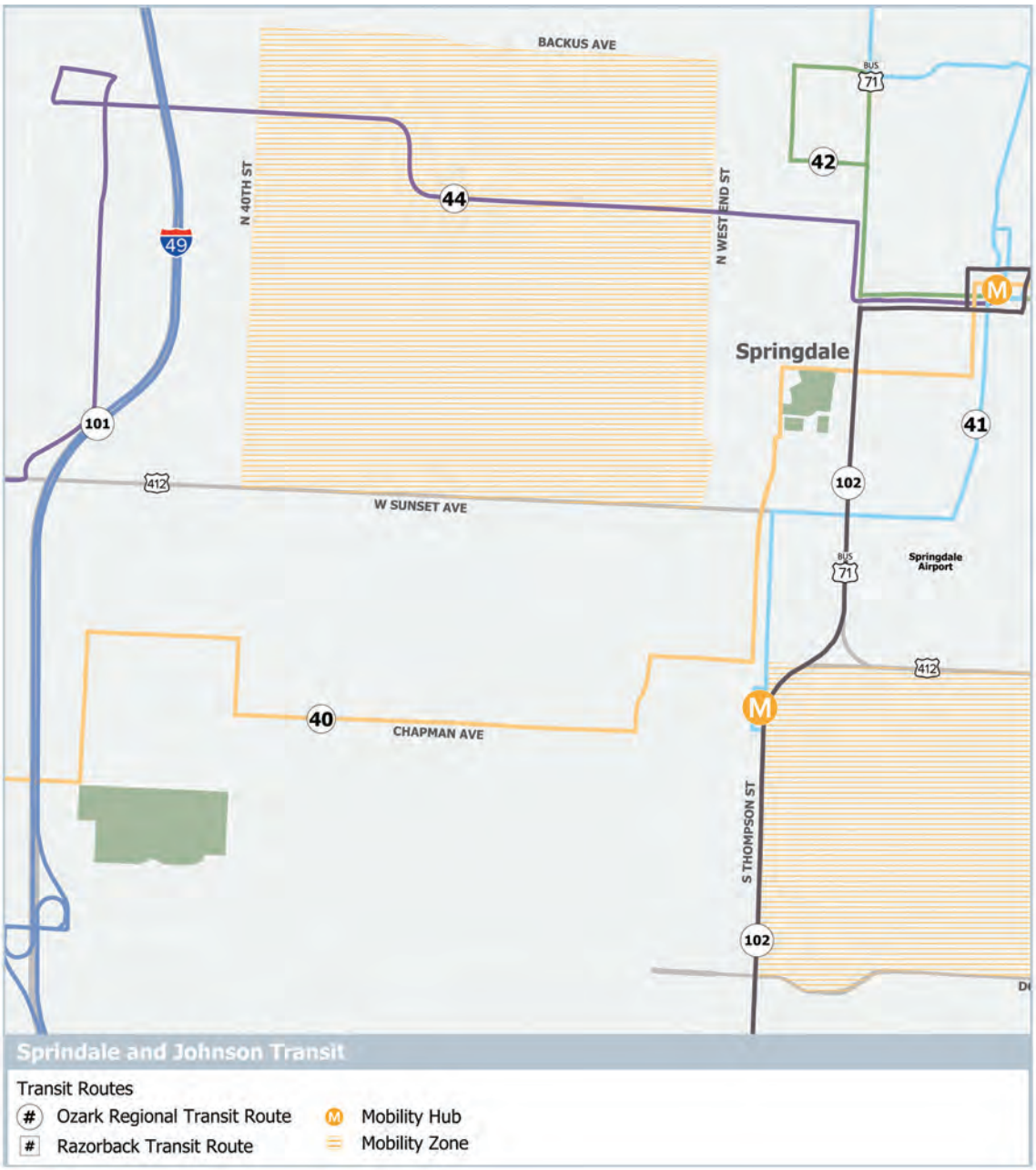
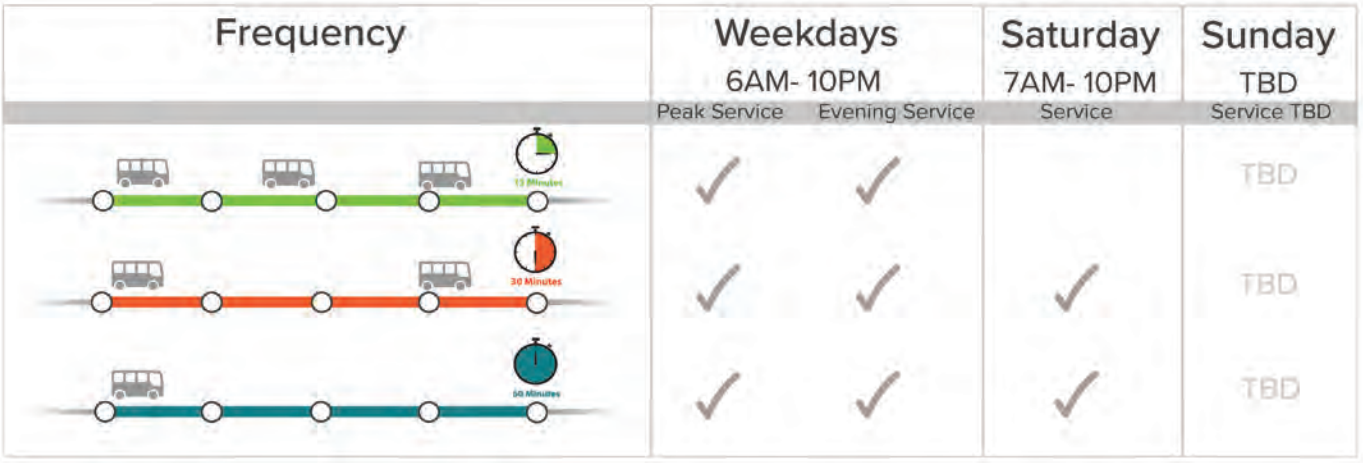


FIGURE 4.21: LEVEL OF SERVICE OVERVIEW



FINALIZED LEVELS OF SERVICE

Finalized levels of service provide transit users expanded span and days of service, and drastically increase high frequency routes throughout the NWA region. Most notably, service has generally been extended to start earlier in the morning and run later into the evening on both weekdays and Saturdays. Sunday service has also been added, however, level of service has not yet been specified. Detailed, route specific level of service information will be provided through the implementation analysis later in the plan. Figure 4.21 provides an overview of the final recommendation's level of service improvements.

CONCLUSION

The project team developed regional route recommendations through a combination of internal analysis, coordination, and public input. The team built upon previous phases of Connect NWA to understand and identify gaps in transit service, allowing the team to produce recommendations that better connect and serve the existing transit markets in the NWA region. Recommendations for each fixed route region were thoroughly vetted by all participating agencies before draft designation. The final draft alternatives generated a regional system containing:

- A drastic increase in high frequency routes (frequencies equal to or less than 30 minutes);
- Routes providing regional connectivity through established mobility hubs;
- Mobility zones providing demand response service to maintain or increase transit coverage;
- Phased routes to implement in a sustainable manner; and
- Possible regional corridors to connect Bentonville, Rogers, Springdale, and Fayetteville.

Finalized draft recommendations were provided to the public for comment. All feedback from the public engagement process was used to create final route recommendations for the region. The following lists key findings from the engagement process that were used to generate the final recommendations:

- Overall, the public believed the draft recommendations improved their ability to get where they needed to go in the region and would save them time traveling.
- Citizens commented on the need for increased span and days of service to better suit the schedules of those in need of transit.

- The public voiced a need for better transit coverage in Southeast Springdale.

In response to public comment, the project team enhanced the draft recommendations by increasing span into the evenings, days of service to include Saturdays and Sundays, and added fixed route and mobility zone service to enhance coverage in Springdale. Following these additions, the project team finalized local and regional route recommendations that will be advanced through the next phases of Connect NWA to develop the implementation plan, funding and financial analysis, and final recommendations. Figure 4.22 displays the enhanced regional measures generated by the added system improvements.

FIGURE 4.22: CONNECT NWA ENHANCED ALTERNATIVE COVERAGE BY REGION & CITY

REGIONAL TRANSIT BENEFITS OF CONNECT NWA

Connect Northwest Arkansas

	Bentonville		Fayetteville		Rogers		Springdale		Region	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
System Characteristics										
Transit Routes #	1	7	15	15	3	8	4	7	23	31
Peak Buses #	1	15	27	40	4	19	5	17	37	70
Service Coverage										
# People & Jobs	31,451	40,426	66,484	67,404	26,045	37,421	45,647	50,382	169,627	195,633
Frequent Service Coverage (30 minutes or better)										
1/4 mile Walkshed	0	33,412	59,357	63,447	0	22,042	0	42,441	59,357	161,342
Travel Time to Mobility Hubs										
Minutes / People & Jobs — Travel Time Zone 60 #	61,000	125,827	80,646	129,189	23,859	113,578	68,727	161,966	234,233	530,561
45 #	44,247	81,604	47,290	76,793	14,787	45,767	45,507	110,593	151,831	314,757
30 #	33,580	41,908	24,886	37,189	8,042	12,860	23,562	43,280	90,069	135,237
15 (M) #	13,009	14,739	6,408	6,474	2,533	2,583	8,686	10,263	30,636	34,059

CHAPTER 5

SERVICE STANDARDS

CHAPTER 5: SERVICE STANDARDS

INTRODUCTION

Connect NWA lays out a plan to improve and expand transit in the region over the next 10 years and beyond. This plan documents key components of the TDP strategy and process such as the operational and market analysis that helped shape the recommendations, the public engagement to ensure community support, and the regional transit framework that lays out recommendations for an efficient and connected transit system. This chapter will establish Regional Service Standards and serve as a living tool that both compliments Connect NWA and stands on its own. Regional Service Standards will serve as both an internal and external resource that will explain how and why transit is delivered in NWA.

NWA contains two major service providers - Ozark Regional Transit (ORT) and Razorback Transit (RT) - which provide transit service to the cities of Bentonville, Rogers, Springdale, and Fayetteville through a total of 19 fixed routes. As NWA prepares for the future, understanding existing service levels and monitoring performance is essential to providing high quality transit.

This document is intended to serve as a regional standard for both providers to ensure continuity throughout the NWA region. It is not intended to take away autonomy from either provider or to limit a transit provider from going above and beyond the regional standard. The service standards chapter provides NWA with the tools necessary to monitor and apply changes as route productivity and efficiency evolves.

APPLICATION OF SERVICE STANDARDS

The Regional Service Standards were developed as part of the Connect NWA transit study and are rooted in nationwide best practices for transit service planning and adapted to meet the needs of the local context in NWA. The service standards below offer a unique set of service provision types, technology standards, and system designs for the NWA region. Existing transit service provided by both ORT and RT should be measured on an annual basis to track progress towards a system that complies with the service standards and best practices. The service standards include targets and key performance indicators (KPI's) that provide a quantitative target or measure for NWA to assess if the system is meeting these standards. The data sources available to ORT and RT were considered in the development of these targets and KPI's. Utilizing the standards outlined in this document will lead to more productive and cost-efficient transit service that connect NWA.

UPDATING SERVICE STANDARDS

Regional Service Standards should be continually monitored and refined based on changes to the operating environment in NWA. Implementation and updating of service is particularly dependent upon financial constraints to involved cities (Bentonville, Rogers, Springdale, Fayetteville) and both ORT and RT. Service standards should be reviewed on an annual basis and adjusted accordingly. If the data sources or technology available to NWA changes, the targets and KPI's might require an adjustment to ensure they continue to meet the needs of the region.

Service Adjustment Strategies

There are many factors that can influence the type of transit service that should be provided to different markets. Typically, population and employment are essential in driving the demand for service. High population, high employment, or a combination of the two set a basic threshold for the type of transit that should serve a given area. If an area with existing service captures a high amount of a threshold, then it makes sense to consider the provision of high quality, high capacity service to the area (e.g. University of Arkansas or Walmart Headquarters), and vice versa.

However, providing effective regional service necessitates going beyond the basic provisional thresholds. Open lines of communication must exist between partner agencies and transit providers to understand the requirements for high quality transit service. If an area is not represented by an appropriate market for service, it must be understood that providing a type of service that does not fit the threshold will not be cost effective.

TITLE VI DISCLAIMER

It should be recognized that any system alteration that results in a change in service of 25% or greater will be considered a major service change and require a Title VI analysis. For example, if there are 20 existing trips and 5 trips are altered, it would constitute as a 25% change in service and require further analysis in accordance with the Title VI of the Civil Right Act of 1964.

WHAT MAKES EFFECTIVE TRANSIT

In order to achieve high quality regional public transportation service, it is imperative to understand what makes transit effective, and how the standards are used to implement successful transit. There are four straightforward principles to what makes effective transit, and they serve as a foundation for the service standards for the NWA region.

- **It takes me where I want to go...**
  - ORT and RT network coverage should reach areas that contain major trip attractors and generators, and high population and employment densities.
- **When I want to go there...**
  - Service should take users to and from their destination during the hours and on the days that provide citizens better connectivity and accessibility to daily activities (i.e. jobs and medical appointments).
- **It is reliable...**
  - ORT and RT service should result in high On-Time Performance (OTP) ratios and provide users with accurate time points, providing a better understanding of where the buses are located and when they will arrive.
- **It saves me time...**
  - Routes should be efficient and intuitive through direct route design by minimizing circuitous routes and deviations whenever possible, allowing for increased frequencies and travel times.

WHAT ARE SERVICE STANDARDS?

In general, a transit system is comprised of a series of fixed routes that travel between key destinations, designated stop areas where users board and alight transit vehicles, and a schedule that allows potential users to plan for their trip prior to entering the system. Each transit system has a series of policies and procedures that govern services to provide uniformity and consistency throughout the system.

STANDARDS

As the NWA area continues to grow, it is important that transit providers understand how to allocate resources effectively, and which markets will utilize the provided services. The standards are policies which guide the implementation of transit service in the NWA region. The standards are unique to the needs of NWA, however, they are influenced by best practices. The full documentation of standards can be found later in the document.

Technology

- **Real Time Data**
  - informs users and service productivity
- **Transit Signal Priority**
  - gets buses through intersections efficiently
- **Off Board Fare Collection**
  - reduces dwell time at stations

System Design

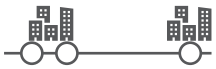
- **Route Design**
  - a route's alignment and intuitiveness
- **Stop Spacing**
  - the distance between stops impacting accessibility and speed of service
- **Route Spacing**
  - the distance between routes to prevent service overlap
- **Time Points**
  - specific points along a route to keep a bus on schedule
- **Route Directness**
  - the distance of a route to get from point a to point b
- **Schedule Design**
  - frequency and span of service
- **Bus Stop Standards**
  - amenity allocation and stop placement

TARGETS

In order to implement these standards, targets are set based on the goals for the specific type of service.

- **Frequency** 
  - how often a bus comes serves a given stop
- **Span & Days of Service** 
  - how long a bus provides service and the amount of days a bus provides service
- **Stop Amenity Level** 
  - the quality of stop amenities based on service type and production
- **On-Time Performance** 
  - how likely a bus completes its scheduled route on time (percent)
- **Productivity** 
  - boardings per mile and hour
- **Route Directness** 

  - the maximum distance a route should exceed the most linear route available (i.e. the fastest way an automobile could travel) between two points

- **Stop Spacing** 
  - the ideal distance between stops based on service type
- **Propensity** 
  - total employment and population density covered by transit (represented by the number of people and jobs per acre on a 0 - 25 scale)

KEY PERFORMANCE INDICATORS

Finally, KPI's have been selected to provide a metric for assessing the progress of NWA in meeting the targets set in these service standards. The method for evaluating this will be further outlined in the service standards.

TYPES OF SERVICE

Types of transit service are largely dependent on existing markets and land uses. Dense areas containing trip generators (e.g. University of Arkansas) will require service types that can effectively serve high demand/ridership numbers (i.e. intuitive, linear routes with high frequencies), whereas areas more suburban in nature will require completely different service to effectively use resources (i.e. farther stop placements and necessary deviations to market clusters).

Generally, the transit service provided in NWA can be grouped into four categories: regional connectors, frequent service, coverage service, and mobility zones. These categories of service types are used to set unique targets for implementing the service standards. Descriptions of each service type are provided below with a graphic that represents the typical stop spacing and frequency.

REGIONAL CONNECTORS

Regional Connectors are a fixed route transit service that provide service from city to city along a major arterial at high frequencies with limited stops. These routes cover key areas and give users increased accessibility and connectivity to multiple urban areas in a region.

FREQUENT SERVICE

Fixed route service that has demand for more frequent service due to destinations and or ridership. Accordingly, frequent fixed route service refers to transit that stays within denser, more urban areas where transit demand tends to be concentrated.

COVERAGE SERVICE

Coverage service refers to transit with a set route alignment, designated stops, and a fixed operating schedule.

MOBILITY ZONES

Mobility zones are designated areas with demand response service available to help solve the first-last mile for system users. Mobility zones are coverage areas set in the place of unproductive fixed routes/deviations. This allows for the provider to maintain market coverage in an effective, cost efficient way.

FUTURE TYPES OF SERVICE

Connect NWA is a 10-year TDP, and therefore aims to help the NWA region become 'Transit Ready' and not only plan for short-term ways to improve existing transit, but also ways to implement effective transit once a baseline fixed route service has been set. While this may refer to minor improvements such as existing service types being extended to outlying areas, or increased frequencies for fixed routes, this also means the possibility of introducing new types of transit that can better absorb transit demand driven by future population and employment growth.

HIGH CAPACITY TRANSIT

High Capacity Transit (HCT) refers to any mode of public transportation that is designed to provide high quality service to many riders. This typically equates to higher frequencies, direct routes with limited stops, real-time information, intuitive scheduling, dedicated branding, and dedicated right-of-way (ROW)/guideways. Two primary examples that could serve as north-south connectors in the NWA region are discussed below.

Light Rail Transit (LRT)

LRT is fixed route rail transit that operates on a mix or solely exclusive ROW in urban areas. This type of HCT is made to carry medium to high capacity travel volumes. LRT is usually electrically powered. LRT systems can operate at-grade, grade separated, or a combination of the two.

Bus Rapid Transit (BRT)

BRT refers to fixed route bus service that operates in a combination of designated guideway, separate lanes, and mixed traffic. BRT operates at high frequencies with limited stops to ensure on-time performance. While this type of BRT varies in design around the country, systems range from sophisticated (large stations, off board fare collection, elevated boarding platforms, etc.) to those simply providing an express service in a separated or dedicated guideway to ensure high quality service.

BRT service uses branding to separate it from standard or even express fixed route service, providing users with an experience like other transit modes that are grade separated or have designated guideways (e.g. light rail).

HCT & Population Density

It is important to understand appropriate population density thresholds when considering service type. Areas containing higher concentrations of population are more conducive to HCT as they contain an existing market.

Per the 2018 ORT Smart Bus Rapid Transit Study (for the US Hwy. 71B Corridor), an area with a population density over 2,000 persons per square mile may be able to support HCT. The study also found majority a of US Hwy. 71B to sustain over 3,000 people per square mile between major city pairs Bentonville and Rogers, as well as Springdale and Fayetteville. Within all four of the analyzed cities, small pockets of population density of over 12,000 people per square mile exist.

Regarding Federal Transit Administration (FTA) Capital Improvement Grants (CIG) for HCT projects, areas with an average persons per square mile of 6,000 or higher score competitively based on the FTA's Quantitative Element Rating Guide (Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects, 2013). Further, the Transit Cooperative Research Program's (TCRP) Bus Rapid Transit Practitioner's Guide (2007) states that BRT should be considered if an urbanized area population exceeds 750,000 persons total, with a central business district (CBD) population total of at least 50,000. However, exceptions may be made with the presence of a large university (e.g. University of Arkansas) or other outlying major activity centers (e.g. Walmart headquarters).

As NWA moves forward with transit implementation, it will be important to understand which areas are most suited for HCT based on population thresholds. The above references serve as a guiding tool for ORT and RT when the time is appropriate.

NWA TARGETS BY SERVICE TYPE

The following section combines targets and service types (Regional Connector, Frequent Service, Coverage Service, and Mobility Zones) to help further guide implementation. Targets have been applied to each service type to best reflect their context. For example, Regional Connectors strive to provide more linear routes for direct connections over longer distances, while Frequent Services aim to reach areas containing high population and employment to serve and connect urban areas as efficiently as possible.

The following dashboards provide specific measures for each of the previously mentioned target measures by service type, and are illustrated by example graphics. Each service type contains a different area of the NWA region, and shows only the service type the targets are referring to. In general, all areas contain a mixture of most or all of the service types provided in this study.

It must be noted that all targets represent minimum standards that ORT and RT should aim to achieve. It is possible, and highly likely, that service will be exceeding these targets. In essence, targets are not definitive levels of service, but a guide to make high quality transit present throughout NWA.

It is also important to understand that all targets represent goals for peak hour service. Target values were created to be realistic for a regional transit system, and represent targets that both ORT and RT can work towards achieving in tandem.

REGIONAL CONNECTORS

TARGETS

Service every 30 minutes

16 hours daily

7 days a week

Stop Amenities Level 3

On Time Arrivals
- 90% Mobility Hubs
- 80% Timepoints
- 70% Stops

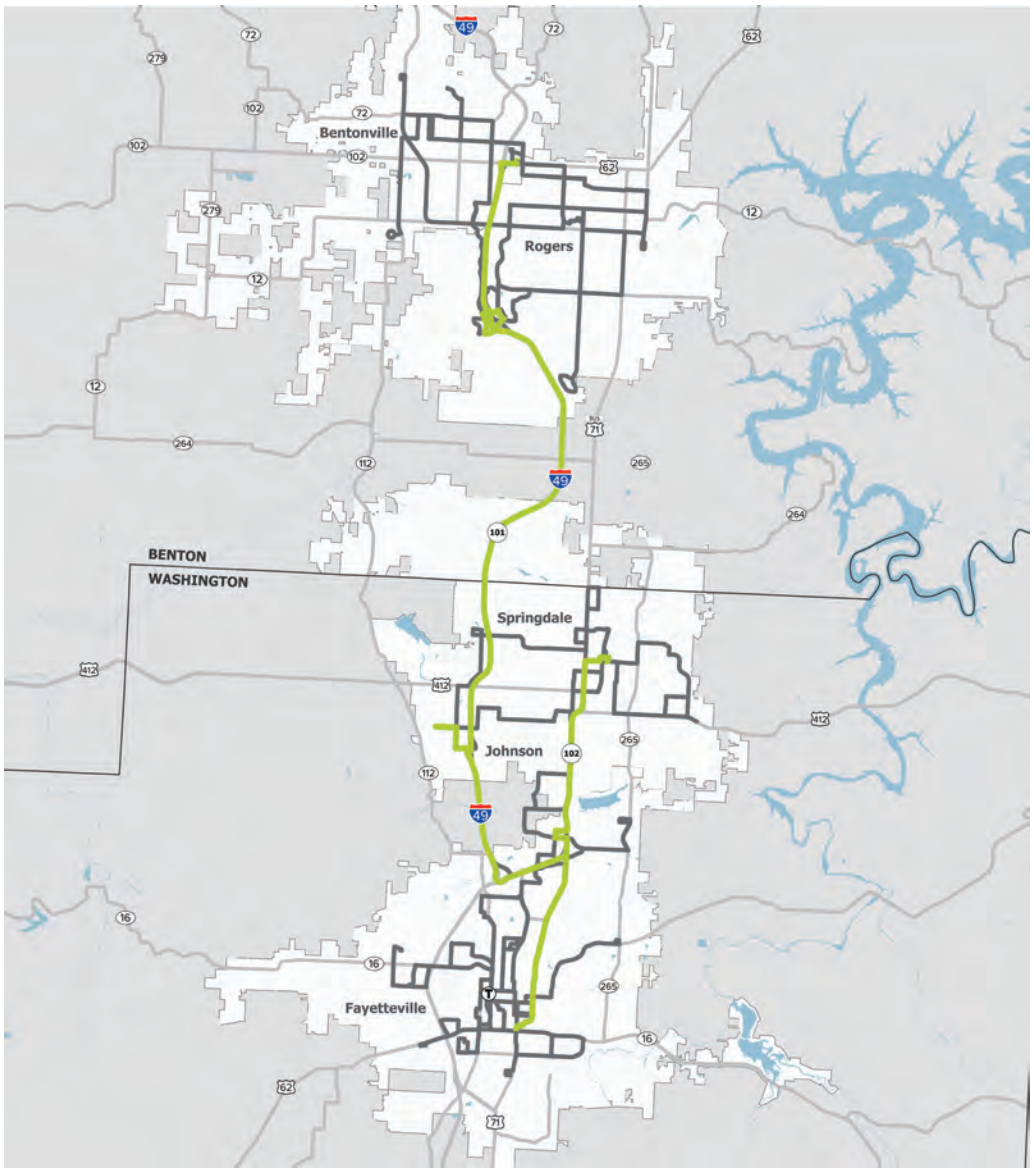
5 boardings per mile

20 boardings per hour

A B <125% route directness

Stop spacing varies

Propensity Score 6



FREQUENT SERVICE

TARGETS

Service every 30 minutes

16 hours daily | 7 days a week

Stop Amenities Level 2

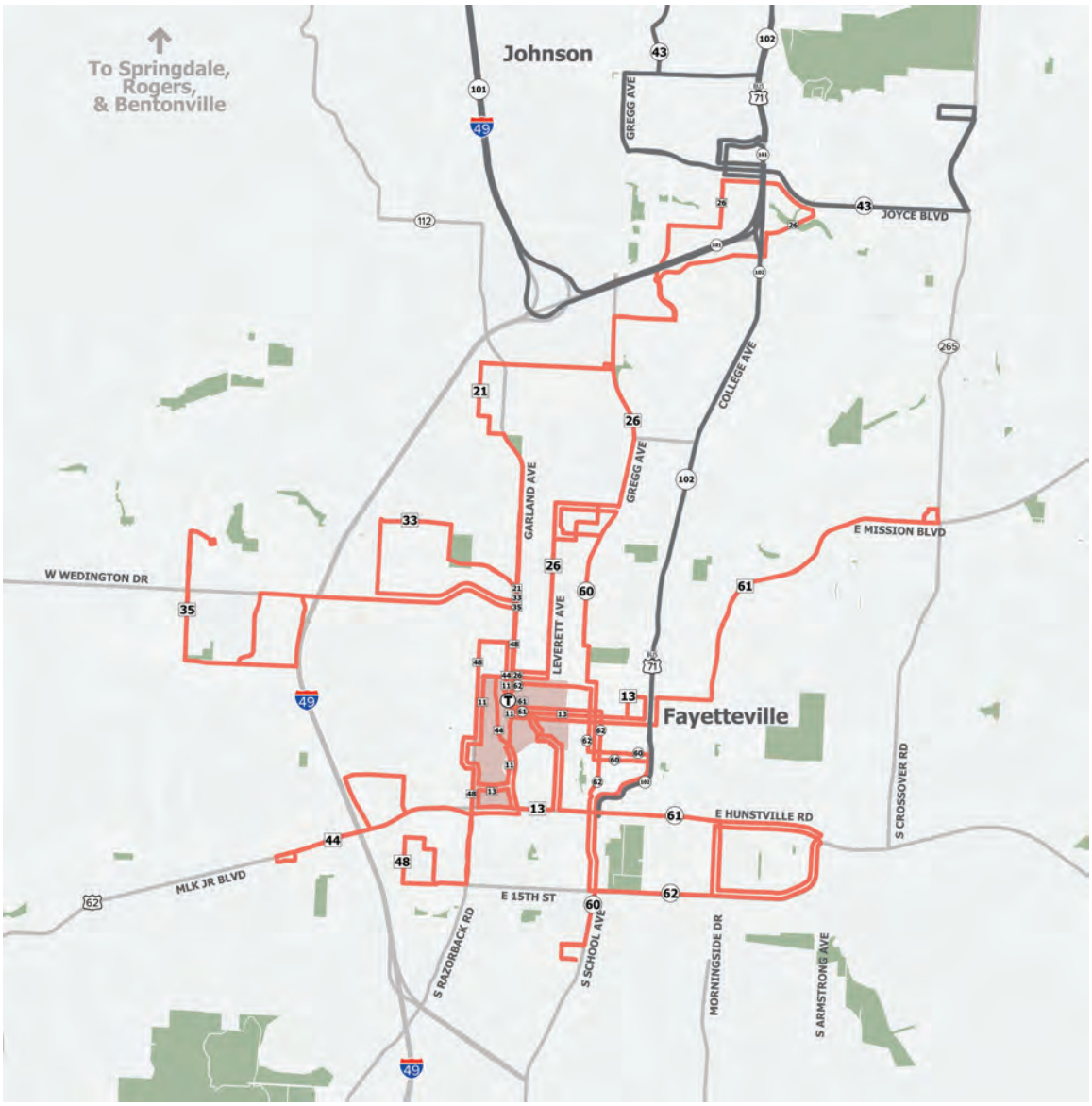
On Time Arrivals
90% Mobility Hubs
80% Timepoints
70% Stops

