

SCENARIO DETAILS: IMPROVE EXISTING SERVICES

PASSENGER EXPERIENCE

Throughout the nMotion process, stakeholders have emphasized that they want more convenient service. Convenience is determined by many factors, both big and small. At its most basic level, convenient means that transit can take you where you want to go when you want to go in a reasonable amount of time. However, many small things also contribute to convenience, and more often than not, a combination of many small things can make using transit difficult and inconvenient. Transit trips involve six basic steps:

1. Learn how to make the trip using transit
2. Get to and find the stop
3. Wait for the bus or train
4. Pay the fare
5. Ride the bus or train
6. Figure out where to get off the bus, often to make a transfer and repeat steps 3 through 5.

For trips that people make day in and day out, each of these steps quickly becomes routine. However, for occasional riders, many of these steps involve uncertainty and hassles. This is also the case for many frequent riders, who while they may make the same work trip everyday, also make many occasional trips. For example:

- **Getting information is not always easy.** To make a trip using MTA and RTA services, users must go to two different websites. Schedule information is also available on various smartphones apps for all MTA and most but not all RTA routes. However, the nature of transit information today is that it is fragmented. Experienced transit users know where to go to find it; occasional users often do not. Real-time information is available for MTA routes, but not yet for RTA routes.

FIGURE 1 | MTA AND RTA WEB SITES



- **It's often too difficult or inconvenient to access transit.** Most transit passengers walk to and from stops and a large proportion of regional riders drive to stops. Pedestrian conditions throughout most of Middle Tennessee are poor, and even major urban corridors in Nashville lack sidewalks. The difficulty, discomfort, and unsafe conditions that people must traverse to and from transit stops are a major impediment to transit use.

For those who drive to park and ride lots, they are often in inconvenient locations that are time-consuming to reach. For those who use other means, and especially at the outer end of trips, connections can be even more difficult.

- **It's not always obvious where the stop is.** MTA and RTA stops are marked with different types of bus stop signs. Most MTA stops simply indicate that a location is a stop, but do not provide information on which routes serve the stop, or other information. In areas that are served by only one route, this is usually not a problem. However, in areas served by multiple routes, riders can't always be confident that they are at the right stop. Some RTA stops are not marked at all.
- **Stops are often in uncomfortable locations,** with no seating, protection from the elements, or other amenities.

FIGURE 2 | MTA BUS STOPS



- **Fare payment is often a hassle.** While most regular riders purchase passes, occasional riders must pay with exact change, which most people don't have and must go out of their way to find or organize, or overpay and receive a credit. Transit systems, including MTA and RTA, are among the last consumer-oriented businesses that don't accept credit and debit cards, and are behind in the adoption of payment via smartphones.
- **Comfort on-board most MTA and RTA vehicles is relatively good.** While not nearly as comfortable as a private vehicle, on-board comfort on transit vehicles is generally acceptable for short trips. Also, most services provide most riders with a seat, and those who must stand usually must only do so for a short period. Most longer distance services provide a much higher level of comfort. Music City Star trains provide comfortable seating, and most RTA express services are provided with over-the-road coaches with comfortable seating. Inconveniences are more "around the margins;" for example, some MTA express services are provided with standard transit buses, and MTA and RTA's no eating or drinking policy means that MTA and RTA buses are only way to commute that forces commuter to forgo a cup of coffee.
- **It's not always obvious where to get off the bus.** New real-time information apps, and "regular" apps such as Google Maps, now make this much easier for those with smartphones. Other improvements such as stop and signage improvements, can further facilitate this.

SUMMARY OF SCENARIO SERVICES

All three scenarios would include improvements in all of the areas described above, with significantly more emphasis in Scenario 1 and less in Scenarios 2 and 3. Scenario 1 emphasizes the development of a "complete system" that provides excellent service in all respects. Scenario 3, at the other

end, which would consist of modest improvements, would require more trade-offs to be made. In that case, the primary focus would be on maximizing the amount of service to be provided, with a lesser emphasis on associated passenger convenience. Scenario 2 would represent a middle ground, but one that would be much closer to Scenario 1 than Scenario 3.

