



motion 

NASHVILLE MTA/RTA STRATEGIC PLAN



STATE OF THE RTA SYSTEM

EXECUTIVE SUMMARY



N NELSON
NYGAARD



CAMBRIDGE
SYSTEMATICS

Overview

The Middle Tennessee region is one of the fastest-growing areas in Tennessee and in the United States. The entire 10-county region, which is composed of Davidson, Cheatham, Dickson, Maury, Montgomery, Robertson, Rutherford, Sumner, Williamson, and Wilson counties, is projected to grow by 80% from 1.7 million residents in 2010 to 3.1 million in 2040. Most of this growth will occur in the nine counties surrounding Davidson County, and the total population of those counties is projected to grow by 111% from approximately 1 million residents to 2.3 million.

The Regional Transportation Authority of Middle Tennessee (RTA) provides commuter service on the Music City Star and a network of express bus routes. The system includes a number of park-and-ride lots and other supports for commuters, such as a Guaranteed Ride Home Program. Despite taking important steps to improve transit service, including providing new trips on some routes, the region's growth continues to outpace these improvements and the general growth of the transit system.

nMotion is the Strategic Plan for RTA and the Nashville Metropolitan Transit Agency (MTA), a 25-year comprehensive plan designed to establish the Middle Tennessee region's vision for transit. The plan will look at how transit works today and identify opportunities to enhance the transit system, improve service, attract and retain new riders, and meet the growing needs of Middle Tennessee. Ultimately, the plan will provide a blueprint for transit projects and policies that will make the growing region a better place to live and do business.

The first step of nMotion was to assess the state of the existing regional transit system. The State of the System Report provides an overview of existing RTA transit services and an evaluation of how well these services match transit demand in the 10-county region, both today and 25 years in the future. Based on those findings, this report presents the key issues facing RTA and serves as a starting point for the strategies and recommendations that will inform the final strategic plan.

Based on the assessment of existing transit services, the key challenges facing RTA are:

- **Service is limited, and schedules are not well-suited for “typical” commuters.** RTA commuter services typically provide only two or three trips in each direction that serve a short window of work hours timed for state employees' schedules. Local services operate only during the daytime, and most operate only once an hour.
- **Express bus services are fast, but not fast enough.** Most express routes make only one or two stops in outer areas and then express to Nashville. However, they are stuck in the same traffic as automobiles to and from Nashville, and then are slow within Nashville.
- **Park-and-ride lots are inconveniently located and difficult to find.** Most park-and-ride lots are located at places where an organization has agreed to share use of its lot, rather than at locations that would be most convenient to users. Additionally, many park-and-ride lots provide no indication that they are park-and-ride lots, nor do they provide any information on available services. This makes it difficult for people to learn that services are available, and for first-time riders to find it.
- **New types of services and connections are needed to meet demand and serve reverse commutes.** The growth that is occurring in Davidson County and the surrounding counties will create demand for all-day regional services as well as local services. As employment continues to grow in outer areas such as Brentwood and Cool Springs, more Davidson County residents will begin to commute outward, creating demand for reverse commute service. New types of high-quality services along with connections to other modes will be needed to support RTA services.

How well does transit work today?

RTA provides regional bus service, the Music City Star commuter rail, carpool/rideshare, vanpool, and emergency ride home programs for the Middle Tennessee region. Ridership on RTA services has been increasing steadily, due in part to the availability of new services.

The Music City Star is a 32-mile commuter rail route serving six stations between Lebanon and downtown Nashville. The Music City Star operates only during peak periods on weekdays. The first trip from Lebanon to Nashville departs at 5:45 a.m., and the last trip from Nashville departs at 5:45 p.m. On Friday, there is one additional trip in each direction that departs Lebanon at 6:40 p.m. and Nashville at 10:30 p.m.

FIGURE 1 MUSIC CITY STAR SERVICE



RTA currently provides express bus service in five corridors—northeast, northwest, west, southwest, and southeast—that link Middle Tennessee’s larger communities to downtown Nashville. For the most part, the 10 routes have three trips to Nashville in the morning and three trips out of Nashville in the afternoon. The Route 96X Murfreesboro Relax & Ride is the exception, providing service throughout the day between Nashville and Murfreesboro.

