SCENARIOS DETAILS: DEVELOP PREMIUM SERVICES

RAPID BUS

In order to provide many of the benefits of Bus Rapid Transit (BRT) service more quickly and affordably, many transit systems provide "Rapid Bus" service. Rapid Bus service includes the elements of BRT that can be implemented without exclusive bus lanes and those that can be implemented at a lower cost and in a much shorter time frame. Rapid Bus also can be a first step toward full BRT. Nashville MTA's existing BRT-lite service is a form of Rapid Bus.

Whereas BRT represents a middle ground between light rail service and regular bus service, Rapid Bus represents a middle ground between BRT and regular bus (see Figure 1). Rapid Bus is a combination of many elements—although more limited than BRT—that work together to produce more attractive service:

- **Unique Identity** to increase the service's visibility and differentiate it from "regular" bus service.
- **Premium Stations** that provide similar features, amenities, and levels of passenger comfort as BRT stations.
- **Real-Time Passenger Information** to inform passengers when buses will arrive or depart from stations, which reduces much of the uncertainty associated with bus service.
- **Intelligent Transportation System Technologies,** such as automatic vehicle location, which can be used to maintain consistent spacing between buses and to keep them on schedule.
- **Effective Connections** with other transit and surrounding areas.
- **Transit Priority** such as signal priority and queue jump lanes to speed buses through intersections.

These measures work together to make service fast and reliable, to improve service convenience and comfort, and to establish a strong image and identity for service. For additional information on Rapid Bus service, see: nmotion2015.com/wp-content/uploads/2016/01/nMotion-Rapid-Bus-150712.pdf.

FIGURE 1 | REGULAR BUS VS. RAPID BUS VS. BUS RAPID TRANSIT

As included in the nMotion scenarios, Rapid Bus would be similar to Nashville MTA's BRT lite services, but with key differences:

- **Improved branding** to emphasize the premium nature of the service that would be used on buses, at stops, and on other materials.
- **Higher quality stations** to provide a more comfortable waiting environment.
- **A variety of transit priority measures**; for example, in addition to transit signal priority, queue jump lanes and short sections of bus lanes in congested areas.
- **Pedestrian improvements** to make it easier to get to and from stations.
- Potential **off-board ticketing** to reduce dwell times.

SUMMARY OF SCENARIO SERVICES

All three scenarios include Rapid Bus. In Scenario 1, major services that would not be developed as light rail or BRT would be developed as Rapid Bus (see Table 1). In Scenario 2, where BRT would be the highest level of metro area service, most other major services would be developed as Rapid Bus. In Scenario 3, where Rapid Bus would be the highest level of metro area service, the most important routes would be developed as Rapid Bus. In total, there would be 13 Rapid Bus routes in Scenario 1, seven in Scenario 2, and seven in Scenario 3.

