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For your safety,
buses do not stop
inside MCC once
they leave their
designated bus
bays.



TRANSIT PLAN RECOMMENDATIONS

852

Nashville
MTA



Report Contents

What's Included?

This report summarizes nMotion Recommendations to improve transit service in the region. It includes:

- **An Introduction**
- **An Overview of Public Engagement**
- **Strategic Recommendations**, summarizing key actions for improving transit in Middle Tennessee.
- **Benefits and Costs**, highlighting the anticipated benefits associated with these recommendations and how much the plan is likely to cost.
- **Next Steps** a discussion of immediate actions, next steps, and long-term development.

What's This All About?

The region's mobility challenge: Nashville and Middle Tennessee make up a dynamic region that has become one of the nation's fastest-growing metropolitan areas.

As more and more people move into this region—and more than 1 million people are expected to move here between now and 2040—moving people from one place to another becomes an increasingly complex challenge.

As with every metropolitan area, mobility in Middle Tennessee is defined by several things: existing patterns of development and transportation infrastructure now in place—which was designed for cars, the natural limitations of the topography and the manmade limitations imposed by the built environment. Those factors frame our challenges, but they do not prohibit our ability to create a great transit system.

As the success of this region breeds congestion, so does the ingenuity of its people stimulate the desire to create a vision for transit in Middle Tennessee that will provide solutions.

The need for a transit plan: To that end, the Nashville Metropolitan Transit Authority and the Regional Transportation Authority of Middle Tennessee (MTA/RTA) have engaged in a regionwide public discussion of the best strategies to improve regional mobility. This study has been undertaken with the clear understanding that transit alone will not solve these regional mobility issues, but an improved transit system must be a key and integral part of any solution. Roadway improvements, including roadway expansion, will need to be a part of future travel solutions. However, the region is reaching a point in size and density where mass transit and other “shared-use” mobility options will have to become a much larger part of the travel mix to assure continued economic prosperity for the region.



Middle Tennessee Population Growth, 1970-2040

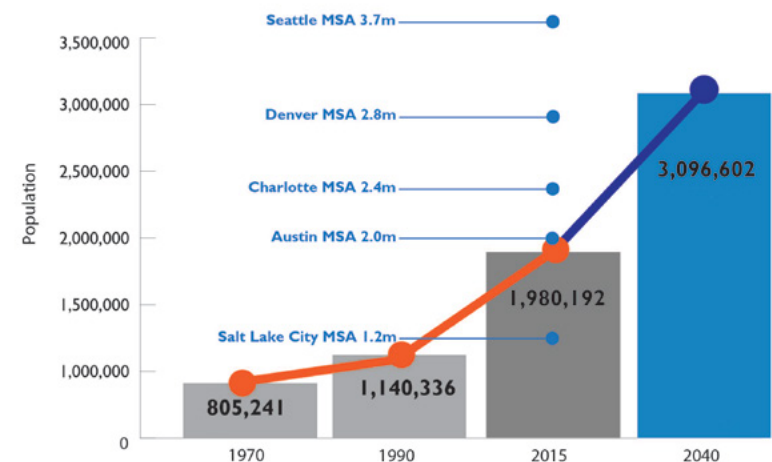


Image from Nashville Area MPO

The importance of public input in creating the plan: Over the course of the past 16 months, MTA/RTA has actively sought the opinions of Middle Tennesseans as it studied the state-of-the-art transit strategies now being deployed around the world, and explored in depth the values and transit needs of this population. Through these efforts, over 18,000 individual engagements took place, including 9,000 responses to an online “scenario” survey asking people to express their preferences with respect to three alternate futures for mass transit and regional mobility. The overwhelming response was that Nashville and the Middle Tennessee region should pursue a bold, long-term investment in mass transit, along with ancillary investments in infrastructure to make such a system effective.

Goals: The recommendations resulting from the nMotion planning process aim to:

- **Improve access to opportunity** for those with limited auto availability
- **Expand the range of competitive travel options** for all Middle Tennesseans
- **Simplify and integrate** various means of transportation to develop a seamless, connected system to provide Middle Tennesseans with the maximum travel flexibility
- **Prioritize major transit investments** in transit-supportive areas
- **Significantly increase ridership**, especially in target markets

Growth with intention: The nMotion plan suggests a path forward to achieve these goals. However, bold solutions, such as high-capacity transit investments like rail, require higher-density development than currently exists in most of Middle Tennessee. This can change if the region “grows with intention,” as envisioned in NashvilleNext, the Metropolitan Planning Organization’s Regional Transit Vision, and other plans. What does that mean? It means growing in a way that intentionally provides greater density that will support mass transit along certain corridors. Although public engagement efforts demonstrated widespread support for high-capacity mass transit facilities such as light rail, current development patterns, population and job density, and pedestrian access from neighboring areas to target corridors would not support these investments in a way that provides an adequate

return on investment. However, the rate and nature of regional growth suggest that such investments could be very effective over the long term if undertaken in concert with coordinated changes in land use, development, and complementary public policy and investments over the long term. Implementing these changes as our region grows will allow for the broadest range of living options and better position us to preserve the open spaces we cherish so dearly.

The critical importance of downtown Nashville: In order to accomplish the goals of nMotion, future plans will need to address mobility in — and through — downtown Nashville. Downtown Nashville is the region’s most concentrated trip destination — i.e., more people travel to downtown Nashville than any other location in the region — and because of that, downtown will remain the dominant focal point of high-capacity transit investments. Downtown Nashville is also a major point of cross-regional access — i.e., people moving from one part of town or the region to another would logically pass through downtown. Because of its importance to the region, downtown Nashville will require special consideration for transit priority.

Partnerships and collaboration: For a regional mass transit system to be effective, MTA/RTA will need to expand and enhance partnerships with public and private entities to make such a system a reality. These will range from other regional public transit agencies such as Murfreesboro Rover, Franklin Transit and Clarksville Transit to private transportation providers such as taxi operators, rideshare providers such as Lyft and Uber, car-share providers like Car2Go, and bike-share operators such as B-cycle. MTA/RTA will need to work more closely with the Tennessee Department of Transportation (TDOT) to incorporate improved mass transit facilities into key travel corridors, as well as local cities and towns to both improve transit facilities and allow for/encourage the types of development that will support a robust mass transit system. Partnerships with our university communities and high-tech sector will be needed to advance technological enhancements such as open payment systems and advanced, intermodal itinerary planning applications. For large-scale projects, MTA/RTA will explore the opportunities presented in recently adopted state legislation allowing for public-private partnerships in the development of advanced mass transit facilities.

Timeline

Throughout the nMotion process, there was an equally fervent demand to see short-term improvements, like more frequent service and service for longer hours. nMotion recommends the following actions:

**5
YEARS**

In the next five years: Lay the groundwork

Better bus service that means shorter wait times between buses

Extended service hours — earlier and later, with fewer transfers

Better bus stops and new transit centers

Simpler ways to pay your fare

Seamless connections to other transportation providers

Expanded and improved AccessRide services

Streamlined service through downtown Nashville to improve reliability and expand neighborhood and regional connections

Improved pedestrian connections will appear in more and more neighborhoods to improve access to an expanded mass transit system.

Improvements in regional travel corridors such as bus-on-shoulder services, expanded park-and-ride options, additional express trips, and improvements to the Music City Star

Exploration of opportunities for future development of rapid transit services such as new commuter rail lines, light rail, freeway and arterial bus rapid transit in key corridors through expanded cooperation with TDOT and local communities, and public-private partnerships

**15
YEARS**

In the next 15 years: An improved regional network

Service will continue to improve as more riders take advantage of a more convenient system.

Dedicated transit lanes will begin to appear in key corridors to improve both speed of service and overall dependability.

Design will advance, and construction will begin on initial rapid transit projects, with completion of initial segments toward the end of this period.

Downtown Nashville will have “transit priority corridors” with enhanced passenger and pedestrian amenities, and quick/reliable operation through downtown.

**25
YEARS**

In the next 25 years: A fully integrated system

Rapid transit operations will commence in more local and regional corridors.

Robust bus service in additional neighborhoods will join with new rapid transit options, private transportation providers, and expanded sidewalks, bikeways, and greenways to form a seamless travel experience for residents and visitors.

What nMotion Is

In undertaking this process, MTA/RTA set out to create a long-term plan for a transit system for Middle Tennessee. We did so with the understanding that this plan would not, in and of itself, answer all of the transit questions that must be answered. Here's what this plan is:

- A framework for the types and magnitude of changes that could be advanced;
- A concept of how individual projects/services can come together into a comprehensive system;
- A mechanism for promoting more in-depth conversations about what we want for future mobility in our region;
- A springboard toward short-term implementation and planning for long-term improvement; and
- A determination of order-of-magnitude costs based on recent experience in benchmark regions.

What nMotion Is Not

- The in-depth planning required for a high-impact capital/corridor project;
- A detailed/accurate projection of future cost; or
- A detailed funding plan.



What Is High-Capacity Transit?

A fundamental truth about the transit plan that is recommended for Middle Tennessee is that it will rely on high-capacity transit corridors. But what is high-capacity transit?

High-capacity transit moves more people than a car or bus, and typically has fewer stops, higher speeds and more frequent service than local bus service.

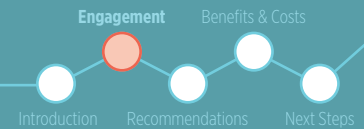
High-capacity transit is also designed to be as congestion-proof as possible by virtue of possessing one or both of the following:

- Dedicated lanes/rights of way for at least a portion of its route
- Transit priority (i.e., queue jumps or transit signal priority)

Examples of high-capacity transit include regional, commuter and light rail; bus rapid transit; or highway express lanes that charge tolls for cars but are free for transit or carpools.

Source: Project Connect

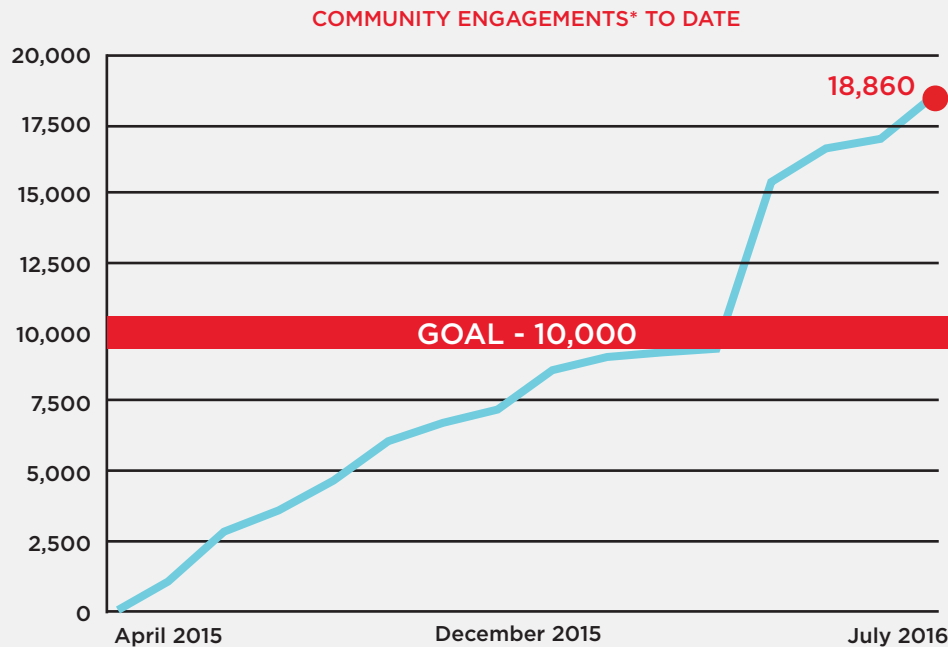
OVERVIEW OF PUBLIC ENGAGEMENT



Public Engagement Activities

Summary of Strategy and Tactics

At the beginning of the planning process in April 2015, MTA/RTA set a goal of 10,000 engagements*. Since then, we've received more than 18,000 engagements.