For more information on the improvements described below see:

- **Better Information:** nmotion2015.com/wp-content/uploads/2015/10/nMotion-Better-Information-151018_FINAL.pdf
- **Improve Access to Transit:** nmotion2015.com/wp-content/uploads/2015/10/nMotion-Better-Information-151018_FINAL.pdf
- **First and Last Mile Connections:** nmotion2015.com/wp-content/uploads/2015/09/nMotion-First-Mile-Last-Mile-150920_FINAL.pdf
- **Better Facilities and Amenities:** nmotion2015.com/wp-content/uploads/2015/11/nMotion-Better-Facilities-and-Amenities_151101_FINAL.pdf
- **Fare Payment and Collection Strategies:** nmotion2015.com/wp-content/uploads/2015/12/nMotion-Fare-Technology_151120_FINAL.pdf

SCENARIO 1 IMPROVEMENTS

A very wide range of improvements would be provided in Scenario 1 to improve passenger experience:

PROVIDE BETTER INFORMATION

Scenario 1 would provide information in a wide variety of way to make it simpler to obtain and in recognition that different people access information in different ways:

- **A single website for regional transit information.** This single website would provide information on services provided by the MTA and RTA, as well as other local providers (for example, Clarksville Transit System, Franklin Transit, and the Murfreesboro Rover).
- The provision of **schedule and real-time information via websites and smartphone apps** for all transit services in Middle Tennessee (MTA, RTA, and local providers).
- **Real-time information at major stations and stops and park and ride lots.**
- **Route information, including schedules and maps** at all stops (see Figure 3).
- **Wayfinding and local information signage** at major stops.

IMPROVE ACCESS TO TRANSIT

Scenario 1 would include improvements to improve pedestrian, park and ride, and first and last mile connections. It would also improve bicycle connections and the accommodation of bicycles on vehicles:

- **Improve pedestrian access:** MTA and RTA would work with local communities to improve pedestrian and bicycle access to and from transit. In Scenario 1, as part of the development of light rail, BRT, and Rapid Bus lines, MTA would work with the City of Nashville to develop sidewalks and crossing and make other pedestrian improvements along the length of those lines. In the outer counties, RTA would work with communities to develop pedestrian infrastructure at key points along Regional Rapid Bus lines. MTA and RTA would also work with local communities to improve pedestrian conditions at and around major stations and stops, and prioritize transit investments in corridors and where communities invest in pedestrian infrastructure.

