More MARTA Atlanta

Summary of Technical Analysis

Introduction

In November of 2016, voters in the City of Atlanta approved a measure to increase sales tax by ½ penny to expand and enhance MARTA service within the City of Atlanta. This vote followed a robust public dialogue among the community and stakeholders in the City of Atlanta to provide input on the list of transit projects that the new revenue source could be used to plan, design, build, operate, and maintain over the next 40 years.

The list of potential projects was developed through analysis of existing transit plans in the City of Atlanta and in alignment with Guiding Principles agreed to by MARTA, the City of Atlanta, the Atlanta BeltLine Inc., the Atlanta Streetcar, and a stakeholder advisory committee. The Guiding Principles and the list of potential projects were approved by the Atlanta City Council in June 2016.

Throughout 2017, MARTA and the City of Atlanta conducted public listening sessions, the City updated its transportation plan and growth vision, and MARTA and City of Atlanta executed an Intergovernmental Agreement (IGA), which defines the partnership and process for how MARTA and the City of Atlanta will select and implement the projects of the More MARTA Atlanta program.

At the onset of the More MARTA Atlanta initiative, the list of potential projects served as the universe of candidate projects to be funded with the new transit sales tax, with a total value of over $11.5B in current dollars. The new transit sales tax is projected to generate $2.5B (current year dollars) in local money for forty years, which can be leveraged with potential federal funding. With this understanding, MARTA conducted a technical analysis process to evaluate and identify a preliminary program of projects. The preliminary program of projects was vetted by MARTA, the City of Atlanta and the Atlanta BeltLine, Inc.

Purpose

The purpose of this summary is to document the methodology utilized to develop a recommended scenario of projects for the More MARTA Atlanta program. It provides an overview of the various data sources and methodologies/approach utilized for developing the preliminary More MARTA transit sales tax program.

The following components are discussed with respect to how they helped shape the preliminary More MARTA program:

- Original list of potential transit projects
- Project budgeting assumptions
- Data sources and technical analyses used to evaluate original list of potential transit projects.
- How public feedback played a role in the development of the preliminary program.

Original Project List

Prior to the original project list being developed, MARTA and the City of Atlanta developed a set of Guiding Principles that would serve as the set of foundational goals for the More MARTA Atlanta program as a whole (see Table 1).

Table 1: Nine Guiding Principles

1. Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes	**2. Increase mobility for workers to and from major job centers**	**3. Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes, and other technology**
4. Create layered, integrated transportation network to accomplish specific types of trips	**5. Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit networks**	**6. Partner with neighboring jurisdictions to leverage transit projects**
7. Create last-mile connectivity using circulating buses, multi-use paths, and sidewalks	**8. Enhance ease of use and transfers within the network of transit options**	**9. Enhance safety and access to transit centers and MARTA stations**

The tables in Appendix A illustrate what served as a base/core group of projects, which are also referred to as the full universe of potential More MARTA Atlanta projects. As previously noted, these projects were identified (leading up to the November 2016 referenda) from existing plans, from public input, and in concert with a set of adopted Guiding Principles.

The universe of projects fell into three primary categories:

- High capacity improvements (HCT) – fixed and/or semi-exclusive guideway projects that included heavy and light rail and bus rapid transit, as well as station enhancement and in-fill stations.
- Bus service improvements – consisted of arterial rapid transit (ART) and local frequent bus route improvements, all of which were based on the Comprehensive Operations Analysis (COA).
- Pedestrian improvements – comprised of wayfinding, cross-block improvements, sidewalk enhancement projects, and other pedestrian-like projects.

Project Programming Assumptions

The original project list contained estimated project budgets (both capital and operations and maintenance, or O&M), which were based on a cost-per-mile approach. The programming assumptions also included estimates related to local and federal dollars. Both the project budgets and funding assumptions utilized existing conditions, programs, and projects from peer transit systems and staff input. The following provides an overview:

<u>Funding</u>

- ART projects are funded locally.
- Bus Rapid Transit (BRT) projects under $150M are funded locally.
- BRT projects above $150M are split 50% local, 50% federal.

- Light Rail Transit (LRT) projects are split 50% local, 50% federal, except for the Atlanta Streetcar East Extension project, which is funded locally.
- Heavy Rail Transit (HRT) projects are split 50% local, 50% federal.
- All other projects are funded locally.

The general rule of thumb is that most capital projects (i.e. high dollar amount) are assumed to be funded with 50% local money and 50% with federal money. Most smaller scale projects are assumed to be funded with 100% local money.

It was assumed that the More MARTA projects would generate a 30% farebox recovery rate.

Capital Costs by mode

- ART = $2.5M/mile
- BRT = $25M/mile
- Freeway BRT = $15M/mile
- LRT on BeltLine = $55M/mile
- LRT off of BeltLine = $75M/mile
- LRT w/ tunnels = $200M/mile
- HRT = $250M/mile

Operations and maintenance (O&M) costs are budgeted for twenty years. This is industry standard for transit expansion programs and is a requirement for any individual project pursuing federal funding.

Technical Analyses

The primary objective for the technical analysis was formulating a methodology for evaluating the universe of projects with respect to their mode and valuation of nine Guiding Principles; an evaluation tool was created to achieve this.

The evaluation tool was designed to help MARTA understand how potential projects compare based on the application of weights to the Guiding Principles. This dynamic methodology means that each potential project does not have one universal score. The tool offered MARTA dynamic comparisons of projects based on multiple applications of weights to identify opportunities to stitch projects together into a unified system that addresses as many of the Guiding Principles as possible.

To apply a numeric value to projects, each Guiding Principle was assigned a performance measure (see Table 2). Providing another layer of sensitivity analysis, the evaluation tool allowed the planning team to adjust the weighting of the performance measures in addition to the weighting of the Guiding Principles. This allowed understanding of the net effect of weights on projects and work toward recommendations that served the multiple priorities of the public and stakeholders.

Table 2: Guiding Principles and Performance Measures

Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes	*Is project on schedule?
	History on level of investment
	Number of travel modes accessible
Increase mobility for workers to and from major job centers	Number of employees within 1/2-mile buffer
	**Ridership potential/forecasted ridership
	Does project use exclusive ROW (a restricted access lane)?

Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes, and other technology	Travel time reduction
	Will project use TSP or other signalization priority system?
Create layered, integrated transportation network to accomplish specific types of trips	Does project connect to multiple travel modes (i.e. bike/ped facilities)?
Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit networks	Will the project require additional investment outside of City of Atlanta?
Partner with neighboring jurisdictions to leverage transit projects	Will the project potentially lead to other neighboring projects?
Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Is project included (mentioned/tied to) in the City of Atlanta Capital Improvement Program?
Enhance ease of use and transfers within the network of transit options	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?
Enhance safety and access to transit centers and MARTA stations	Number of access points to pedestrian facilities on project
	Reduction in number of accidents or incidents

**This measure was not utilized due to not providing much value considering that multiple projects are brand new or behind schedule.*

***Where ridership forecasts were available.*

Fifteen performance measures are listed in Table 2; however, only fourteen were used because the first measure "Is project on schedule" was determined to be non-applicable for the More MARTA program. The universe of projects was in varying stages of development; therefore a measure determining a percent complete would prove to be more punitive than informative. Measures were either quantitative or qualitative.

Data Sources

The data sources used for the evaluation tool came from different sources: MARTA project information (e.g. NEPA studies); Atlanta Regional Commission (ARC); national employment data; and City of Atlanta.[1] The evaluation tool uses the various data sources to calculate a project score. Measures were either quantitative or qualitative.

Note: Ridership numbers for each project were not calculated and did not come from simulation models. Instead, these numbers came from current NEPA studies either by MARTA or Atlanta BeltLine (ABI), or in some cases from ARC's activity-based model (ABM). Individual ridership projections for

[1] ARC provided forecasted ridership numbers for light rail transit projects via its travel demand model; InfoUSA was used for raw employment numbers.

projects will be developed during the detailed federal planning process in cooperation with the Federal Transit Administration. A project's cost was not a factor in the calculation of a final score; instead, project costs were considered for informational purposes.

Technical Data/Analysis Output

Since there are nine Guiding Principles, the evaluation tool was designed in a way that allows each Guiding Principle to be weighted equally or to assign heavier weights to a select few. This allowed for different scenarios to be created and evaluated to study how the projects scored with the varying weights being applied for a given Guiding Principle.

Additionally, public input was used as a guide for establishing weights as well as a benchmark to compare the different scenarios with how they aligned with the public's expectations and expressed project favorites. For example, based on MARTA's survey data collected during public outreach, specific transit modes and projects were rising to the top as favorites; therefore, those projects were compared to the output for the various scenarios developed. See section on Public Feedback later in this report.