TABLE 1 | RAPID BUS SERVICE BY SCENARIO

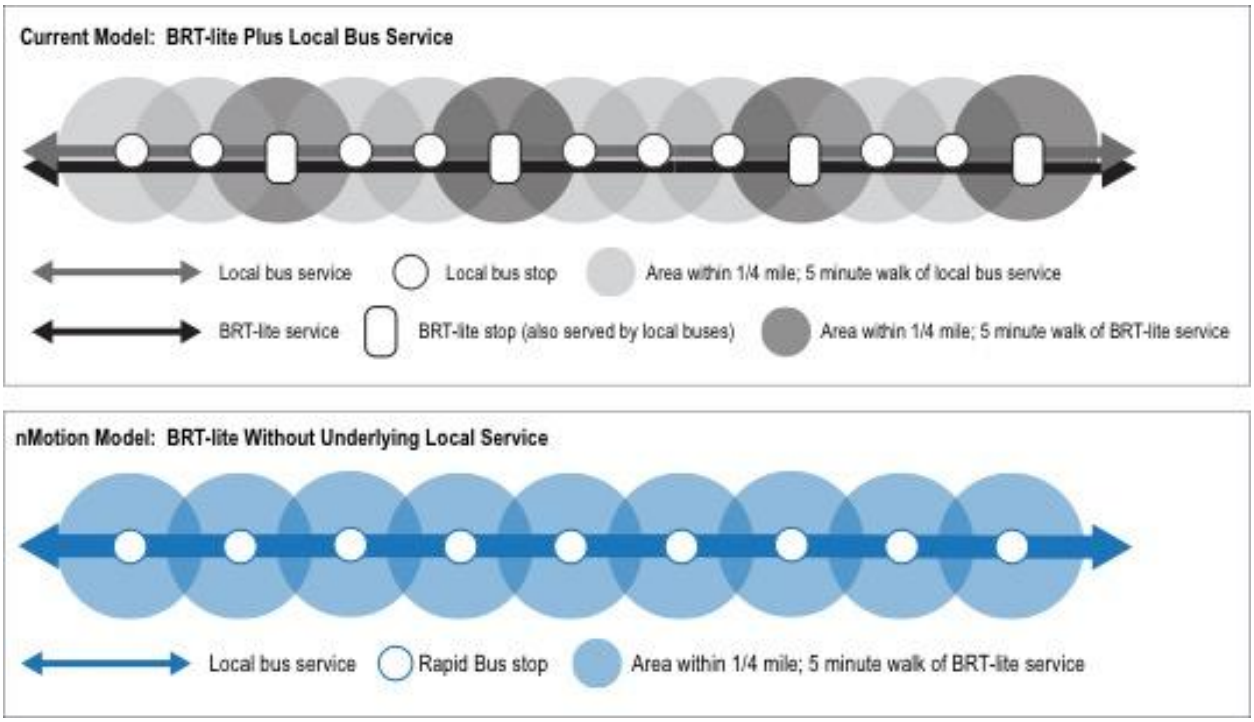
Route/Corridor	Scenario 1 Comprehensive Regional System	Scenario 2 Bus-Focused Expansion	Scenario 3 Modest Improvements
3 West End	BRT	BRT	Rapid Bus
4 East Nashville	Rapid Bus	Rapid Bus	[Local Bus]
7 Hillsboro	BRT	Rapid Bus	Rapid Bus
9 MetroCenter	Rapid Bus	Rapid Bus	[Local Bus]
12 Nolensville Pike	LRT	BRT	Rapid Bus
17 12th Avenue South	Rapid Bus	Rapid Bus	[Local Bus]
18 Elm Hill/Airport	Rapid Bus	[Local Bus]	[Local Bus]
22 Bordeaux	Rapid Bus	Rapid Bus	[Local Bus]
25 Edgehill	Rapid Bus	Rapid Bus	[Local Bus]
29 Jefferson/TSU	Rapid Bus	Rapid Bus	[Local Bus]
31 Hospitals	Rapid Bus	[Local Bus]	[Local Bus]
34 Opry Mills	Rapid Bus	[Local Bus]	[Local Bus]
43 Dickerson Pike	BRT	BRT	Rapid Bus
50 Charlotte Ave	LRT	BRT	Rapid Bus
55 Murfreesboro Pike	LRT	BRT	Rapid Bus
56 Gallatin Pike	LRT	BRT	Rapid Bus
80 Gallatin	Rapid Bus	[Local Bus]	[Local Bus]
81 Nolensville	Rapid Bus	[Local Bus]	[Local Bus]
86 Smyrna/LaVergne	Rapid Bus	[Local Bus]	[Local Bus]
96 Murfreesboro	Rapid Bus	[Local Bus]	[Local Bus]

Note: On maps, the route numbers include a suffix if they are light rail (L), BRT (B), or Rapid Bus (R). For example, Route 12 Nolensville is light rail in Scenario 1 and labeled as Route 12L, BRT in Scenario 2 and labeled as 12B, and Rapid Bus in Scenario 3 and labeled as 12R.

In corridors where Rapid Bus would be developed, all service would operate as Rapid Bus to better balance convenient access and faster travel times. This is the model for Nashville MTA's new BRT lite service in the Nolensville Pike corridor, and is different than in other BRT lite corridors where a

combination of BRT lite and local service is provided. New nMotion Rapid Bus routes would have more frequently spaced stops than current BRT lite routes (four to six per mile) and there would be no underlying local service (see Figure 2).