FIGURE 3 | SCHEDULE INFORMATION INSTALLED ON BUS STOP SIGNAGE



FIGURE 4 | EXAMPLE PEDESTRIAN IMPROVEMENTS

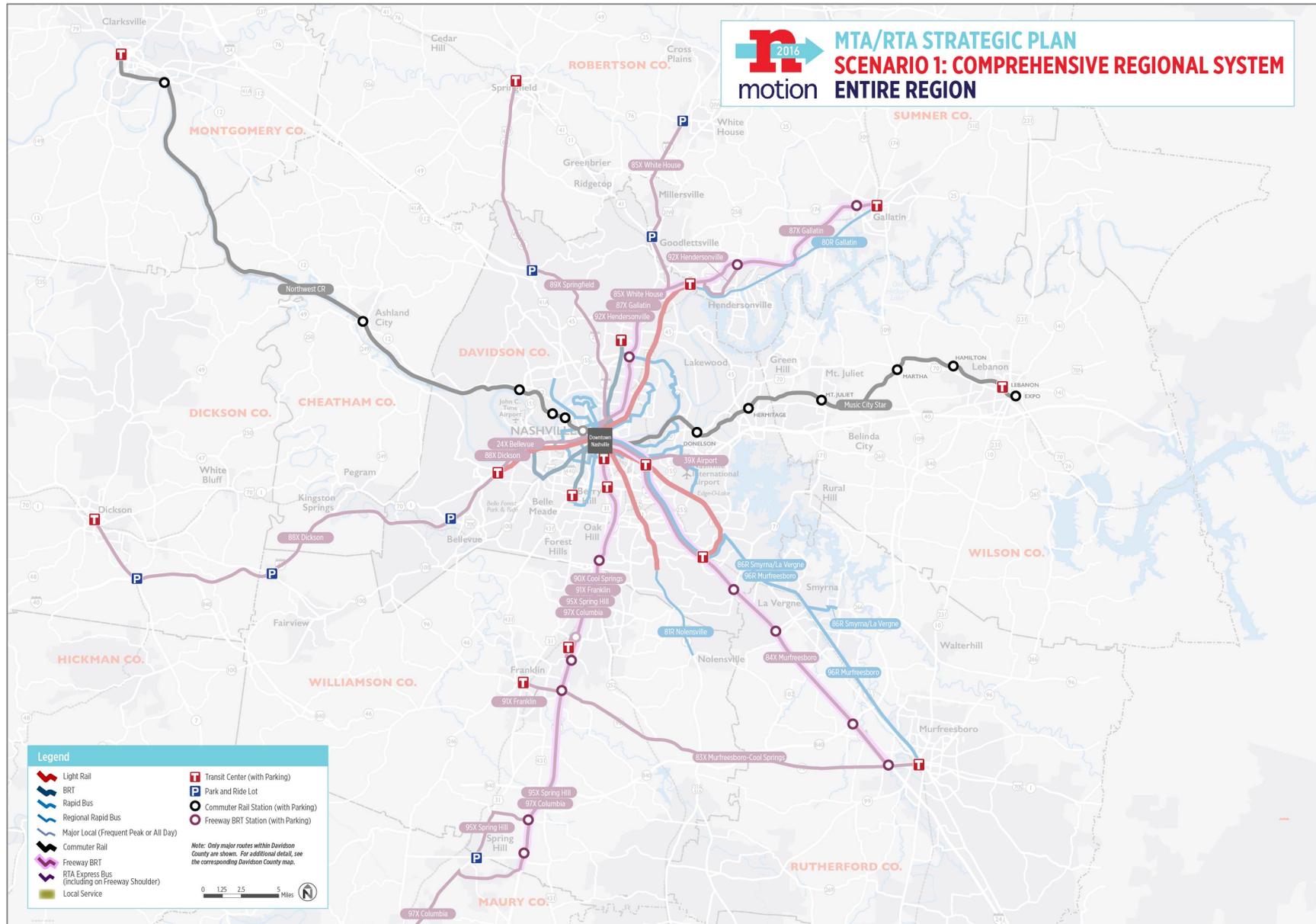


- Improve park and ride access:** MTA and RTA would develop new park and ride lots along express and long distance services, at:
 - Outlying transit centers
 - Commuter rail stations
 - Freeway BRT stations
 - Standalone park and ride lots.

Most new facilities would “purpose-built” in convenient locations –in places that can be accessed without out of direction travel. In the case of Freeway BRT stations, most facilities would be constructed within freeway rights-of-way with direct connections to freeway transit lanes. Scenario 1 transit centers with parking, commuter rail stations, Freeway BRT stations, and standalone park and ride lots would be located as shown in Figure 5, among other locations.

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. In all scenarios, MTA and RTA would participate in the development of these services, but the primary responsibility for providing the services would be with others (local transit agencies; businesses such as taxis, Lyft, and Uber, TMAs, local communities, etc.). However, in Scenario 1, MTA and RTA would also provide services in areas where other alternatives were not available.