The following sections provide an overview on the various scenarios developed along with their respective projects' rankings.

One scenario weighted 50% on safety and access, 20% on prioritizing within the City of Atlanta boundary while laying the foundation for a regional transit network guiding principle, and 30% on other Guiding Principles. Table 3 illustrates the top four projects for this scenario.

The evaluation tool calculated scores for each project and was designed to allow projects to be grouped and scored per its mode (e.g. bus, heavy rail, light rail). Based on the weight of the Guiding Principles and the weight of the performance measures, it was possible for a project to have different scores and change in ranking in comparison to other projects. The planning team ran multiple evaluations of projects with varying weights applied to the Guiding Principles and performance measures.

Table 3: 50% safety and access / 20% prioritizing within COA boundary

Rank	Project	Description
1	Route 110 Peachtree Buckhead ART	ART service from Brookhaven station to Five Points station to serve denser residential development in northeastern Buckhead
2	Atlanta BeltLine - Northeast	Lindbergh Center to Inman Park/King Memorial
3	Atlanta BeltLine - Northwest (Alt D)	Ashby to Lindbergh Center
4	Atlanta BeltLine - Southeast	Inman Park/King Memorial to West End

5	Route 95 Metropolitan Pkwy ART	ART service from West End station to Cleveland Ave

Another scenario placed all the weights on safety and access and on balancing the portfolio of projects' Guiding Principles. Table illustrates the top-ranking projects for this scenario.

Table 4: 55% safety/access / 45% balancing portfolio of projects

Rank	Project	Description
1	Route 95 Metropolitan Pkwy ART	ART service from West End station to Cleveland Ave
2	I-20 West HRT	Two (2) miles of HRT from HE Holmes station to a new station at MLK Jr Dr and I-285
3	Route 110 Peachtree Buckhead ART	ART service from Brookhaven station to Five Points station to serve denser residential development in northeastern Buckhead
4	I-20 East BRT*	Three (3) miles of BRT service from Five Points to Moreland Ave with two (2) new stops and one new station
4	Downtown – Capitol Ave Line	Over two (2) miles of in-street bi-directional running LRT service along Northside Dr/Luckie St/Capitol Ave/Hank Aaron Dr/Atlanta BeltLine corridor

Table 5 illustrates the five top projects if the Guiding Principles received equal weighting.

Table 5: Equal Weighting

Rank	Project	Description
1	I-20 East BRT*	Three (3) miles of BRT service from Five Points to Moreland Ave with two (2) new stops and one new station
2	Atlanta BeltLine - Northeast	Lindbergh Center to Inman Park/King Memorial
2	Atlanta BeltLine - Northwest (Alt D)	Ashby to Lindbergh Center
4	Atlanta BeltLine - Southeast	Inman Park/King Memorial to West End

5	Atlanta BeltLine - Southwest	West end to Ashby

Table 6 illustrates 60% emphasis on access to jobs and equal weight across other Guiding Principles.

Table 6: 60% Increase mobility for workers/Equal Weighting

Rank	Project	Description
1	Route 110 Peachtree Buckhead ART	ART service from Brookhaven station to Five Points station to serve denser residential development in northeastern Buckhead
2	Clifton LRT*	Four (4) miles of grade separated LRT service from Lindbergh station to a new station at Emory Rollins
3	I-20 East BRT*	Three (3) miles of BRT service from Five Points to Moreland Ave with two (2) new stops and one new station
4	Downtown – Capitol Ave Line	Over two (2) miles of in-street bi-directional running LRT service along Northside Dr/Luckie St/Capitol Ave/Hank Aaron Dr/Atlanta BeltLine corridor
5	Five Points	General maintenance and aesthetic improvement; Install new signage/wayfinding

Table 7 demonstrates weighting of 70% on balance of portfolio, 20% on investments in the City of Atlanta, and 10% on enhanced predictability and reduced wait times.

Table 7: 70% Balance the portfolio of projects / 20% Prioritize investments in the City / 10% Enhance predictability of commuter times

Rank	Project	Description
1	Downtown – Capitol Ave Line	Over two (2) miles of in-street bi-directional running LRT service along Northside Dr/Luckie St/Capitol Ave/Hank Aaron Dr/Atlanta BeltLine corridor
2	Crosstown Crescent Line	Over five (5) miles of in-street bi-directional running LRT service along Joseph E Lowery Blvd/Ralph D Abernathy Blvd/Georgia Ave between the Southeast and West Atlanta BeltLine corridors

2	Peachtree – Ft Mc – Barge Rd Line (Campbellton Rd.)	Over eight (8) miles of in-street bi-directional running LRT service along West Peachtree St/Peters St/Lee St/Campbellton Rd corridor between Greenbriar Mall and Downtown
4	Route 95 Metropolitan Pkwy Arterial Rapid Transit	ART service from West End station to Cleveland Ave
4	Atlanta BeltLine - Northeast	Lindbergh Center to Inman Park/King Memorial

The scenarios presented in this report only capture a portion of the multiple scenarios studied and therefore are presented here for informational purposes. Each scenario provided the team with an opportunity to view the data through a different lens. Each scenario's scoring of projects differed based on the weighting given to the nine Guiding Principles. This process led to the development of a hybrid scenario that included project elements that consistently appeared in top ranking across various scenarios.

These project elements considered key additional factors such as system connectivity, geographical equity, and balancing community needs with transit investments. The system connectivity must take into consideration system planning principles and recognize the need for new operations and maintenance facilities. The geographic equity was a critical Guiding Principle, with the overarching goal to provide expanded MARTA service to as many City of Atlanta residents, employees, businesses, stakeholders, and visitors as possible. The community needs were to support existing areas with high ridership, rapid new development, and opportunities to connect residents with job opportunities.

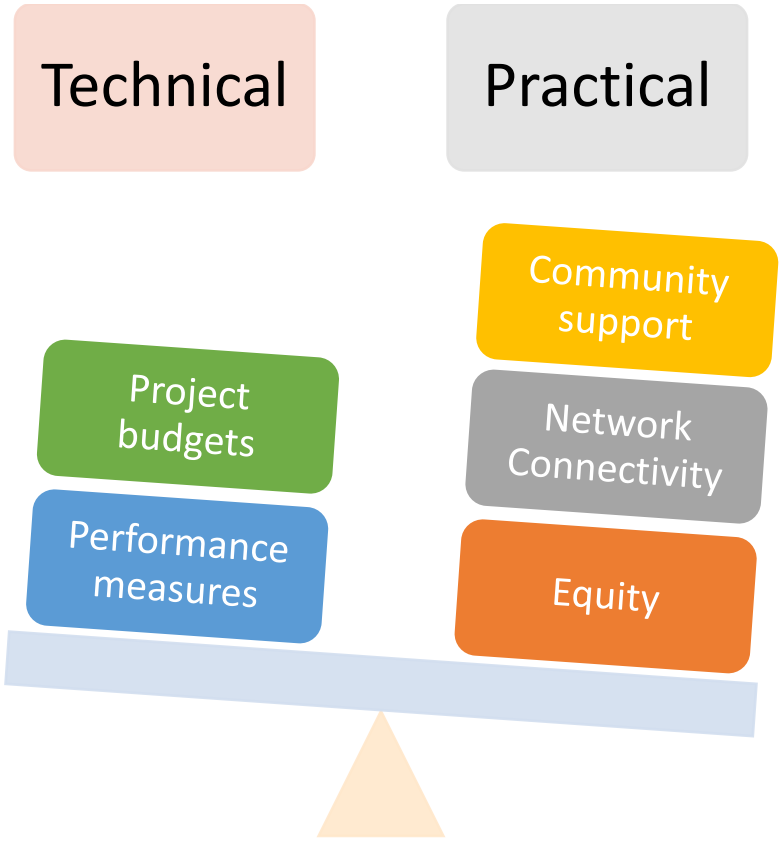
Summary – Technical Analyses

The technical analyses were objective and data informed and the benefits of the evaluation tool were to:

- Help crystalize the limitations and potential for the projected $2.5B funding available.
- Serve as a technical resource to help inform decision making.
- Calculate individual project scores/performance ratings.
- Help create various project scenarios based on weighting.
- See projects as grouped by mode (e.g. HCT, bus, station, pedestrian)
- Serve as a documented methodology.

However, technical analyses solely could not address issues such as community support, network connectivity, or geographical equity for projects — or account for projects that were supported by the public. To address these critical components, it would require an added approach. This is discussed later in this report. In creating a proposed scenario, the factors contributed to developing a scenario of projects to create a system that was feasible within the estimated budget.