2 boardings per mile | 30 boardings per hour

A — B
<125% route directness

Bus stops every 3/4 mile

Propensity Score 11



COVERAGE SERVICE

TARGETS

Service every 40-60 minutes

16 hours daily

7 days a week

Stop Amenities Level 1

On Time Arrivals
90% Mobility Hubs
80% Timepoints
70% Stops

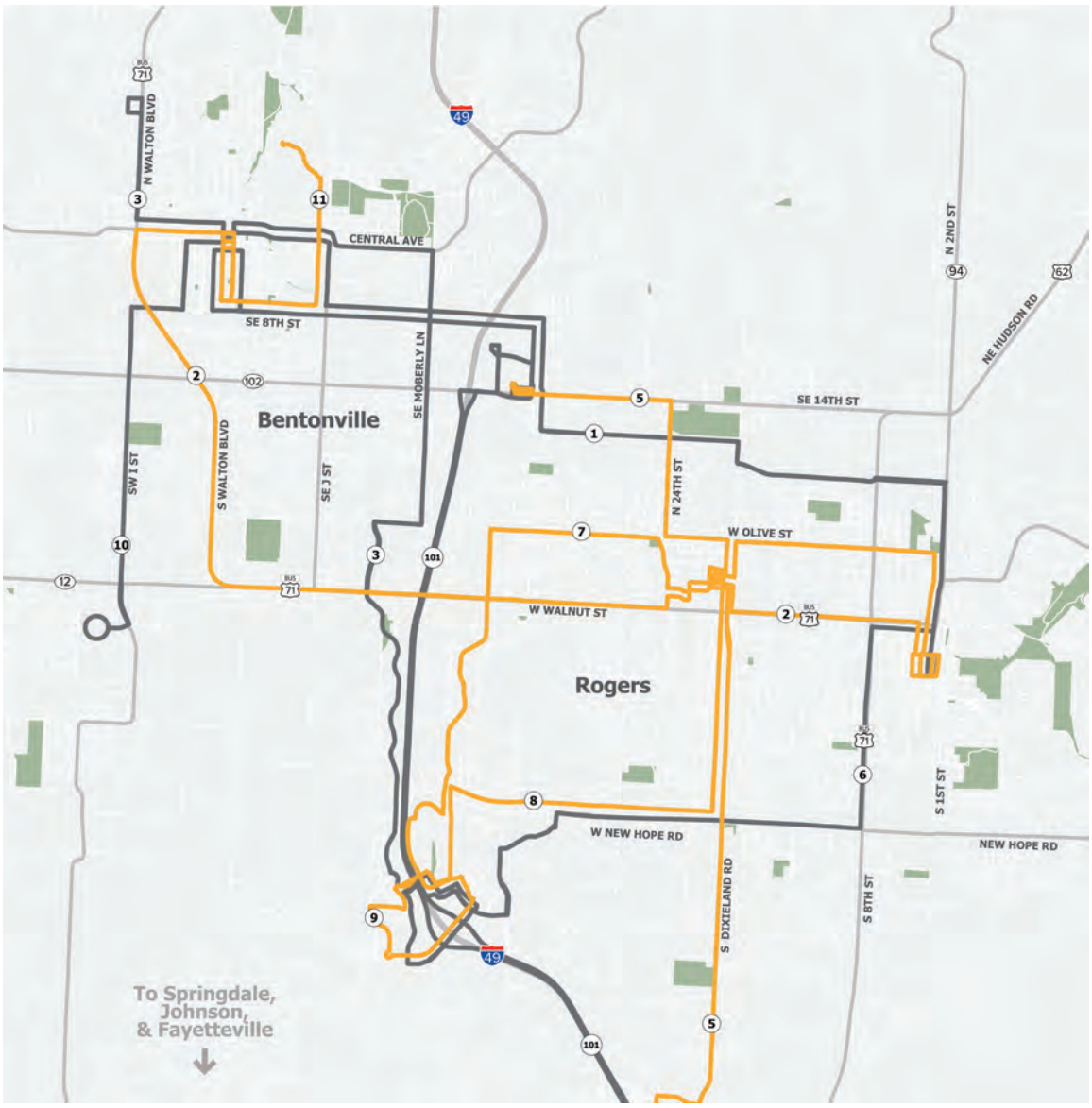
1 boardings per mile

15 boardings per hour

A B
<175% route directness

Bus stops every 1/4 mile

Propensity Score 6



MOBILITY ZONES

TARGETS

Service within 30 minutes

16 hours daily | 5 days a week

No fixed stops

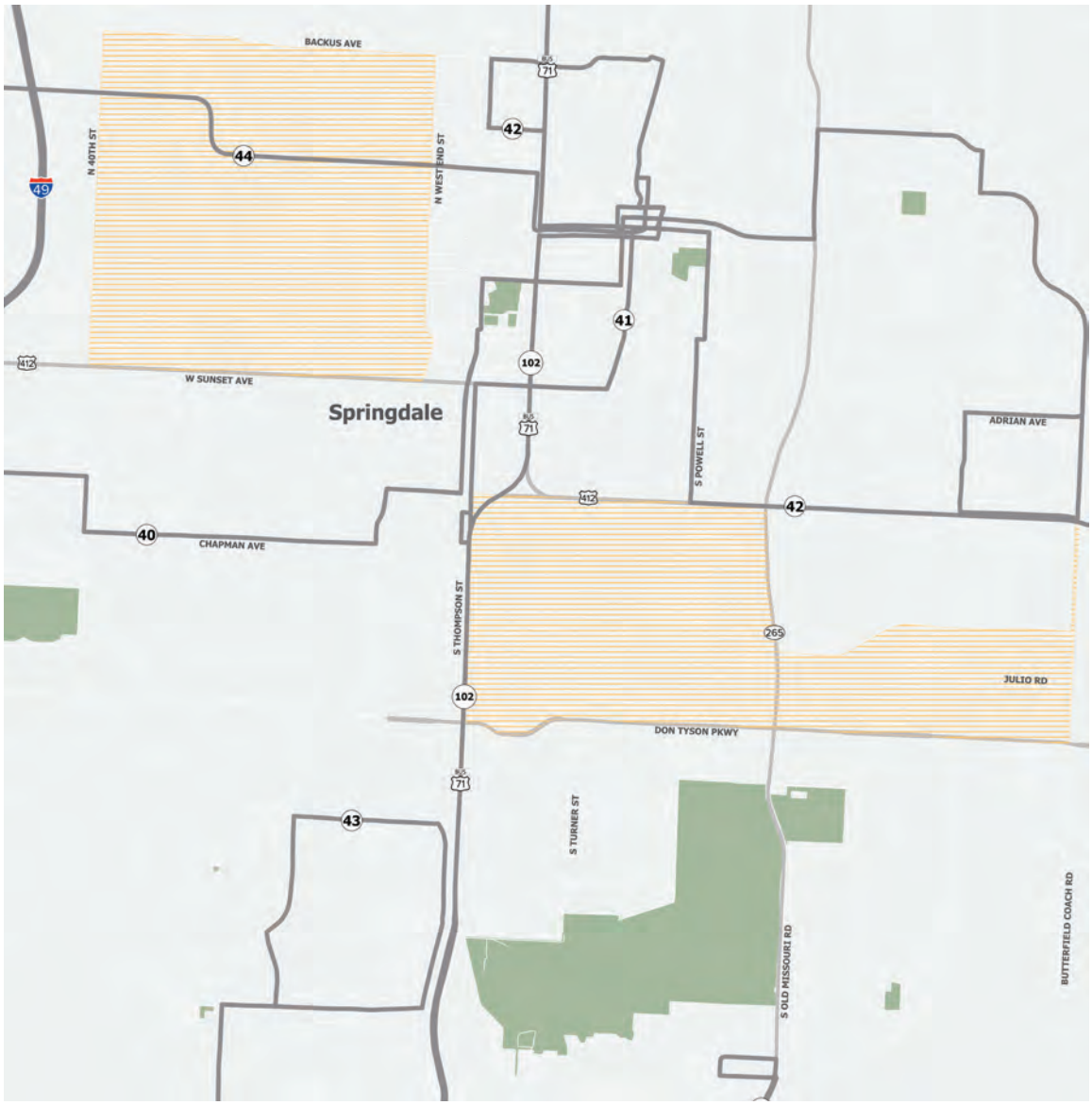
On Time Arrivals 90% Mobility Zones

No productivity tracking

A — B No fixed route

No fixed stops

Propensity Score 4



TECHNOLOGY STANDARDS

Enhanced technology is critical for an agency's performance. Ensuring updated technology when possible affects how passengers and operators understand the service and its productivity, as well as overall service efficiency.

REAL TIME/DATA TRACKING

Real time/data tracking technology allows for transit agencies to better understand existing ridership trends. It is recommended that all ORT and RT buses are equipped with the technologies listed below.

Automated Passenger Counters

Automated Passenger Counters (APC) are sensors that accurately track boardings and alightings occurring on a transit vehicle. This technology allows service providers to better track ridership trends, and therefore plan and implement better service.

Automatic Vehicle Location

Automatic Vehicle Location (AVL) is a technology which combines the use of computers and global positioning software (GPS) to maintain location of buses as they operate. This allows agencies to better understand how buses/operators are performing in real-time, and allows for better user experience as they can track buses in real time.

TRANSIT SIGNAL PRIORITY

Transit Signal Priority (TSP) is a tool that prioritizes transit vehicle movement through signalized intersections over other modes of transportation. This is done by decreasing intersection dwell times for transit vehicles by extending green lights or decreasing red lights when the vehicle is present. TSP is relatively cost effective and provides little impact to existing traffic. This method is accomplished through the implementation of detector systems, priority request generators, and software which is programmed to prioritize and grant requests.

OFF BOARD FARE COLLECTION (EXPANSION)

Off board fare collection refers to the practice of providing users the ability to pay for transit fare prior to boarding through at-station kiosks or via smartphone (in place of traditional "front-door" payment methods). With this method fare takes form in loadable smart cards/ credit cards, e-tickets, paper tickets, or smartphone apps. This enhanced fare collection method makes all-door boarding possible, thus reducing dwell times at stations/stops. All-door boarding is typically facilitated by proof-of-payment fare control, where users must be able to show transit operators/staff a purchased ticket if prompted.

ANALYTIC/OPERATIONAL TRANSIT SOFTWARE

Transit software exists to help plan, deliver, evaluate, and operate transit effectively (e.g. Remix, Passio, Pantonium, etc.). Such software is currently being utilized in NWA, however, moving forward it is critical for both ORT and RT to collaborate and ensure similar software platforms are used to create a cohesive system.

SYSTEM DESIGN

System alignment is critical to both transit efficiency and cost. A system should be designed to take citizens where they want to go, in a direct and intuitive manner. Well designed systems take advantage of existing land uses/market concentrations that best support transit, therefore eliminating unproductive routes. The following sections detail practices for efficient system design.

ROUTE DESIGN

Routes should be intuitive and easy for users to understand/navigate. Route names should be simplified and should be defined by service area. Routes should be designed to best serve the community and the reasons and benefits for each design should be defined. Regardless of the type of design selected, ORT and RT should strive to achieve the following route design strategies:

- **Simple route names** with one route name when there is service on both sides of the street;
- **Intuitive design** to minimize detours and confusing alignments;
- **Operate along high-activity corridors** to provide access to key destinations; and
- **Ensure optimal travel times** for users that maximize transfer opportunities.

STOP SPACING

The process of spacing stops must balance two considerations – accessibility to bus stops and speed of service. Stops placed closer together provide more coverage to users, however, also cause buses to spend more time at bus stops and therefore can cause routes to be less time efficient. Stop spacing recommendations based on service type are provided.

TABLE 5.1: STOP SPACING STANDARDS

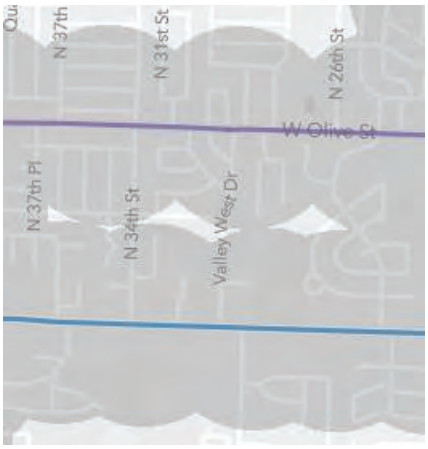
SERVICE TYPE	DISTANCE
Local	0.25
Frequent	0.75
Regional Connector	Varies
Mobility Zone	N/A

Bus stops should be accessible. It should be a priority of ORT/RT to ensure the region's transit market is adequately served by public transportation. Given that every transit trip is also a walking trip, NWA providers and partners should aspire to connect all bus stops to the pedestrian network to further improve safety and comfort for users.

ROUTE SPACING

Routes should be spaced in a way to prevent two routes from running parallel and providing similar service to a corridor. In general, routes should remain on corridors equal to or more than a half mile from one another. Figure 5.1 displays an example of routes spaced appropriately (located just beyond one another's half-mile buffer).

FIGURE 5.1: ROUTE SPACING



TIME POINTS

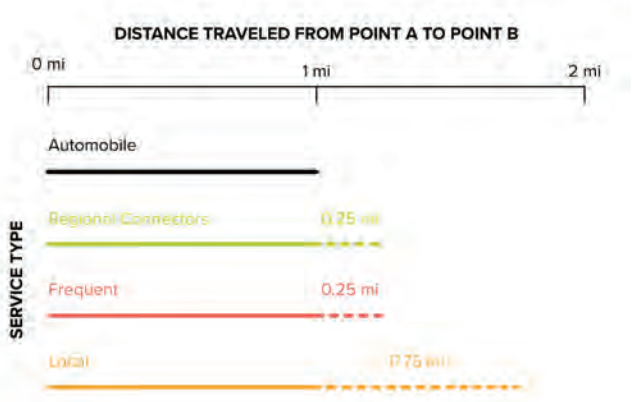
Time points are identified at major stops along a route that the bus uses to maintain schedule. These locations are designated along a route to control the spacing of buses (bus headway), creating the route schedule for passengers. Best practice suggests time points be placed at strategic points such as major intersections, major trip generators, and at destinations where the highest boarding activity is recorded. Time points are maintained by the driver not leaving the designated stop prior to the scheduled time. This practice contributes to user satisfaction by ensuring the bus does not depart before the scheduled time.

ROUTE DIRECTNESS

Direct routes minimize passenger travel time. Routes should use existing infrastructure to go from point A to point B in the shortest amount of distance. Using arterial streets as much as possible typically allows for more direct routes with posted speeds conducive to faster travel. It must be noted that routes may deviate if a market or key destination necessitates coverage (e.g. end of the line terminal loop, employment center/campus, etc.). Further, different types of service may dictate route directness. For example, express routes will be as linear as possible with limited stops, while local routes may provide more coverage and deviations.

Route directness (Figure 5.2) for Connect NWA compares how a transit route's path connecting point a to point b compares to the most direct route (i.e. how an automobile would travel) to connect the same points. This measure is represented by a percentage. For example, regional connector routes have a target percentage of 125%. This assumes that regional connector routes should be designed to be, at most, 25% longer than the most direct automobile route. The higher the percentage exceeds 100%, the more deviations are occurring within the route.

FIGURE 5.2: ROUTE DIRECTNESS



SCHEDULE DESIGN

Frequency

Frequency is how often a bus arrives at a given stop or departs from a terminal. Higher frequency translates into a reduction in overall travel time by providing freedom to show up to a stop or station and know that the next trip will arrive soon. It also minimizes transfer time on trips where passengers use more than one route. In general, the lower the frequency, the better the route is performing under this measure.

Span of Service

Span of service refers to the number of hours during the day transit service is provided. Span of service may apply to a route, segment of a route, or between two specific locations, and may differ by day of week and hour of the day (peak vs non-peak).

BUS STOP STANDARDS

Amenities

Providing access to NWA transit users, bus stops should create a positive experience. Minimum standards for ORT and RT bus stops ensure that a basic set of passenger amenities are provided at each stop location. Different amenity levels have been provided (Table 5.2) and should be applied to stops when applicable. In general, available funding, service types, ridership, and transfer totals should all be used to gauge which amenity level should be implemented at a stop.

Figures 5.3 through 5.5 on the following pages provide graphic examples as to how bus stop amenity levels may appear based on amenity types added.

TABLE 5.2: AMENITY LEVELS

AMENITIES	LEVEL 1	LEVEL 2	LEVEL 3
ADA Accessibility	X	X	X
Bus Sign	X	X	X
System Information	X	X	X
Shelter & Bench		X	X
Sidewalk Connectivity		X	X
Safety Lighting			X
Trash Bag/Can			X
Landscaping/Planters			X
Art/Placemaking			X

FIGURE 5.3: LEVEL 1 STOP AMENITIES

FIGURE 5.4: LEVEL 2 STOP AMENITIES

FIGURE 5.5: LEVEL 3 STOP AMENITIES

Far-Side Stops

A far-side bus stop (Figure 5.6) is one that follows a signalized intersection, allowing the bus to pass through traffic and for users to board/alight safely near crosswalks/ pedestrian infrastructure. This is the ideal stop location as it provides a safe environment for pedestrians and causes the least traffic disruption.

Near-Side Stops

Near-side stops (Figure 5.7) are those that are located immediately before a signalized intersection. This allows for boarding and alighting when the transit vehicle is stopped at a red light. This form of stop is less desirable than far-side locations as it can cause the transit vehicle to block through traffic at the light. This can decrease pedestrian site distances and cause automobile drivers to make unsafe traffic maneuvers.

Mid-Block Stops

Mid-Block stops (Figure 5.8) are found along roadways in between signalized intersections. Mid-block stop locations are the least desirable, as they create an unsafe and inconvenient environment for pedestrians as they typically do not provide a crosswalk to reach the other side of the road. It is recommended that mid-block stops are created in tandem with mid-block crosswalk infrastructure to increase safety and efficiency.

FIGURE 5.6: FAR-SIDE STOP EXAMPLE

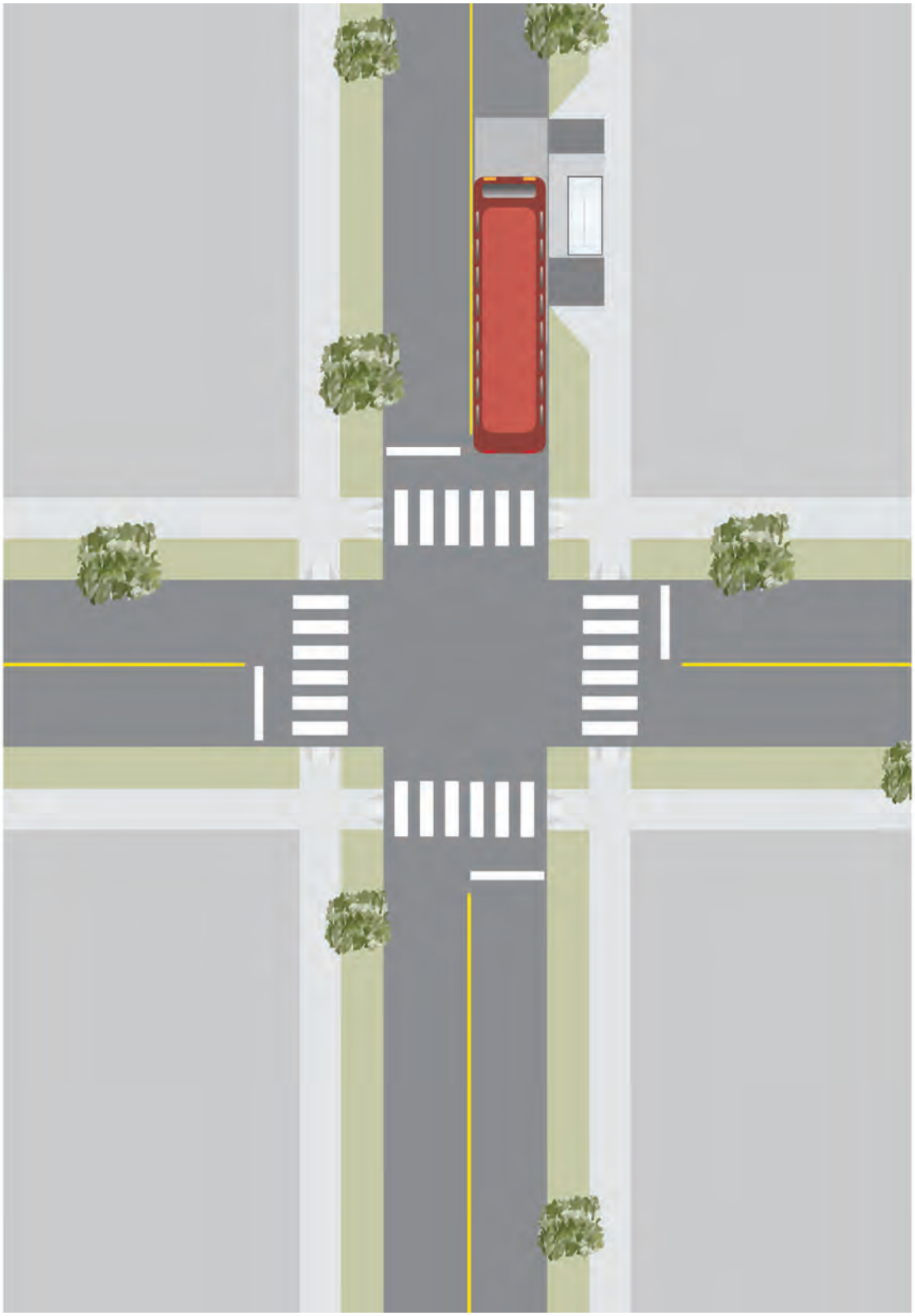


FIGURE 5.7: NEAR-SIDE STOP EXAMPLE

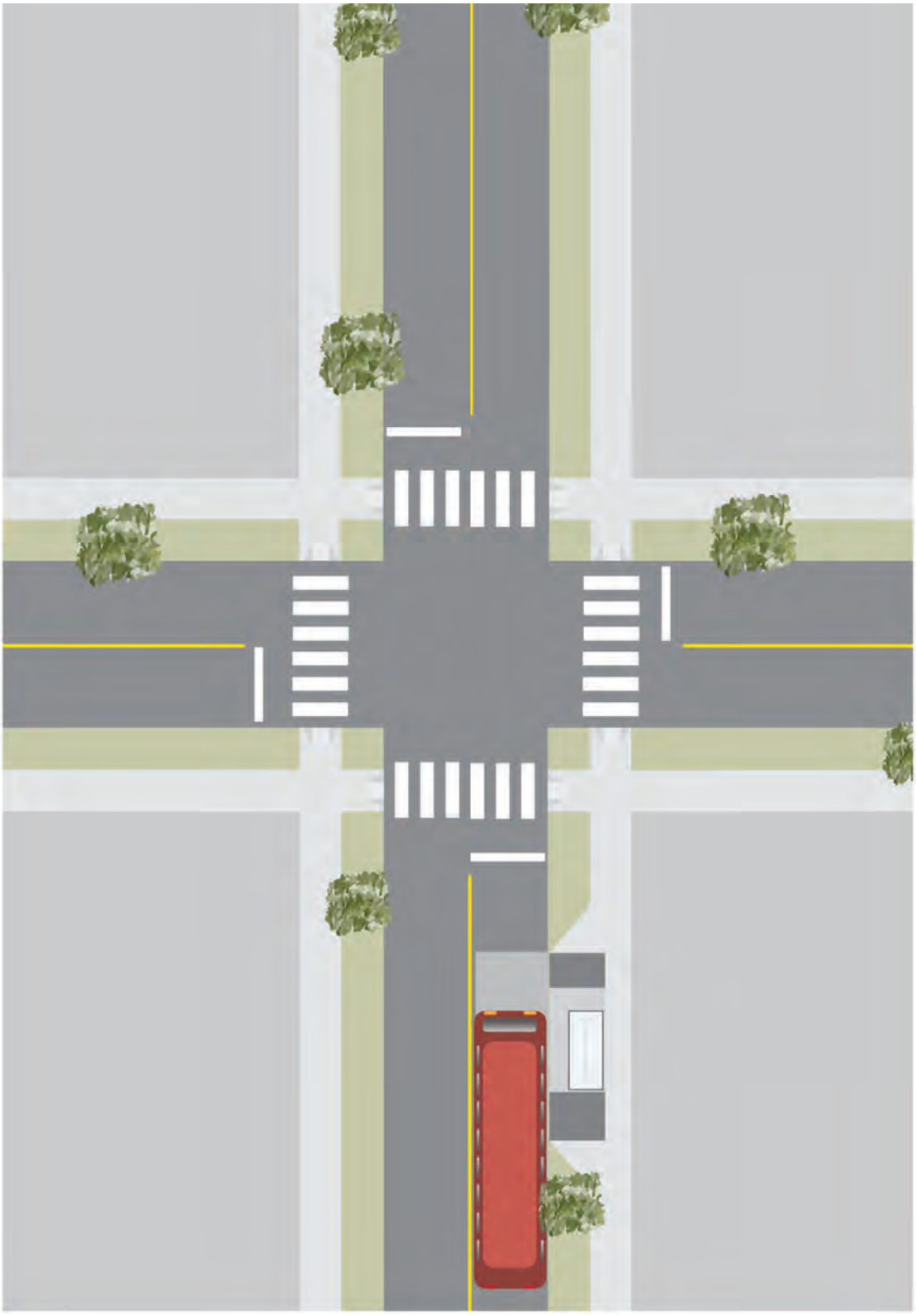
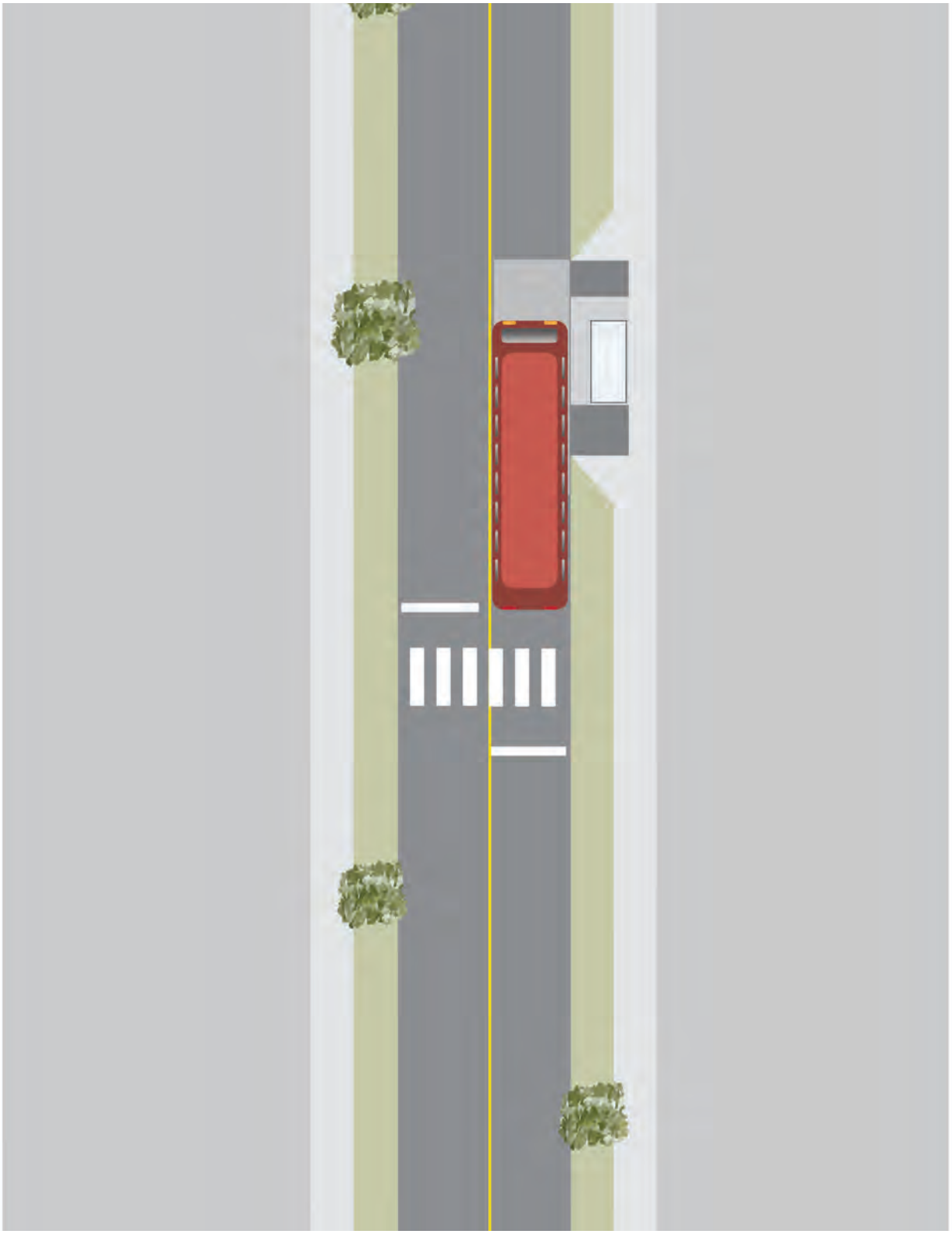
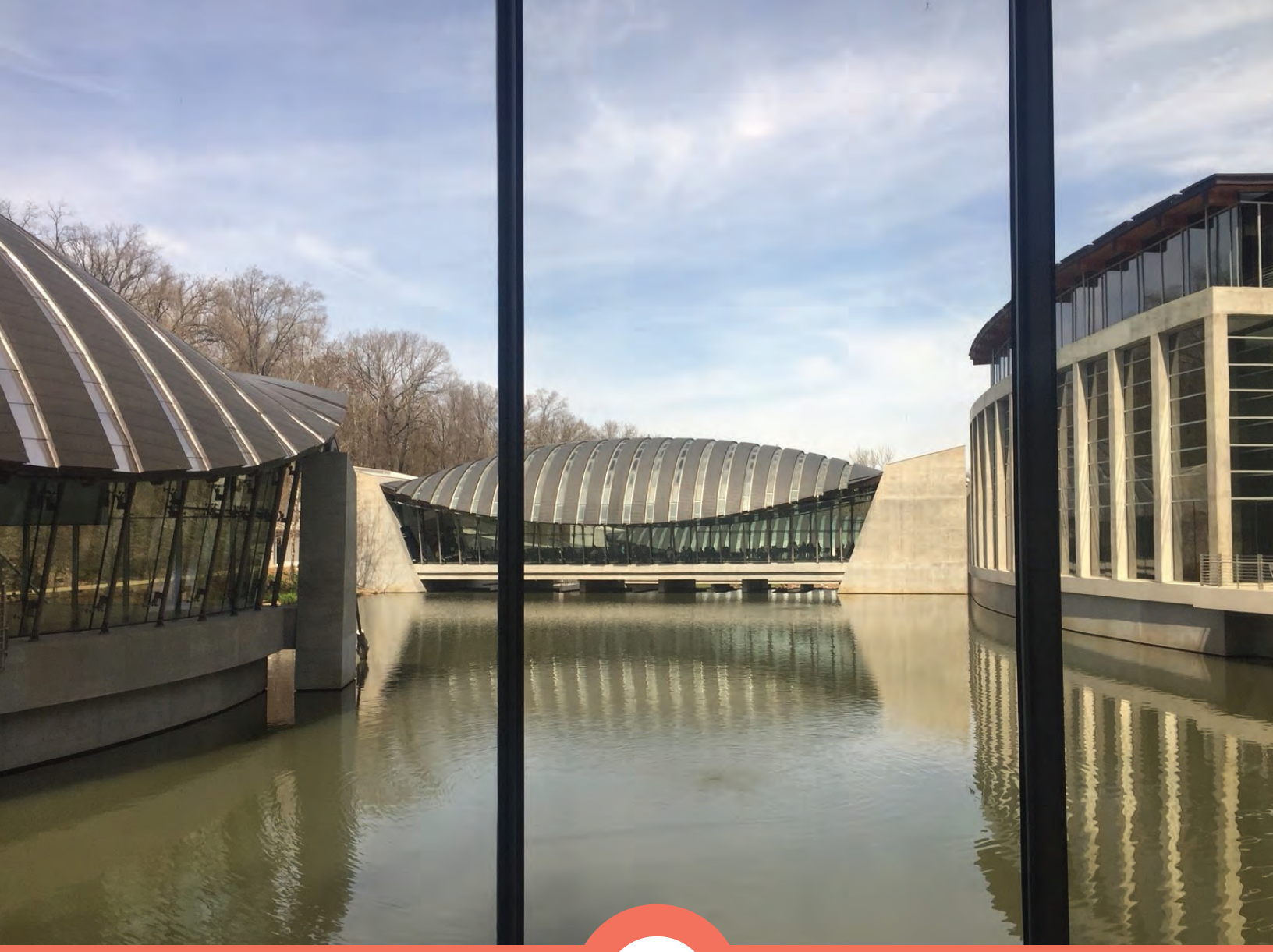


FIGURE 5.8: MID-BLOCK STOP EXAMPLE



CONCLUSION

Connect NWA Regional Service Standards have been created to serve as a living tool to work in tandem with the Connect NWA implementation plan and to serve as a standalone set of transit standards moving forward. As the NWA region prepares for the future, it remains critical that ORT and RT use these Regional Service Standards to understand existing service levels and to continuously monitor performance to ensure high quality transit.



