



# MTA/RTA STRATEGIC PLAN



## SCENARIOS AT A GLANCE

3/17/2016



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# INTRODUCTION

There are many ways to improve transit in Middle Tennessee, regardless of time-frame or projected spending levels. This document presents three potential scenarios illustrating varying packages of improvements. Many of these are documented as “building blocks” (such as streamlined downtown circulation, first and last mile connections, and better information) that can be assessed and prioritized on their own merit, regardless of the comprehensiveness of a regional mass transit system. Others are documented as strategic choices the region will need to make (such as light rail, streetcar, or bus rapid transit) to determine the best approach within a given location or context.

This document does not present recommendations; instead, it presents options in the form of three scenarios. The intent of the scenarios is to combine the different strategies developed in prior phases of the nMotion process (“building blocks”) in a manner that illustrates the impact they could have in various combinations. In this fashion, the public can view what a comprehensive system might look like in Middle Tennessee. Furthermore, as opposed to “either or” plans, the three scenarios could be viewed on a continuum, with more modest improvements happening quickly as more comprehensive approaches are developed over a longer period. Through continued community dialogue, the Middle Tennessee region will need to determine how far and how fast it should move to meet the mobility needs of a region expected to attract one million more people over the next 25 years. Recommendations of a final system plan, as well as interim steps necessary to get there, will be included in the final plan recommendations that will be developed later this year.

This document presents:

1. A brief [summary of the three scenarios and impacts](#).
2. A brief description of the “[building blocks](#)” that make up each scenario.
3. A brief summary of the [similarities and differences](#) among the three different scenarios.
4. More [detailed descriptions](#) of the elements of each scenario.
5. A “high level” estimate of the [order-of-magnitude costs](#) associated with each scenario. These are presented in terms of total costs and on a per capita basis (i.e., how much would the region need to spend per person). The per capita estimates assume that current growth projection hold true. Slower growth would render each scenario “more expensive” on a per capita basis, (or require improvements to occur more slowly), while more rapid growth would render each scenario “less expensive,” (or would allow for more rapid implementation, or additional features).

Two additional clarifying points are important. First, through the course of public engagement it became apparent that, while the Regional Transportation Authority (RTA) and Nashville Metropolitan Transit Authority (MTA) are independent entities; system “presentation” should be delivered in a seamless manner, recognizing that RTA customers will use MTA services, and vice versa. Toward that end, this document presents the scenarios as a “combined” system. This is not intended to suggest that the RTA and MTA should merge. However, it does suggest that service design and delivery should occur in a manner that is seamless to the end user. The scenarios also include increases in service levels among existing local transit service providers (Franklin Transit, Murfreesboro Rover and Clarksville Transit), as well as new local transit services in several Middle Tennessee cities.

Second is the issue of Commuter Rail services operating on right of way currently owned and controlled by CSX. The CSX freight rail network throughout Middle Tennessee, if available for commuter operations, would provide a formidable infrastructure for the development of a comprehensive commuter rail system for our region. Lines that now operate through Downtown Nashville and on to cities like Murfreesboro, Franklin and Gallatin occupy some of the highest priority corridors for transit improvements in the region. However, investigation of these options with CSX reveal that a co-existence of commuter and freight operations is not practical in these heavily congested rights of way in a manner that would be safe or reliable to either freight or passenger operations. As a result, commuter rail options that would use these facilities **are not** included in any of these scenarios.

However, ***this is not to suggest that the region should simply abandon these concepts.*** On the contrary, information discussed during this process suggests that a number of public policy objectives beyond the scope of the nMotion process (such as overall freight rail capacity, truck congestion on the highways of Middle Tennessee, consumption of extremely valuable real estate for freight management purposes, etc.) would benefit from an in depth examination of relocating significant rail freight facilities, such as Radnor Yard, further away from the core of Downtown Nashville. Such an approach would require a major investment of public and private funding to take place, but should be examined in the context of an overall regional freight/vehicle mobility effort. Further, such a study should examine alternatives that would free up sufficient capacity in the key rail corridors to allow for consideration of commuter and/or intercity rail options.<sup>1</sup> An example of a project similar in scope to what is envisioned here is the “CREATE” (Chicago Region Environmental and Transportation Efficiency Program); involving Federal, State, Local and private partners to undertake several billions of dollars in improvements to the Chicago region’s rail infrastructure.

## DEVELOPMENT OF SCENARIOS

The three scenarios were developed through a year-plus long process to identify stakeholder desires, needs, and opportunities. This process included:

- A [market analysis](#) to determine the underlying demand for transit, or in other words, “if you build it, how many will come?”
- A [peer review](#) that compared the characteristics and performance of Middle Tennessee’s transit services with those in other comparable areas, including in urban areas that are already similar to what the Nashville area is growing to become.
- An [assessment of how well MTA and RTA services](#) meet – and in many cases – do not meet current and future needs.
- The [identification and development of strategies](#) designed to serve current and future needs.
- The [matching of strategies to needs](#).
- An [extensive civic engagement](#) process.
- Coordination with Nashville’s [NashvilleNext](#) and the Nashville MPO’s [2040 Regional Transportation Plan](#) update efforts.

Additional information on these efforts is provided on the project website on the Materials page ([nmotion2015.com/materials/](http://nmotion2015.com/materials/)). Documents of particular note include:

- Guiding Principles, which describes the project’s guiding principles, goals, and objectives.
- [MTA State of the System](#) report, which presents an overview of MTA services, the analysis of transit demand in Davidson County, the peer review, and the assessment of the the effectiveness of MTA services.
- [RTA State of the System](#) report, which presents similar information for RTA services and the nine outer counties.
- [Transit Improvement Opportunities for Middle Tennessee](#), which is a high-level overview of opportunities.
- [MTA/RTA Service Improvement Strategies Overview](#), which presents a more detailed overview of opportunities.

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<sup>1</sup> The Nashville MPO’s 2040 Regional Transportation Plan (RTP) also recommends such a study and states: “Commission a study to evaluate opportunities to realign freight rail lines and relocate the Radnor Yard intermodal facility to ease congestion in the urban core, and to promote the clustering of freight operations.”



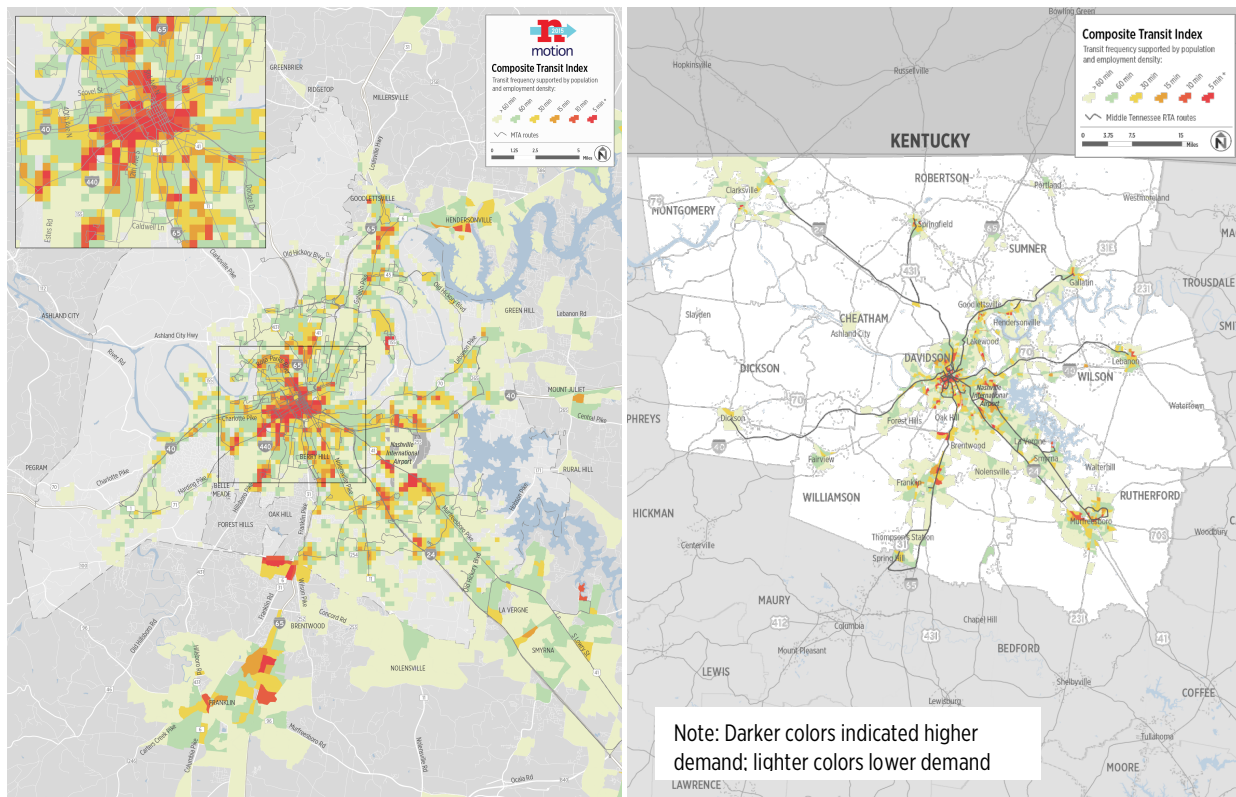
- **Transit Strategies Series**, which provides detailed information on each of the strategies examined over the course of the project.
- **Community Engagement Progress Report, April – December 2015**, which describes the community engagement efforts that have taken place over than timeframe and provides an overview of the input that has been received.

## MARKET-BASED APPROACH

One of the first steps in the nMotion process was to examine the underlying demand for transit, which was based largely based on projections of future population, employment, and socio-economic characteristics, and future development patterns and characteristics. For Davidson County, all projections are based on the preferred future developed through NashvilleNext. This preferred future will produce the fundamental land use changes (denser concentrations of population and employment, and more mixed-use development) that will enable the development of effective and attractive transit. Outside of Davidson County, future projections were developed by the Nashville MPO and the Northwest Corridor Transit Study. For the most part, those projections assume that current development patterns will continue, meaning that growth in the outer counties will continue to sprawl.

The most important factors that drive transit demand are population and employment densities. Where more people live and work in close proximity to each other, more can conveniently access available transit services, and there are large enough volumes of people to support frequent service. Frequency, in turn, is what makes transit convenient and attracts even more people. Put more simply, frequent, high capacity transit services require dense development. Some parts of Davidson County already have the necessary densities, and as the result of NashvilleNext, there will be many more in the future (see Figure 1).

FIGURE 1 | FUTURE TRANSIT DEMAND (2040) BASED ON CURRENT GROWTH PROJECTIONS (DAVIDSON COUNTY AND ENTIRE REGION)



However, outside of Davidson County, significant land use changes to develop these densities are not yet planned.

Many point out that transit can shape development patterns, and especially in the case of high capacity transit modes such as rail, and in some cases BRT, this is true. However, the underlying conditions to enable these changes must also exist. For example, high capacity transit services cannot produce denser development in areas where zoning ordinances prohibit it. For this reason, the three scenarios have been developed to serve the demand and development patterns that are currently projected. In the case that any of the outlying counties or communities adopt future changes similar to those produced by NashvilleNext, future plans for those areas will need to be adjusted.

## FAMILY OF SERVICES-BASED APPROACH

Transit can be provided in many ways, ranging from commuter rail to light rail to local bus to community shuttles. Each has its own characteristics, and while there is overlap between service types, most are best suited to specific markets. In cases where there is overlap (for example, light rail and BRT, the choice between the two often comes down to local community desires, including how much they are willing to invest. The three scenarios use a family of services approach that provide these types of choices while also matching services with appropriate markets. The services that are included in the scenarios are shown in Table 1.

TABLE 1 | SERVICE TYPES AND MARKETS

Service Type	Transit Market
<b>Light Rail</b>	High density corridors
<b>BRT</b>	High density corridors
<b>Streetcar</b>	Short high density urban corridors
<b>Rapid Bus</b>	Medium to high density corridors
<b>Regional Rapid Bus</b>	Medium density corridors
<b>Local Bus</b>	
Frequent All Day	Medium to high density areas
Frequent Peak Local	Medium density areas
Local 30 All Day	Secondary routes in medium density areas
Local 60 All Day	Low density areas
<b>Lifeline</b>	Low volume areas with special needs
<b>Commuter Rail</b>	High volume regional corridors
<b>Freeway BRT</b>	High volume regional corridors
<b>Express/Commuter</b>	Medium volume commuter markets

By scenario, the use of these services varies in three key ways:

1. The types of services (for example, light rail in Scenario 1, but not in 2 or 3).
2. Spans of service, with longer spans for most service types in Scenario 1 than in Scenarios 2 and 3, and longer spans in Scenario 2 than in Scenario 3.
3. Service frequencies, with more frequent service for most service types in Scenario 1 than in Scenarios 2 and 3, and more frequent service in Scenario 2 than in Scenario 3.