Figure 1 Additional Considerations



Public Feedback Received During the More MARTA Atlanta Process

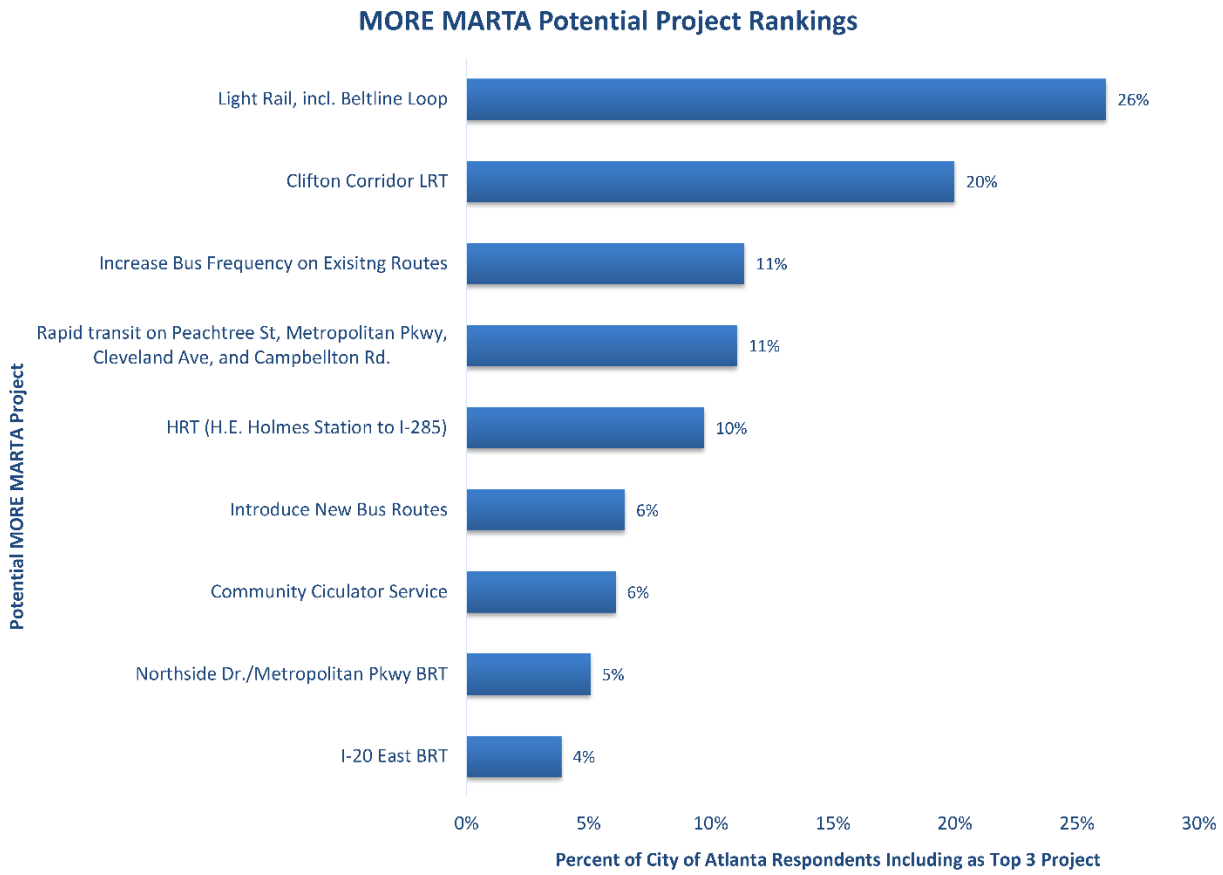
MARTA, immediately following the November 2016 referenda vote, held listening sessions to initiate a dialogue with the community on what it felt were the pressing needs and preferred projects, as well as giving MARTA the opportunity to educate the public on what the More MARTA program is.

Beginning in February 2017, MARTA started its More MARTA public outreach, which spanned to September 2017. A public survey was also made available during this period. The More MARTA survey focused specifically on potential More MARTA projects and service improvements; the open-ended response form allowed respondents to comment more broadly about how the system could be improved. Survey comments were received from February through September of 2017, while open-ended comments were collected at events between May and September of 2017 (see Figure 2).

Figure 2 Public Feedback Statistics

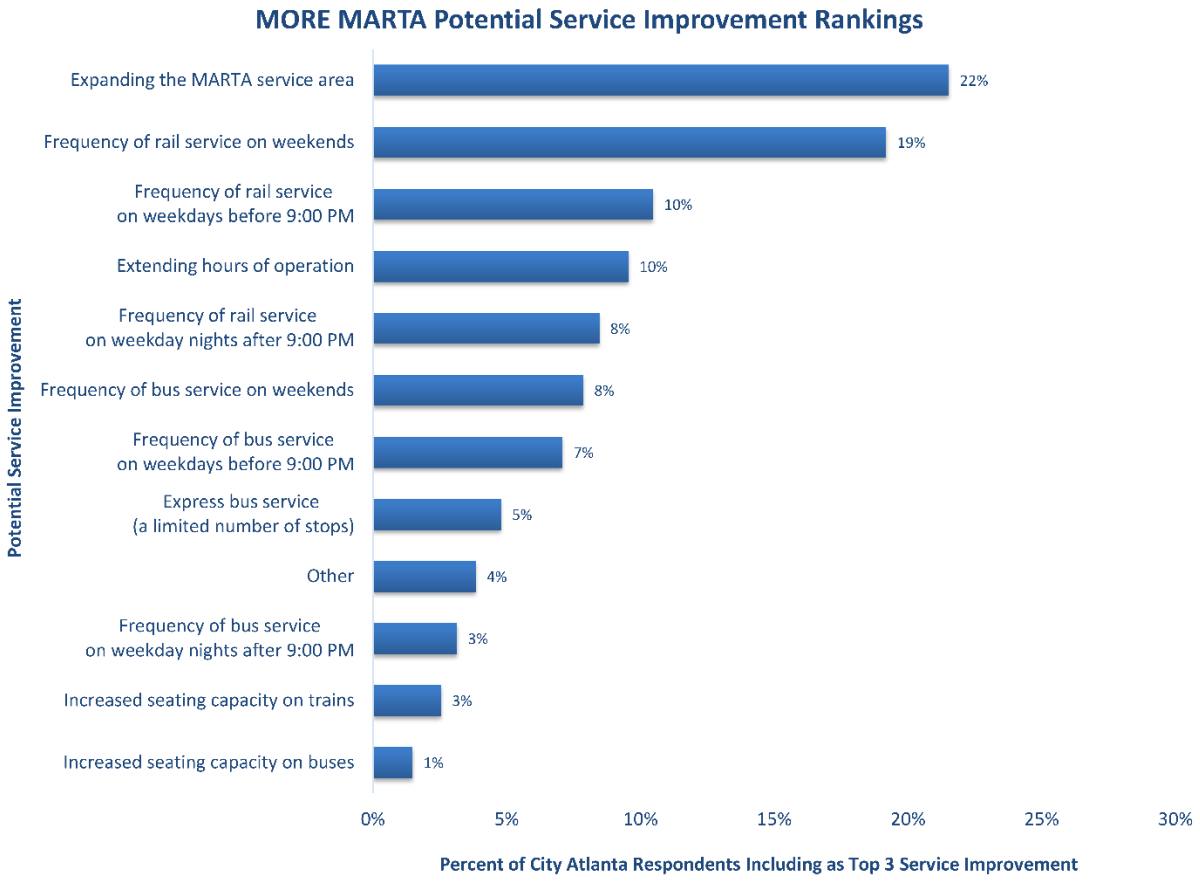
During the public outreach, via surveys, MARTA documented common themes and preferred projects (see Figure 3). The survey data was helpful with determining how closely the scenarios developed by the evaluation tool aligned with the public feedback.

Figure 3 Public's Project Rankings



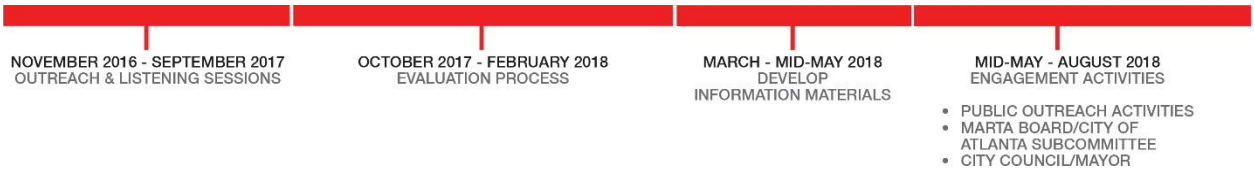
MARTA was also able to document the types of service improvements desired by the public, via surveys (see Figure 4).

