

# Urban Area Transit Study

**DECEMBER 2023**

Knoxville Regional Transportation  
Planning Organization (TPO)

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# 1

## Study Overview

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# What is the Urban Area Transit Study?

The Knoxville Region has grown a lot in the past few decades, but fixed-route transit service, provided by Knoxville Area Transit (KAT), is limited to the City of Knoxville. The urbanized area has seen a growing interest in creating public transit service throughout the region, and this study explores that possibility. The Urban Area Transit Study has reviewed and evaluated possible transit expansion opportunities throughout the region and this report lays out ideas for new transit service.

This is the first step in creating new transit service. This study has analyzed where jobs are located and where people live to identify nodes and corridors of activity in the region. Then, we explored how we can connect those nodes with transit service to come up with the high-level ideas that are laid out in this report. These ideas are meant to spark interest and help start a conversation about new transit service.



*The boundary for the Knoxville Regional Transportation Planning Organization (TPO)*

# Transit's Many Goals

Transit can serve many different goals. It is not possible to excel towards all these goals at the same time. In addition, reasonable people will disagree about which of these goals is most important.

Understanding which goals matter most in the Knoxville region is a key step in thinking about regional service expansions. Some possible goals for transit include:

- **Economic:** Transit can give businesses access to more workers, workers access to more jobs, and students access to education and training.
- **Environmental:** Increased transit use can reduce air pollution and greenhouse gas emissions. Transit can also support more compact development and help conserve land.
- **Social:** Transit can help meet the needs of people who are in various situations of disadvantage, providing them with access to support services and opportunity.
- **Health:** Transit can be a tool to support physical activity by walking. This is partly because most riders walk to their bus stop, but also because riders will tend to walk more in between their transit trips. The social contact people gain on transit can also contribute to positive health outcomes.
- **Personal Liberty:** By providing people the ability to reach more places than they otherwise would, a transit system can be a tool for personal liberty, empowering people to make choices and fulfill their individual goals.

Some of these goals are served by high transit ridership. For example, the environmental benefits of transit only arise from many people riding the bus rather than driving. The same is true of some economic and health outcomes. We call such goals “ridership goals” because they are achieved through high ridership.

Other goals are served by the mere presence of transit. A bus route through a neighborhood provides residents insurance against isolation, even if few people ride it. A route may fulfill political or social obligations, for example by getting service close to every taxpayer or into every political district. We call these types of goals “coverage goals” because they are achieved by covering geographic areas with service, regardless of ridership.

# Development Patterns Affect Ridership

Buses aren't equally useful everywhere. Transit is more likely to get higher ridership when it provides service in transit-friendly places—places where it can benefit the most people.

- **How many residents or useful destinations can be easily reached from each transit stop?** This looks for density and walkability. High density means more people will find a stop useful, and high walkability means that people over a larger area will find the stop easy to walk to.
- **Are stops with high demand concentrated along a logical line?** This looks for linearity (can the route be straight?) and proximity (does the route have to cross empty gaps with no demand?).

While the goal of this study is to connect major nodes of activity throughout the region, it's still important to explore development patterns. The transit service that is laid out in this report was drawn while considering these factors.

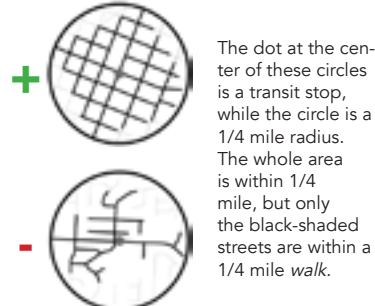
By providing service in places with higher density that are more walkable, more linear, and more proximate, more people can benefit from it.

## Four Geographic Indicators of High Ridership Potential

**DENSITY** *How many people, jobs, and activities are near each transit stop?*

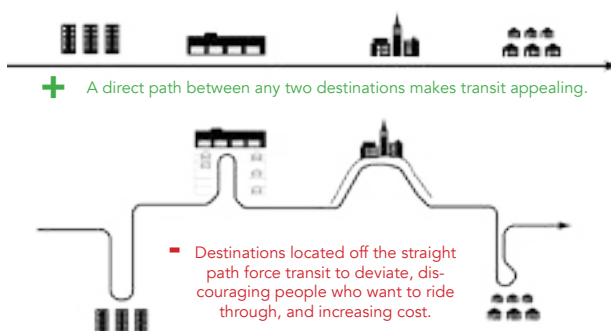


**WALKABILITY** *Can people walk to and from the stop?*

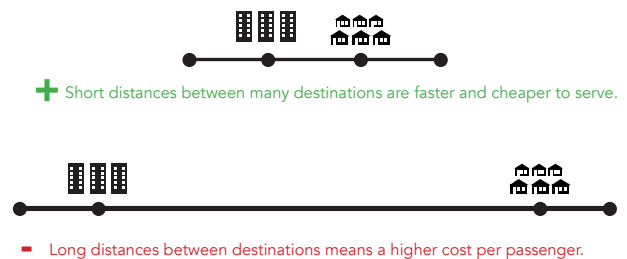


It must also be safe to cross the street at a stop. You usually need the stops on both sides for two-way travel!

**LINEARITY** *Can transit run in reasonably straight lines?*



**PROXIMITY** *Does transit have to traverse long gaps?*



# The rest of this report...

## Markets and Needs

In **Chapter 2**, we assess the markets for transit in the Knoxville region, the potential for ridership, and the areas where the need for transit is high.

By “market” we are referring specifically to the demands for transit that result in higher ridership relative to cost. This way of thinking about a transit market is similar to the way a private business thinks about its market for sales – how many potential customers there are, how useful they will find the product, and how well the product competes for their business.

High transit ridership satisfies a number of commonly-held values, like:

- If a community wants its transit system to compete successfully with cars to achieve environmental benefits—such as cleaner air and reduced carbon emissions—a Ridership goal is the path to that achievement.
- For transit to act as an economic stimulus, by providing job access to large numbers of workers, it must attract ridership. These interests are therefore also served by a Ridership goal.
- If leaders are concerned about government efficiency, they may want to maximize fare revenue relative to costs and reduce subsidy per rider. They would likely be drawn to a Ridership goal.

## Recommendations

In **Chapters 3-6**, we present recommendations for transit service in the Knoxville region. For each service recommendation, we give an overview of how it runs, including routing, frequency, number of buses required to run the service and cost. We also provide an estimate of the number of people and jobs that the route would cover.

The cost for most of these service recommendations is calculated based on the operating cost of Knoxville Area Transit (KAT). KAT operates large buses that are adequate for most services. However, sometimes a small vehicle is sufficient. In those cases, the operating cost of East Tennessee Human Resource Agency (ETHRA) was used.

## Next Steps

In **Chapter 7**, we talk about next steps for turning these regional transit ideas into real service.

# 2

## Market & Needs

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# Market and Needs Assessment

In this chapter, we present and discuss data that inform two different types of considerations in transit planning:

- Where are the strongest markets for transit, where ridership is likely to be high relative to cost?
- Where are there moderate or severe needs for transit, regardless of potential ridership and cost?

## Market Assessment

The transit market is mostly defined by **WHERE** people are, and **HOW MANY** of them are there, rather than by **WHO** they are. The maps on the following pages help us visualize the transit market:

- Residential density
- Job density
- Activity density (the sum of residents and jobs)
- Density of low-income residents

To draw a high-ridership bus route, a transit planner would look at densities of all residents and jobs; at the walkability of streets and neighborhoods; and at the cost of running a bus route long enough to reach them. Only secondarily would that planner look into the income or age of those residents or workers.

However, the “who” attribute that has the strongest influence on transit ridership potential is income. This is especially true in suburban areas where driving and parking cars is so easy. Low income people are, as individuals, more likely to choose transit. That said, the density of all people—including low-income people—around a transit stop will still be the overriding factor in predicting whether that stop gets high ridership.

All else being equal, density matters more than income and age if you are trying to predict where transit will get high ridership.

This is not to say that who people are is not important. It is extremely important, especially when designing transit services based on needs.

## Need Assessment

We learn about transit needs by examining **WHO** people are and what life situation they are in. The maps on the following pages help us visualize where transit needs are in the Knoxville region:

- Density of low-income residents
- Density of zero-vehicle households
- Density of seniors
- Density of youths

These measures cannot by themselves tell us that a person has a severe need for transit. For example, some people in a zero-vehicle household can afford to hire drivers, or rarely drive but are comfortably retired. We must consider these measures in combination to understand where in Knoxville people’s needs for transit are likely to be severe.

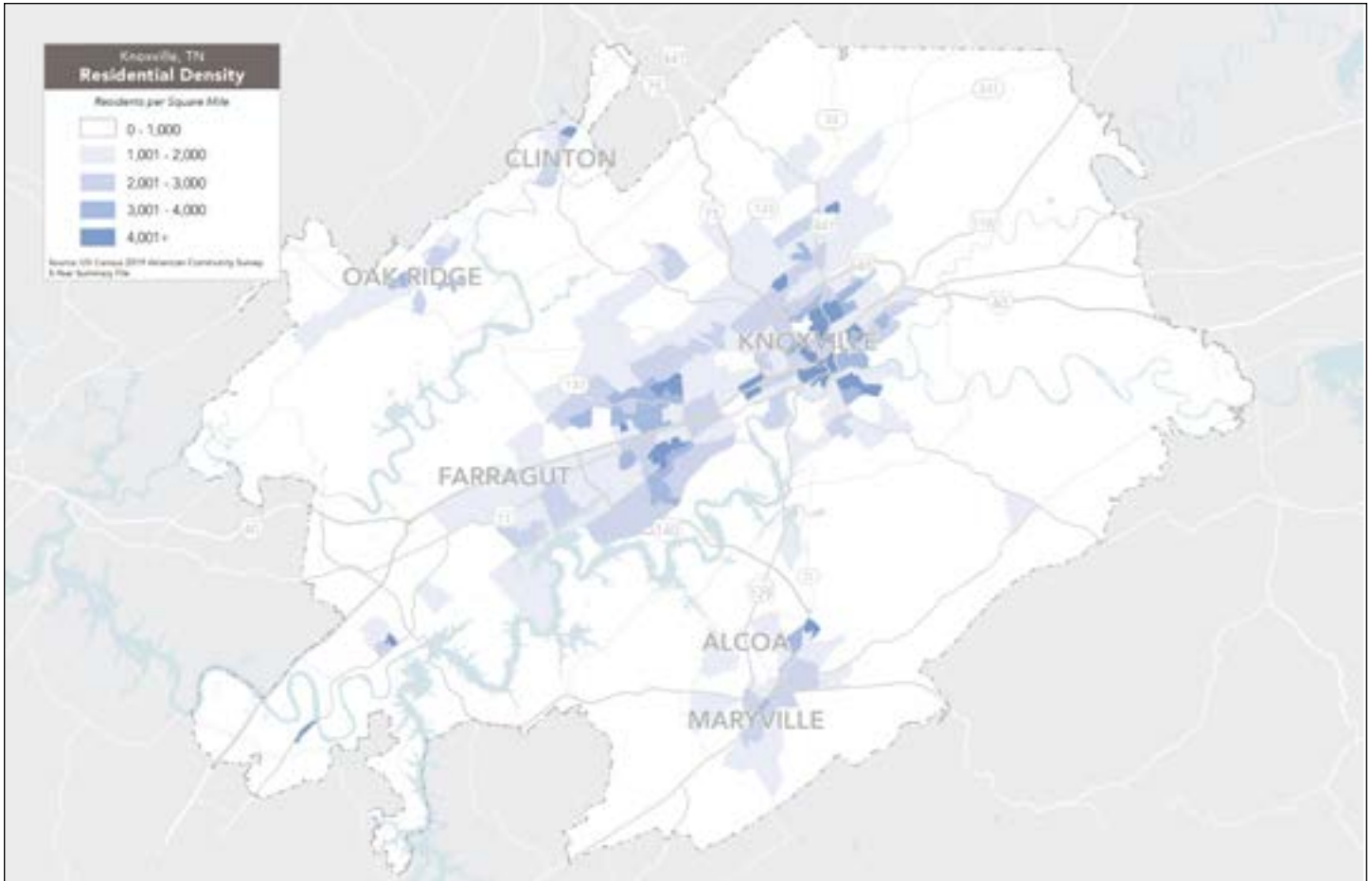
## Civil Rights

Another important map in this chapter is not strictly related to need but rather to civil rights. This maps show **where people of color live**.

Unequal treatment on the basis of race, ethnicity, or national origin is prohibited by the Civil Rights Act of 1964. Regulations by the Federal Transit Administration require that KAT and the TPO consider the benefits and burdens that people of color and people in poverty experience from transit service and in the process of planning for transit and transportation projects.

While person’s race or ethnicity does not tell us directly if they need transit, or if they have a propensity to use transit, we know that there is a correlation between race and ethnicity and income and wealth. If you are a person of color in the United States you are more likely to be low-income and less likely to own a car.

# Market: Residential Density



While not all trips start or end at home, nearly everybody makes at least one trip starting or ending at home on most days. Further, places with many households are also destinations for other people, whether for visiting, worship, caring for family or home-based work.

It is clear that Knoxville has the highest concentration of residents, but there are other places that stand out as having relatively high residential density.

In Oak Ridge, there is moderate to high residential density:

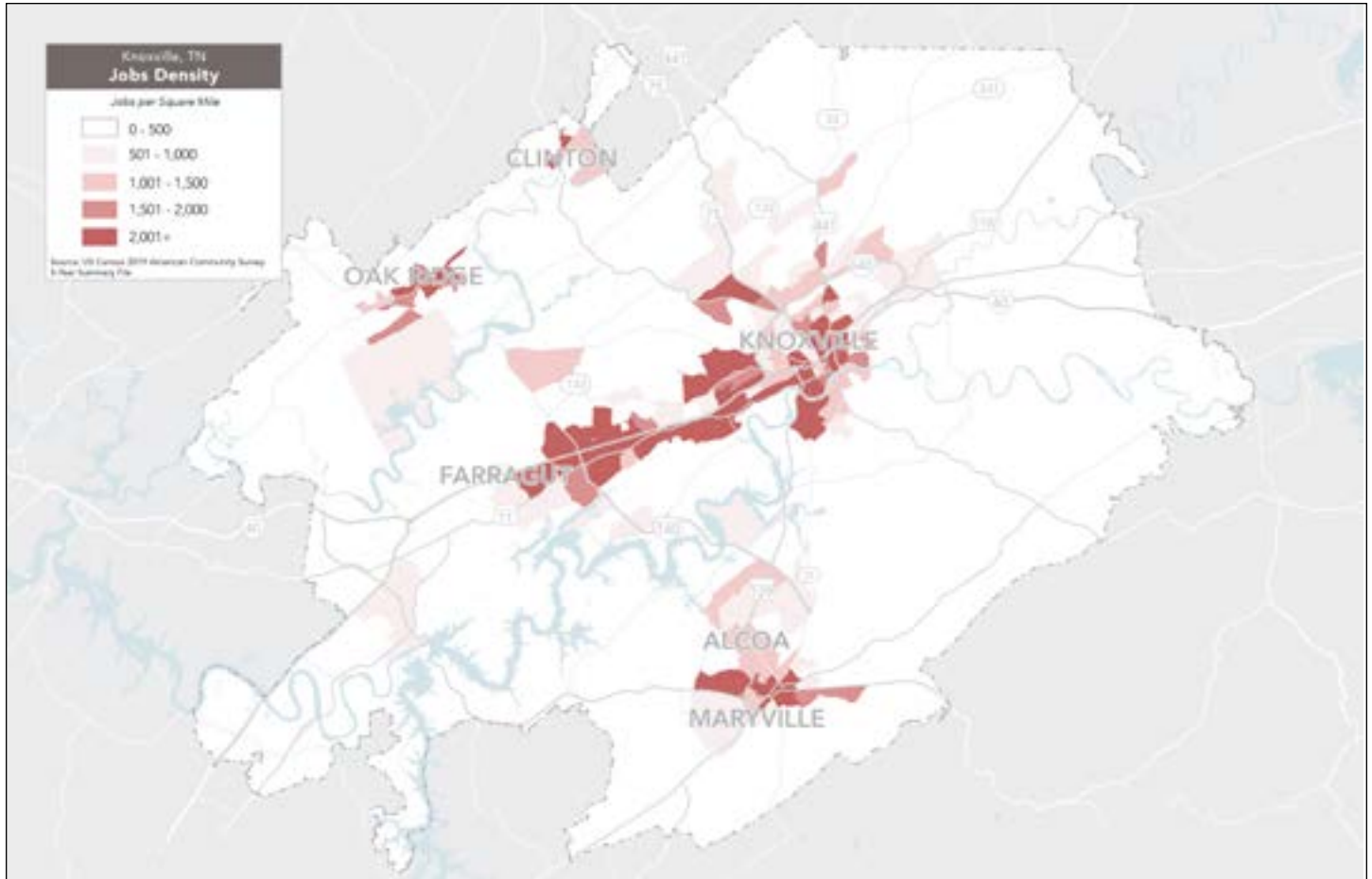
- In the vicinity of Oak Ridge Turnpike and Lafayette Drive.
- Along and north of Oak Ridge Turnpike around California Avenue.
- Along Emory Valley Road near Briarcliff Avenue.

In Clinton, there is moderate to high residential density:

- Along and near Oak Ridge Highway from Hillcrest Street to downtown
- In the cluster of apartments, manufactured homes, and assisted living facilities off Longmire Road northwest of downtown.

While some of these places are dense, they are far from the core of density in Knoxville such that transit would be less competitive as the travel times would be long and there are relatively few destinations in between. In transit planning terms, there is a sizable proximity challenge with connecting to many of the outlying communities to Knoxville by transit. Some of these communities, like Oak Ridge and Clinton, could be connected to each other or have internal transit connections.

