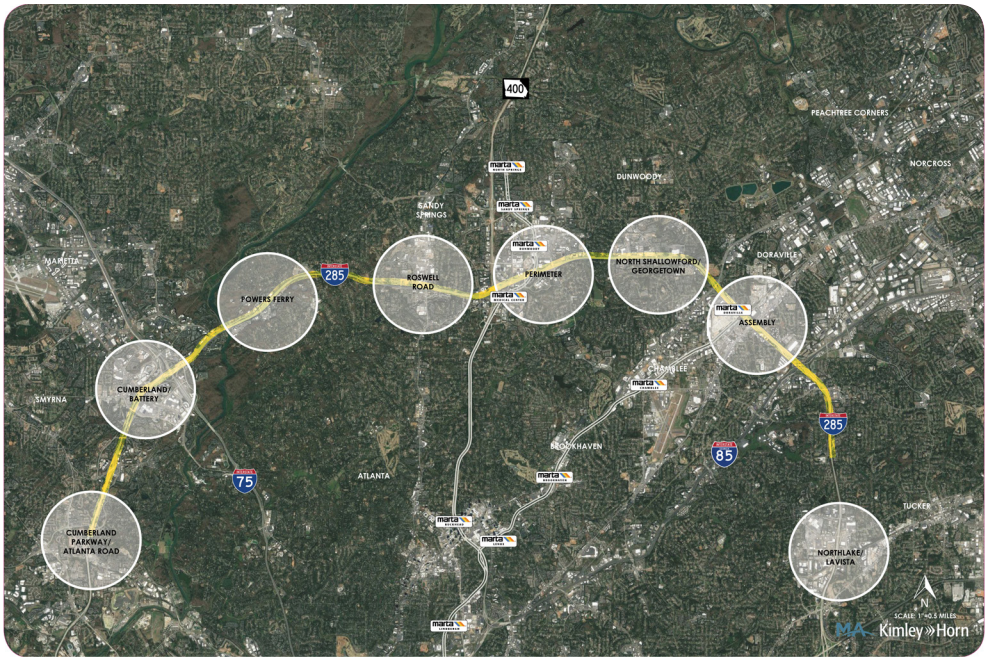
I-285 TOP END TRANSIT FEASIBILITY STUDY

Project Summary

February 2019



I-285 TRANSIT FEASIBILITY STUDY
PROJECT SUMMARY

During the summer of 2018, Kimley Horn and Moreland Altobelli were asked to develop a high-level transit feasibility study along the I-285 "Top End" corridor from the City of Tucker in DeKalb County to the City of Smyrna in Cobb County. This effort was designed to accomplish the following three goals:

1. Facilitate discussions among I-285 Top End leaders regarding high-capacity transit feasibility
2. Compare the feasibility of a rubber-wheel transit system versus a rail-based transit system within or alongside the Top End Express lanes proposed by the Georgia Department of Transportation
3. Evaluate a series of special service district models and the revenue potential of each model (localized tax revenue) to offset construction and operational costs for an I-285 Top End transit system

The Mayors representing seven cities across three Counties agreed to fund this effort through a contract administered by the City of Brookhaven. Financial support was also provided by the Perimeter CIDs and Cumberland CID.

The following organizations partnered and were consulted as part of this effort.

Partner Organizations:

City of Brookhaven
City of Chamblee
City of Doraville
City of Dunwoody
City of Sandy Springs
City of Smyrna
City of Tucker
Perimeter CIDs and Cumberland CID

Other Coordinating Agencies:

GDOT
MARTA
Atlanta Regional Commission
ATL/GRTA/SRTA
DeKalb County Transit Study Team
Cobb County DOT

A kick-off meeting was conducted with the coordinating agencies in August 2018 to facilitate information sharing and discussions regarding the potential and feasibility for high-capacity transit along the Top End of I-285. At the meeting, attendees exchanged information regarding future plans, projects, and aspirations along the corridor. Project timelines were also discussed and coordinated.

A separate meeting was then held with each partner organization (generally the Mayor and City Manager) to discuss each City's needs and perspectives relative to transit along I-285. From these conversations, the consulting team clarified and refined the project scope and presented its findings over a series of three meetings with the partner organizations.

Summary of Findings: The feasibility study resulted in two significant findings that are detailed in this briefing booklet.

I. A high-capacity, rubber-wheeled transit system, utilizing the GDOT Managed lanes, is financially and operationally viable across the Top End of I-285. A rail-based system would cost approximately 8-10 times a rubber-wheeled system due to the need for additional right of way and a separate guideway.