FIGURE 2 RTA EXPRESS SERVICE



There are six public transportation agencies that provide service in the Middle Tennessee region:

- Nashville Metropolitan Transit Authority (MTA), which is the largest transit provider in the region, provides service throughout most of Davidson County.
- The Regional Transportation Authority of Middle Tennessee (RTA) operates regional transit services to connect communities in the nine counties that surround Davidson County with Nashville.
- The City of Murfreesboro Rover, which provides local service within Murfreesboro.
- The Clarksville Transit System (CTS), which provides local service within Clarksville.
- The Franklin Transit Authority, which provides local service within Franklin.
- The Mid-Cumberland Human Resource Agency (MCHRA), which provides human service transportation to the 12-county mid-Cumberland region (excluding Davidson County).

For both the Music City Star and the express bus routes, service quality is generally very good. However, the usefulness of RTA's services is limited by the number and times of the trips that are made. On RTA express bus routes, for example, the schedules are designed to accommodate the work schedules of state employees rather than a more traditional 8 a.m. to 5 p.m. schedule, much less a midday or evening shift. The first trip on most routes departs for Nashville well before 6 a.m., and all of the last trips out in the afternoon depart before 5 p.m. Improving schedules and the length of time the regional express services operate is an important opportunity for RTA.

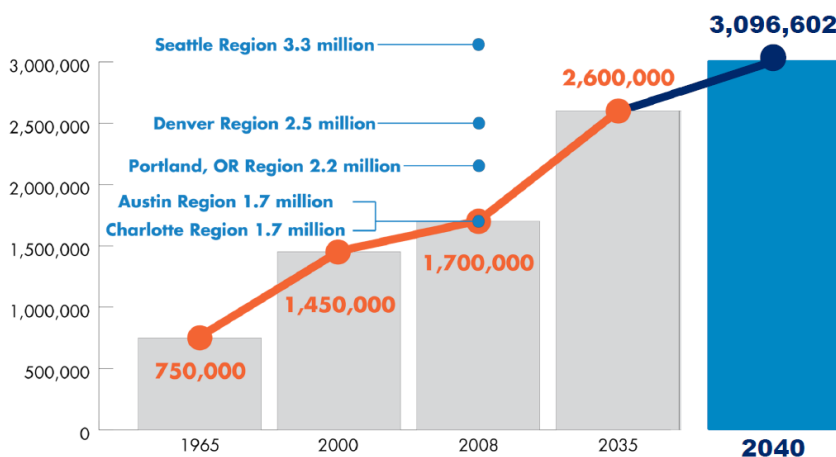
Beyond the fixed-route services described above, RTA also manages an extensive vanpool program, partners with Nashville MTA on a Guaranteed Ride Home Program, owns the Music City Star stations, and maintains agreements for or operates 20 park-and-ride lots. Although the park-and-ride lots are also available for use by carpools and vanpools, most are located in lots owned by private businesses that lack RTA signs and transit amenities. The locations of many of the lots are inconvenient for transit, requiring passengers to travel out of their way to reach a lot and requiring buses to leave the highway to pick up riders.

In addition to the services and facilities provided by RTA, there are five other transit providers in the Middle Tennessee region (see sidebar). While Nashville MTA is the largest, the smaller local services in Clarksville, Franklin, and Murfreesboro also fill critical circulation needs within those communities and, in limited instances, provide connections to RTA express buses.

What areas and populations will we need to serve in the future?

Looking forward, the Middle Tennessee region will continue growing rapidly, with 3.1 million residents expected by 2040 (see Figure 3). The focal point of the region is Nashville and Davidson County, where the largest numbers of the region's residents live and work and where the largest amounts of social and economic activity take place. As Nashville and Davidson County have grown, the surrounding nine counties have also grown. Some communities that are just beyond the Davidson County line, such as Brentwood, have effectively become part of the Nashville metro area, while others that are farther away, such as Clarksville and Murfreesboro, are regional centers whose ties with Nashville have been growing significantly and will continue to grow.