FIGURE 2 | CURRENT BRT LITE/LOCAL BUS MODEL VS. NMOTION RAPID BUS MODEL



SCENARIO 1: COMPREHENSIVE REGIONAL SYSTEM

Scenario 1 includes 20 High Capacity Transit (HCT) lines, including nine metro area Rapid Bus lines and four Regional Rapid Bus lines (see Figure 3 and Figure 4).

The nine metro area Rapid Bus routes are:

- 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 Nashville 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

FIGURE 3 | SCENARIO 1 METRO AREA RAPID BUS SERVICES (PLUS LIGHT RAIL AND BRT)

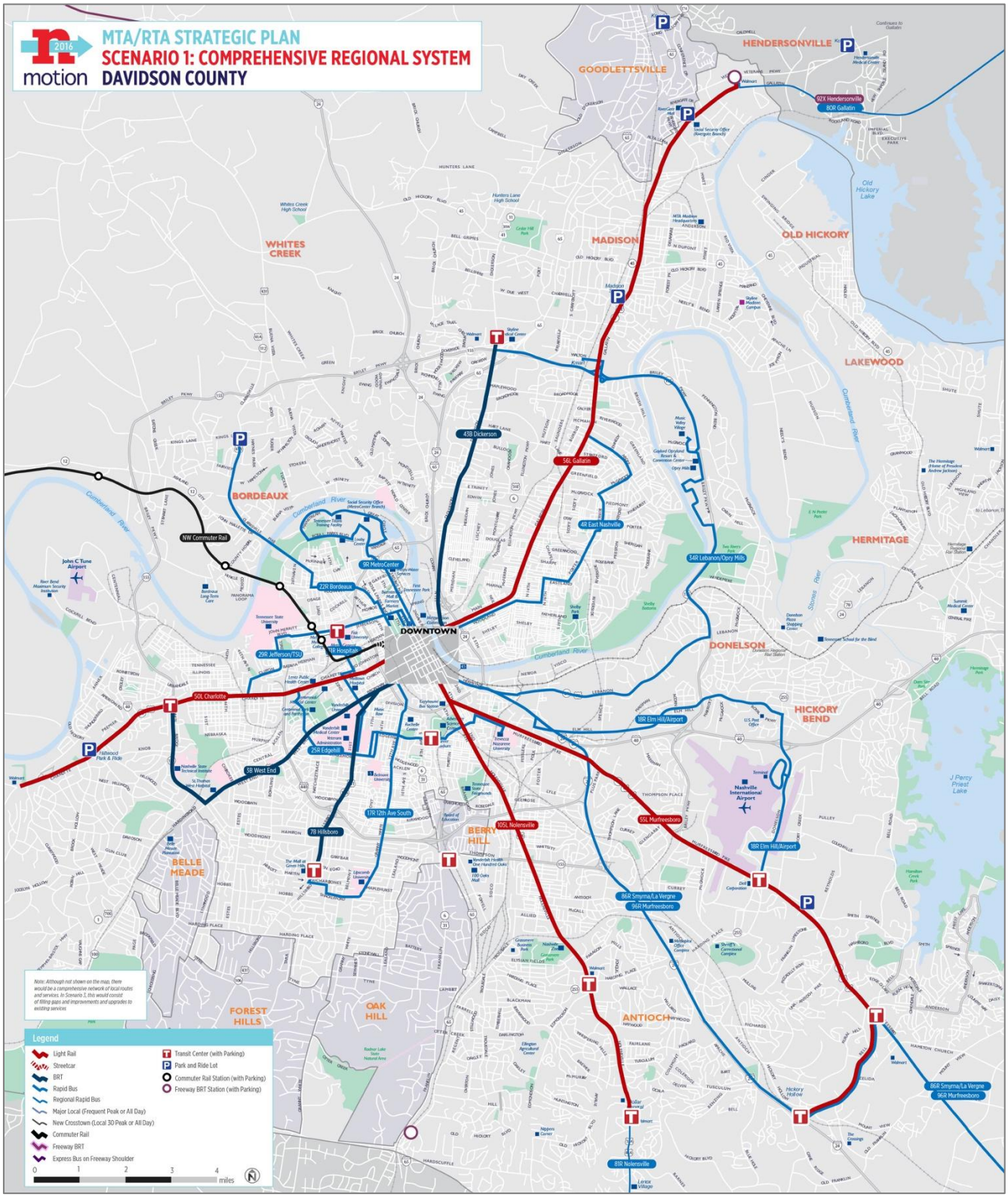
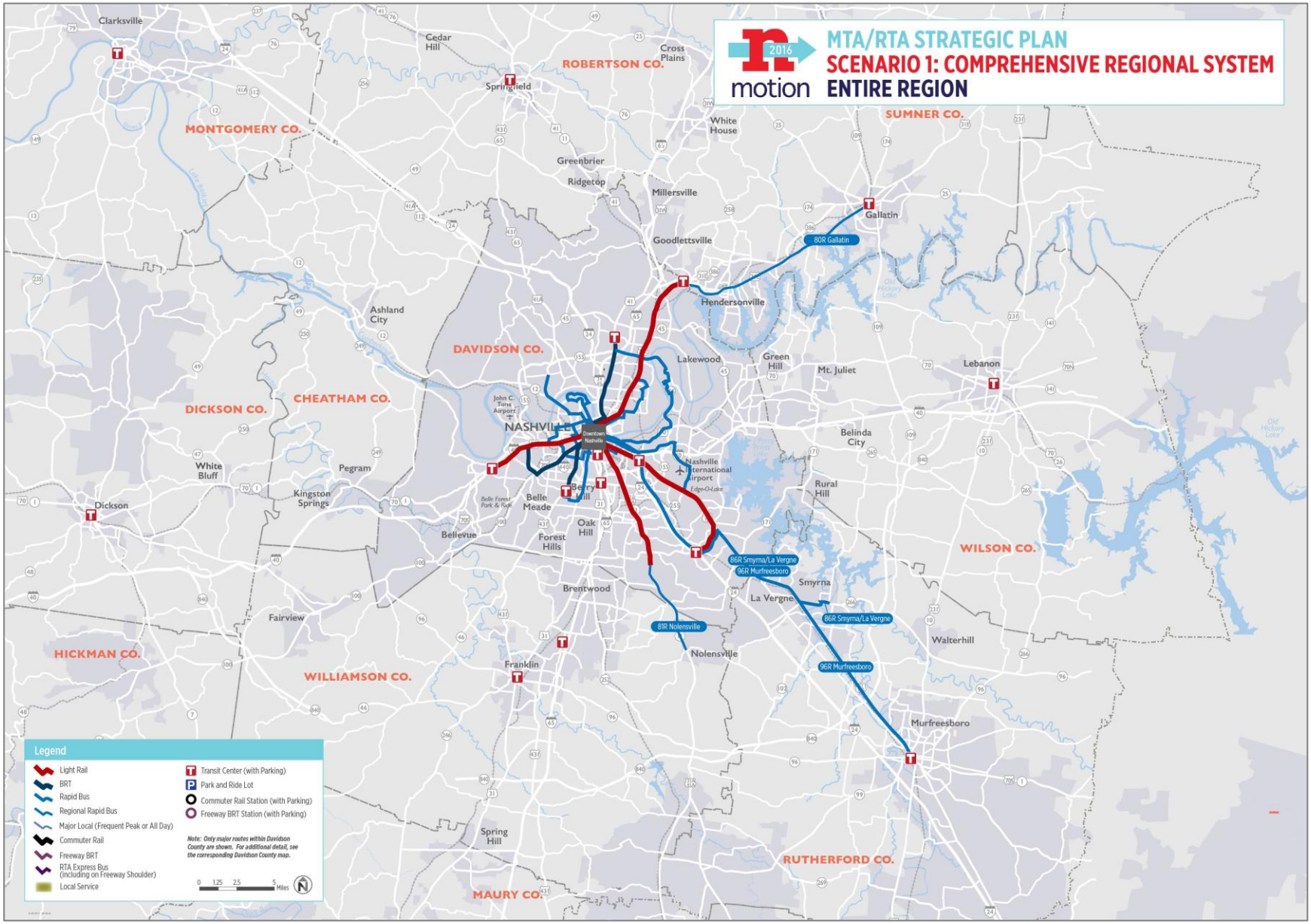