# Market: Job Density



A map of job density shows us not only the places people travel for work, but also places people go for services, shopping, community, health care, and more.

A person's workplace may be, throughout the day, a destination for dozens or even hundreds of people. For this reason, job density is typically an even better predictor of transit ridership than residential density.

Regionally, we see a high concentration of jobs in some of the places that also have a high concentration of residents. In particular, Oak Ridge has a very high concentration of jobs compared to other outlying communities, with concentrations of jobs in the following areas:

- Along and south of Oak Ridge Turnpike from Melton Lake Drive to Illinois Avenue.

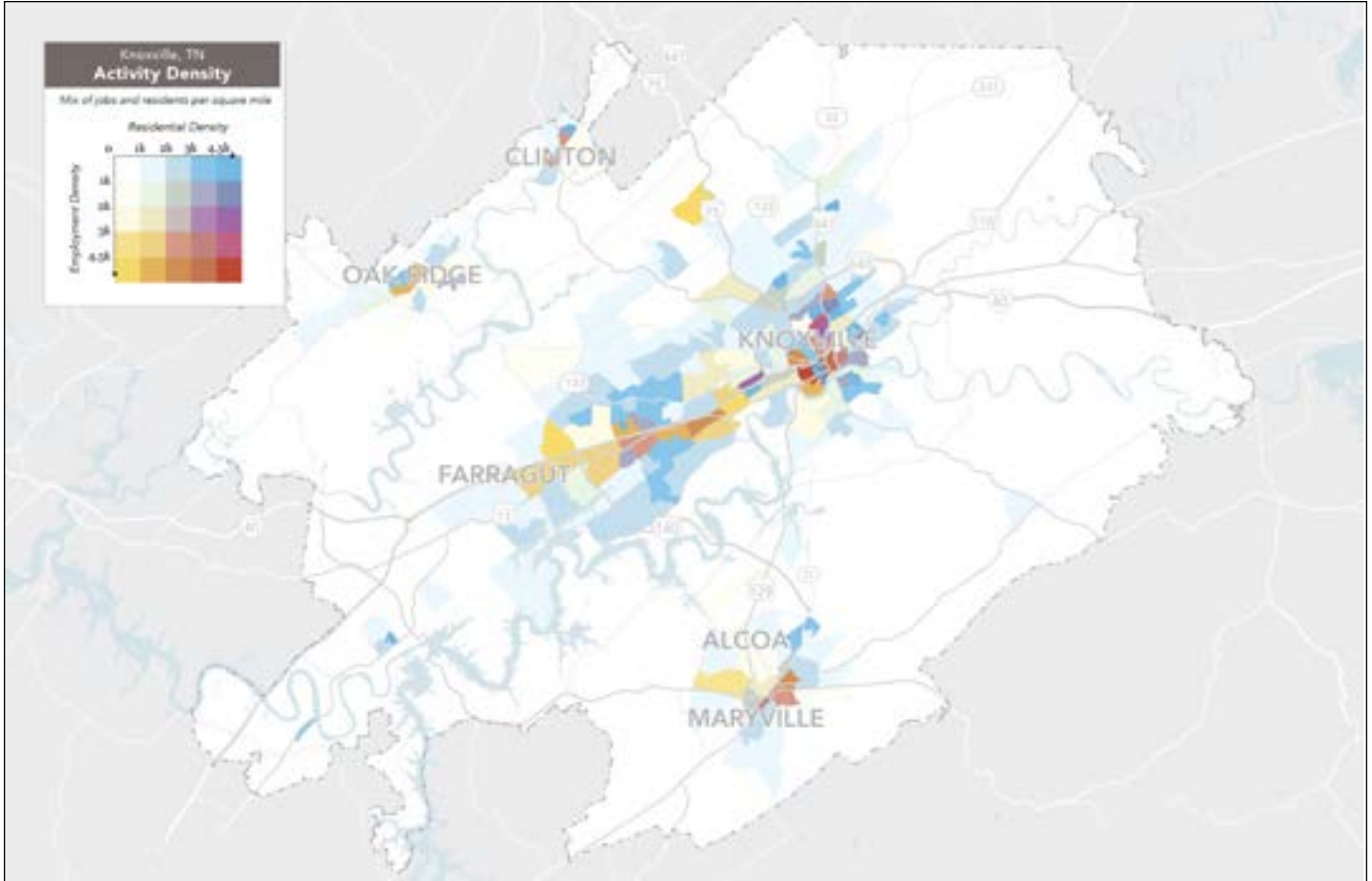
- In the Y-12 National Security Complex.
- At Oak Ridge National Laboratory.

The last two complexes have significant security restrictions which makes transit service to those locations much more complicated. It also means that transit serving those job locations can only be for those locations, as people could not ride a bus going through those facilities and onward to another destination.

In Clinton, the larger downtown area has high job density and the industrial area along Industrial Parkway has moderate job density.

In Maryville, job density is high within downtown and to the east to Blount Memorial Hospital and to the northwest into Alcoa along Hall Road and Calderwood Street. Job density is also relatively high in the industrial areas along Robert C. Jackson Drive.

# Market: Activity Density



Resident and jobs density are both critical measures of a place's potential transit market relative to other parts of the service area. Those two measures can be combined in a single map that shows the activity density - the density of both jobs and residents. Activity density helps visualize the overall potential transit market of an area. The map on the right shows activity density in Knoxville.

Places with more residential density are shown in increasingly brighter shades of blue; areas of high employment density, in brighter shades of yellow. The areas shown with increasing shades of red are places where there are high densities of both jobs and residents, and where there is likely to be a strong market for travel for most or all of the day.

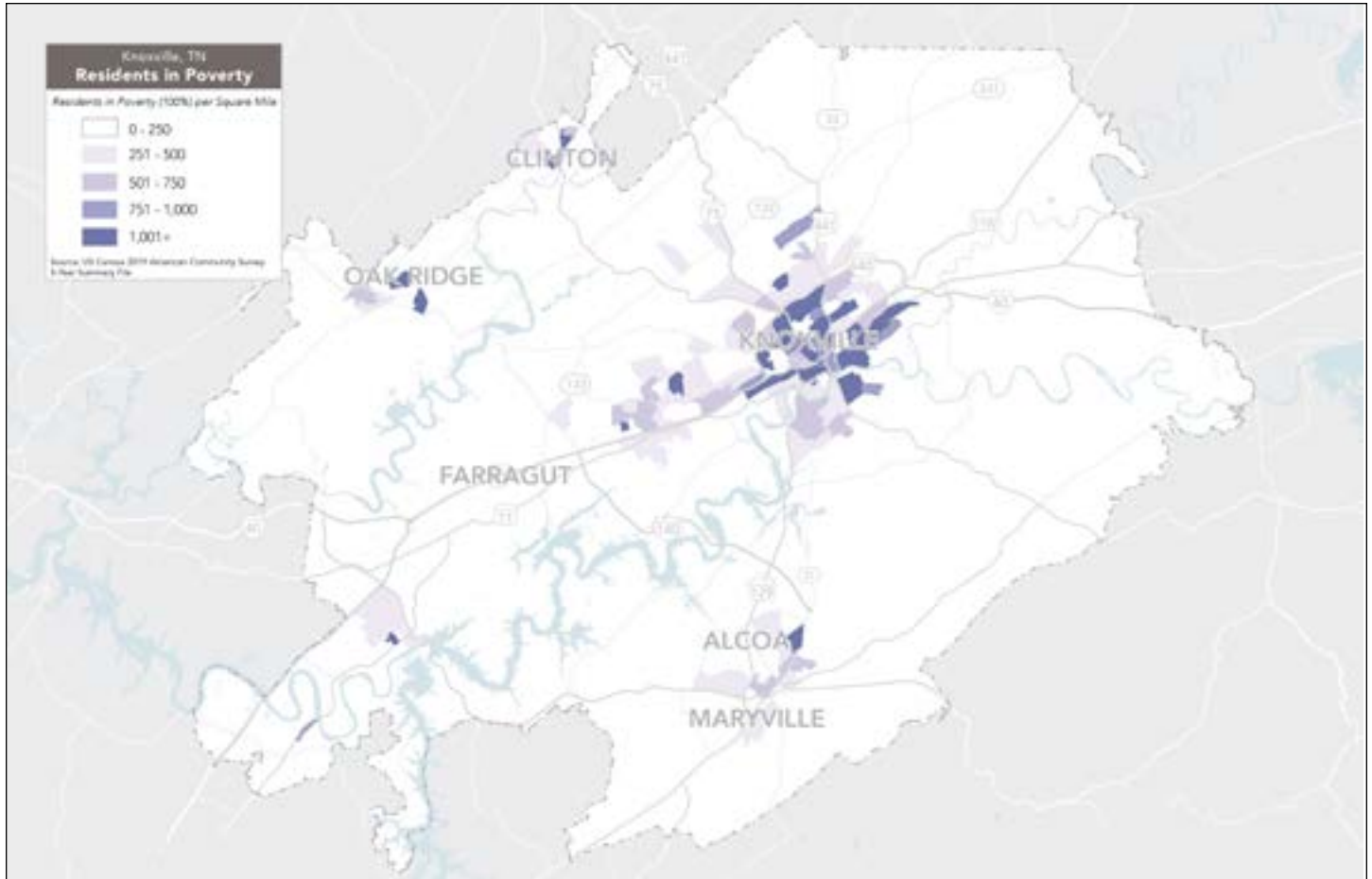
The mix of uses along a corridor affects how much ridership transit can achieve, relative to cost. This is because an area with a mix of housing, retail,

services and jobs tends to generate more even demand for transit in both directions, throughout the day. Transit serving purely residential neighborhoods tends to be used in mostly one direction and mostly during rush hours—as residents leave in the morning, and return in the evening.

On a regional scale, most activity density is located in Knoxville, but there are places outside of Knoxville that stand out: Oak Ridge, Clinton, Maryville, and Alcoa. These are the places that possibly have the greatest market for transit outside of Knoxville, given their combination of residential and job density levels, though the difficulty of serving the secure job sites of Y-12 and the Oak Ridge National Lab limits that potential.



# Market & Need: Low-Income Residents



A frequently-cited goal for transit service is to provide affordable transportation for lower-income people, who are less likely to own cars. Understanding where low-income populations are located is also a key civil rights requirement.

Transit can be an attractive option for low-income people due to its low price. In medium to high density areas with walkable street networks, this can produce high ridership. However, if transit doesn't actually allow people to make the trips they need in a reasonable amount of time, even lower-income people will not use it. They will seek other options, such as buying a used car or getting a ride from a friend, even if it causes financial or social stress.

Regionally, the areas with higher concentrations of low-income residents correspond to higher overall residential density. For example, the areas of Oak Ridge around Rutgers Avenue show up as having

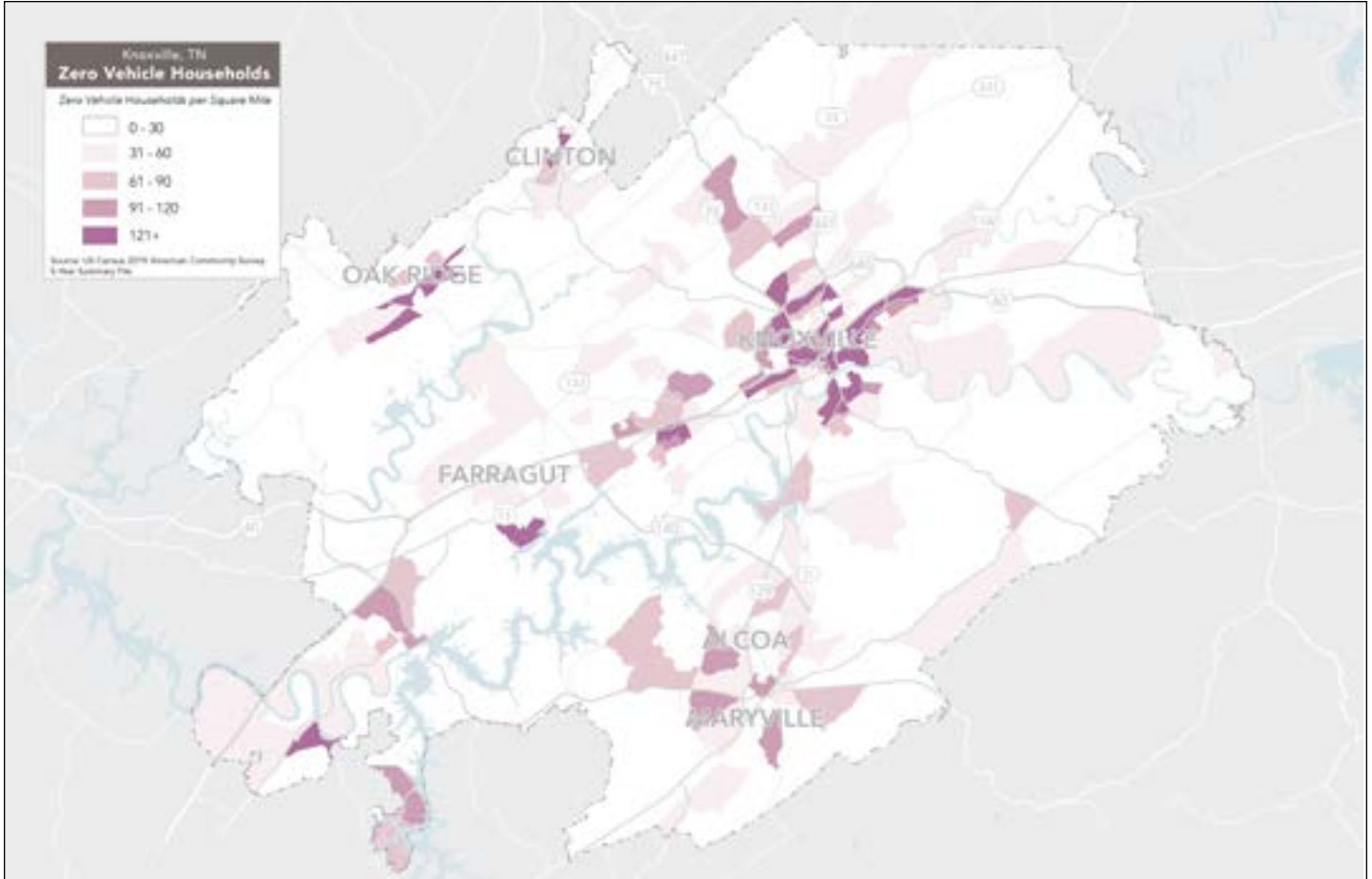
relatively high poverty density, but are also simply the highest density areas of Oak Ridge, generally.

Similarly in Clinton, the highest density neighborhoods near downtown tend to have the highest poverty density. In addition the apartments along Longmire Road appear to have relatively high poverty density.

In Maryville, the highest poverty areas are north of town, near Broadway Avenue and McArthur Road.

One area that stands out is Halls Crossroads, along Maynardville Pike and Rifle Range Road. This area has relatively high poverty density for an area of only moderate to low residential density. This is likely associated with the manufactured home communities like Northridge Estates in this area. This unincorporated community adjacent to the City of Knoxville might benefit from transit connections, given this poverty density level.

# Market & Need: Households without Cars



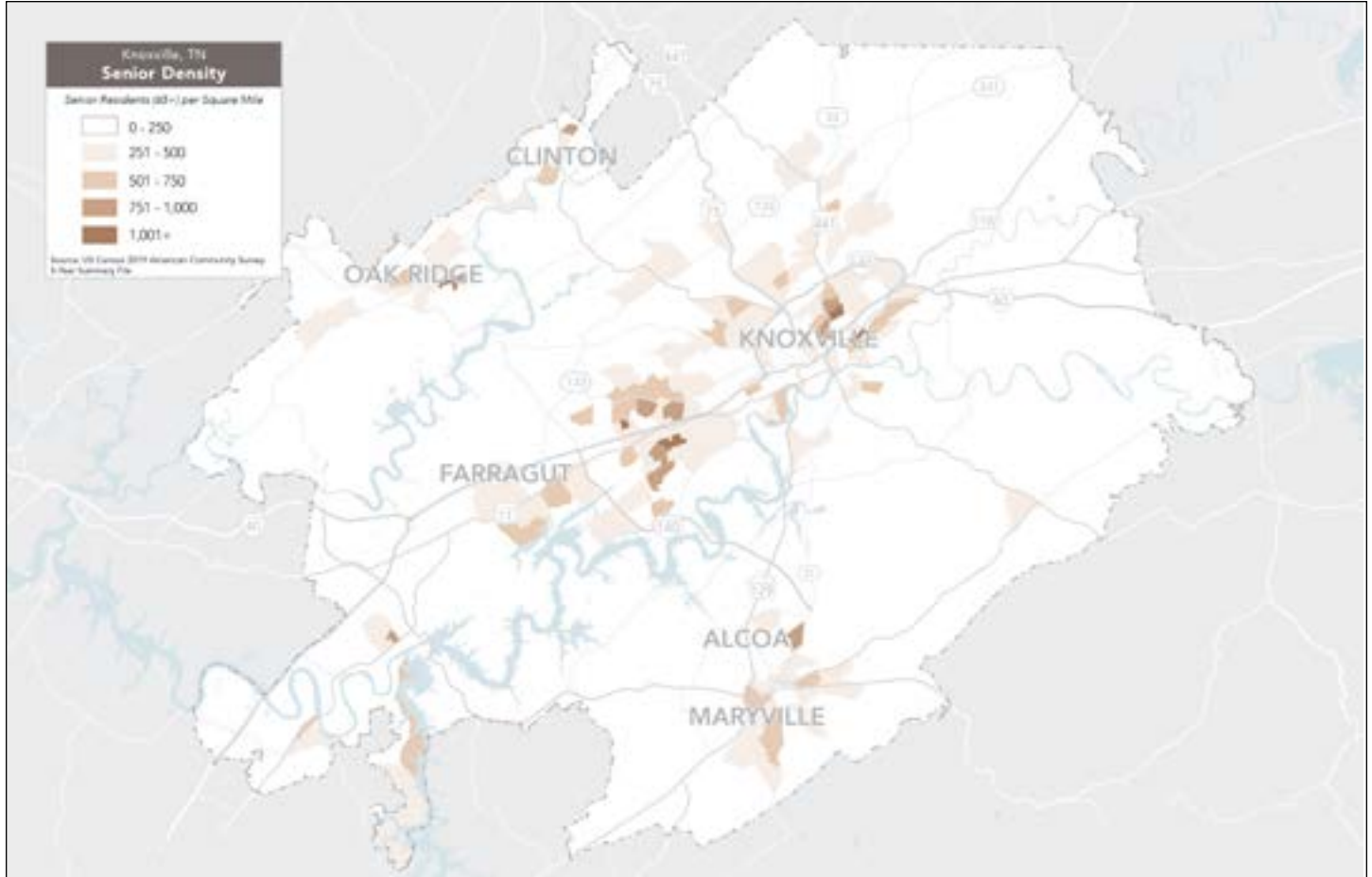
Another factor affecting transit's competitiveness and need in an area is the availability of personal cars. People in households without vehicles are not necessarily "transit-dependent" but do have a greater inclination toward transit use because they don't have a car in their driveway, always ready to go. Generally, people without vehicles have fewer options than those who do have access to personal cars. So if transit is a useful—reasonably fast, reliable, available when needed—and people can use it to reach the places they need to go, it can be a compelling option.