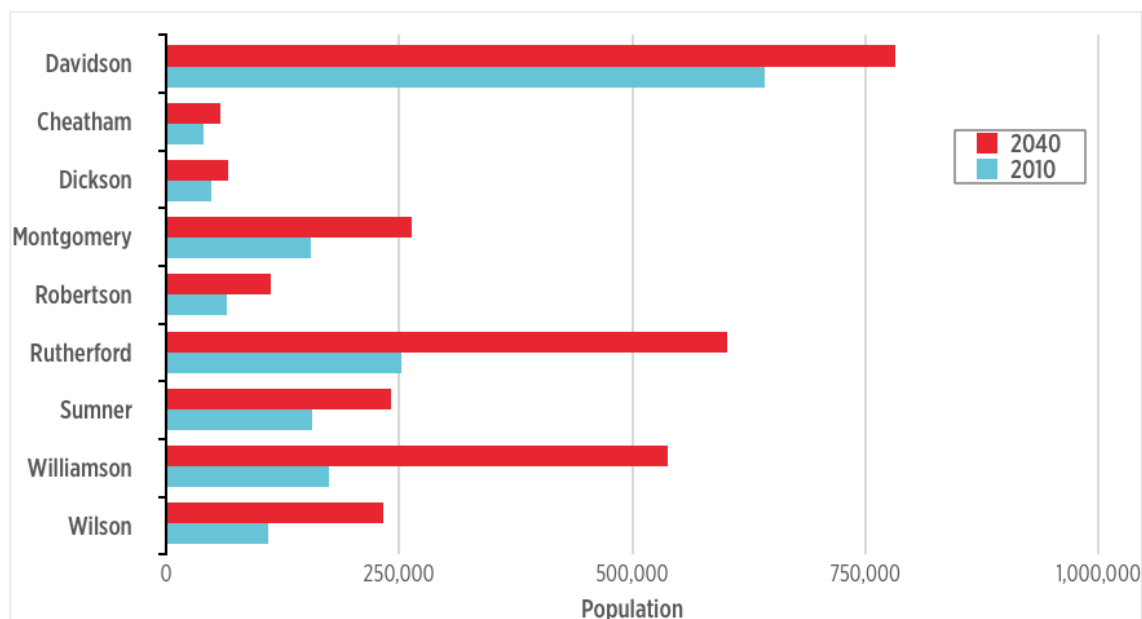
FIGURE 3 MIDDLE TENNESSEE POPULATION GROWTH



Source: Nashville Area MPO

Most of the population growth shown above will occur in the nine counties surrounding Davidson County (see Figure 4). The largest amount of growth will be in Williamson and Robertson counties. In Williamson County, the population is projected to increase between 2010 and 2040 by 207% from 174,000 to 536,000 residents, and in Rutherford County, it is projected to increase by 135% from 251,000 to 592,000 residents. Wilson and Montgomery counties will also add more than 100,000 new residents. By comparison, while Davidson County will remain the center of the region and its largest county, its population is projected to increase by only 22%.

FIGURE 4 MIDDLE TENNESSEE POPULATION GROWTH



Source: Nashville Area MPO

Employment in the region is projected to grow to an even greater extent than population, from 796,000 jobs in 2010 to over 1.8 million jobs in 2040, or by 133%. As with population growth, jobs will grow faster in the nine counties that surround Davidson County than in Davidson County (178% versus 96%). However, Nashville and Davidson County will remain the region's employment center, with over 47% of the region's jobs.