FIGURE 5 | SCENARIO 1 PARK AND RIDE FACILITIES (AT TRANSIT CENTERS, COMMUTER RAIL STATIONS, FREeway BRT STATIONS, AND STANDALONE PARK AND RIDE LOTS)



- Improve bicycle connections.** In a similar manner as with pedestrian improvements, MTA and RTA would work with local communities to improve bicycling conditions to and from major stations and stops. MTA and RTA would also provide space for bicycles on light rail vehicles and BRT vehicles, and continue to provide bicycle racks on all other buses.

PROVIDE BETTER STATION AND STOP FACILITIES AND AMENITIES

In all scenarios, MTA and RTA would develop a program to improve amenities at all facilities and stops. In all scenarios, MTA and RTA would develop a hierarchy of stops based on stop purpose and volumes, and define the types of facilities and amenities that would be provided at each (see Figure 6).

FIGURE 6 | EXAMPLE STOP CLASSIFICATIONS AND ASSOCIATED AMENITIES

	Transit Centers	Park-and-Ride Lots	Premium Stops	High Volume Stops	Regular Stops	Low Volume Stops
Bus Stop Signs	√	√	√	√	√	√
Schedule Information	√	√	√	√	√	√
Transit System Maps	√	√	√	√		
Real-Time Information	√	√	√	√		
Local Maps and Information	√		√	√		
Paved Waiting Area	√	√	√	√	√	√
Seating	√	√	√	√	√	
Lighting	√	√	√	√	√	√
Shelters	√	√	√	√	√	
Trash Receptacles	√	√	√	√	√	
Landscaping	√	√	√	√		
Bicycle Storage	√	√	√	√		
Bikeshare Station	√	Possible	Possible	Possible		
Passenger Drop-Off Area	√	√				
Public Art	Possible		Possible	√		
Enclosed Waiting Area	Possible					
Restrooms	Possible					
Carshare Vehicles	Possible					

In Scenario 1, a much higher level of amenities would be provided and at more locations than in other scenarios. Transit centers would also be developed to make transfers more convenient and more comfortable. (Transit centers would be developed at the locations indicated in Figure 5). MTA/RTA would also work closely with cities and counties to assure ongoing maintenance and security standards around transit facilities.

MAKE FARE PAYMENT EASIER:

Fare payment technology is improving rapidly and will likely continue to do so. In Scenario 1, MTA and RTA would begin to much more aggressively pursue improvements that would make fare payment much easier. Improvements would include:

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

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. Wifi would also be provided on all long distance services.

FIGURE 7 | LIGHT RAIL, BRT, AND EXPRESS BUS VEHICLES



SCENARIO 2 IMPROVEMENTS

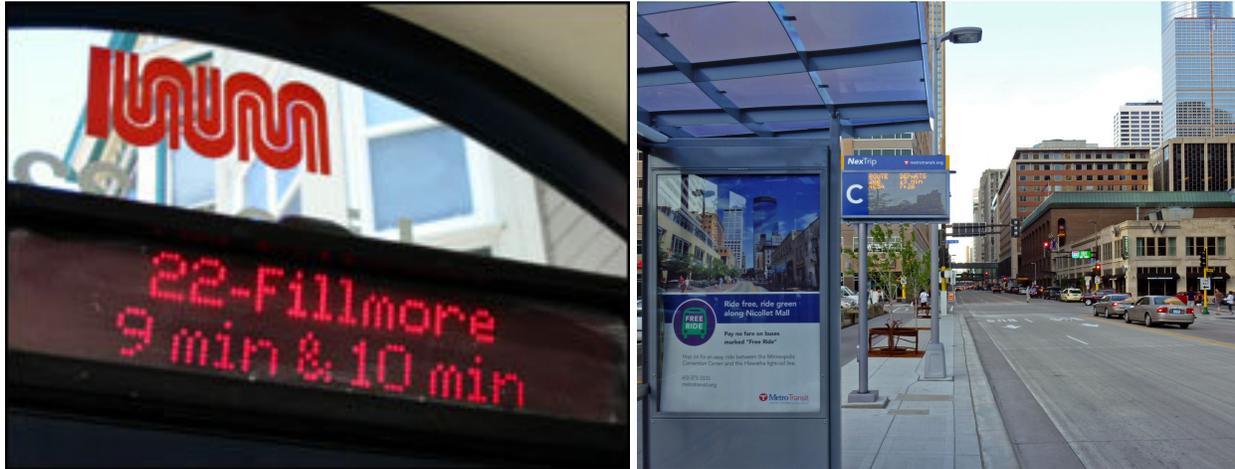
Scenario 2 improvements would be very similar to those in Scenario 1, but with differences to reflect a smaller overall system, slightly scaled back ambitions, and differences in the services that would be provided.