If transit does not present a realistic travel option, then people without cars will find other ways to reach the places they need to go, by getting rides from friends or family members, cycling, using electric scooters, walking, or using taxis or TNCs.

Alternatively, some people may not travel, thereby limiting their access to the economic, social, and other opportunities in the region.

Regionally, there are concentrations of households without vehicles in places where there are generally more people. However, there are some households without vehicles spread throughout the region.

# Need: Seniors



Seniors (persons age 65 and above) are an important constituency for transit because a major value of transit coverage is providing service for people who cannot drive, no matter where they live.

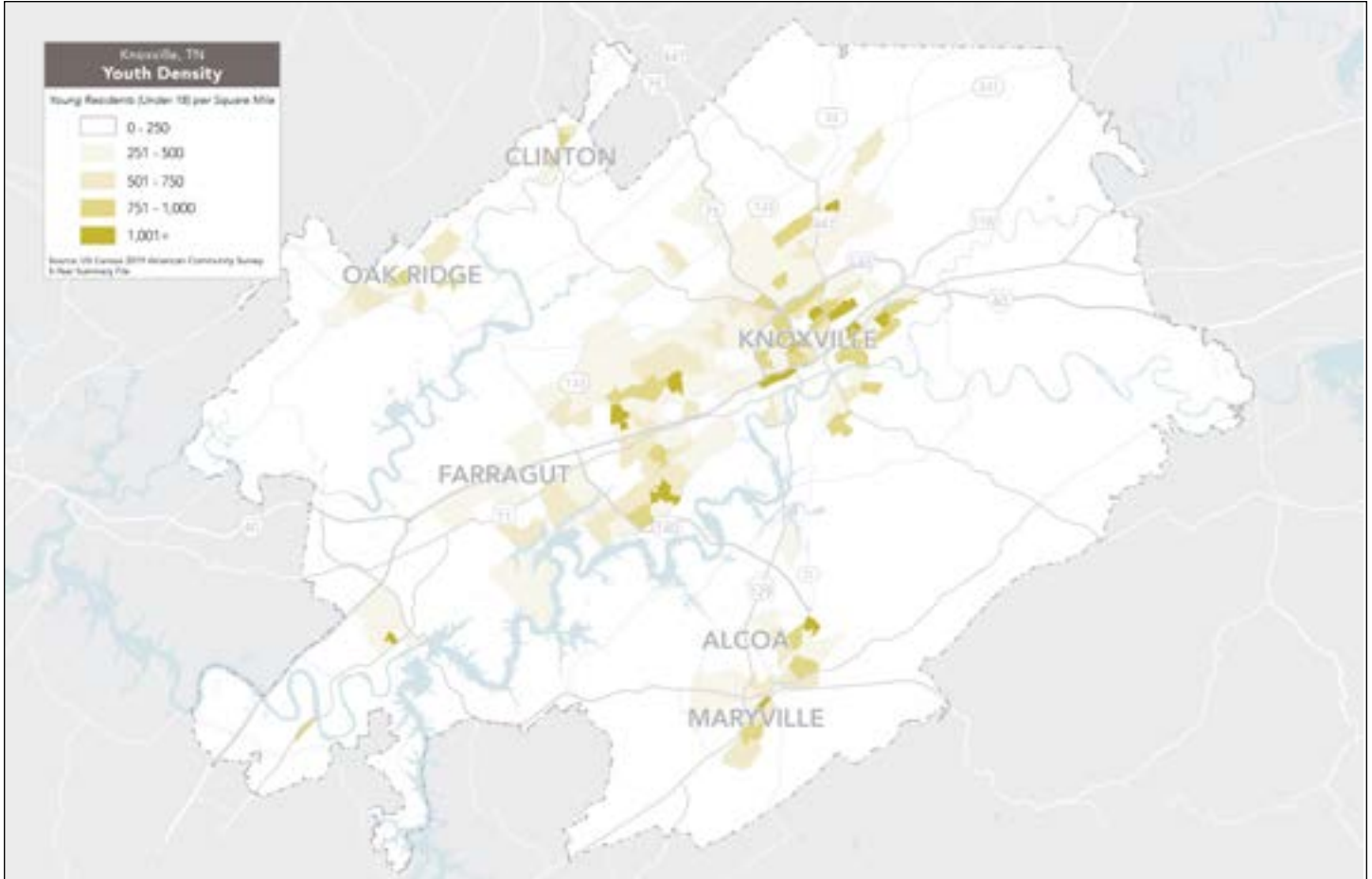
Some seniors cannot drive and may be more likely to use transit. And as a group, senior-headed households are less likely to own cars than the general population.

Seniors tend to have different preferences for transit than younger people. Seniors are more likely to be sensitive to walking distance. On average, seniors also tend to be less sensitive to long waits and slow or indirect routes, because many are retired and have relatively flexible schedules. Most riders who are employed, in school or caring for kids in school will find service with long waits and slow or indirect routes to be intolerable.

Due to these factors, transit service designed primarily to meet the needs of seniors rarely attracts high overall ridership relative to cost. Thus, the amount of focus that transit agencies place on meeting the needs of seniors should be carefully balanced with the needs and desires of the rest of the community.

At a regional scale, density of seniors is closely related to overall population density with moderate to high density of seniors in the older neighborhoods of most outlying cities, like Maryville/Alcoa. This contrasts with Knoxville, where residential density in and near downtown is high, but senior density is low. It is likely that the prevalence of University of Tennessee students within the core of Knoxville accounts for the relatively low senior density there.

# Need: Youth



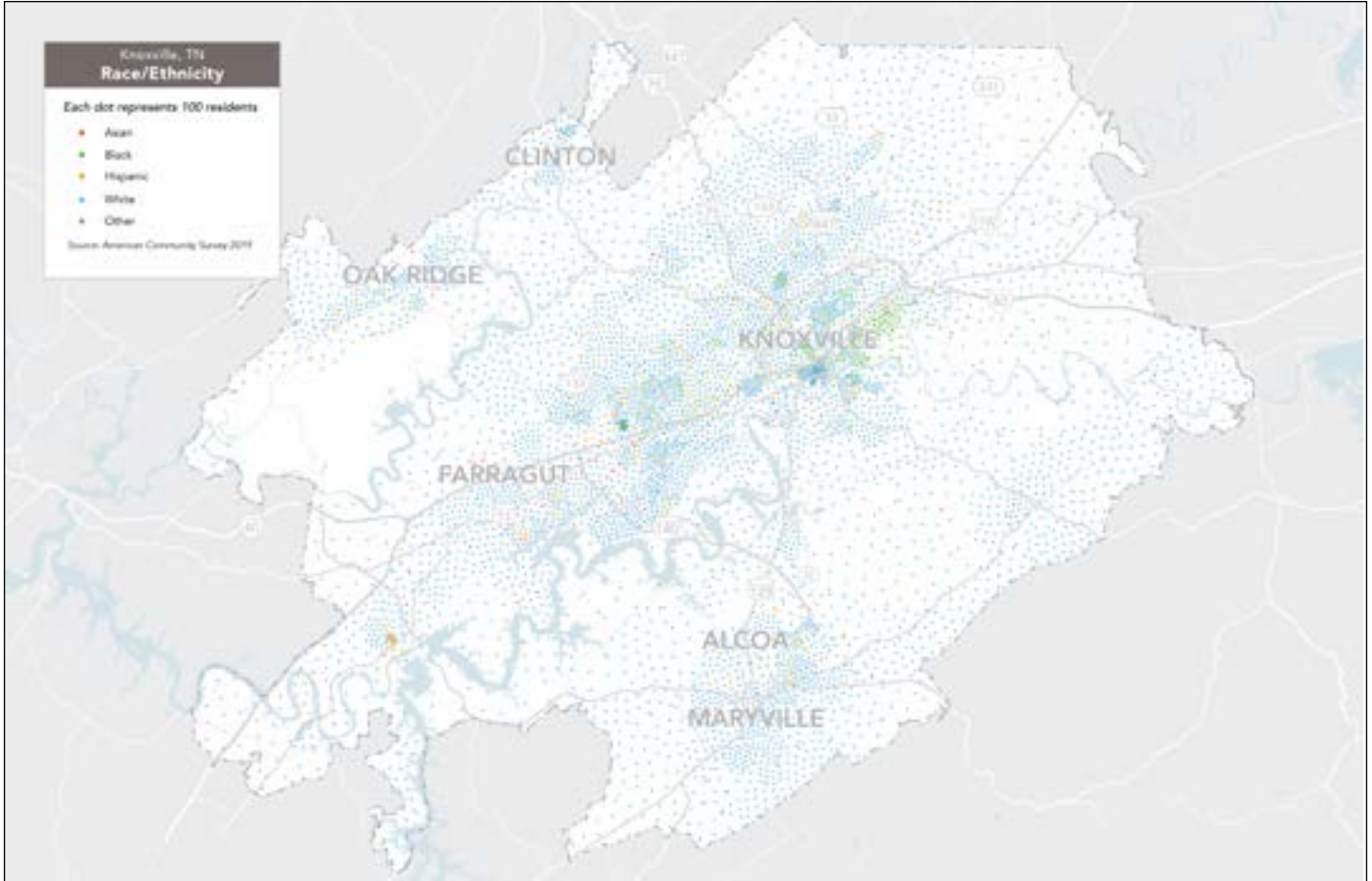
Just as transit coverage can meet the needs of seniors who cannot or choose not to drive, transit coverage can also meet the needs of children and teenagers who are too young to drive. Young people are like seniors in that they often live on a tighter budget than people of working age. For this reason, both are very sensitive to transit fares, and parents are sensitive to paying a fare for each child. However, young people and seniors are very different in their ability and willingness to walk to transit service.

Most young people can and will walk farther to reach service than seniors. Whatever effect an increase in price has on ridership among working age people, it will have an even stronger effect on ridership among young and old people. (This is why most transit agencies, along with movie theaters and other for-profit businesses, offer a discounted price for seniors and children.)

At a regional scale, density of young residents is closely related to overall population density.



# Civil Rights: People of Color



While information about people's income tells us something about their potential interest in or need for transit, information about ethnicity or race do not alone tell us how likely someone is to use transit.

However, avoiding placing disproportionate burdens on people of color, through transportation decisions, is essential to the transit planning process. Transit agencies are also required by Title VI of the Civil Rights Act of 1964 to ensure that services they provide do not discriminate on the basis of race, color or national origin.

Equity-based transit goals are often articulated in terms of improving mobility or transit access for people of color, particularly in places where the existing development patterns and transportation network contribute to disparities in access to jobs and other opportunities.

On a regional level, the map above shows the distribution of people by race and ethnicity. On a regional scale, the African-American/Black population is largely concentrated within Knoxville, though there are some areas of Oak Ridge, Clinton, and Alcoa that appear to have substantial African-American/Black populations.

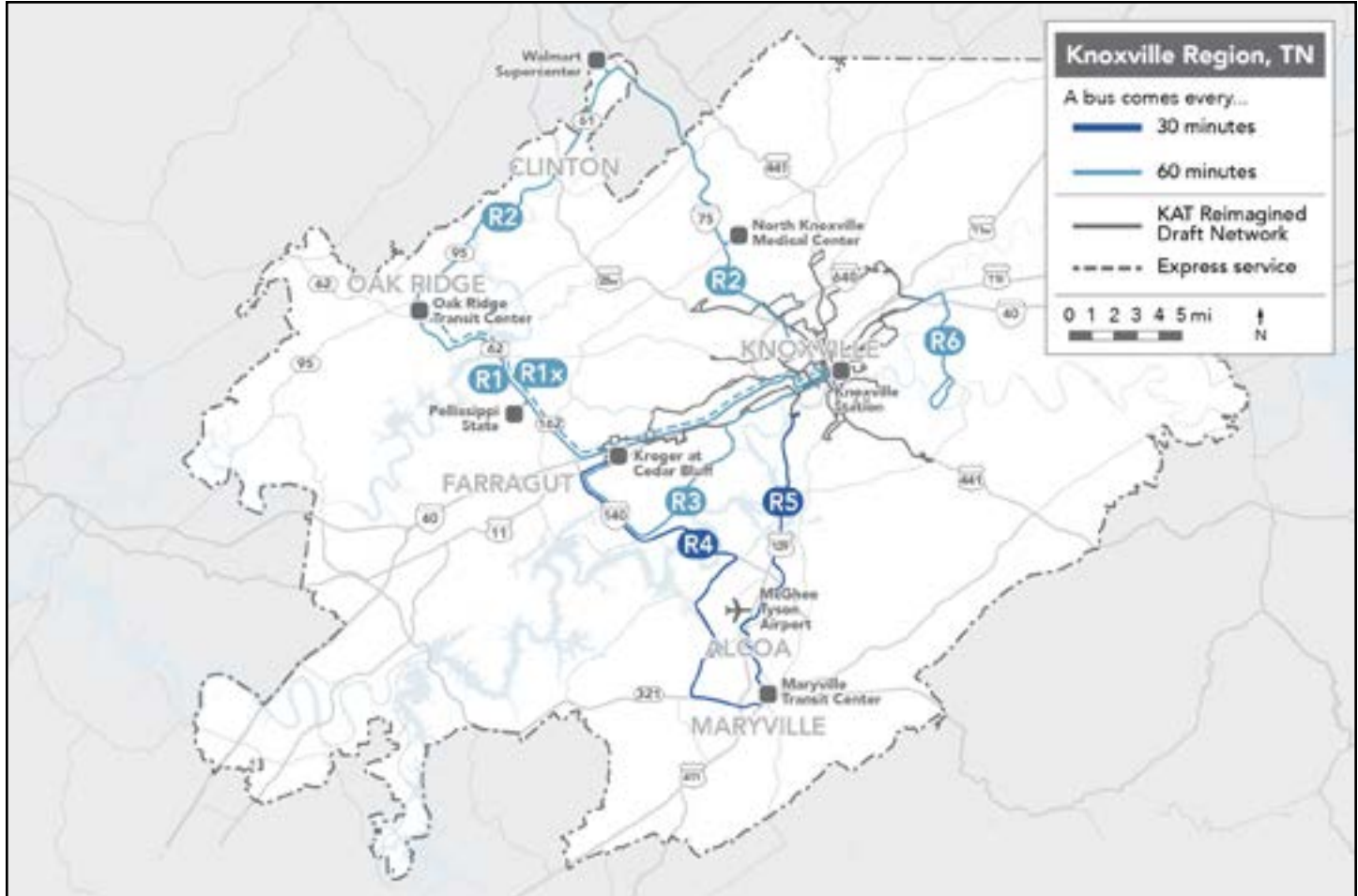
Among the outlying cities, Oak Ridge appears to have the highest racial and ethnic diversity with some indications of Asian and Hispanic populations scattered around the city. Lenoir City also appears to have a concentration of Hispanic/Latino residents.

# 3

## Interurban Service

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# Interurban Service



Following development patterns in the region, particularly density, the study team has drawn several interurban routes. The purpose of these routes is to connect the densest nodes to each other along the busiest corridors. This includes connecting, Knoxville, West Knox County, Farragut, Alcoa, Maryville, Oak Ridge, and Clinton along with other key destinations in between. To make sure that the region is interconnected, two new transit centers are recommended: one in Maryville and one in Oak Ridge. These are described in more detail on page 28 and page 38, respectively.

Each route described in this chapter has a cost associated with it. These are approximate annual costs that were calculating with KAT's and ETHRA's cost per service hour in FY2023. Each bus is assumed to run 16 hours a day, everyday. Providing more or less hours of service will increase or decrease the overall

cost of this service. The map on top shows all these interurban routes together, and the following pages describe each one in more detail.