With the population and employment growth that has been occurring and that will continue to occur, travel has also increased—both to and from Nashville and Davidson County and within the nine surrounding counties. These increases in population and jobs will have profound impacts on travel within the region:

- **There will be significant new demands for commuter services to serve jobs in Nashville's core.** With 111% of the region's population growth in the nine counties surrounding Davidson County and 38% of new jobs created within Davidson County, the volumes of commuters to Nashville will increase significantly.
- **The demand for reverse commute transit service will increase.** By 2040, the number of jobs that will be outside of Davidson County will increase from 534,000 to more than 1 million, and from 50% of the total to 55%. These increases in jobs will mean that many Davidson County residents will begin commuting to jobs outside of Davidson County, which will increase the demand for reverse commute transit service.
- **Demand for local services will increase.** Increases in both population and jobs will increase the demand for local services, both to serve local trips and to connect with regional services.

As RTA improves its transit service over the next 25 years, service and capital investments must be made in support of and in response to current and future land use patterns. Population and employment densities determine how many people will be able to access transit. By extension, they also strongly influence the amount of service that will be required and, in turn, the types of riders who will use transit. Changing demographics are also driving demand for more and better transit, in particular by baby boomers, millennials, and minorities.

At the present time, the region's population is concentrated in Nashville and in several neighboring cities, particularly to the south, southeast, and northeast of Nashville, plus Clarksville to the northwest. Major population centers include Clarksville, Murfreesboro, and Franklin. Apart from these larger urban areas, other notable residential concentrations include Hendersonville, La Vergne, Smyrna, and Gallatin. Employment, while still primarily concentrated in Nashville and Davidson County, is also located near the center of other established cities and towns, plus Cool Springs. There are also notable commercial and industrial clusters located along or at the intersections of major interstates and highways.

When population, employment, and socioeconomic factors are considered together, areas where there is significant demand for service today include Franklin and Cool Springs, Clarksville, Murfreesboro, and the US 31 East corridor from Nashville to Hendersonville and Gallatin (see Figure 5).

Because much of the growth in residential population and employment between 2015 and 2040 will occur in and around established cities and towns, particularly along major regional corridors radiating out from Nashville (see Figure 6), there is potential demand for new or increased regional services to and from Nashville, especially all-day and reverse commute services to the southeast, south, and northeast.