II. Projected revenue from a localized tax are sufficient to cover the projected operational costs (and in some cases a portion of the projected construction cost) and justify a more detailed analysis that includes ridership projections, implementation strategies, and other necessary next steps.

Section I - Rail Based or Rubber-Wheel Based High Capacity Transit

Based on a review of traffic along the corridor; existing and future development patterns; and conversations with interested cities, CIDs, and partners, transit access along the Top End of I-285 was considered at the following eight locations from west to east as part of this feasibility study:

- Cumberland Parkway/East Paces Ferry Road
- Cumberland/US 41/SunTrust Park
- Powers Ferry Road
- Roswell Road
- Perimeter/MARTA rail connection at Dunwoody and/or Medical Center Station
- North Shallowford Road/Georgetown
- Assembly/MARTA rail connection at Doraville Station
- Northlake Parkway/Lavista Road

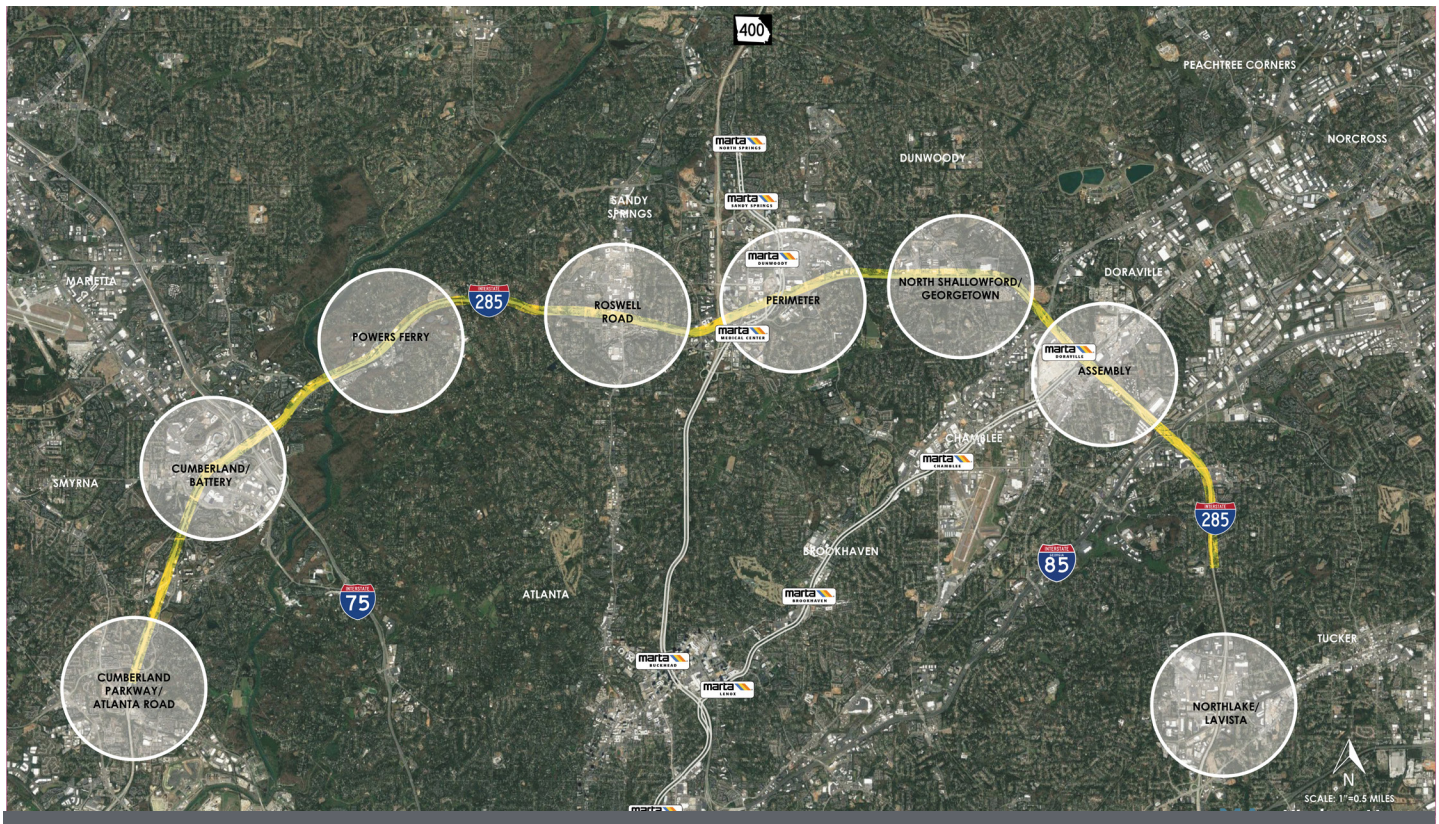


Figure 1: Potential access points for I-285 Top End transit operations

Potential Transit Market:

While this feasibility study did not attempt to project "ridership" for a potential transit system along I-285, a component that would be required to compete for federal transit funding, the study included an assessment of the potential market for transit users along the Top End.

The team reviewed:

- Traffic counts across the Top End available from the Georgia Department of Transportation
- Current land use patterns and future plans surrounding each of the potential access areas
- The number of daily employees that work within each employment center and potential access node along the corridor
- The general direction of travel for daily employees that work within 1 mile of potential transit access points and who travel from a distance of 1 to 24 miles away

Based on this information and the potential cost of transit services, the team divided the corridor into 3 segments to best understand the relative cost and revenue potential in each parts of the corridor

- Phase 1- Assembly/Doraville Station on the east to the Battery/Cumberland on the west
- Phase 2 East- Assembly/Doraville Station to Northlake Parkway/Lavista Road
- Phase 2 West- The Battery/Cumberland to East Paces Ferry Road

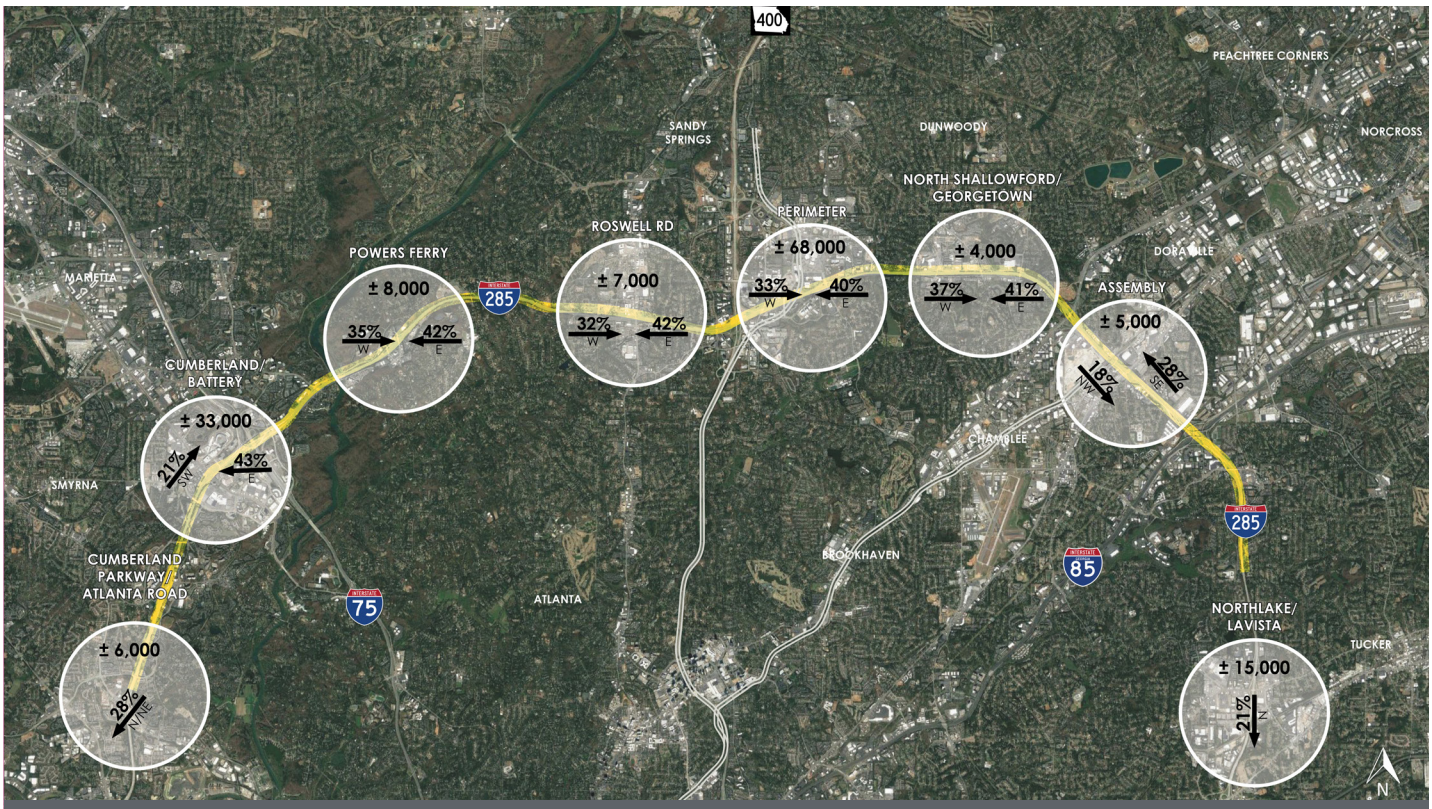


Figure 2: Employment areas

Potential station locations were then compared against the most recent, available information for GDOT's express lane entrance/exit locations. It should be noted that at the time of this feasibility study, GDOT had not finalized exact locations for express lane entrances and exits. Access points can only be assumed as the plans for Top End Express Lanes are subject to change.