*An engagement is a submitted survey or a comment received via nMotion2016.org, comment cards, Facebook, Twitter or Nextdoor, or on various media websites. Some individuals have engaged with nMotion more than once during the process.

NMOTION PUBLIC ENGAGEMENT HIGHLIGHTS



Public Engagement Findings: What We Heard About the Scenarios

Beginning in February, we asked Middle Tennesseans what they liked—and didn’t like—about three future scenarios for the region’s transit system. All three scenarios would significantly improve the experience for current riders, but vary in their impact on attracting new riders to transit. Each of the three scenarios demonstrates different ways that Nashville could develop public transit through 2040 by showing where improvements could be made. We collected responses using a colorful survey pamphlet and MetroQuest, an online survey tool. An original visual campaign was created to advertise the survey and encourage input using the slogan “Decide Your Ride.”

SUMMARY OF KEY FINDINGS

Overall, people are supportive of a large investment in a regionwide transit system. Some common statements expressed by survey responders include:

- We are behind other cities in developing transit options.
- We have already waited too long to address traffic issues.
- We don’t want us to become “the next Atlanta.”
- A large investment over 25 years is needed to create new transit options.
- People have no intention of giving up driving, but would like to be less dependent on their cars and have other options.
- They think it will help Nashville and Middle Tennessee continue to recruit millennials and young professionals.
- Many are skeptical that large numbers of Middle Tennesseans will ever ride buses, leading many to prefer a rail solution.
- As in the Amp debate, people remain conflicted about dedicated lanes for transit. While most perceive dedicated lanes will be necessary to improve transit travel times and reliability, they also remain skeptical about how dedicated lanes would impact overall traffic flow.
- An overwhelming number of respondents recognize that robust mass transit must be accompanied by good sidewalks and easier access to transit stops and stations.

SCENARIO 1

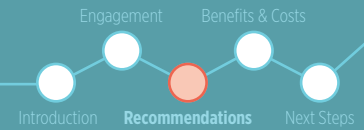
Based on which corridor people said they use, there is consistency that people favor the “Comprehensive Regional Transit System” (Scenario 1), and people want transit on the corridors they use most frequently. There is not a corridor where a consensus said that they do not want enhanced transit options.

Among the people we surveyed at the Music City Central bus station, current transit riders prefer short-term and immediate solutions to improve current service, rather than long-term, regionwide solutions. In general, current transit riders prefer Scenario 1 slightly less than do nonfrequent transit riders.

***As of June 27, 2016, the nMotion process has received 9,386 responses to the MetroQuest survey, bringing total engagements throughout the planning process to 18,860.**

To read the full report about our engagement efforts, visit our website, nmotion2016.org/materials.

STRATEGIC RECOMMENDATIONS



How Can Transit Service Improve?

This chapter describes a comprehensive package of recommended transit improvements for today through 2040. The nMotion transit plan reflects NashvilleNext's preferred future, the MPO's Regional Transit Vision, other regional efforts, and public desires captured during extensive civic engagement.

The recommended plan is designed to make transit an integral part of Middle Tennessee's transportation system and a viable and attractive option to the single occupancy vehicle.

The actions in this plan work together to produce a strong network of interconnected mobility services.

SERVICE IMPROVEMENT RECOMMENDATIONS

It consists of improvements designed to:



Recommendation 1
Make Service Easier To Use



Recommendation 2
Improve Existing Services



Recommendation 3
Improve Access to Transit



Recommendation 4
Make Service More Comfortable



Recommendation 5
Develop a Network of Regional Transit Centers



Recommendation 6
Expand Services to New Areas

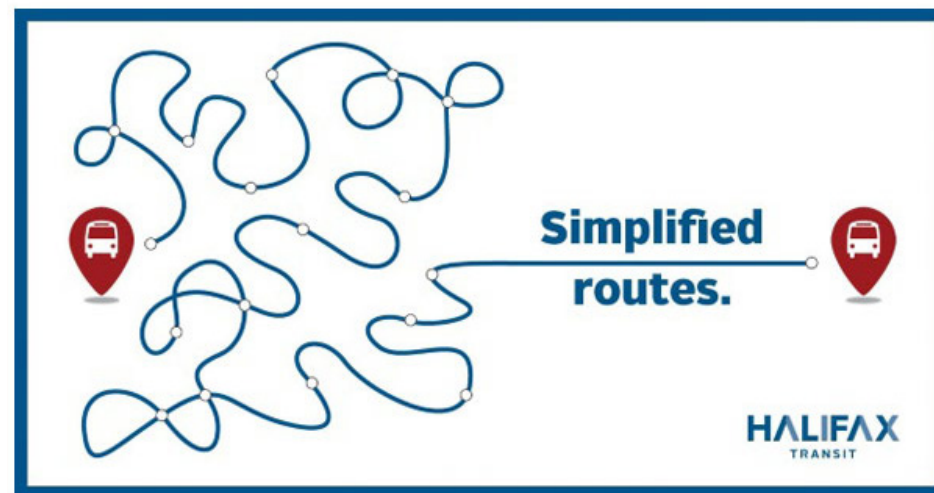


Recommendation 7
Build High-Capacity/Rapid Transit Network



Recommendation 1 Make Service Easier To Use

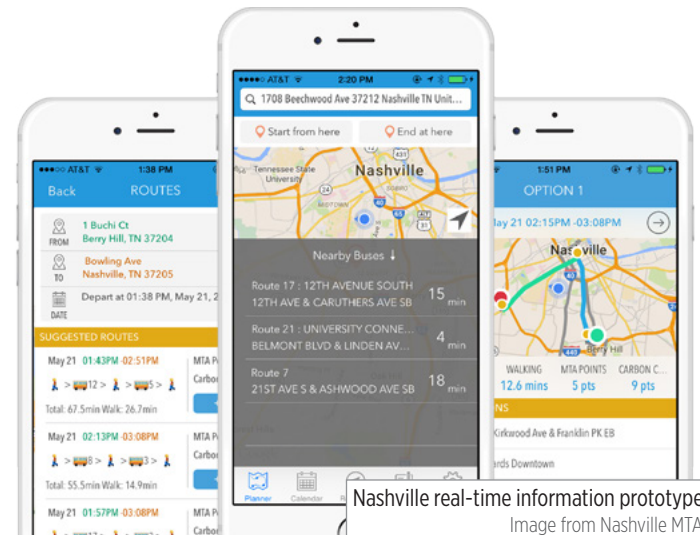
One of the first set of improvements that MTA and RTA will undertake will be those designed to make it easier to use available services.



Simplify Service

MTA and RTA will simplify existing bus routes. This will be a short-term effort with improvements developed as follows:

- Perform a comprehensive evaluation of each individual route to determine strengths, and potential improvement opportunities
- Define and implement short-term service changes for immediate improvements or pilot programs
- Continue to evaluate and vet potential improvements with stakeholders
- Fully develop and implement comprehensive operational improvements



Develop a Single Seamless System

MTA and RTA will rebrand their services to provide the public appearance and functionality of a single, seamless system. Specific actions will include:

- New branding under a single name,
- Consolidated passenger information,
- A simpler unified fare system, and
- Stronger connections between Metro and regional services.

Better Information

MTA and RTA will provide information in a variety of ways to make it easy to obtain:

- A **single website for regional transit information**. This single website would provide information on services provided by the MTA and RTA, as well as other local providers (for example, Clarksville Transit System, Franklin Transit and the Murfreesboro Rover).
- The provision of **schedule and real-time information via websites and smartphone apps** for all transit services in Middle Tennessee (MTA, RTA and local providers).
- **Real-time information at major stations and stops and park-and-ride lots.**
- **Route information, including schedules and maps** at all busy stops.
- **Wayfinding and local information signage** at major stops.

Simpler Fare Payment

Fare payment technology is improving rapidly. MTA and RTA have already begun to aggressively pursue improvements that would make fare payment much easier. Improvements will likely include:

- **Regional joint fares**
- **Stored value tickets** to make fare payment easier for occasional riders
- **Open payment systems** that allow use of credit card, debit card and other third-party fare payment systems
- **Mobile ticketing** to provide another option to existing riders and make fare payment easier for existing riders
- **Off-board ticketing machines** that accept credit and debit cards, and that would speed the boarding process
- The development of **open systems** that could be used interchangeably with related service providers such as private transportation providers and parking facilities

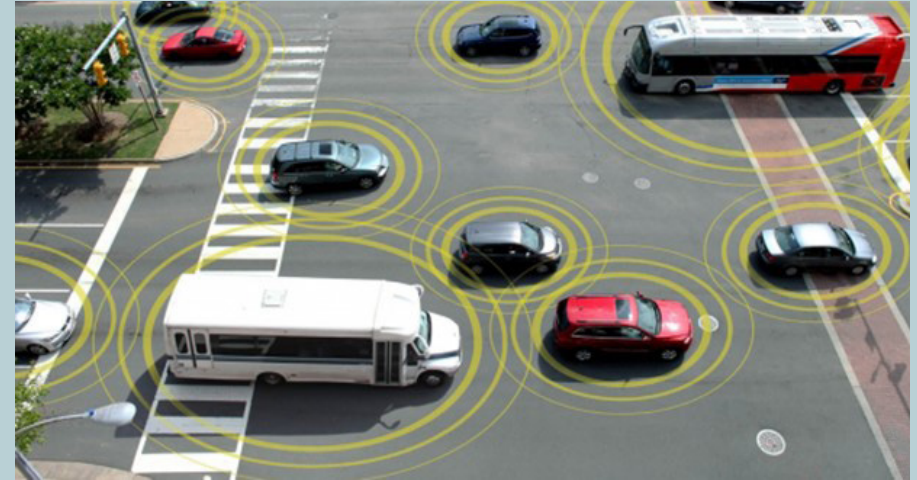
Smart Technology

Mayor Megan Barry's "Connected Nashville" has proposed that the city of Nashville develop a Smart Technology Platform that would provide "one-stop" shopping for a variety of transportation options, including information and payment options for:

- Public transit
- Parking
- First-mile/last-mile service such as Lyft, Uber, carshare, bikeshare, etc.
- Future mobility options as they are developed

MTA and RTA will work with the city of Nashville, TDOT and others to develop and implement this platform.