FIGURE 5 2010 TRANSIT DEMAND

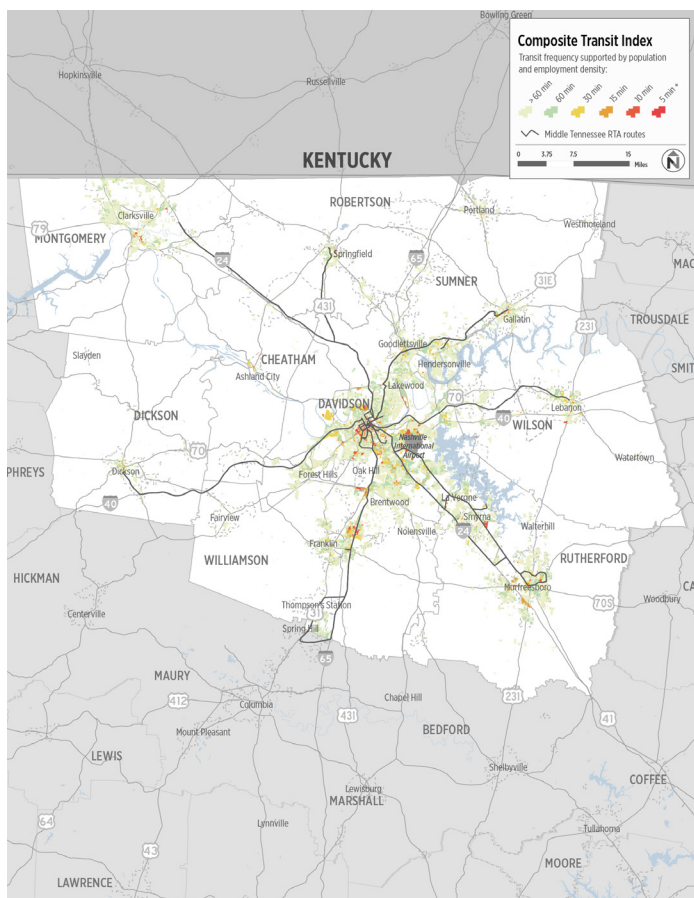
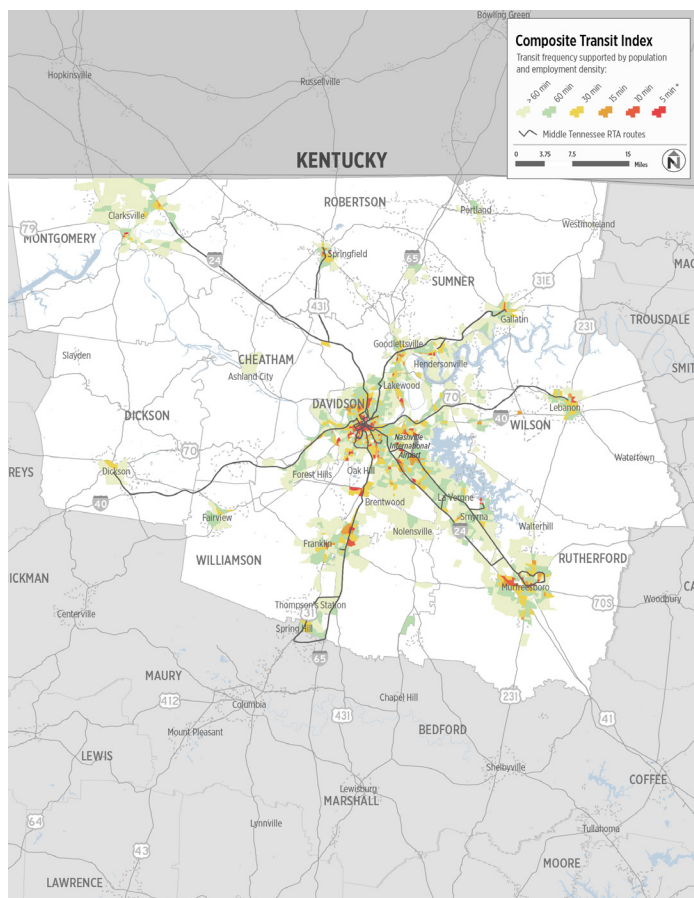


FIGURE 6 2040 TRANSIT



What are our opportunities?

Based on the review of the existing system and an analysis of the potential transit markets in Middle Tennessee, there are clear opportunities for improving transit service in the region. While much more information is provided about each of these (and other opportunities) in the State of the System Report, the opportunities identified below are important steps in addressing the issues identified at the beginning of this summary.

Expand service and improve schedules

Including the Music City Star, RTA provides 11 lines that connect the nine counties surrounding Davidson County with Nashville. These routes do serve all major corridors, but service is very limited: All RTA routes operate on weekdays only, primarily during peak periods, and most routes provide only two or three inbound and outbound trips (see Table 1).

TABLE 1 RTA SERVICES ONE-WAY TRIPS

Corridor	Route	AM Inbound	PM Outbound	Other
Northeast	87X Gallatin Express	2	3	0
	92X Hendersonville Express	2	3	0
Northwest	89X Springfield/Joelton Express	2	2	0
	94X Clarksville Express	3	3	2
West	88X Dickson Express	2	2	0
South	91X Franklin Express	3	3	0
	95X Spring Hill Express	2	2	0
Southeast	84X Murfreesboro Express	3	3	0
	86X Smyrna/La Vergne Express	3	3	0
	96X Nashville/Murfreesboro Relax & Ride	4	4	10
East	Music City Star	3	3	1

In addition, express bus schedules are designed to serve the work schedules of state employees, rather than a broader time span to serve both state employees and those who work more typical work schedules. This further limits service. To make commuter services available to a broader cross-section of Nashville's commuters, more service will be required to provide more flexibility and trips that serve a wider range of work schedules.

Local services operate only during the daytime, and most operate only once an hour. More service, including longer spans, will also be required to provide potential riders with sufficient flexibility to make service convenient.