## OVERVIEW OF SCENARIOS

Within that context described above, the three scenarios are:

- **Scenario 1 – Comprehensive Regional System:** Scenario 1 illustrates a robust regional transit system structured around an extensive network of high capacity services including light rail, Bus Rapid Transit, Rapid Bus, streetcar, commuter rail, and Freeway Bus Rapid Transit. It also strengthens regional connections and provides local service in many new areas. In terms of outcomes, it would produce major increases in mass transit ridership; significantly transit use a number of key, congested corridors, help generate “transit oriented development” investment in a number of neighborhoods, communities and corridors (with accompanying increases in property values), and make mass transit a much more integral component of Middle Tennessee’s transportation network. It would also require a much higher level of investment over time (with new, dedicated funding sources), much longer time frames to complete, and supporting changes in public policy such as land use, development density and pedestrian infrastructure. This could be considered a “full build out” alternative.
- **Scenario 2 – Bus-Focused Expansion:** This scenario would expand more service to new areas, but would focus the most significant improvement in major corridors. Its major improvements consist of providing more frequent service over more hours, developing a Frequent Transit Network comprised of Bus Rapid Transit and Rapid Bus routes, and the development of Freeway Bus Rapid Transit on I-24 south and I-65 north and south. This scenario would begin to shift more people onto transit and encourage transit-oriented development in specific locations, but would not be as comprehensive as Scenario 1. Transit would still not be considered an option for most commuters in Middle Tennessee. This could be considered a “medium-term” alternative. It would also require significantly more funding than is presently the case, either through a new (albeit, smaller than Scenario 1) funding source or a significant shift in current spending priorities away from other purposes toward mass transit.
- **Scenario 3 – Modest Improvements:** This scenario represents a continuation of recent trends where modest improvements are made to improve the customer experience, but where service is still largely attractive to relatively small market niches. While some expansion is included, the major thrust of this scenario is to make existing services more robust, and to make transit more convenient and attractive in areas that are already served. Major improvements would consist of providing more service for more hours on both MTA and RTA routes and developing a Frequent Transit Network comprised largely of Rapid Bus routes (similar in nature to current MTA “BRT-Lite” service). These would greatly improve transit for existing riders and make it more attractive to others who travel in those areas. However, these improvements would still be relatively modest. This scenario would be expected to yield ridership gains relatively proportional to population increases (particularly in areas that are currently served by transit). However, market share would not be impacted and the system would have little to no impact on future development patterns, mandating that significant roadway capacity expansions be planned to accommodate forecast regional growth. Overall spending on mass transit would increase, but generally in proportion with population and tax base growth, so it would be unlikely to strain spending on other priorities.

The MTA and RTA are presenting these scenarios for public comment as part of their process to determine the region’s transit future. The three scenarios present increasing levels of improvements, benefits, and costs. They all also include a large number of elements. Many of these will likely achieve high levels of public support, and others will be extremely controversial. The objective of the public review process will not be to pick Scenario 1, 2, or 3. Instead, it is to stimulate discussion and solicit input on issues such as:

- Which elements of each scenario are most attractive?
- Which elements are best suited to specific locations, and which are not?
- How much should the Middle Tennessee region spend on mass transit infrastructure?
- How should this money be raised?
- Which complementary public policies should be pursued concurrently (pedestrian access improvements, development pattern incentives, etc.)?

## BUILDING BLOCK APPROACH

All of the scenarios are based on a “building block” approach that starts with improvements that can be implemented quickly as efforts begin to pursue more difficult and longer term improvements.

A summary comparison of the elements included in each scenario is presented in Table 1. The complementary document “Transit Improvement Opportunities for Middle Tennessee” provides great detail on each of the building blocks, and previously released strategy papers provide greater detail (see [nmotion2015.com/materials](http://nmotion2015.com/materials)). All three scenarios include a core of similar elements, which include:

### 1. Make Service Easier to Use

- Make existing services easier to use and understand
- Simplify routing and schedule patterns.
- Rebrand MTA and RTA services with a unified brand
- Rebrand individual services to increase visibility and legibility
- Provide excellent information
- Create a “smarter” system through the strategic use of technology
- Make fare payment easier

### 2. Improve Existing Services

- Provide more frequent service for longer hours
- Make service faster
- Provide better service to non-downtown Nashville locations, including more crosstown routes
- Streamline transit in downtown Nashville
- Implement transit priority in key areas

### 3. Improve Access to Transit

- Improve pedestrian and bicycle conditions
- Provide first mile/last mile connections, including partnering with related mobility providers like taxi operators, parking facilities, Lyft, Uber, bikeshare and carshare operators for seamless trip integration
- Provide better transit connections outside of downtown
- Develop more conveniently located “purpose-built” park and ride lots with appropriate amenities

### 4. Provide More Comfortable Service

- Provide better station and stop facilities and amenities
- Improve station/stop lighting, security and facility maintenance
- Improve vehicle comfort

### 5. Develop a Frequent Transit Network

- Develop a network of uniquely branded routes that run no less often than 15 minutes for longer service hours

### 6. Expand Service to New Areas

- Expand existing RTA area local services
- Develop new RTA area local services (Scenarios 1 and 2 only)

#### SERVICE IMPROVEMENT STRATEGIES

These strategies are the “building blocks” for improved transit in Middle Tennessee. They build from strategies that can be implemented quickly while efforts begin to pursue more difficult and longer-term improvements:



**Strategy 1**  
**Make Service Easier to Use**



**Strategy 2**  
**Improve Existing Services**



**Strategy 3**  
**Improve Access to Transit**



**Strategy 4**  
**Make Service More Comfortable**



**Strategy 5**  
**Develop a Frequent Transit Network**



**Strategy 6**  
**Expand Services to New Areas**



**Strategy 7**  
**Develop High Capacity Transit and Premium Services**



TABLE 2 | COMPARISON OF SCENARIOS

	MTA/RTA	Scenario 1 Comprehensive Regional System	Scenario 2 Bus-Focused Expansion	Scenario 3 Modest Improvements
<b>1. Make Service Easier to Understand And Use</b>				
• Make service simpler and easier to understand	<i>Both</i>		<i>Similar improvements in all scenarios</i>	
• Rebrand MTA And RTA services	<i>Both</i>		<i>Same in all scenarios</i>	
• Provide excellent information	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Moderate improvements</i>
• Use technology to create a smarter system	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Moderate improvements</i>
<b>2. Improve Existing Services</b>				
• Provide more frequent service for longer hours	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Make service faster	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Improve non-downtown Nashville services	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Streamline downtown Nashville circulation	<i>Both</i>	<i>Plus exclusive transit lanes</i>	<i>Same as Scenario 3</i>	<i>Reconfiguration of transit &amp; traffic</i>
• Implement transit priority	<i>Both</i>	<i>In most major transit corridors</i>	<i>In Rapid Bus corridors</i>	<i>In Rapid Bus corridors</i>
<b>3. Improve Access to Transit</b>				
• Pedestrian and bicycle access	<i>Primarily MTA</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• First mile/last mile connections	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Transit connections/new transit centers	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Park and Ride	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
<b>4. Provide More Comfortable Service</b>				
• Station and stop amenities	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Moderate improvements</i>
• Improve environment and security at stations/stops	<i>Both</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Moderate improvements</i>
• Provide on-board comfort and amenities	<i>Both</i>	<i>All premium services</i>	<i>BRT, Rapid Bus, and express bus</i>	<i>Rapid Bus and RTA express bus</i>
<b>5. Develop a Frequent Transit Network</b>				
	<i>MTA</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
<b>6. Expand Service to New Areas</b>				
• Expand existing local services	<i>RTA</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
• Develop new RTA-area local services	<i>RTA</i>	<i>In many RTA areas</i>	<i>Very limited</i>	<i>Not included</i>
• Express and reverse commute service	<i>RTA</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>
<b>7. Develop High Capacity Transit /Premium Services</b>				
• Commuter Rail	<i>Both</i>	<i>MCS Improvements including Expo Center plus NW Corridor rail</i>	<i>MCS Improvements including Extension to Expo Center</i>	<i>Improvements to MCS; no extension to Expo Center</i>
• Light rail	<i>MTA</i>	<i>4 corridors</i>	<i>Not included</i>	<i>Not included</i>
• Bus Rapid Transit (BRT)	<i>MTA</i>	<i>3 corridors</i>	<i>6 corridors</i>	<i>Not included</i>
• Rapid Bus	<i>Both</i>	<i>13 routes (9 MTA/4 RTA)</i>	<i>10 routes (7 MTA/3 RTA)</i>	<i>7 routes (all MTA)</i>
• Streetcar	<i>MTA</i>	<i>2 lines</i>	<i>Not included</i>	<i>Not included</i>
• Freeway BRT	<i>Both</i>	<i>I-24 S, and I-65 N &amp; S</i>	<i>Not included</i>	<i>Not included</i>
• Express Bus on Shoulder	<i>Both</i>	<i>Non-Freeway BRT freeways</i>	<i>All major freeways</i>	<i>All major freeways</i>
• Airport service	<i>MTA</i>	<i>Major improvements</i>	<i>Moderate improvements</i>	<i>Limited improvements</i>

- Expand express and reverse commute services to new areas
- Develop outlying transit centers where multiple services converge

## 7. Develop High Capacity Transit Services/Premium Services

- Commuter Rail
- Light rail (Scenario 1 only)
- Bus Rapid Transit (Scenarios 1 and 2)
- Rapid Bus
- Streetcar (Scenario 1 only)
- Freeway BRT (Scenarios 1 and 2)
- Express Bus on Shoulder

## DIFFERENCES AND SIMILARITIES

The three scenarios differ largely in the level of transit improvements that would be implemented, and the timeframes that would be required to recognize their development, with Scenario 1 including the most comprehensive level and number of improvements, and Scenario 3 the least. However, there would also be a core set of common improvements that would be included in all. These include:

- **Improvements to existing routes** to make service faster and more direct, and schedules more convenient through efforts such as expanded “BRT-lite” service, adaptive traffic signals, bus-on-shoulder applications in the Interstate Highway corridors, queue jump lanes, transit signal priority, and other transit priority measures.
- **Rebranding MTA and RTA services with a new unified brand** to present service as part of a unified regional system. Also, the **branding of specific types of services** to increase the visibility of premium services and help make service easier to understand (i.e., Frequent Transit Network routes, commuter express services, community circulators, etc.).
- **Developing a plan for overall downtown traffic flow**, delineating flow for transit, general traffic, deliveries, special event closures, etc. Though beyond the direct control of the MTA and RTA, improvements in downtown transit service flow will depend on this.
- **Better information**, and in particular, the provision of real-time information via the web and smartphones and at major stations and stops for all MTA and RTA services (real-time information via the web and cell phones for MTA services was launched in late 2015).
- **Better facilities and amenities throughout Middle Tennessee**, with a range of improvements based on facility types and ridership levels. Improved maintenance standards and coordinated maintenance with related municipal entities around issues such as lighting, cleanliness and security.
- **New fare payment options** to make fare payment easier and more convenient. These would include a joint MTA/RTA fare system, mobile ticketing, ticketing machines, open payment system aligned with other mobility providers (rideshare, parking, etc.) and other improvements.
- **Improved pedestrian connections to, from, and around major transit lines** to make it easier to get to and from transit lines and cross streets to get to and from stops. This would include both improved sidewalk and bicycle access facilities, as well as safer pedestrian crossings along major thoroughfares.
- **Better connections with places that are beyond walking distances from traditional transit**. These would include “first mile/last mile” connections such as private shuttles, partnerships with Transportation Management Associations (TMAs) and private rideshare companies such as Lyft and Uber, Car2Go, and ZipCar. They would also include bicycling improvements to and from transit stops and on-board transit vehicles.

- **Expanded utilization of public/private partnerships in the development and delivery of transit services.** This would include the exploration of potential state legislation expanding the applicability of such project/service delivery mechanisms and the active engagement of private partners in the design, development and delivery of mass transit services and facilities.