What About Autonomous Vehicles?



Autonomous vehicles are being manufactured and making their way into the national transportation network. These vehicles could create big changes to how we move between and around our cities and towns. However, while there is much speculation on when and what their impacts will be, there is little agreement.

The nMotion plan recognizes that autonomous vehicles will very likely have a connection to future transit service and infrastructure. In particular, fully autonomous vehicles could jointly use "managed lanes" with BRT and emergency vehicles. Neighborhood and regional transit centers could serve as the connecting points between localized, autonomous circulation and the regional mass transit system. Recommendations will continue to be responsive to changes in the industry as these vehicles make their way onto our roads.



Recommendation 2 Improve Existing Services

In addition to making existing services easier to use, a second starting point will be to make fundamental improvements to existing services.

TABLE 1 | WEEKDAY SERVICE SPANS AND FREQUENCIES

Service Type	Span of Service	Service Frequencies (mins)			
		Peak Periods	Midday	Evening	Early/Late
Local Routes					
Frequent All Day	5 am – 12 am	15	15	15	30
Frequent Peak	5 am – 12 am	15	30	30	30
Local 30 All Day	5 am – 11 pm	30	30	30	30
Local 30 Peak	5 am – 11 pm	30	60	60	60
Local 60 All Day	5 am – 9 pm	60	60	60	60
Circulator	5 am – 7 pm	30	30	60	
Lifeline	9 am – 3 pm		60		
Regional Routes					
Commuter Rail	5 am – 11 pm	30	60	60	60
Freeway BRT	5 am – 11 pm	30	60	60	60
Commuter/Express	5 am – 9 pm	30	120	120	
Frequent Transit Network					
Light Rail	5 am – 1 am	10	10	10	20
BRT	5 am – 1 am	10	10	10	20
Streetcar	5 am – 1 am	10	10	10	20
Rapid Bus	5 am – 1 am	10	10	10	20
Regional Rapid Bus	5 am – 11 pm	30	30	30	60

Note: Spans and frequencies represent minimums for each type of service; additional service could be provided.

Establish a Frequent Transit Network

This recommendation includes more frequent service throughout the local bus system. Plus it includes the development of a branded Frequent Service Network. This Network would initially start with more frequent local routes on specific corridors and would grow into a network of rapid bus, BRT, and eventually Light Rail. Nearly all services will operate for significantly longer hours and much more frequently than they now do (*see Table 1*):

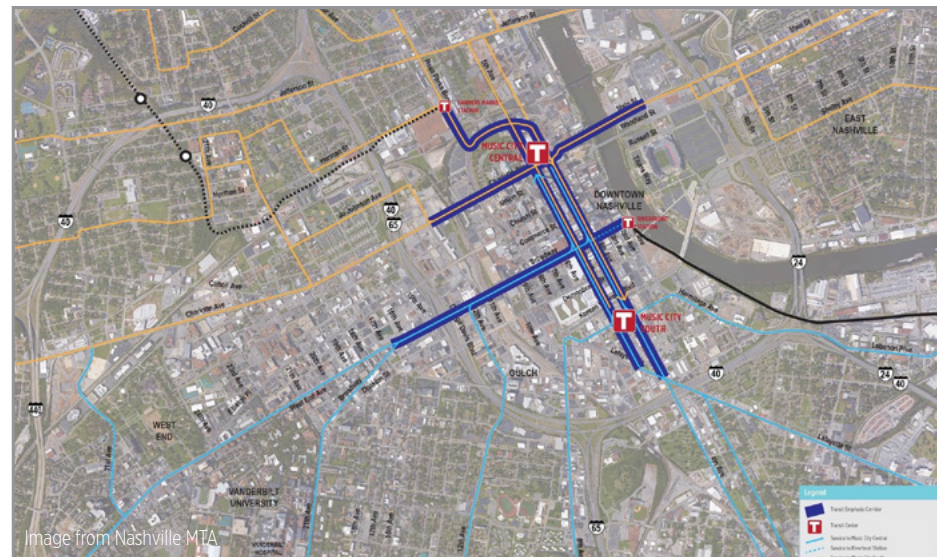
- **Metro Area Local Bus:** There will be earlier and later service, including more weekend service, and more frequent service throughout the day, on nearly all routes.
- **Regional Routes:** All-day, seven-day-a-week service would be provided on major routes, including commuter rail. Much more frequent service would be provided on MTA and RTA express routes, including midday and early evening service.



Better AccessRide Service

MTA's AccessRide service currently goes well beyond what is required by the Americans with Disabilities Act (ADA) and, relative to fixed-route services, is significantly more extensive than what is in the outer counties. RTA will work with Clarksville Transit, Franklin Transit and the Murfreesboro Rover to improve and expand local services. In other areas where demand will emerge for local service, RTA will work with communities to develop new services that could be operated by either RTA or a local authority. Going forward, MTA will continue to implement improvements, with most aimed at making service more convenient:

- **Real-time information** that will allow users to track the location of their vehicle and that will provide more accurate pickup time information.
- New **“no advance reservation”** services, such as the ability to use additional transportation providers such as Uber, Lyft and regular taxis.
- **New fare payment options** to make fare payment easier.
- The development of a **charitable organization to provide fare subsidies for low-income riders**



Faster Service in — and Through — Downtown Nashville

Transit service in downtown Nashville will be reconfigured to make it simpler and more direct. Exact changes which will be determined by the upcoming Downtown Nashville Mobility Study will likely consist of:

- A **second transit center** south of the Convention Center
- **Transit Emphasis Corridors:**
 - » North-south through the downtown core
 - » Charlotte Avenue/James Robertson Parkway
 - » Broadway
- **Much simpler circulation patterns and very frequent service** in the Transit Emphasis Corridors. The very frequent service in the Transit Emphasis Corridors will provide shuttle-like service within downtown.
- **Transit priority measures** along Transit Emphasis Corridors and other key locations.

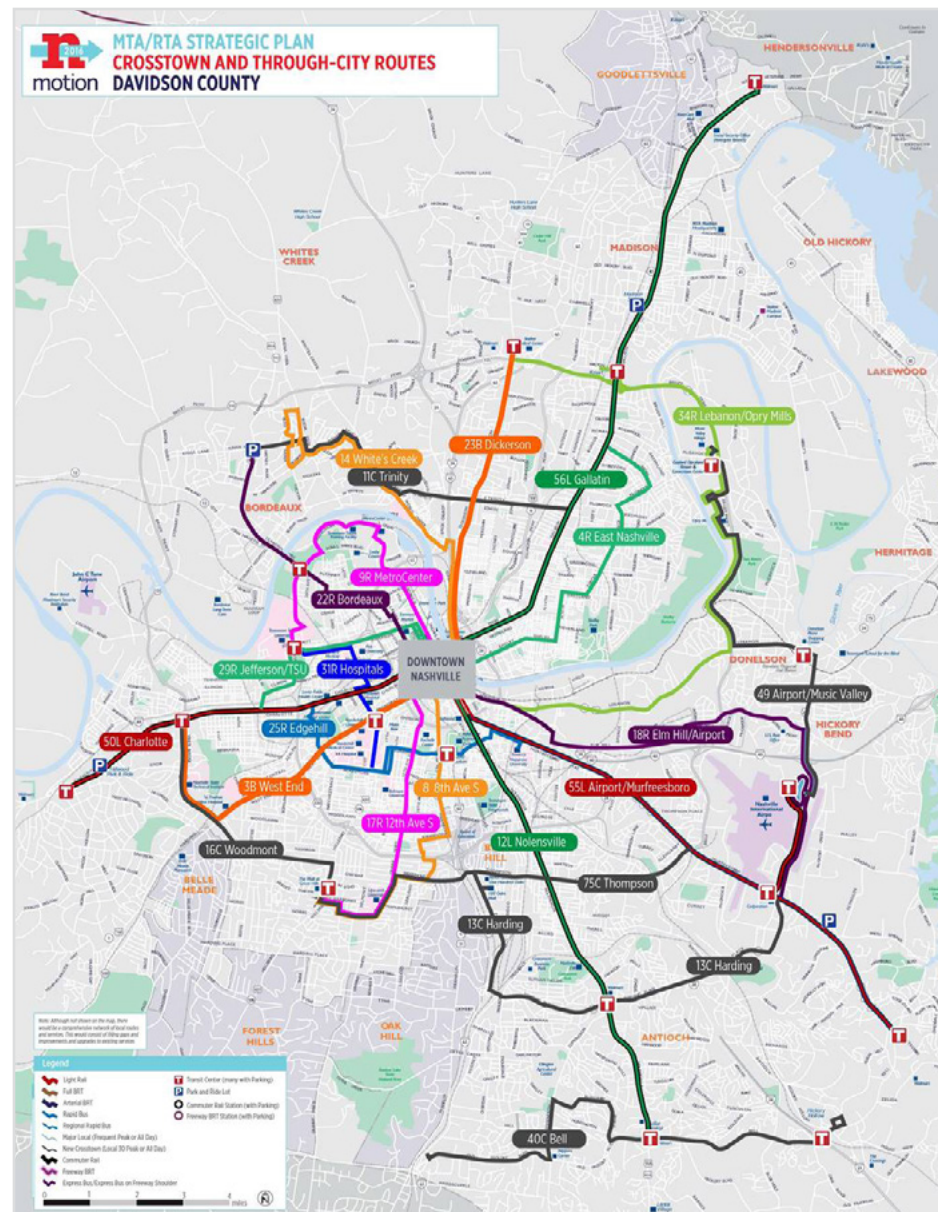
Crosstown and Through-City Routes

Existing MTA and RTA services are currently very heavily focused on downtown Nashville. To make it easier to use transit to other locations, new “crosstown” and “through-city” routes will be developed. New crosstown services will provide service between:

- Bordeaux and Gallatin Pike via Trinity Lane (Route 11C Trinity)
- 100 Oaks Mall and Murfreesboro Pike via Harding Place (Route 13C Harding)
- Charlotte Avenue and One Hundred Oaks Mall via Woodmont Avenue and the Mall at Green Hills (Route 16C Woodmont)
- Murfreesboro Pike and Nashville International Airport (with continuing service to downtown) (Route 18R Elm Hill/Airport)
- Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue (Route 25R Edgehill)
- Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center (Route 31R Hospitals)
- Gallatin Pike and downtown Nashville via Opry Mills (Route 34R Lebanon/Opry Mills)
- I-65 at Old Hickory Boulevard and Hickory Hollow via Old Hickory Boulevard and Bell Road (Route 40C Bell)
- Nashville International Airport and Opryland/Music Valley via Donelson Station (Route 49C Airport/Music Valley)
- 100 Oaks Mall and Murfreesboro Pike via Thompson Lane (Route 75C Thompson)