Increase speeds on express bus services

Most express routes make only one or two stops in outer areas and then run express to Nashville. However, they are stuck in the same traffic as automobiles to and from Nashville and then are slow within Nashville. As part of the outreach conducted at the beginning of this strategic plan, we heard from many people that express bus service is not attractive, in large part, because "it is stuck in the same traffic as everyone else." To speed express bus trips, RTA can operate on freeway shoulders, identify more convenient locations for park-and-ride lots, and partner with Nashville MTA to redesign services in downtown Nashville.

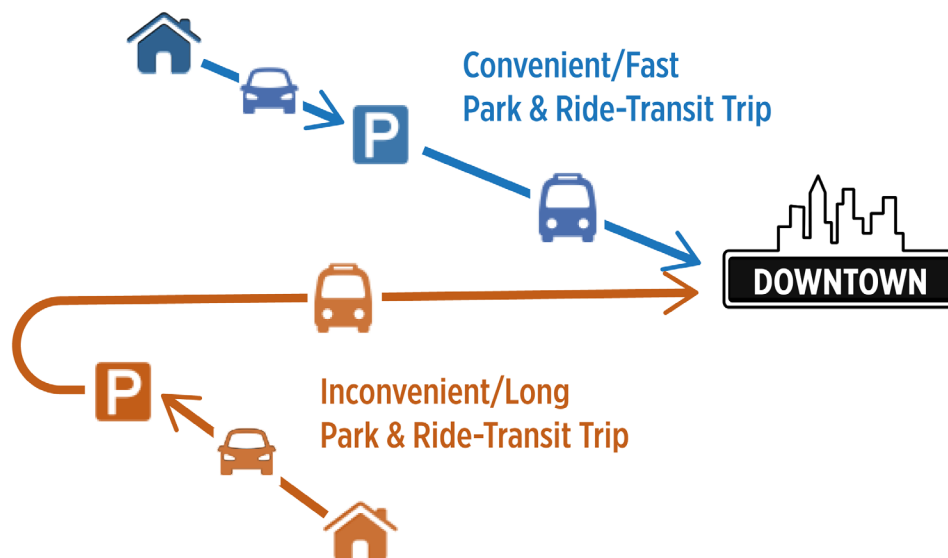
Most of Middle Tennessee’s freeways—especially I-24 and I-65 to the south—are very congested during peak periods, and express buses are stuck in the same traffic as regular traffic. Transit is most attractive when it can provide a travel time advantage over automobile travel, and existing express bus service does not. There are a number of ways to make express bus service faster, such as allowing express buses to use freeway shoulders when regular traffic is congested (see Figure 7) and constructing stations and park-and-ride lots along freeways so that buses do not have to lose time exiting and re-entering freeways to serve intermediate stops. Additionally, improvements to downtown transit operations including Transit Emphasis Corridors and transit priority, in addition to improving local transit, would also make express service faster.

FIGURE 7 BUS ON FREEWAY SHOULDER OPERATIONS (MINNEAPOLIS AND CHICAGO AREAS)



Relocate and enhance park-and-ride lots

FIGURE 8 CONVENIENT AND INCONVENIENT EXPRESS BUS TRIPS



Most park-and-ride lots are located at places where a local business, church, or other organization has agreed to share use of its lot, rather than at locations that would be most convenient for transit. Ideally, park-and-rides should be located along a line between where people live and where they are traveling to avoid out-of-direction travel that increases total travel times (see Figure 8). To make service attractive and more convenient, RTA will need to develop more purpose-built park-and-ride lots that are at or very close to intersections with major highways and along the direct paths of express routes.

For people to be able to use transit, they need to be able to find it. Today, most RTA park-and-ride lots are completely unmarked, with no indication that park-and-ride spaces and express bus service are available, no designated bus stops, and no information on available services (see Figure 9). Some park-and-ride lots do have signs, but even these lots do not have designated bus stops or service information. The lack of information increases uncertainty among potential riders about whether express service actually exists and, for first-time riders, about whether they are at the right place. To make it easier for potential riders to learn about the availability of service and to find the lots and express service, RTA must improve signage and information.