# SCENARIO 1

## COMPREHENSIVE REGIONAL SYSTEM

Scenario 1 includes improvements that MTA and RTA would implement to develop a great transit system for Middle Tennessee. This scenario includes the types of improvements that have been, or are currently being, implemented in other rapidly growing regions such as Dallas, Denver and Salt Lake City – cities whose regional populations are greater than Nashville today, but which Nashville is expected to reach over the next 25 years. A map of the major MTA improvements is presented in Figure 2 and a map of major RTA area improvements is presented in Figure 3.

Scenario 1 improvements include:

### SCENARIO 1

#### MAKE SERVICE EASIER TO UNDERSTAND AND USE

- **Simplify service:** Many MTA services and some RTA services are complex, circuitous, and slow. To make service simpler and more convenient, MTA and RTA would conduct a Comprehensive Operations Analysis (COA) to identify and implement short-term changes within existing budget levels.
- **Improve branding:** MTA and RTA services would be rebranded with a unified brand to make service in Middle Tennessee more cohesive. Different types of service – for example, light rail, BRT, and BRT-lite – would also be branded with new names that would be clearly linked to the overall brand.
- **Provide excellent information:** In all scenarios, web and smartphone-based real-time passenger information would be provided for all routes, including RTA routes. In Scenario 1, real-time information would also be provided at high volume bus stops, transit centers, and park and ride lots.
- **Make fare payment easier:** A joint MTA/RTA fare system would be developed and mobile ticketing implemented for all services. Off-vehicle fare payment would also be implemented at Music City Central to speed the boarding process. The system would be acquired using an “open payment” design, allowing future integration with related service providers such as parking facilities and private transportation services.

### SCENARIO 1

#### IMPROVE EXISTING SERVICES

- **Provide more frequent service for longer hours:** Most services would operate for significantly longer hours and much more frequently:
  - **Metro Area Local Bus:** Scenario 1 would significantly lengthen the hours that services operate and increase the frequency at which they operate. Increases would depend upon the type of route and ridership levels, but there would be earlier and later service, including more weekend service, and more frequent service throughout the day, on nearly all local routes (see Table 4). A large proportion of routes would be premium services that would operate frequently, and most others would operate at least every 30 minutes.
  - **Express Bus:** Much more frequent service would be provided on MTA and RTA express routes, and mid-day and early evening service would be provided on many routes.



FIGURE 2 | SCENARIO 1 CORE AREA MAJOR SERVICES

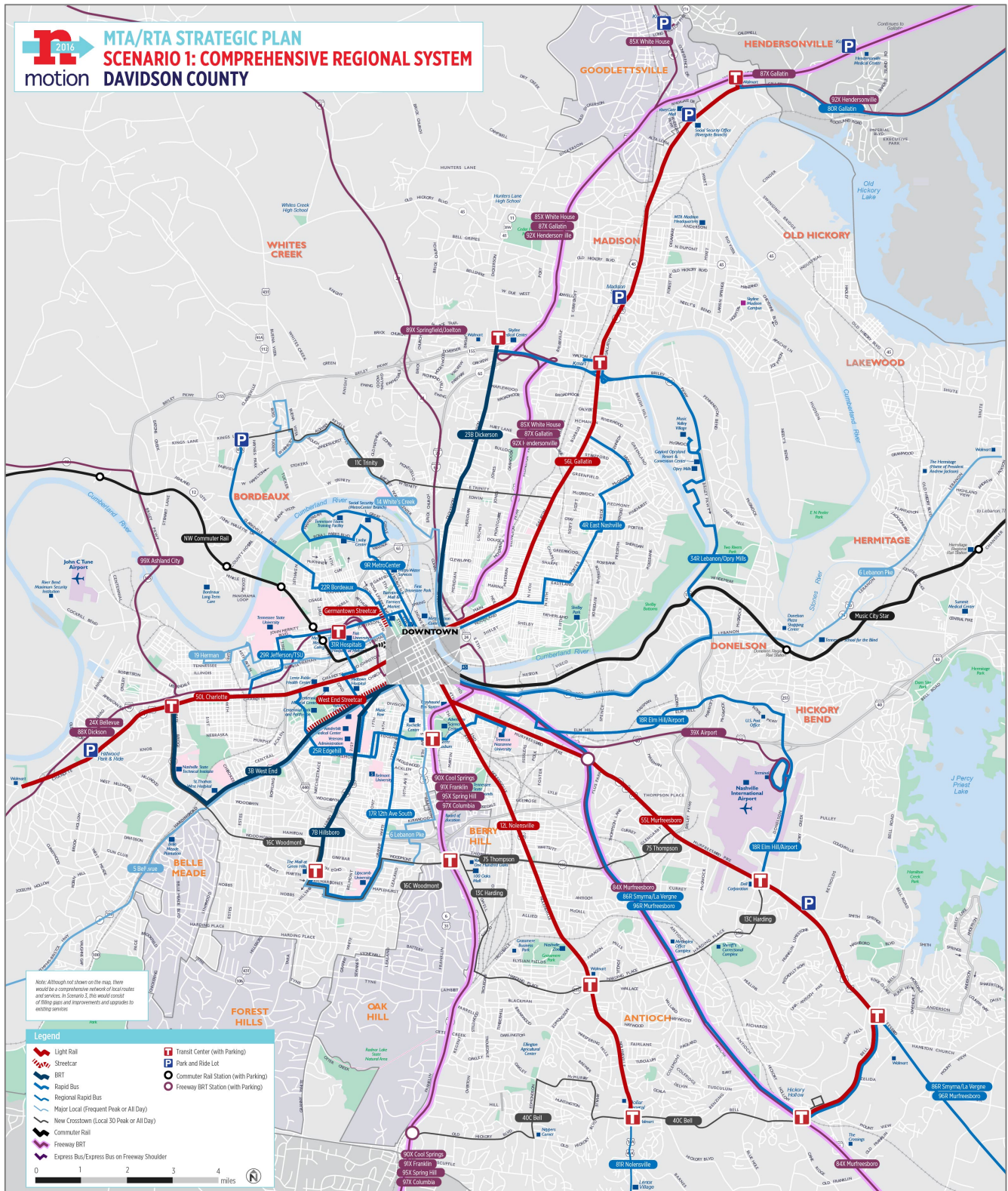




FIGURE 3 | SCENARIO 1 OUTER AREA MAJOR SERVICES

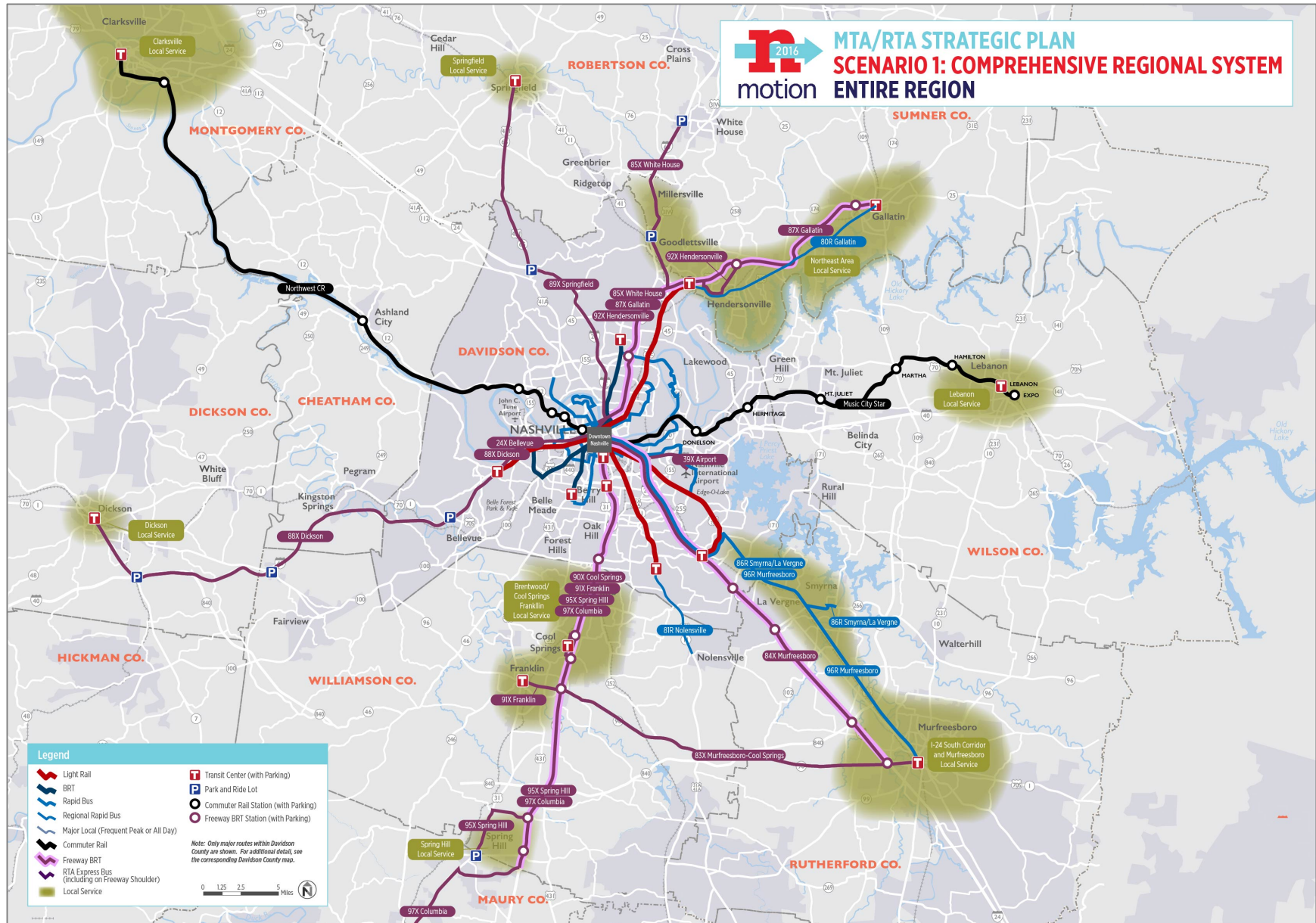


TABLE 3 | SCENARIO 1 WEEKDAY SERVICE SPANS AND FREQUENCIES

Service Type	Span of Service	Service Frequencies (mins)			
		Peak Periods	Midday	Evening	Early/Late
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
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		
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	

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

- **Music City Star:** Service would operate seven days a week throughout the day, and service would be extended to Lebanon’s planned Expo Center). To enable more frequent service, the line would also be double tracked.
- **Make service faster:** Throughout the nMotion process, riders and potential rider stressed the need for faster service. As part of the COA, MTA and RTA would place a high priority on identifying and implementing changes that will make service faster. Additional enhancements identified for “high capacity transit services” would make service faster still through the development of dedicated lane and fixed guideway transit facilities.
- **Improve non-downtown Nashville service:** Scenario 1 includes 11 new crosstown services:
  - Route 11 Trinity, between Bordeaux and Gallatin Pike via Trinity Lane (Local 30 Peak)
  - Route 13 Harding, between 100 Oaks Mall and Murfreesboro Pike via Harding Place (Local 30 Peak)
  - Route 16 Woodmont, between Charlotte Avenue and One Hundred Oaks Mall via Woodmont Avenue and the Mall at Green Hills (Local 30 All Day)
  - Route 18R Elm Hill/Airport Rapid between Murfreesboro BRT and Nashville International Airport (with continuing service to downtown) (Rapid Bus)
  - Route 25R Edgehill Rapid, between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue (Rapid Bus)
  - Route 31R Hospitals Rapid between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center (Rapid Bus)
  - Route 34R Opry Mills Rapid, between Gallatin Pike and downtown Nashville via Opry Mills (Rapid Bus)
  - Route 40 Bell, between at transit center at I-65 at Old Hickory Boulevard and Hickory Hollow via Old Hickory Boulevard and Bell Road (Local 30 Peak)

- Route 75 Thompson between 100 Oaks Mall and Murfreesboro Pike via Thompson Lane (Local 30 All Day)
- Route 80 Gallatin Rapid, between Gallatin and the outer end of the Gallatin BRT line (Regional Rapid Bus)
- Route 81 Nolensville Rapid, between Nolensville and the outer end of the Nolensville BRT line (Regional Rapid Bus)

In addition, MTA would examine through-routing a number of radial routes to and from downtown Nashville to provide more one-seat rides. This strategy would combine routes that now terminate in downtown into routes that operate through downtown – for example, a combination of Route 56 Gallatin with Route 50 Charlotte to provide one seat service between East Nashville and the West End.