[\*\*Route R1:\*\* Oak Ridge–Knoxville via West Knox County](#)

[\*\*Route R1x:\*\* Oak Ridge–Knoxville Express](#)

[\*\*Route R2:\*\* Oak Ridge–Clinton–Knoxville](#)

[\*\*Route R3:\*\* West Knox County–Knoxville via Northshore](#)

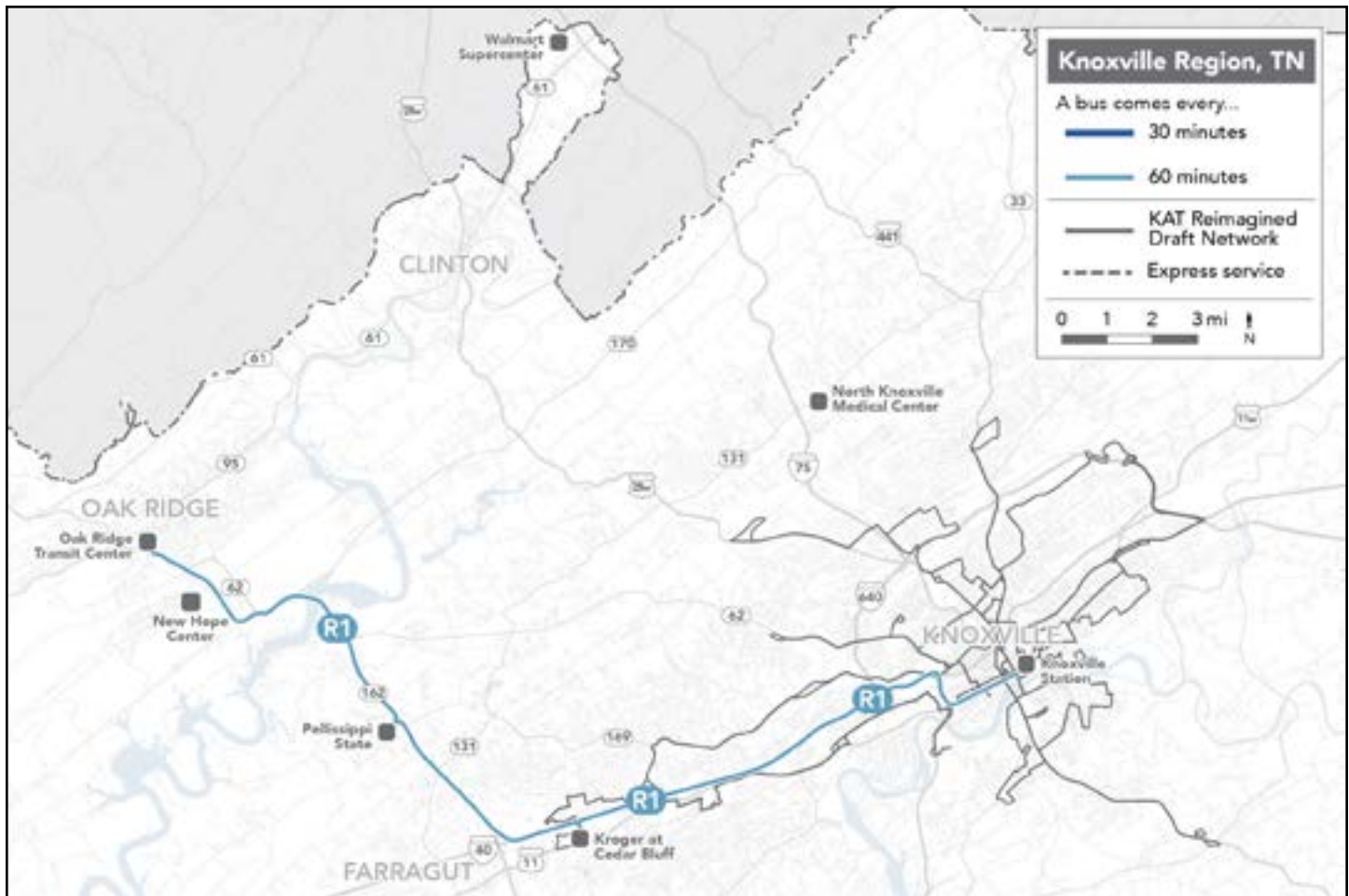
[\*\*Route R4:\*\* Maryville/Alcoa–West Knox County](#)

[\*\*Route R5:\*\* Maryville/Alcoa–Knoxville](#)

[\*\*Route R6:\*\* Forks of the River](#)

# Route R1

## Oak Ridge-Knoxville via West Knox County



Oak Ridge and West Knox County are two of the densest nodes in the region. Route R1 connects Oak Ridge using Highway 162 (Pellissippi Parkway) and goes to Knoxville using Interstate 40. Along the way, it stops at Pellissippi State Community College. As it approaches Knoxville, Route R1 gets off of Interstate 40 and uses Cumberland Avenue to go through Fort Sanders and Downtown before terminating at Knoxville Station.

In West Knox County, Route R1 gets off the highway and goes around the Kroger on Cedar Bluff Road. Here, riders can connect to KAT Route 16. At the time that this report was written, the KAT Reimagined project was underway. That project's Draft Network intends to keep a route here, in place of Route 16.

### Frequency

Every 60 minutes

### Residents within 0.25mi

25,900

### Jobs within 0.25mi

46,500

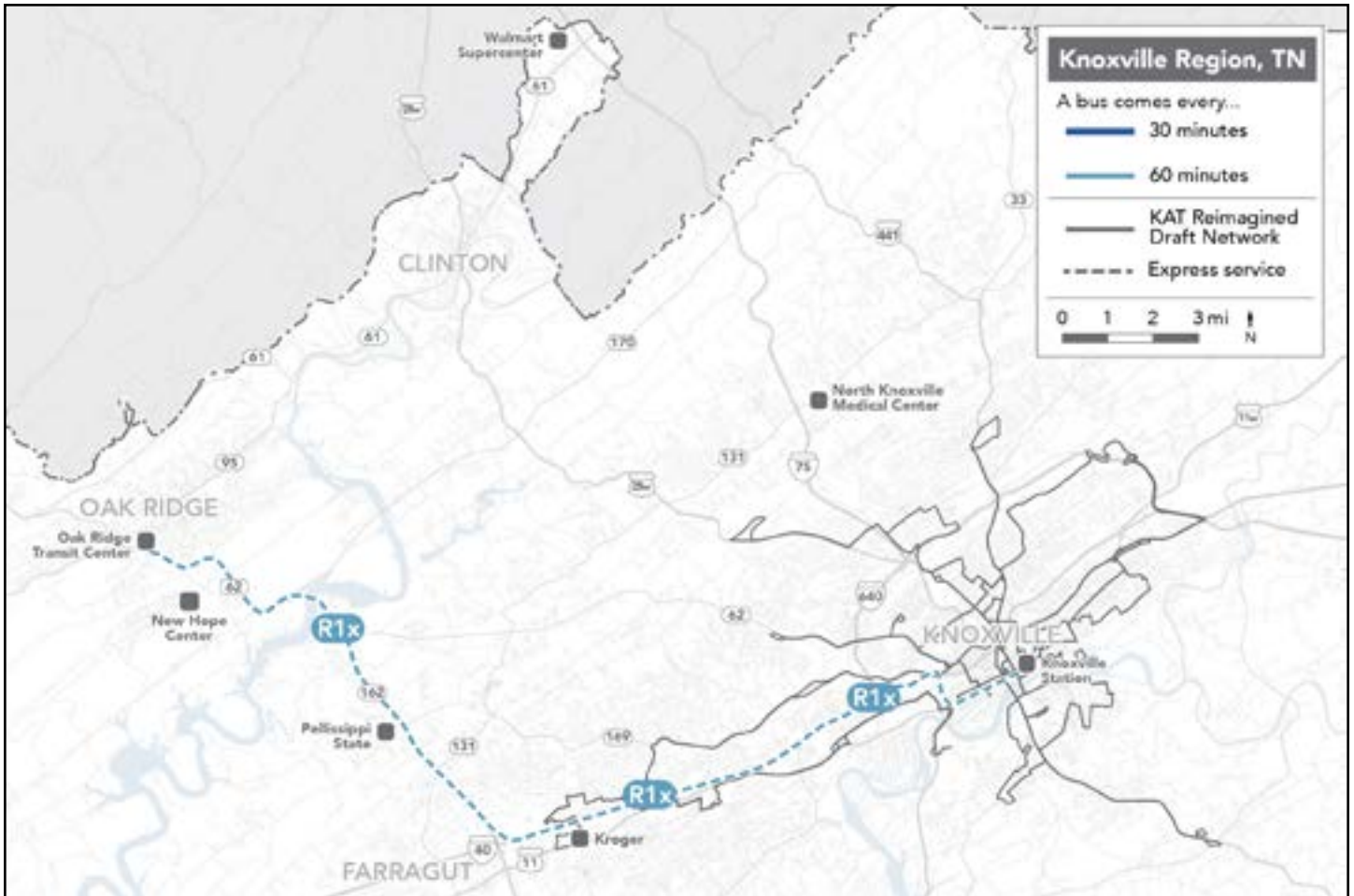
### Cost

Three buses

\$1,491,000 / year

# Route R1x

## Oak Ridge-Knoxville Express



While Route R1 has a few stops along the way, Route R1x connects Oak Ridge and Knoxville without stopping. Since it is an express route, it is faster and therefore costs less to run. However, a route like this will only be useful to people traveling between Oak Ridge and Knoxville as no other destinations are served.

### Frequency

Every 60 minutes

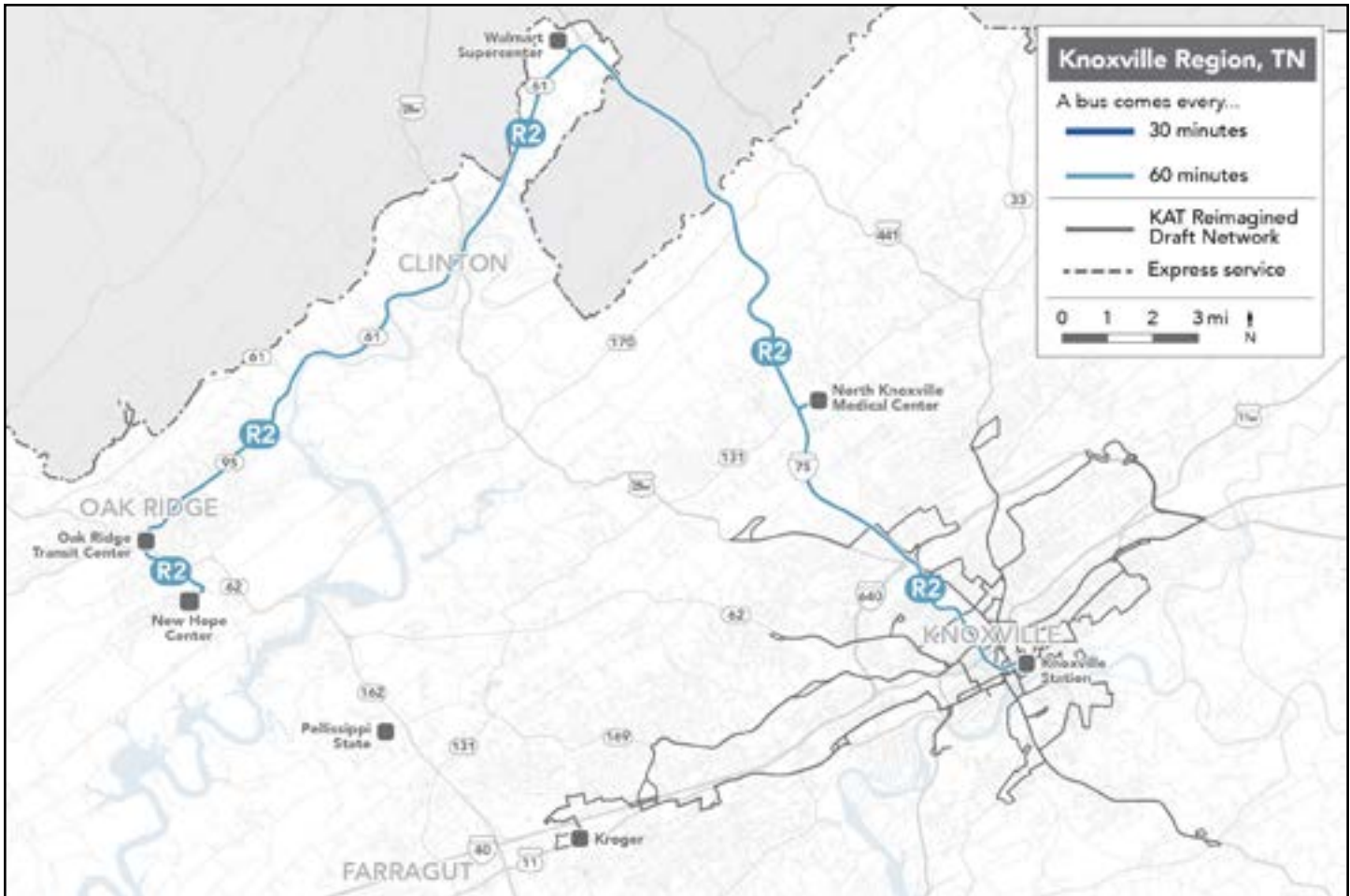
### Cost

Two buses  
\$994,000 / year



# Route R2

## Oak Ridge–Clinton–Knoxville



Route R2 also connects Oak Ridge to Knoxville, but it uses Highway 61 through Clinton and Interstate 75. While this route is longer than Route R1, its purpose is not only to serve people traveling from one end to the other, but also to serve many destinations in between. In particular, this route serves Clinton, the Walmart Supercenter by I-75, and the North Knoxville Medical Center.

In Oak Ridge, Route R2 terminates at the New Hope Center (Y-12 History Center). To see a zoomed in map of the service in Oak Ridge, see page 38. On the other end, this route terminates at Knoxville Station where riders can connect to most routes of the KAT bus network.

### Frequency

Every 60 minutes

### Residents within 0.25mi

20,900

### Jobs within 0.25mi

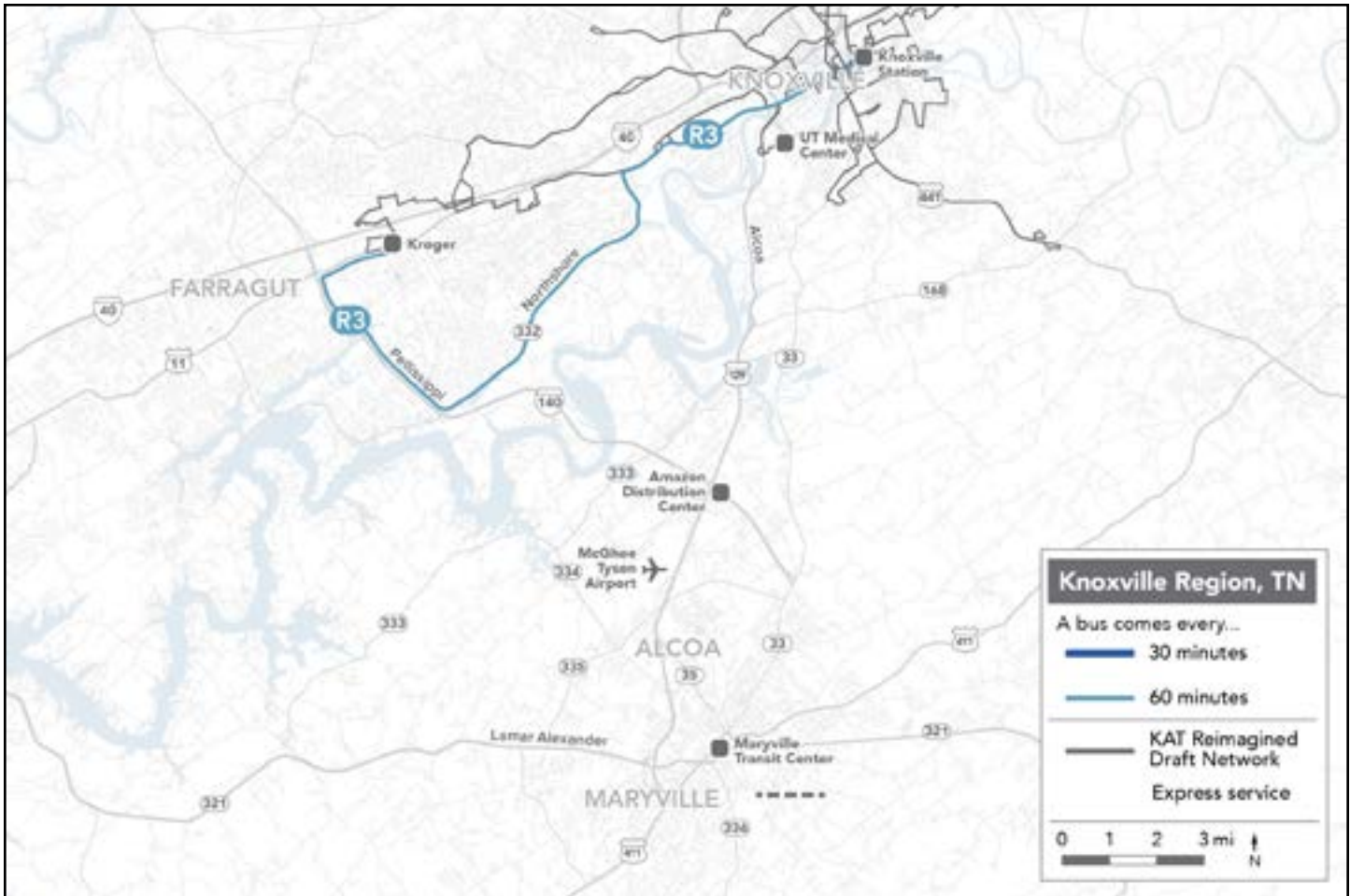
29,600

### Cost

Four buses  
\$1,988,000 / year

# Route R3

## West Knox County–Knoxville via Northshore



The KAT bus network has service from the Kroger on Cedar Bluff Road to Downtown Knoxville. Route R3 provides this connection, but it uses Pellissippi Parkway and South Northshore Drive in West Knox County and uses Northshore Drive to get to Knoxville.

As shown on page 10, there is quite a bit of residential density along Northshore Drive. Route R3 provides new service to this area that KAT currently doesn't provide.