FIGURE 9 UNSIGNED AND SIGNED PARK-AND-RIDE LOTS
(LEFT/UNSIGNED: PLEASANT VIEW; RIGHT/SIGNED: DOWNTOWN SPRINGFIELD)

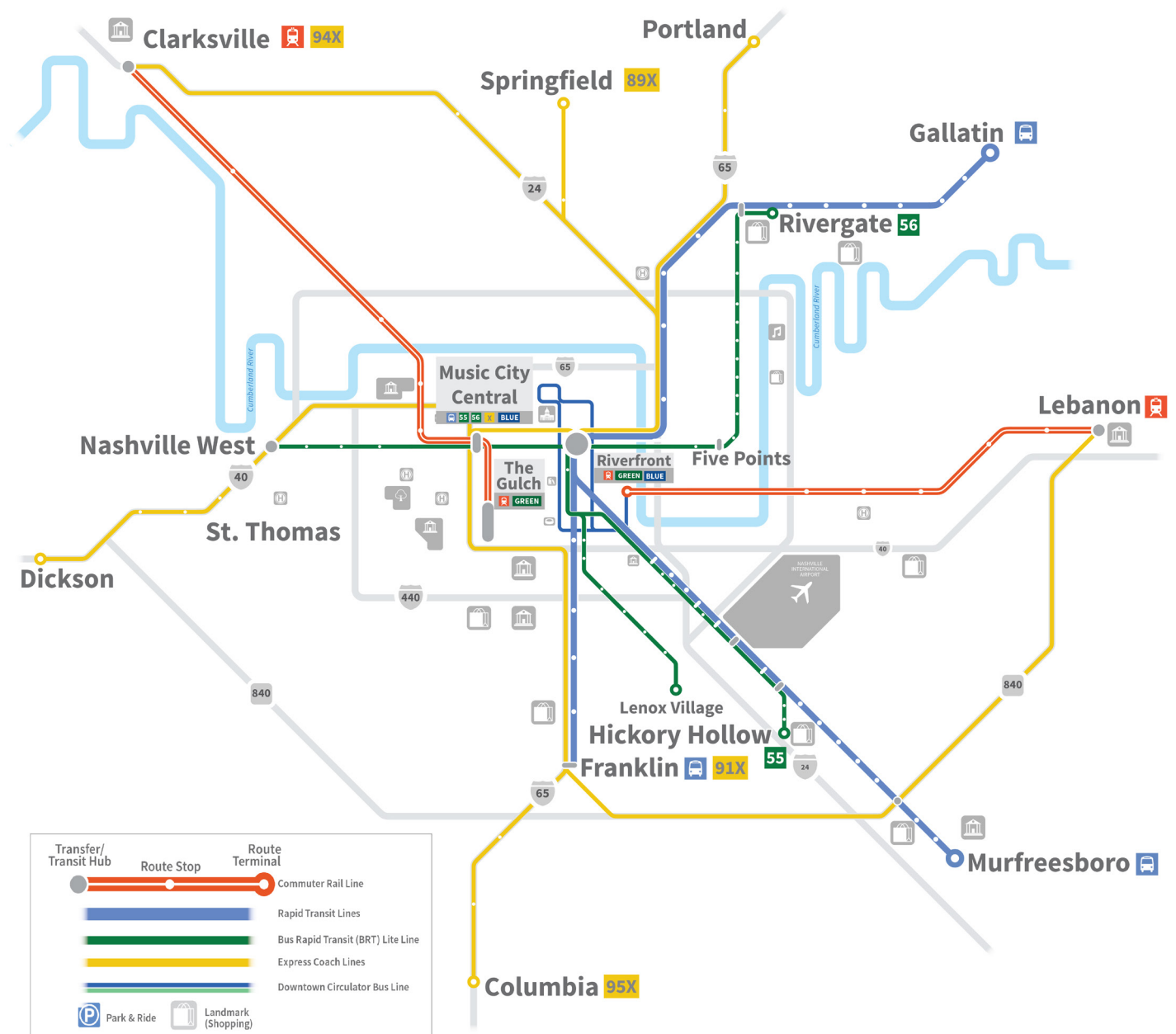


Develop New Types of Services and Connections

The population and employment growth occurring in Middle Tennessee is creating demand for new types of services and connections. These include all-day regional and local services, reverse commute services, first-and last-mile connections, and premium services.