CHAPTER 6

IMPLEMENTATION

CHAPTER 6: IMPLEMENTATION

INTRODUCTION

Connect NWA recommendations take the shape of a phased implementation plan derived from previous technical analyses, proven transit concepts, and public and staff input. This implementation plan will work in tandem with the Regional Service Standards to successfully and sustainably implement the recommendations that will create high quality transit throughout the entire NWA region.

As discussed in Chapter 4, the implementation plan is separated into three phases, listed as follows:

- **Phase I**: 1 to 2 years
- **Phase II**: 2 to 5 years
- **Phase III**: 5 to 10 years

METHODOLOGY

PRIORITIZATION

While recommendations were separated by phase early in the process, further prioritization was necessary to provide a more detailed structure for future implementation. Three main components informed the prioritization and ensured that the process supports the vision of this plan by connecting people and saving them time. The following list details the metrics used for the prioritization process:

- **Transit Propensity**: Where will transit work? Transit propensity represents the sum of population and employment within a quarter mile route buffer of each route.
- **Transit Needs**: Who depends on Transit? Transit needs population represents the sum of Transit-Dependent Population and Target Transit Rider Population totals (refer to Chapter 2) found within the same quarter mile route buffer used to capture transit propensity.
- **Ridership**: How many people will be using the service on an average weekday? Ridership estimates were generated through the Federal Transit Administration (FTA) Simplified Trips On Project Software (STOPS) modeling, which compares ridership generated for base (existing routes) and future (implemented route recommendations) scenarios.

Criterion were analyzed to score each route based on these metrics individually. The routes were given individual metric scores which compared the route's performance in that metric category against the other routes in the system. These individual scores were combined to get a final score for the route which informed the final route ranking and prioritization for each phase. All three criteria were weighted equally in this ranking.

The prioritization scores and subsequent rankings are representative of potential demand, service to key locations and existing markets, and transit serving disadvantaged populations.

A qualitative review of all the routes further informed and finalized the prioritization process. This process considered service changes currently being implemented, routes that are coordinated with local city initiatives and have secured funding, and routes tied to major roadway projects that will create connectivity opportunities and their letting schedules. Using the overall route rankings, high performing routes in Phase I were selected for increased frequency in both Phases II and III. In some instances, these routes were prioritized before adding a new route.

Table 6.1 displays individual metric scores and the final route prioritization resulting from the project team's methodology. It is important to note that while some projects scored highly, they were distributed amongst latter phases as they are dependent on bond projects (e.g. RT 26B).

TABLE 6.1: ROUTE PRIORITIZATION

ROUTE	CITY	TRANSIT PROPENSITY SCORE	TRANSIT NEEDS SCORE	AVG. DAILY RIDERSHIP SCORE*	RANK
RT 11	Fayetteville	2	2	11	1
RT 13	Fayetteville	3	7	8	2
RT 26B	Fayetteville	11	11	2	3
RT 48	Fayetteville	9	8	7	4
RT 33	Fayetteville	8	3	16	5
RT 21	Fayetteville	12	4	12	6
RT 61	Fayetteville	10	14	5	7
RT 26A	Fayetteville	1	1	30.5	8
RT 44	Fayetteville	14	10	9	9
ORT 62	Fayetteville	13	12	14	10
ORT 102	Springdale/Fayetteville	20	22	3	11
RT 35	Fayetteville	21	13	13	12
ORT 60	Fayetteville	15	16	18	13
ORT 61	Fayetteville	17	15	17	14
ORT 42	Springdale	19	5	26	15
ORT 4	Bentonville	6	25	21	16
ORT 5	Rogers	29	21	4	17
ORT 41	Springdale	18	6	30.5	18
ORT 2	Bentonville/Rogers	7	23	25	19
RT 26B	Fayetteville	16	9	30.5	20
ORT 8	Rogers	27	19	10	21
ORT 11	Bentonville	5	24	27	22
ORT 10	Bentonville	4	29	24	23
ORT 44	Springdale	24	18	19	24
ORT 3	Bentonville	22	26	15	25
ORT 40	Springdale	25	17	22	26
ORT 6	Rogers	31	27	6	27
ORT 101	All Cities	32	32	1	28
ORT 7	Rogers	26	20	28	29
ORT 1	Bentonville/Rogers	23	28	23	30
ORT 43	Springdale/Fayetteville	30	30	20	31
ORT 9	Rogers	28	31	30.5	32

Based on STOPS Ridership forecast values for Phase I

COST ESTIMATES

Costs for transit service are divided into two major categories: operations and maintenance (O&M) and capital costs. The following sections detail how each category's cost was defined and estimated. All cost estimates were created in base year dollars and assumed a 2.5% increase for inflation. Phase I costs were estimated in 2020 dollars, Phase II shows total cost based on estimated inflation over 3 years, and Phase III shows the estimated inflation in 8 years.

Operations & Maintenance

O&M costs derive from fixed route and labor expenditures (e.g. mechanics, drivers, road supervisors, etc.).

Phased cost estimates for fixed routes were based on increases in operating hours per route. Cost per operating hour rates were provided by both ORT and RT and used for appropriate routes (i.e. ORT routes used ORT's provided cost per hour and vice versa). These values were used to generate daily costs for weekdays, Saturdays, and Sundays. Daily costs fluctuate based on operating hours (span), frequency, and the number of trips in a day. In order to generate annual costs, each service category (i.e. day(s) of operation) was multiplied by the amount of service days in the calendar year. RT service days were slightly different than ORT's due to the nature of their service (e.g. Summer session).

Other operational costs were estimated based on annual salaries (with benefit costs included) provided by ORT and RT for potential employee positions needed with increased service. Annual figures were added to operational cost in tandem with added and/or improved service.

Capital

Capital costs consist of bus and amenity (shelters, signage, etc.), paratransit, and mobility zone expenditures.

Costs for additional buses and amenities in response to increased service were added to the system's capital cost. ORT and RT used separate costs provided for buses, while a universal baseline amenity cost was used for both agency's additional bus stops.

Paratransit cost estimates for ORT were estimated from existing service hours for fixed route and paratransit. Using the service hours over the past five years, the proportion of paratransit to fixed route hours were used to estimate total yearly service hours for these services. RT paratransit cost estimates were based on existing cost per year and an additional cost for the new coverage for RT 61. This was estimated using an approximate ratio of paratransit to fixed route hours similar to ORT to get an estimated additional service hours per year for the new coverage.

Mobility zone cost estimates were based on initial software costs and operating costs (using the ORT cost per hour).

City

The costs of each phase of Connect NWA were distributed into each of the participating cities in the region: Bentonville, Rogers, Springdale, and Fayetteville. The estimated initial cost of starting the mobility zone service was equally divided among the cities as they would each be able to use this service through ORT if needed. Similarly, the costs for new bus stops, ORT labor, and ORT paratransit services were divided equally among the cities. As Razorback Transit runs within the city of Fayetteville, the estimated costs of the agency's paratransit, labor, operation and maintenance costs of routes, and bus procurement were allocated to the city of Fayetteville. As ORT provides services to each of the participating cities, the costs of route operations were distributed based on the estimated annual cost of each route running in that city. Costs of routes that provide services to two or more cities are divided equally among the relevant cities. The cost for bus procurement for ORT buses was divided based on the percent of Vehicle Revenue Hours (VRH) of ORT service in that city for each phase. If a city has a proposed mobility zone, the estimated annual cost to operate that service is allocated to that city.

It is not expected that each city will be the sole provider to fund the cost of services in their city. As the options for funding Connect NWA are explored in Chapter 7, the local match or cost to implement locally will be supported by federal, state, and local funding revenues.

TABLE 6.2: PHASED COSTS

PHASE	ANNUAL MILES	ANNUAL HOURS	PEAK BUSES	O&M COST	CAPITAL COST	TOTAL COST	INCREMENTAL COST
Existing	1,393,046	112,059	33	$6,434,478	$1,352,941	$7,787,419	--
Phase I	2,749,405	186,054	60	$12,853,665	$14,846,637	$27,700,302	$19,912,883
Phase II	3,430,792	233,571	76	$17,733,080	$12,239,875	$29,972,955	$2,272,653
Phase III	4,597,913	301,021	93	$26,291,275	$16,050,871	$42,342,146	$12,369,191

TABLE 6.3: PHASED COSTS BY CITY

PHASE	BENTONVILLE	ROGERS	SPRINGDALE	FAYETTEVILLE	TOTAL COST
Existing	$125,757	$467,670	$361,710	$805,228	$1,760,365
Phase I	$3,201,016	$5,225,771	$5,359,740	$13,913,776	$27,700,302
Phase II	$4,491,124	$6,755,181	$7,496,989	$11,229,662	$29,972,955
Phase III	$10,886,779	$10,788,776	$8,730,860	$11,935,731	$42,342,146

Cost Overview

Table 6.2 provides an overview of total and incremental implementation costs for all three phases. Table 6.3 displays phased costs by city. All cost totals assume inflation.

PHASED IMPLEMENTATION

The following sections illustrate the Connect NWA Phased Implementation Plan. Each section lists attributes and costs of routes in ranked order and display the routes at the regional level to provide an overview of added routes and services.

Tables for Phases II and III display the cost of increased service and add to the preceding phase(s) fixed route cost total. Other operating and capital line items are added to create the total cost.

Routes with added frequency as part of the phased implementation plan are highlighted in the tables. Their associated costs represent the dollar amount for increased frequency.

PHASE I

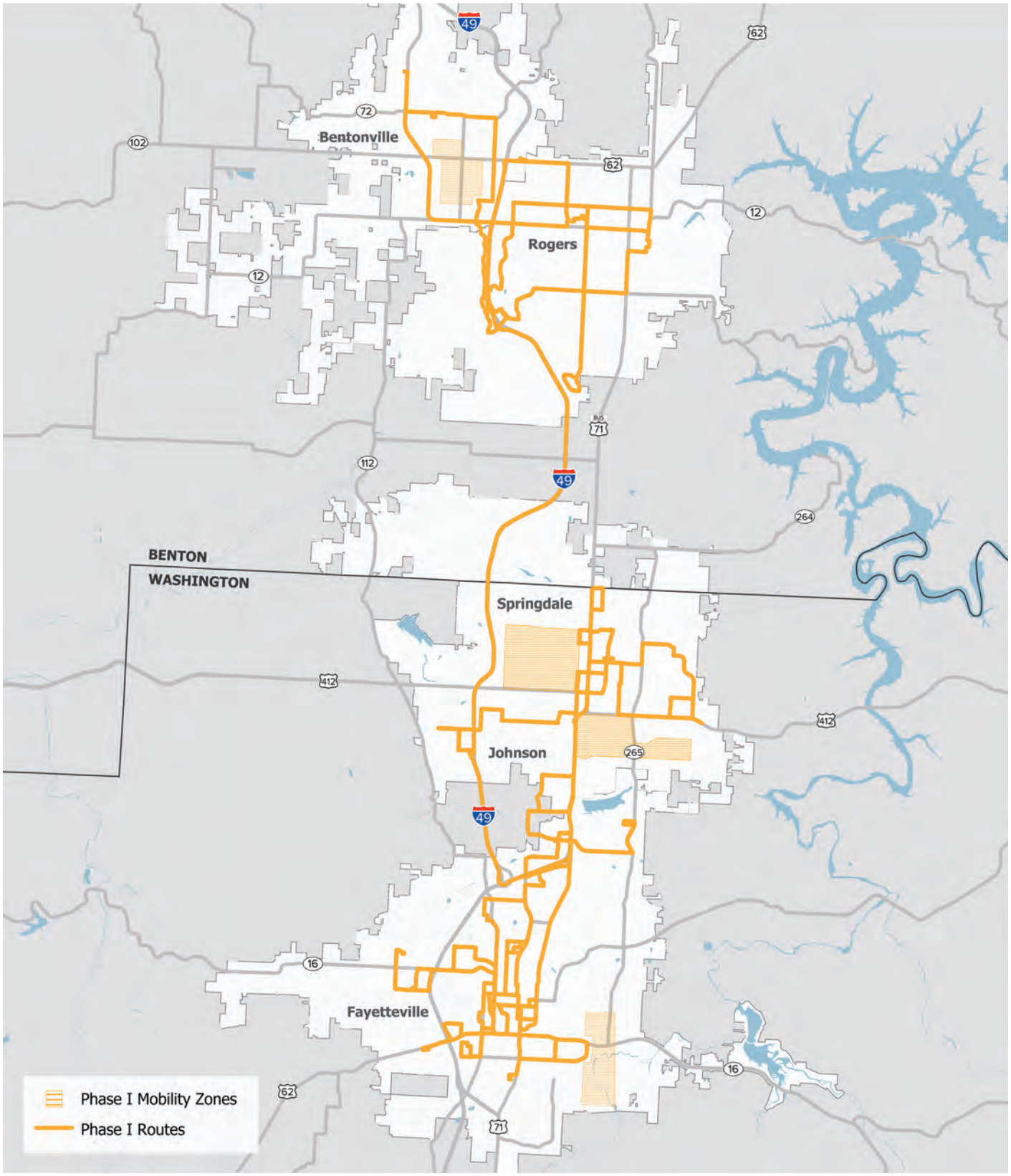
Phase I is characterized by substantial route alignment changes and increases in frequency, span, and days of service. Phase I also introduces the four recommended mobility zones. This phase is designed to be the backbone of the regional transit system. Figure 6.1 displays the Phase I alignments at a regional extent. Table 6.4 displays the route prioritization and costs within Phase I.

TABLE 6.4: PHASE I ROUTE PRIORITIZATION & COST

ROUTE*	CITY	ANNUAL MILES	ANNUAL HOURS	PEAK BUSES	COST
RT 11	Fayetteville	49,198	6,655	4	$393,762
RT 13	Fayetteville	48,925	4,824	3	$285,362
RT 48	Fayetteville	105,658	10,030	5	$593,312
RT 33	Fayetteville	51,177	5,054	2	$298,958
RT 21	Fayetteville	93,482	7,197	4	$425,810
RT 26A	Fayetteville	60,910	5,500	2	$325,376
RT 44	Fayetteville	85,029	7,934	3	$469,372
ORT 62	Fayetteville	89,411	7,064	2	$516,668
ORT 102	Springdale/Fayetteville	264,688	15,456	4	$1,130,416
RT 35	Fayetteville	89,755	6,502	3	$384,616
ORT 60	Fayetteville	67,108	5,233	2	$382,832
ORT 61	Fayetteville	73,234	6,004	2	$439,100
ORT 42	Springdale	89,886	6,303	2	$460,984
ORT 5	Rogers	118,058	7,891	2	$577,012
ORT 41	Springdale	55,447	4,100	1	$299,828
ORT 2	Bentonville/Rogers	174,992	11,809	3	$863,640
RT 26B	Fayetteville	137,962	10,504	4	$621,386
ORT 3	Bentonville	143,615	9,994	2	$730,884
ORT 40	Springdale	183,766	11,297	3	$826,320
ORT 6	Rogers	185,081	11,703	4	$856,024
ORT 101	All Cities	379,303	10,538	4	$770,620
ORT 7	Rogers	134,083	9,438	2	$690,260
ORT 43	Springdale/Fayetteville	68,637	5,024	1	$367,436
Phase I Total	--	**2,749,405**	**186,054**	**60**	**$12,709,978**
Paratransit					$2,992,936
Labor					$143,687
Buses/Amenities					$10,846,275
Mobility Zones					$1,007,427
Total Cost					**$27,700,302**

**Routes are ordered by rank*

FIGURE 6.1: PHASE I ROUTES



PHASE II

Phase II maintains Phase I routes but adds critical line connections and enhancements to the ORT system with minimal expansion of the RT system. Phase II also increases frequencies for routes already implemented. Figure 6.2 displays the Phase II alignments at a regional extent. Table 6.5 displays the route prioritization within Phase II.

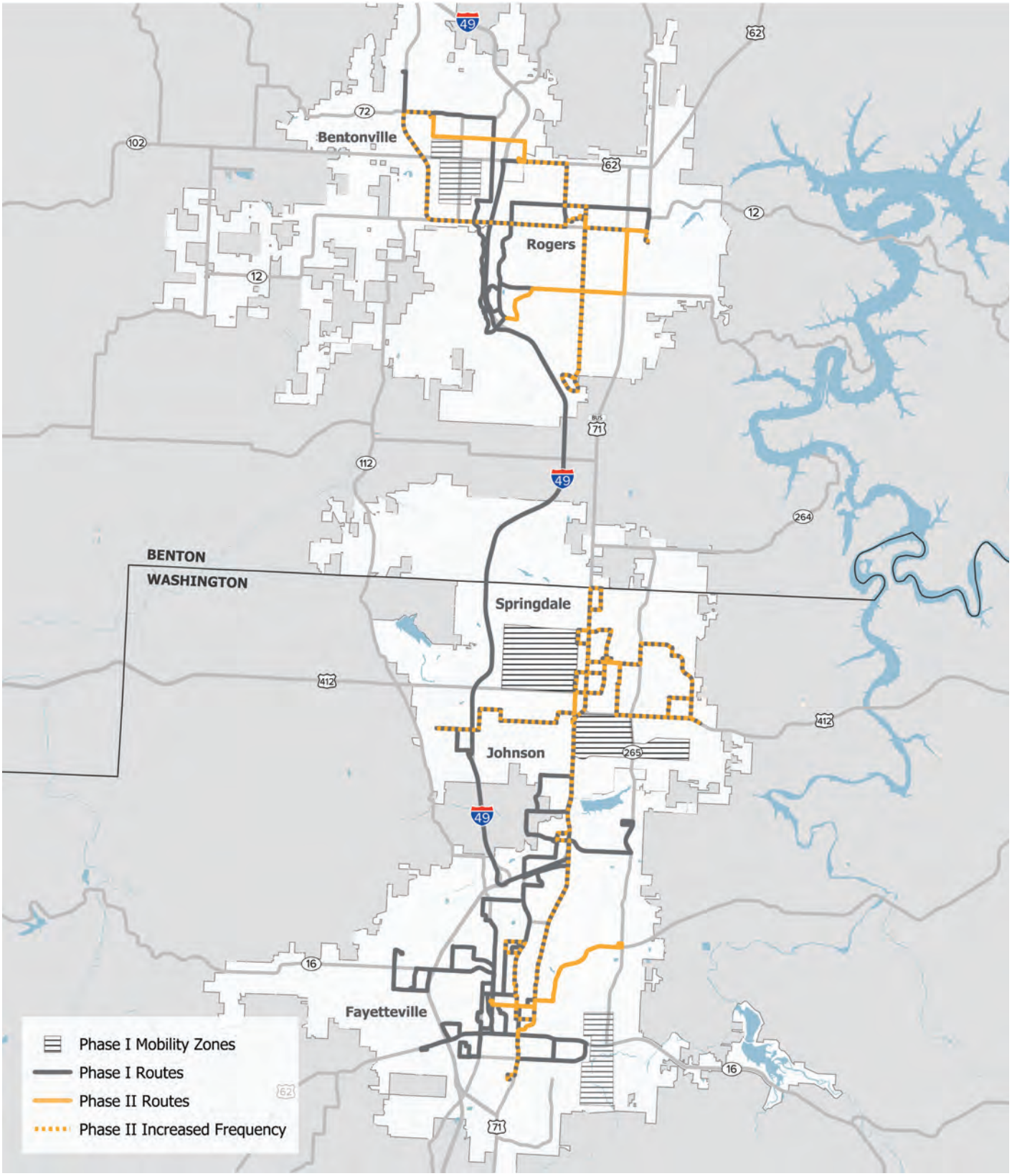
TABLE 6.5: PHASE II ROUTE PRIORITIZATION & COST

ROUTE*	CITY	ANNUAL MILES	ANNUAL HOURS	PEAK BUSES	COST
Phase I Recap	--	**2,749,405**	**186,054**	**60**	**$12,709,978**
RT 61	Fayetteville	57,058	5,256	2	$310,934
ORT 102	Springdale/Fayetteville	31,935	1,865	3	$136,332
ORT 42	Springdale	45,283	3,175	1	$232,344
ORT 60	Fayetteville	51,673	4,066	1	$297,360
ORT 4	Bentonville	75,192	5,510	2	$403,068
ORT 5	Rogers	102,243	6,863	1	$502,004
ORT 41	Springdale	39,304	2,889	1	$211,428
ORT 2	Bentonville/Rogers	82,525	5,569	2	$407,484
ORT-40	Springdale	140,331	8,627	4	$631,008
ORT-8	Rogers	55,843	3,697	1	$270,384
Phase II Total	--	**3,430,792**	**233,571**	**76**	**$16,112,324**
Paratransit					$4,043,989
Labor					$354,604
Buses/Amenities					$6,363,525
Mobility Zones					$958,427
Inflation (2023)					$2,140,087
Total Cost					**$29,972,955**

**Routes are ordered by rank*

Routes with highlighted rows represent those already implemented receiving increased frequency; costs, miles, hours, and peak buses represent the additional service in this phase

FIGURE 6.2: PHASE II ROUTES



PHASE III

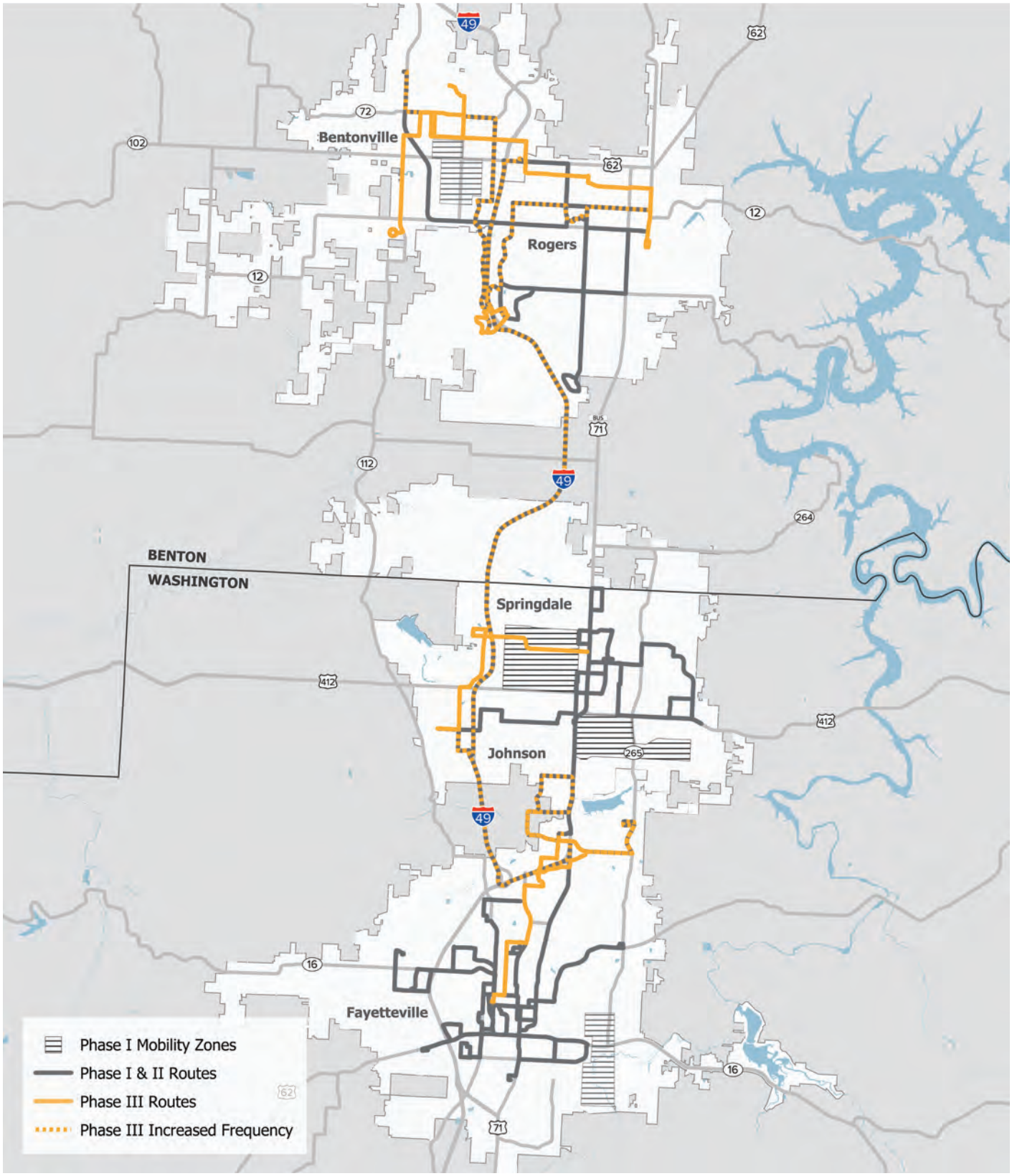
Phase III builds on the implemented alignment and continues to add regional connectivity. Phase III continues to increases frequencies for routes already implemented. Figure 6.3 displays the Phase III alignments at a regional extent. Table 6.6 displays the route prioritization within Phase III.

TABLE 6.6: PHASE III ROUTE PRIORITIZATION & COST

ROUTE*	CITY	ANNUAL MILES	ANNUAL HOURS	PEAK BUSES	COST
Phase I Recap	--	**2,749,405**	**186,054**	**60**	**$12,709,978**
Phase II Recap	--	**3,430,792**	**233,571**	**76**	**$16,112,324**
RT 26B	Fayetteville	16,504	1,773	(1)	$104,910
ORT 11	Bentonville	104,008	7,952	2	$581,632
ORT 10	Bentonville	90,264	5,510	1	$403,068
ORT 44	Springdale	80,689	5,498	1	$402,172
ORT 3	Bentonville	104,297	7,257	2	$530,964
ORT 101	All Cities	288,899	8,026	3	$587,160
ORT 7	Rogers	97,375	6,855	2	$501,480
ORT 1	Bentonville/Rogers	282,913	16,499	4	$1,206,764
ORT 43	Springdale/Fayetteville	48,654	3,562	1	$260,568
ORT 9	Rogers	53,518	4,518	1	$330,288
Phase III Total	--	**4,597,913**	**301,021**	**93**	**$21,021,330**
Paratransit					$5,576,495
Labor					$557,144
Buses/Amenities					$6,638,775
Mobility Zones					$958,427
Inflation (2028)					$7,589,975
Total Cost					**$42,342,146**

**Routes are ordered by rank*
Routes with highlighted rows represent those already implemented receiving increased frequency; costs, miles, hours, and peak buses represent the additional service in this phase

FIGURE 6.3: PHASE III ROUTES



LONG-TERM RECOMMENDATIONS

As the NWA region continues to grow beyond the 10-year scope of this plan, it is important to consider High Capacity Transit (HCT) solutions to further connect the region once the core system is implemented.

The project team utilized the Federal FTA STOPS model to forecast potential demand for HCT corridors in the region. The STOPS forecasts include an analysis of three HCT corridors which were selected based on ridership, land use and development potential, community support, and population and employment densities. The STOPS results allowed the project team to review information on the possible outcomes and trade-offs associated with the performance of the various HCT corridors selected and the impacts on the NWA transit system as a whole.

METHODOLOGY

STOPS is a ridership model created by FTA to evaluate new transit projects. STOPS is similar to a conventional four-step travel demand model that evaluates travel markets based on zone-level socio-economic characteristics. The STOPS model uses actual ridership experience from fixed guideway transit projects across the United States including bus rapid transit (BRT), light rail transit (LRT), commuter rail and streetcar modes to inform forecast results. This effort was further enhanced through using existing route boardings for both ORT and RT, as well as the NWARPC System Wide Origin and Destination (OD) Survey from 2018 to inform local transit travel behavior. The NWA STOPS model was run in incremental mode for this effort, which uses much more detailed transit travel information to match to the original OD Survey for calibration. It also uses Census Transportation Planning Products data to inform non-transit travel behavior. STOPS also utilizes demographic data from Benton and Washington Counties to understand existing development and growth projections in the NWA region.

It is important to establish the baseline first in order to compare the incremental effects of HCT on the core system. An Existing system model is run for the base year, 2010, and is calibrated to represent the current transit system, ridership, and demographics. This is a crucial step to calibrating the future ridership forecasts.

Next, a No-Build scenario was run based on Phase III assumptions for the implementation of the core system from the 10-year phased plan. The No-Build represents the minimum “do-nothing” scenario if future HCT projects were not built. Finally, the three build scenarios were developed to represent conditions and demand for the implemented HCT routes. These three options replaced the underlying local fixed routes which previously served the HCT corridors.

Table 6.7 presents No-Build average daily ridership values per route for 2025 and 2040 forecast years. All 2025 values are a product of linear interpolation using the 2010 base year and 2040 forecast year.