In addition, MTA will combine a number of radial routes that now operate to and from downtown Nashville through the city to provide more one-seat rides. The specific routes will be determined as a short-term action, but candidate routes include:

- West End—Dickerson (Routes 3B West End and 23B Dickerson)
- MetroCenter—12th Avenue South (Routes 9R MetroCenter Rapid and 17R 12th Avenue South Rapid)
- Whites Creek—8th Avenue South (Routes 14 and Whites Creek)
- Bordeaux—Elm Hill Pike/Airport (Routes 22R Bordeaux Rapid and 18R Elm Hill Rapid)
- Jefferson/TSU—East Nashville (Routes 29R Jefferson/TSU Rapid and 4R East Nashville Rapid)





Recommendation 3

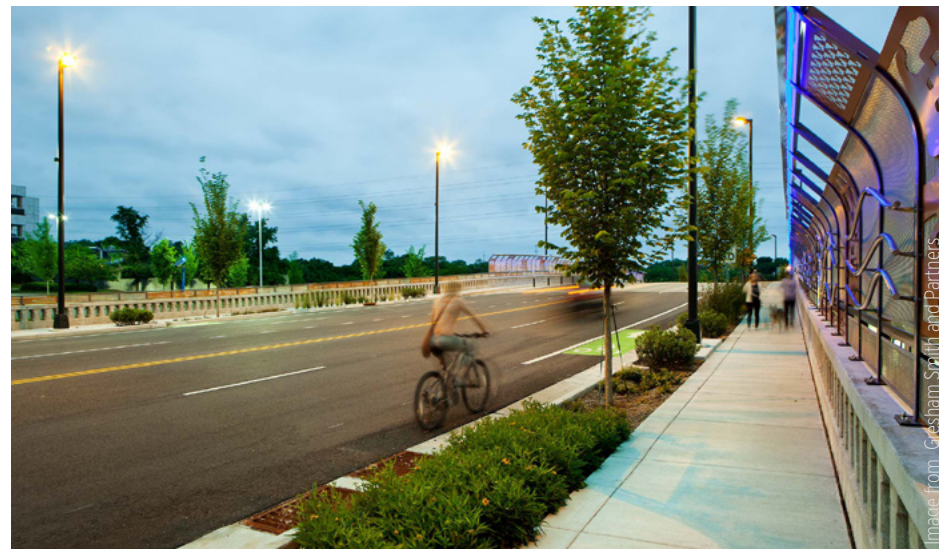
Improve Access to Transit

At the present time, a significant barrier to using transit is that it is difficult to get to and from. MTA and RTA will implement and participate in the development of a number of efforts to improve access:

- Greatly improved pedestrian access
- More conveniently located park-and-ride lots
- Better bicycle connections

In addition, MTA and RTA will work with local communities and businesses to provide new options to connect with transit services. While MTA and RTA will participate in the development of these services, the primary responsibility for providing the services would be with others (local transit agencies; businesses such as taxis, Lyft, and Uber, TMAs, local communities, etc.). However, MTA and RTA will also provide services in areas where other alternatives were not available.

- The development of Transportation Management Associations (TMAs) to provide private connections
- Private rideshare services such as Uber and Lyft
- Car share/private short-term car rental companies such as ZipCar and Car2Go



Greatly Improved Pedestrian Access and Better Bicycle Connections

MTA and RTA will work with local communities to improve pedestrian access to and from transit. MTA will work with the city of Nashville to develop sidewalks and crossings and make other pedestrian improvements along all transit routes. In the outer counties, RTA will work with communities to develop pedestrian infrastructure at key points along Regional Rapid Bus lines. MTA and RTA will also work with local communities to improve pedestrian conditions at and around major stations.

Similarly, MTA and RTA will work with local communities to improve bicycling conditions to and from major stations and stops. MTA and RTA will also provide space for bicycles on light rail vehicles and BRT vehicles, and continue to provide bicycle racks on all other buses.



More Conveniently Located Park-and-Ride Lots

Most MTA and RTA park-and-ride lots are located at places where local businesses and organizations have agreed to let commuters park free. This is a very low-cost approach, but often results in lots that are inconveniently located. Going forward, MTA and RTA will develop “purpose-built” park-and-ride lots designed to maximize convenience. These lots will be developed along Freeway BRT routes, express routes, and other key locations.



Private/Community Shuttles

Elsewhere in the United States, private shuttles are a very common way to provide connections between transit stations and locations where volumes are too low for traditional transit service operated with 30- or 40-foot buses, destinations that are dispersed, and/or where the times that people travel are highly concentrated. Most shuttles are provided by one of four types of organizations: (1) Transportation Management Associations (TMAs), (2) private employers, (3) cities and towns, and (4) public transit systems. Local shuttles typically provide coordinated connections that make timed transfers to higher-capacity transit routes. MTA and RTA will work with these types of organizations to encourage the development of private shuttles to and from major transit locations.

Transportation Network Companies (TNC) Services

Services provided by Transportation Network Companies are already being well used to provide “first-mile/last-mile” connections with transit. MTA and RTA will work with these companies to make the joint use of services easier, and to formalize relationships in a manner that will provide for joint fares and/or simpler fare payment. MTA and RTA will also investigate the use of these types of companies to provide MTA and RTA service to lower-demand areas, including AccessRide services.



Recommendation 4 Make Service More Comfortable

MTA and RTA will implement a number of enhancements to improve passenger experiences.



Image from Transportation4America

Better Stations and Stops

MTA and RTA will develop a program to improve amenities at all stations and stops. To do this, MTA and RTA will develop a hierarchy of stops based on stop purpose and volumes, and define the types of facilities and amenities that would be provided at each. MTA/RTA will also work closely with cities and counties to ensure ongoing maintenance and security standards around transit facilities.

More Comfortable Vehicles

MTA and RTA will improve vehicle comfort levels. This will include the use of Over-the-Road coaches on all RTA express routes, more comfortable vehicles on BRT and Rapid Bus routes, commuter rail, and light rail, when developed. Wi-fi will also be provided on all long distance services.



Source: Nashville Downtown Partnership

How Does Downtown Nashville Fit Into the Plan?

Downtown Nashville is the center of Middle Tennessee, and the place where most transit riders travel to and from. However, it is also where transit gets bogged down, with buses currently averaging only about 6 mph in downtown. These slow speeds make transit unattractive, and a common theme heard during the nMotion 2016 civic engagement process was, "I'd use transit if it weren't so slow, especially in downtown Nashville."

Today's slow service is due to a combination of relatively narrow streets, traffic congestion and a lack of transit priority. Other cities with even worse congestion have made transit work more effectively in downtown, and a key to making transit more effective, for both Davidson County and all of Middle Tennessee, will be to make it work well within downtown Nashville.



Recommendation 5

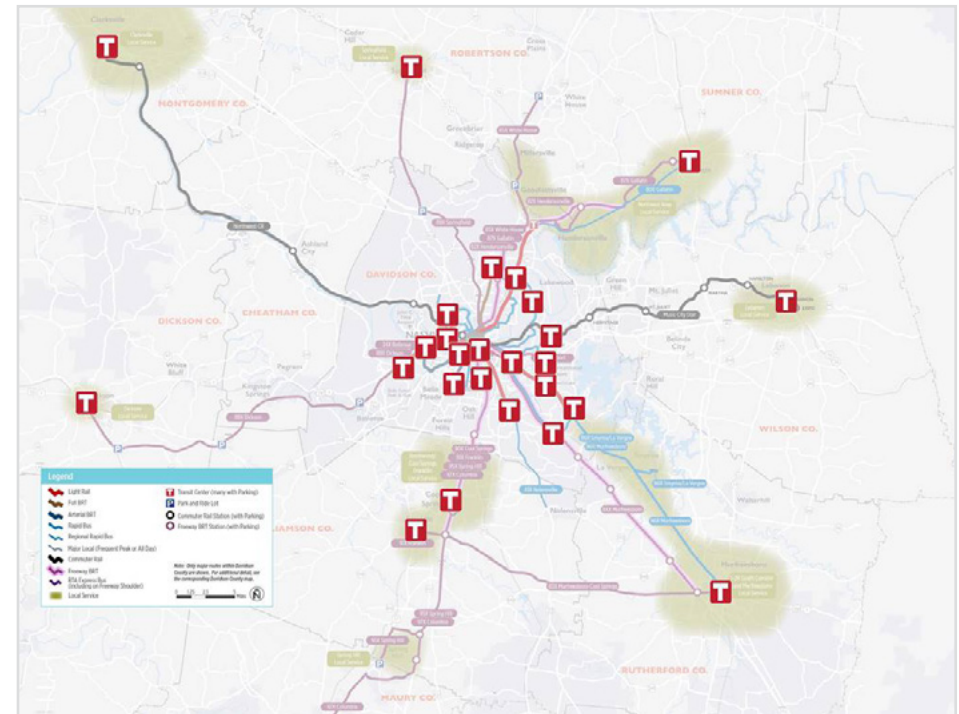
Develop a Network of Regional Transit Centers

In combination with the development of new crosstown and through-city routes, MTA and RTA will develop new transit centers throughout the region that will facilitate non-downtown Nashville travel. The transit centers will be designed to act as regional and local “mobility hubs” that provide connections between local services and between local and regional services.

The transit centers will be sized and developed based on local conditions and needs, and thus will range in size from very large with a wide range of amenities to more modest neighborhood transit centers. All will provide a comfortable location to make connections between transit routes, and will include features such as:

- Strong pedestrian connections with the surrounding areas
- Parking (at outer area transit centers) and drop-off areas
- Bikeshare and bicycle parking
- Space for private shuttles and Transportation Network Companies (Lyft, Uber, etc.)
- Real-time passenger information
- Comfortable and attractive waiting areas

TRANSIT CENTER LOCATIONS



MOUNTLAKE TERRACE TRANSIT CENTER (MOUNTLAKE TERRACE, WA) AND AIRWAYS TRANSIT CENTER (MEMPHIS, TN)





Recommendation 6 Expand Service to New Areas

Within Davidson County, MTA will expand service to fill gaps in coverage and extend service to new areas as demand develops. In addition, and as described above, MTA will provide new linkages through the development of crosstown and through-city routes.

Areas that will be targeted for the development of new services will include:

- Springfield
- Goodlettsville, Hendersonville and Gallatin
- Lebanon
- Smyrna and La Vergne
- Spring Hill
- Dickson

What About Service to Music Valley/Opryland?

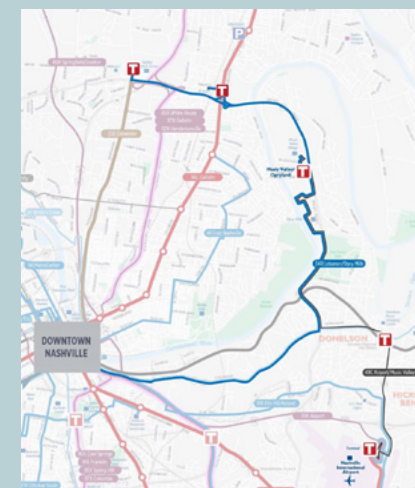
Opryland is one of Nashville's major destinations, but one that now has only limited transit connections. Service will be fundamentally improved in two ways:

- Route 34 Opry Mills, which now provides only very limited service to Music Valley, will be upgraded to a Rapid Bus route (Route 34R Lebanon/Opry Mills) and will provide frequent service from early morning until late night seven days a week. This route will also provide connections to light rail on Gallatin Pike and BRT on Dickerson Pike and to points beyond.
- New local service will be developed between the airport and Music Valley via the Donelson Music City Star Station. This service will operate every 30 minutes seven days a week.
- A transit hub allowing for connections from local circulation to the broader regional transit system.