### Frequency

Every 60 minutes

### Residents within 0.25mi

20,400

### Jobs within 0.25mi

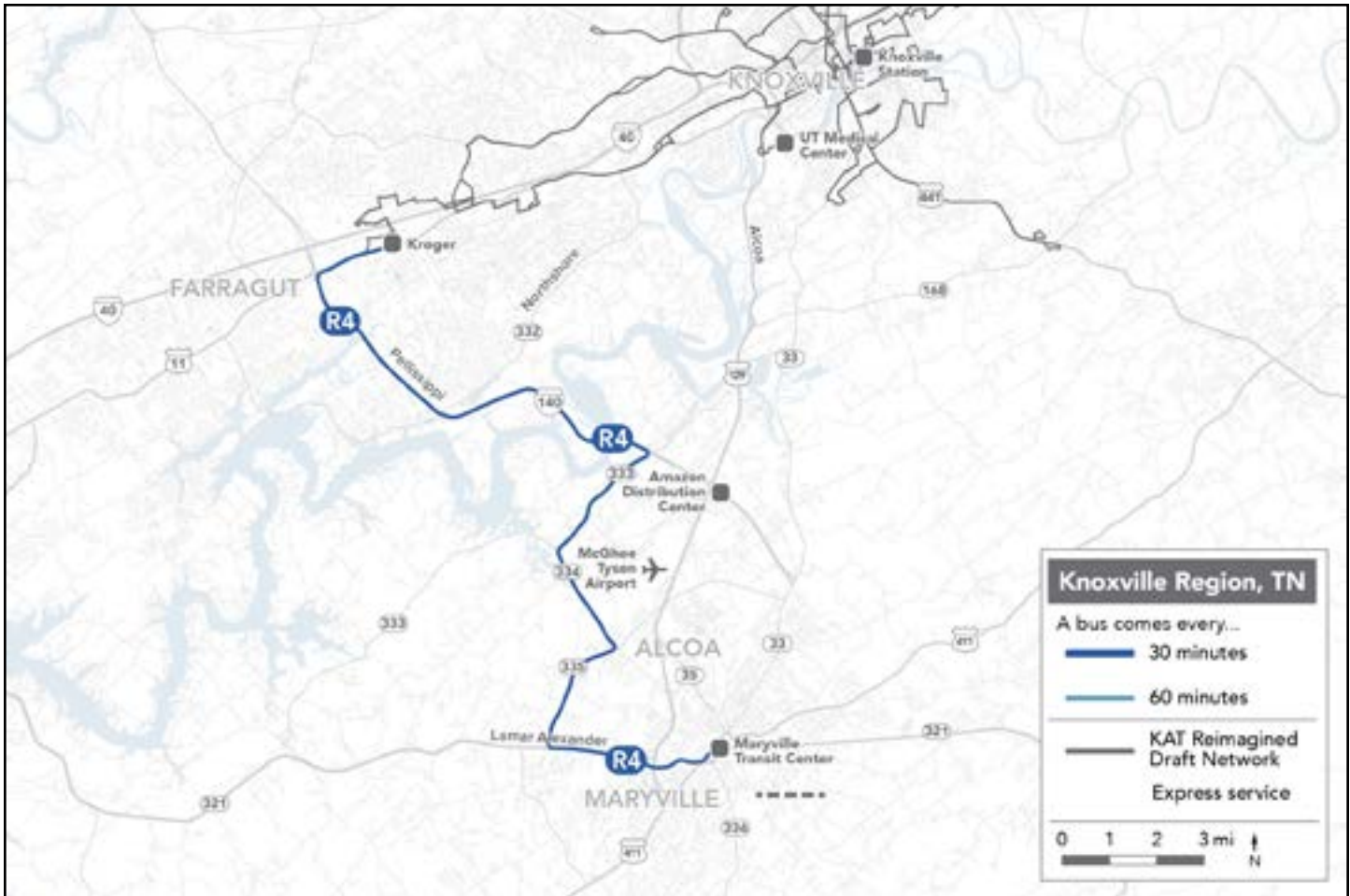
32,800

### Cost

Three buses  
\$1,491,000 / year

# Route R4

## West Knox County–Maryville/Alcoa



Another node that this study looked at is the Alcoa and Maryville Area. Route R4 connects West Knox County to Maryville passing through Alcoa. Leaving the Kroger on Cedar Bluff Road, R4 travels on I-140 (Pellissippi Parkway).

From there, it travels on lower density territory in Alcoa, on its way to Maryville. It travels on Topside Road, Louisville Road, Hunt Road, and Old Glory Road. Although the main purpose of this route is to connect West Knox County to Maryville, passing through these streets provides more coverage in Alcoa. And finally it uses West Lamar Alexander Parkway to reach the Maryville Transit Center.

### Frequency

Every 30 minutes

### Residents within 0.25mi

11,600

### Jobs within 0.25mi

12,300

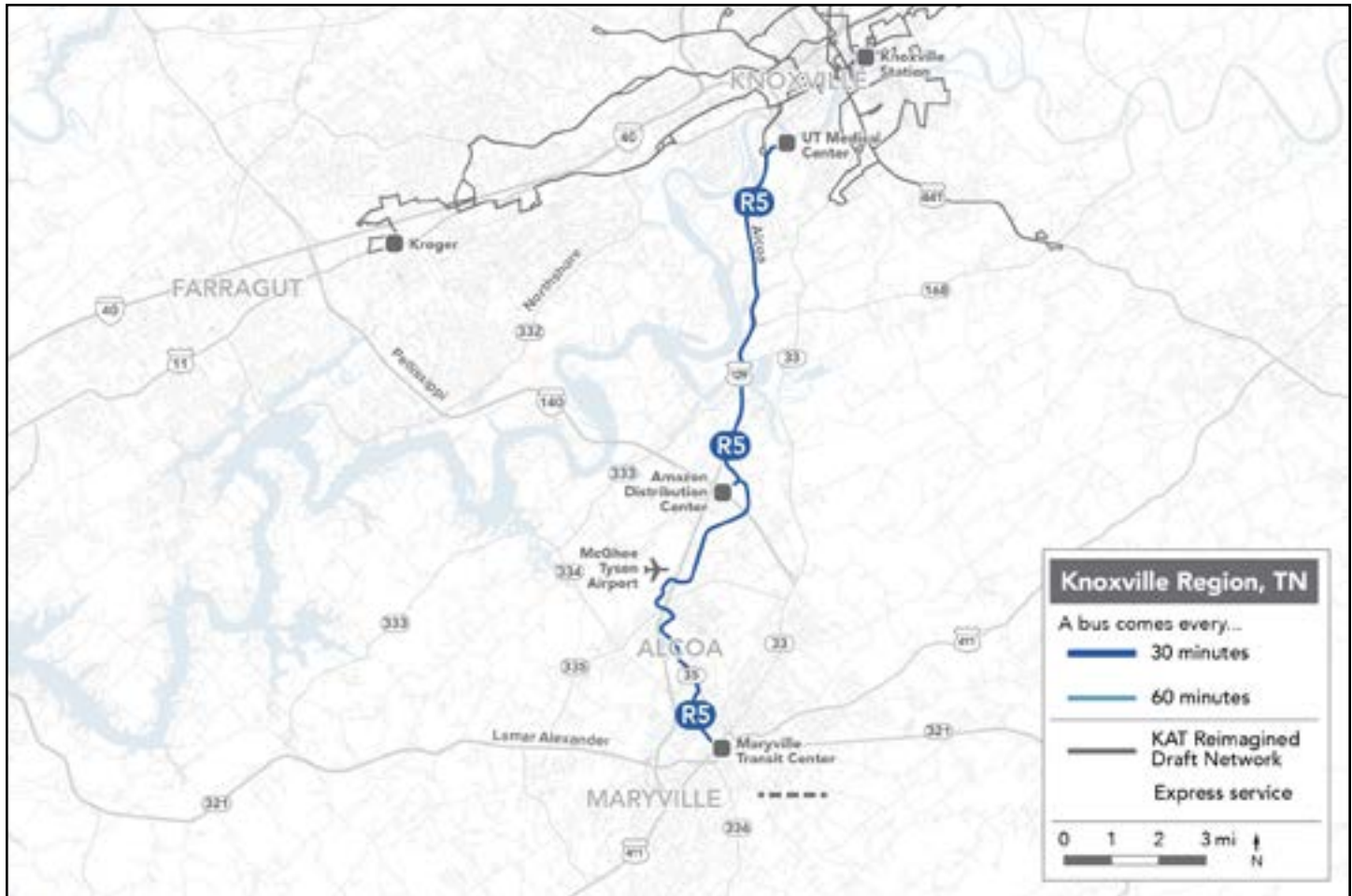
### Cost

Five buses  
\$2,485,000 / year



# Route R5

## Maryville/Alcoa–Knoxville



Route R5 connects Maryville to Knoxville passing by the Airport. There is a lot of interest in the region to provide public transportation to the airport and this route does that.

Leaving Maryville/Alcoa, Route R5 uses Caldenwood Street, North Hall Road, and Tyson Boulevard. North of the Airport, it uses the new Alcoa Highway to reach the Amazon Distribution Center where there are many new jobs. Then, it continues on Alcoa Highway to terminate at the University of Tennessee Medical Center. Here, riders can connect to KAT Route 42 that goes to Knoxville Station. R5 is recommended to run every 30 minutes like Route 42 so that the buses can meet at the same time and riders can easily transfer from one route to the other.

### Frequency

Every 30 minutes

### Residents within 0.25mi

6,700

### Jobs within 0.25mi

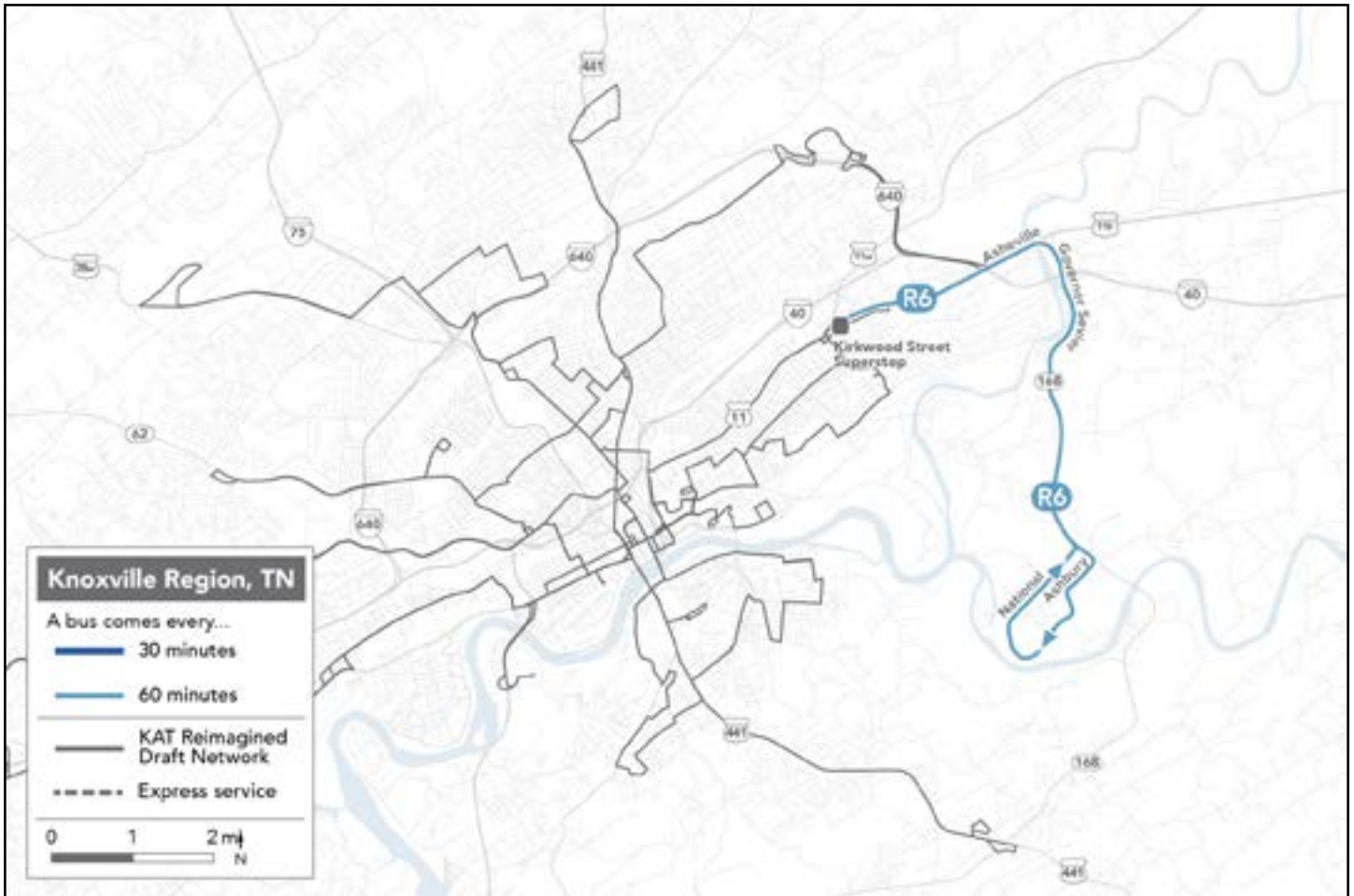
7,600

### Cost

Four buses  
\$1,988,000 / year

# Route R6

## Forks of the River



An important employment node in the region is the area of Forks of the River. Route R6 leaves the Kirkwood Street Superstop and runs along Asheville Highway and John Sevier Highway to get to Forks of the River. Workers at Forks of the River have specific shift schedules. Route R6 is recommended to run hourly, but the specific times that it runs should be coordinated with shifts to maximize its usefulness.

The Kirkwood Street Superstop is an important transfer point in the current KAT bus network where riders can connect to routes including Route 31 that uses Magnolia Avenue to get to Knoxville Station. At the time that this report was written, the KAT Reimagined project was underway. That project's Draft Network intends to keep service to the Kirkwood Street Superstop.

### Frequency

Every 60 minutes

### Residents within 0.25mi

1,600

### Jobs within 0.25mi

1,500

### Cost

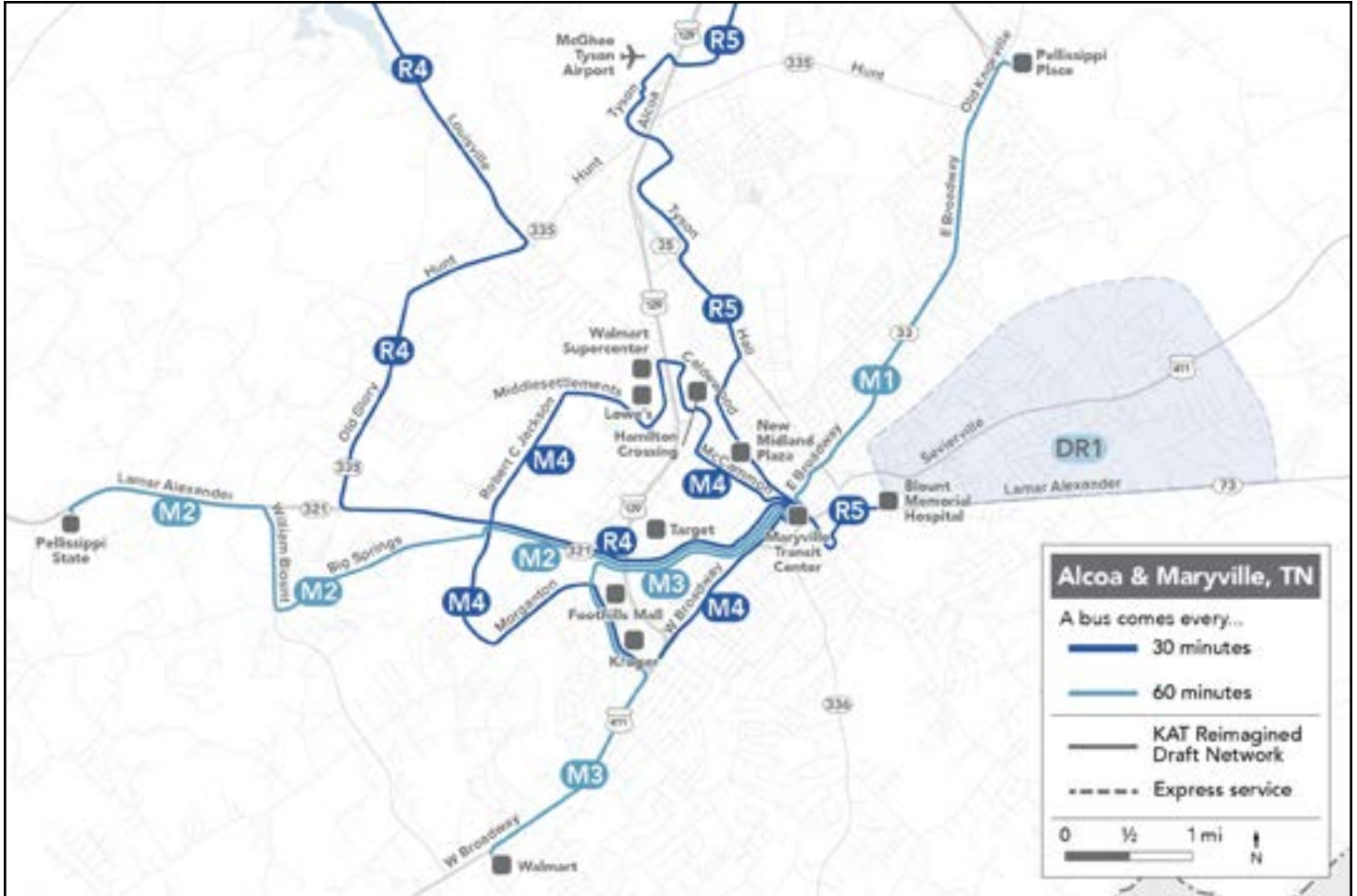
Three buses  
\$966,000 / year

# 4

## Alcoa & Maryville Service

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# Alcoa & Maryville Service



Alcoa and Maryville form one of the densest nodes in the region. For this reason, this study includes several routes that provide service here. All of these routes together cover every strong corridor in this area. To make these routes work together as a network, it needs to be easy for riders to transfer. This can be done by placing a new transit center near the center of activity for this area. That should be somewhere in Downtown Maryville. Routes could stop on the street around the Blount County Courthouse. The three routes that come every 30 minutes (M4, R4, and R5) can be scheduled to meet at the Transit Center and wait a few minutes to allow riders to transfer between routes. Routes that run every 60 minutes can meet at the same time as the other three 30 minute routes which will allow riders to connect between all routes.