Figure 4 More MARTA Potential Service Improvement Rankings



Before, during, and after the technical analyses conducted for the More MARTA program, public feedback was a constant variable that was incorporated into the analyses and overall discussion, and will continue to be (see Figure 5).

Figure 5 More MARTA Timeline



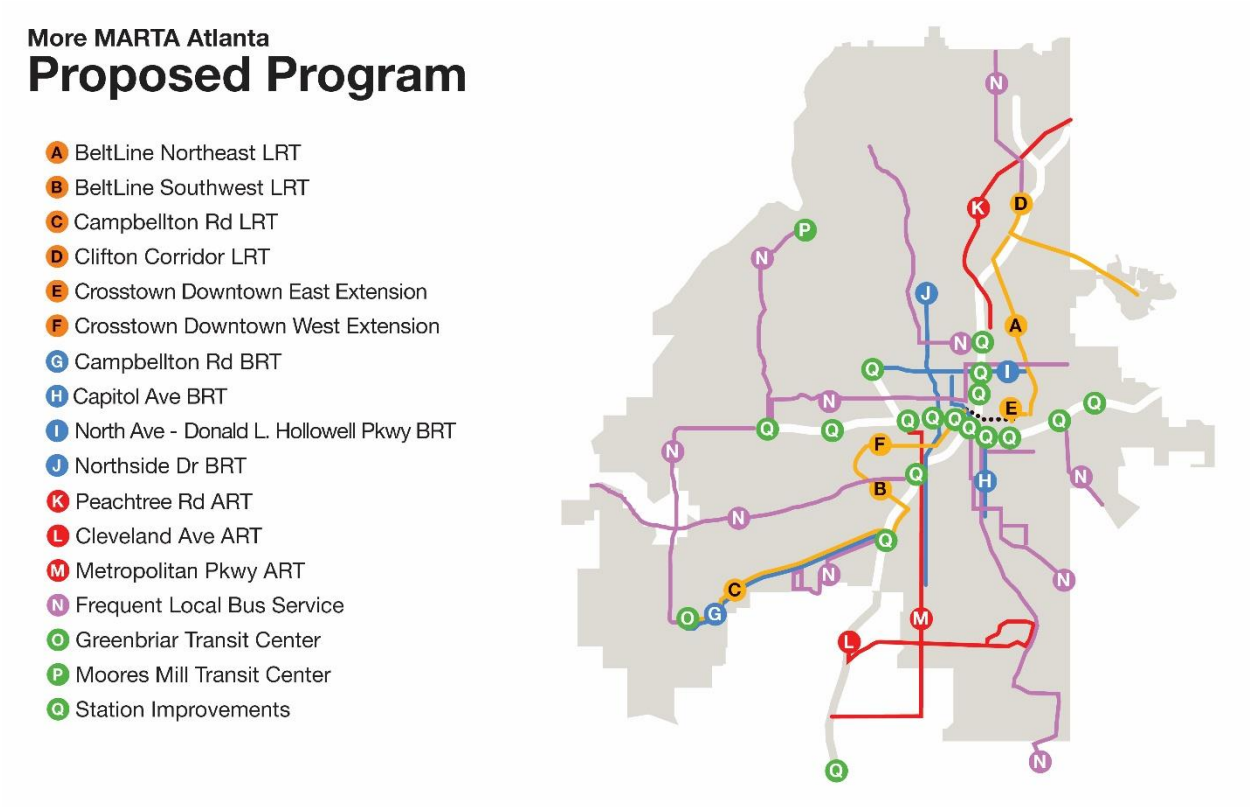
Preliminary More MARTA Atlanta Program

The More MARTA Program evaluation process began with evaluating and calculating project scores for the universe of potential projects, while also incorporating public feedback regarding preferences and expectations. The purpose of the More MARTA technical analysis was to craft a technically sound process that would inform the development of a transit system program that would address a variety of

factors: previously prepared transportation plans and projects, public needs and interests for transit investment, equitable distribution of projects throughout the community, accommodate expected growth in the city. The analysis that was developed could not answer all of these questions but provided the evaluation team with an opportunity to conduct sensitivity analysis of varying factors. (For example, a scenario that emphasized safety would look far different than a scenario that emphasized increased mobility for workers to and from job centers.)

Ultimately, the proposed program represents a hybrid of several scenarios that when combined provides an expansive program of investment across a wide range of transit modes that has the added benefit of addressing stated public needs and desires.

Figure 6 More MARTA Proposed Program



Next Steps

More MARTA Atlanta will continue public engagement and continued planning to understand community needs and priorities. Public input will be incorporated along with refinements to phasing and project budgets.

More MARTA Atlanta is working toward the goal of plan adoption by the MARTA Board in the Fall of 2018. MARTA's Program Management Office will continue to drive the development of projects in coordination with the City of Atlanta, with on-going community and stakeholder outreach.