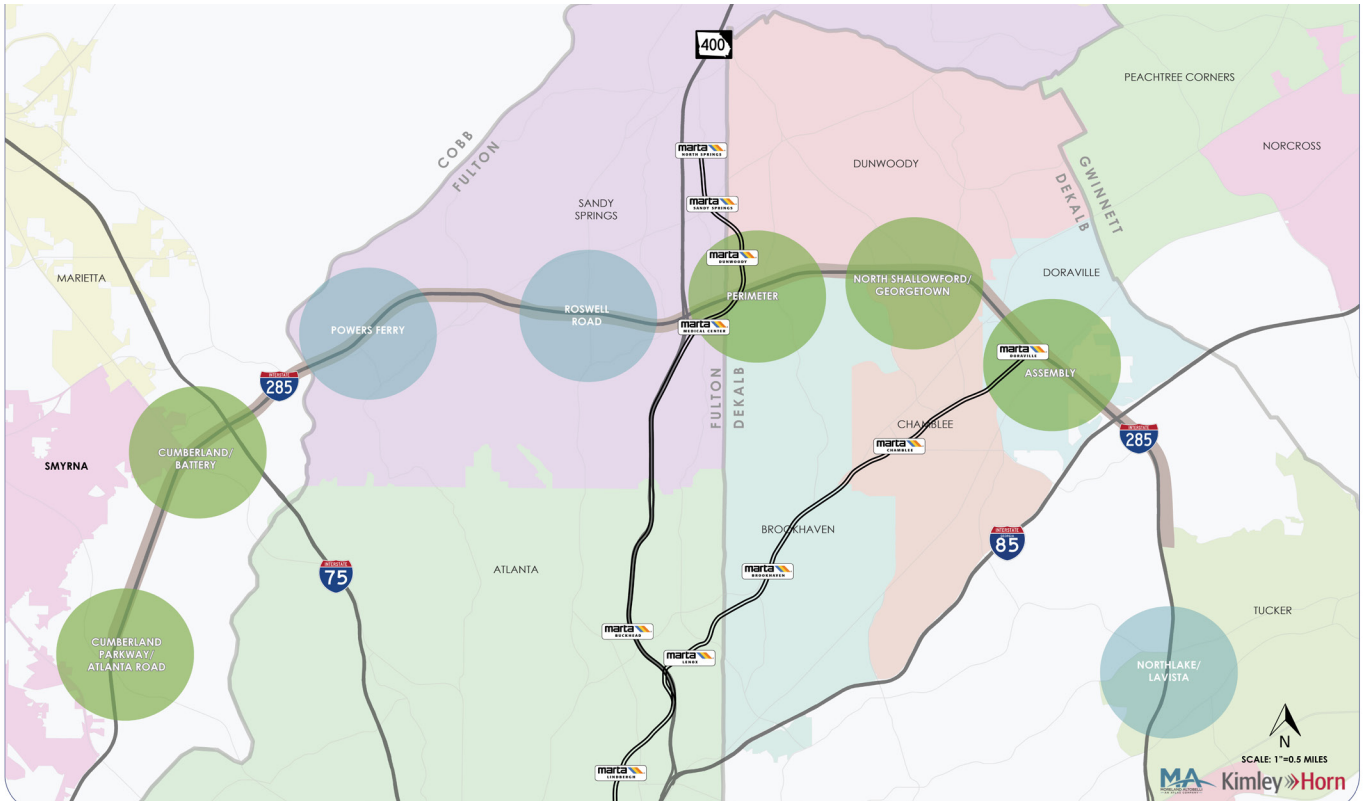
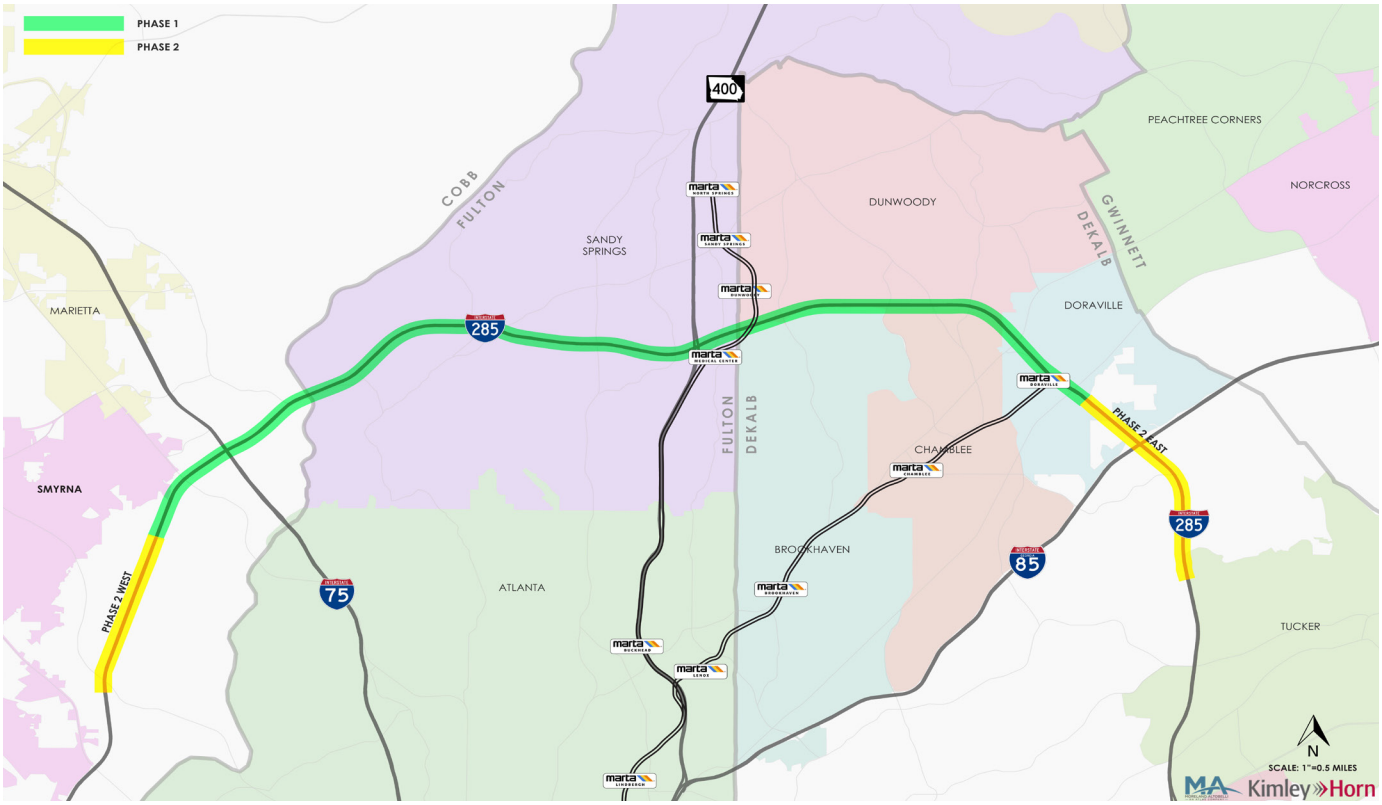


Figure 3: Green areas represent areas where existing or proposed infrastructure may be utilized as part of a potential transit system. Blue areas represent locations where this analysis assumes transit-only interchanges would need to be funded in a transit initiative.

The figure above illustrates areas where there is potential for a Top End transit service to utilize existing or planned infrastructure to access the express lane system (shown in green). There is potential that express lane access at the Doraville/Assembly node and the Cumberland/Battery node may be split into two access points (one east-bound, one west-bound). Split interchanges add a level of complexity to establishing an efficient transit system with easy off and on access to the express lanes and will result in additional project costs or running time delays.