[Route M1: East Broadway Avenue](#)

[Route M2: West Lamar Alexander Parkway](#)

[Route M3: West Broadway Avenue](#)

[Route M4: Maryville Loop](#)

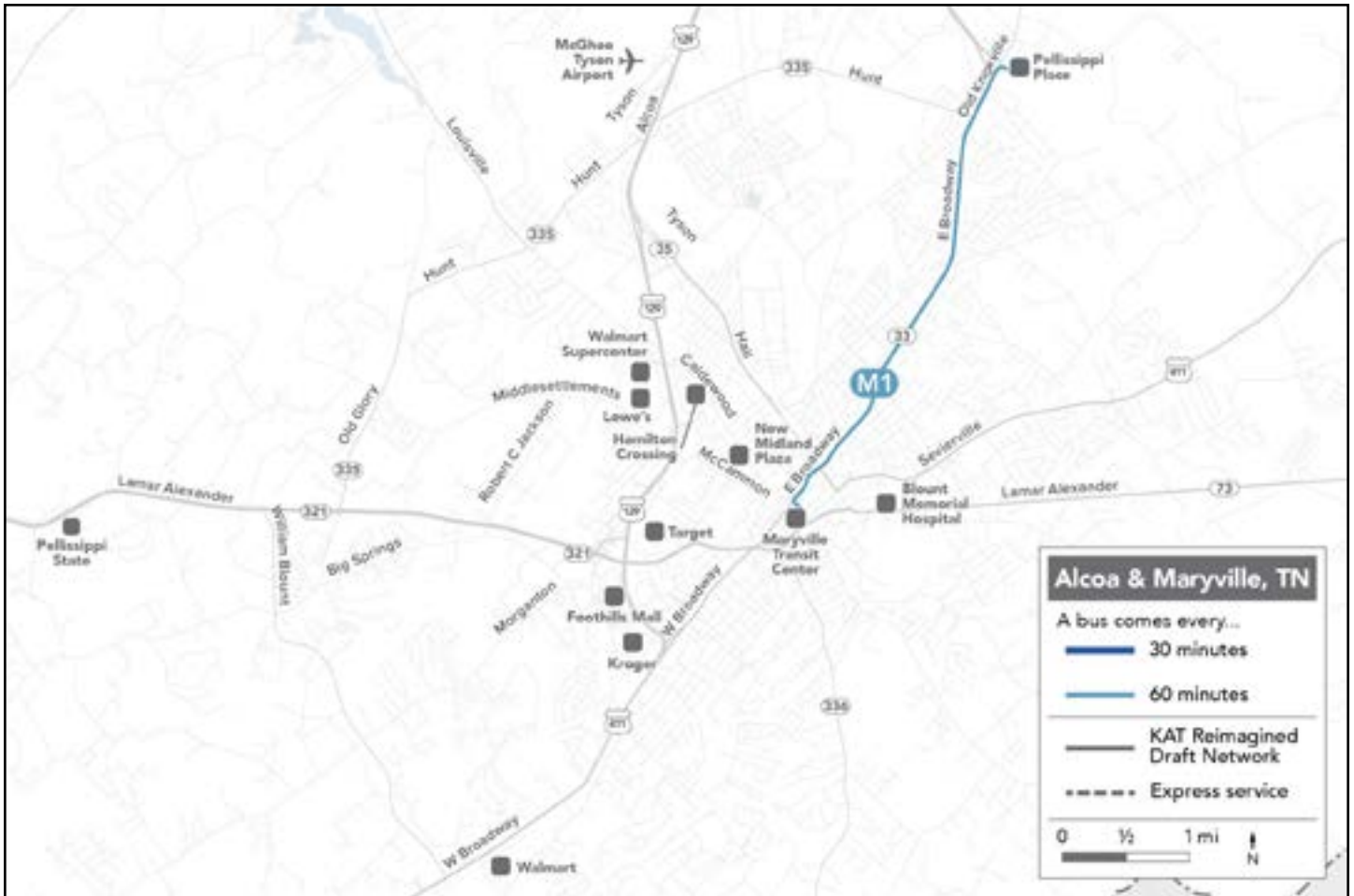
[Demand-Response DR1: Sevierville Road](#)

[Route R4: Maryville/Alcoa–West Knox County](#)

[Route R5: Maryville/Alcoa–Knoxville](#)

# Route M1

## East Broadway Avenue



A dense corridor in this area is East Broadway Avenue. Route M1 provides service along this avenue from the Maryville Transit Center to Pellissippi Place.

### Frequency

Every 60 minutes

### Residents within 0.25mi

5,000

### Jobs within 0.25mi

3,000

### Cost

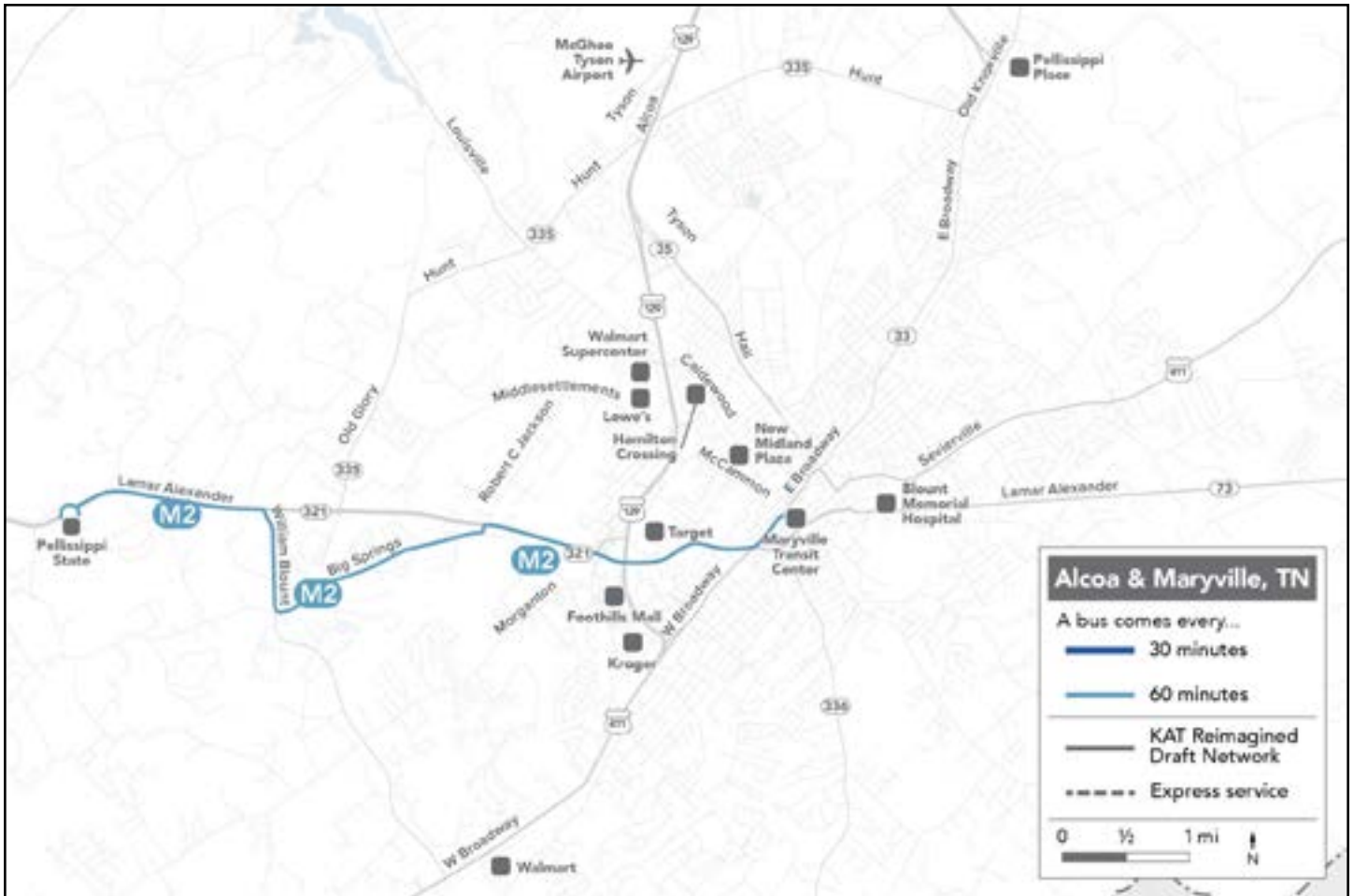
One bus

\$322,000 / year



# Route M2

## West Lamar Alexander Parkway



Route M2 provides service from the Maryville Transit Center to Blount County Campus of the Pellissippi State Community College. It uses West Lamar Alexander Parkway with a slight deviation along Big Springs Road. Since this segment of West Lamar Alexander Parkway is already served by Route R4, this deviation provides additional coverage in this area. It also covers some businesses along William Blount Drive and gets close to the new Amazon facility.

### Frequency

Every 60 minutes

### Residents within 0.25mi

4,400

### Jobs within 0.25mi

3,300

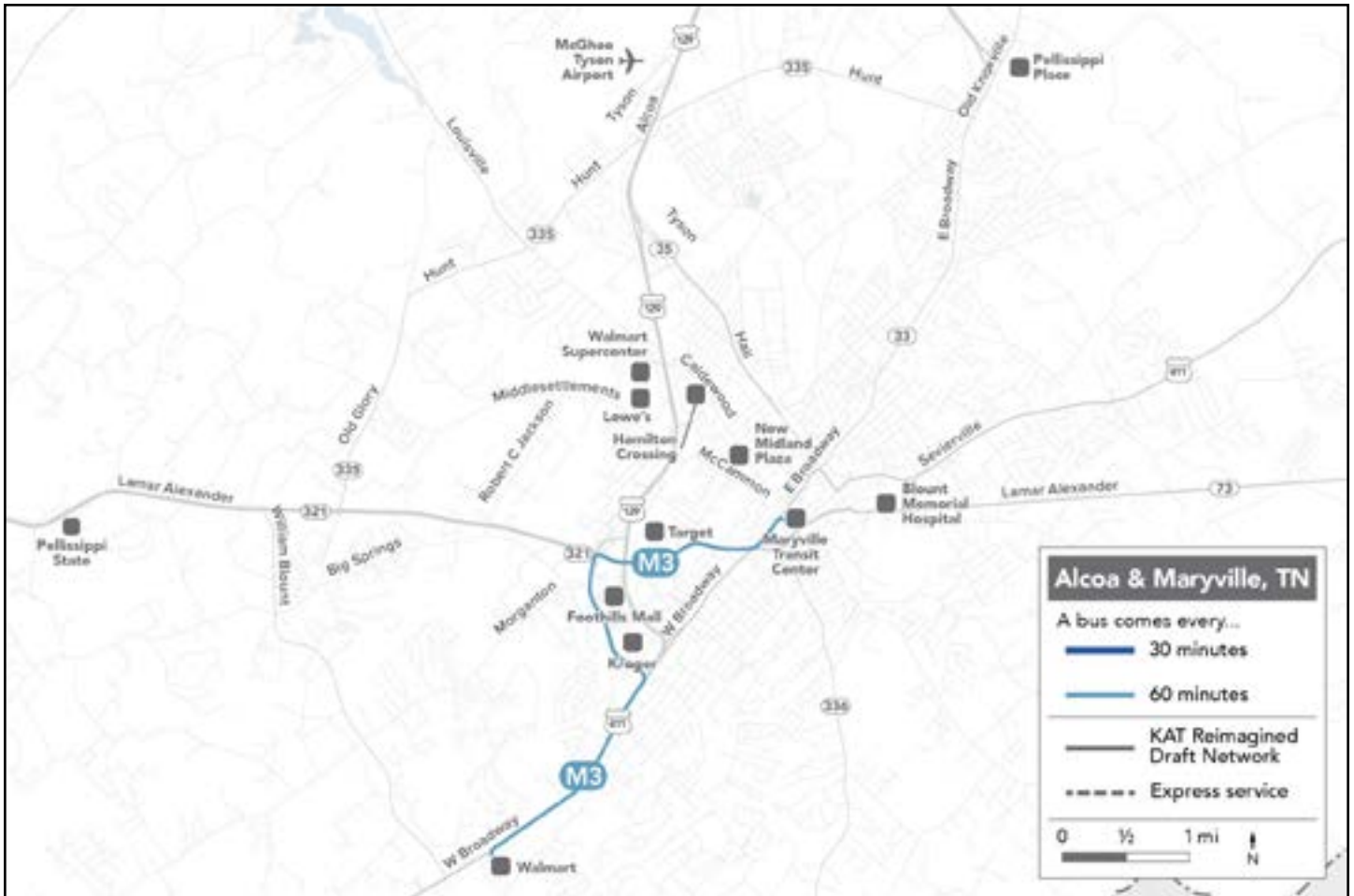
### Cost

One bus

\$322,000 / year

# Route M3

## West Broadway Avenue



Route M3 provides service from the Maryville Transit Center to the Walmart on West Broadway Avenue. It uses West Lamar Alexander Parkway passing by the target and turns left on US 129. There, it provides service to Foothills Mall and Foothills Plaza, where the Kroger is, before it turn right onto West Broadway Avenue.

### Frequency

Every 60 minutes

### Residents within 0.25mi

4,000

### Jobs within 0.25mi

3,200

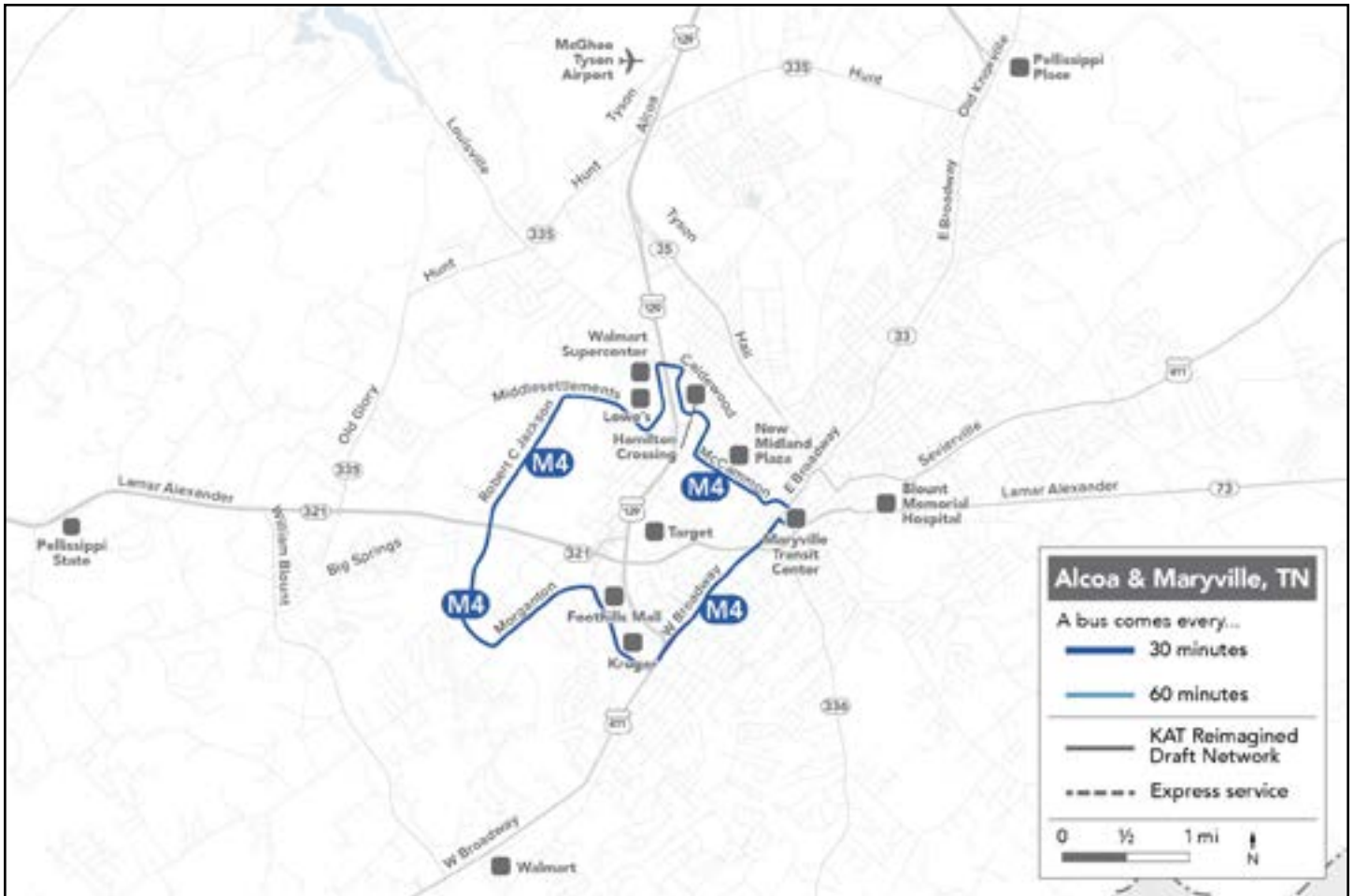
### Cost

One bus

\$322,000 / year

# Route M4

## Maryville Loop



There are many other destinations in Maryville/Alcoa that aren't along a corridor that radiates from Downtown. To cover these areas, Route M4 does a loop that includes the Maryville Transit Center. It is important to note that this loop has service in both directions. Providing one-way service often include long round trips. If the trip to your destination is short, your return trip will be long.