Appendix A

ORIGINAL PROJECT LIST	TYPE	RECOMMENDED	PROPOSED PROGRAM OF PROJECTS	COMMENTS	DESCRIPTION	CONCEPTUAL CAPITAL BUDGET* LOCAL	CONCEPTUAL CAPITAL BUDGET* FEDERAL	CONCEPTUAL CAPITAL BUDGET* TOTAL	CONCEPTUAL O&M BUDGET* LOCAL	CONCEPTUAL BUDGET FOR PROPOSED PROGRAM LOCAL
BeltLine Loop - Northeast - Southeast Connector	LRT	N			~2 miles of light rail transit (LRT) service along the Atlanta BeltLine corridor	$ 64,100,000	$ 64,100,000	$ 128,200,000	$ 65,800,000	
BeltLine Loop - Northwest	LRT	N			~6 miles of light rail transit (LRT) service along the Atlanta BeltLine corridor	$ 151,800,000	$ 151,800,000	$ 303,600,000	$ 155,400,000	
BeltLine Loop - Southeast	LRT	N			~4 miles of light rail transit (LRT) service along the Atlanta BeltLine corridor	$ 54,800,000	$ 54,700,000	$ 109,500,000	$ 28,000,000	
BeltLine Loop - Southwest - Northwest Connector	LRT	N			~2 miles of light rail transit (LRT) service along the Atlanta BeltLine corridor	$ 52,300,000	$ 52,200,000	$ 104,500,000	$ 53,200,000	
Campbellton Line	LRT	Y	Campbellton Line	Transition corridor from BRT to LRT	~5 miles of light rail transit (LRT) service along Campbellton Rd between Oakland City Station and Greenbriar Mall	$ 130,700,000	$ 130,600,000	$ 261,300,000	$ 133,000,000	$ 263,700,000
		Y	Campbellton Line - BRT	Deliver BRT prior to LRT	~5 miles of bus rapid transit (BRT) service along Campbellton Rd between Oakland City Station and Greenbriar Mall	$ 118,800,000	$ -	$ 118,800,000	$ 11,200,000	$ 130,000,000
Capitol Avenue Line	LRT	N			~2 miles of light rail transit (LRT) service along Capitol Ave/Hank Aaron Dr from Downtown Streetcar to Atlanta BeltLine - Southeast	$ 88,500,000	$ 88,500,000	$ 177,000,000	$ 67,200,000	
		Y	Capitol Ave - BRT	To be implemented as a BRT	~3 miles of bus rapid transit (BRT) service along Capitol Ave/Hank Aaron Dr/Luckie St from Atlanta BeltLine - Southeast to North Ave	$ 63,500,000	$ 12,500,000	$ 76,000,000	$ 35,000,000	$ 98,500,000
Crosstown Midtown - Luckie St Line	LRT	N			~1 mile of light rail transit (LRT) service along Northside Dr/Luckie St from Downtown Streetcar to North Avenue	$ 51,000,000	$ 51,000,000	$ 102,000,000	$ 39,200,000	
Crosstown Crescent Line	LRT	N			~6 miles of light rail transit (LRT) service along Joseph E Lowery Blvd/Ralph D Abernathy Blvd/Georgia Ave between the Southeast and West Atlanta BeltLine corridors	$ 228,000,000	$ 228,000,000	$ 456,000,000	$ 170,800,000	
Crosstown Midtown - North Ave Line	LRT	N			~4 miles of light rail transit (LRT) service along DL Hollowell Pkwy/North Ave from Bankhead Station to Atlanta BeltLine - Northeast	$ 151,900,000	$ 151,900,000	$ 303,800,000	$ 113,400,000	
	BRT	Y	North Ave - BRT	To be implemented as a BRT	~4 miles of bus rapid transit (BRT) service along DL Hollowell Pkwy/North Ave from Bankhead Station to Atlanta BeltLine - Northeast	$ 101,300,000	$ -	$ 101,300,000	$ 18,200,000	$ 119,500,000
Peachtree St / Lee St Line	LRT	N			~4 miles of light rail transit (LRT) service along Peachtree St/West Peachtree St/Peters St/Lee St corridor between Downtown Streetcar and Oakland City Station	$ 88,600,000	$ 88,600,000	$ 177,200,000	$ 67,200,000	
Northside-Metropolitan Line	BRT	Y	Northside-Metropolitan Line - BRT		~6 miles of bus rapid transit (BRT) from the Atlanta Metropolitan State College to a new regional bus system transfer point at I-75 North	$ 80,300,000	$ 80,200,000	$ 160,500,000	$ 14,000,000	$ 94,300,000
ADDED PROJECT	Streetcar	Y	Downtown Streetcar		Operations of the existing Downtown Streetcar	$ -	$ -	$ -	$ 100,000,000	$ 100,000,000
S-Concept - Crosstown Downtown West Extension	LRT	Y	S-Concept - Crosstown Downtown West Extension	Segment of S-Concept	~3 miles of light rail transit (LRT) service from Downtown Streetcar to Atlanta BeltLine - Southwest	$ 84,800,000	$ 84,700,000	$ 169,500,000	$ 86,800,000	$ 171,600,000
S-Concept - Crosstown Downtown East Extension	LRT	Y	S-Concept - Crosstown Downtown East Extension	Segment of S-Concept	~2 miles of light rail transit (LRT) service from Downtown Streetcar to Ponce City Market along Atlanta BeltLine - Northeast	$ 125,400,000	$ -	$ 125,400,000	$ 64,400,000	$ 189,800,000
S-Concept Connector - BeltLine Loop - Northeast	LRT	Y	S-Concept Connector - BeltLine Loop - Northeast	Segment of S-Concept	~3 miles of light rail transit (LRT) service from Ponce City Market to Lindbergh Station along Atlanta BeltLine - Northeast	$ 85,800,000	$ 85,800,000	$ 171,600,000	$ 88,200,000	$ 174,000,000
S-Concept Connector - BeltLine Loop - Southwest	LRT	Y	S-Concept Connector - BeltLine Loop - Southwest	Segment of S-Concept	~4 miles of light rail transit (LRT) service along Atlanta BeltLine - Southwest to Oakland City Station	$ 96,800,000	$ 96,800,000	$ 193,600,000	$ 99,400,000	$ 196,200,000
Clifton Corridor	LRT	Y	Clifton Corridor	Segment of S-Concept	~4 miles of light rail transit (LRT) service from Lindbergh Station to a new Station near Emory	$ 393,000,000	$ 393,000,000	$ 786,000,000	$ 110,600,000	$ 503,600,000
Route 510 - Peachtree Buckhead	ART	Y	Route 510 - Peachtree Buckhead		Arterial Rapid Transit service from Brookhaven Station to Arts Center Station	$ 18,900,000	$ -	$ 18,900,000	$ 2,800,000	$ 21,700,000
Route 571 - Cascade Rd	ART	N			Arterial Rapid Transit service from West End Station to Fulton Industrial Blvd	$ 32,300,000	$ -	$ 32,300,000	$ 22,400,000	
Route 578 - Cleveland Ave	ART	Y	Route 578 - Cleveland Ave		Arterial Rapid Transit service from East Point Station to Cleveland Ave	$ 17,900,000	$ -	$ 17,900,000	$ 19,600,000	$ 37,500,000
Route 583 - Campbellton Rd	ART	Y	Route 583 - Campbellton Rd		Arterial Rapid Transit along Campbellton Rd from Greenbriar Mall to Oakland City Station	$ 16,400,000	$ -	$ 16,400,000	$ 11,200,000	
Route 595 - Metropolitan Pkwy	ART	Y	Route 595 - Metropolitan Pkwy		Arterial Rapid Transit from West End Station along Metropolitan Pkwy to College Park Station	$ 27,400,000	$ -	$ 27,400,000	$ 4,200,000	$ 31,600,000
Bus Service Improvements	Bus	Y	Bus Service Improvements		Bus frequency, span of service, and community circulator improvements across routes primarily within the City of Atlanta	$ -	$ -	$ -	$ 210,000,000	$ 210,000,000
Greenbriar Transit Center	Transit Center	Y	Greenbriar Transit Center		Park and ride transit hub for local or enhanced bus service at Greenbriar Mall along Greenbriar Pkwy	$ 5,000,000	$ -	$ 5,000,000	$ -	$ 5,000,000
Moores Mill Transit Center	Transit Center	Y	Moores Mill Transit Center		Park and ride transit hub for local or enhanced bus service at Bolton Rd and Marietta Blvd	$ 2,000,000	$ -	$ 2,000,000	$ -	$ 2,000,000
Station Enhancments	Station Enhancements	Y	Station Enhancments		Access, wayfinding, operational, aesthetic improvements across Stations within the City of Atlanta	$ 125,000,000	$ -	$ 125,000,000	$ -	$ 125,000,000
Armour	Infill Station	N			Infill Station at BeltLine near Armour Dr between Arts Center and Lindbergh Stations	$ 102,200,000	$ -	$ 102,200,000	$ 8,400,000	

Appendix A

ORIGINAL PROJECT LIST	TYPE	RECOMMENDED	PROPOSED PROGRAM OF PROJECTS	COMMENTS	DESCRIPTION	CONCEPTUAL CAPITAL BUDGET* LOCAL	FEDERAL	TOTAL	CONCEPTUAL O&M BUDGET* LOCAL	CONCEPTUAL BUDGET FOR PROPOSED PROGRAM LOCAL
Boone	Infill Station	N			Infill Station at BeltLine and Boone Blvd between Ashby and Bankhead Stations	$ 42,700,000	$ -	$ 42,700,000	$ 8,400,000	
Hulsey/Krog	Infill Station	N			Infill Station at BeltLine and Hulsey/Krog St between King Memorial and Inman Park/Reynoldstown Stations	$ 103,500,000	$ -	$ 103,500,000	$ 8,400,000	
Mechanicsville	Infill Station	N			Infill Station at McDaniel Street on the Red Line between Garnett and West End Stations	$ 55,700,000	$ -	$ 55,700,000	$ 8,400,000	
Murphy Crossing	Infill Station	N			Infill Station at BeltLine near Murphy Crossing between West End and Oakland City Stations	$ 103,500,000	$ -	$ 103,500,000	$ 8,400,000	
General Amenities	Amenities	Y	General Amenities		Bus stop amenities, including shelters, seating, and digital information at many bus stops within the City of Atlanta	$ 25,000,000	$ -	$ 25,000,000	$ -	$ 25,000,000
I-20 West	HRT	N			~2 miles of heavy rail transit (HRT) from HE Holmes Station to a new station at MLK Jr Dr and I-285	$ 181,600,000	$ 181,600,000	$ 363,200,000	$ 42,000,000	
I-20 East	BRT - Freeway	N			~4 miles of bus rapid transit (BRT) service from Five Points to Moreland Ave with two new stops and one new station	$ 60,000,000	$ -	$ 60,000,000	$ 35,100,000	
20 railcars for Green Line expansion	HRT	N			Additional 20 railcars to accommodate capacity improvements along the Green Line	$ 30,000,000	$ 30,000,000	$ 60,000,000	$ -	
10 railcars for Blue Line expansion	HRT	N			Additional 10 railcars to accommodate capacity improvements along the Blue Line	$ 15,000,000	$ 15,000,000	$ 30,000,000	$ -	
						$ 1,518,000,000	$ 883,600,000	$ 2,401,600,000	$ 1,008,600,000	$ 2,499,000,000

*based on conceptual budget ranges per mode per mile and operating/maintenance budgets per mode over 20-year timeframe, budgets are in 2018$

More MARTA Atlanta

Technical Summary of Data Sources

Purpose of Report

This summary provides an overview of the performance measures utilized for evaluating the universe of projects for the More MARTA Atlanta transit sales tax program. It also discusses the methodology applied to each performance measure along with the data sources used.