FIGURE 4 | SCENARIO 1 REGIONAL RAPID BUS SERVICES (PLUS LIGHT RAIL AND BRT)



The four Regional Rapid Bus routes would operate in the northeast, southeast, and Nolensville corridors and would provide the same physical amenities as metro area Rapid Bus:

- Route 80R Gallatin between Gallatin and the end of the Gallatin Pike light rail line
- Route 81R Nolensville between Nolensville and the 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

Scenario 1 Rapid Bus service would operate with a very high level of service, according to the spans (hours of service) and frequencies described in Table 2.

TABLE 2 | SCENARIO 1 RAPID BUS LEVELS OF SERVICE

	Span of Span	Service Frequencies (Minutes)			
		Peak	Midday	Evening	Early/Late
Rapid Bus					
Weekday	5 AM – 1 AM	10	10	10	20
Saturday	5 AM – 1 AM	15	15	15	30
Sunday	6 AM – 11 PM	15	15	15	30
Regional Rapid Bus					
Weekday	5 AM – 11 PM	30	60	60	60
Saturday	5 AM – 11 PM	60	60	60	60
Sunday	7 AM – 9 PM	60	60	60	No service

Note: Peak = approximately 6 AM to 8:30 AM and 3:30 PM to 6:00 PM, Midday between those times, Evening from 6 PM to 11 PM, and Early/Late before 6 AM and after 11 PM.

SCENARIO 2: BUS-FOCUSED EXPANSION

Scenario 2 includes a network of 15 HCT lines, including seven metro area Rapid Bus lines and three Regional Rapid Bus lines (see Figure 5 and Figure 6):

The seven metro area Rapid Bus routes are:

- 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 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

The three Regional Rapid Bus routes would operate in the northeast, southeast, and Nolensville corridors and would provide the same physical amenities as metro area Rapid Bus:

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

FIGURE 5 | SCENARIO 2 METRO AREA RAPID BUS SERVICES (PLUS BRT)