Route M4 leaves Downtown along McCammon Avenue and passes by Hamilton Crossing, the Walmart Supercenter, and the Lowe's. From there it makes its way to Robert C Jackson Drive, uses Morganton Road to reach the Foothills Mall, and returns to the Transit Center using West Broadway Avenue—providing service on a segment that Route R3 does not cover.

### Frequency

Every 30 minutes

### Residents within 0.25mi

6,100

### Jobs within 0.25mi

6,600

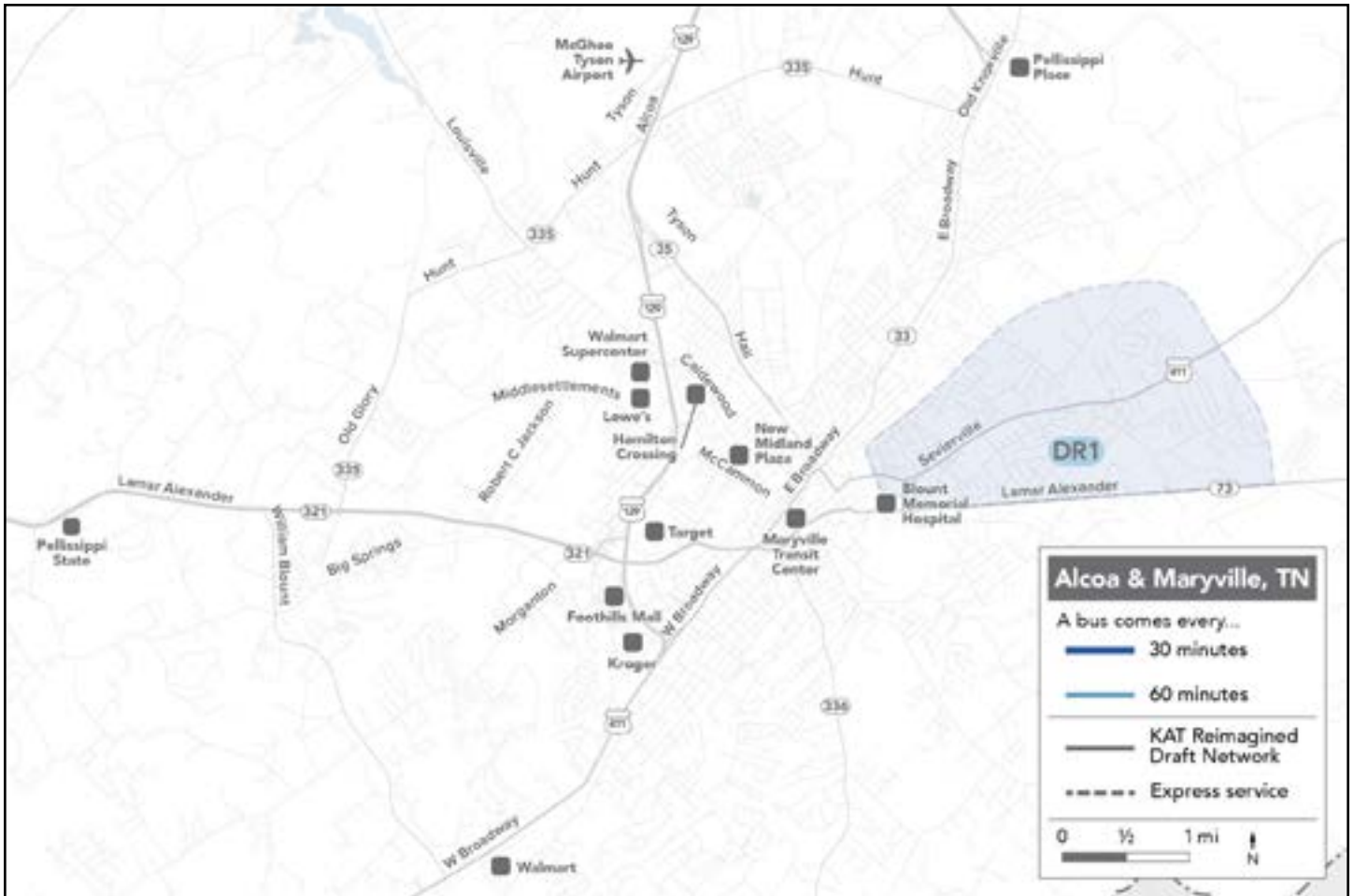
### Cost

Three buses  
\$966,000 / year



# Demand Response DR1

## Sevierville Road



The only dense area not served by the previous routes is east of Downtown along Sevierville Road. This study recommends covering that area with Demand-Response service.

Demand-response service can pick up riders where and when they request it, but is limited to only a few passengers an hour. Since this area is not too dense, it can work within this limitation. People can be picked up and dropped off anywhere within the highlighted area and the Maryville Transit Center. This allows passenger to not only move around this area but also connect to other the other routes in Maryville/Alcoa. The area covered is mostly residential with he exception of the Blount Memorial Hospital.

### Response time

30 minutes

### Residents within zone

4,800

### Jobs within zone

900

### Cost

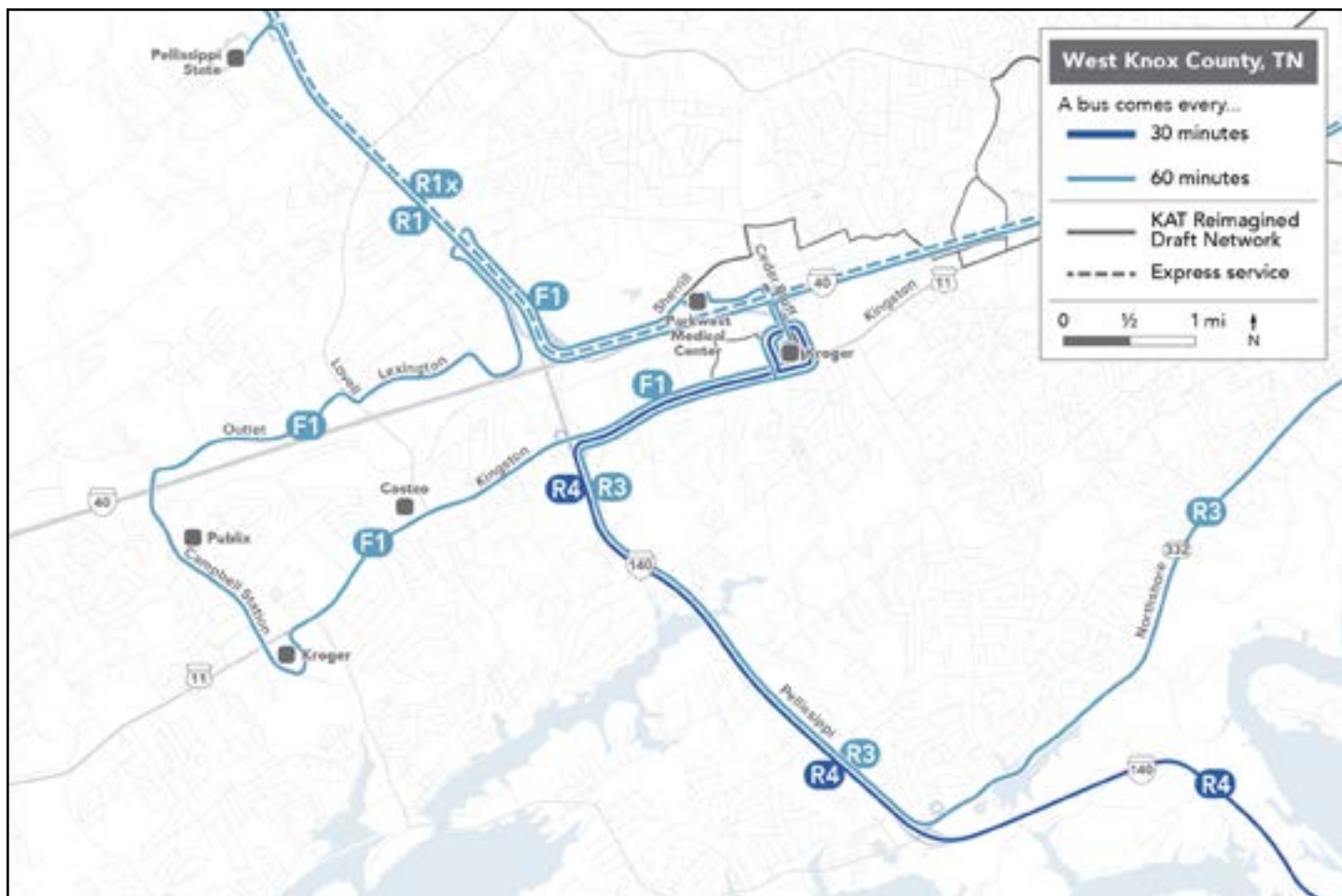
One bus  
\$322,000 / year

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## West Knox County & Farragut Service

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# West Knox County & Farragut Routes



West Knox County & Farragut form part of a dense area that radiates West of Knoxville. The KAT bus network stops just before Farragut, so these recommended routes connect to KAT to extend transit service westward. Routes F1, R3, and R4 connect to the Kroger where KAT Route 16 goes today. At the time that this report was written, the KAT Reimagined project was underway. That project's Draft Network intends to keep a route here, in place of Route 16.

This area essentially works like a transit center. Routes can be timed so that they meet at the Kroger at the same time so that riders can easily transfer between routes.

**[Route F1: Farragut Loop](#)**

**[Routes R1: Oak Ridge–Knoxville via West Knox County](#)**

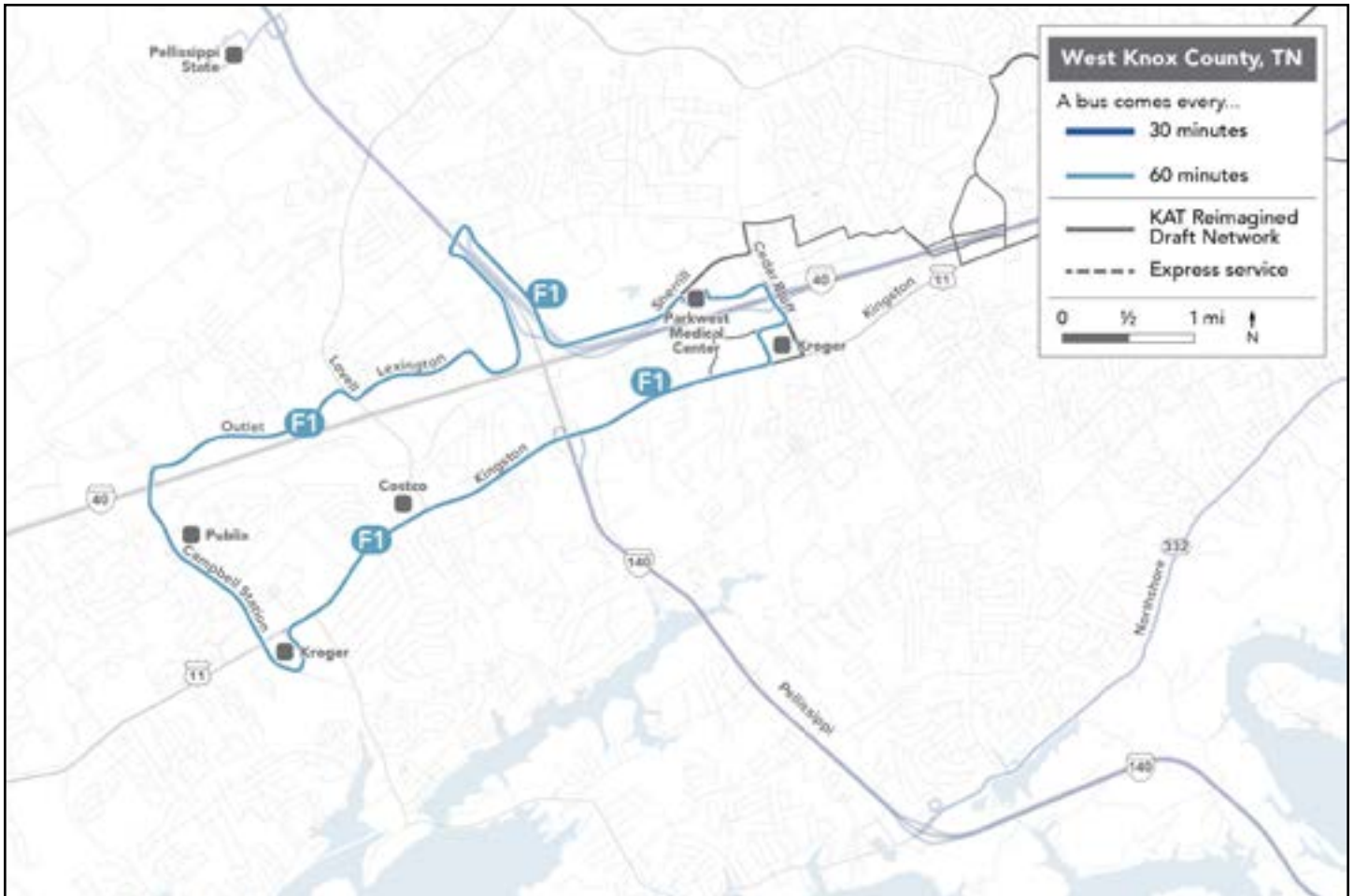
**[Route R1x: Oak Ridge–Knoxville Express](#)**

**[Route R3: West Knox County–Knoxville via Northshore](#)**

**[Route R4: Maryville/Alcoa–West Knox County](#)**

# Route F1

## Farragut Loop



Routes R3 and R4 provide some service along Kingston Pike before heading south on I-140, but they are primarily connectors to West Knox County and Maryville/Alcoa—see pages 23 and 24. Route F1 provides local service in this area by with a loop that hits most key corridors.

Route F1 goes west on Kingston Pike, north on Campbell Station Road, east on Outlet Road, Lexington Drive, and Sherrill Boulevard. Along the way it provides service to many key destinations, including the Costco, the Kroger at Brookland Center, the Publix, and the Parkwest Medical Center.

It is important to note that this loop has service in both directions. Providing one-way service often include long round trips. If the trip to your destination is short, your return trip will be long.

### Frequency

Every 60 minutes

### Residents within 0.25mi

7,700

### Jobs within 0.25mi

17,200

### Cost

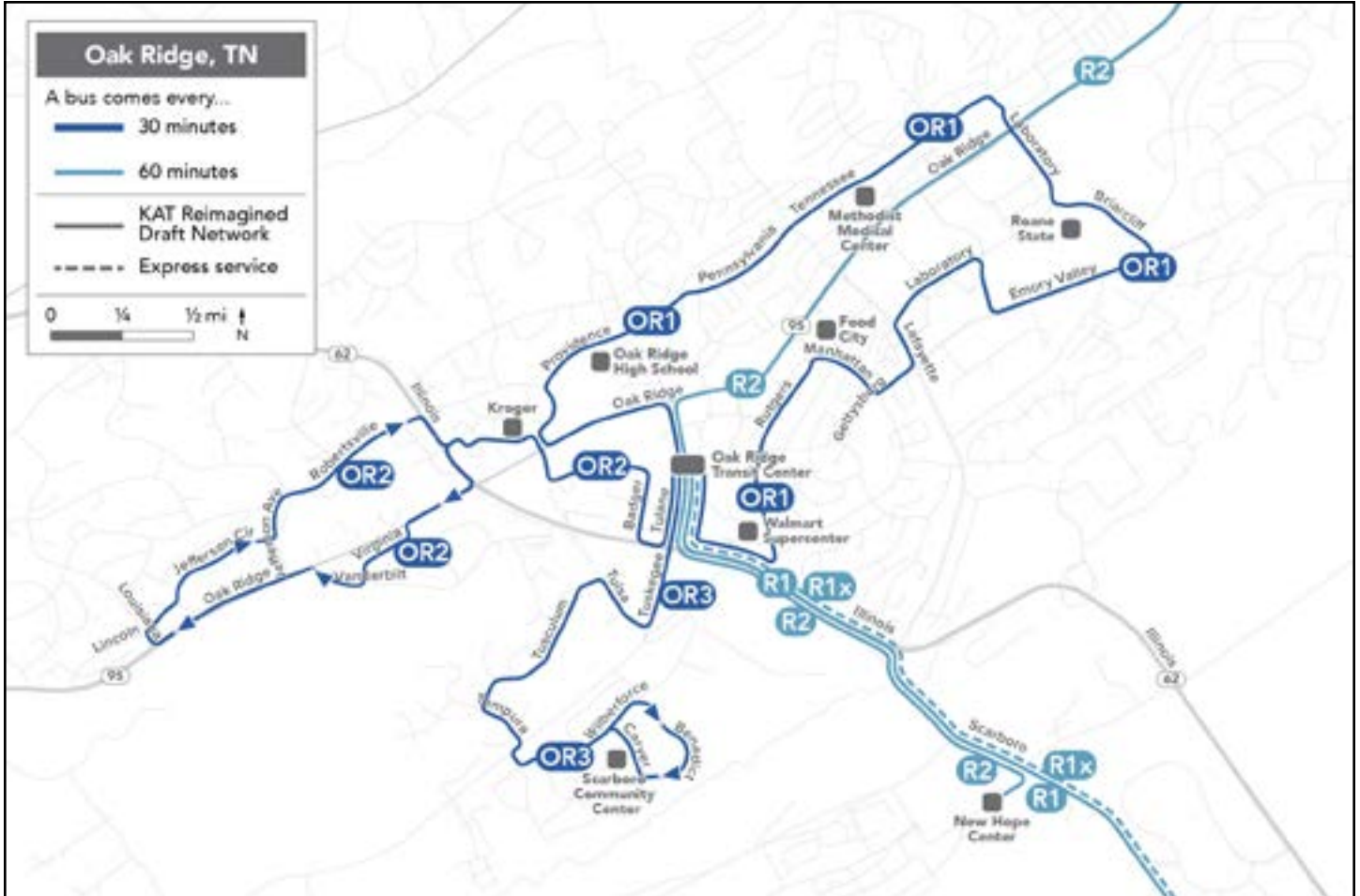
Three buses  
\$966,000 / year



**Oak Ridge  
Service**

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# Oak Ridge Service



Oak Ridge is one of the densest nodes in the region. This study recommends several routes to provide service here. All of these routes together cover most key destinations in this area. To make these routes work together as a network, it needs to be easy for riders to transfer. This can be done by placing a new transit center near the center of activity for this area. That could be along South Tulane Avenue. The transit center doesn't have to be an off-street facility. Buses could stop right on Tulane Avenue. These routes can meet at the Transit Center every 30 minutes and wait a few minutes to allow riders to transfer between routes. This would ensure that riders are not limited to moving along their route. At the transit center, they can easily transfer to any of the other routes.