For reference purposes, it provides a full project listing along with the respective performance measures and their data entries. **Note:** individual project rankings are not provided in this report due to the multiple number of scenarios developed during the technical analysis for the More MARTA Atlanta program. Only the projects and the respective raw data used for each is provided in this report. Additionally, some projects' names and/or segments were revised following the technical analyses. Therefore, the nomenclature of some projects may not correspond perfectly with the original nomenclature used for projects.

Performance Measures and Data Sources

Fourteen performance measures were used to help capture how closely a given project aligned with the Nine Guiding Principles[1]. During the technical analysis, the project team identified these performance measures based on readily available and responsive data. Consequently, no new data was created during the technical analysis. For example, ridership data came from multiple sources and was pulled from previously calculated ridership forecasts.

Table 1 provides a full listing of the performance measures utilized along with their respective data sources. Below is a brief description of each field within the table.

- **Guiding Principle** – this field identifies the Guiding Principle being evaluated.
- **Performance Measure** – this field lists the measure(s) utilized to evaluate a project's alignment with a Guiding Principle.
- **Quantitative/Qualitative Measure** – this field indicates whether the performance measure was qualitative or quantitative. An example of a qualitative measure is whether a project uses a fixed-guideway, which the answer would be a 'Yes' or 'No'. An example of a quantitative measure is the number of access points for pedestrians on a project, whereas the actual total number of access points would be entered.
- **Logic/Methodology** – this field explains the criterion used for a given measure's calculations, along with a brief background explaining the criterion.
- **Data Sources** – this field lists the data sources used for a given performance measure in relationship to a Guiding Principle.

[1] Originally planned was to use 15 measures, however one of them (project schedule) was removed from consideration.

Although a project's data set and performance measure(s) used did not change, when adjusting the performance measures' weighting, the project rankings did change. The weightings enabled the evaluation tool to be flexible enough to demonstrate the variability that occurs when emphasis is placed on a Guiding Principle or set of guiding principles. For example, if the emphasis was on access to a number of jobs, projects located within a dense number of employment clusters would have higher rankings.

Table 1: Performance Measures Summary

	Guiding Principle	Performance Measure	Quantitative/Qualitative Measure	Logic/Methodology	Data Sources
1	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes	Is project on schedule?	Not Applicable	Not Applicable – due to many of the projects being fairly new or in the early stages of development, this measure was not utilized.	Not Applicable
		History on level of investment	Qualitative	Used High, Medium, Medium-High, and Low. If Project is on or south of I-20 or west of Northside Dr., it has historically not been invested in over the years in comparison to other parts of the city. All other areas of the city have seen relatively greater investment (e.g. businesses, homeowners). No project received a 'High' rating.	GIS mapping – The projects were mapped in GIS and the location was analyzed manually with respect to I-20 and Northside Drive
		Number of travel modes accessible	Quantitative	For each project, the total number of different modes accessible to riders were manually counted (e.g. CobbLinc, GRTA Xpress, GCT). No project received a count of higher than 3.	GIS mapping – The exiting transit service shapefile for Atlanta was used to determine connections to the project[2]
2	Increase mobility for workers to and from major job centers	Number of employees within 1/2-mile buffer	Quantitative	Applied a 1/2-mile buffer for projects in relationship to total number of employees.	Business/employment Data[3]
		Forecasted ridership numbers	Quantitative	Used ABM forecasted numbers, NEPA documentation and current station exist/entries. Note: no new travel demand model was developed for any of the projects; ridership numbers came from previous model runs and/or calculations.	The ABM; MARTA data on station entries/exits (Dec 2016-April 2017); MARTA NEPA studies[4]
3	Enhance predictability of commuter times by utilizing dedicated lanes,	Does project use exclusive ROW, a restricted access lane)?	Qualitative	Yes/No question. If project is a LRT or BRT, then it was assumed to have a fixed guideway. If it is streetcar (in-street running), then an exclusive lane/ROW was	Project info/documentation/professional judgment

[2] 2017 Existing transit service shapefile

[3] 2015 Employment data

[4] 2040 ARC ABM

	Guiding Principle	Performance Measure	Quantitative/Qualitative Measure	Logic/Methodology	Data Sources
	HOT lanes and other technology			not assumed. All station or park-n-ride projects received a N/A.	
		Travel time reduction	Qualitative	If project has exclusive guideway, then travel time savings were assumed. Used Low, Medium, and High. BRT routes were given a 'Medium'; all bus service improvements received 'Low'. Unless stated explicitly within a project's documentation (e.g. report) or project name, BRT projects were uniquely categorized. It was assumed that BRT project had at a minimum partial fixed-guideway segments, hence why for the previous measure it would have received a 'Yes'. However, this partial component also gave BRT projects a 'Medium' for travel time reduction.	Project info/documentation/professional judgment
		Will project use TSP or other signalization priority system?	Qualitative	Based on mode. LRT, streetcar, BRT, and ART routes were assumed to have TSP.	Project info/documentation/professional judgment
4	Create layered, integrated transportation network to accomplish specific types of trips	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Qualitative	Yes/No question. All projects received 'Yes'.	Project info/documentation/professional judgment
5	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit networks	Will the project require additional investment outside of CofA?	Qualitative	Yes/No question. If project went outside COA boundary, it received a 'Yes'.	Project info/documentation/professional judgment
6	Partner with neighboring jurisdictions to leverage transit projects	Will the project potentially lead to other neighboring projects?	Qualitative	Yes/No question. If project went outside COA boundary, it received a 'Yes'.	Project info/documentation/professional judgment

	Guiding Principle	Performance Measure	Quantitative/Qualitative Measure	Logic/Methodology	Data Sources
7	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Qualitative	Yes/No question. If project is mentioned in CofA's CIP, then it received 'Yes'	2017-2021 Capital Improvements Program and Community Work Program (City of Atlanta)
8	Enhance ease of use and transfers within the network of transit options	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?	Qualitative	Yes/No question. All pedestrian type projects and station enhancements received a 'Yes'; bus projects received a 'No'.	2017-2021 Capital Improvements Program and Community Work Program (City of Atlanta), MARTA's COA, Project info/documentation/professional judgment
9	Enhance safety and access to transit centers and MARTA stations	Number of access points to pedestrian facilities on project	Quantitative	Number of access points per mile for a project based on number of stops.	GIS mapping – The number of stops for each project were determined and using GIS shapefile, project length was estimated. The number of stops per mile of the project was then estimated.
		Reduction in number of accidents or incidents	Qualitative	High, Medium, and Low - if a project reduced VMT, that would potentially also lower the incidence of crashes. Or if a project referenced 'safety' and/or pedestrian improvements, it received a 'Yes'. I-20 West project received 'High' because it is heavy rail and has exclusive guideway. HCT projects received a conservative 'Medium' due to their potential at lowering VMT. All bus projects are low. All pedestrian type projects received a 'High' rating.	Project info/documentation/professional judgment

Table 2 provides a full project listing along with the performance measures and raw data entries per project.

Table 2: Projects and Performance Measure Data

Project	Description	Mode	Category	Distance (miles)	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes			Increase mobility for workers to and from major job centers		Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology			Create layered, integrated transportation network to accomplish specific types of trips	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit network	Partner with neighboring jurisdictions to leverage transit projects	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Enhance ease of use and transfers within the network of transit options	Enhance safety and access to transit centers and MARTA stations	
					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, way finding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
I-20 West Heavy Rail Transit	Two (2) miles of heavy rail transit (HRT) from HE Holmes station to a new station at MLK Jr Dr and I-285	HCT		2.0	NA	L	1	968	6,900	Y	H	NA	Y	N	N	N	N	1.50	H
Northside Drive Bus Rapid Transit	Seven (7) miles of BRT from the Atlanta Metropolitan State College (south of I-20) to a new regional bus system transfer point at I-75 north	HCT		7.0	NA	MH	2	25,297	3,600	Y	M	Y	Y	N	N	Y	N	2.29	M
Clifton Light Rail Transit*	Four (4) miles of grade separated light rail transit (LRT) service from Lindbergh station to a new station at Emory Rollins	HCT	Contingent Multi-Jurisdictional Projects	8.0	NA	MH	2	*51,139*	27,590	Y	H	Y	Y	Y	Y	N	N	1.88	M
I-20 East Bus Rapid Transit*	Three (3) miles of bus rapid transit (BRT) service from Five Points to Moreland Ave with two (2) new stops and one new station	HCT	Contingent Multi-Jurisdictional Projects	3.0	NA	L	3	74,710	17,100	Y	M	Y	Y	Y	Y	Y	N	3.00	M
Atlanta BeltLine Central Loop	Twenty-two (22) miles of bi-directional at-grade light rail transit (LRT) service along the Atlanta BeltLine corridor	HCT	Atlanta Light Rail Transit	22.0	NA	MH	3	41,845	14,500	Y	H	Y	Y	N	N	Y	N	9.00	M
Irwin – AUC Line	Over three (3) miles of bi-directional in-street running light rail transit (LRT) service along Fair St/MLK Jr Dr/Luckie St/Auburn Ave/Edgewood Ave/Irwin St	HCT	Atlanta Light Rail Transit	3.4	NA	MH	3	62,499	8,800	N	H	Y	Y	N	N	N	N	1.76	M
Downtown – Capitol Ave Line	Over two (2) miles of in-street bi-directional running light rail transit (LRT) service along Northside Dr/Luckie St/Capitol Ave/Hank Aaron Dr/Atlanta BeltLine corridor	HCT	Atlanta Light Rail Transit	2.6	NA	L	3	87,008	11,200	N	H	Y	Y	N	N	N	N	2.31	M
Crosstown Midtown Line	Over three (3) miles of bi-directional in-street running light rail transit (LRT) service along DL Hollowell Pkwy/North Ave	HCT	Atlanta Light Rail Transit	3.8	NA	MH	2	36,245	3,700	N	H	Y	Y	N	N	Y	N	1.58	M