- **Streamline service in downtown Nashville:** Downtown circulation would be reconfigured to make it simpler and more direct, and more legible. Changes would likely include the development of transit priority corridors with exclusive bus lanes and other transit priority measures. Scenario 1 would also likely include the development of a second downtown transit center to supplement Music City Central.
- **Implement transit priority:** Transit priority measures would be implemented throughout the system to make service faster:
  - In light rail, BRT, Rapid Bus, and streetcar corridors.
  - In transit priority corridors in downtown and leading to and from downtown.
  - At other locations with high volumes of transit service.

#### SCENARIO 1

### IMPROVE ACCESS TO TRANSIT

- **Improve pedestrian access:** MTA and RTA would place a very high emphasis on working with communities to improve pedestrian conditions. Improvements would include:
  - The development of comprehensive pedestrian infrastructure along the length of LRT, BRT, and Rapid Bus lines. These improvements would include sidewalks, lighting, and intersection and crossing improvements.
  - The development of targeted improvements in the vicinity of transit centers and other important transit facilities.

In addition, MTA and RTA would prioritize transit improvements in areas where communities improve pedestrian conditions.

- **Provide better transit connections:** The new crosstown routes described above would all be designed to provide more direct service to non-downtown locations, including via connection with radial routes to eliminate the need to travel into downtown Nashville and then back out again. Strong connections would also be provided between RTA services and local services.

Transit centers would also be developed at major transit points to make waits more convenient and more comfortable. With Scenario 2, transit centers would be developed as indicated in Figure 2 and Figure 3.

- **Improve park and ride access:** MTA and RTA would develop new park and ride lots along all express routes in more convenient locations. In many cases, these would be constructed within freeway rights-of-way, and/or with direction connections to freeways. In Scenario 1, park and ride lots would be located as shown in Figure 2 and Figure 3, among other locations.
- **Improve bicycle accommodation:** MTA and RTA would improve bicycle accommodation in a number of ways:



- Work with local communities to improve access to major services and facilities.
  - Provide secure bicycle parking/storage facilities at stations and major stops.
  - Accommodate bicycles within commuter rail, light rail, and BRT vehicles and make other necessary improvements to accommodate additional bicycles on regular buses as demand increases.
  - Work with Nashville B-cycle and other organizations to install bikeshare stations at stations and major stops.
- **Improve first mile/last mile connections:** MTA and RTA would work with local communities and businesses to provide new options to connect with transit services. MTA and RTA would participate in the development of these services, but the primary responsibility for providing them would be with others (local transit agencies; businesses such as taxis, Lyft, and Uber, TMAs, local communities, etc.). However, in Scenario 1, MTA and RTA would also finance some of these services in cases where alternative providers could provide either more attractive service or more cost-effective service.

#### SCENARIO 1

### PROVIDE MORE COMFORTABLE SERVICE

- **Provide better station and stop facilities and amenities:** MTA and RTA would develop a program to provide amenities at all facilities and stops. In Scenario 1, a much higher level of amenities would be provided and at more locations. Transit centers would also be developed to make transfers more convenient and more comfortable. In Scenario 1, transit centers would be developed as indicated in Figure 2 and Figure 3. MTA/RTA would work more closely with cities and counties to assure ongoing maintenance and security standards around transit facilities.
- **Provide service with more comfortable vehicles:** As part of the development and provision of premium services, MTA and RTA would improve vehicle comfort levels. In Scenario 1, this would include commuter rail and light rail, more comfortable vehicles on BRT and Rapid Bus, and the use of Over-the-Road coaches on all RTA express routes, and Wifi on all vehicles. New transit centers, as described above, would also be designed to make waits more comfortable.

#### SCENARIO 1

### DEVELOP A FREQUENT TRANSIT NETWORK

- Scenario 1 includes the development of an extensive Frequent Transit Network of premium services that would serve all densely developed areas of Davidson County and extend outward into to Sumner, Rutherford, and Williamson Counties. The Frequent Transit Network would include light rail, BRT, Rapid Bus routes, and frequent local routes, all of which would operate every 10 minutes throughout the day and every 20 minutes at night:

#### Light Rail

- Route 12L Nolensville in the Nolensville Pike corridor
- Route 50L Charlotte in the Charlotte Avenue corridor
- Route 55L Murfreesboro in the Murfreesboro Pike corridor
- Route 56L Gallatin in the Gallatin Pike Corridor

#### Streetcar

- West End – Downtown
- Germantown – Downtown

#### Commuter Rail

- Frequent service along the Northwest Corridor commuter rail line within Davidson County

## BRT

- Route 3B West End BRT in the West End Avenue corridor
- Route 7B Hillsboro BRT in the 21st Avenue South/Hillsboro Pike corridor
- Route 23B Dickerson BRT in the Dickerson Road corridor

## Rapid Bus

- Route 4R East Nashville Rapid between Gallatin Road at Ardee Avenue and downtown via areas east of Gallatin Pike
- Route 9R MetroCenter Rapid between MetroCenter and downtown
- Route 17R 12th Avenue South Rapid via 21st Avenue South and 12th Avenue South Pike
- Route 18R Elm Hill/Airport Rapid between Murfreesboro BRT and downtown Nashville via Nashville International Airport
- Route 22R Bordeaux Rapid between Bordeaux and downtown via Clarksville Pike
- Route 25R Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue
- Route 29R Jefferson/TSU Rapid between Charlotte Avenue and downtown via TSU and Jefferson Street
- Route 31R Hospitals Rapid between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center
- Route 34R Opry Mills Rapid, between Gallatin Pike and downtown Nashville via Opry Mills

## Frequent Local

- Route 5 West End/Bellevue between Bellevue and downtown via Harding Road (Frequent Peak)
- Route 6 Lebanon Pike between the Hermitage Music City Star station and downtown via Lebanon Pike (Frequent Peak)
- Route 8 8<sup>th</sup> Avenue South between Lipscomb University and downtown via 8<sup>th</sup> Avenue South (Frequent Peak)
- Route 14 Whites Creek between Bordeaux and downtown via Whites Creek Pike (Frequent Peak)
- Route 19 Herman, which would serve areas north of Charlotte Avenue (Frequent Peak)

## SCENARIO 1

### EXPAND SERVICE TO NEW AREAS

- **Expand local services:** Within Davidson County, there would be no significant outward expansion of geographic coverage, although AccessRide could be modified to serve additional markets. However, service would be added within the existing service area to fill gaps and support the development patterns envisioned in NashvilleNext.

Outside of Davidson County, Scenario 1 would significantly expand local services in Clarksville, Franklin and Cool Springs, and Murfreesboro. Strong connections would also be provided between RTA and local services.

- **Develop new RTA-area local services:** New local services would be developed in:
  - Springfield
  - Goodlettsville, Hendersonville, and Gallatin
  - Lebanon
  - Spring Hill
  - Dickson
- **Provide new express and reverse commute service:** Scenario 1 includes four new express routes and five new and/or improved reverse commute routes:

### New Express Routes

- Route 39X Airport Express. Route 39X would provide service every 30 minutes throughout the day.
- Route 83X Murfreesboro- Cool Springs Express
- Route 85X White House/Portland – Nashville Express
- Route 97X Columbia – Nashville Express

### Reverse Commute Routes

- Route 80R Gallatin Rapid between Gallatin and the outer end of the Gallatin Pike light rail line
- Route 81R Nolensville Rapid between Nolensville and the outer end of the Nolensville Pike light rail line
- Route 86R Smyrna/La Vergne Rapid between Smyrna and La Vergne and downtown Nashville via Murfreesboro Pike and I-24
- Route 90X Cool Springs Express, which would provide express service between Music City Central and Cool Springs (Express/Commuter)
- Route 96R Murfreesboro Rapid, which would provide Rapid Bus service between Nashville and Murfreesboro, primarily along Murfreesboro Pike (Regional Rapid Bus)

#### SCENARIO 1

### DEVELOP HIGH CAPACITY TRANSIT SERVICES/PREMIUM SERVICES

- **Expand commuter rail:** In addition to the Music City Star span and frequency improvements described above, Music City Star service would be extended to Lebanon's planned Expo Center and commuter rail service would be developed in the Northwest Corridor. In the Northwest Corridor, two types of service would be provided:
  - Clarksville to Nashville
  - Local service within Davidson County (primarily North Nashville), which would be in addition to Clarksville service. Northwest Corridor service would be provided with self-propelled rail cars that would be similar in appearance to light rail vehicles, and the service within Davidson County would be similar to light rail service in many respects.
- **Develop light rail service:** Light rail would be developed in four corridors:
  - Gallatin Pike (Route 56L Gallatin)
  - Murfreesboro Pike (Route 55L Murfreesboro)
  - Nolensville Pike (Route 12L Nolensville)
  - Charlotte Avenue (Route 50L Charlotte)

Note also that with the development of light rail, four MTA express routes would be eliminated and replaced with feeder service to and from light rail: 33X Hickory Hills, 36X Madison, 37X Tusculum/McMurray, and 38X Antioch. It is also likely that other existing local bus services in proximity to these lines would be reoriented as feeders to light rail.

- **Develop streetcar service:** Streetcar service would be developed in two corridors:
  - West End – Downtown
  - Germantown – Downtown
- **Develop Bus Rapid Transit lines:** BRT would be developed in three corridors:
  - 21st Avenue South/Hillsboro Pike (3B Hillsboro BRT)
  - West End (7B West End BRT)
  - Dickerson Pike (23B Dickerson BRT)

- **Expand Rapid Bus service:** Within Davidson County, MTA would work to upgrade all services in the Frequent Service Network that would not be light rail or BRT to Rapid Bus:
  - Route 4R East Nashville Rapid between Gallatin Road at Ardee Avenue and downtown via areas east of Gallatin Pike
  - Route 9R MetroCenter Rapid between MetroCenter and downtown
  - Route 17R 12th Avenue South Rapid via 21st Avenue South and 12th Avenue South Pike
  - Route 18R Elm Hill/Airport Rapid between Murfreesboro BRT and downtown Nashville via Nashville International Airport
  - Route 22R Bordeaux Rapid between Bordeaux and downtown via Clarksville Pike
  - Route 25R Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue
  - Route 29R Jefferson/TSU Rapid between Charlotte Avenue and downtown via TSU and Jefferson Street
  - Route 31R Hospitals Rapid between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center
  - Route 34R Opry Mills Rapid, between Gallatin Pike and downtown Nashville via Opry Mills

In addition, four Rapid Bus route would be provided in three regional corridors. These regional Rapid Bus services would provide the same physical amenities as Rapid Bus, but would run less frequently (every 30 minutes peak and every 60 minutes off-peak):

- Route 80R Gallatin Rapid between Gallatin and the outer end of the Gallatin Pike light rail line
  - Route 81R Nolensville Rapid between Nolensville and the outer end of the Nolensville Pike light rail line
  - Route 86R Smyrna/La Vergne Rapid between Smyrna and La Vergne and downtown Nashville via Murfreesboro Pike and I-24
  - Route 96R Murfreesboro Rapid between Murfreesboro and downtown Nashville via Murfreesboro Pike and I-24
- **Develop Freeway BRT service:** Scenario 1 includes the development of Freeway BRT service in the I-24 South, I-65 south, and Ellington Parkway/Route 38 corridors to provide very fast service. Eleven RTA routes would operate in these corridors; five of these routes would provide service throughout the day (Freeway BRT and Regional Rapid Bus service levels), while the others would operate via Freeway BRT facilities but provide the same level of service as other express or Regional Rapid routes (as indicated by the service types in parentheses):

#### I-24 South

- Route 84X Murfreesboro Express (Freeway BRT)
- Route 86R Smyrna/La Vergne Rapid (Regional Rapid Bus)
- Route 96R Murfreesboro Rapid (Regional Rapid Bus)

#### I-65 South

- Route 90X Cool Springs Express (Express/Commuter)
- Route 91X Franklin Express (Freeway BRT)
- Route 95X Spring Hill (Express/Commuter)
- Route 97X Columbia (Express/Commuter)

#### Ellington Parkway/Route 386

- Route 85X White House Express (Express/Commuter)
- Route 87X Gallatin Express (Freeway BRT)
- Route 89X Springfield (Express/Commuter)
- Route 92X Hendersonville Express (Express/Commuter)



**Implement Express Bus on Shoulder service:** MTA and RTA would work with TDOT to implement Bus on Shoulder service on Nashville area freeways, which would make peak period express bus service much faster. Five routes would operate in this manner:

**I-24 North**

- Route 89X Springfield

**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

- **Improve airport service:** Service to and from Nashville International Airport would be improved in two ways:
  - New express service (Route 39X Airport Express) would provide seven day a week service between the airport and downtown Nashville every 30 minutes throughout the day from early morning until late night
  - Route 18 Airport/Downtown Hotels would be upgraded to Rapid Bus (Route 18R Elm Hill/Airport) and extended from the airport along Donelson Pike to Murfreesboro Pike to provide connections with light rail along Murfreesboro Pike (Rapid Bus)

# SCENARIO 2

## BUS-FOCUSED EXPANSION

Scenario 2 includes improvements that MTA and RTA would implement to improve service in a similar manner as other current peer cities with robust transit systems – those that are similar to Nashville today. These improvements would include many very high impact improvements. However, overall, Scenario 2 would improve Middle Tennessee’s transit system to a much lesser extent than in cities that are already like what Nashville and Middle Tennessee are growing to become. A map of the major MTA improvements is presented in Figure 4 and a map of major RTA area improvements is presented in Figure 5.