TABLE 6.7: NO-BUILD RESULTS

ROUTE	CITY	2025 AVG. DAILY RIDERSHIP	2040 AVG. DAILY RIDERSHIP
RT 26	Fayetteville	3,371	5,050
ORT 101	All Cities	3,033	4,748
ORT 102	Springdale/Fayetteville	2,065	3,177
RT 48	Fayetteville	1,663	2,421
RT 44	Fayetteville	1,272	1,856
RT 13	Fayetteville	1,189	1,781
RT 61	Fayetteville	1,091	1,685
RT 11	Fayetteville	1,089	1,591
RT 21	Fayetteville	1,056	1,538
ORT 5	Rogers	927	1,462
ORT 6	Rogers	919	1,453
RT 35	Fayetteville	899	1,310
ORT 3	Bentonville	663	1,037
ORT 62	Fayetteville	675	985
ORT 8	Rogers	493	798
RT 33	Fayetteville	448	655
ORT 61	Fayetteville	349	510
ORT 60	Fayetteville	248	361
ORT 44	Springdale	139	206
ORT 43	Springdale/Fayetteville	126	186
ORT 4	Bentonville	89	138
ORT 40	Springdale	52	77
ORT 10	Bentonville	48	76
ORT 1	Bentonville/Rogers	39	62
ORT 42	Springdale	20	30
ORT 2	Bentonville/Rogers	18	28
ORT 11	Bentonville	6	9
ORT 7	Rogers	2	2
ORT 9	Rogers	-	-
ORT 41	Springdale	-	-

HCT OPTION 1

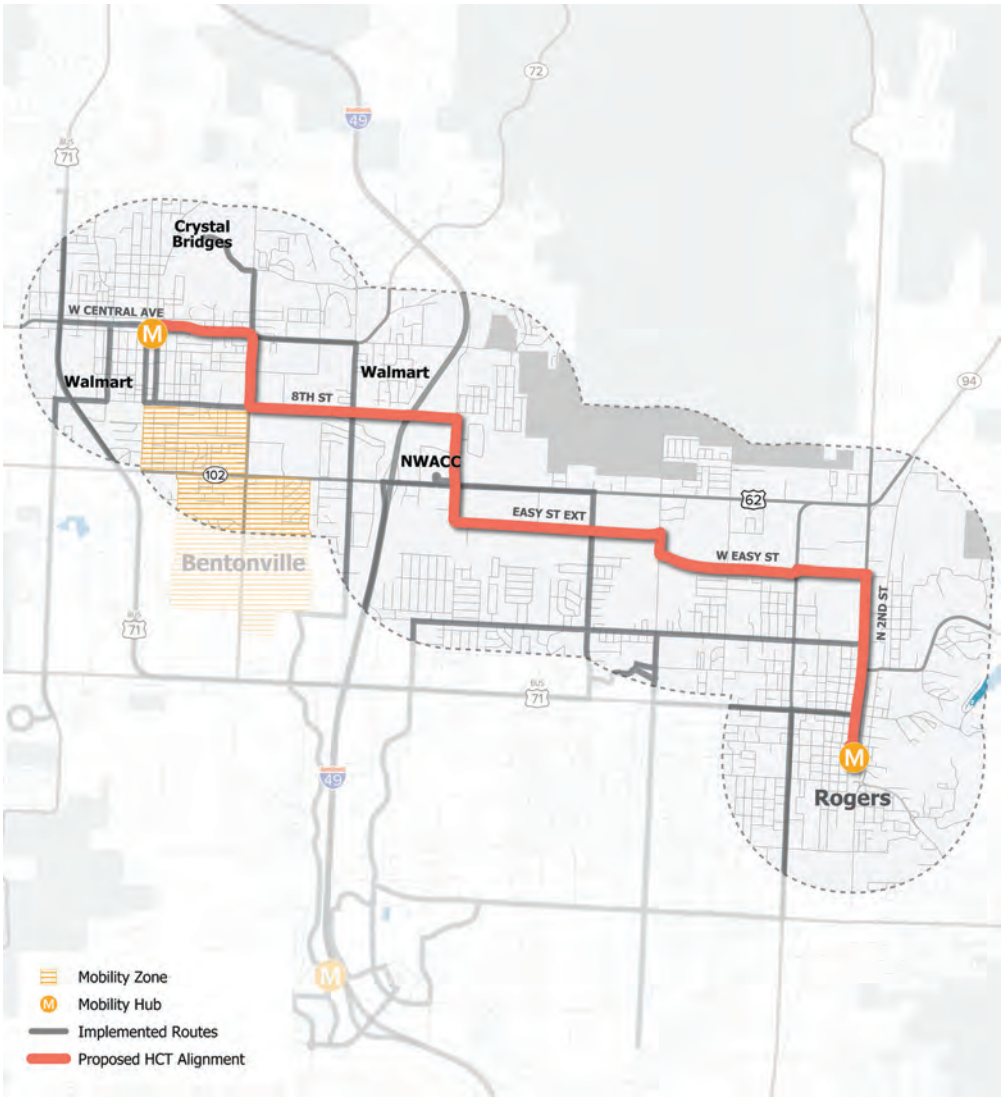
This potential HCT corridor connects the two downtown hubs of Bentonville and Rogers, and provides service to the existing and future Walmart Headquarters and the NWACC Campus. Two major roadway projects enable efficient connections along the route (8th Street Improvement Project and the Easy Street Extension Project). Both proposed termini of this corridor were identified as potential mobility hubs in Chapter 4. The selection of this corridor was further strengthened by best practices detailed in TCRP Report 118 – Bus Rapid Transit Practitioner's Guide.

TCRP 118 states, "BRT systems should service both existing and future markets. Where BRT serves undeveloped areas, it has the opportunity to shape development around it."

TABLE 6.8: HCT OPTION 1 WEEKDAY 2040 BOARDINGS

	AVG. DAILY RIDERSHIP
HCT 1	109
System Total	46,742
System % Change from No-Build	94%

FIGURE 6.4: HCT OPTION 1



HCT OPTION 2

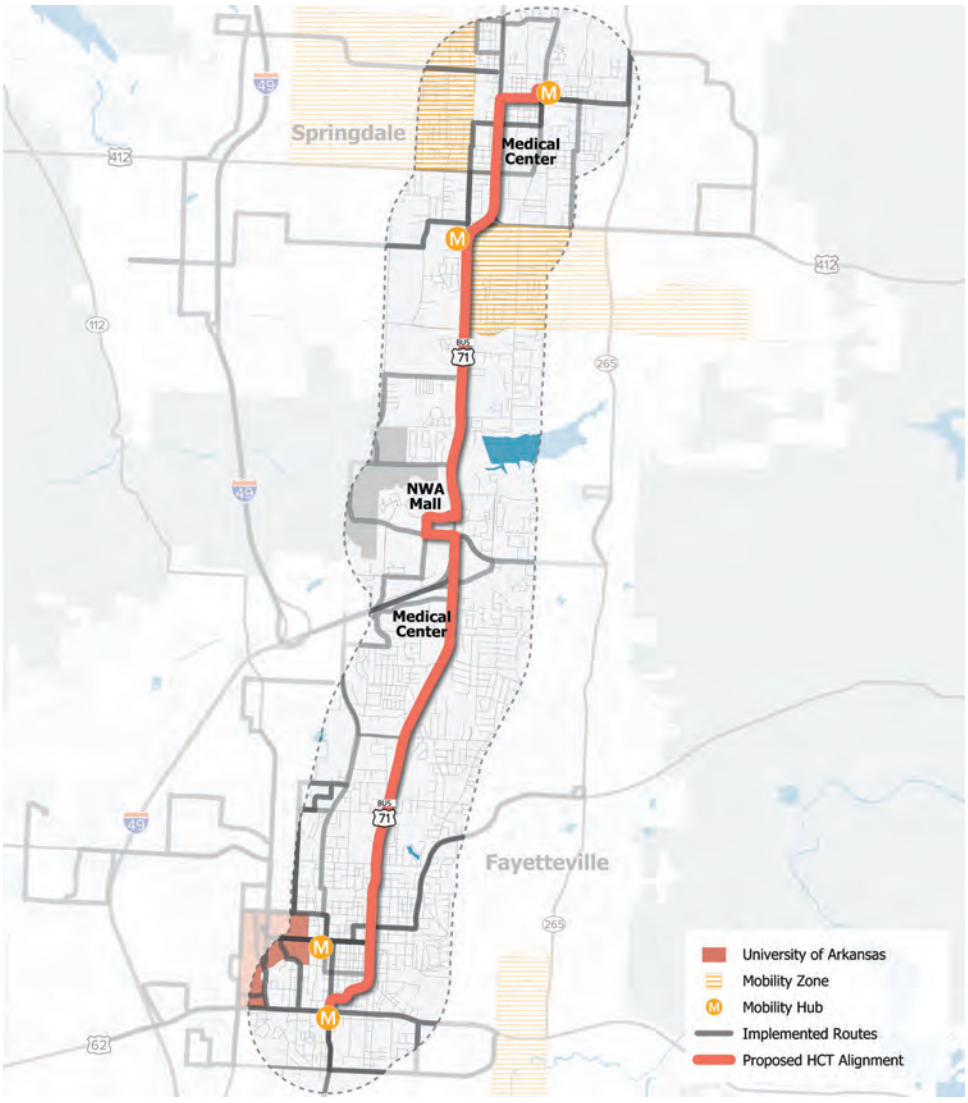
This potential HCT corridor has been evaluated in two prior studies: Northwest Arkansas Transportation Alternatives Analysis (September 2014) and the Smart Bus Rapid Transit Study for US 71B Corridor (February 2018). The project team wanted to revisit this corridor and generate new ridership forecasts using the STOPS model informed by the most recent System Wide Origin and Destination Survey, and understand how the improvements in connectivity and frequency under Connect NWA will support any potential investment in this corridor.

Like option 1, this corridor would connect two downtown hubs of Fayetteville and Springdale as well as establish proposed termini at potential mobility hubs identified in Chapter 4.

TABLE 6.9: HCT OPTION 2 WEEKDAY 2040 BOARDINGS

	AVG. DAILY RIDERSHIP
HCT 2	5,136
System Total	48,616
System % Change from No-Build	101%

FIGURE 6.5: HCT OPTION 2



HCT OPTION 3

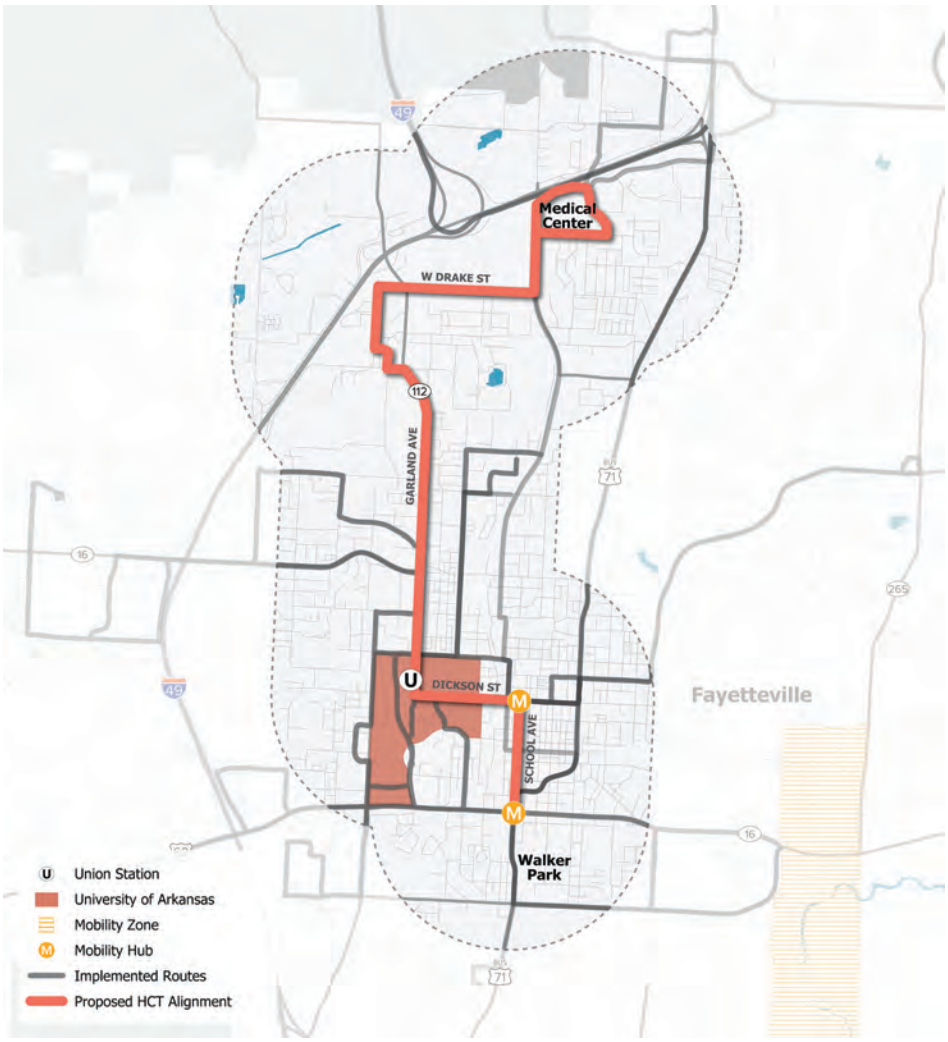
This potential HCT corridor would connect downtown Fayetteville to north Fayetteville where there is an abundance of planned development and potential developable land. It provides service to the main RT hub at Union Station and follows one of the corridors that experiences the highest current ridership in the region. It is important to note the mention of developable land and high ridership potential as these are both criteria laid out in FTA's Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects. The region will want to evaluate the corridors that have the highest potential scoring ratings under this program that would be required for FTA funding.

This is the only corridor that provides direct service to the University. TCRP 118 - Bus Rapid Transit Practitioner's Guide discusses how a large university such as U of A or other outlying major activity center may support a BRT route or system if other criteria such as population or employment densities fall short.

TABLE 6.10: HCT OPTION 3 WEEKDAY 2040 BOARDINGS

	AVG. DAILY RIDERSHIP
HCT 3	21,214
System Total	52,964
System % Change from No-Build	119%

FIGURE 6.6: HCT OPTION 3



CONCLUSION

This Implementation Chapter defines phased steps so that Connect NWA can take shape over the next 10 years and beyond. It is important to note that this chapter is a guide to be used in coordination with the Regional Service Standards (Chapter 5) as well as the subsequent Funding Chapter. Several funding resources exist at the federal, state, and local level to ensure that communities are not left to pay for the entirety of the recommended system.

Phases were intentionally broken down to the route level and cost divided by each of the participating cities so that no dependencies or critical path obstructions would be created. The intention is that Connect NWA be implemented in its entirety, but the plan is flexible and phased so that it can accommodate the realities of real-world challenges such as funding.

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CHAPTER 7

TRANSIT INVESTMENT

CHAPTER 7: TRANSIT INVESTMENT

INTRODUCTION

The identification of sustainable funding sources to support transit system costs is critical to the success of transit operations. The stark difference between NWA and its peers in terms of dedicated transit funding shown in the executive summary and the benchmarking analysis (see Appendix A) highlights one of the most important findings of the plan. To achieve the Connect NWA vision of full mobility for all travelers, the region must invest in transit at a significantly higher rate than it currently does and must work to identify a dedicated local funding source that does not completely rely on Federal and State funding.

The project team performed a review of existing funding resources and apportionment of federal funds among the cities involved with Connect NWA. In order to better understand the options for funding transit moving forward, potential funding resources were reviewed. This analysis provides the region with a set of financial projections showing anticipated revenue sources and total system expenditures for a three phased implementation plan.

The recommendations provide information that will help ORT and RT to implement service changes in a fiscally responsible manner throughout all three of the project's phases. Figure 7.1 displays existing funding available to go towards implementation of Connect NWA, as well as the amount necessary to implement the entire plan based on the cost projections from Chapter 6.

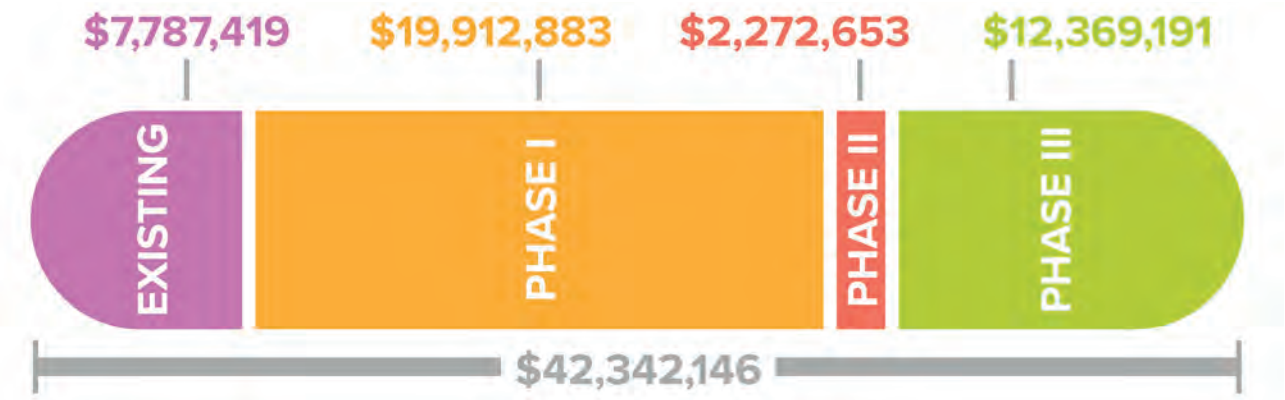
EXISTING FUNDING

Existing funding for both ORT and RT consists of federal and non-federal sources that go towards transit funding annually. The following sections describe the existing resources supporting transit in the region.

FEDERAL FORMULA GRANTS

Two main Federal Transit Administration (FTA) formula grants support operations and maintenance (O&M) and capital costs for transit. Under these programs, Federal funds toward operating expenditures are not to exceed 50 percent of the project net cost, whereas federal funds toward capital costs are not to exceed 80 percent of the project net cost.

FIGURE 7.1: PHASED TRANSIT INVESTMENT



Section 5307: Urbanized Area Formula Grants

FTA makes funding available to designated public bodies with legal authority to receive and distribute federal funds. Regions with urbanized areas (UZA) greater than 200,000 in population receive apportioned funds from FTA directly (i.e. NWA). Within this UZA category, funds are apportioned based on a formula which considers a combination of bus vehicle revenue miles (VRM), bus passenger miles, population, and population density (fixed guideway VRM and passenger miles are considered if applicable).

Section 5339: Grants for Buses and Bus Facilities

The Section 5339 program provides federal funding to recipients (those operating fixed route service under the Section 5307 urban program and/or the Section 5311 rural program) to replace, rehabilitate, and purchase buses and equipment. The program also covers costs to construct bus-related facilities, which includes technological changes or innovations to modify low or no emission vehicles or facilities. Funding is allocated through a national distribution which provides states an equal annual amount of federal monies; remaining funds are apportioned using the Section 5307 formula discussed above.

STATE & LOCAL FUNDING

Other types of funding exist outside of federal formula grants that have provided the NWA region with transit support and are discussed below.

Arkansas Public Transit Trust Fund

The Arkansas Public Transit Trust Fund (PTTF) uses an Arkansas Department of Transportation (ARDOT) distribution formula which considers the ridership, operating costs, population of a given agency, as well as "hold harmless" – a factor which assures each agency does not receive less than the previous year. Between ORT and RT, the two agencies were allocated roughly $500,000 in transit funding from the PTTF, distributed quarterly.

Arkansas State Half-Cent Sales Tax Turnback Funding

This resource provides a revenue source for intermodal transportation projects in Arkansas. Funds are allocated to each city based on a population apportionment from the most recent US Census. Cities have the option to use turnback resources to fund transit. This is decided upon every budget cycle.

Approximately $3.5 million in funding is projected for fiscal year (FY) 2020. Further, a half cent transportation tax passed by statewide referendum is expected to provide an additional $1.8 million in funding. At the discretion of the respective municipalities, Turnback Funding can be a feasible ancillary transit funding source.

Rental Vehicle Tax (ACA 26-63-302)

The Rental Vehicle Tax derives from the rental of a motor vehicle required for a lease of less than 30 days. A portion of this tax is allocated to ARDOT for the purpose of acquiring matching funds for public transportation expenditures (i.e. vehicles, equipment and facilities, and O&M).

U of A Student Fees

The University of Arkansas (U of A) charges a student fee to provide high quality transit in the City of Fayetteville. U of A student fees typically provide $2 million worth of transit funding for RT.

System Revenue & Other Local Sources

Revenue streams (e.g. fare box returns, contracts, advertising, etc.) provide ORT and RT monies to put back into O&M and capital costs. While not sufficient to cover all operating costs, system revenues help to offset some of the annual costs.

POTENTIAL FUNDING

The following section describes other potential funding resources reviewed by the project team to gain a better understanding of the alternative methods available for funding this plan. The funding sources considered are allowed under provisions of the Arkansas Code.

REGIONAL MOBILITY AUTHORITY ACT (ACA 27-26-101)

The Regional Mobility Authority Act, which created the NWA Regional Mobility Authority (RMA) in 2008, provides financial guidelines and contains the ability to allocate resources for transportation funding in NWA (including transit). The act states that an RMA may be funded or supported by the following:

- A sales tax from a member city or county
- Revenue from a motor vehicle tax
- An additional sales tax (not to exceed one-half of one percent)
- Proceeds from tolls or toll facility projects, and other surface transportation systems owned by the RMA
- Proceeds from bond sales
- State turnback funding or other state funding programs

It must be noted that since its inception, the NWA RMA has not approved any transportation funding.

AUTHORITY TO LEVY VEHICLE TAX (ACA 26-78-102)

Similar to taxes levied by the State of Arkansas for the use of public roads and highways (owned by the state), counties and municipalities of the state are authorized to levy a tax on motor vehicle owners, and is defined as the “County and Municipality Vehicle Tax”. Tax proceeds are to be credited towards the county highway fund for maintenance, construction, and reconstruction of roads, bridges and other public ways in the county and municipal roadway system. There is no specific mention of transit funding within the code, and thus will not be a viable funding alternative.

SPECIAL LOCAL SALES AND USE TAX (ACA 26-73-111)

Counties and municipalities can levy a special local sales tax to generate transportation funding. This dedicated funding requires by ordinance the entity to hold a special election on the matter. Local dedicated funding has proven itself to be a powerful funding tool across the United States. A special local sales tax ensures consistent funding for public transportation. Table 7.1 displays the Connect NWA “Peer Cities” (see Appendix A) and shows if they contain a local dedicated funding sources, and if so, the type and the amount. It also indicates whether the peer city has any high capacity transit.

TABLE 7.1: DEDICATED FUNDING SOURCES

URBAN AREA	DEDICATED FUNDING	FUNDING TYPE/AMOUNT	HIGH CAPACITY TRANSIT
AUSTIN, TX	X	1 percent sales tax	X
BOULDER, CO	X	TMP* Funding (%)	X
DES MOINES, IA	X	.95 percent transit levy cap	--
EUGENE, OR	X	.75 percent sales tax	X
FORT COLLINS, CO	X	.85 percent sales tax	X
GREENVILLE, SC	--	--	--
MADISON, WI	X	$40 wheel tax	X (In Progress)
NWA - ORT	**--**	**--**	**--**
NWA - RT	**--**	**--**	**--**
SPARTANBURG, SC	--	--	--

** Transportation Master Plan*
-- No dedicated funding source

FUNDING RECOMMENDATION

In order to implement and successfully operate Connect NWA, the urbanized region made up of the four major cities will need to identify a dedicated local funding source. The Special Local Sales and Use Tax – Election (ACA 26-73-111) provides the most viable path forward for the urbanized region. NWARPC, in close coordination with ORT and RT will need to coordinate at the City level to determine the extent or phase they wish to implement and operate Connect NWA. The implementation chapter provides a prioritized path forward that allows for a united regional implementation or an a la carte implementation at the city level. Additionally, city funding profiles provide an overview of Connect NWA at the city level so that each city will understand the impact to their community in terms of benefits and costs.

To achieve the funding levels described in the following discussion, the urbanized region will need to implement a ¼ cent sales tax under the Special Local Sales and Use Tax – Election (ACA 26-73-111) for the residents within the boundaries of the four major urban cities in the region. This funding mechanism would provide fiscal capacity to operate and maintain the system through Phase II.

Both the cost estimates and the revenue estimates are conservative (erring to the high-side on costs and the low-side on revenues). During Phase I and Phase II, the cities will be able to gather observed data on actual costs and revenues accruing from the growth of the system and the area population. This knowledge will allow them to adjust the implementation plan to optimize system performance and pace the implementation to actual revenues. The cities will also be able to better evaluate the projected Phase III shortfall and decide, on the basis of observed results, whether to supplement the funding, implement only the fiscally sustainable parts of Phase III, or delay Phase III until revenues reach a level when implementation is feasible.

Figure 7.2 provides a year by year breakdown in terms of costs, revenues, surpluses, and surplus covered shortfalls over the life of the Connect NWA 10-year plan. For the purposes of this study the base year for Phase I implementation is 2020 but the actual date could begin whenever the region or individual community is ready. It should also be noted that there will be a lag in terms of implementation as the agencies will need to make preparations for significant changes such as ordering new vehicles, conducting public outreach campaigns, and other planning related tasks necessary to implement a service change of this magnitude.

Figure 7.2 displays Capital and O&M costs in comparison to generated revenue funds over the Connect NWA phased implementation time horizon. Federal funding, state funding, University of Arkansas student fees, and the estimated ¼ cent sales tax revenue make up the total revenue generated. The ¼ cent sales tax in the urbanized area is assumed to grow commensurate with the population growth projected in the region. Future, federal, state, and university revenues are assumed to remain constant, however they assume a 2.5% annual increase due to inflation.

Generally, total estimated revenues are expected to meet the cost requirements of the implementation plan for Connect NWA. Although there are anticipated peaks in capital costs such as bus procurement when each of the phases are initiated, in general, available revenue surpluses or accrual of available federal funds will be available to address these peaks through the end of Phase II. The Connect NWA approach of allowing for a-la-carte implementation provides each city with the ability to time service expansions to flatten the peaks and match revenues to costs to avoid deficits in funding.

By Phase III, costs begin to exceed the expected revenues. Many of these forecasted revenues are conservative estimates, and it is likely that more federal funding could be acquired as the population and services grow in the NWA region. Conversely, the cost estimation errs toward over-estimation to ensure that the cities have an honest and transparent picture of the cost obligations of each phase of implementation before they make any fiscal commitments.

FIGURE 7.2: REGIONAL TRANSIT INVESTMENT & REVENUE COMPARISON

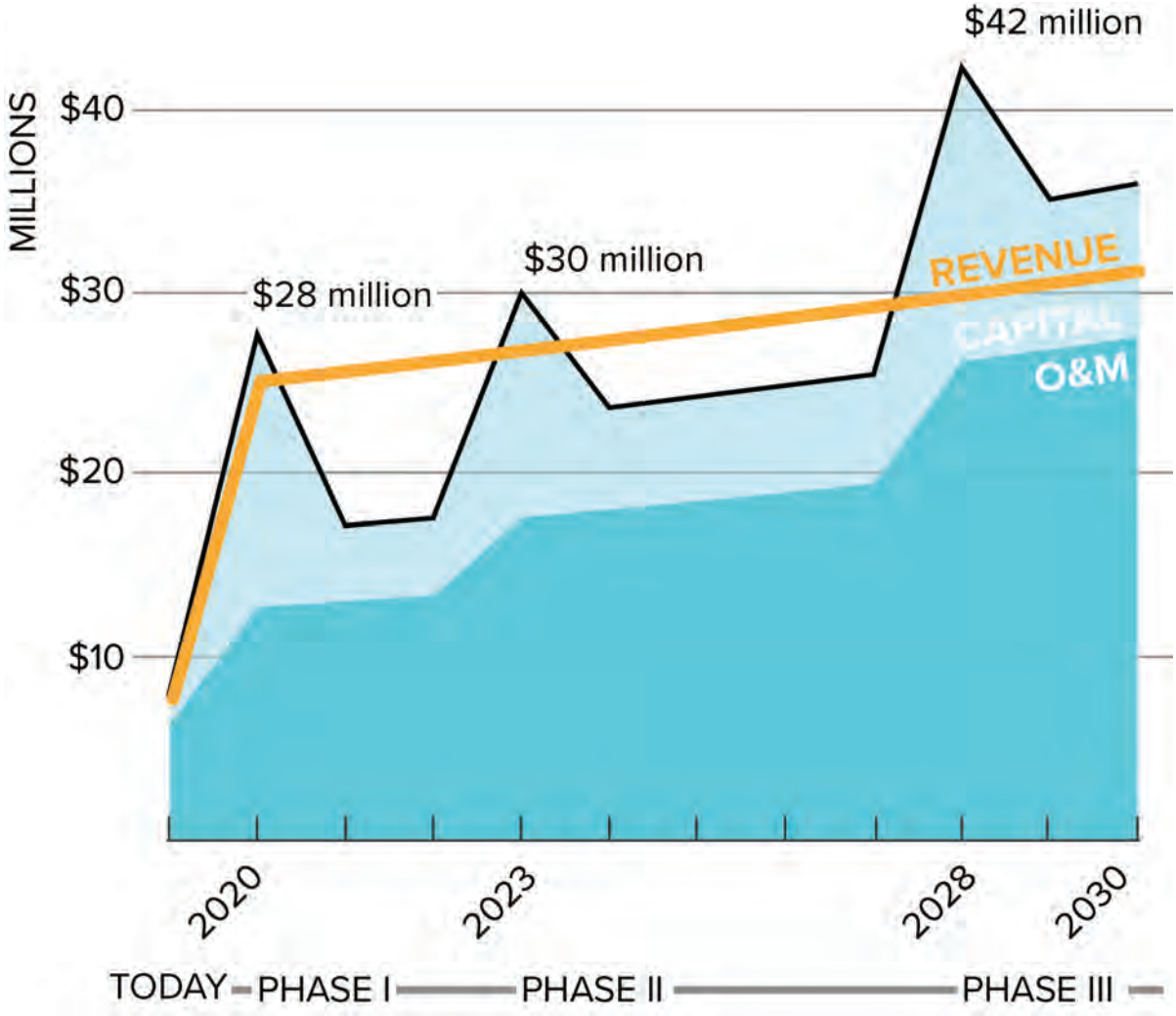
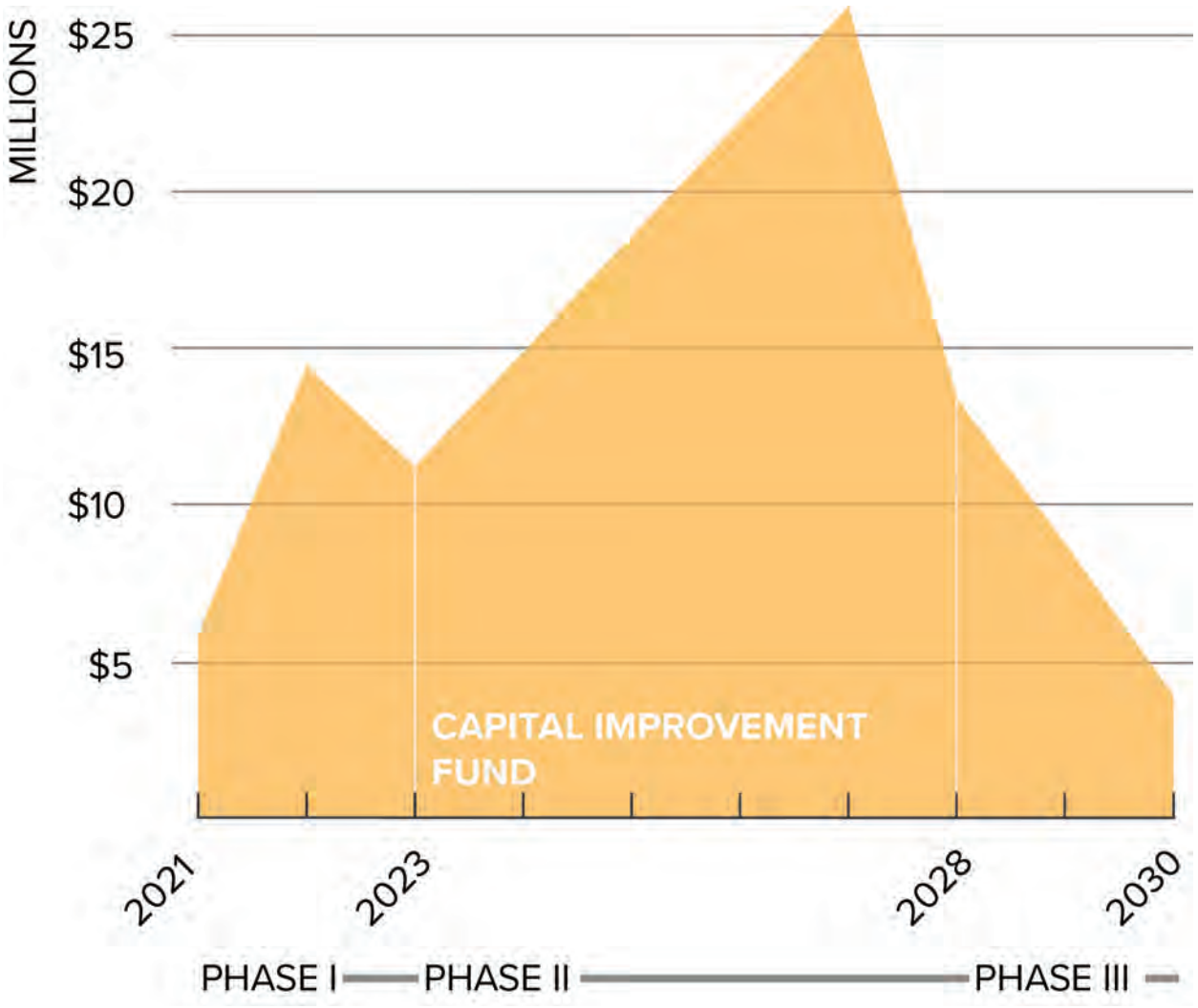


FIGURE 7.3: REGIONAL CAPITAL IMPROVEMENT PROGRAM FUNDING



In the years where the revenues exceed the costs of running the service for Connect NWA, the cities are able to set aside surplus funds into a capital improvement fund (CIF) to ensure the continued flexibility and success of the plan. These provisions will provide contingency funds to account for unexpected challenges and necessary expansions such as future mobility hubs, maintenance facilities, and other large capital investments to maintain levels of service. Figure 7.3 shows the estimated investments into the capital improvement fund throughout the implementation of the plan.