PROVIDE BETTER INFORMATION

Scenario 2 would include a similar range of improvements as Scenario 1 to make it easier to obtain information:

- A **single website** for regional transit information. This single website would provide information on services provided by the MTA and RTA, as well as other local providers (for example, Clarksville Transit System, Franklin Transit, and the Murfreesboro Rover).
- The provision of **schedule and real-time information via websites and smartphone apps** for all transit services in Middle Tennessee (MTA, RTA, and local providers) (see Figure 8).
- **Real-time information at major stations and stops and park and ride lots.**
- **Route information, including schedules and maps** at medium and high volume stops.
- **Wayfinding and local information signage** at major stops.

FIGURE 8 | REAL-TIME ARRIVAL INFORMATION SIGNAGE



IMPROVE ACCESS TO TRANSIT

Scenario 2 would include improvements to pedestrian, park and ride, and first and last mile connections. It would also improve bicycle connections and the accommodation of bicycles on vehicles. Improvements would be similar to those in Scenario 1, but slightly scaled back:

- **Improve pedestrian access:** As in Scenario 1, MTA and RTA would work with local communities to improve pedestrian and bicycle access to and from transit. In Scenario 2, as part of the development of BRT, and Rapid Bus lines, MTA would work with the City of Nashville to develop sidewalks and crossing and make other pedestrian improvements along the length of those lines. In the outer counties, RTA would work with communities to develop pedestrian infrastructure at key points along Regional Rapid Bus lines. As in Scenario 1, MTA and RTA would prioritize transit investments in corridors and where communities invest in pedestrian infrastructure.
- **Improve park and ride access:** As in Scenario 1, MTA and RTA would develop new park and ride lots along express and long distance services, at outlying transit centers, commuter rail stations, Freeway BRT stations, and standalone park and ride lots. Most new facilities would “purpose-built” in convenient locations, and most Freeway BRT facilities would be constructed within freeway rights-of-way with direction connections to freeway transit lanes. Scenario 2 transit centers with parking, commuter rail stations, Freeway BRT stations, and standalone park and ride lots would be located as shown in Figure 9, among other locations. These locations would be the same as in Scenario 1 except in the Northwest Corridor, where park and ride lots would be located to service express bus routes rather than commuter rail.
- **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. As in Scenarios 1 and 3, MTA and RTA would participate in the development of these services, but the primary responsibility for providing the services would be with others. In some limited cases, but to a lesser extent than in Scenario 1, MTA and RTA would also provide services in areas where other alternatives were not available.
- **Improve bicycle connections.** In a similar manner as with pedestrian improvements, MTA and RTA would work with local communities to improve bicycling conditions to and from major stations and stops. MTA and RTA would also provide space for bicycles outside or inside of BRT vehicles, and continue to provide bicycle racks on all other buses.

PROVIDE BETTER STATION AND STOP FACILITIES AND AMENITIES

As in Scenario 1, MTA and RTA would develop a program to improve amenities at all facilities and stops. In Scenario 2, significant improvements would be made throughout the MTA and RTA systems, although to a slightly lesser extent than in Scenario 1. Transit centers would also be developed to make transfers more convenient and more comfortable (as indicated in Figure 9). As in Scenario 1, MTA/RTA would also work closely with cities and counties to assure ongoing maintenance and security standards around transit facilities.