Scenario 2 improvements include:

### SCENARIO 2

#### MAKE SERVICE EASIER TO UNDERSTAND AND USE

- **Simplify existing services:** In the same manner as in Scenario 1, MTA and RTA would conduct a Comprehensive Operations Analysis (COA) to identify and implement short-term changes within existing budget levels to make service simpler and more attractive.
- **Improve branding:** As in Scenario 1, MTA and RTA services would be rebranded with a unified brand to make service in Middle Tennessee more cohesive. Different service types would also be rebranded with new names that would be clearly linked to the overall brand.
- **Provide excellent information:** In all scenarios, web and smartphone-based real-time passenger information would be provided for all routes, including RTA routes. In Scenario 2, real-time information would also be provided at high volume bus stops.
- **Make fare payment easier:** As in Scenario 1, joint MTA/RTA fare system would be developed and mobile ticketing implemented for all services. Off-vehicle fare payment would also be implemented at Music City Central, along BRT lines, and at major transit centers to speed the boarding process.

### SCENARIO 2

#### IMPROVE EXISTING SERVICES

- **Provide more frequent service for longer hours:** Most services would operate for significantly longer hours and more frequently, but to a lesser extent than in Scenario 1:
  - **Metro Area Local Bus:** In Scenario 2, the hours that MTA routes operate and the frequency at which they operate would be increased significantly. As in Scenario 1, increases would depend upon the type of route and ridership levels, but there would be earlier and later service and more frequent service throughout the day on nearly all local routes. Compared to Scenario 1, many more routes would provide premium or frequent service, and service frequencies and spans would be greater for most types of services (see Table 4). There would also be commensurate increases in weekend service, and most routes would provide weekend service (at least all those classified as Local 30 All Day or higher).
  - **Express Bus:** A minimum of four AM inbound and four PM outbound trips would be provided on all MTA and RTA express routes.
  - **Music City Star:** As in Scenario 1, service would be extended to Lebanon’s planned Expo Center. However, Monday through Saturday service would be provided rather than seven day a week

FIGURE 4 | SCENARIO 2 CORE AREA MAJOR SERVICES

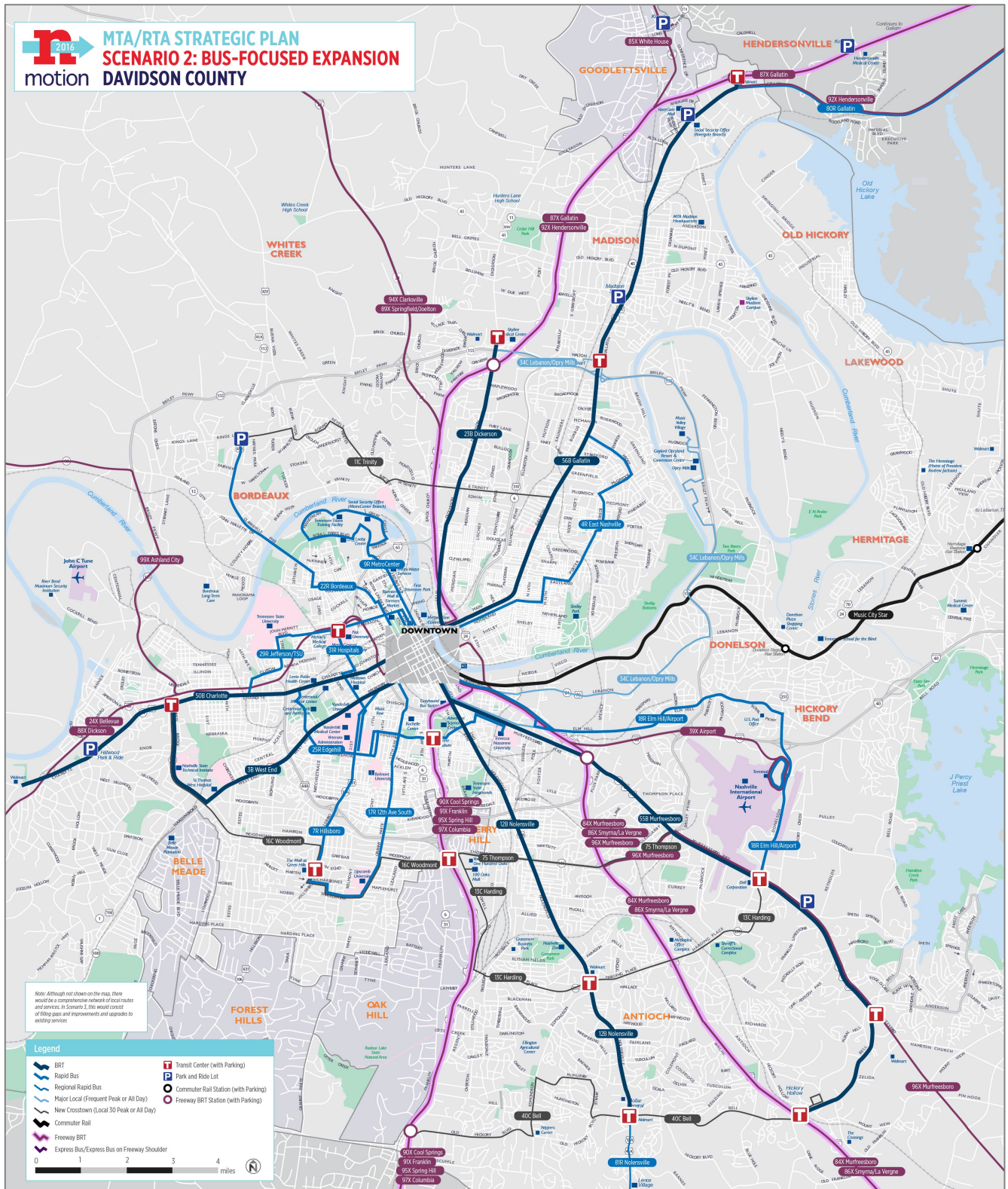




FIGURE 5 | SCENARIO 2 OUTER AREA MAJOR SERVICES

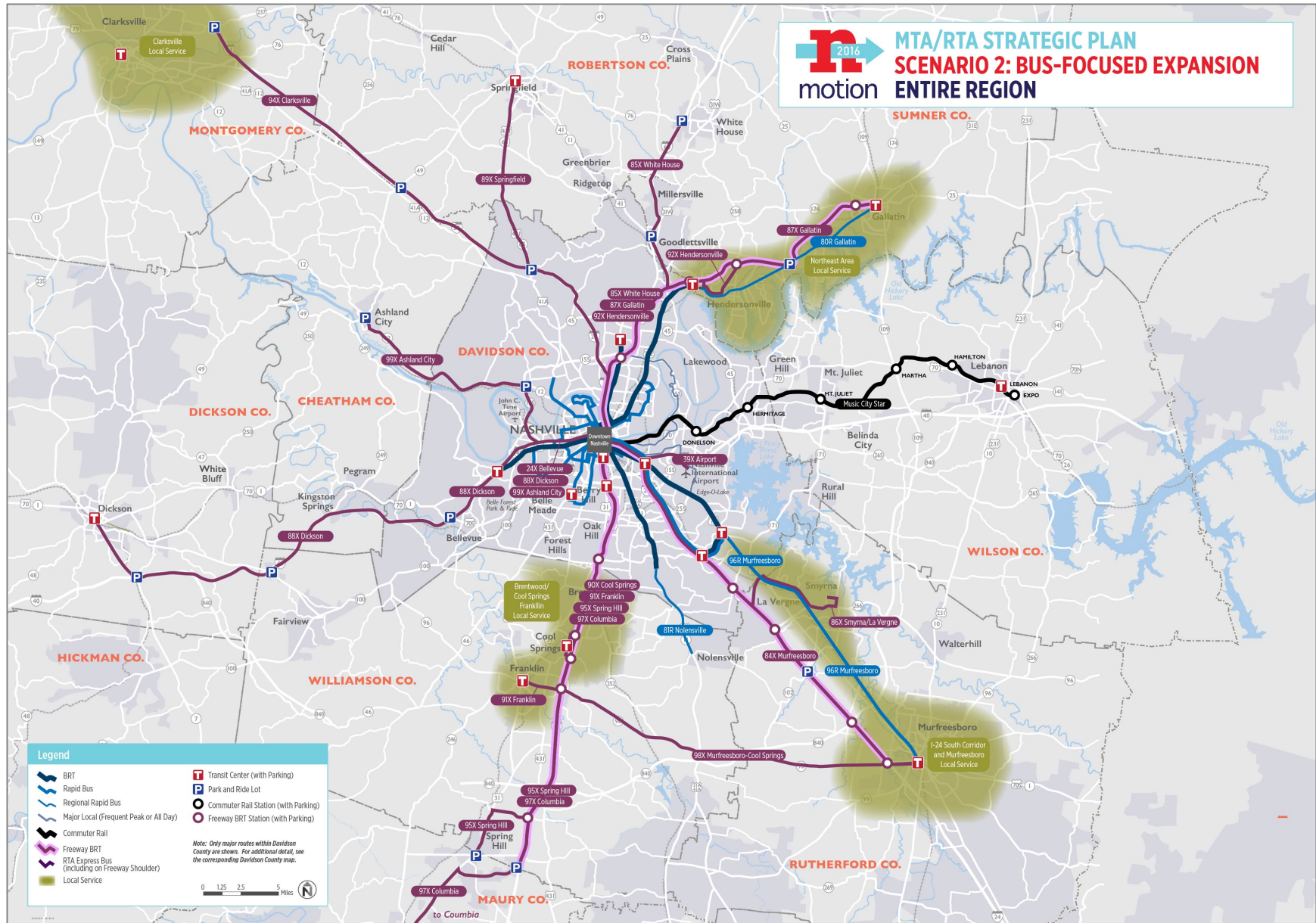


TABLE 4 | SCENARIO 2 WEEKDAY SERVICE SPANS AND FREQUENCIES

Service Type	Span of Service	Service Frequencies (mins)			
		Peak Periods	Midday	Evening	Early/Late
BRT	5 am – 12 am	10	10	10	20
Rapid Bus	5 am – 12 am	10	15	15	30
Regional Rapid Bus	5 am – 10 pm	30	60	60	60
Frequent All Day	5 am – 11 pm	10	15	15	30
Frequent Peak	5 am – 11 pm	15	30	30	30
Local 30 All Day	5 am – 10 pm	30	30	60	60
Local 30 Peak	5 am – 10 pm	30	60	60	60
Local 60 All Day	5 am – 9 pm	60	60	60	60
Circulator	6 am – 7 pm	30	30		
Lifeline	9 am – 3 pm		60		
Commuter Rail	5 am – 11 pm	30	120	60	120
Freeway BRT	5 am – 11 pm	30	120	60	120
Commuter/Express	Peak Only	4 AM inbound trips; 4 PM outbound trips			

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

service. The line would also be double tracked to enable the provision of more frequent service.