This funding strategy provides the region with a path to grow its transit investment sustainably and strategically. The region will be positioned to capture all the potential Federal Formula funding moving forward and, at the same time, it will be overmatching funds to move away from reliance on Federal funding and identify local dedicated funding.

FUNDING BY CITY

This funding strategy uses performance-based planning measures identified in the early chapters of the plan to equitably and sustainably allocate the local cost between the major urbanized cities of the region. This strategy has remained constant for each major task of this plan including the evaluation of the existing system, the development of recommendations and the establishment of regional service standards. Moving forward, funding transit in the region will be directly related to levels of service being provided in each community. The funding scenario assumes that Connect NWA would be adopted in its entirety by each of the four urbanized cities.

The Federal Formula funding was divided between the two regional transit agencies using the historical agreement that allocates 45% to RT and 55% to ORT. A Funding Subcommittee has been formed to evaluate the Federal Formula funding allocation moving forward as the new census is completed and the region begins to plan for Connect NWA implementation. The allocation may change prior to implementation and will be decided by the NWARPC Policy Board with input from each of the four major urbanized cities and the University of Arkansas. The federal funding sources are then allocated to each city. The full RT allocation was attributed to the City of Fayetteville. The ORT allocation was split among the cities using percentage of total Vehicle Revenue Hours (VRH) which represents the number of hours of service available to passengers for transit on ORT routes that were calculated for the system. Similarly, the state revenues are divided using the VRH in each city for both transit systems.

The cost of services provided in each city will be funded by a combination of sources including a portion of the federal and state revenues allocated to the urbanized area, the contribution from the University of Arkansas, and revenue from the recommended ¼ cent sales tax. With the addition of the ¼ cent sales tax, the plan uses the following assumptions:

- U of A revenues are based only on student fees. Their current supplemental allocation would be optional and would represent an increase over the projected revenues.
- City transit funding using the ½ Cent State & Sales Tax – City Turnback or general revenue funding would no longer be required, although each city would have the option to use these sources to address the cost peaks described in the previous section.

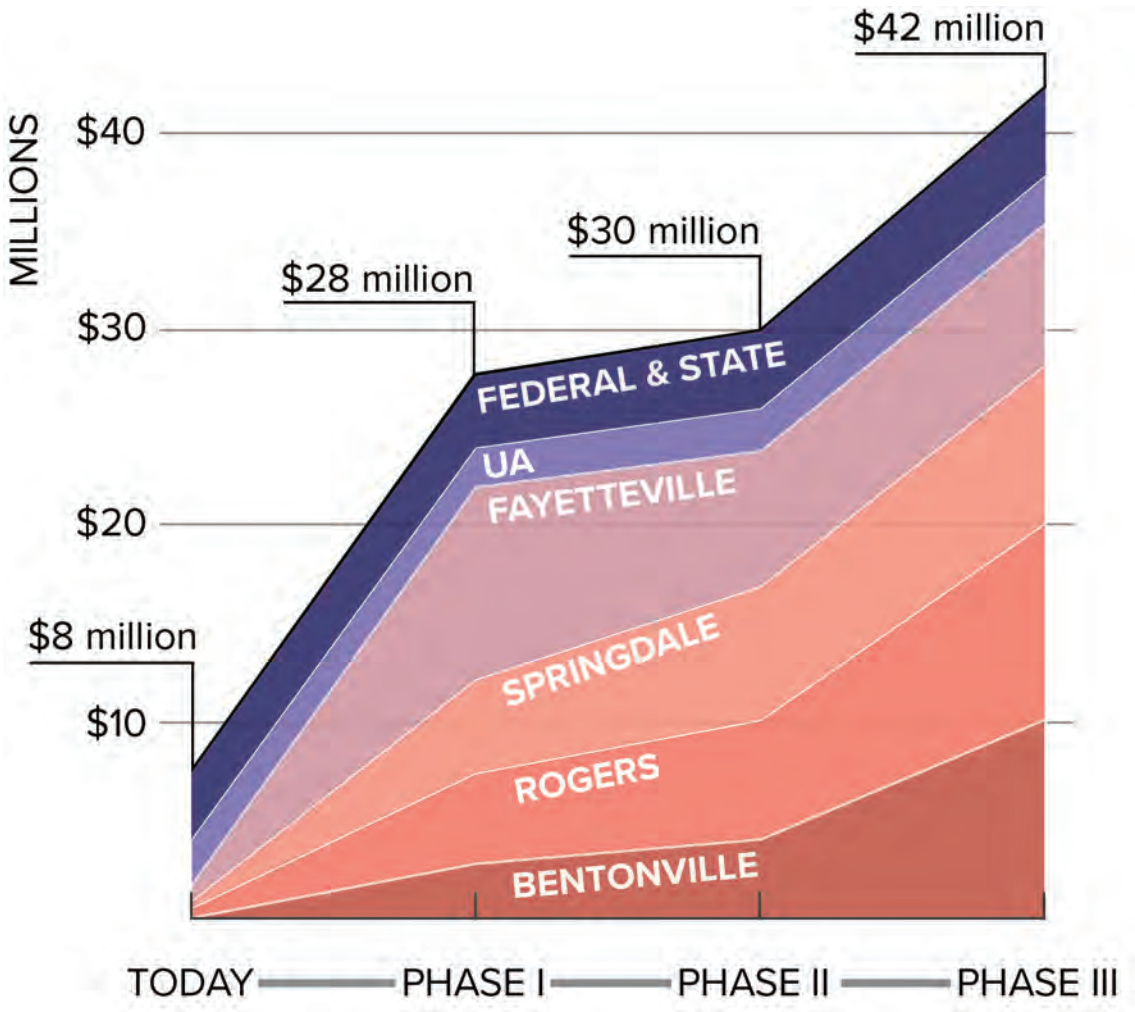
Table 7.2 and Figure 7.4 show the estimated funding contribution for each entity necessary to implement the Connect NWA plan. As noted in the implementation chapter, the cost for each city is determined by the proportion of services received.

TABLE 7.2: REGIONAL FUNDING CONTRIBUTION BY PHASE

	EXISTING	PHASE I	PHASE II	PHASE III
Bentonville	$125,757	$2,884,547	$4,119,309	$10,227,205
Rogers	$467,670	$4,584,211	$6,049,519	$9,960,984
Springdale	$361,710	$4,769,349	$6,801,272	$8,052,104
Fayetteville	$805,228	$9,804,469	$6,910,103	$7,208,463
U of A*	$2,322,483	$2,000,000	$2,153,781	$2,436,806
State	$657,726	$657,726	$708,299	$801,375
Federal	$3,000,000	$3,000,000	$3,230,672	$3,655,209
Total	**$7,740,574**	**$27,700,302**	**$29,972,955**	**$42,342,146**

** Estimated with continued student fee contribution*

FIGURE 7.4: REGIONAL FUNDING CONTRIBUTION BY PHASE



CITY FUNDING PROFILES

In order to better illustrate the city benefits of funding Connect NWA, city profiles on the following pages demonstrate the costs and benefits for each city if they implement this regional transit plan.

BENTONVILLE

CITY BENEFITS OF FUNDING CONNECT NWA

LOCAL MATCH COST

Phase I: **$2,884,547**

Phase II: **$4,119,309**

Phase III: **$10,227,205**

ADDED DAILY HOURS OF SERVICE (WEEKDAY)

Existing: 13

Future: 192

- Phase I: 57
- Phase II: 84
- Phase III: 192

ADDED ROUTES

Existing: 1

Future: 7

- Frequent: 6
- Coverage: --
- Regional Connector: 1

ADDED PEAK BUSES

Existing: 1

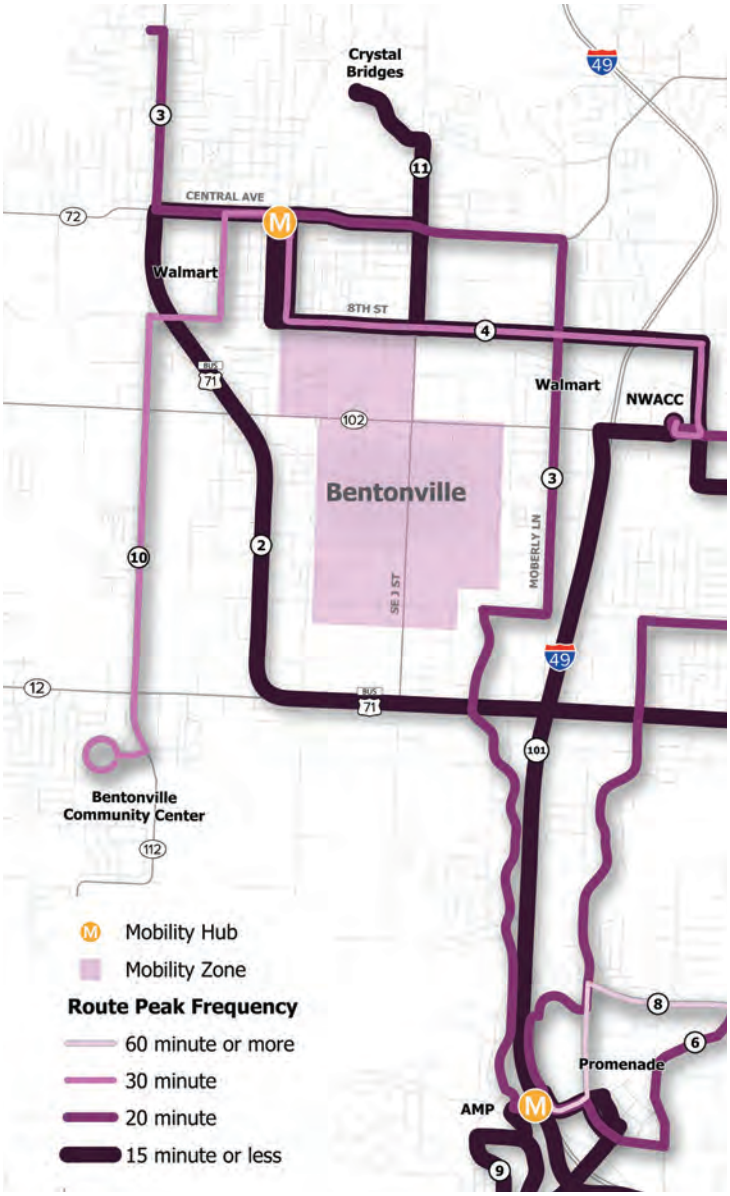
Future: 15

ADDED PROPENSITY COVERAGE (POP+JOBS)

Existing: 31,451

Future: 40,426

- Percent Increase: 29%



ADDED DAILY RIDERSHIP

Existing: 105

Future: 2,492

- % Increase: 2,279%

ROGERS

CITY BENEFITS OF FUNDING CONNECT NWA

LOCAL MATCH COST

Phase I: **$4,584,211**

Phase II: **$6,049,519**

Phase III: **$9,960,984**

ADDED DAILY HOURS OF SERVICE (WEEKDAY)

Existing: 23

Future: 241

- Phase I: 118
- Phase II: 165
- Phase III: 241

ADDED ROUTES

Existing: 3

Future: 8

- Frequent: 6
- Coverage: 1
- Regional Connector: 1

ADDED PEAK BUSES

Existing: 4

Future: 19

ADDED PROPENSITY COVERAGE (POP+JOBS)

Existing: 26,045

Future: 37,421

- Percent Increase: 44%

ADDED DAILY RIDERSHIP

Existing: 119

Future: 4,947

- % Increase: 4,066%

SPRINGDALE

CITY BENEFITS OF FUNDING CONNECT NWA

LOCAL MATCH COST

Phase I: **$4,769,349**

Phase II: **$6,801,272**

Phase III: **$8,052,104**

ADDED DAILY HOURS OF SERVICE (WEEKDAY)

Existing: 37

Future: 197

- Phase I: 104
- Phase II: 166
- Phase III: 197

ADDED ROUTES

Existing: 4

Future: 7

- Frequent: 4
- Coverage: 1
- Regional Connector: 2

ADDED PEAK BUSES

Existing: 5

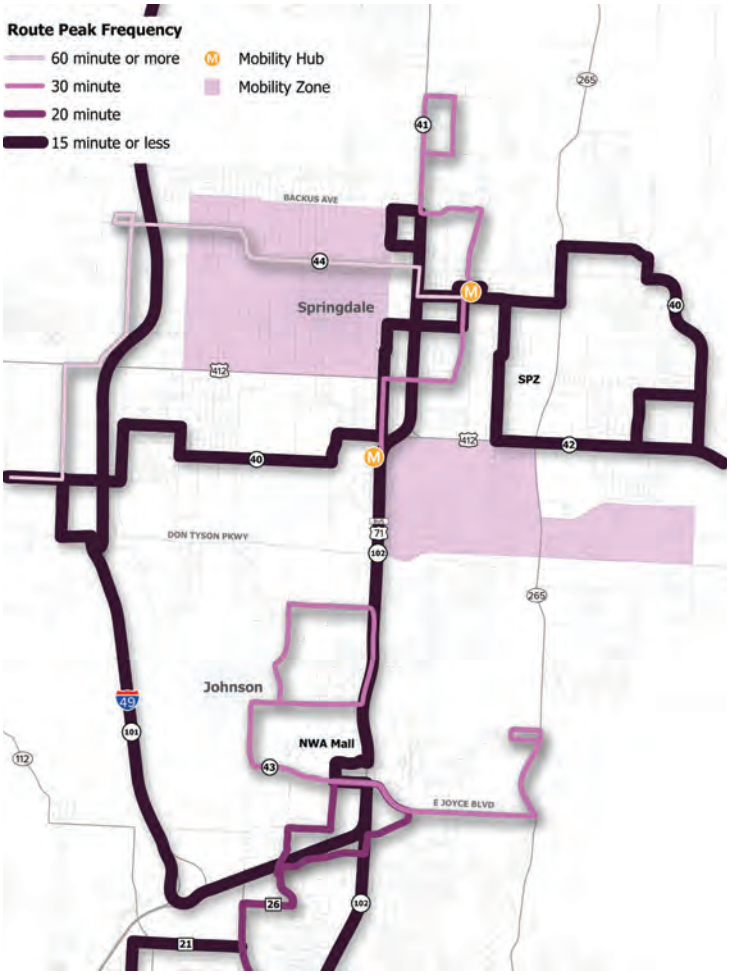
Future: 17

ADDED PROPENSITY COVERAGE (POP+JOBS)

Existing: 45,647

Future: 50,382

- Percent Increase: 10%



ADDED DAILY RIDERSHIP

Existing: 315

Future: 3,182

- % Increase: 911%

FAYETTEVILLE

CITY BENEFITS OF FUNDING CONNECT NWA

LOCAL MATCH COST

Phase I: **$9,804,469**

Phase II: **$6,910,103**

Phase III: **$7,208,463**

ADDED DAILY HOURS OF SERVICE (WEEKDAY)

Existing: 318

Future: 400

- Phase I: 349
- Phase II: 387
- Phase III: 400

ADDED ROUTES

Existing: 15

Future: 15

- Frequent: 13
- Coverage: --
- Regional Connector: 2

ADDED PEAK BUSES

Existing: 27

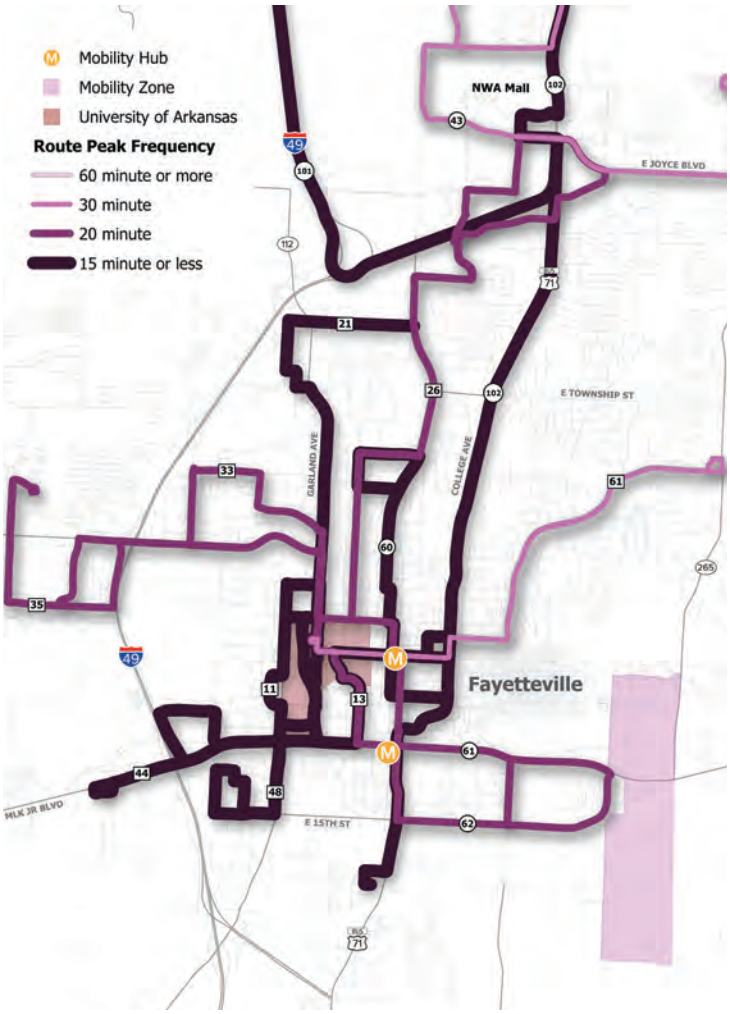
Future: 40

ADDED PROPENSITY COVERAGE (POP+JOBS)

Existing: 66,484

Future: 67,404

- Percent Increase: 1%



ADDED DAILY RIDERSHIP

Existing: 7,503

Future: 22,612

- % Increase: 201%

CONCLUSION

Identifying sustainable funding sources to support the Connect NWA phased implementation plan is critical to the success of providing the region with efficient transit. The transit investment analysis emphasizes the importance of a dedicated funding source for achieving the Connect NWA vision. In order to do so, the project team has determined recommendations for the four major urbanized areas and the University of Arkansas, including:

- Utilize the Special Local Sales and Use Tax – Election (ACA 26-73-111) regulation to create a ¼ cent sales tax to generate a dedicated funding source for transit
- Create a collaborative effort between NWARPC, ORT, and RT at the city level to determine the extent or phase each city wishes to implement and operate Connect NWA
- Coordinate with the four cities and the University of Arkansas to evaluate projected Phase III shortfalls in funding and decide whether to supplement funding, implement what is fiscally sustainable, or delay Phase III until revenues reach a level where implementation is feasible

The Transit Investment recommendations are the most important component of Connect NWA and present the most significant opportunities and challenges for improving transit in NWA. This plan took measures to ensure that the data driven approach and exhaustive community outreach effort would maximize these opportunities and mitigate the challenges. Successful implementation of Connect NWA at any phase and at any scale under the Transit Investment recommendations will help accomplish the vision of this plan to improve transit by connecting NWA, saving people time, and ultimately providing the community with greater mobility and freedom.

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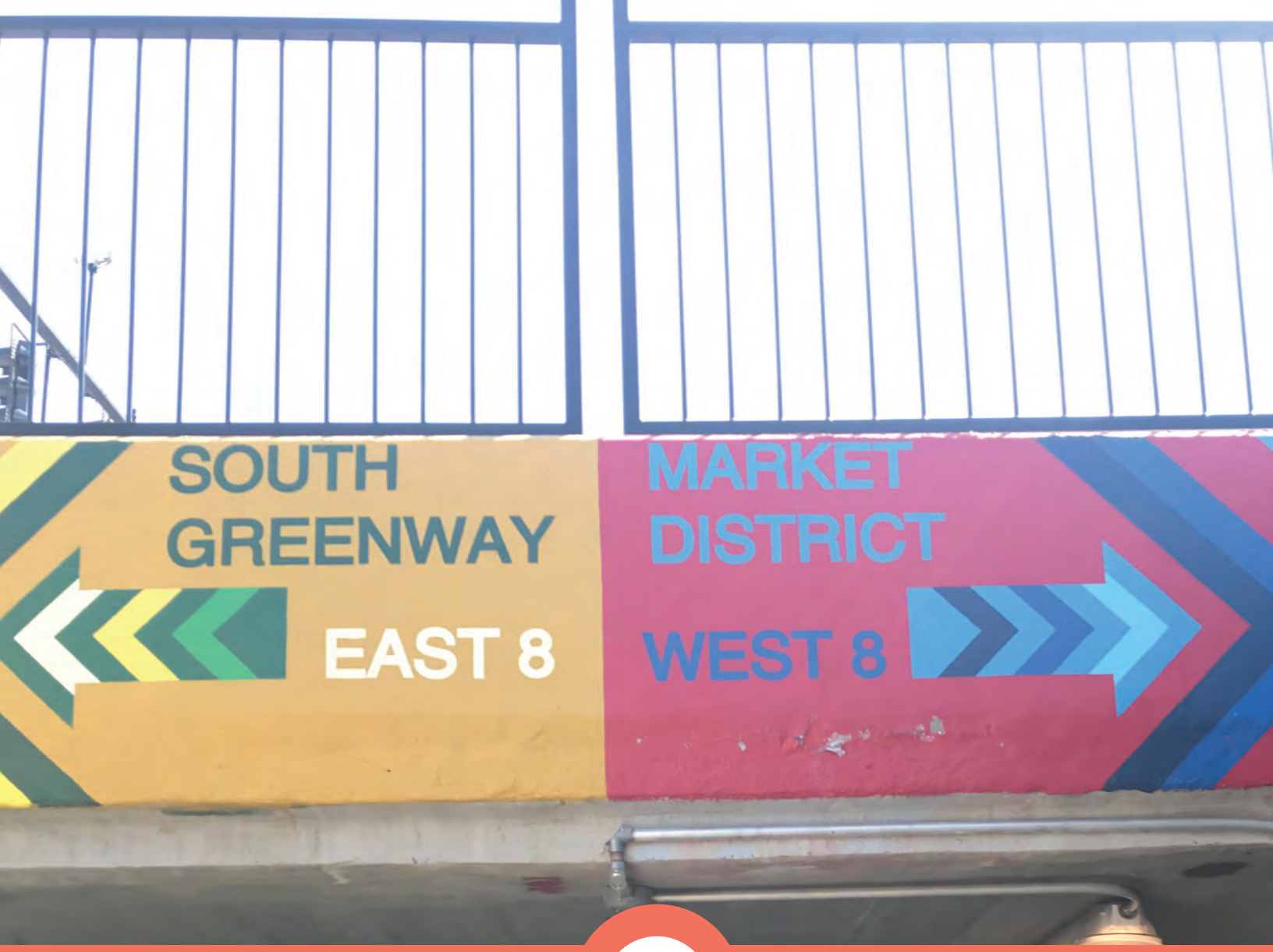


APPENDICES

A-C

APPENDIX A: BENCHMARKING REVIEW

INTRODUCTION

The Operational and Market Analyses help frame the state of transit in Northwest Arkansas (NWA) at the regional and local level and provide the technical inputs needed to progress Connect NWA into the next phases of the study. The Benchmarking Review applies some of the same technical analysis to peer cities so that Connect NWA can observe how cities and agencies who face similar challenges and opportunities are providing transit to the communities they serve. Ultimately, the Benchmark Review summarizes what solutions peer cities and transit agencies are employing to deliver successful transit and how NWA can use these examples and strategies to create their own, homegrown service delivery options and strategies.

BENCHMARKING METHODOLOGY

PEER CITY SELECTION

The Connect NWA team selected a group of peer cities based on qualitative and quantitative similarities. A review of all major US cities was conducted to identify potential candidates using the following quantitative measures similar to the NWA region:

- Population
- Population Density
- Population Change
- Land Area

The selected list was further enhanced by identifying areas with a similar geographic footprint as NWA, which is linear in nature. In addition to these considerations, peer cities with strong regional connections to surrounding cities were also considered. Many of the cities in this analysis have also been used in other NWA studies. For example, the Northwest Arkansas Council's Greater Northwest Arkansas Development Strategy 2018 Blueprint used Austin, TX, Des Moines, IA, and Madison, WI to benchmark Northwest Arkansas' comparative strength in the following six indexes:

- Business Climate;
- Infrastructure;
- Talent;
- Innovation & Entrepreneurship;
- Overall Economic Strength; and
- Inertia for Future Growth.

The Smart Bus Rapid Transit (BRT) Study for US 71B Corridor prepared for Ozark Regional Transit (ORT) reviewed and used the efficient and innovative operational practices Lane Transit District (LTD) uses to deliver BRT service in the City of Eugene, OR, a city that is also on the final list of peers. The list was finalized by adding select cities that are running and implementing successful and innovative transit solutions that NWA can analyze and use to inform recommendations for this study. This, in turn, will result in customized service delivery options appropriate at the regional and local level. The final list of peer cities includes the following:

- Austin, TX (Capital Metro)
- Boulder, CO (Local & Regional)
- Des Moines, IA (DART)
- Eugene, OR (LTD)
- Fort Collins, CO (Transfort)
- Madison, WI (Metro Transit)
- Spartanburg, SC – Greenville, SC CSA (SPARTA and Greenlink)

Table 1 lists peer city population, population change, land area, and urbanized area population density. Austin, TX has the largest land area and population across the peer cities. Austin has also experienced the most growth in comparison with the NWA region. Eugene and Fort Collins have a similar land area and population size as the NWA region but have experienced less growth in comparison.

TABLE A.1: PEER CITIES GROWTH

CENSUS URBANIZED AREA	POPULATION (2010)	POP. CHANGE % (2000-2010)	LAND AREA (SQ MI)	URBANIZED AREA POPULATION DENSITY (PPSM)
AUSTIN, TX	1,362,416	51%	523	2,605
BOULDER, CO	114,591	2%	32	3,527
DES MOINES, IA	450,070	21%	201	2,244
EUGENE, OR	247,421	10%	87	2,852
NORTHWEST ARKANSAS	**295,083**	**71%**	**188**	**1,572**
FORT COLLINS, CO	264,465	28%	110	2,412
MADISON, WI	401,661	22%	151	2,660
SPARTANBURG/ GREENVILLE SC	180,786	25%	190	951

KEY FINDINGS

- **Ridership and Funding** – In order for transit to work efficiently and effectively it must be properly funded.
- **Innovation and Transit** – Agencies should use technology and innovation to create a toolbox of transit service provision solutions in order to customize transit for the varied communities and populations they are serving.

Comparing the peer cities offers a few key insights on what peer transit agencies are doing well and how to apply these efficiencies to the NWA region. These takeaways include the link between ridership and expenditures, the relationship between ridership and level of service, and coordination between agencies to expand transit service.

Among the peer cities analyzed, a correlation between transit expenditures and ridership was identified. The cities with the highest expenditures also have the highest ridership. Austin is the outlier city across the examples as their budget and ridership far exceed the others. Des Moines, Eugene, Fort Collins, and Madison have the biggest budgets as well as higher annual Passenger Miles Traveled (PMT) and annual Unlinked Passenger Trips (UPT) compared to the rest of the peer cities. This leads to the understanding that more investment in transit may lead to higher ridership.

PEER REVIEW MEASURES

Ten different measures were used that analyze transit ridership levels, transit expenditures, service efficiency, and service effectiveness. Each measure is described below.

TRANSIT RIDERSHIP & EXPENDITURES

- **Annual Passenger Miles Traveled (PMT)**: The annual amount of miles traveled by transit users for a transit agency.
- **Annual Unlinked Passenger Trips (UPT)**: The annual amount of passengers who board an agency's transit vehicles.
- **Total Expenditures**: The total amount of operating and capital expenses experienced by a transit agency
- **Dedicated Funding:** Any existing dedicated revenue stream going towards transit, from a local source (i.e. sales tax or user fee).

COST EFFICIENCY

- **Operating Expense per Vehicle Revenue Mile (VRM)**: A transit agency's total operating cost to provide customers a mile of service.
- **Operating Expense per Vehicle Revenue Hour (VRH)**: A transit agency's total operating cost to operate an hour of service.

Subsidy

- **Bus Farebox Recovery:** The amount of bus operating costs covered by bus fare revenue. A higher recovery rate equates to lower subsidy required to run service.
- **Operating Cost per Bus Passenger**: How much it costs the transit agency to provide service to a passenger (i.e. the amount paid for each passenger trip from outside funding sources).
- **Operating Expenses per Passenger Mile (PM)**: A transit agency's total operating expenses in relation to the amount of miles traveled by passenger.