Source: marriot.com

MUSIC VALLEY SERVICE





Recommendation 7 Build High-Capacity/ Rapid Transit Network

Under the 25-year nMotion strategic plan, a large number of new High-Capacity and Rapid transit services will be developed. These will include Bus Rapid Transit (BRT), Rapid Bus, Freeway BRT, Express Bus-on-Shoulder service, Regional Rapid Bus, and “regular” express bus services, commuter rail, and light rail.



Image from Nelson\Nygaard

Commuter Rail

Commuter rail service is designed to transport large volumes of passengers over long distances in a fast and comfortable manner. The primary market for commuter rail service is usually commuters to and from city centers.

Experience in Middle Tennessee and elsewhere shows that commuter rail can shift far more people out of cars than express bus services. For example, compared to express bus services in Williamson and Rutherford counties, and even though the Music City Star serves a smaller market than express bus routes, it carries over six times more passengers and over seven times more passengers per trip. This is the case for a number of reasons, the most important of which include faster service and greater comfort.

However, the potential for the development of commuter rail in Middle Tennessee is very limited. This is because most potential lines would need to use CSX tracks, which for the foreseeable future, will not be possible due to very high volumes of freight traffic.

For this reason, commuter rail improvements are proposed along lines where they are possible: the Music City Star Line and between Clarksville and Nashville and the Northwest Corridor.

Music City Star

Music City Star service will be upgraded to all-day, seven-day-a-week service, a new station will be constructed at Hamilton Springs, and service will be extended to Lebanon's planned Expo Center. Much or all of the line will be double-tracked to enable the more frequent service, and new replacement vehicles will be purchased.

Northwest Corridor

RTA is nearing completion of the Northwest Corridor Transit Study, which is examining a number of options for transit improvements between Clarksville, Ashland City and Nashville. It is expected that the study will recommend the eventual development of commuter rail. However, it has also identified a number of hurdles. Two of the most important are:

1. The inability to bring service all of the way into downtown, with the closest potential terminal near the Farmers' Market. While very strong connections could be provided from this location, the need to transfer would reduce ridership levels.
2. More growth needs to occur to make the service cost-effective.
3. As a result, the development of Northwest Corridor Rail will be a longer-term project, with implementation more toward the end of the program than the beginning.

A successful resolution of the CSX issues discussed in the call-out box below could provide the ability to develop a more convenient downtown terminal. To allow time for RTA and TDOT to address those issues, and for the required growth to occur, the development of Northwest Corridor rail will be a longer-term project, with implementation more toward the end of the program than the beginning.

When service is implemented, it is envisioned that two types of service will be provided:

- **Mainline service between Clarksville and Nashville**
- **Local service within Nashville between North Nashville** and the vicinity of downtown. This service would be in addition to Clarksville service.

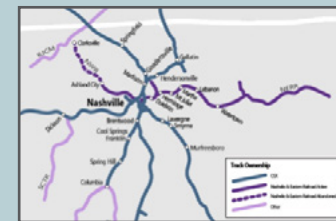
In the interim, the Clarksville-Nashville commute corridor would be targeted for improvements such as bus-on-shoulder operation, additional park-and-ride capacity and expanded commuter bus service.

Why Not Develop More Commuter Rail?

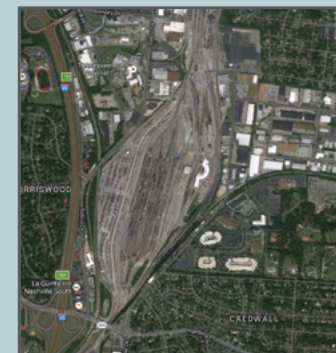
A significant amount of desire has been expressed for the development of new commuter rail lines in Middle Tennessee, particularly to Murfreesboro and Franklin/Spring Hill. However, one of the challenges to the development of new commuter rail lines in Middle Tennessee is that the most desirable rail corridors are CSX lines that have very heavy freight traffic. All new commuter rail lines that have been implemented since the 1990s, including the Music City Star, have been developed in rail corridors with low levels of freight traffic or the ability to develop parallel tracks within existing freight rights of way. In those cases, the freight railroads either had sufficient excess capacity to accommodate commuter rail and/or the receipts from the sale of the rail corridors more than offset negative impacts to freight service.

This is not the case in Middle Tennessee. Except for the Nashville and Western Railroad line to Clarksville, other potential commuter rail lines would be CSX lines that are heavily used for freight traffic. Beyond the freight traffic alone, Nashville is also a major center for related freight activities, and the company has a major rail yard in Nashville (Radnor), an intermodal terminal, an automobile distribution center and a bulk transfer terminal. CSX's Nashville-area freight traffic is near capacity, and consequently, CSX is not willing to share its tracks with passenger traffic.

Continuing increases in freight traffic may exceed the capacity of CSX's Nashville area network, which could require a large-scale solution such as the development of a rail bypass around Nashville for some freight traffic. This type of change would be well beyond the scope of what the MTA or RTA could do, but could also free up the capacity needed to develop new commuter rail lines. To further explore the potential for this type of solution.



Middle Tennessee Track Map (CSX in Blue)



CSX Radnor Yard



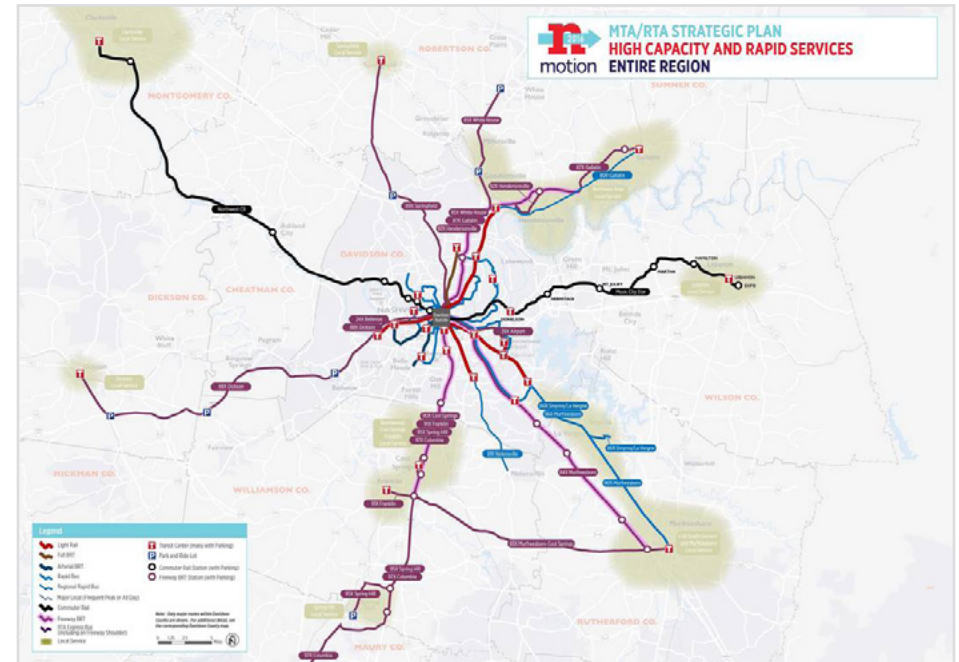
Light Rail

Light rail transit (LRT) is electric urban rail service that typically operates in exclusive rights of way. Most often, it uses one-to-three car trains and is designed to serve high-volume corridors at higher speeds than a local bus or streetcar service. Design and operational elements of LRT include level boarding, off-board fare payment and traffic signal priority. Stations are typically spaced farther apart than those of local transit services and are usually situated where there are higher population and employment densities.

While longer stop spacing can increase walking distances for some riders, people are typically willing to walk farther to reach transit if service is fast and frequent.

Light rail service is being considered in four corridors where transit demand is expected to be the highest and where there is the greatest potential for new development as envisioned by NashvilleNext:

- Gallatin Pike
- Murfreesboro Pike/Airport
- Nolensville Pike
- Charlotte Avenue





EmX BRT in Eugene, OR
Image from Nelson\Nygaard

Bus Rapid Transit

Bus Rapid Transit, or BRT, will be developed in three corridors:

- Dickerson Pike (Route 23B Dickerson)
- 21st Avenue South/Hillsboro Pike (Route 7B Hillsboro)
- Broadway/West End Avenue (Route 3B West End)

It is envisioned that service in the Dickerson Pike corridor will be “full BRT,” with dedicated lanes along most or all of the alignment, whereas BRT service in the West End and Hillsboro corridors would be “Arterial BRT” with more limited facilities such as curbside bus lanes and longer sections without bus lanes.



Nashville's BRT lite
Image from Nashville MTA via Showbus.com

Rapid Bus Service

Rapid Bus, in most respects, is BRT service without dedicated bus lanes, or only limited bus lanes. It can also be considered as a more full-featured version of MTA's existing BRT-lite service.

Four Regional Rapid Bus routes will be developed in regional corridors:

- Gallatin to the outer end of the Gallatin Pike light rail line (Route 80R Gallatin)
- Nolensville to the outer end of the Nolensville Pike light rail line (Route 81R Nolensville)
- Smyrna and La Vergne to downtown Nashville via Murfreesboro Pike and I-24 (Route 86R Smyrna/La Vergne)
- Murfreesboro to downtown Nashville via Murfreesboro Pike and I-24 (Route 96R Murfreesboro)

REGULAR BUS vs. RAPID BUS vs. BUS RAPID TRANSIT

REGULAR BUS

TYPICAL FEATURES

- No special branding
- Frequent stops
- Wide range of stop facilities – from very basic to elaborate
- Wide range of service frequencies – from very infrequent to very frequent
- Wide range of service spans – from early morning to late night to only a few trips



Nashville MTA regular bus service

RAPID BUS

TYPICAL FEATURES

- Special branding
- Simple service design
- Limited stops
- Enhanced stops/stations
- Frequent service (at least every 15 minutes)
- Service from early morning to late night
- Real-time passenger information

OTHER COMMON FEATURES

- Unique vehicles, including high-capacity buses
- Queue jump lanes
- Transit signal priority
- Off-board fare collection



Nashville MTA BRT lite service

BUS RAPID TRANSIT (BRT)

TYPICAL FEATURES

- Special branding
- Simple service design
- Limited stops
- High-quality stations
- High-capacity buses
- Exclusive bus lanes
- Transit signal priority
- Very frequent service (at least every 10 minutes)
- Service from early morning to late night
- Real-time passenger information

OTHER COMMON FEATURES

- Unique vehicles
- Level platform boarding
- Off-board fare collection



Cleveland Healthline BRT service

Freeway BRT

In the I-24 east, I-65 south, and Ellington Parkway/Route 386 corridors, RTA will develop Freeway BRT service. This service will operate within dedicated or managed lanes in freeway rights of way, with stations directly linked to the freeways.