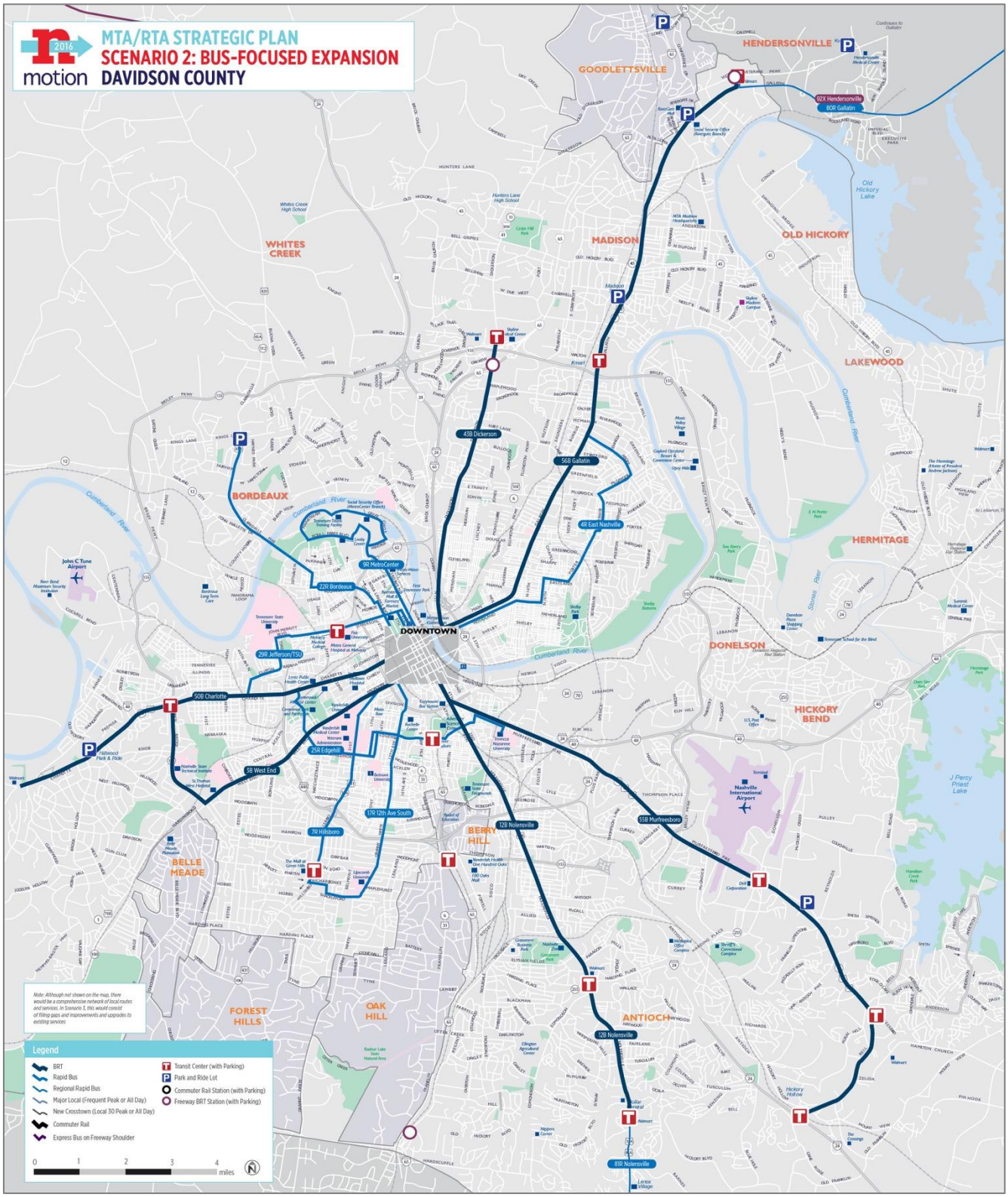
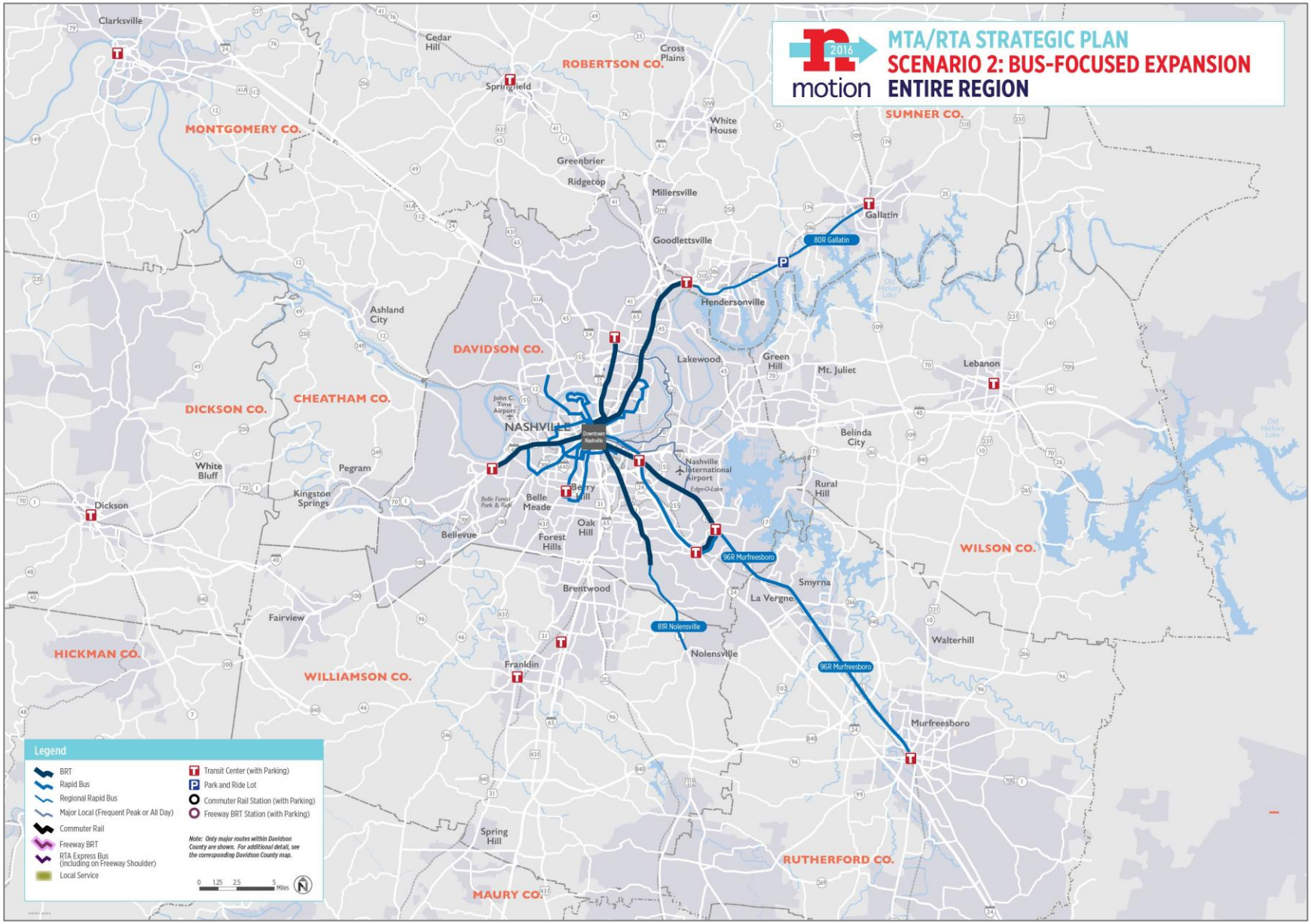