MAKE FARE PAYMENT EASIER:

Scenario 2 improvements would be the same as in Scenario 1 and would include:

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

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, more comfortable vehicles on BRT and Rapid Bus, and the use of Over-the-Road coaches on all RTA express routes. Wifi would also be provided on all long distance services.

SCENARIO 3 IMPROVEMENTS

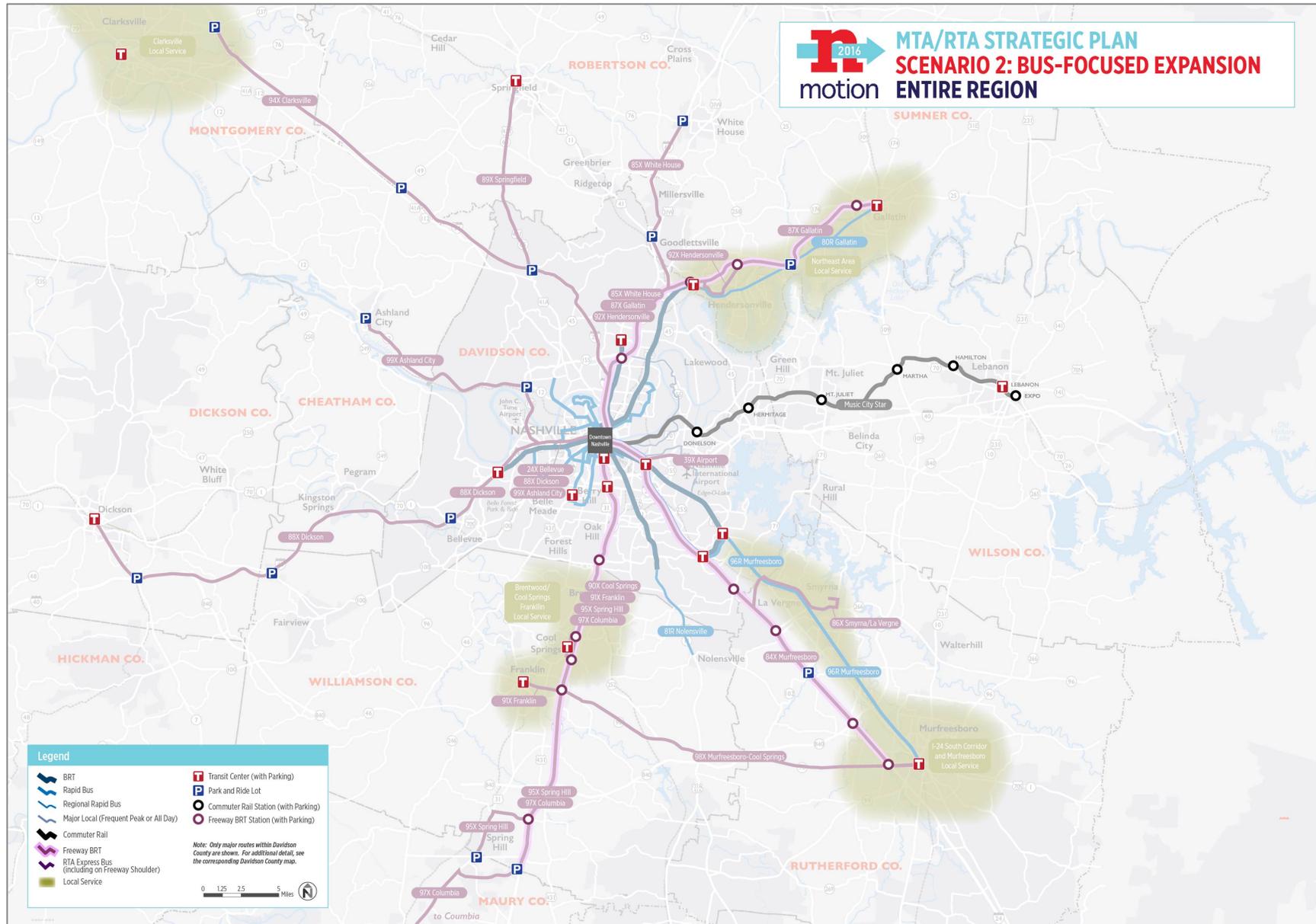
A combination of the most important and least costly improvements in Scenarios 1 and 2 would be implemented in Scenario 3. In addition, efforts would be significantly scaled back to reflect the more modest nature of improvements and to focus more efforts on providing a basic level of service to more people.