Project	Description	Mode	Category	Distance (miles)	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes			Increase mobility for workers to and from major job centers		Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology			Create layered, integrated transportation network to accomplish specific types of trips	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit network	Partner with neighboring jurisdictions to leverage transit projects	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Enhance ease of use and transfers within the network of transit options	Enhance safety and access to transit centers and MARTA stations	
					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, way finding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
Crosstown Crescent Line	Over five (5) miles of in-street bi-directional running light rail transit (LRT) service along Joseph E Lowery Blvd/Ralph D Abernathy Blvd/Georgia Ave between the Southeast and West Atlanta BeltLine corridors	HCT	Atlanta Light Rail Transit	5.2	NA	L	2	9,801	4,400	N	H	Y	Y	N	N	N	N	1.15	M
Peachtree – Ft Mc – Barge Rd Line	Over eight (8) miles of in-street bi-directional running light rail transit (LRT) service along PeachtreeSt/West Peachtree St/Peters St/Lee St/Campbellton Rd corridor between Greenbriar Mall and Downtown	HCT	Atlanta Light Rail Transit	8.2	NA	L	2	63,079	6,800	N	H	Y	Y	N	N	N	N	0.85	M
"S" Concept Rail Line	Murphy Crossing, Atlanta University, current Atlanta Streetcar route, Atlanta Beltline Eastside Trail to Armour Yard and eventually on to Emory University	HCT	Atlanta Light Rail Transit	9.7	NA	MH	0	101,927	No data	N	H	Y	Y	N	N	Y	N	0.67	M
Armour Station	Infill station at BeltLine near MARTA's Armour Yard facility between Arts Center and Lindbergh stations	HCT	Infill Stations	NA	NA	MH	1	*7,060*	8,600	Y	NA	NA	Y	N	N	Y	N	1.00	NA
Boone Station	Infill station at BeltLine and Boone Blvd between Ashby and Bankhead stations	HCT	Infill Stations	NA	NA	MH	1	558	1,000	Y	NA	NA	Y	N	N	N	N	1.00	NA
Hulsey/Krog St.	Infill station at BeltLine and Hulsey/Krog St between King Memorial and Inman Park/Reynoldstown stations	HCT	Infill Stations	NA	NA	MH	1	2,060	NA	Y	NA	NA	Y	N	N	Y	N	1.00	NA
Mechanicsville	Infill station at McDaniel Street on the Red Line between Garnett and West End stations	HCT	Infill Stations	NA	NA	L	1	2,707	NA	Y	NA	NA	Y	N	N	N	N	1.00	NA
Murphy Crossing Station	Infill station at BeltLine near Murphy Crossing between West End and Oakland City stations	HCT	Infill Stations	NA	NA	L	1	1,970	4,700	Y	NA	NA	Y	N	N	N	N	1.00	NA
Airport	Station Renovation	HCT	Station Enhancements	NA	NA	L	1	2,685	**8,050**	NA	NA	NA	Y	N	N	N	N	1.00	NA
Ashby	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	1,321	**1,406**	NA	NA	NA	Y	N	N	N	Y	1.00	NA

Project	Description	Mode	Category	Distance (miles)	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes			Increase mobility for workers to and from major job centers		Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology			Create layered, integrated transportation network to accomplish specific types of trips	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit network	Partner with neighboring jurisdictions to leverage transit projects	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Enhance ease of use and transfers within the network of transit options	Enhance safety and access to transit centers and MARTA stations	
					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
Bankhead Station	Extend the rail platform to accommodate eight (8) car trains; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	370	**2,928**	Y	NA	NA	Y	N	N	N	Y	1.00	NA
Civic Center	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	19,062	**2,080**	NA	NA	NA	Y	N	N	N	Y	2.00	NA
CNN/Dome Station	Rehabilitation of CNN/Dome station to support capacity improvements; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	31,194	**3,839**	NA	NA	NA	Y	N	N	Y	Y	2.00	NA
Edgewood/Candler Park	New eastern access to DeKalb/LaFrance; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	2,575	**962**	NA	NA	NA	Y	N	N	N	Y	2.00	NA
Five Points	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	3	56,859	12,910	NA	NA	NA	Y	N	N	N	Y	4.00	NA
Georgia State University	Fireproofing; New western access to Courtland/Washington at Georgia State station; General maintenance and aesthetic improvements; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	29,101	3,058	NA	NA	NA	Y	N	N	N	Y	1.00	NA
Hamilton E. Holmes	Platform Roof Access; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	L	2	763	5,245	NA	NA	NA	Y	N	N	N	Y	1.00	NA
Inman Park	Pedestrian Bridge Rehabilitation; New eastern access to Moreland; General maintenance and aesthetic improvements; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	2,415	2,108	NA	NA	NA	Y	N	N	Y	Y	2.00	NA
King Memorial	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	8,912	926	NA	NA	NA	Y	N	N	N	Y	1.00	NA

Project	Description	Mode	Category	Distance (miles)	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes			Increase mobility for workers to and from major job centers		Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology			Create layered, integrated transportation network to accomplish specific types of trips	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit network	Partner with neighboring jurisdictions to leverage transit projects	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Enhance ease of use and transfers within the network of transit options	Enhance safety and access to transit centers and MARTA stations	
					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
Midtown	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	19,712	4,661	NA	NA	NA	Y	N	N	N	Y	2.00	NA
North Avenue	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	25,686	4,263	NA	NA	NA	Y	N	N	N	Y	2.00	NA
Oakland City	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	L	2	862	3,318	NA	NA	NA	Y	N	N	Y	Y	1.00	NA
Vine City Station	Rehabilitation of Vine City station to support capacity improvements; New western access to Herndon Stadium; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	MH	2	4,608	981	NA	NA	NA	Y	N	N	Y	Y	1.00	NA
West End	New eastern access to W. Whitehall/Murphy; General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	L	2	1,819	5,017	NA	NA	NA	Y	N	N	N	Y	2.00	NA
West Lake	General maintenance and aesthetic improvement; Install new signage/wayfinding	HCT	Station Enhancements	NA	NA	L	2	699	1,133	NA	NA	NA	Y	N	N	N	Y	1.00	NA
Add railcar - 1	Additional 20 railcars to accommodate capacity improvements along the Green Line	HCT	Additional Railcars	NA	NA	MH	3	78,522	No data	Y	L	NA	Y	N	N	N	N	NA	NA
Add railcar - 2	Additional 10 railcars to accommodate capacity improvements along the Blue Line	HCT	Additional Railcars	NA	NA	MH	3	98,560	No data	Y	L	NA	Y	N	N	N	N	NA	NA
Route 71 Cascade Rd Arterial Rapid Transit	Arterial Rapid Transit service from West End station to Fulton Industrial Blvd	Bus		6.4	NA	L	2	11,607	6,400	N	L	Y	Y	N	N	Y	N	14.06	L
Route 78 Cleveland Ave Arterial Rapid Transit	Arterial Rapid Transit from East Point station to Jonesboro Rd	Bus		4.9	NA	L	2	7,267	5,700	N	L	Y	Y	N	N	N	N	11.43	L
Route 83 Campbellton Rd Arterial Rapid Transit	Arterial Rapid Transit along Campbellton Rd from Greenbriar Mall to Oakland City station	Bus		4.7	NA	L	2	4,081	4,350	N	L	Y	Y	N	N	N	N	17.45	L