Freeway BRT will provide very fast regional and commuter service — service that during peak periods will be faster than traveling by car. Reverse commute service will improve access to jobs in these growing areas.

Eleven RTA routes will operate in these corridors:

I-24 East

- Route 84X Murfreesboro Express
- Route 86R Smyrna/La Vergne Rapid
- Route 96R Murfreesboro Rapid

I-65 South

- Route 90X Cool Springs Express
- Route 91X Franklin Express
- Route 95X Spring Hill
- Route 97X Columbia

Ellington Parkway/Route 386

- Route 85X White House Express
- Route 87X Gallatin Express
- Route 89X Springfield
- Route 92X Hendersonville Express

One route in each corridor (Routes 84X Murfreesboro Express, Route 91X Franklin Express and Route 87X Gallatin Express) will provide all day bidirectional service, with at least the same levels of service as on the Music City Star, and what would have been provided had it been possible to develop commuter rail.

Services operated in these corridors will also begin to emphasize more 'reverse commute' patterns carrying commuters to job sites in outlying counties of the region.



Bus-on-Shoulder Service

In major corridors where Freeway BRT will not be provided, MTA and RTA will work with TDOT to implement bus-on-shoulder service. With this operation, buses will use freeway shoulders when general traffic lanes are congested, which will also make bus service faster than traveling by automobile.

Six routes will operate in this manner:

I-24 West

- Route 89X Springfield
- Route 94X Clarksville (until replaced by Northwest Corridor Commuter rail)

I-65 North

- Route 85X White House (north of I-65/Route 386 intersection)

I-40 East

- Route 39X Airport

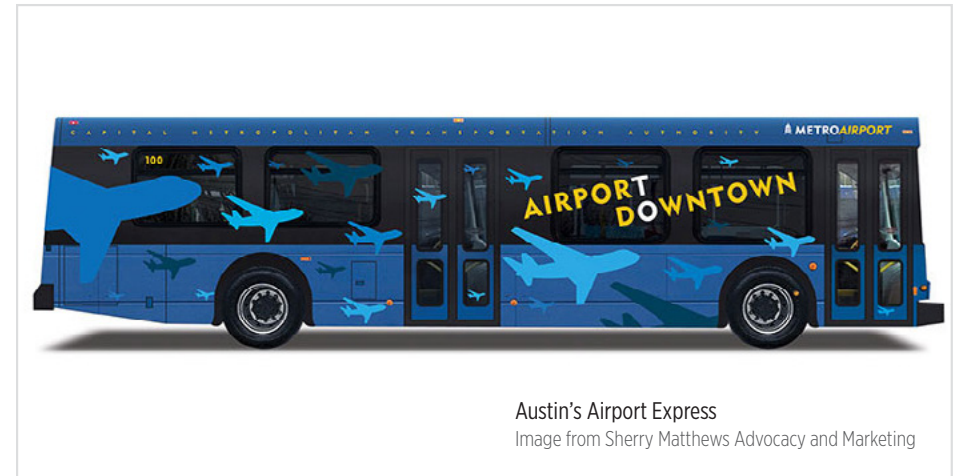
I-40 West

- Route 24X Bellevue
- Route 88X Dickson

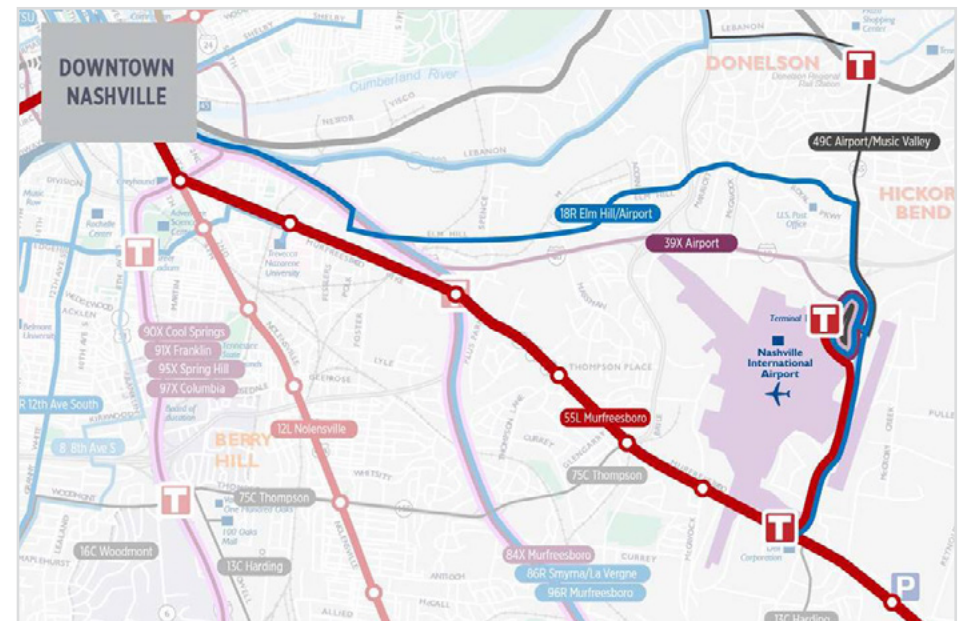
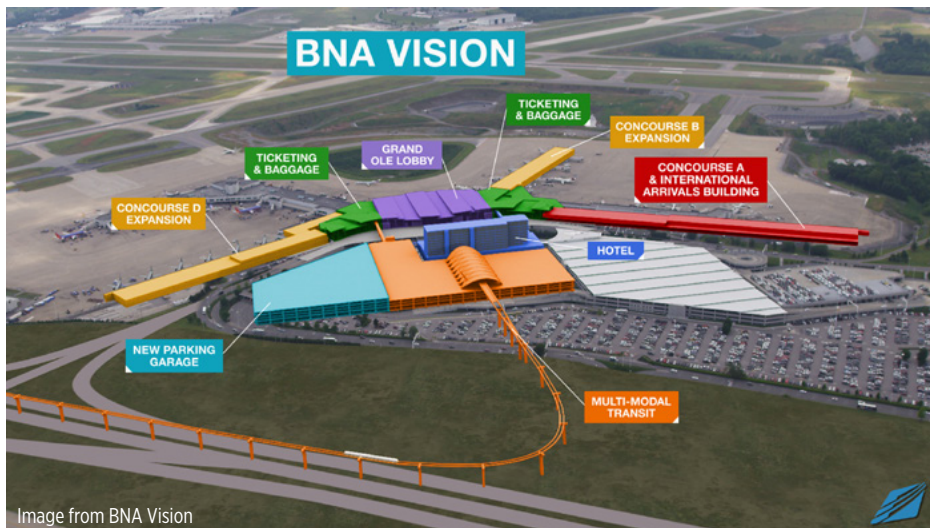
Airport Service

Most major cities have excellent transit service between their airports and downtown. nMotion 2016 envisions the same for Nashville, with the development of multiple High-Capacity and Rapid services, and the use of the airport as a transit hub. Airport services will include:

- Light rail service between the airport and downtown as part of the development of light rail service along Murfreesboro Pike [as a branch of Murfreesboro Pike service (Route 55L Airport/Murfreesboro)].
- Express bus service between the airport and the West End via downtown Nashville (Route 39X Airport). This service will operate seven-days-a-week every 30 minutes from early morning until late at night.
- Rapid Bus service between Murfreesboro Pike and downtown via Elm Hill Pike and the airport (Route 18R Elm Hill/Airport). (This route would primarily serve jobs along Elm Hill Pike, but would also provide an additional option to the airport).
- Local bus service between the airport and Music Valley/Opryland via Donelson Station (Route 49C Airport/Music Valley).



AIRPORT TRANSIT SERVICES



nMotion Benefits

Transit Ridership

MTA and RTA current carry approximately 34,000 passengers per weekday. With all improvement in place, ridership is projected to increase by **430%** to over 180,000 passengers per weekday.

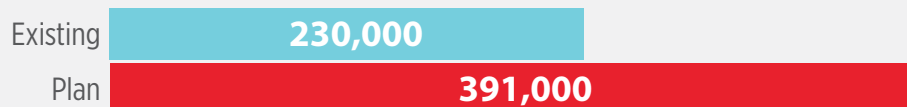
PROJECTED RIDERSHIP INCREASE



Number of Residents Served

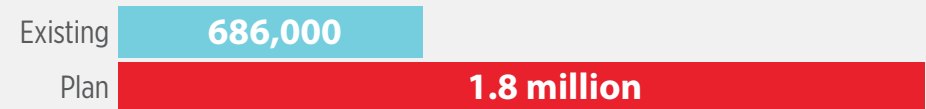
MTA currently provides service within a half mile of approximately 230,000 Davidson County residents. With the improvements, and including the population growth that will occur, this will increase by **70%**, and service will be provided within a half mile of 391,000 residents.

NUMBER OF DAVIDSON COUNTY RESIDENTS SERVED



In outer counties, approximately 686,000 residents are now within a half mile of local service or 5 miles of a commuter lot. With the improvements, this will increase by 165% to 1.8 million residents.

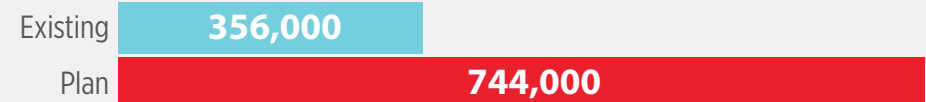
NUMBER OF REGIONAL RESIDENTS SERVED



Number of Jobs Served

One of the most important roles that transit serves is providing access to jobs. At the present time, MTA provides service within a half mile of approximately 356,000 jobs in Davidson County. With the improvements, this would increase by **110%** to 744,000.

NUMBER OF DAVIDSON COUNTY JOBS SERVED



In outer counties, the increase in the number of jobs served would be more dramatic. RTA and local providers currently provide service within a half mile of 109,000 jobs. With the improvements, this will increase by **640%** to 808,000. This increase is particularly important, as it will provide much better links between lower-income residents and jobs—jobs that many employers have difficulty filling because potential employees can't get to them.

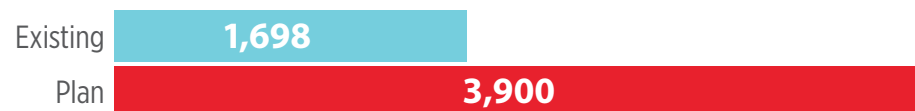
NUMBER OF REGIONAL JOBS SERVED



Service to Davidson County Low Income Residents

While existing service coverage is relatively good in Davidson County, the amount of service that is provided is often limited. Nearly all of the service improvements within Davidson County will also improve service to low-income residents. In terms of weekday hours of bus service, the amount of service to low-income neighborhoods (those where the number of low income residents exceeds the countywide average) will increase by **231%**.