SERVICE PRODUCTIVITY

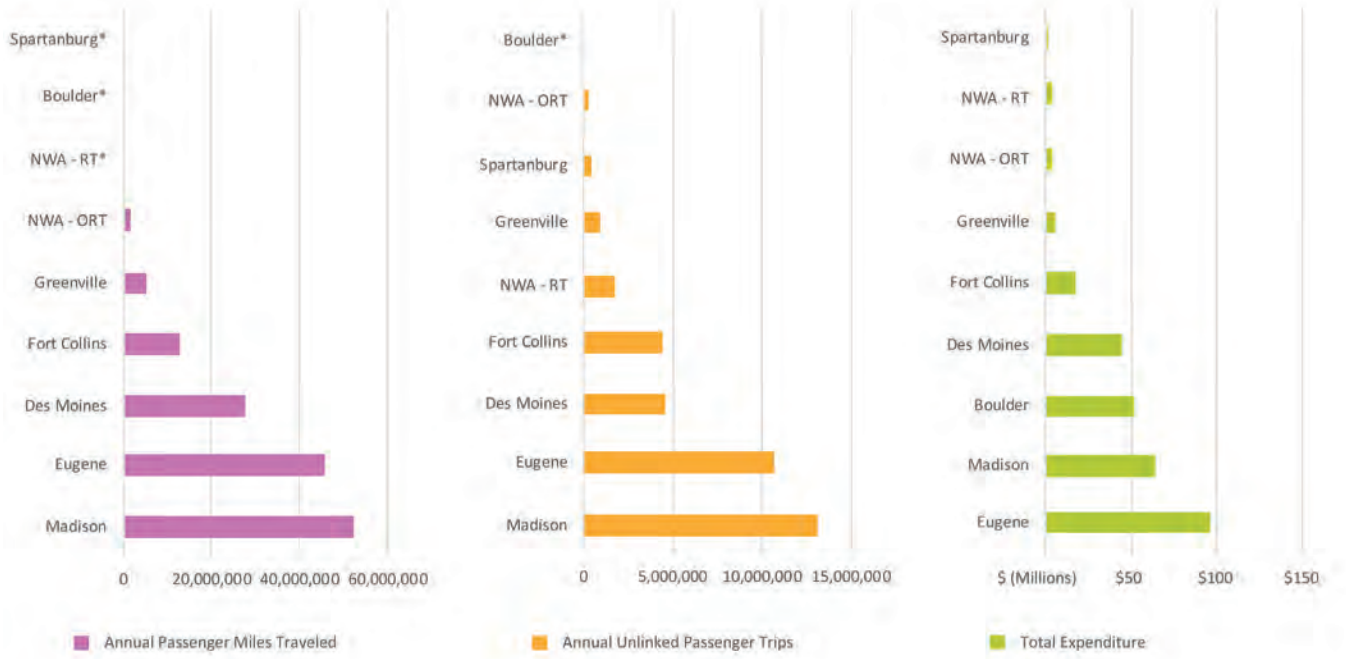
- **Passengers Per Bus Service Hour**: Total amount of passengers who board a transit vehicle in relation to the amount of hours transit vehicles are in service.
- **Passengers per Service Mile**: Total amount of passengers who board a transit vehicle in relation to the amount of miles transit vehicles are in service.

TRANSIT RIDERSHIP & EXPENDITURES

As shown in Figure 1, agencies with more annual ridership (i.e. Madison, Eugene, and Des Moines) generally have higher total transit expenditures. Austin was left out as Capital Metro values for all three of the measures were outliers and skewed the graphs. Of the peer cities, there is a large disparity between ORT and RT expenditures and peer agency's expenditures with higher annual ridership values. Table 2 on the following page further displays the peer city's ridership and expenditure values.

The project team also analyzed existing dedicated local funding sources for each peer city (Table 3). Dedicated local funding sources typically occur in the form of a sales tax or user fee, and help put local money towards the implementation or improvement of a transit system. Research shows that six peer cities currently experience some form of dedicated funding. Accordingly, nearly all of these cities have some form of high capacity transit (HCT), helping form a more robust and reliable transit system.

FIGURE A.1: RIDERSHIP & EXPENDITURES



** Data unavailable for these measures*
*** Austin Capital Metro not included as all three measures were considered outliers*

TABLE A.2: RIDERSHIP & EXPENDITURES

URBAN AREA	ANNUAL PMT	ANNUAL UPT	TOTAL EXPENDITURES
AUSTIN, TX	158,801,665	29,779,395	$333,505,629
BOULDER, CO	*	*	$51,081,790
DES MOINES, IA	27,432,328	4,580,613	$44,234,445
EUGENE, OR	45,688,893	10,713,739	$96,105,920
FORT COLLINS, CO	12,712,453	4,378,724	$17,161,565
GREENVILLE, SC	5,055,701	916,108	$5,724,020
MADISON, WI	52,315,620	13,108,095	$63,956,234
NWA - ORT	**1,737,916**	**261,335**	**$4,470,748**
NWA - RT	*	**1,706,727**	**$4,384,900**
SPARTANBURG, SC	*	397,546	$1,659,793

** Data unavailable for these measures*

TABLE A.3: DEDICATED FUNDING SOURCES

URBAN AREA	DEDICATED FUNDING	FUNDING TYPE/AMOUNT	HIGH CAPACITY TRANSIT
AUSTIN, TX	X	1 percent sales tax	X
BOULDER, CO	X	TMP* Funding (%)	X
DES MOINES, IA	X	.95 percent transit levy cap	--
EUGENE, OR	X	.75 percent sales tax	X
FORT COLLINS, CO	X	.85 percent sales tax	X
GREENVILLE, SC	--	--	--
MADISON, WI	X	$40 wheel tax	X (In Progress)
NWA - ORT	**--**	**--**	**--**
NWA - RT	**--**	**--**	**--**
SPARTANBURG, SC	--	--	--

** Transportation Master Plan*
-- No dedicated funding source

Table 4 displays frequency and span of service for all reviewed cities to further emphasize that peer cities experiencing high ridership and expenditures typically have higher quality service available. High frequency routes and longer spans (i.e. service earlier in the day and later in the night) are key components to a successful transit system. Higher performing cities, like Austin, Boulder, and Des Moines, all provide high quality service whether through higher frequencies, earlier/later service, or a combination of both. Service in the NWA region provides a mixture of these components between ORT and RT, however the two are not consistent in their level of service.

TABLE A.4: SPAN OF SERVICE & FREQUENCY

URBAN AREA	15-MINUTE FREQUENCY ROUTES	SERVICE BEFORE 6AM	SERVICE AFTER 8PM	SERVICE SEVEN DAYS A WEEK
AUSTIN, TX	X	X	X	X
BOULDER, CO	X	X	X	X
DES MOINES, IA	X	X	X	X
EUGENE, OR	X	--	X	X
FORT COLLINS, CO	X	X	X	X
GREENVILLE, SC	--	X	X	--
MADISON, WI	--	X	X	X
NWA - ORT	**--**	**X**	**--**	**--**
NWA - RT	**X**	**--**	**X**	**--**
SPARTANBURG, SC	--	--	--	--

-- Service type currently not provided

COST EFFICIENCY

Figure 2 displays cost efficiency measures for NWA providers in comparison to the peer cities. In general, the operating costs per service hour and mile in NWA are lower than the peer cities. The NWA average cost per hour of service is $58, and the average cost per mile of service is $4.25. Peer city costs per hour range from $54 to $155 while their cost per mile ranges from $5 to $12.

Cities experiencing higher ridership (i.e. Austin, Des Moines, Eugene, and Madison) in terms of unlinked passenger trips and passenger miles traveled generally display higher operating expenses per revenue hour and revenue mile.

This disparity in operating costs is possibly caused by variables based on city size and city region (e.g. labor costs, quality of life/cost of living, contractors used, etc.). Table 5 displays individual operating expenditure values per vehicle revenue hour and mile compared to each peer city's annual UPT.

FIGURE A.2: COST EFFICIENCY

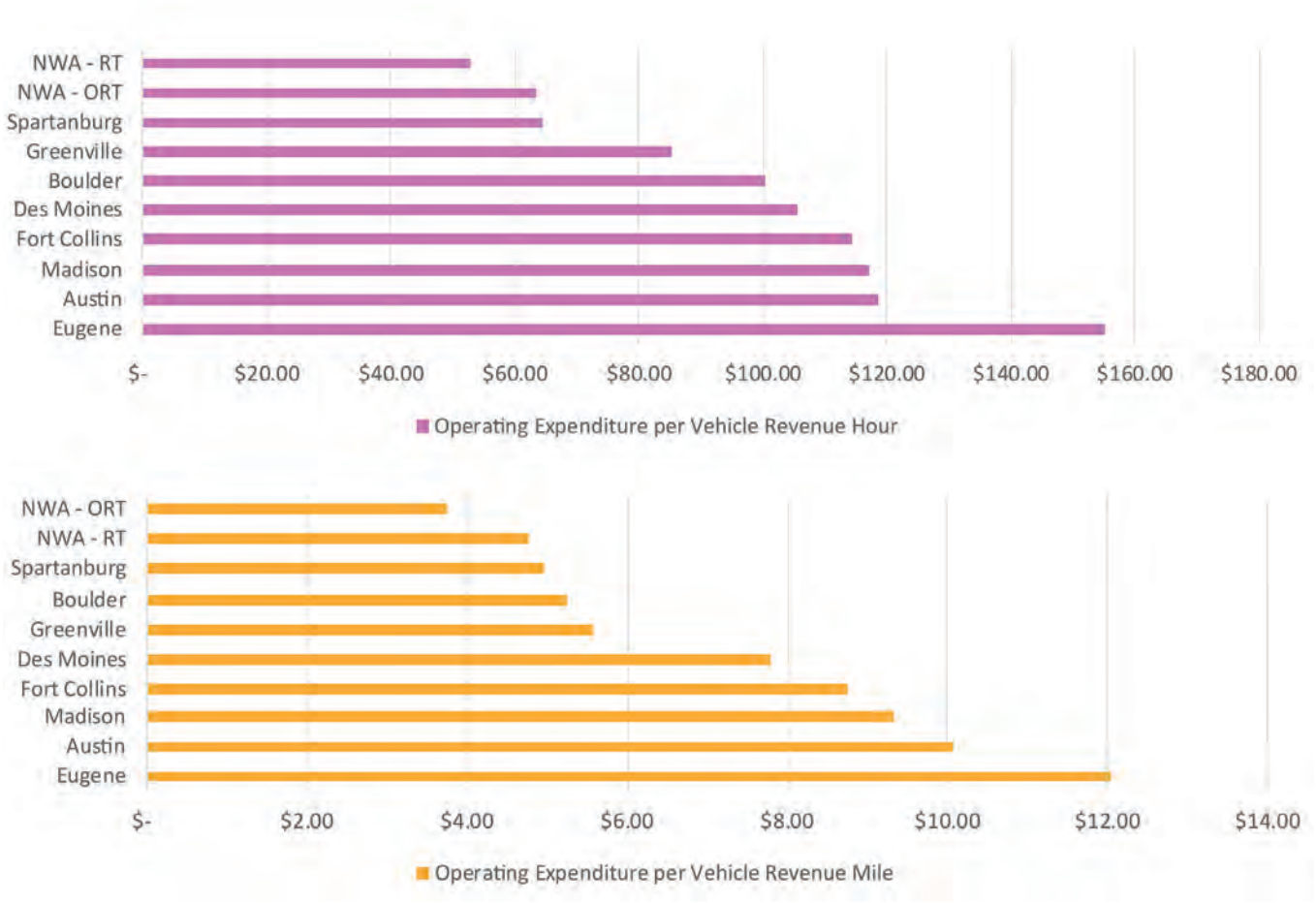


TABLE A.5: COST EFFICIENCY

URBAN AREA	OPERATING EXPENSES PER VRM	OPERATING EXPENSES PER VRH	ANNUAL UPT
AUSTIN, TX	$10.08	$118.56	29,779,395
BOULDER, CO	$5.33	$100.16	*
DES MOINES, IA	$7.79	$105.51	4,580,613
EUGENE, OR	$12.05	$155.06	10,713,739
FORT COLLINS, CO	$8.74	$114.40	4,378,724
GREENVILLE, SC	$5.58	$85.26	916,108
MADISON, WI	$9.33	$117.07	13,108,095
NWA - ORT	**$3.74**	**$63.35**	**261,335**
NWA - RT	**$4.76**	**$52.72**	**1,706,727**
SPARTANBURG, SC	$4.96	$64.30	397,546

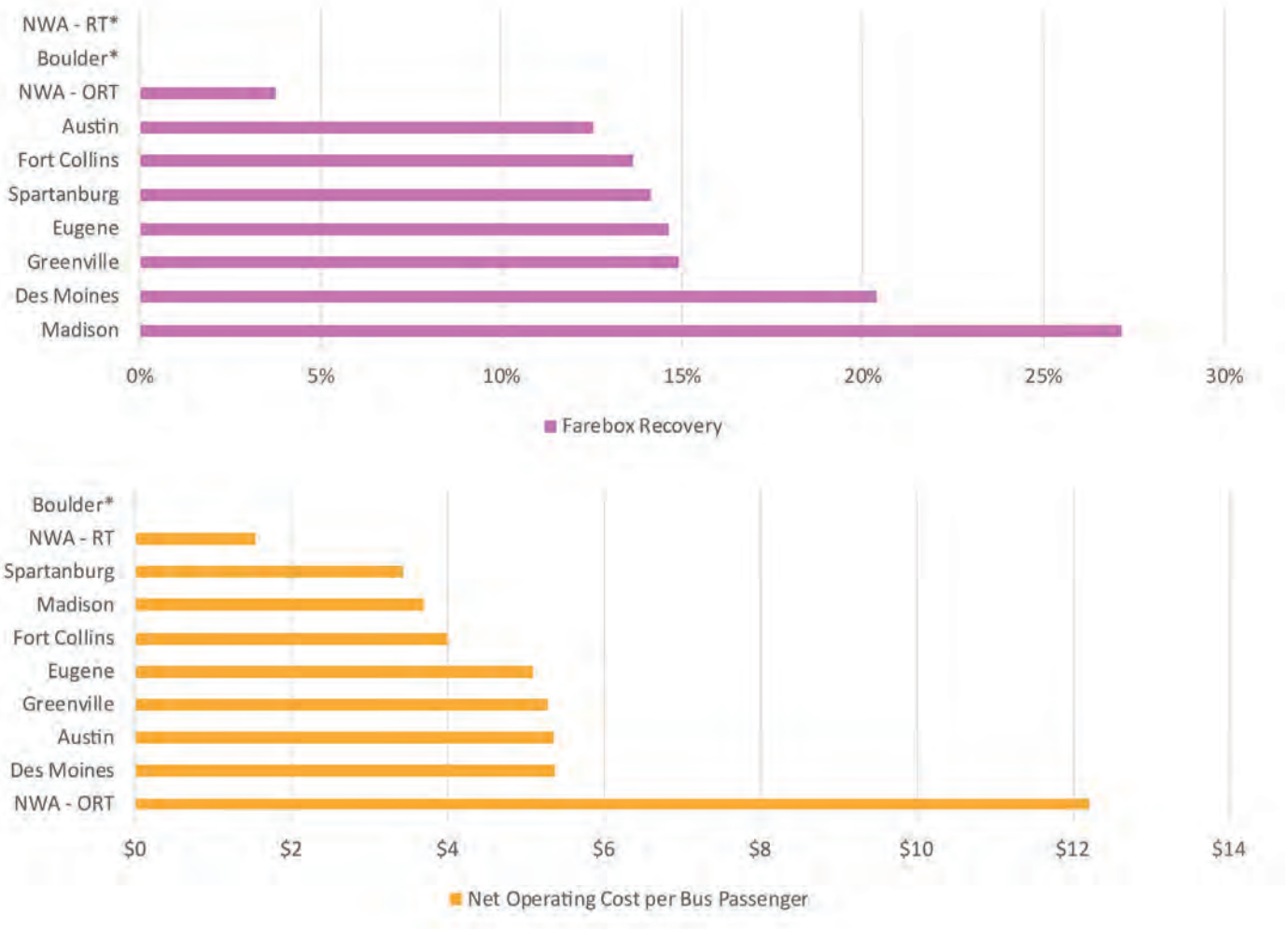
** Data unavailable for this measure*

SUBSIDY

It is highly common for fare revenue to only cover a portion of operation costs, and therefore is not a red flag if recovery rates appear low. However, ORT currently covers only 2% of its operating costs. RT was not considered in this analysis as the agency runs fare-free service. Compared to the rest of its peers, ORT is the lowest and the only agency under a 5% recovery rate. Figure 3 below displays farebox recovery rates amongst the peer cities, which range from 13% to 27%.

Regarding operating cost per bus passenger, ORT has the highest value amongst its peers at $12 (Figure 3). RT has the lowest cost at $1.54. This displays a large disparity between the levels of service currently being provided in NWA. This is partially due to an influx of University of Arkansas student fees which goes towards transit operations. Table 6 provides a summary of all individual metrics analyzed for subsidy measures. In 2019, ORT has moved to a fare free system in three of the four cities they serve. The fare box recovery subsidy measure is not being recommended as part of this TDP.

FIGURE A.3: SUBSIDY MEASURES



** Data unavailable for these measures*

TABLE A.6: SUBSIDY MEASURES

URBAN AREA	OPERATING COST PER BUS PASSENGER	FAREBOX RECOVERY RATE
AUSTIN, TX	$5.34	13%
BOULDER, CO	*	*
DES MOINES, IA	$5.36	20%
EUGENE, OR	$5.09	15%
FORT COLLINS, CO	$3.99	17%
GREENVILLE, SC	$5.27	17%
MADISON, WI	$3.69	27%
NWA - ORT	**$12.20**	**2%**
NWA - RT	**$1.54**	**--**
SPARTANBURG, SC	$3.43	14%

** Data unavailable for these measures*
-- RT is subsidized by student fees and does not charge fares

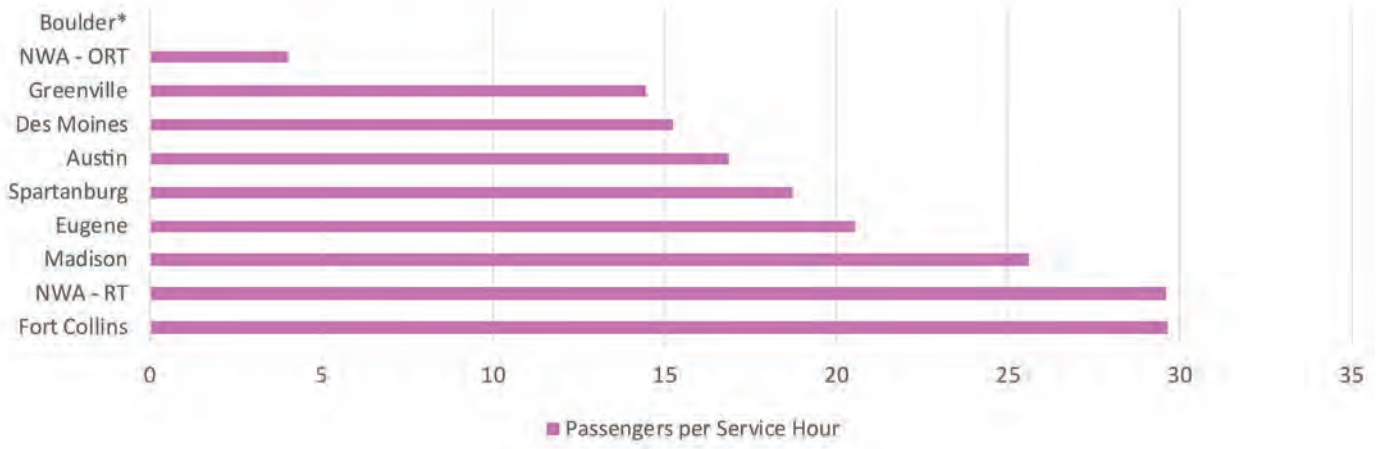
SERVICE PRODUCTIVITY

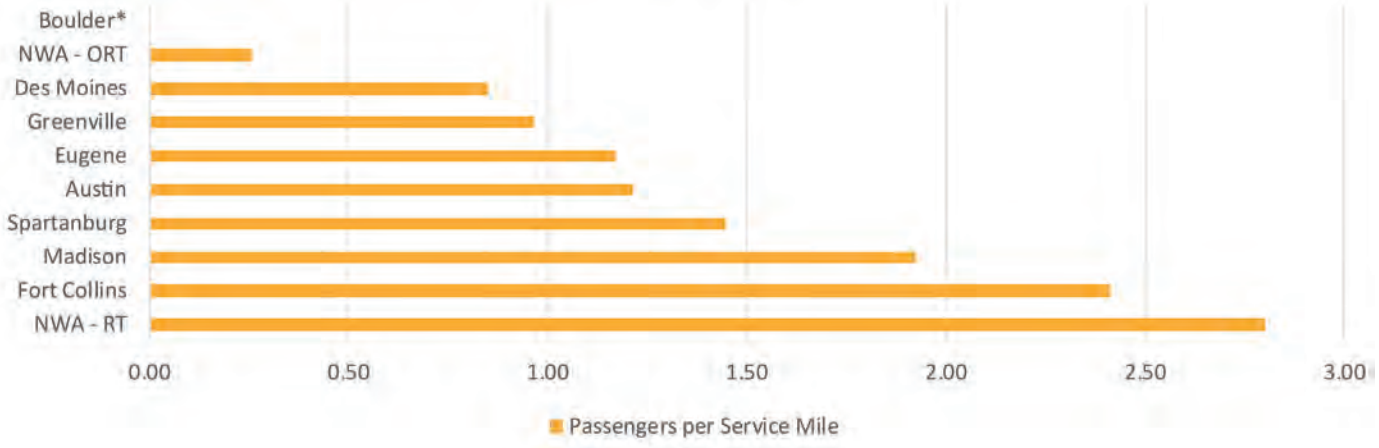
The amount of passenger trips per bus hour and bus mile display how productive an agency's service currently is. Productivity is largely driven by variables such as system design, population density, existing land use. In other words, low productivity measures suggest inefficient route design, routes serving areas lacking population and employment, routes in areas consisting of sprawling land uses, or any combination of the three.

Amongst its peers, ORT has some of the lowest productivity measures (4 passengers per hour and .3 passengers per mile). However, RT displays the highest measures for both passengers per hour and mile (30 and 2.8, respectively). Figure 4 below displays all peer city measures for service productivity.

These findings may be the product of differing markets between the two service providers. ORT provides service to a considerably larger area with less of a concentrated market (i.e. University of Arkansas). Table 7 displays individual productivity metrics.

FIGURE A.4: PRODUCTIVITY MEASURES





** Data unavailable for these measures*

TABLE A.7: PRODUCTIVITY MEASURES

URBAN AREA	UPT PER VRM	UPT PER VRH
AUSTIN, TX	1.2	17
BOULDER, CO	*	*
DES MOINES, IA	0.8	15
EUGENE, OR	1.2	21
FORT COLLINS, CO	2.4	30
GREENVILLE, SC	1.0	14
MADISON, WI	1.9	26
NWA - ORT	**0.3**	**4**
NWA - RT	**2.8**	**30**
SPARTANBURG, SC	1.4	19

** Data unavailable for these measures*

INNOVATIVE PRACTICES & EMERGING TECHNOLOGY

The quickly changing technological landscape offers transit agencies new possibilities to provide services that better meet rider needs currently not served by traditional transit services. In particular, technological advances in ridesharing have given rise to transit agency partnership opportunities. Some transit agencies are collaborating with ridesharing transportation network companies (TNC) to fill first- and last-mile needs. While some agencies are implementing new technological approaches to service, other transit agencies have implemented alternative service programs to meet needs such as reducing congestion at key destinations. These innovations and approaches are described in further detail below.

The Innovation Zone Pilot Project is a micro-transit ride-hailing pilot program supported by Capital Metro, Austin's transit agency, in partnership with RideAustin, a local rideshare company. Users can ride-hail from a designated area, the Exposition Area Innovation Zone, an area with a high density of jobs and people, to specific bus stops near the zone. This program was implemented to fill service in areas where previous service was lost due to a new re-route in June 2018. Users can take free rides with RideAustin within this zone as a first- and last-mile solution to two identified bus stops serving Route 18 and Route 335.

A similar Capital Metro program, called Pickup, was carried out in the Manor area (just outside of the City of Austin) through a partnership with Via. The free ride-hailing service areas were expanded in October of 2018 to include three new areas: the Springdale/Johnston Terrace neighborhood between Springdale Road and US 183 and north of Airport Boulevard; the Springdale/Rogge area between Springdale and Manor Road and north of East 51st Street; and the area near St. David's North Austin Medical Center north of Park Road. Service times were from 7am to 7pm on weekdays. The pilot program lasted a year and ended December 7, 2018. More than 20,000 free rides were provided during the pilot period.

In March 2019, Denver's transit agency, RTD, partnered with Lyft to provide a first- and last-mile solution for riders across the city. RTD teamed up with Lyft to add a "Nearby Transit" feature in the ride-sharing service's app. This feature shows Lyft riders nearby public transit routes, schedules, and a walking overview. As reported by Lyft, 23 percent of riders in Denver use the ride-share service to get to bus stops out of walking distance. Next phases in this collaboration include journey planning and mobile ticketing.

Aside from ride-hailing programs, the City of Boulder had implemented a program to reduce parking need and resulting congestion at a local park destination. The Park to Park program provides free and discounted Lyft rides to Chautauqua Park on summer weekends and holidays. The initial pilot for the Park to Park program launched in Summer 2017. After the successful pilot, an ordinance was passed in early 2018 keeping the program for 5 more years at a cost of $1 million. This program was intended to ease parking congestion in the popular park and in surrounding neighborhoods. In addition to the Lyft partnership, the Park to Park program implemented paid parking at Chautauqua Park to help ease congestion. Fifty fewer cars were reported in the park area every hour per day during the pilot.

These new approaches work to support the existing transit network. Such services fill gaps in service that not only better serve current transit riders but also provide an opportunity to gain more ridership. While a context-sensitive approach is needed to implement similar programs, such services have the potential to impact transit service in the NWA region.

APPENDIX B: MOBILITY HUB ANALYSIS

OVERVIEW

Mobility hubs are specific areas or locations within an urban/suburban environment where several modes of travel on varying networks converge to form an integrated, multimodal site that provides users with convenient and connected mobility options. These hubs optimize connections between individual modes and the broader transportation network and serve as anchor points for activity and intraurban travel. Mobility hubs will perform a crucial role in Connect NWA and help tie the local and regional transit networks together.

Mobility hubs are best situated at fixed route transit stops and/or stations that experience high levels of ridership activity. In addition, these hubs should be well connected to active transportation networks, such as sidewalks, bicycle lanes/routes, and shared-use paths, as well as the street network to improve accessibility for options such as carpool/carshare/rideshare, private vehicles, and scooters. Mobility hubs should not only connect to various modal networks – they should also provide spaces for users to appropriately access these modes, such as bus/rail stops, bus bays, bicycle parking, safe curbside spaces for rideshare or carpool pick-up/drop-off, docking stations for options such as bikeshare and carshare, and parking for private vehicles. Figure 1 (pg. 4) shows an example location for a mobility hub.

FIXED ROUTE TRANSIT

Fixed route transit is generally the anchor of a mobility hub, with transit stops/stations forming one of the key components. Mobility hubs can include either High Capacity Transit (HCT) or bus networks, and the larger hubs may include both. While HCT will arrive and depart from a mobility hub on dedicated guideway, buses have greater variations in stop infrastructure. Some mobility hubs may be situated directly along roadway infrastructure, which would allow buses to make stops either in-lane or by pulling out into a bus pull out along the street. Alternatively, mobility hubs may also be separated from the roadway network, with buses pulling off the street and entering a separate facility with bus bays.

ACTIVE TRANSPORTATION

Active transportation users include those walking, running, wheeling, or bicycling. These users will arrive at or depart from mobility hubs using infrastructure such as sidewalks, bicycle lanes/routes, and shared-use paths. While some bicyclists may travel to or from a hub using their own bicycle, other users may want to cycle without having to haul their own equipment around, which makes bikeshare an important element of mobility hubs. Providing bikeshare services and docking stations as part of a mobility hub infrastructure provides users with even greater flexibility and choice when transferring to or from a bus or other mode of travel. Coordination with this mode at mobility hubs will be essential for Connect NWA as the region has invested significant resources into bicycle infrastructure and planning. Connect NWA will help leverage this investment and improve it with mobility hub coordination.

CARPOOL/ RIDESHARE

Carpool and rideshare users may use a mobility hub either to make a modal transfer or to access nearby activity centers/key destinations. Regardless of trip purpose, most carpools and rideshares will likely be making either pick-ups or drop-offs when accessing a mobility hub. Rather than parking, this type of activity warrants space for temporarily pulling off of the roadway network to allow passengers to board or alight from the vehicle. Mobility hubs should include reserved curbside space, either along the street or in a pull-out area, so that carpool and rideshare vehicles can temporarily pull over to allow for safe and quick pick-up and drop-off activities. Carshare involves users renting cars for short periods of time as needed, with payment often being charged by the hour. These cars can be picked up and left either in

specified locations or within a certain boundary, similar to docking stations for bikeshare, or at available free public parking. If mobility hubs provide space for carshare vehicles to be parked during inactivity, users will have a greater choice in mode when using the mobility hub.

PRIVATE VEHICLES

Private automobiles are the most common form of transportation in the US, and many cities have automobile-centric layouts that can at times make it difficult for drivers to switch to other modes of transportation. People using private automobiles will be more encouraged to try using other modes if a mobility hub includes or is located near public parking. Providing easy access to the hub for drivers will make it more feasible for them to make transfers to modes such as transit, walking, bikes, or scooters.

SCOOTERS

The phenomenon of using electric scooters to travel within urban areas is relatively recent in many US cities. Scooters provide a quick, easy, and cost-effective method of travel that is faster than walking. In many locations these scooters are dockless, meaning they can be left in nearly any location. While this characteristic of scooter services has made them readily accessible to more people, it has also caused issues, such as blocking sidewalks and other transportation infrastructure. Mobility hubs could encourage safer storage of inactive scooters by providing designated scooter drop-off zones and guidance for proper etiquette without creating formalized docking.

MOBILITY HUB ENVIRONMENT

When implemented successfully, mobility hubs can encourage or complement transit-oriented development at levels appropriate for the scale and activity of the surrounding urban setting. Transit-oriented development entails higher densities/mixed uses supportive of transit and provides the potential for economic development.

PRIMARY CHARACTERISTICS

The primary characteristics that will enable a successful mobility hub include:

- Locating near in-demand destinations and a high-density mix of transit-supportive land uses;
- Creating direct connections to various modal transportation networks;
- Providing the necessary space and infrastructure to allow users to make transfers between the different modes; and
- Integrating the connecting modes using wayfinding and technology, such as mobile apps, to allow users to seamlessly enter and exit the hub.