- **Make service faster:** As part of the COA, MTA and RTA will place a high priority on identifying and implementing changes that will make service faster. New premium services, described further below, would also emphasize speed.
- **Improve non-downtown Nashville service:** As in Scenario 1, Scenario 2 would provide new crosstown services. However, in Scenario 2, these service would operate less frequently and for fewer hours:
  - Route 11 Trinity, between Bordeaux and Gallatin Pike via Trinity Lane (Local 30 Peak)
  - Route 13 Harding between 100 Oaks Mall and Murfreesboro Pike via Harding Place (Local 30 Peak)
  - Route 16 Woodmont, between Charlotte Avenue and 100 Oaks Mall via Woodmont Avenue and the Mall at Green Hills (Local 30 Peak)
  - Route 18R Elm Hill/Airport Rapid, between downtown Nashville and Murfreesboro Pike via Nashville International Airport, with connections between the airport and Murfreesboro Pike BRT service (Local 30 All Day)
  - Route 25 Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue (Rapid Bus)
  - Route 31R Hospitals Rapid between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center (Rapid Bus)
  - Route 34 Opry Mills, between Gallatin Pike and downtown Nashville via Opry Mills (Local 30 Peak)
  - Route 40 Bell between at transit center at I-65 at Old Hickory Boulevard and Hickory Hollow via Old Hickory Boulevard and Bell Road (Local 30 Peak)
  - Route 75 Thompson between 100 Oaks Mall and Murfreesboro Pike via Thompson Lane (Local 30 Peak)

As in Scenario 1, MTA would examine through-routing radial routes that operate to and from downtown Nashville to provide more one-seat rides.

- **Streamline service in downtown Nashville:** Downtown circulation would be simplified in a similar manner as in Scenario 3. However, Scenario 2 adds the development of transit priority corridors in downtown with exclusive bus lanes and other transit priority measures. It would also likely include the development of a second downtown transit center to supplement Music City Central.
- **Implement transit priority:** In Scenario 2, transit priority measures would be implemented:
  - In BRT and Rapid Bus corridors.
  - In transit priority corridors in downtown and leading to and from downtown.
  - At other locations with high volumes of transit service.

#### SCENARIO 2

### IMPROVE ACCESS TO TRANSIT

- **Improve pedestrian access:** As in Scenario 1, MTA and RTA would place a very high emphasis on working with communities to improve pedestrian conditions. Improvements would include:
  - The development of comprehensive pedestrian infrastructure along the length of BRT and Rapid Bus lines.
  - The development of targeted improvements in the vicinity of transit centers and other important transit facilities.

In addition, and again as in Scenario 1, MTA and RTA would prioritize transit improvements in areas where communities improve pedestrian conditions.

- **Provide better transit connections:** As described above, within Davidson County, seven new and/or improved crosstown routes would be implemented to provide better connections between non-downtown locations. Outside of Davidson County, three new regional routes would be implemented to provide service between Murfreesboro and Cool Springs, to and from Gallatin and Hendersonville, and to and from Nolensville. Connections between RTA services and local services provided by the Clarksville Transit System and Franklin Transit would be improved.

Transit centers would also be developed at major transit points to make waits more convenient and more comfortable. With Scenario 2, transit centers would be developed as indicated in Figure 4 and Figure 5.

- **Improve park and ride access:** As in Scenario 1, MTA and RTA would develop new park and ride lots along all express routes in more convenient locations. In some cases, these would be constructed within freeway rights-of-way, and/or with direction connections to freeways. These new park and ride lots, which are shown in Figure 4 and Figure 5, would replace existing lots.
- **Improve bicycle accommodation:** As in Scenario 1, MTA and RTA would improve bicycle accommodation in a number of ways:
  - Work with local communities to improve access to major services and facilities.
  - Provide secure bicycle parking/storage facilities at stations and major stops.
  - Accommodate bicycles within commuter rail and BRT vehicles and make other necessary improvements to accommodate additional bicycles on regular buses as demand increases.
  - Work with Nashville B-cycle and other organizations to install bikeshare stations at stations and major stops.
- **Improve first mile/last mile connections:** MTA and RTA would work with local communities and businesses to provide new options to connect with transit services. MTA and RTA would participate in the development of these services, but the primary responsibility for providing them would be with others (local transit agencies; businesses such as taxis, Lyft, and Uber, TMAs, local communities, etc.). In addition, and as in Scenario 1, MTA and RTA would finance some of these services in cases where alternative providers could provide either more attractive service or more cost-effective service.



## SCENARIO 2

### PROVIDE MORE COMFORTABLE SERVICE

- **Provide better station and stop facilities and amenities:** As in Scenario 1, MTA and RTA would develop a program to provide a basic level of facilities and amenities at all stations and stops. In Scenario 2, a lower level of amenities would be provided and at more locations. MTA/RTA would work more closely with cities and counties to assure ongoing maintenance and security at and around transit facilities.
- **Provide service with more comfortable vehicles:** As part of the development and provision of premium services, MTA and RTA would improve vehicle comfort levels. In Scenario 2, this would include commuter rail, BRT and Rapid Bus vehicles, the use of Over-the-Road coaches on all RTA express routes, and Wifi on higher volume services. New transit centers, as described above, would be designed to make waits more comfortable.

## SCENARIO 2

### DEVELOP A FREQUENT TRANSIT NETWORK:

- Scenario 2 emphasizes the development of a Frequent Transit Network comprised of bus services within Davidson County. The Frequent Transit Network would include six BRT routes, seven Rapid Bus routes, and one Frequent Peak local route:

#### BRT

- Route 3B West End BRT in the West End Avenue corridor
- Route 12B Nolensville BRT in the Nolensville Pike corridor
- Route 23B Dickerson BRT in the Dickerson Road corridor
- Route 50B Charlotte BRT in the Charlotte Avenue corridor
- Route 55B Murfreesboro BRT in the Murfreesboro Pike corridor
- Route 56B Gallatin BRT in the Gallatin Pike Corridor

#### Rapid Bus

- Route 4R East Nashville Rapid between Gallatin Road at Ardee Avenue and downtown via areas east of Gallatin Pike
- Route 7R Hillsboro Rapid in the 21st Avenue South/Hillsboro Pike corridor
- Route 9R MetroCenter Rapid between MetroCenter and downtown
- Route 17R 12th Avenue South Rapid via 21st Avenue South and 12th Avenue South Pike
- Route 22R Bordeaux Rapid in Clarksville Pike corridor
- Route 25R Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue
- Route 29R Jefferson/TSU Rapid between Charlotte Avenue and downtown via TSU and Jefferson Street
- Route 31R Hospitals Rapid between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center

#### Frequent Local

- Route 19 Herman, which would serve areas north of Charlotte Avenue (Frequent Peak)
- Route 34 Lebanon/Opry Mills, which would operate circumferentially between Dickerson Pike and downtown Nashville via Opry Mills (Frequent Peak)

## SCENARIO 2

### EXPAND SERVICE TO NEW AREAS

- **Expand local services:** Within Davidson County, as in Scenario 1, there would be no significant outward expansion of geographic coverage. Instead, there would be an emphasis on improving service frequencies and lengthening service spans on existing routes. However, service would be added within the existing service area to fill gaps and support the development patterns envisioned in NashvilleNext.

Outside of Davidson County, Scenario 2 would moderately expand local services in Clarksville, Franklin and Murfreesboro. Strong connections would also be provided between RTA and local services.

- **Develop new RTA-area local services:** In the I-65 south corridor, new local services would be developed in Brentwood and Cool Springs, extending local services south from Nashville along the I-65 south corridor. In the I-24 south corridor, new local services would be provided in the Murfreesboro Pike corridor between Nashville and Murfreesboro, extending local services along the I-24 corridor. New local service would also be provided along the Route 31E corridor in Hendersonville and Gallatin.
- **Provide new express and reverse commute service:** Scenario 2 includes five new express routes and four new and/or improved reverse commute routes:

#### New Express Routes

- Route 39X Airport Express, which would provide service between Nashville International Airport and Music City Central. As in Scenario 1, Route 39X would provide service every 30 minutes throughout the day.
- Route 83X Murfreesboro- Cool Springs
- Route 85X White House/Portland – Nashville
- Route 97X Columbia - Nashville
- Route 99X Ashland City – Nashville (Note: This route would be in lieu of Northwest Corridor Commuter Rail service that would serve Ashland City in Scenario 1)

#### Reverse Commute Routes

- Route 80R Gallatin Rapid between Gallatin and the outer end of the Gallatin Pike light rail line
- Route 81R Nolensville Rapid between Nolensville and the outer end of the Nolensville Pike light rail line
- Route 90X Cool Springs Express, which would provide express service between Music City Central and Cool Springs (Express/Commuter).
- Route 96R Murfreesboro Rapid between Murfreesboro and downtown Nashville via Murfreesboro Pike and I-24

## SCENARIO 2

### DEVELOP HIGH CAPACITY TRANSIT SERVICES/PREMIUM SERVICES

- **Expand commuter rail:** As in Scenario 1, Scenario 2 includes an extension of Music City Star service to Lebanon's planned Expo Center and more service would be provided. Weekday peak period service would be provided every 30 minutes, midday service would be provided every 120 minutes, and evening service would be provided every 60 minutes. Saturday service would be provided every two hours between 8 AM and 12 midnight. However, Scenario 2 does not include the development of Northwest Corridor commuter rail.
- **Develop light rail service:** Scenario 2 does not include the development of light rail service.
- **Develop Bus Rapid Transit lines:** Scenario 1 includes the development of BRT in six corridors:

- Dickerson Pike
- Gallatin Pike (upgraded from BRT-lite)
- Murfreesboro Pike (upgraded from BRT-lite)
- Nolensville Pike (upgraded from BRT-lite, scheduled to start in 2016)
- West End
- Charlotte Avenue (upgraded from BRT-lite)

Note also that with the development of BRT, four MTA express routes would be eliminated and replaced with feeder service to and from BRT: 33X Hickory Hills, 36X Madison, 37X Tusculum/McMurray, and 38X Antioch.

- **Expand Rapid Bus service:** Scenario 2 includes the development of 10 Rapid Bus lines. These include seven Rapid Bus Routes within Davidson County, and three Regional Rapid Bus routes. The seven Rapid Bus routes within Davidson County, which would also be part of the Frequent Transit Network include.
  - Route 4R East Nashville Rapid between Gallatin Road at Ardee Avenue and downtown via areas east of Gallatin Pike
  - Route 7R Hillsboro Rapid in the 21st Avenue South/Hillsboro Pike corridor
  - Route 9R MetroCenter Rapid between MetroCenter and downtown
  - Route 17R 12th Avenue South Rapid via 21st Avenue South and 12th Avenue South Pike
  - Route 22R Bordeaux Rapid in Clarksville Pike corridor
  - Route 25 Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue
  - Route 29 Jefferson/TSU Rapid between Charlotte Avenue and downtown via TSU and Jefferson Street
  - Route 31R Hospitals between Jefferson Street and Blakemore Avenue via Metro General Hospital, Saint Thomas Midtown Hospital, and Vanderbilt Medical Center

The three Regional Rapid Bus services would provide the same physical amenities as metro area Rapid Bus services, but would run less frequently (every 30 minutes peak and every 60 minutes off-peak):

- Route 80R Gallatin between Gallatin and the outer end of the Gallatin Pike light rail line
- Route 81R Nolensville between Nolensville and the outer end of the Nolensville Pike light rail line
- Route 96R Murfreesboro Rapid between Murfreesboro and downtown Nashville via Murfreesboro Pike and I-24

- **Develop streetcar service:** Scenario 2 does not include the development of streetcar service.
- **Develop Freeway BRT service:** As with Scenario 1, Scenario 2 includes the development of Freeway BRT service in high volume corridors to provide very fast service. Compared to Scenario 1, the routes and infrastructure improvements would be similar. However, in the Northeast Corridor, Freeway BRT facilities would be developed along I-65 rather than Ellington Parkway. This would be done because Scenario 2 includes express bus service to Clarksville rather than commuter rail, and through the shifting of the Freeway BRT facilities to I-65, Clarksville service could take advantage of Freeway BRT facilities south of the I-24/I-65 split.