SERVICE TO LOW-INCOME DAVIDSON COUNTY RESIDENTS



In terms of weekday bus service hours

Service Quality

As described above, a large number of the service improvements will significantly improve service quality.

Frequent Service

Many stakeholders listed infrequent service as a major reason that service is not convenient. At present, only 20% of MTA and RTA routes provide service every 15 minutes or more frequently. With the improvements, this will more than double to 41% of all service.

PERCENT OF SERVICE THAT IS FREQUENT



Service that operates at least every 15 minutes during peak period: large majority would operate every 10 minutes for most of the day.

Fast/Faster Service

As second major reason that stakeholders view service as inconvenient is that it is slow. At present, only 40% of routes provide relatively fast service, with fast service defined as the Music City Star, BRT-lite, and express bus routes. However, even though these routes in theory are fast, as noted by many stakeholders, they often get bogged down in traffic. Furthermore, many provide relative little service.

With the improvements, the percentage of routes that will provide fast service will increase to 68%. Furthermore, these routes will be significantly faster or genuinely fast, and will provide much more robust service.

PERCENT OF SERVICE THAT IS FAST



Fast services include LRT, BRT, Rapid Bus, commuter rail, Freeway BRT and express routes

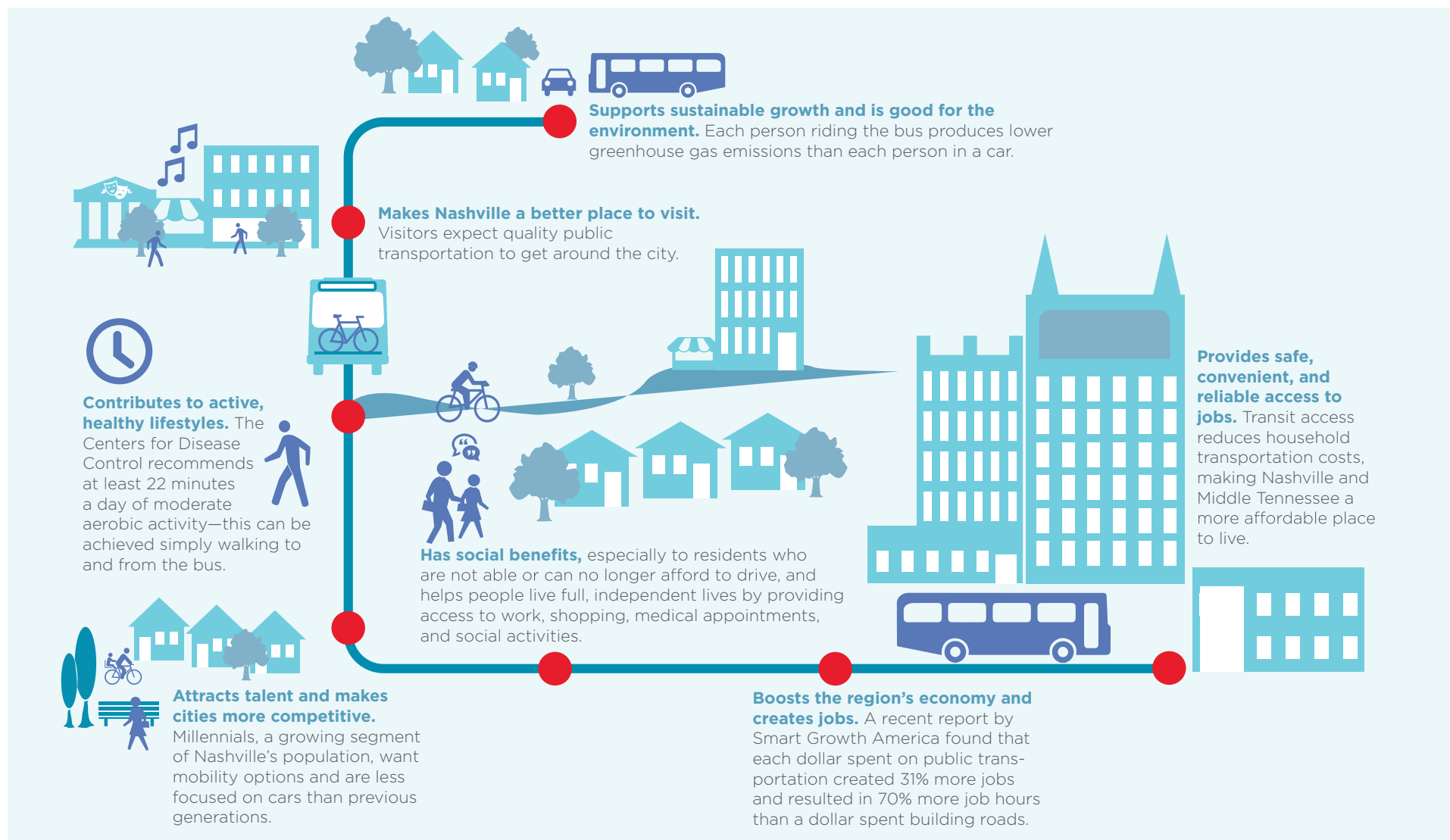
These routes will be fast for a variety of reasons, including the development of High-Capacity Transit (HCT) services such as LRT, BRT, Rapid Bus and others, use of dedicated or semi-dedicated rights of ways. For example, there will be more than:

- 150 route miles of HCT services
- 50 miles of dedicated bus lanes
- 98 miles of Freeway BRT service in bus or managed lanes

Pedestrian Improvements

One of the key challenges involved in the use of transit today is poor pedestrian conditions—it is too hard to walk to and from transit. To address this situation, the plan includes the development/improvement of sidewalks along all LRT, BRT and Rapid Bus routes. In total, there will be over 200 miles of pedestrian improvements.

Benefits of Transit



Costs

The proposed plan represents a major investment in Middle Tennessee's future, and costs will be much higher than what the region is spending today.

In terms of order-of-magnitude costs, total operating costs for both MTA and RTA would increase from a current total of \$83.2 million to \$338.4 million. Total capital spending through 2040 would be \$5.97 billion.

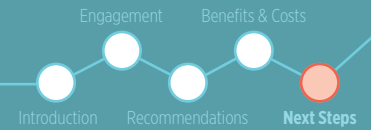
On a per capita basis, total annual costs for operations and capital expenditures would increase to \$244, which would be an increase of \$177 from the current level of \$67. Note, however, that a significant—and yet to be determined—portion would be funded through non-local sources. As a result, local per capita costs would be lower.

Costs in Millions	Existing System (FY 2016)	Recommended Plan (\$2015)
MTA		
Annual Operating Costs	\$73.6	\$222.1
Total Capital Costs	NA	\$4,219.9
RTA		
Annual Operating Costs	\$9.6	\$116.3
Total Capital Costs	NA	\$1,746.5
Total Regional System (MTA & RTA)		
Annual Operating Costs	\$83.2	\$338.4
Total Capital Costs	NA	\$5,966.5
Annual Per Capita Cost		
MTA and RTA Total	\$67	\$244

Note: Per capita costs are based on "full buildout". All costs are order-of-magnitude costs and more detailed estimates would be produced during project development.

Finally, the transit improvement programs that have been undertaken in Denver and Salt Lake City have received a significant amount of attention in Middle Tennessee. By comparison, the annual per capita costs for those two programs have been approximately \$420 and \$621, respectively.

NEXT STEPS



The nMotion program is large and comprehensive. The plan is based on a building-block strategy to allow a jump-start directly into short-term improvements while preparing for mid-term improvements. The development of the long-term improvements will require strategic phasing and partnerships.

Implement Short Term Improvements

Begin Development of Community Transit Centers

The CSA will also determine how to improve connections outside of downtown Nashville. Concurrent with those changes, MTA and RTA will begin the construction of new outlying community transit centers as places to make those connections.

Improve Waiting Facilities

MTA and RTA will begin a program to improve bus stops. This will include more shelters and better signage, especially at RTA park-and-ride lots. This will include starting the addition of transit neighborhood and regional transit centers and purpose-built park-and-ride lots that are explained more thoroughly in mid-term improvements.

Provide Better Information

Along with presentation of MTA and RTA service to the public as a single system, it will provide information through a single website. Recent MTA service enhancements, such as real-time information, will be extended to RTA and AccessRide services.

Unify Fares

The MTA has recently begun an effort to determine how to simplify fare payment. As part of that effort, MTA and RTA will adopt a simpler, more flexible and single-fare structure. MTA and RTA will also investigate and implement ways to make fare payment easier, including mobile fare payment.

Improve Base Services

MTA and RTA will initiate a Comprehensive Service Analysis (CSA) to identify changes that can be made with their existing budgets to simplify and improve service. The types of changes that will be made are, for example, making service more direct, improving connections (including crosstown routes), developing through-city routes and improving schedules.

The CSA will also set priorities for short-term service expansion—as more funding becomes available, where and how should it be used?

Create a Frequent Transit Network/ Provide More Service for Longer Hours

MTA will begin to provide more frequent service for longer hours throughout the system, including on weekends. Initial improvements will be on routes that will make up the Frequent Transit Network, and additional priorities will be identified as part of the CSA.

Improve Downtown Transit

One of MTA and RTA's first priorities will be to make transit operate much better in and out of downtown Nashville. To do this, MTA and RTA will participate in the city's upcoming Downtown Mobility Study, which in part, will identify transit improvements. It is anticipated that this will produce short-term transit priority improvements that can be implemented within the constraints of downtown's existing infrastructure, plus more extensive improvements to follow.

Rebrand Service

In conjunction with the CSA changes, MTA/RTA will rebrand itself with a new unified name and image. While MTA and RTA will likely remain as separate entities, service will be presented to the public as if it is provided by a single system. Specific subcategories of services (such as commuter express service and the frequent transit network) will also be brand-differentiated to reduce complexity.

Improve Airport Service

MTA will upgrade express bus service between West End and Nashville International Airport with downtown to operate every 30 minutes seven days a week from early to late. This will provide fast and consistent service for both visitors and airport employees.

Improve Express Bus Service

MTA and RTA will initiate a program to improve commuter service. This will include new schedules that serve a broader range of work hours, the start of the development of "purpose-built" park-and-ride lots in more convenient locations, real-time information, and better stop facilities.

Start Planning and Design for Mid-Term Improvements

Increase Music City Star Service

In the short term, working within the constraints of existing equipment and track capacity, MTA/RTA will provide additional service, including on Saturdays. RTA will also begin the design of the infrastructure improvements required for more frequent service.

Implement Express Bus-on-Shoulder Service

MTA and RTA will work with TDOT to determine the measures necessary to implement express bus-on-shoulder service. At the least, MTA and RTA will seek to implement a pilot project in one major freeway corridor. Even better, MTA and RTA would like to be able to implement express bus-on-shoulder service in all major freeway corridors within the next two years.