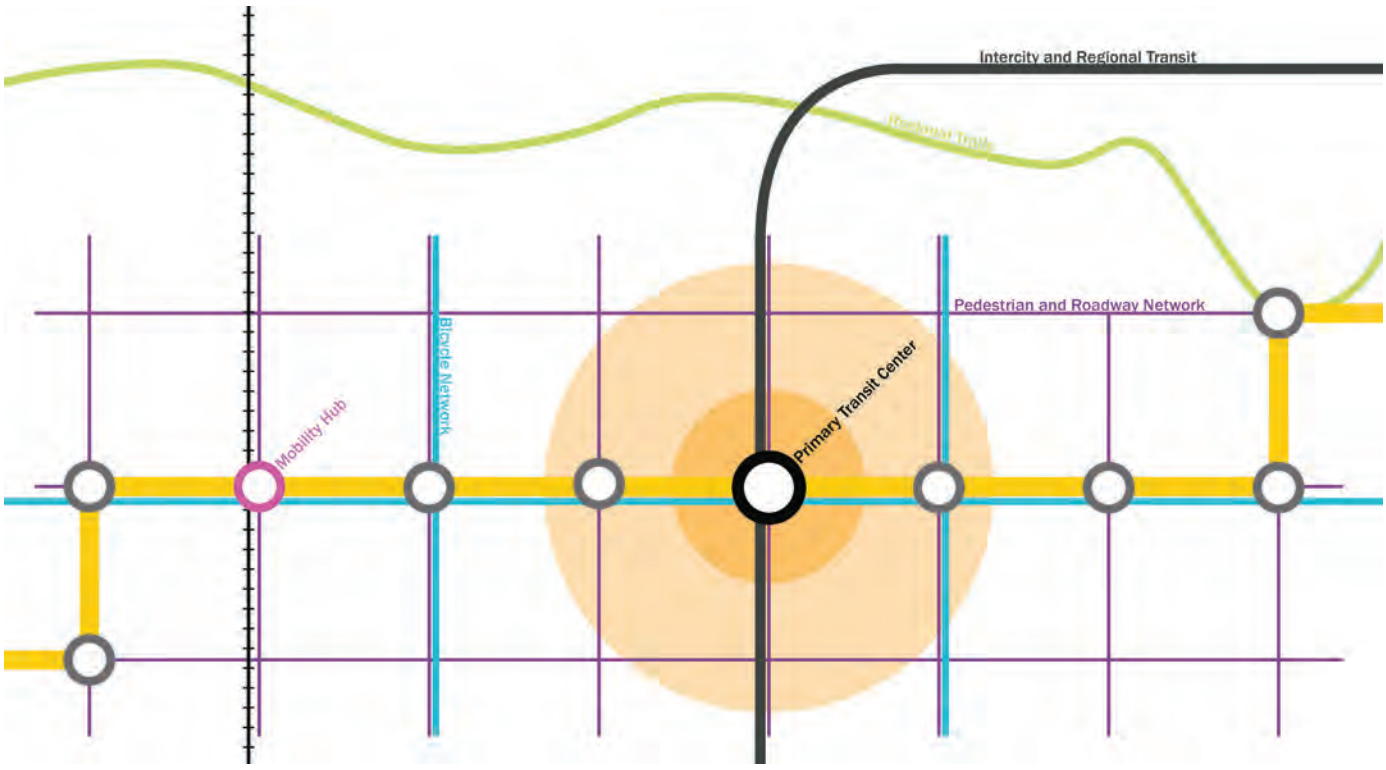
AMENITIES

Depending on the scale, established mobility hubs typically have several amenities that separate the facility from standard transit stations/centers. This can include amenity types that help support the multiple modes of transportation meeting at the hub, including:

- Open space for aesthetic and recreational purposes
- Retail space
- Bicycle storage/support stations (e.g. repair shops, vendors, etc.)
- Wayfinding
- Real-time information/kiosks
- Wi-fi

The final two amenity types, also referred to as information amenities, allow for better informed and connected users. Taking advantage of the widespread use of smartphone technology can positively impact first-last mile connectivity and allow users to better understand what options are available in the area.

FIGURE B.1: MOBILITY HUB LOCATION EXAMPLE



METHODOLOGY AND ANALYSIS

To select potential mobility hub locations for the NWA region, the project team paired quantitative and qualitative methods to justify hub options. The NWA Travel Demand Model (TDM) is a tool that forecasts travel patterns throughout the NWA roadway network based on roadway characteristics and transportation demand. The TDM served as the basis of the overall analysis as it provides the geographical areas used to select suitable locations for mobility hubs. These areas are defined as Traffic Analysis Zones (TAZs) and are geographical delineations used to generate TDM outputs. Accordingly, the TAZs allowed the project team to perform a geographical information systems (GIS) analysis using future values in the form of TDM outputs, as well as data available from participating agencies (NWARPC, Ozark Regional Transit, Razorback Transit) representing multimodal connectivity/supply found within the NWA region (e.g. sidewalk line features). The following sections explain the mobility hub analysis methods and outcomes.

MOBILITY HUB RECOMMENDATIONS

While technical work is essential in a location selection exercise, it is equally important to consider local knowledge/qualitative reasoning when defining potential mobility hub locations. Prior to the route alternatives development, participating agencies provided possible mobility hub locations for each of the NWA region's major municipal areas (Bentonville, Rogers, Springdale, Fayetteville) based on local expertise and their understanding of the region. The areas recommended were based on knowledge of existing transit, active transportation (bicycle and pedestrian infrastructure), and roadway connectivity; available land for development; future development of bond projects; and available right-of-way (ROW) in the immediate area. These recommendations were overlaid and tagged to the TAZ layer for reference when completing the quantitative piece of the analysis. Areas recommended by agency staff are as follows:

Bentonville

- The parcel adjacent to SW. Henry St., bordered by SW. A St. and S. Main St. (southwest of Bentonville City Square)

Rogers

- West of I-49 north of the Arkansas Music Pavilion
- Downtown Rogers (Cherry and S. 1st. St.)

Springdale

- The parcel containing Shiloh Square, bordered by E. Johnson Ave. and E. Emma Ave.
- Vacant space within the Pleasant St. Walmart parcel, adjacent to S. Thompson St./US Hwy. 71B

Fayetteville

- The parcel adjacent to the Martin Luther King Jr. Blvd. and S. School Ave. intersection (Mill District)
- The corner of Dickson St. and West Ave. at Depot Lot

Bentonville

The Henry St. location is surrounded by commercial and residential land uses (Figure 2). To the north and northwest, denser mixed-use development can be found surrounding Bentonville City Square. On street and designated parking, as well as ROW for sidewalks are all present in the area, providing opportunity for mobility hub development.

FIGURE B.2: BENTONVILLE MOBILITY HUB AT HENRY ST.

Rogers

Current plans for a downtown Rogers bus station occur at the Cherry St./1st St. intersection, along the Arkansas-Missouri Railroad (Figure 3). Plans include station amenities, parking along S. 1st. St., and landscaping/ placemaking. Land uses in the immediate area include medium density residential as well as light industrial. Denser development can be found just north in downtown Rogers. Major destinations in the area include Rogers City Hall and the Railyard Bike Park.

FIGURE B.3: ROGERS MOBILITY HUB AT CHERRY ST.

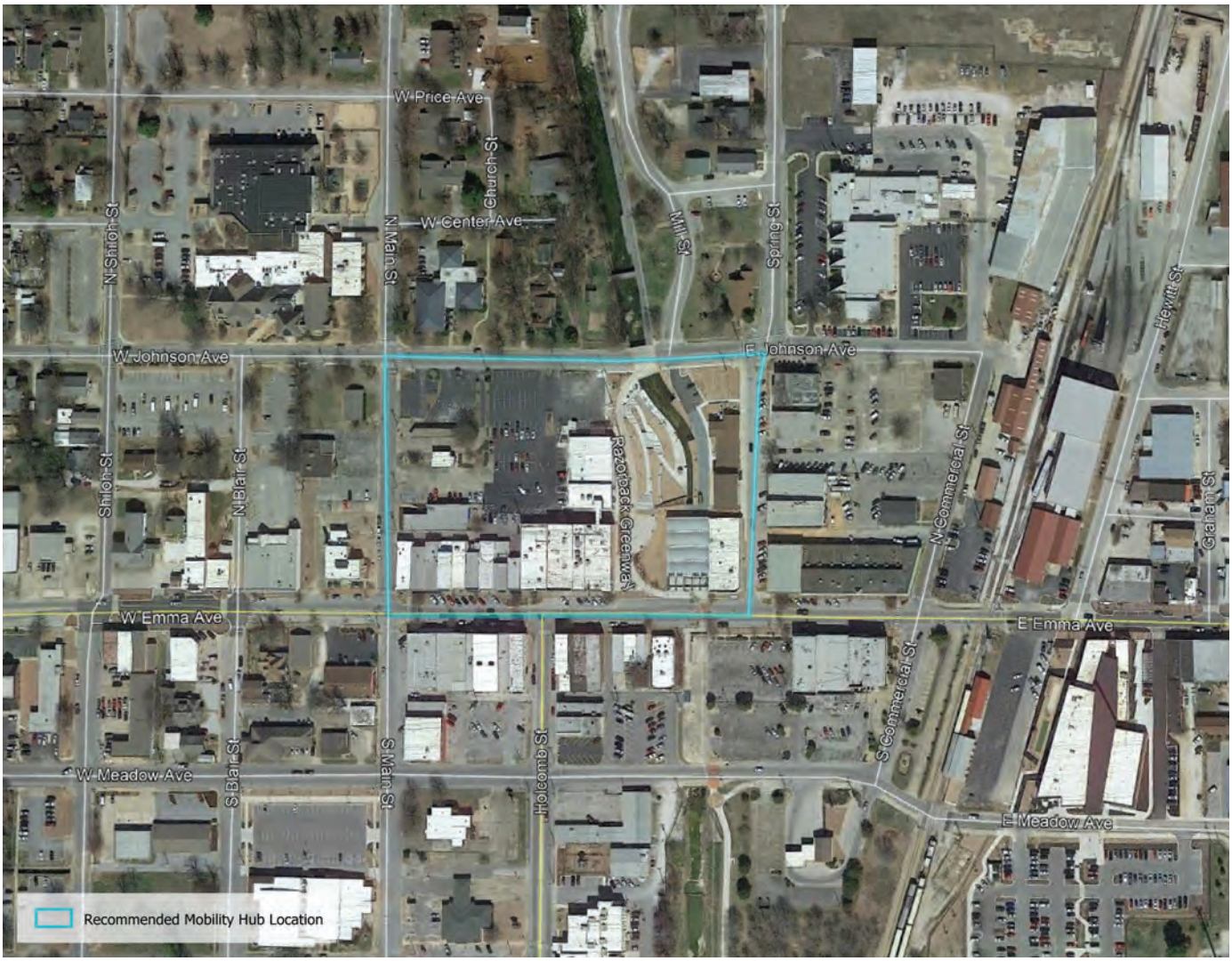
The City of Rogers also has development plans focused on areas adjacent to the Arkansas Music Pavilion (AMP). In addition, a bond project creating an overpass from the Promenade to W. Northgate Rd. creates an opportunity for a mobility hub just north of the Arkansas Music Pavilion (Figure 4). The area is near several major destinations (Promenade, John Q. Hammons Center, Mercy Hospital NWA).

FIGURE B.4: ROGERS MOBILITY HUB AT AMP

Springdale

Shiloh Square is a public space/event center in downtown Springdale (Figure 5). The square is surrounded medium to high density commercial/retail along Emma Ave. Shiloh Square is located directly on the Razorback Regional Greenway, and has adequate facilities (parking, ROW, bike racks, etc.) for mobility hub designation.

FIGURE B.5: SPRINGDALE MOBILITY HUB AT SHILOH SQUARE



The Pleasant St. Walmart location is located within low to medium density commercial, retail and residential land uses (Figure 6). The Walmart provides a swath of undeveloped land along US Hwy. 71B which is a major north-south connector in the region.

FIGURE B.6: SPRINGDALE MOBILITY HUB AT PLEASANT ST.

Fayetteville

The Martin Luther King Jr. Blvd. mobility hub recommendation is located in the Mill District neighborhood (Figure 7). This area has recently become a focal point for mixed-use redevelopment, thus making it an ideal mobility hub candidate in Fayetteville. The location is also near both downtown Fayetteville and the University of Arkansas campus.

FIGURE B.7: FAYETTEVILLE MOBILITY HUB AT MLK JR. BLVD.

A second mobility hub recommendation is located adjacent to the Walton Arts Center where a parking deck has been approved on 0.6 acres of land (Figure 8). The area, known as Depot Lot, is along Dickson St. among dense, mixed-use development in between downtown Fayetteville and the University of Arkansas Campus. This area provides both bicycle and pedestrian accessibility in the form of sidewalks, multimodal trails, and bicycle infrastructure.

FIGURE B.8: FAYETTEVILLE MOBILITY HUB AT DEPOT LOT

TECHNICAL ANALYSIS

To pair existing and projected multimodal supply/demand with agency recommendations, a quantitative GIS analysis was performed to rank TAZs for mobility hub suitability based on current/future transit markets, current transit activity, and current multimodal connectivity. Using data obtained through local agencies, each TAZ was scored from 0 to 4, with 0 being the lowest possible score (Park & Ride Score was ancillary, and the only metric which utilized a binary score), for the following metrics:

Future Productions:

- The total 2040 forecast year production count per TAZ. Future productions account for where residential growth will take place within the region. These locations are prime for generating different modal trips.

Future Attractions:

- The total forecast year attraction count per TAZ. Future attractions account for where commercial/retail/service sector growth will occur. These locations are projected to serve as the end point for different modal trips.

Future Modal Suitability:

- The TAZ density (per square mile) of the sum of forecast year population and employment. This considers where future transit markets will be located. Places with a higher concentration of both population and employment are optimal locations for mobility hubs.

Active Transportation Density:

- The linear density (per square mile) of sidewalk and trail infrastructure per TAZ. This generates active transportation values that account for mileage of facilities as well as size of TAZ. This metric illustrates how well locations are connected to the active transportation network.

Transit Ridership:

- The sum of daily ridership at the stop level occurring in each TAZ. This further strengthens modal suitability measures by accounting for existing transit demand/activity. Places that currently have high levels of transit use are likely to continue producing high levels in the future given the right service is in place.

Park & Ride Connectivity:

- A binary measure to award TAZs that contain existing park & ride infrastructure. These locations are ideal for transit hubs as they are generally already publicly owned and have available land to develop several of the important characteristics of mobility hubs.

Figures 9 – 14 display scores at the NWA regional level for each scoring metric. Darker shades of blue illustrate areas scoring higher, while lighter shades of blue illustrate areas scoring lower for each metric.

Individual metric scores were combined to create a comprehensive score, representing overall suitability for a mobility hub at that location (Figure 15). Comprehensive scores were then separated into similar breaks (0 to 4), with the two highest classes being used to identify areas most prime for mobility hub designation (High Scoring TAZs and Highest Scoring TAZs). These two breaks are composed of the following comprehensive scores:

High Score TAZs:

- This group consists of TAZs with final scores of 7 and 8.

Highest Score TAZs:

- This group consists of TAZs with final scores of 9, 10, and 15 (only one TAZ, containing the University of Arkansas, scored a 15 and is understood to be an outlier).

TAZs receiving "High" and "Highest" scoring designations were then reviewed in an overlay analysis using aerial imagery to manually enter binary scores/tags for available land, ROW, and whether the TAZ contained a recommended parcel from the initial qualitative analysis. This process further acknowledges the feasibility of mobility hub implementation (based on available space) while also recognizing if the TAZ matches with local knowledge/preference.