Twelve routes would operate in these corridors; four of which would provide service throughout the day (Freeway BRT and Regional Rapid Bus service levels), and seven of which would operate via Freeway BRT facilities but provide the same level of service as other express routes (as indicated by the service types in parentheses):

- I-24 South**
  - Route 84X Murfreesboro Express (Freeway BRT)

- Route 86X Smyrna/La Vergne Rapid (Express/Commuter)
- Route 96R Murfreesboro Rapid (Regional Rapid Bus)

#### I-65 South

- Route 90X Cool Springs Express (Express/Commuter)
- Route 91X Franklin Express (Freeway BRT)
- Route 95X Spring Hill (Express/Commuter)
- Route 97X Columbia (Express/Commuter)

#### I-65 North/Route 386

- Route 85X White House Express (Express/Commuter)
- Route 87X Gallatin Express (Freeway BRT)
- Route 89X Springfield (Express/Commuter)
- Route 92X Hendersonville Express (Express/Commuter)
- Route 94X Clarksville (south of I-24/I-65 junction (Express/Commuter)

- **Implement Express Bus on Shoulder service:** Along freeways without Freeway BRT facilities, MTA and RTA would work with TDOT to implement Bus on Shoulder service. In Scenario 2, six routes would operate in this manner:

#### I-24 North

- Route 89X Springfield
- Route 94X Clarksville (north of I-24/I-65 junction)

#### I-65- North

- Route 85X White House (north of intersection with State Route 386)

#### I-40 East

- Route 39X Airport

#### I-40 West

- Route 24X Bellevue
- Route 88X Dickson
- Route 99X Ashland City (east of Briley Pkwy)

- **Improve airport service:** Service to and from Nashville International Airport would be improved in two ways:
  - New express service (Route 39X Airport Express) would provide seven day a week service between the airport and downtown Nashville every 30 minutes throughout the day from early morning until late night.
  - Route 18 Airport/Downtown Hotels would be extended from the airport along Donelson Pike to Murfreesboro Pike (Route 18R Elm Hill/Airport) to provide connections BRT along Murfreesboro Pike (Local 30 All Day)

# SCENARIO 3

## MODEST IMPROVEMENTS

Scenario 3 assumes that future increases in MTA and RTA operating and capital revenues would be generally in line with population growth as has occurred over the decade. With rapid population growth, this means that the MTA and RTA would be able to increase significantly increase operating and capital spending. However, this would be from a very low base, and thus improvements would be very limited, as would the impact of the system. A map of the major MTA improvements is presented in Figure 6 and a map of major RTA area improvements is presented in Figure 7.

Scenario 3 improvements include:

### SCENARIO 3

#### MAKE SERVICE EASIER TO UNDERSTAND AND USE

- **Simplify existing services:** As in Scenarios 1 and 2, MTA and RTA would conduct a Comprehensive Operations Analysis (COA) to identify and implement short-term changes within existing budget levels to make service simpler and more attractive.
- **Improve branding:** As in Scenarios 1 and 2, MTA and RTA would rebrand their services with a unified brand to make service in Middle Tennessee more cohesive. Individual service types would also be rebranded with new names that would be clearly linked to the overall brand.
- **Provide excellent information:** In all scenarios, web and smartphone-based real-time passenger information would be provided for all routes, including RTA routes. In Scenario 3, “in station” real-time information would be provided only at major terminals and on Rapid Bus routes.
- **Make fare payment easier:** As in Scenarios 1 and 2, MTA and RTA would develop a joint fare system and mobile ticketing for all services.

### SCENARIO 3

#### IMPROVE EXISTING SERVICES

- **Provide more frequent service for longer hours:** The hours that routes operate and the frequency at which they operate would be increased modestly:
  - **Metro Area Local Bus:** Improvements would include earlier and later service, including more weekend service, and more frequent service throughout the day, although primarily during peak periods. The minimum hours and frequencies that would be provided for each type of service on weekdays is shown in Table 5. There would also be commensurate increases in weekend service. However, in most areas, the increases would fall short of what most passengers would consider to be convenient. Based on the service types in Table 5, most local routes would be Local 30 All Day, Local 30 Peak, or Local 60 All Day routes.
  - **Express Bus:** A minimum of three AM inbound and three PM outbound trips would be provided on all MTA and RTA express routes. Express schedules would also be revised to expand the span of service to serve later work schedules.
  - **Music City Star:** Improvements would be limited to the addition of some midday and early evening service on weekdays.
- **Make service faster:** In the same manner as in Scenarios 1 and 2, as part of the COA, MTA and RTA will place a high priority on identifying and implementing changes that will make service faster. New premium services, described further below, would also emphasize speed.



FIGURE 6 | SCENARIO 3 CORE AREA MAJOR SERVICES

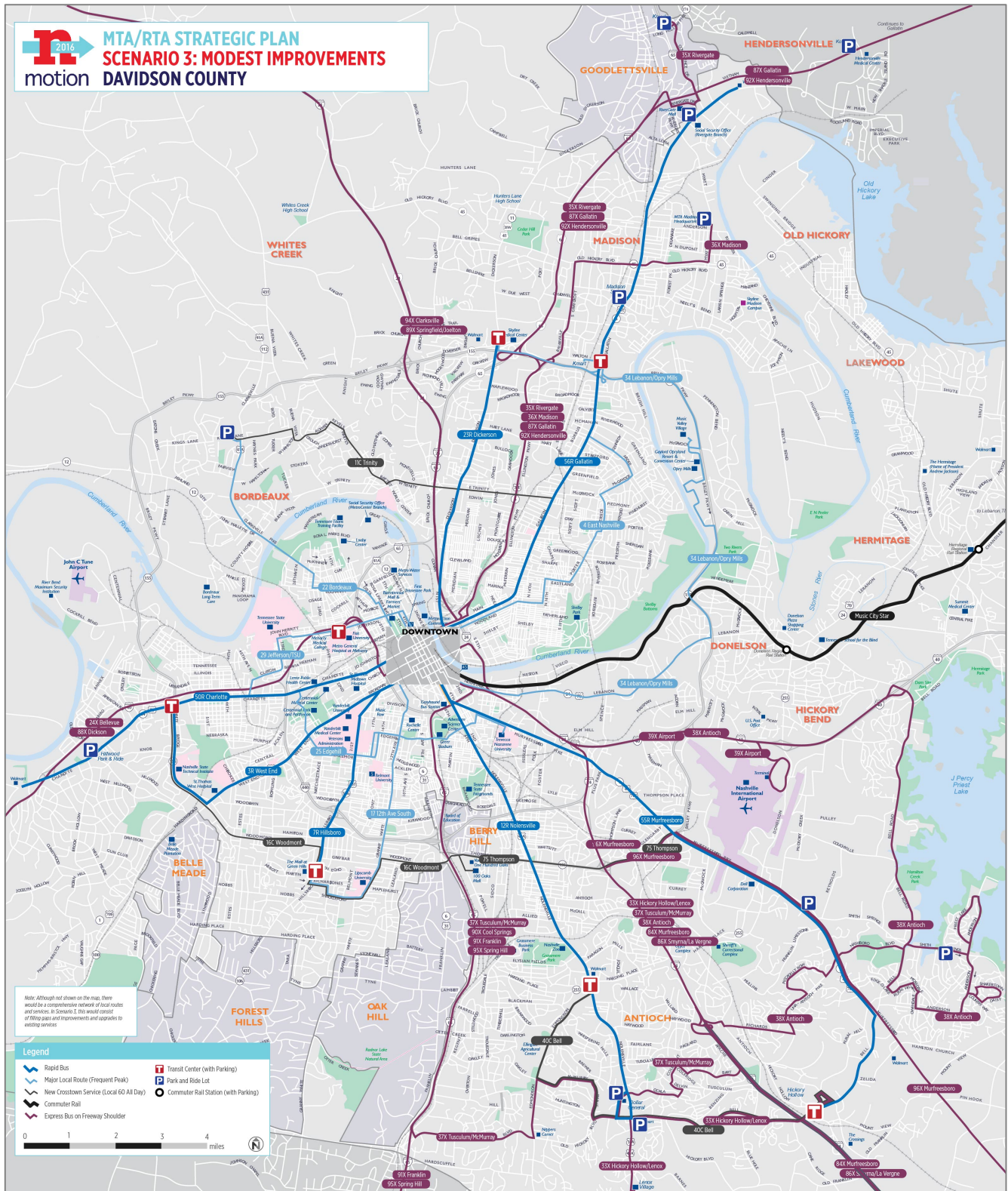




FIGURE 7 | SCENARIO 3 OUTER AREA MAJOR SERVICES

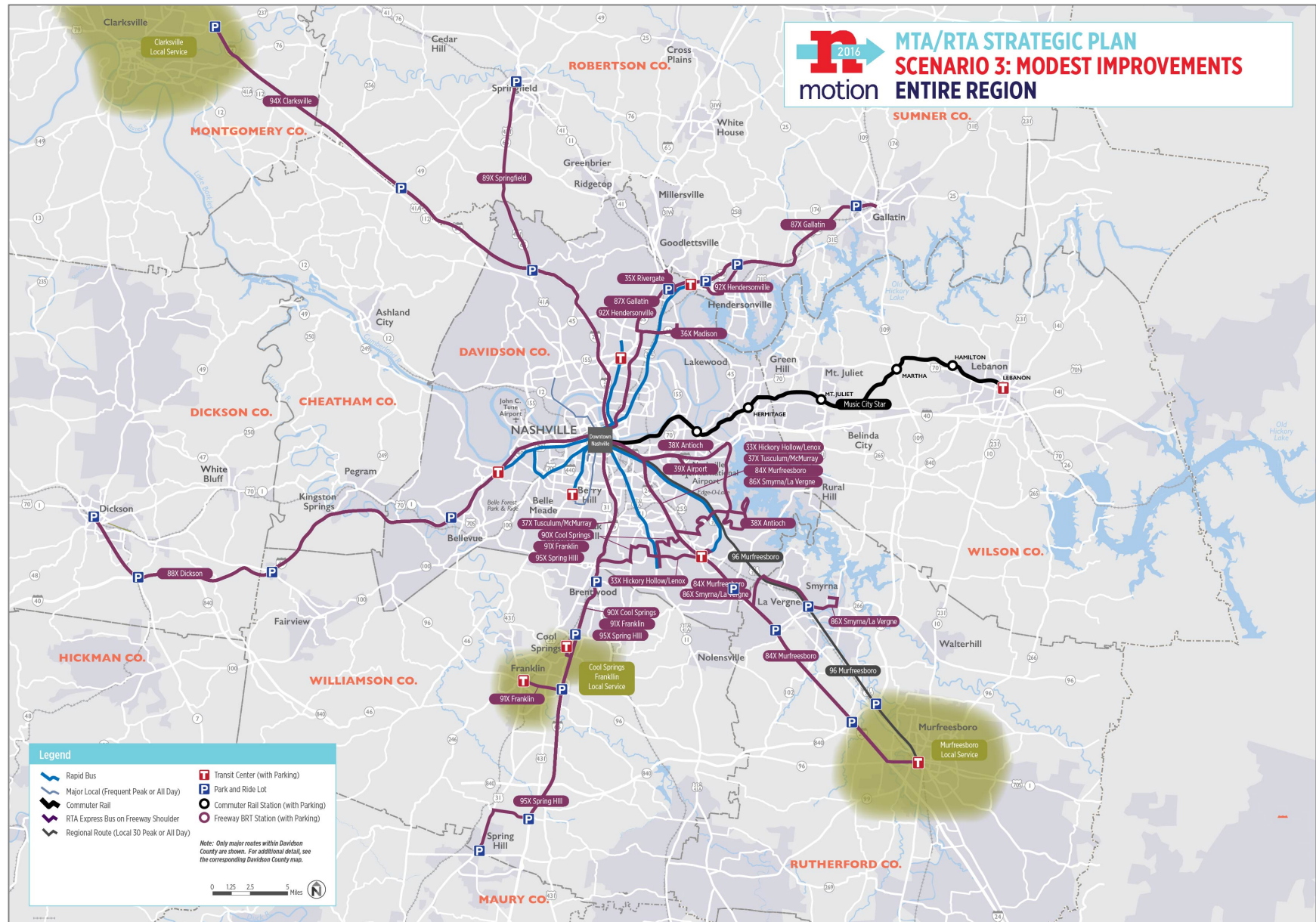


TABLE 5 | SCENARIO 3 WEEKDAY SERVICE SPANS AND FREQUENCIES

Service Type	Span of Service	Service Frequencies (mins)			
		Peak Periods	Midday	Evening	Early/Late
Rapid Bus	5 am – 11 pm	15	15	15	30
Frequent All Day	5 am – 10 pm	15	15	15	30
Frequent Peak	5 am – 10 pm	15	30	30	30
Local 30 All Day	5 am – 10 pm	30	30	60	60
Local 30 Peak	5 am – 10 pm	30	60	60	60
Local 60 All Day	6 am – 7 pm	60	60	60	
Circulator	6 am – 6 pm	60	60		
Lifeline	9 am – 3 pm		60		
Commuter Rail	5 am – 9 pm	30	120	120	
Commuter/Express	Peak only	3 AM inbound trips; 3 PM outbound trips			

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

- **Improve non-downtown Nashville service:** Scenario 3 includes a limited number of new crosstown services. These services would be provided through the development of new routes or modifications to existing routes:
  - Route 11 Trinity, between Bordeaux and Gallatin Pike via Trinity Lane (Local 30 Peak).
  - Route 16 Woodmont, between Charlotte Avenue and 100 Oaks Mall via Woodmont Avenue and the Mall at Green Hills (Local 30 Peak)
  - Route 25 Edgehill between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue (Frequent Peak)
  - Route 34 Opry Mills, between Gallatin Pike and downtown Nashville via Opry Mills (Local 60 All Day)
  - Route 40 Bell between Nolensville Pike at Harding Place and Hickory Hollow via Edmonson Pike and Bell Road (Local 30 Peak)

As in Scenarios 1 and 2, MTA would examine through-routing a number of radial routes to and from downtown Nashville to provide more one-seat rides.