PROVIDE BETTER INFORMATION

Scenario 3 would include:

- A **single website for regional transit information**. This single website would provide information on services provided by the MTA and RTA, as well as other local providers (for example, Clarksville Transit System, Franklin Transit, and the Murfreesboro Rover).
- The provision of **schedule and real-time information via websites and smartphone apps** for all MTA and RTA service. However, the provision of real-time information for local services in outer counties would be determined by local providers.
- **Real-time information at major stations and park and ride lots.**
- **Route information, including schedules and maps** at high volume stops (but not at medium volume stops).
- **Wayfinding and local information signage** at transit centers (but not at other stops).

FIGURE 9 | SCENARIO 2 PARK AND RIDE FACILITIES (AT TRANSIT CENTERS, COMMUTER RAIL STATIONS, FREeway BRT STATIONS, AND STANDALONE PARK AND RIDE LOTS)



IMPROVE ACCESS TO TRANSIT

In Scenario 3, MTA and RTA would work cooperatively with local communities and private parties to improve access to transit. However, significantly more responsibilities would be with those parties, rather than with MTA and RTA:

- **Improve pedestrian access:** MTA and RTA would work with local communities to improve pedestrian and bicycle access to and from transit. In Scenario 3, the responsibility for the development of sidewalks, pedestrian crossings, and other pedestrian improvements would lie with local communities. Even more than in Scenarios 1 and 2, MTA and RTA would prioritize transit investments in corridors and where communities invest in pedestrian infrastructure.
- **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 and develop transit centers with parking. However, there would be fewer locations, and facilities would not be integrated within freeway facilities. Scenario 3, transit centers with parking and standalone park and ride lots would be located as shown in Figure 10, among other locations.
- **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. As in Scenarios 1 and 3, MTA and RTA would participate in the development of these services, but the primary responsibility for providing the services would be with others. With only limited exceptions, MTA and RTA's financial participation in the provision of these services would be limited to cases where alternative service providers could provide a more cost-effective substitute for MTA and RTA services.
- **Improve bicycle connections.** In a similar manner as with pedestrian improvements, MTA and RTA would work with local communities to improve bicycling conditions to and from major stations and stops. However, the primary responsibility for developing improvements would be with local communities. MTA and RTA would also provide space for bicycles outside or inside of BRT vehicles, and continue to provide bicycle racks on all other buses. MTA and RTA vehicles would continue to accommodate bicycles.