FIGURE B.9: FUTURE PRODUCTION SCORES

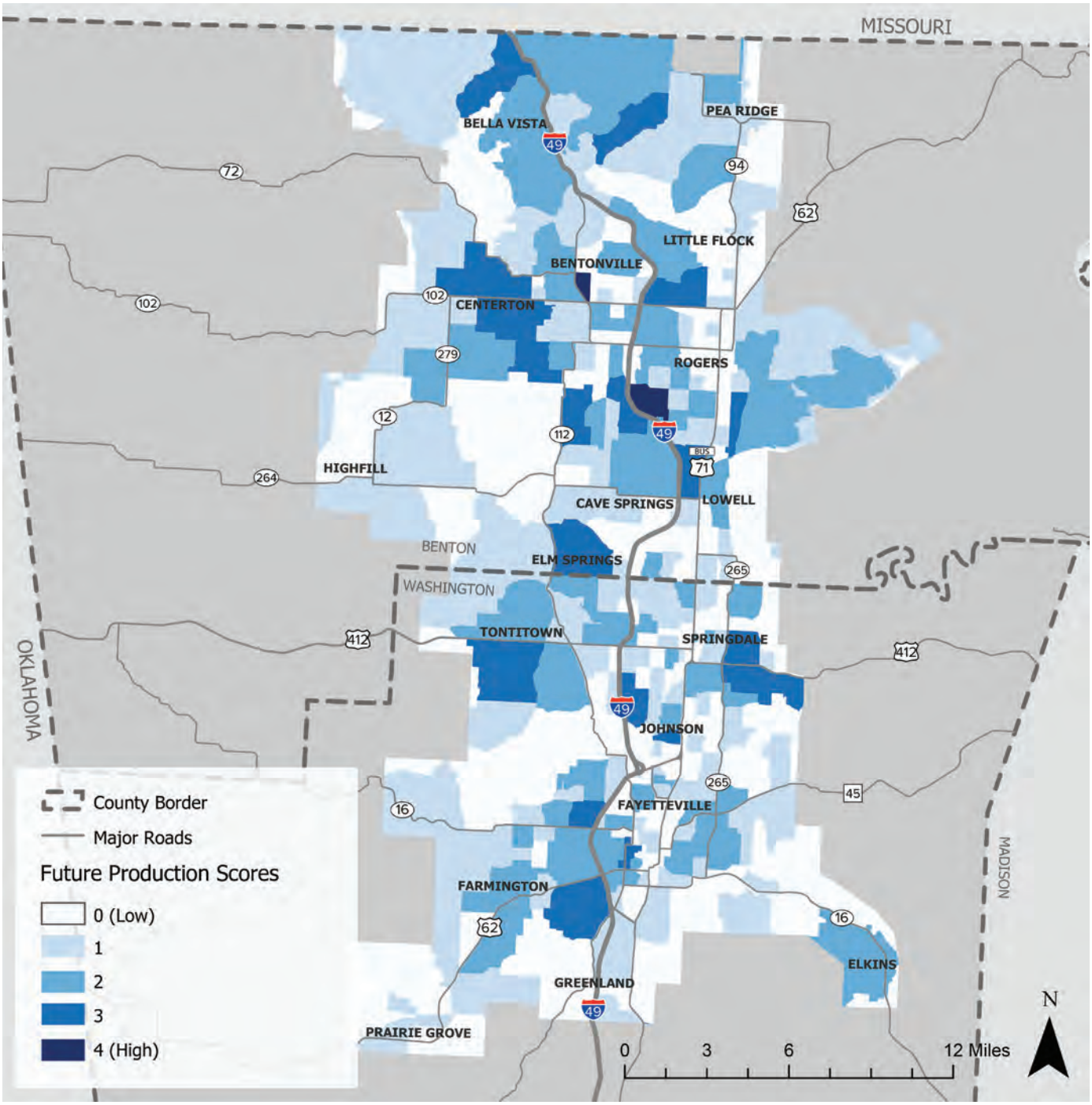


FIGURE B.10: FUTURE ATTRACTION SCORES

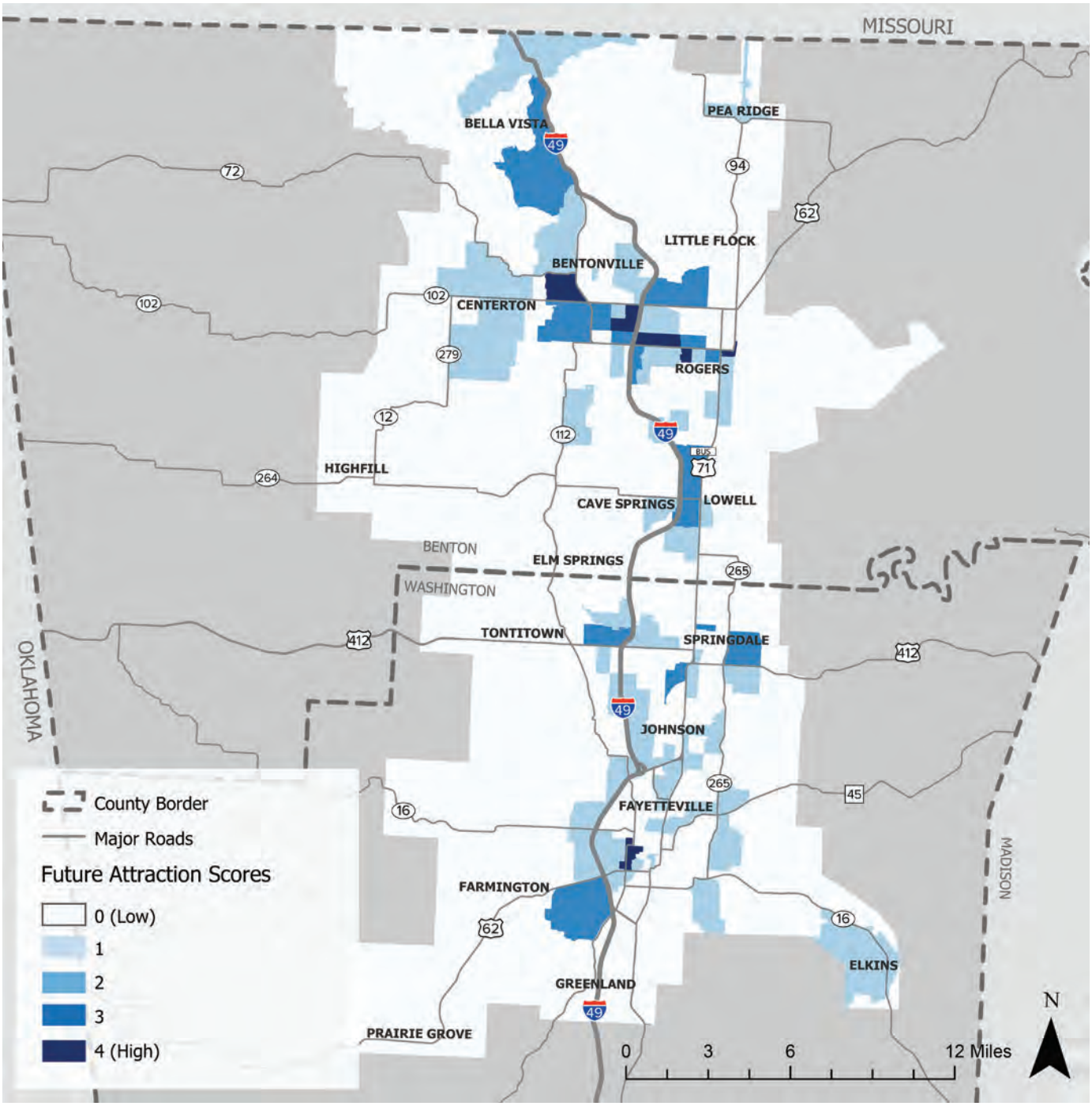


FIGURE B.11: FUTURE MODAL SUITABILITY SCORES

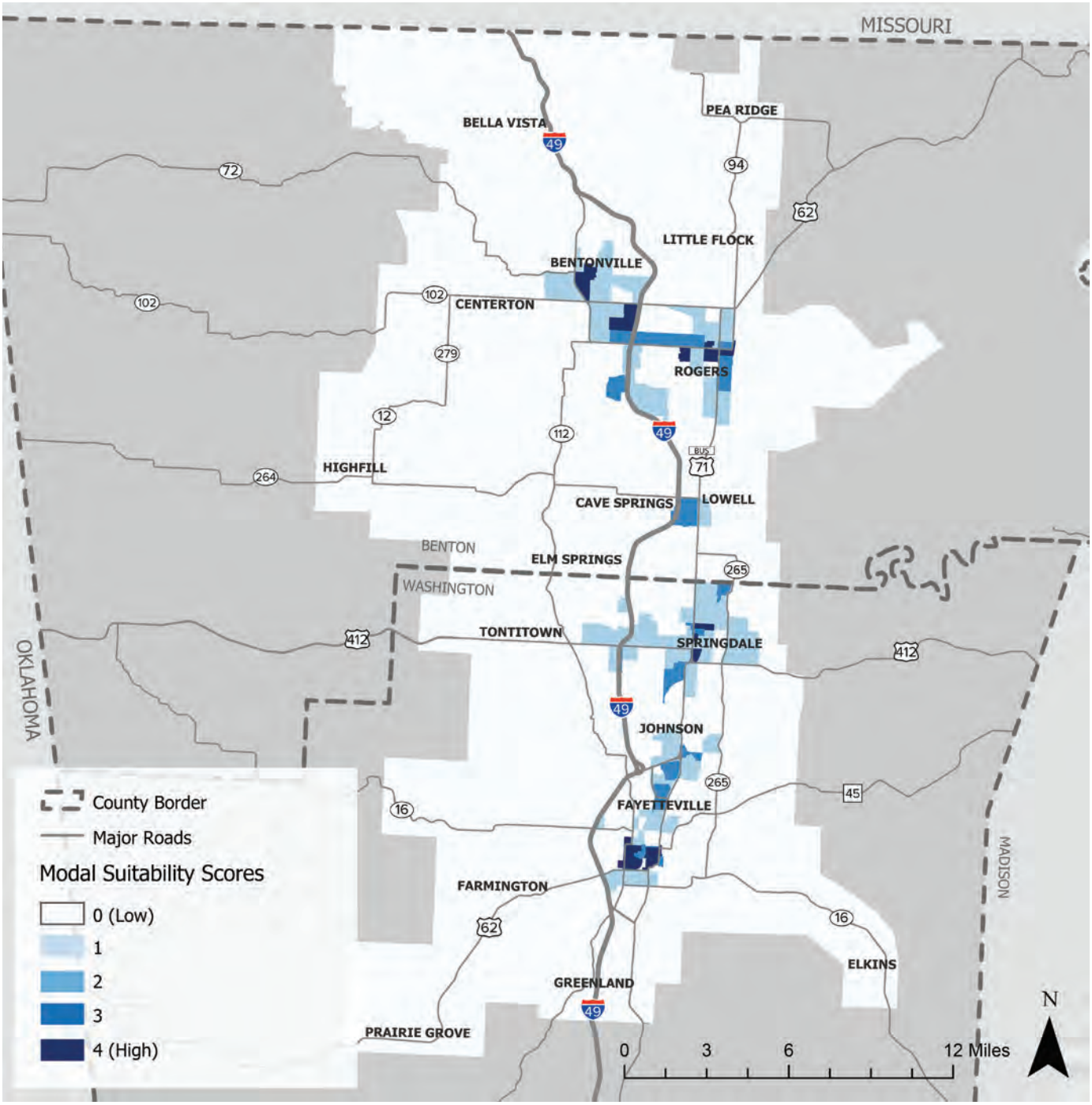


FIGURE B.12: ACTIVE TRANSPORTATION SCORES

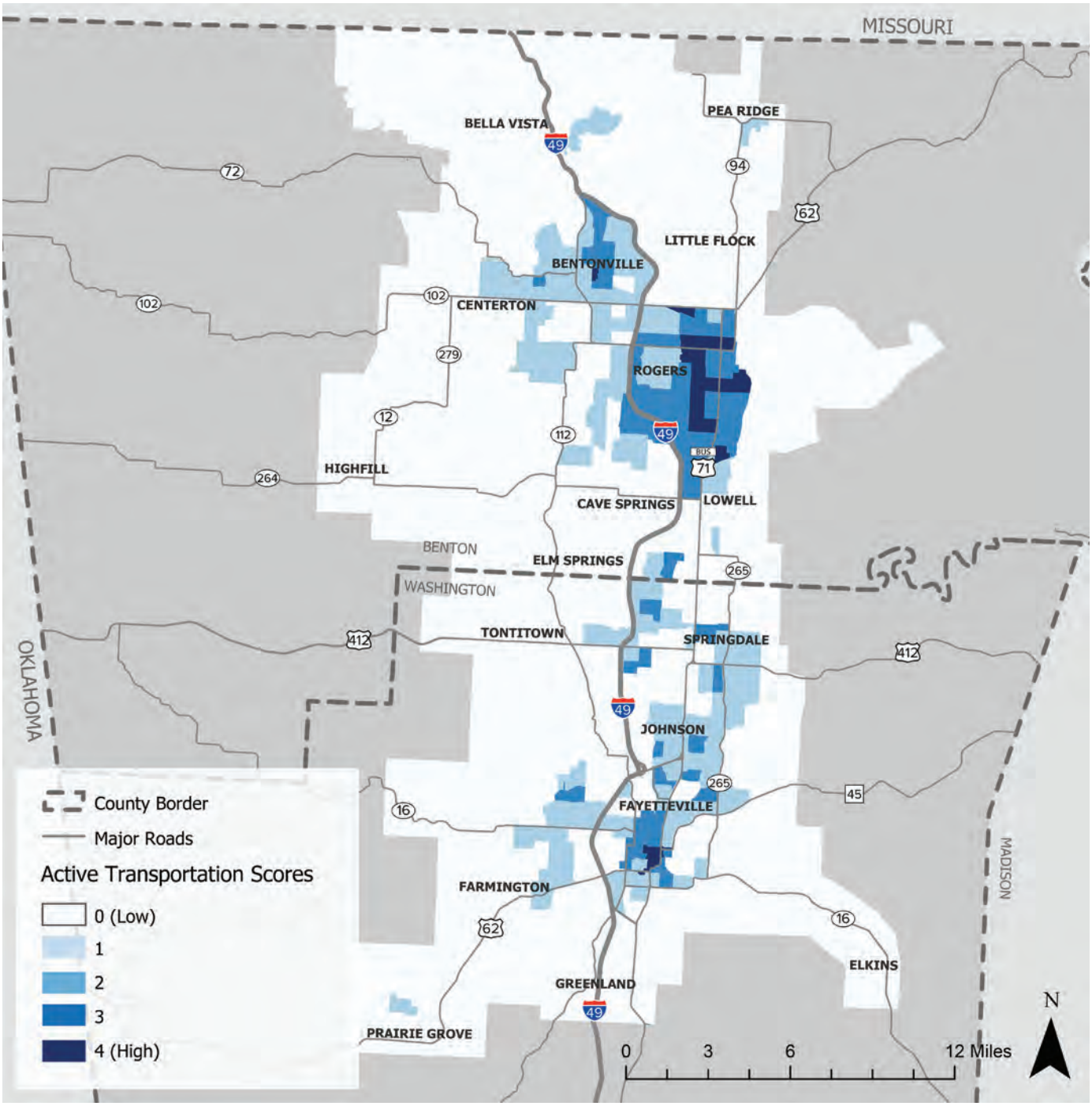


FIGURE B.13: TRANSIT RIDERSHIP SCORES

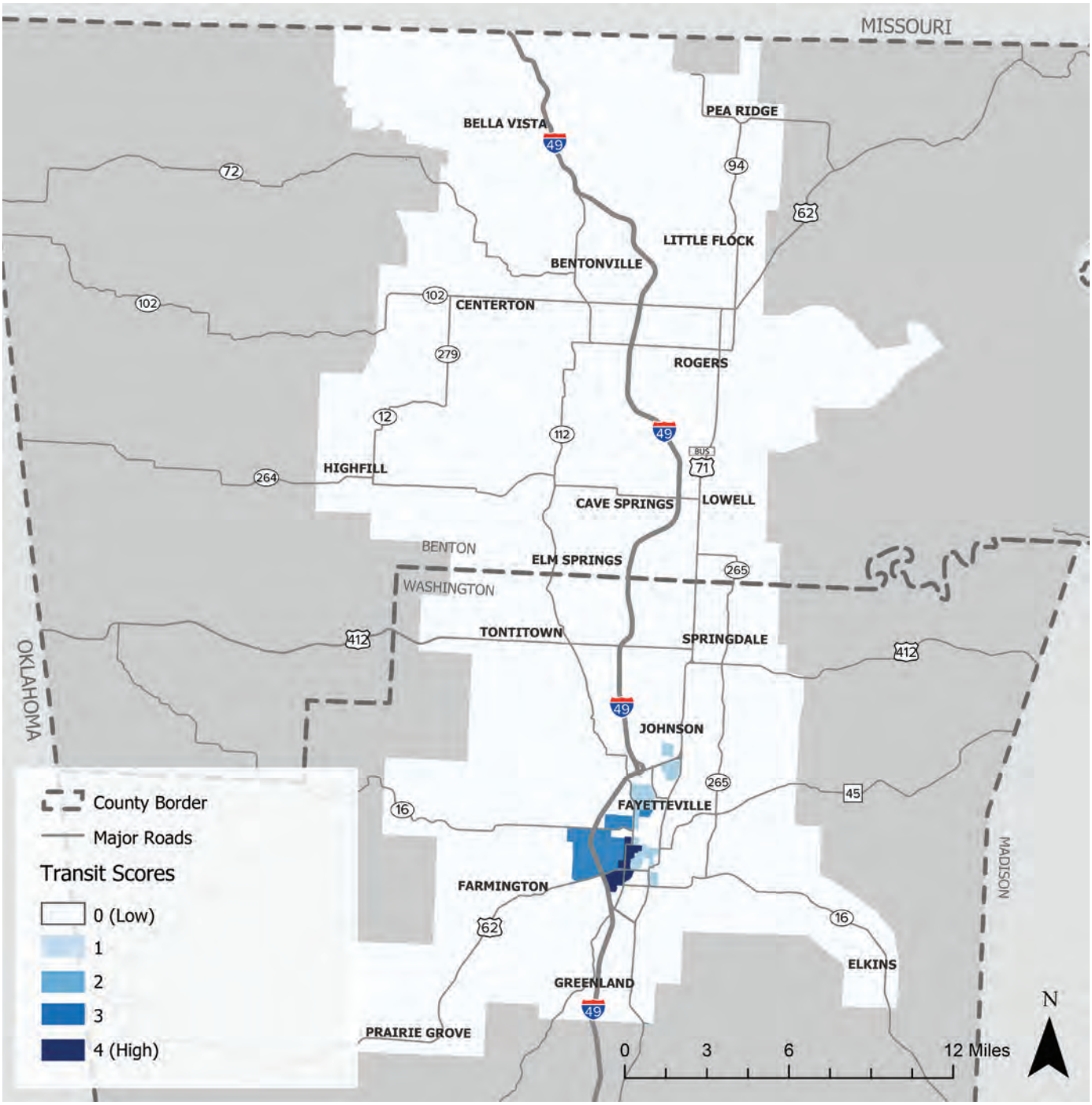


FIGURE B.14: PARK & RIDE CONNECTIVITY SCORES

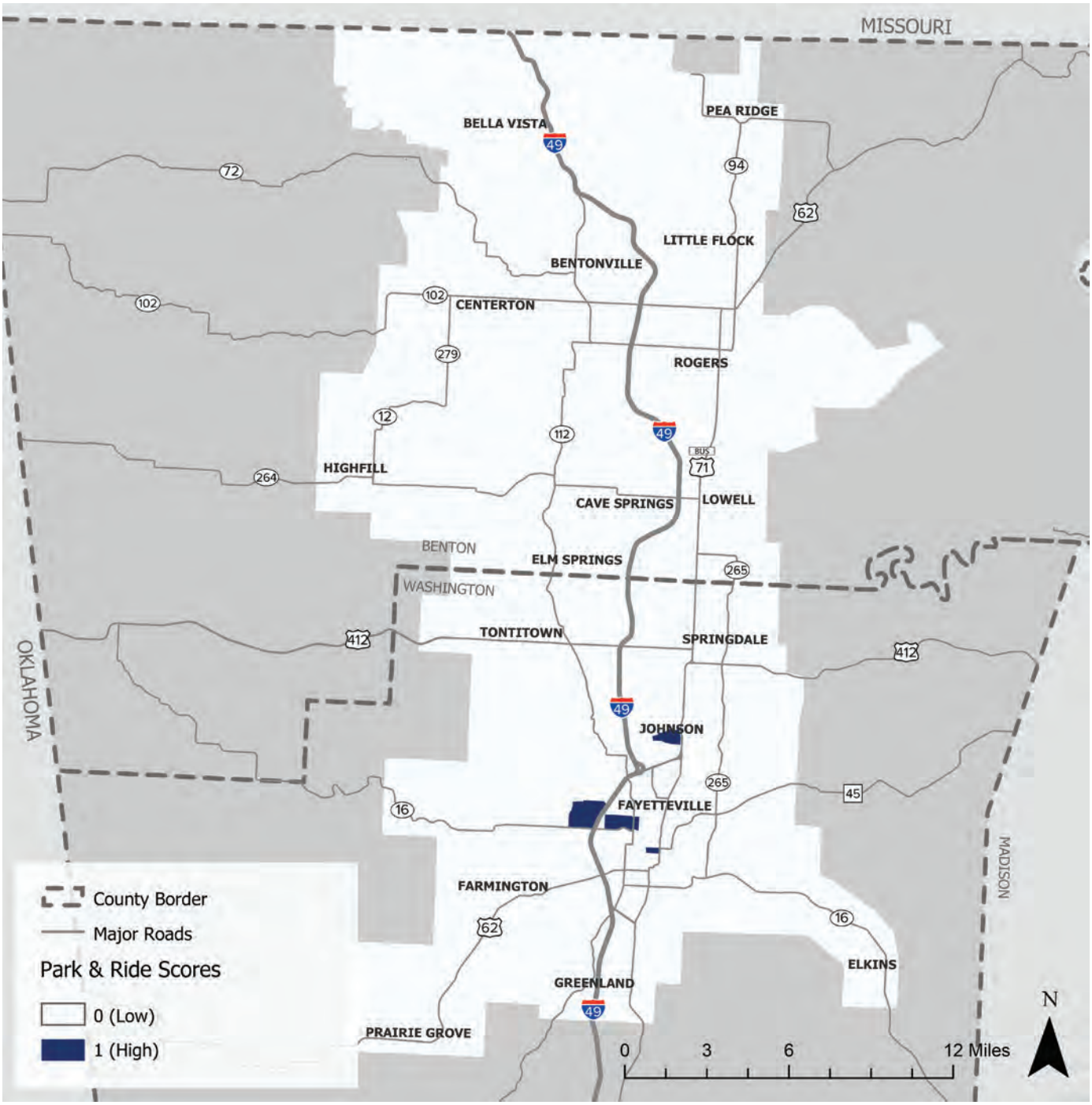
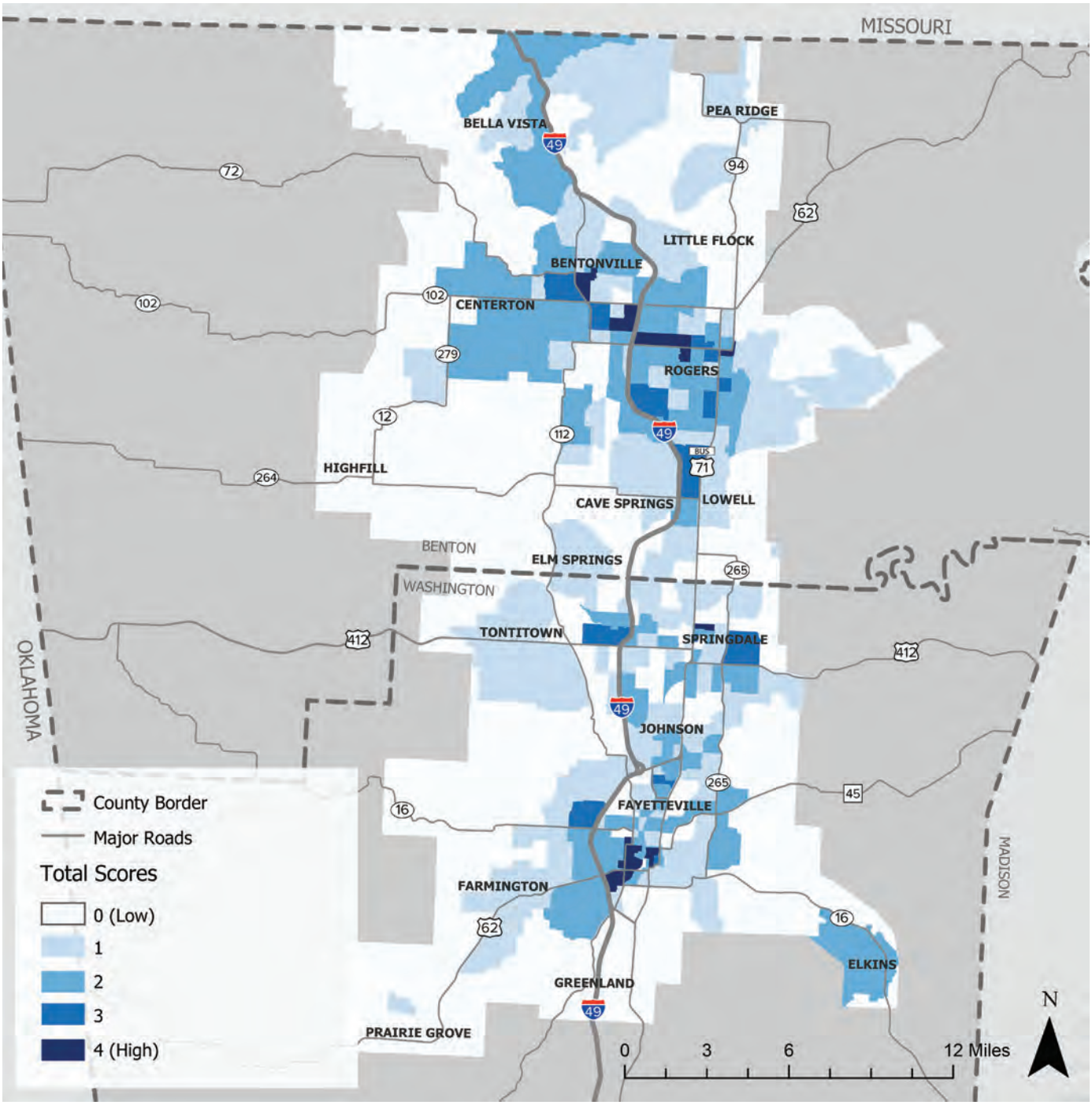


FIGURE B.15: COMPREHENSIVE MOBILITY HUB SCORES



Figures 16 (Henry St./Bentonville) and 17 (Shiloh Square/Springdale) provide an illustration of some of the metrics that went into the GIS analysis (excluding model data due to its polygon nature) to provide a better understanding of how TAZs scored highly for mobility hub feasibility. Both display areas that, after the analysis, contained "Highest" Score TAZs, as well as locally recommended potential mobility hub areas. Both figures display a half-mile buffer originating from the "potential mobility hub location" marked on the map. Accordingly, these areas scoring highest naturally contain established sidewalk/gridded street networks, bicycle infrastructure, and multimodal trails (all contributing to above average multimodal connectivity and accessibility). These zones also typically produce high scores for future trip counts and population/employment total as well.

FIGURE B.16: MOBILITY HUB METRICS - BENTONVILLE

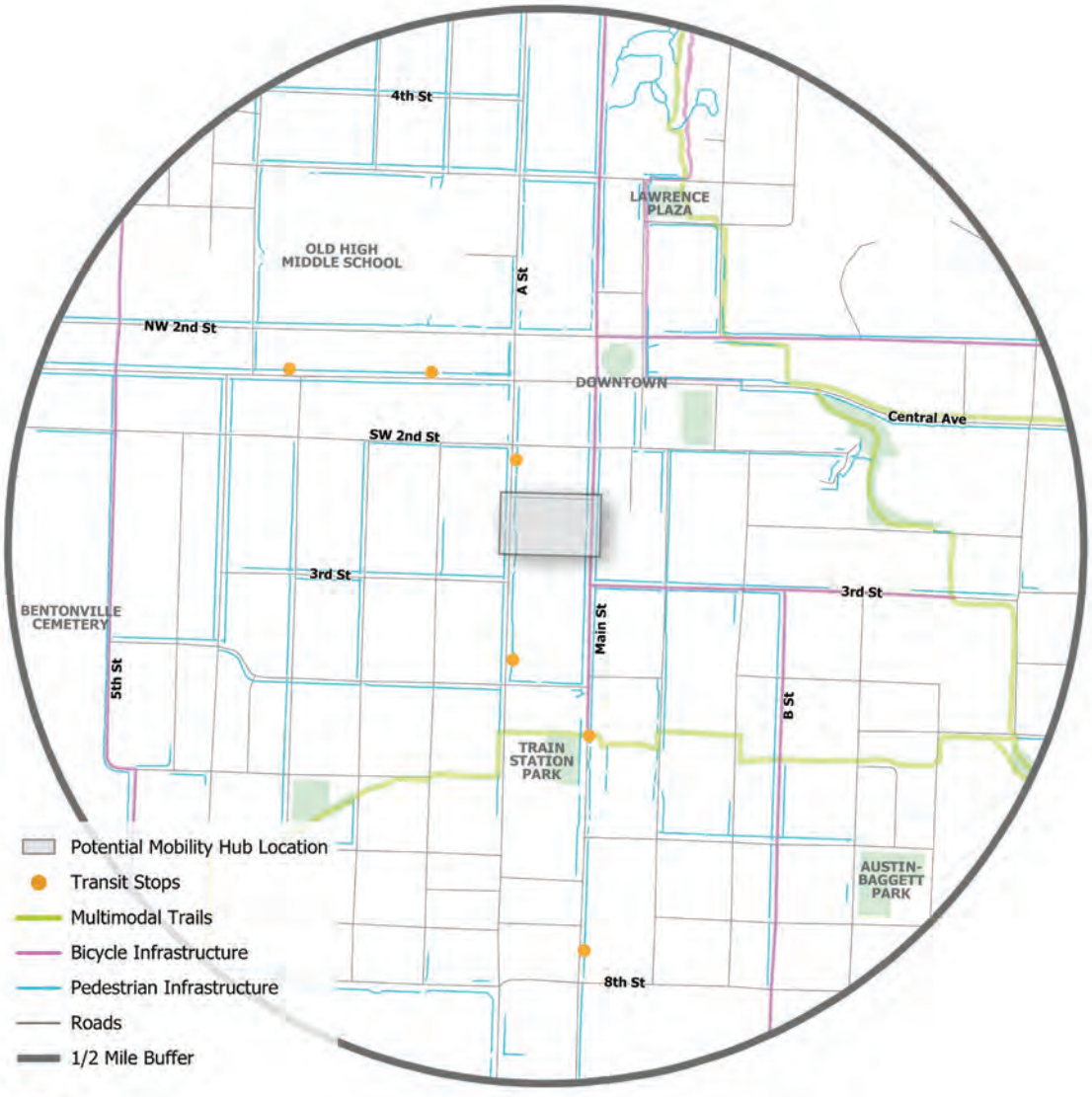


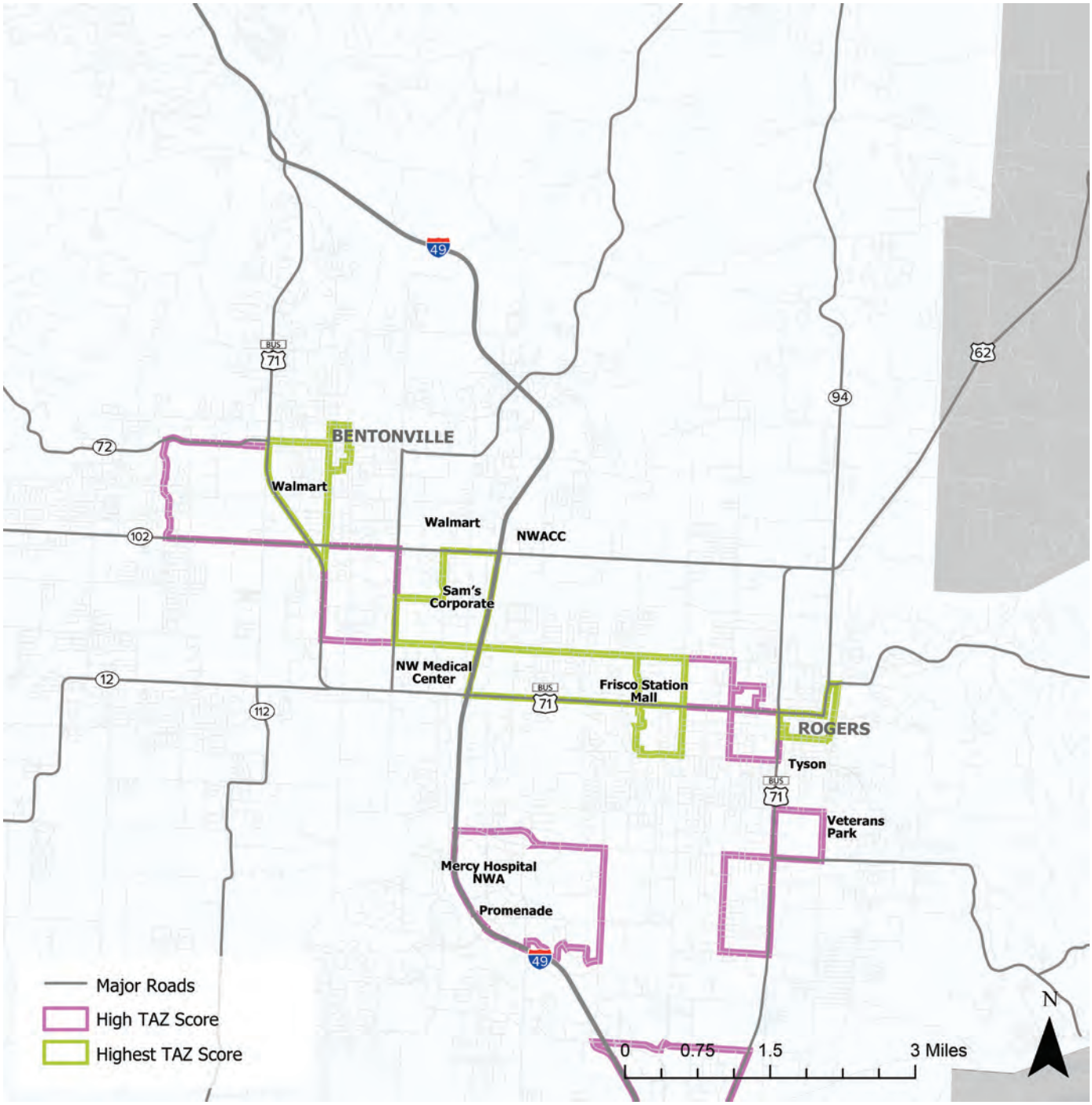
FIGURE B.17: MOBILITY HUB METRICS - SPRINGDALE

OUTCOMES

Of the 481 TAZs found within the NWA region, 14 scored as “highest” and 15 scored as “high”. Of the 7 areas recommended by participating agencies, 5 were found within one of the 29 TAZs listed above (the Pleasant St. Walmart in Springdale and Martin Luther King Jr. Blvd. parcel in Fayetteville were not included in those scoring ranges). Figure 15 (previously displayed) shows total scores for the NWA region. It is apparent that based on this methodology high scoring TAZs typically surround denser development. However, fringe TAZs did score high in some cases. This may be due to a mix of large subdivisions containing high population/production counts as well as active transportation infrastructure. Figures 18 – 20 display “high” and “highest” score TAZs only at the fixed route region level (refer to market analysis for regional extent definitions) to provide a more in depth look at the areas with high mobility hub implementation feasibility. Moving forward, these locations should be explored to improve multimodal connectivity using the mobility hub concepts outlined in the following section.

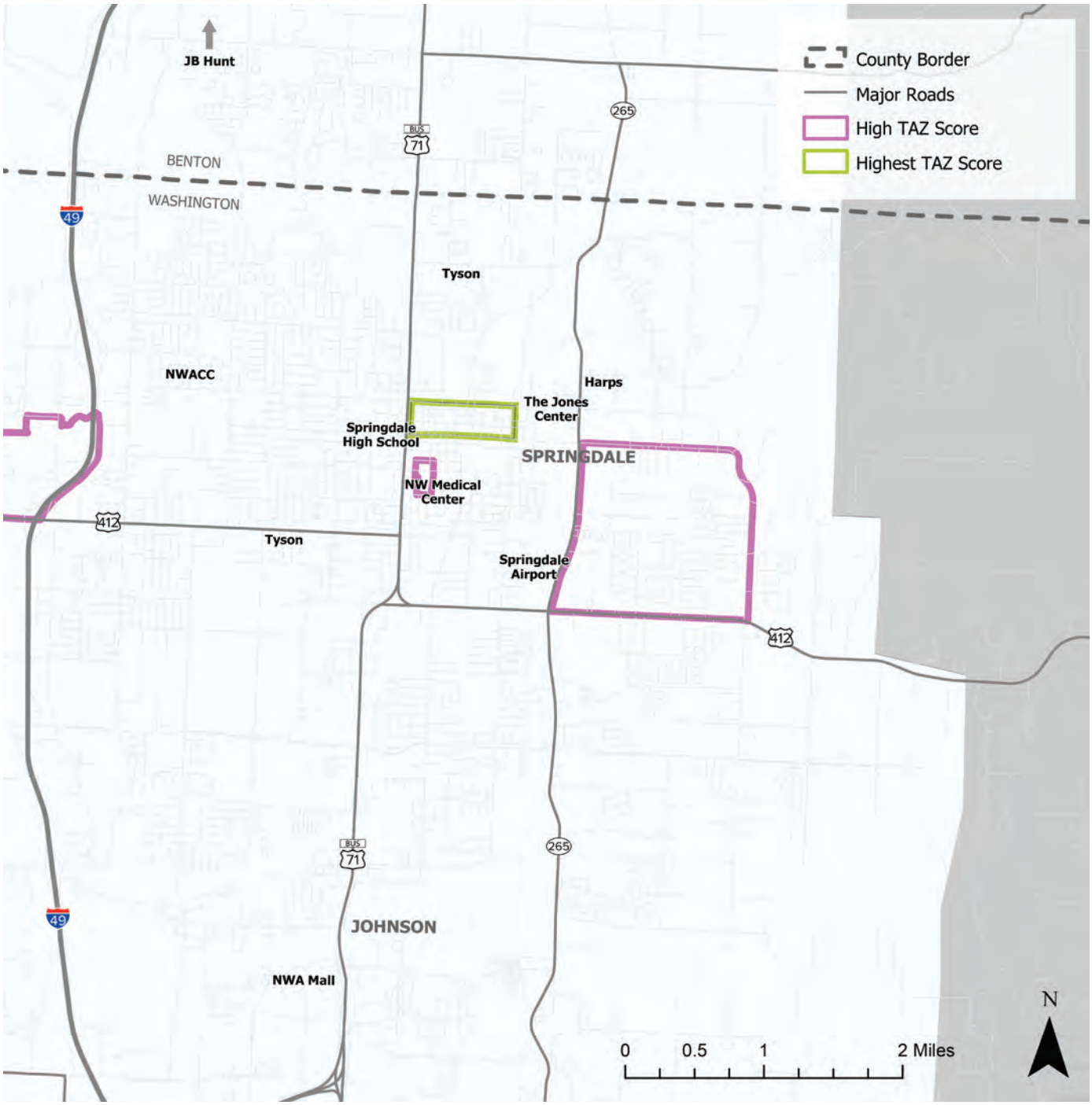
Bentonville and Rogers

FIGURE B.18: OPTIMAL TAZS



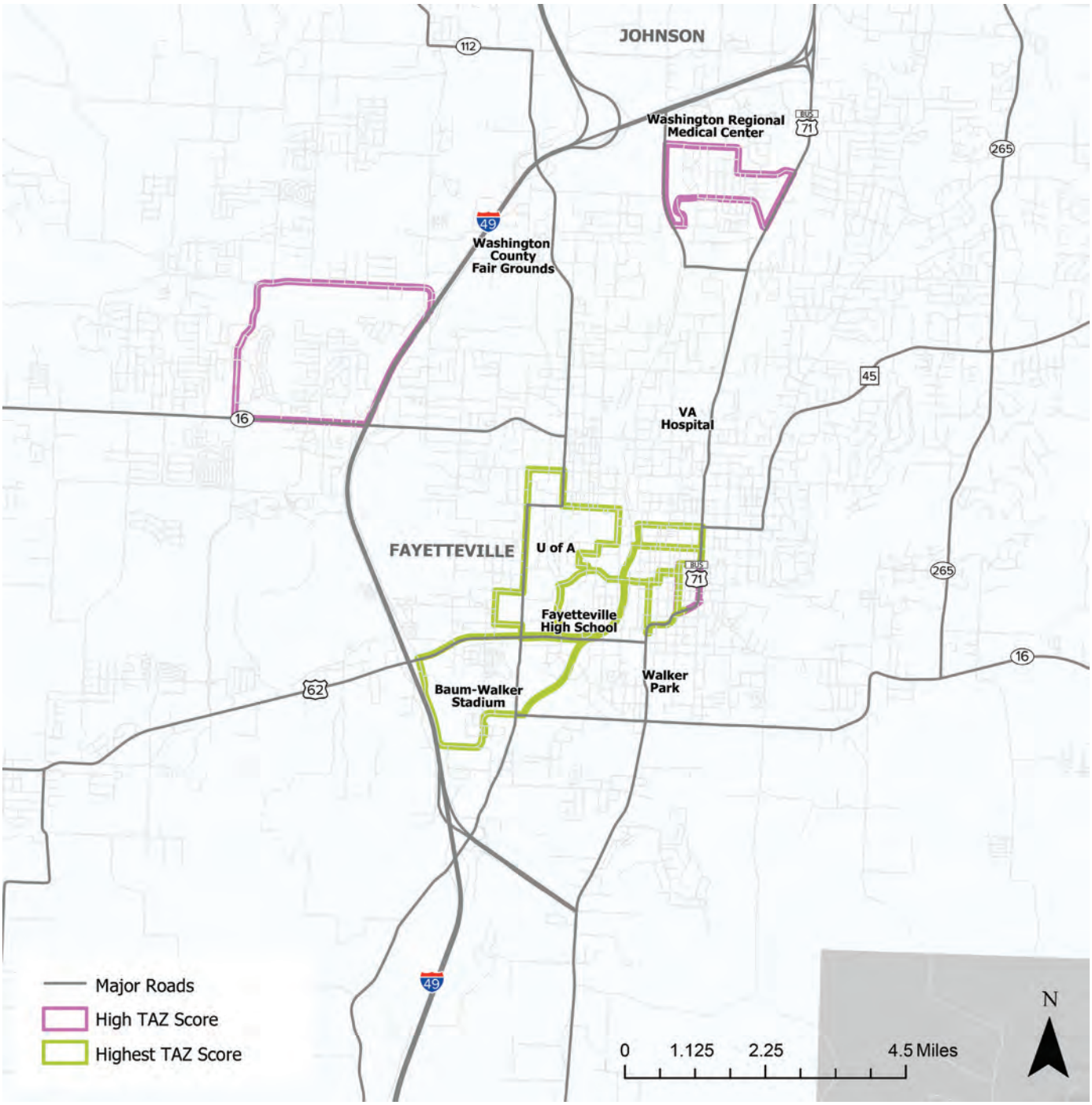
Springdale

FIGURE B.19: OPTIMAL TAZS



Fayetteville

FIGURE B.20: OPTIMAL TAZS



MOBILITY HUB CONCEPTS

The following concept illustrates how mobility hubs may operate within the locations discussed throughout the mobility hub analysis (Figure 21). The conceptual mobility hub includes characteristics outlined in the previous Overview Section. It must be noted that this visual is to provide a better understanding of mobility hub design, and not a specific recommendation.

FIGURE B.21: CONCEPTUAL MOBILITY HUB

CONCLUSION

Mobility hubs are locations where several modes of transportation converge to form an integrated, multimodal site that provides users convenient and connected mobility options. Through a combination of qualitative and quantitative analysis, it is apparent that the NWA region contains several areas primed for mobility hubs. Through this analysis, several areas throughout Bentonville, Rogers, Springdale, and Fayetteville have been recommended as potential locations for mobility hubs. These recommendations will be integral to the draft alignment process as they will serve as hubs or transfer points between several lines in an effort to create a better connected NWA region.

APPENDIX C: XNA WHITE PAPER

AIRPORT TRANSIT FEASIBILITY ANALYSIS

On an average day there are 369 trips to the airport made using transportation network companies (TNC) (i.e. Uber, Lyft, or Taxi). This figure includes both pickups and drop-offs. On average there are 4,885 enplanements and deplanements daily to and from XNA. For this analysis, the project team assumed a 10% transit mode share which means that approximately 489 passengers could be expected on a transit service for XNA daily. This number is higher than the current average for passengers using TNCs to travel to the airport.

Regional service to XNA would run direct nonstop service from the AMP mobility hub serving Bentonville and Rogers and from the NWA Mall serving Fayetteville and Springdale. These two routes would need to start service at 4:30 am to arrive at XNA one hour before flights begin taking off around 6:00 am. The core service feeding into these areas would need to begin service starting around 4:00 am to ensure passengers could arrive at the stops to transfer to the 4:30 am airport shuttle. Service would need to run hourly until 8:30 pm.

XNA service costs were estimated using the cost of increased service hours on connecting routes (ORT 3, ORT 6, RT 26, and ORT 102) and the cost of operating the two direct routes with hourly frequencies (XNA to AMP and XNA to NWA Mall).

In order to effectively run this service, it would cost approximately $3,140,000 in annual operations and maintenance costs. The cost per passenger would be approximately $6,421 annually.

Airport transit service is most effective and efficient when:

- It works well for staff
- Patterns of land use and development adjacent to the airport and its surrounding corridors are supportive of transit
- It is fast and efficient

The first point, service designed for airport staff, is important for ridership; 100 airport employees comprised of airline, restaurant, retail, and airport facility staff using the service every day translates into more ridership than 10,000 passengers using it a couple of times a year.

The second point relates to destinations other than the starting point of an express trip to the airport and the airport itself. By serving other destinations along the corridor as well as areas surrounding the airport, a transit agency is opening the network to a larger group of people that can use the service.

Travel time is one of the most important factors with airport service. An inherent anxiety exists within any travel related to air travel which includes traveling to and from the airport. On the trip to the airport, a passenger is concerned about arriving on time or missing their flight, which involves extensive resources such as planning and monetary investments. On the trip home from the airport the passenger has been traveling all day and wants to get to their ultimate destination rather than wait for another mode (i.e. the bus ride home).

The brief conclusion of this analysis is that establishing transit service to XNA at this time does not meet the requirements set in the Regional Service Standards and would be cost prohibitive for NWA. Transit service should be reevaluated once more development has occurred around XNA, the core transit network recommended in Connect NWA is established, and travel time can be competitive to driving or using a TNC.