- **Streamline service in downtown Nashville:** Within the constraints of the existing downtown roadway network, transit circulation in Nashville would be simplified and connections between MTA and RTA services improved. Scenario 3 improvements could include traffic pattern changes and the development of a second downtown transit center. However, it would not include the development of transit lanes or other major infrastructure improvements.
- **Implement transit priority:** In Scenario 3, the development of transit priority measures would be limited to new Rapid Bus corridors and in downtown.

#### SCENARIO 3

### IMPROVE ACCESS TO TRANSIT

- **Improve pedestrian access:** As in Scenarios 1 and 2, MTA and RTA would place a very high emphasis on working with communities to improve pedestrian conditions. However, in Scenario 3, it would rely on local communities and businesses to develop those improvements. MTA and RTA-led improvements would be limited to the development of targeted improvements in the vicinity of transit centers and other important transit facilities. To an even greater extent than in Scenarios 1 and 2, MTA and RTA would prioritize transit improvements in areas where communities improve pedestrian conditions.

- **Provide better transit connections:** As described above, a limited number of new crosstown routes would be implemented to provide better service to non-downtown locations. These routes would also connect with radial routes, and the connections would provide more direct service than trips through downtown Nashville. Connections between RTA services and local services provided by the Clarksville Transit System and Franklin Transit Authority would also be improved.

As in Scenarios 1 and 2, MTA and RTA would develop a network of transit centers at places major locations where passengers would transfer between services (as shown in Figure 6 and Figure 7). However, in Scenario 3, there would be fewer of these facilities, and they would be more modest facilities

- **Improve park and ride access:** As in Scenarios 1 and 2, MTA and RTA would develop new park and ride lots along express routes in more convenient locations. In Scenario 3, park and ride lots would be located as shown in Figure 6 and Figure 7.
- **Improve bicycle access:** In Scenario 3, MTA and RTA would improve bicycle accommodation at major stations and stops and on-board vehicles in the following ways:
  - Provide secure bicycle parking/storage facilities at stations and major stops.
  - Accommodate bicycles on-board Music City Star trains
  - Accommodate additional bicycles on buses as demand increases.
  - Work with Nashville B-cycle and other organizations to install bikeshare stations at stations and major stops.
- **Improve first mile/last mile connections:** MTA and RTA would work with local communities and businesses to develop new options to connect with transit services. As in Scenarios 1 and 2, the primary responsibility for providing the services would be with others. In Scenario 3, MTA and RTA would finance some of these services in cases where alternative providers could provide either more attractive service or more cost-effective service, but only in very limited circumstances.

#### SCENARIO 3

### PROVIDE MORE COMFORTABLE SERVICE

- **Provide better station and stop facilities and amenities:** As in Scenarios 1 and 2, MTA and RTA would develop a program to provide a basic level of amenities at facilities and stops. In Scenario 3, the focus would be on basic improvements such as benches and signage, rather than more extensive amenities such as the widespread placement of shelters and real-time information.
- **Provide service with more comfortable vehicles:** As part of the development and provision of premium services, MTA and RTA would improve vehicle comfort levels. In Scenario 3, this would include improvements to Rapid Bus (BRT-lite) vehicles and the use of Over-the-Road coaches on all RTA express routes, and Wifi on many services.

#### SCENARIO 3

### DEVELOP A FREQUENT TRANSIT NETWORK:

Scenario 3 includes the development of a basic Frequent Transit Network that would consist of frequent service in nine corridors (every 15 minutes during the day and every 30 minutes at night):

#### Rapid Bus

- Route 3R West End Rapid in the West End Avenue corridor
- Route 7R Hillsboro Rapid in the 21st Avenue South/Hillsboro Pike corridor
- Route 12R Nolensville Rapid in the Nolensville Pike corridor

- Route 23R Dickerson Rapid in the Dickerson Road corridor
- Route 50R Charlotte Rapid in the Charlotte Avenue corridor
- Route 55RMurfreesboro Rapid in the Murfreesboro Pike corridor
- Route 56R Gallatin Rapid in the Gallatin Pike Corridor

#### Frequent Local

- Route 4R East Nashville Rapid between Gallatin Road at Ardee Avenue and downtown via areas east of Gallatin Pike
- Route 9R MetroCenter Rapid between MetroCenter and downtown
- Route 17R 12th Avenue South Rapid via 21st Avenue South and 12th Avenue South Pike
- Route 18R Elm Hill/Airport Rapid, between downtown Nashville and Murfreesboro Pike via Nashville International Airport, with connections between the airport and Murfreesboro Pike BRT service
- Route 22R Bordeaux Rapid in Clarksville Pike corridor
- Route 25 Edgehill Rapid between Charlotte Avenue and Trevecca Nazarene University via Edgehill Avenue
- Route 29 Jefferson/TSU Rapid between Charlotte Avenue and downtown via TSU and Jefferson Street

### SCENARIO 3

#### EXPAND SERVICE TO NEW AREAS

- **Expand local services:** Within Davidson County, as in Scenarios 1 and 2, there would be no significant expansion of geographic coverage. Outside of Davidson County, RTA would work with local service providers to improve connections between RTA and local services, and expand local services in the Cool Springs area.
- **Develop new RTA-area local services:** Scenario 3 does not include the development of new local services in new areas outside of those that are currently served (by Clarksville Transit, Franklin Transit, or the Murfreesboro Rover).
- **Provide expanded express bus and reverse commute service:** Scenario 3 includes one new express route and two new reverse commute routes:

#### New Express Route

- Route 39X Airport Express (Express/Commuter), which would provide service between Nashville International Airport and Music City Central. In contrast to other express routes, Route 39X would provide service every 30 minutes throughout the day.

#### Reverse Commute Routes

- Route 90X Cool Springs Express, which would provide express service between Music City Central and Cool Springs (Express/Commuter)
- Route 96R Murfreesboro, which would provide limited stop service between Nashville and Murfreesboro, primarily along Murfreesboro Pike (Local 30 Peak)

### SCENARIO 3

#### DEVELOP HIGH CAPACITY TRANSIT SERVICES/PREMIUM SERVICES

- **Develop and expand commuter rail service:** Scenario 3 includes the provision of additional Music City Star service. As at present, service would only operate on weekdays. However, peak period service would be provided every 30 minutes and midday and evening service would be provided every two hours. Like Scenario 2, Scenario 3 does not include the development of Northwest Corridor commuter rail.
- **Develop Light Rail service:** Scenario 3 does not include the development of light rail service.

- **Develop Bus Rapid Transit lines:** Scenario 3 does not include the development Bus Rapid Transit service.
- **Expand Rapid Bus service:** Within Davidson County, MTA would upgrade seven of its highest ridership routes to Rapid Bus:
  - Route 3R West End Rapid in the West End Avenue corridor
  - Route 7R Hillsboro Rapid in the 21st Avenue South/Hillsboro Pike corridor
  - Route 12R Nolensville Rapid in the Nolensville Pike corridor
  - Route 23R Dickerson Rapid in the Dickerson Road corridor
  - Route 50R Charlotte Rapid in the Charlotte Avenue corridor
  - Route 55RMurfreesboro Rapid in the Murfreesboro Pike corridor
  - Route 56R Gallatin Rapid in the Gallatin Pike Corridor
- **Develop Streetcar service:** Scenario 3 does not include the development of streetcar service.
- **Develop Freeway BRT service:** Scenario 3 does not include the development of Freeway BRT service.
- **Implement Express Bus on Shoulder service:** As in Scenarios 1 and 2, MTA and RTA would work with TDOT to implement Bus on Shoulder service on the Nashville area freeways. Since Scenario 3 does not include Freeway BRT, the Express Bus on Shoulder network would be significantly larger, and 21 routes would provide Express Bus on Shoulder service:

#### I-24 North

- Route 89X Springfield/Joelton
- Route 94X Clarksville

#### Ellington Parkway/I-65- North/State Route 386

- Route 35X Rivergate
- Route 36X Madison
- Route 87X Gallatin
- Route 92X Hendersonville

#### I-40 East

- Route 38X Antioch
- Route 39X Airport

#### I-24 South

- Route 33X Hickory Hollow/Lenox
- Route 37X Tusculum/McMurray
- Route 38X Antioch
- Route 84X Murfreesboro
- Route 86X Smyrna/La Vergne
- Route 96X Murfreesboro

#### I-65 South

- Route 37X Tusculum/McMurray
- Route 90X Cool Springs
- Route 91X Franklin
- Route 95X Spring Hill

#### I-40 West

- Route 24X Bellevue
- Route 88X Dickson

- **Improve airport service:** As in Scenarios 1 and 2, express service would be provided between the airport and downtown (Route 39X Airport Express) and would operate every 30 minutes throughout the day.





In addition, Route 18 Airport/Downtown Hotels, would be reconfigured so that all service would operate via Elm Hill Pike (Frequent All Day).

# COSTS

All three scenarios would increase operating and capital costs significantly. In terms of order of magnitude costs, and as shown in Table 6, total operating costs for both MTA and RTA would increase from a current total of \$83.2 million to as high as \$246 million for Scenario 1, \$161 million for Scenario 2, and \$103 million for Scenario 3. Total capital spending through 2040 would be \$5.4 billion for Scenario 1, \$2.4 billion for Scenario 2, and \$800 million for Scenario 3. The much higher cost for Scenario 1 is largely attributable to the development of rail services.

TABLE 6 SCENARIO COSTS (ALL COSTS IN \$2015)

Costs in millions	Scenario 1 Comprehensive Regional System	Scenario 2 Bus-Focused Expansion	Scenario 3 Modest Improvements	Existing System (FY 2016)
<b>MTA</b>				
Annual Operating Costs	\$246.3	\$160.9	\$103.1	\$73.6
Total Capital Costs through 2040	\$3,600	\$1,000	\$400	NA
<b>RTA</b>				
Annual Operating Costs	\$65.2	\$45.6	\$26.3	\$9.6
Total Capital Costs through 2040	\$1,800	\$1,400	\$400	NA
<b>Total Regional System (MTA &amp; RTA)</b>				
Annual Operating Costs	\$311.5	\$206.5	\$129.4	\$83.2
Total Capital Costs through 2040	\$5,400	\$2,400	\$800	NA
Annualized Capital Costs through 2040	\$113.0	\$50.3	\$32.0	\$25.9
Total Annualized Costs (Operating & Capital)	\$424.5	\$256.8	\$161.4	\$109.1

Note: Annualized costs are based on cost at "full build out," and are intended for comparison purposes only – they are not intended to be true projections of final system costs. Advancement toward scenarios 1 or 2 would require the development of detailed financial plans beyond the scope of this planning study.

On a per capita basis, total MTA and RTA spending for FY 2016, based on 2010 population, will be \$67 (see Table 7). By comparison, Scenario 3 would cost \$227 per person per year, Scenario 2 would cost \$109, and Scenario 3 would cost \$68 (essentially the same as at present).

TABLE 7 PER CAPITA COSTS (ALL COSTS IN \$2015)

Costs in millions	Scenario 1 Comprehensive Regional System	Scenario 2 Major Imps in Key Corridors	Scenario 3 Improve Existing System	Existing System (FY2016)
<b>Population</b>				
2010 Regional Population				1,625,639
2040 Regional Population	3,096,602	3,096,602	3,096,602	
<b>Per Capita Costs; Total System (MTA &amp; RTA, Operating and Annualized Capital Costs)</b>				
MTA & RTA	\$227	\$109	\$68	\$67

Note: Existing per capita costs based on 2010 population; scenario per capita costs based on the average of 2010 and 2040 population.