PROVIDE BETTER STATION AND STOP FACILITIES AND AMENITIES

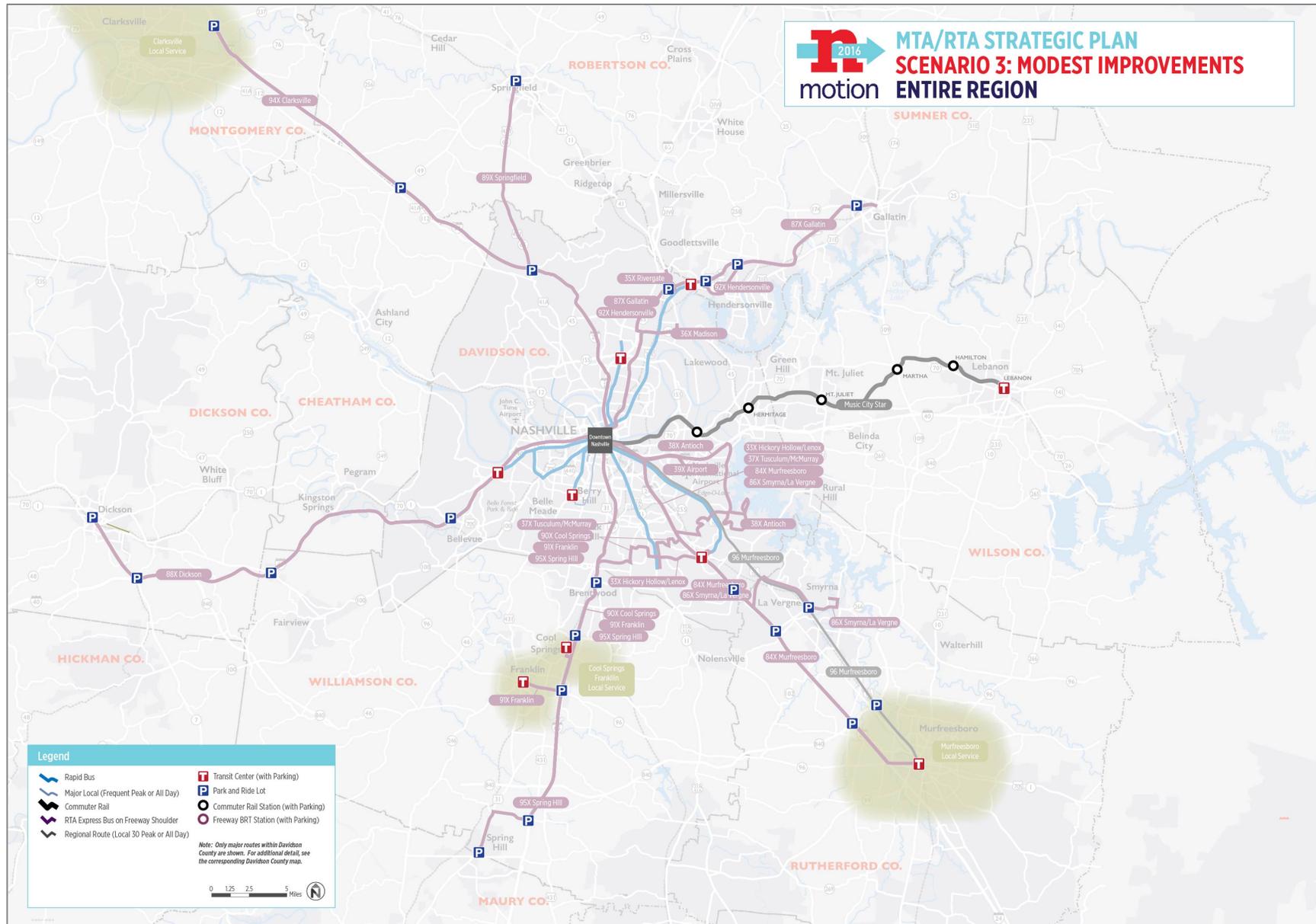
In all scenarios, MTA and RTA would develop a program to improve amenities at all facilities and stops. In Scenario 3, the types of improvements and number of stops were improvements would be implemented would be significantly scaled back from the levels in Scenarios 2 and 3.

MAKE FARE PAYMENT EASIER:

Scenario 2 improvements would be the same as in Scenario 1 and would include:

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

FIGURE 10 | SCENARIO 3 PARK AND RIDE FACILITIES (AT TRANSIT CENTERS, COMMUTER RAIL STATIONS, AND STANDALONE PARK AND RIDE LOTS)





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 commuter rail, Rapid Bus, and the use of Over-the-Road coaches on all RTA express routes. However, since there would be far fewer of these services than in Scenarios 1 and 2, significantly less service would be provided with these types of vehicles.