- **All-Day Regional Service.** Through 2040, demand for all-day transit service will grow between a number of regional centers and Nashville, and demand for service to and from regional centers will also increase.
- **Local Transit Service.** Currently, local transit service is provided in Clarksville, Franklin, and Murfreesboro. As these communities grow, the demand for more local service will grow. In addition, demand for local service will emerge in many communities that are not currently served, including Goodlettsville, Hendersonville, Gallatin, Lebanon, La Vergne, Smyrna, Brentwood, and Cool Springs.
- **Reverse Commute Service.** By 2040, it is projected that the number of jobs in the nine-county area surrounding Davidson County will increase by 100% to more than 1 million. With these changes, more Davidson County residents will begin to commute outward. While these numbers will be lower than the number of trips to Nashville, they will still be sufficiently high to warrant reverse commute service.
- **First-and Last-Mile Connections.** First-mile/last-mile connections are a particular challenge outside of Davidson County and, to a lesser extent, within Davidson County. This is due to poor pedestrian connections in many areas and the way the region sprawls. There are many different ways to provide, encourage, and enable first-and last-mile connections, most of which are best suited to specific situations. The implementation of most will require partnerships.
- **Higher-Quality Services.** Throughout the country, there has been an increased emphasis on the development of new types of higher-quality transit services. These include commuter rail, rapid transit, light rail, Bus Rapid Transit (BRT), Rapid Bus/BRT lite, streetcar, and more. The stakeholder outreach conducted for this effort has made it clear that one of the strongest desires among Middle Tennessee with respect to transit is for higher-quality services. The Nashville Area Metropolitan Planning Organization's (MPO) 2035 Regional Transportation Plan also emphasizes the development of higher-quality services, and in particular "Rapid Transit" and commuter rail (see Figure 10).

FIGURE 10 REGIONAL TRANSPORTATION PLAN TRANSIT VISION



Source: Nashville Area MPO

So what does all of this mean?

Since its inception, RTA has expanded and improved its services as resources have allowed. In recent years, those improvements have included the Music City Star, new express bus routes, and purpose-built park-and-ride lots. However, RTA's resources have not grown as fast as the region nor as fast as the demand for better transit. As a result, regional service doesn't meet current demands for transit and will continue to fall further behind as Middle Tennessee grows.

The growth in both population and employment will produce much higher volumes of travel overall, including to and from Nashville and within the nine-county region. Increasing population and employment densities in traditional regional centers and in new emerging areas will greatly increase the demand for transit, and for new types of transit.

Significant transit improvements—meaning both capital and operational investments—will be critical to the region’s success. The region’s freeways, and in particular I-24 and I-65 to the south, are already badly congested. Residents and businesses desire more and better transit in increasing numbers. The 2014 Nashville Vital Signs Report, which was produced by the Nashville Area Chamber of Commerce and the Nashville Area MPO, concluded, “The ability of our residents to move around the region in their cars is quickly deteriorating and will continue to do so unless we provide better transit options.” The stakeholder outreach completed as part of this strategic plan is showing a very strong desire for convenient and attractive high-quality transit services that will provide compelling travel options for the region’s residents, workers, and visitors.

What happens next?

The next step in the development of the strategic plan is to create an initial set of approaches to improve transit service in the region. These “Transit Strategies” cover opportunities including new types of premium services, walking and biking connections to transit, transit priority treatments to speed transit service, express bus and park-and-ride lots, and expanded hours and days of service. Visit nMotion2015.org for more information and to learn about opportunities to get involved in planning Middle Tennessee’s transit future.