Cost: Based on the analysis summarized on the preceding pages, order of magnitude costs were developed for rubber-wheel and rail-based transit systems along the Top End of I-285. Costs were developed for system construction (stations, access ramps and improvements, sitework and special conditions), start-up and vehicle replacement costs, and annual operating costs. As outlined on page 3, system costs were divided into three sections along the corridor.



CONSTRUCTION COSTS				
MODE	PHASE 1	PHASE 2 WEST	PHASE 2 EAST	TOTAL
Rubber Wheel	$300M	$80M	$70-100M	$450-480M
Rail	$2.6B	$0.6B	$1B	$4.2B

START-UP/VEHICLE COSTS				
MODE	PHASE 1	PHASE 2 WEST	PHASE 2 EAST	TOTAL
Rubber Wheel	$7M	$1M	$2M	$10M
Rail	$30M	$5M	$5M	$40M

ANNUAL OPERATING COSTS				
MODE	PHASE 1	PHASE 2 WEST	PHASE 2 EAST	TOTAL
Rubber Wheel	$5M	$1M	$2M	$8M
Rail	$11M	$2M	$3M	$16M

Several observations and conclusions can be drawn from the projected cost chart.

- The construction cost for a rail-based system is nearly **8-10x** the cost of a rubber-wheel system due to the need for additional right of way and a separate guideway.
- The start-up/vehicle replacement cost for a rail-based system is nearly **4x** the cost of a rubber-wheeled based system.
- The annual operating and maintenance cost for a rail-based system is nearly **2x** the cost of a rubber-wheeled based system.

While the rubber-wheel system can utilize and benefit from the planned express lane system, the system's construction cost is impacted by a need to build transit-only access points in up to three locations. The transit-only interchanges require approximately $80-120 million each. New transit-only interchanges are contemplated in this analysis at Roswell Road, Powers Ferry, and Northlake Parkway.

Based on cost and feasibility comparison, project partners are interested in pursuing the next steps to test and analyze the potential for a rubber-wheeled, high-capacity transit system across the Top End of I-285. The ability to leverage the express lane system proposed by GDOT provides the necessary path and access while significantly reducing the investment cost to establish a top end transit system in the near term. Based on the principles adopted by GDOT Board, the proposed express lanes, which will be two lanes in each direction between I-85 to the east and I-75 to the west, will function at speeds in excess of 45 mph and provide the ability to maintain an efficient, predictable, high-capacity transit system.

It should be noted that the order of magnitude costs presented are based on a "premium" service, desired by the Mayors. Project costs assume a high-grade vehicle (the Wrightbus Streetcar vehicle used shown below) and headways of 10-minutes on-peak, 15-minutes off-peak. In the future, a system that is autonomous could be considered but current technologies are under development and not yet legal in the United States. However, we see great value in exploring this option in the future based on the dedicated corridor and limited number of conflicts and turning movements.

Wrightbus Streetcar, Las Vegas, NV, budgeted at $1.3M per vehicle.

CRRC Autonomous Rail Rapid Transit Vehicle, China–not yet approved for use in the U.S.

NEXT STEPS

Based on input from this feasibility study's partner organizations, there are a series of next steps that should be considered.

1. Area leaders wish to develop a "Pre-Project Development Technical Analysis." The technical analysis would include a preliminary service plan with stop locations, identify necessary capital improvements at a more detailed level, review and estimate travel times, forecast potential ridership, and detail maintenance and operations costs.

2. Project leaders will need to continue to discuss and develop a funding plan based on additional financial considerations and models. Some financial models may require new local or state legislation and discussions will be needed with state and local officials to develop a model funding plan to implement and operate the envisioned system. Coordination will also be necessary with the Transit Master Plan for each County (DeKalb, Fulton, and Cobb), as well as discussions with MARTA and the Atlanta Transit Link Authority to further detail and prioritize transit along the I-285 corridor.

3. Additional physical assessments and engagement with area stakeholder will be necessary as the project moves forward. Once a preliminary plan and/or strategy is established, a physical ground survey for station locations will be needed, a more complete assessment for last-mile connectivity to and within station areas should be conducts, conceptual drawings for stations and area improvement should be developed, and a public involvement plan and/or consumer preference study is advisable. Additional time and effort may also be considered to explore new technologies and autonomous vehicles for the corridor.