FIGURE 6 | SCENARIO 2 REGIONAL RAPID BUS SERVICES (PLUS CONNECTION WITH BRT)



Scenario 2 Rapid Bus service would operate with a high level of service—somewhat reduced from Scenario 1—according to the spans and frequencies described in Table 3.

TABLE 3 | SCENARIO 2 RAPID BUS LEVELS OF SERVICE

	Span of Span	Service Frequencies (Minutes)			
		Peak	Midday	Evening	Early/Late
Rapid Bus					
Weekday	5 AM – 12 AM	10	15	15	20
Saturday	5 AM – 12 AM	15	15	15	30
Sunday	6 AM – 10 PM	15	15	15	30
Regional Rapid Bus					
Weekday	5 AM – 10 PM	30	60	60	60
Saturday	5 AM – 10 PM	60	60	60	60
Sunday	7 AM – 9 PM	60	60	60	No service

Note: Peak = approximately 6 AM to 8:30 AM and 3:30 PM to 6:00 PM, Midday between those times, Evening from 6 PM to 11 PM, and Early/Late before 6 AM and after 11 PM.

SCENARIO 3: MODEST IMPROVEMENTS

Scenario 3 includes a significantly more modest network of HCT lines that would be comprised of seven metro area Rapid Bus lines and no Regional Rapid Bus lines (see Figure 7):

- Route 3R West End Rapid in the Broadway/West End Avenue corridor
- Route 7R Hillsboro Rapid in the Broadway/21st Avenue South corridor
- Route 12R Nolensville Rapid in the Nolensville Pike corridor
- Route 43R Dickerson Rapid in the Dickerson Pike corridor
- Route 50R Charlotte Rapid in the Charlotte Avenue corridor
- Route 55R Murfreesboro Rapid in the Murfreesboro Pike corridor
- Route 56R Gallatin Rapid in the Gallatin Pike corridor

Scenario 3 Rapid Bus service would operate according to the levels described in Table 4.

TABLE 4 | SCENARIO 3 RAPID BUS LEVELS OF SERVICE

	Span of Span	Service Frequencies (Minutes)			
		Peak	Midday	Evening	Early/Late
Rapid Bus					
Weekday	5 AM – 11 PM	15	15	15	30
Saturday	5 AM – 11 PM	15	15	15	30
Sunday	6 AM – 10 PM	15	15	15	30

Note: Peak = approximately 6 AM to 8:30 AM and 3:30 PM to 6:00 PM, Midday between those times, Evening from 6 PM to 11 PM, and Early/Late before 6 AM and after 11 PM.

FIGURE 7 | SCENARIO 3 METRO AREA RAPID BUS LINES