[Route OR1: Oak Ridge Loop](#)

[Route OR2: Oak Ridge West](#)

[Route OR3: Scarboro](#)

[Routes R1: Oak Ridge-Knoxville via West Knox County](#)

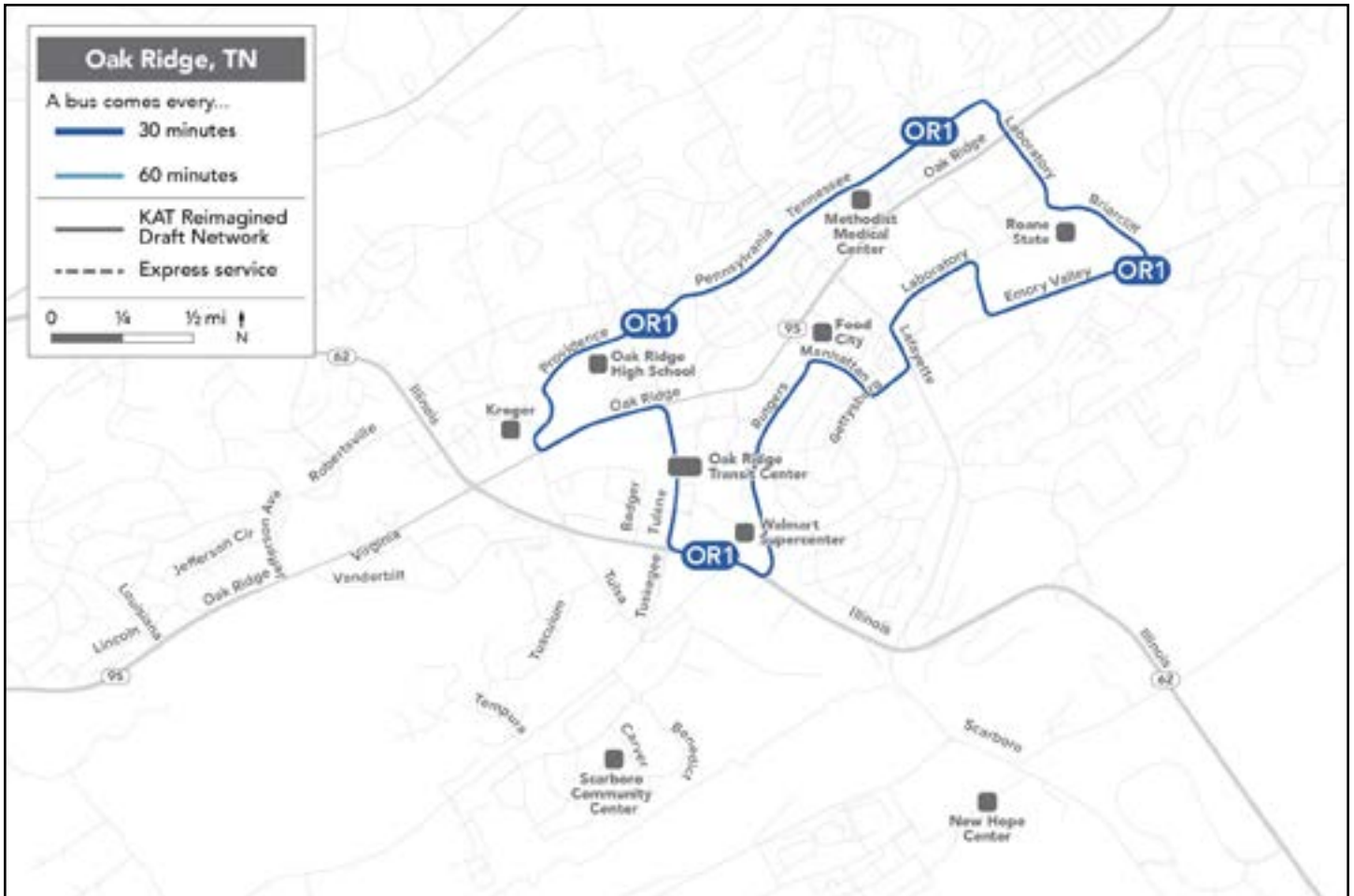
[Route R1x: Oak Ridge-Knoxville Express](#)

[Route R2: Oak Ridge-Clinton-Knoxville](#)



# Route OR1

## Oak Ridge Inner Loop



Route OR1 is a loop that hits the densest destinations in Oak Ridge. It provide service to the Walmart Supercenter, Food City, Roane State Community College, the Methodist Medical Center, Oak Ridge High School, and the Kroger.

It is important to note that this loop has service in both directions. Providing one-way service often include long round trips. If the trip to your destination is short, your return trip will be long.

### Frequency

Every 30 minutes

### Residents within 0.25mi

4,300

### Jobs within 0.25mi

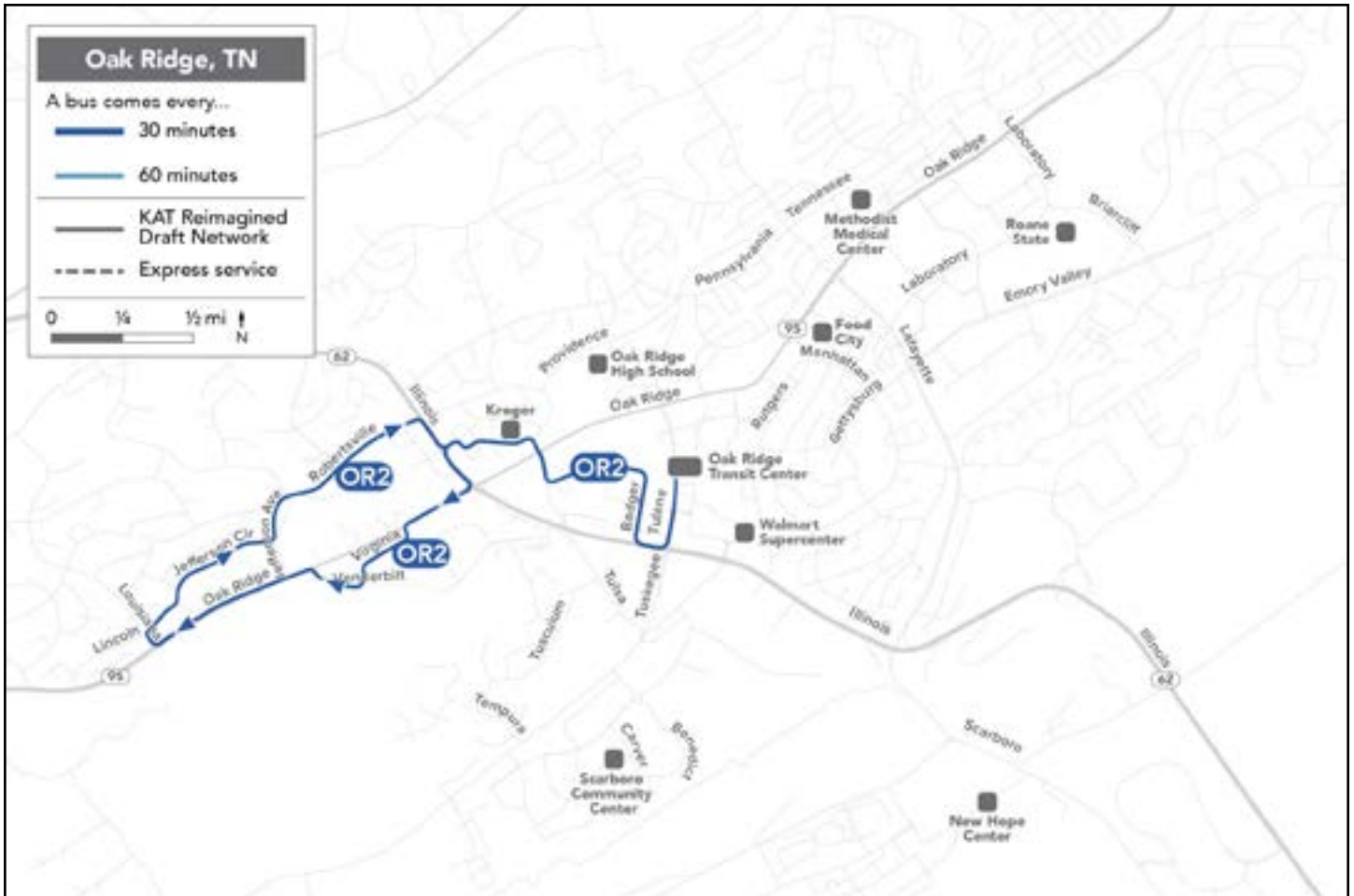
7,800

### Cost

Four buses  
\$1,288,000 / year

# Route OR2

## Oak Ridge West



The Northwest area of Oak Ridge has some activity. To provide service there, Route OR2 is recommended to run along Badger Avenue to the Kroger. Then it does a one-way loop using Oak Ridge Turnpike, Virginia Road, Vanderbilt Drive, Louisiana Avenue, Jefferson Circle and Robertsville Road.

### Frequency

Every 30 minutes

### Residents within 0.25mi

2,100

### Jobs within 0.25mi

800

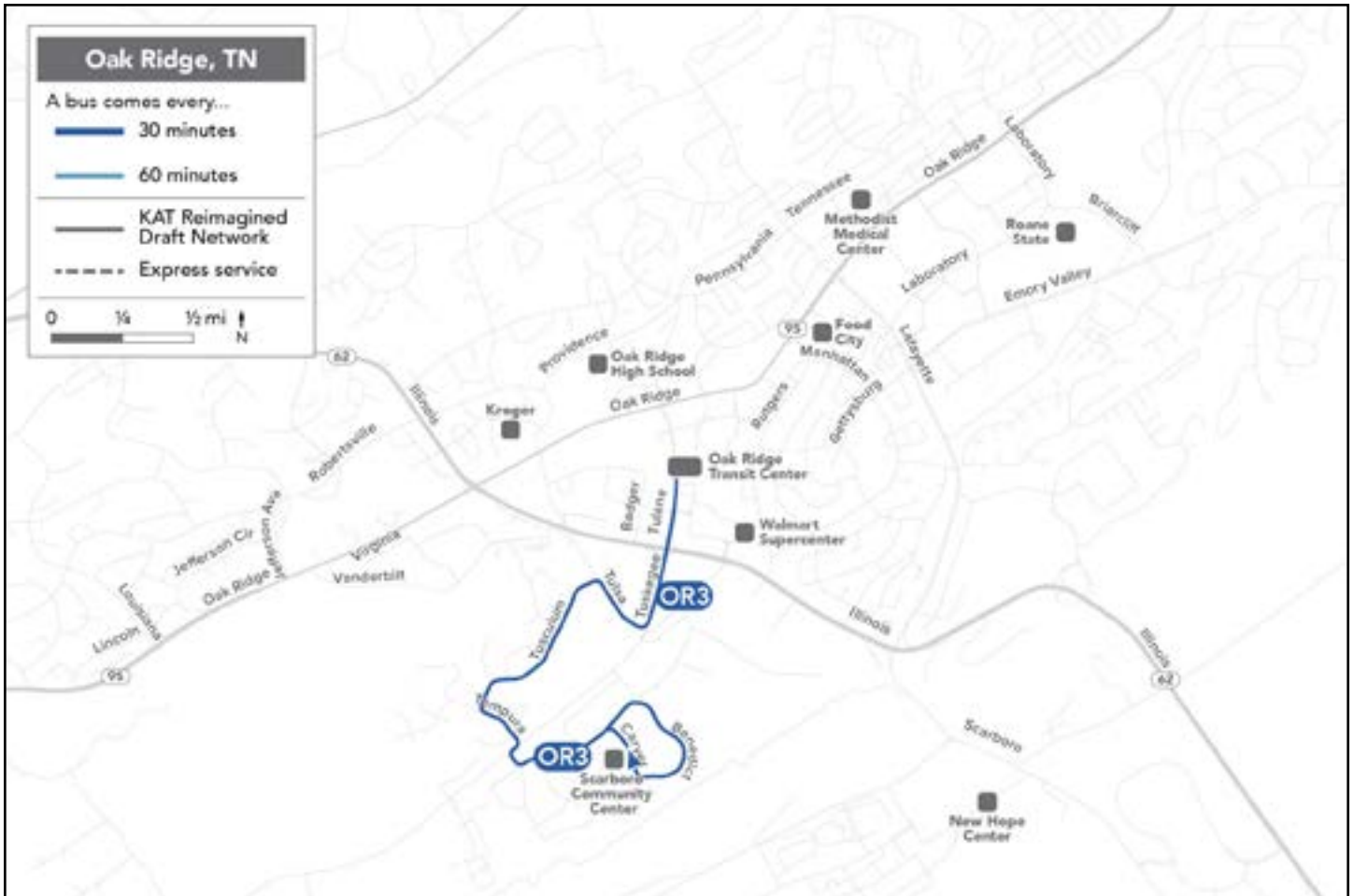
### Cost

Two buses  
\$644,000 / year



# Route OR3

## Scarboro



While Scarboro is not a very dense area, it is a low-income minority community. To be equitable, Route OR3 provides service to Scarboro. The route goes south from the Oak Ridge Transfer Center and goes on Tuskegee Drive. It weaves through the neighborhood using Tusculum Drive, Tempura Drive, and Wilbeforce Avenue. At the end, it does a small loop and stops in front of the Scarboro Community Center and the Scarboro Preschool.

### Frequency

Every 30 minutes

### Residents within 0.25mi

900

### Jobs within 0.25mi

400

### Cost

One buses

\$322,000 / year

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## Next Steps

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# Next Steps

These transit service ideas are the first step to making regional service a reality. These conceptual ideas are meant to spark interest and start a conversation. Here are some next steps to move forward.

## Funding

The Knoxville Regional TPO and the local governments should coordinate to find funding to support these new services. The ability to create any of these services depends on each jurisdiction's willingness to invest in transit.

There are some capital costs associated with transit service, including vehicles, bus stop amenities, and bus storage area. While it is necessary to find funding for these costs, the cost of operating transit is the most vital. Capital costs happen periodically, but operating cost is forever. It is crucial to work together to find dedicated funding for transit service.

There are federal grant opportunities for new transit service, such as the Congestion Mitigation and Air Quality (CMAQ) Improvement Program, but this would be temporary. If you want to keep the transit service in the long-term, it is crucial to find consistent local funding sources.

In addition, The Tennessee Department of Transportation often provides capital and operating resources for public transit agencies across the State. Any jurisdiction contemplating adding transit services should coordinate with both the TPO and the TDOT Multimodal Transportation Resources Division.

## Bus Stops

Creating a bus stop is not just about placing a sign with a number. Each bus stop must comply with the Americans with Disabilities Act (ADA). The minimum requirements include a firm stable surface, a bus landing pad for boarding and alighting areas, cross slopes no greater than 2%, and accessible connection to a street, sidewalk, path, etc.

## Operating Parameters

There will need be conversations about who the right operator is for new service. Long-distance routes may require high capacity vehicles. Since KAT operates large vehicles, they could be the operator of such services.

Routes within an urban node, such as Oak Ridge or Maryville/Alcoa, will likely require less capacity, so they can use smaller vehicles. This is an opportunity to coordinate with ETHRA who already provides transit service with small vehicles in the region.

Another option to consider is to establish a Regional Transit Authority (RTA). This is a common practice in places that are geographically large and span several jurisdiction, but there are pros and cons of establishing such organizations. The biggest benefit is that it centralizes planning, budgeting, and perhaps operating to one organization. This can allow for more comprehensive conversations about service between different jurisdictions. A downside is that it could be more expensive to create an RTA than to use the existing resources through KAT and ETHRA. There are many ways that an RTA can take place, so it is worth exploring further.

## Refine Recommendations

The transit recommendations laid out in this report are initial ideas of what the service could look like. Depending on the interest and goals of each jurisdiction, these ideas will need to be revised and refined. Additional elements, such as park-and-ride lots, could be considered but will require corresponding studies. In addition to the routes themselves, the transit centers also need to be refined. As explained in the recommendations, the transit centers in Maryville and Oak Ridge don't need to be off-street facilities. However, they need to be places where several buses can stop at once. It will be important to identify sites for these transit centers.