Upgrade BRT-Lite Service

The nMotion program includes the development of Rapid Bus service on many routes in the Frequent Transit Network, including existing BRT-Lite routes. Key improvements will be to provide all limited stop service, better stop facilities, new branding and transit priority measures. MTA will start by upgrading existing BRT-lite routes, and then progress to additional routes.

Start Development of Longer-Term Improvements

Begin Development of High-Capacity Transit Services

Typically, the development of new High-Capacity Transit (HCT) services takes 10-plus years from the beginning of required planning studies to the start of service. MTA will start this process as quickly as possible. For new HCT services within Davidson County, the MTA has already begun a project to examine different HCT approaches in five corridors. This project, which will be completed within the next year, will also prioritize initial corridors. Based on this prioritization, MTA will proceed on development of its first light rail or BRT line.

RTA will also pursue its first regional HCT project, which it will determine in conjunction with the Nashville MPO and the outer counties. One potential approach could be to expand the MPO's upcoming South Corridor Transit Study to project development for the first regional HCT line.

Develop Long-Range Implementation Plan

All major transit investment programs, including those in Denver, Salt Lake City, Phoenix and others, represent long-range efforts. Most include the development of a "Program of Projects" that defines which projects will be implemented when, and how they will be financed. MTA and RTA will develop a long-range implementation plan that will define how this will be done for all projects. This plan will also provide the information required to support efforts to obtain approval for legislative and/or voter approval for new funding.

Partnerships

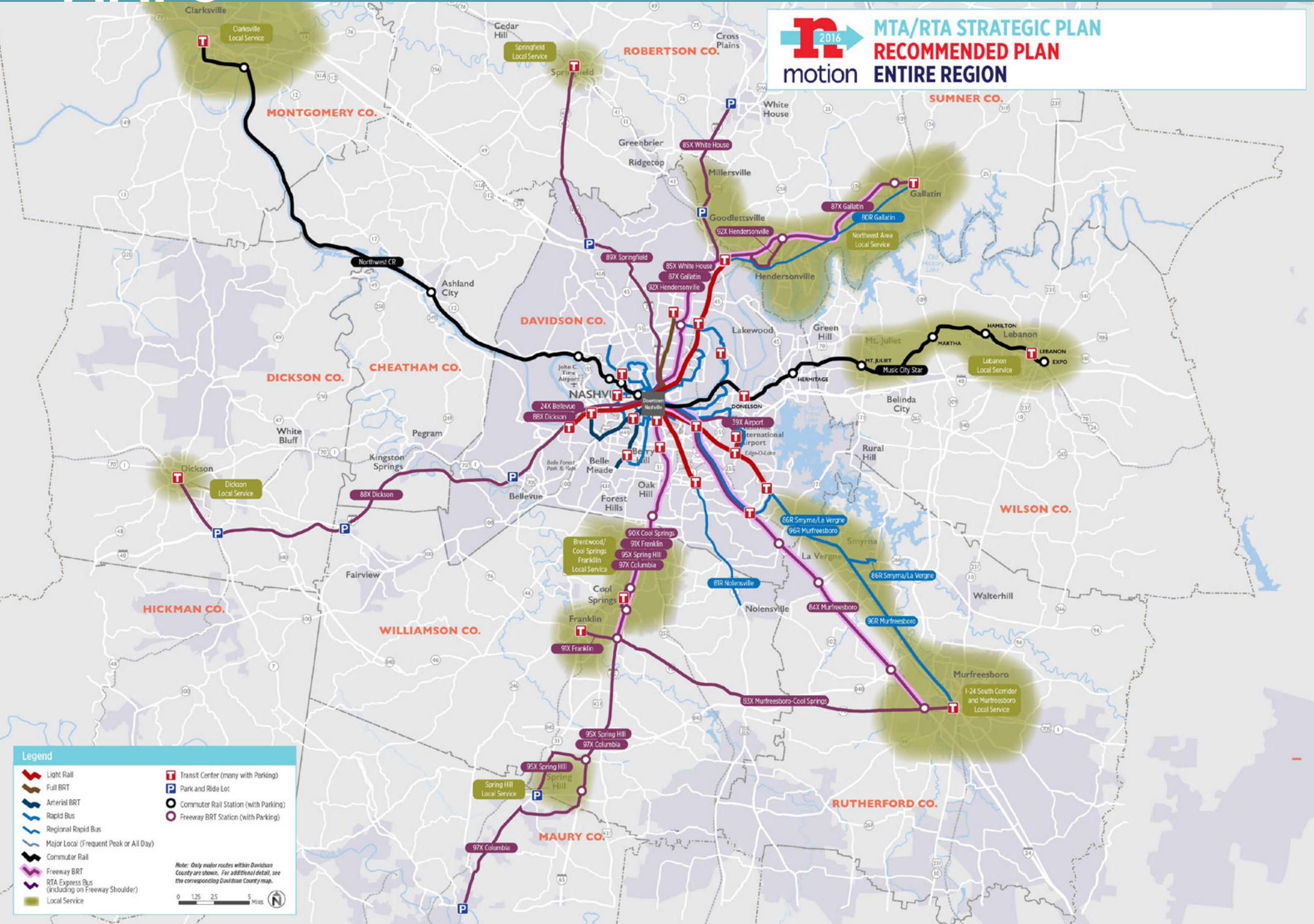
Development of the full 25-year nMotion program will require strong partnerships. Most new transit lines will operate on highways and streets controlled by local communities and TDOT. As such, local communities and TDOT will need to support the roadway changes needed to High-Capacity Transit (HCT) services such as light rail, BRT and Freeway BRT. In addition, for transit to be successful, people will need to be able to walk to and from it. If light rail were implemented tomorrow on Murfreesboro Pike without the development of associated pedestrian facilities, it would fail as too few people would be able to access it. Finally, it should also be understood that the nMotion program, especially in Davidson County, is designed to serve the type of more concentrated mixed-use development that residents and businesses say they desire, which is very different from what now exists in many areas. Transit can stimulate development, but it cannot by itself create it. Local communities must enable and encourage transit-supportive development, and a transition to that type of development must accompany the development of HCT.

The nMotion 2016 process was designed to identify improvements based on need, with the recognition that additional funding will be needed. One of the first of MTA and RTA's next steps to advance the long-term improvements will be to outline possible funding and financing scenarios. These scenarios will help to identify proposed funding sources and the steps needed to implement them (for example, legislative approval, a vote, etc.)

MAPS



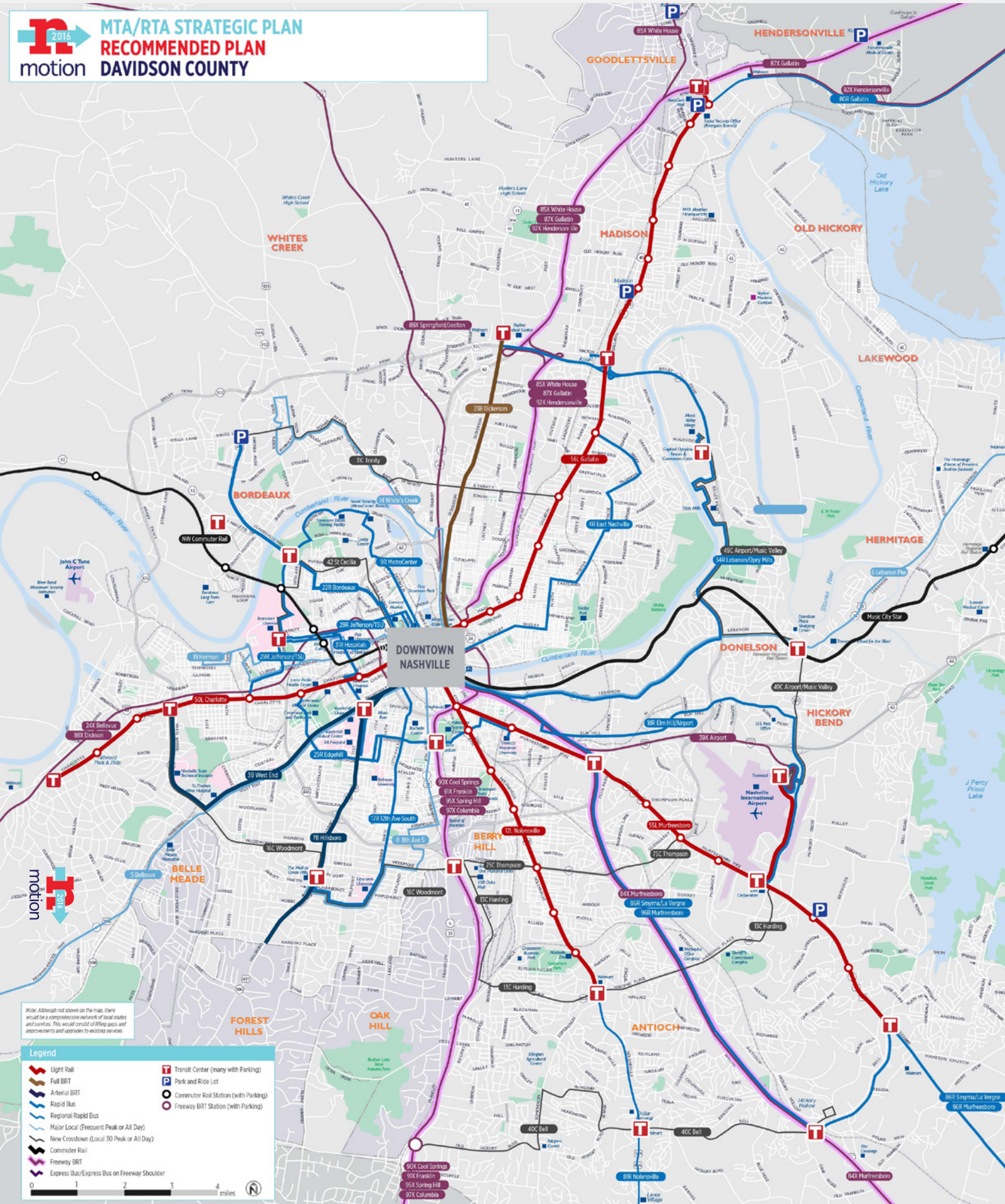
MTA/RTA STRATEGIC PLAN RECOMMENDED PLAN ENTIRE REGION



MAPS



MTA/RTA STRATEGIC PLAN RECOMMENDED PLAN DAVIDSON COUNTY



Note: Although not shown on the map, there would be a comprehensive network of local routes and services. This would consist of filling gaps and improvements and upgrades to existing services.

- Legend**
- Light Rail
 - Full BRT
 - Arterial BRT
 - Rapid Bus
 - Regional Rapid Bus
 - Major Local (Frequent Peak or All Day)
 - New Cross-town (Local 30 Peak or All Day)
 - Commuter Rail
 - Freeway BRT
 - Express Bus/Express Bus on Freeway Shoulder
 - Transit Center (many with Parking)
 - Park and Ride Lot
 - Commuter Rail Station (with Parking)
 - Freeway BRT Station (with Parking)