Project	Description	Mode	Category	Distance (miles)	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes			Increase mobility for workers to and from major job centers		Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology			Create layered, integrated transportation network to accomplish specific types of trips	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit network	Partner with neighboring jurisdictions to leverage transit projects	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Enhance ease of use and transfers within the network of transit options	Enhance safety and access to transit centers and MARTA stations	
					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
Route 95 Metropolitan Pkwy Arterial Rapid Transit	Arterial Rapid Transit service from West End station to Cleveland Ave	Bus		5.4	NA	L	2	9,498	18,200	N	L	Y	Y	N	N	N	N	22.22	L
Route 110 Peachtree Buckhead Arterial Rapid Transit	Arterial Rapid Transit service from Brookhaven station to Five Points station to serve denser residential development in northeastern Buckhead	Bus		9.1	NA	MH	3	178,087	21,400	N	L	Y	Y	N	N	N	N	16.70	L
Greenbriar Transit Center	Park and ride transit hub for local or enhanced bus service at Greenbriar Mall along Greenbriar Pkwy	Bus	PnR	NA	NA	L	1	1,199	600	NA	NA	NA	Y	N	N	Y	N	1.00	NA
Moores Mill Transit Center	Park and ride transit hub for local or enhanced bus service at Bolton Rd and Marietta Blvd	Bus	PnR	NA	NA	MH	1	1,618	50	NA	NA	NA	Y	N	N	Y	N	1.00	NA
Implementation of Frequent Local Service Tier from MARTA's Comprehensive Operations Analysis	Frequency improvements of 15-minute peak, 30-minute off-peak service on Routes 12, 49, 51, 55 and 60	Bus		38.9	NA	NA	3	144,908	14,700	N	L	N	Y	N	N	NA	N	8.23	L
Implementation of Supporting Local Service on Selected Routes within the City of Atlanta Limits	Increased service during off-peak to include midday, nights and weekends on selected routes	Bus		32.3	NA	NA	0	No data	115	N	L	N	Y	N	N	NA	N	No data	L
Implementation of Community Circulator Service Tier from MARTA's Comprehensive Operations Analysis	New neighborhood-friendly and activity center-oriented circulator routes operating in Centennial Olympic Park, Castleberry Hill, Atlanta Medical Center, Ashview Heights/Mozley Park, Elmco Estates and West Atlanta. Additional community circulator routes to be determined as demand warrants.	Bus		25.7	NA	MH	3	110,747	3,300	N	L	N	Y	N	N	N	N	No data	L

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					Is project on schedule?	History on level of investment	Number of travel modes accessible	Number of employees within 1/2-mile buffer	Forecasted ridership numbers	Does project use exclusive ROW, a restricted access lane)?	Travel time reduction	Will project use TSP or other signalization priority system?	Does project connect to multiple travel modes (i.e. bike/ped facilities)	Will the project require additional investment outside of CofA?	Will the project potentially lead to other neighboring projects?	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?	Will project enhance access or use of transit system via technology, signage improvement, way finding, pedestrian improvements, etc.?	Number of access points to pedestrian facilities on project	Reduction in number of accidents or incidents
Various	Various pedestrian facility improvements including sidewalks, intersections, station infrastructure, crossings, and access points in the system.	Ped		NA	NA	MH	2	VARIES	NA	NA	NA	NA	Y	N	N	N	Y	NA	H
Atlanta Beltline - Northeast	Lindbergh Center to Inman Park/King Memorial	HCT	Atlanta Light Rail Transit	6.5	NA	MH	3	*21,750*	3,625	Y	H	Y	Y	N	N	Y	N	5.00	M
Atlanta Beltline - Southeast	Inman Park/King Memorial to West End	HCT	Atlanta Light Rail Transit	6.0	NA	MH	3	11,184	3,625	Y	H	Y	Y	N	N	Y	N	5.00	M
Atlanta Beltline - Southwest	West end to Ashby	HCT	Atlanta Light Rail Transit	3.1	NA	MH	3	4,268	3,625	Y	H	Y	Y	N	N	Y	N	4.00	M
Atlanta Beltline - Northwest (Alt D)	Ashby to Lindbergh Center	HCT	Atlanta Light Rail Transit	6.9	NA	MH	3	*21,871*	3,625	Y	H	Y	Y	N	N	Y	N	5.00	M

Methodology

This section describes in further detail the methodology for how data was used for each performance measure and how the measure was calculated. The evaluation tool consists of over 1,000 data entries (i.e. 73 projects with 14 performance measures each). The availability of data had a significant effect on the performance measures utilized.

Some of the performance measures and their respective data entries were more straightforward than others. This section of the report discusses both scenarios, straightforward cases as well as the exceptional cases.

Performance Measure Scores and Project Points

The data collected for the performance measures consisted of either qualitative or quantitative values. To compare the projects, an ordinal rating scheme was developed for each measure and used to score each project between 0 and 100 based on its performance for that specific measure. Project points were calculated by adding total scores of all performance measures for a project. The project points were compared and used to rank the projects.

A general approach to converting the data value to a 0-100 score is provided below:

- Quantitative measures – All the project values were evaluated using a frequency distribution. Depending on the measure, either the project with maximum value or with minimum value, receives a score of 100. The other projects receive lower score accordingly. For example, the measure "number of employees within ½ mile buffer" or "forecasted ridership numbers" will receive more score if the values are more. The projects that don't have data available or the values are not applicable (NA), receive lower score so that the scores are conservative.
- Qualitative measures – The quantitative measures use more uniform intervals to convert the values to a 0-100 score. Various quantitative measures used are:
    1. Yes/No received score of 0 or 100
    2. Low, Medium, High receive scores of 0, 50, 100

  As in quantitative measures, the projects that don't have data available or the values are not applicable (NA), receive lower score.

The scoring criteria used for each of the measures are described below. The conversion of data value to 0-100 scores is provided in Table 3.

Performance Measure 1: Is project on schedule?
It is a qualitative measure with values of Yes, No or Not Applicable (NA). If the project was on schedule, it received score of 100, otherwise it received 0. However, as stated previously, this measure was not utilized during the technical analysis.

Performance Measure 2: History on level of investment
It is a qualitative measure with values Low, Medium, High, Medium-High or NA. The projects with low, medium and high received scores of 100, 50 and 0 respectively. The projects with Medium-High investment levels received score of 25.

Performance Measure 3: Number of travel modes accessible
It is a quantitative measure. Every project was evaluated based on number of different travel modes that it can access. If the project does not provide access to any other travel mode, it received a score of 0 and if it provided access to more than 3 different modes, it received score of 100. Intermediate values received scores between 0 and 100.

Performance Measure 4: Number of employees within 1/2-mile buffer
The range of values for the projects varies from 370 to 180,000. Eight data ranges were defined and assigned scores between 0 and 100 to each range. The break points for the ranges were decided carefully, ensuring that not a lot of projects fall in just one category and can be differentiated.

Performance Measure 5: Forecasted Ridership Numbers
The range of values for the projects varies from 50 to 28,000. Four data ranges were defined and assigned scores between 0 and 100 to each range. The break points for the ranges were decided, ensuring that not a lot of projects fall in just one category and can be differentiated.

Performance Measure 6: Does project use exclusive ROW, a restricted access lane)?
It is a qualitative measure with values of Yes or No. If the project had value as Yes, it received score of 100, otherwise it received 0.

Performance Measure 7: Travel time reduction
It is a qualitative measure with values Low, Medium and High and the projects received scores of 25, 50 and 100 respectively.

Performance Measure 8: Will project use TSP or other signalization priority system?
It is a qualitative measure with values of Yes and No and the projects received scores of 100 and 0, respectively.

Performance Measure 9: Does project connect to multiple travel modes (i.e. bike/ped facilities)
It is a qualitative measure with values of Yes and No and the projects received scores of 100 and 0, respectively. For this performance measure, each project was connected to bike or pedestrian facility so all of them received a score of 100.

Performance Measure 10: Will the project require additional investment outside of CofA?
It is a qualitative measure with values of Yes and No. if the value is Yes, the score is 0 and vice versa.

Performance Measure 11: Will the project potentially lead to other neighboring projects?
It is a qualitative measure with values of Yes and No. if the value is Yes, the score is 100, otherwise it is 0.

Performance Measure 12: Is project included (mentioned/tied to) in the CofA Capital Improvement Program?
It is a qualitative measure with values of Yes and No. if the value is Yes, the score is 100, otherwise it is 0.

Performance Measure 13: Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?
It is a qualitative measure with values of Yes and No. if the value is Yes, the score is 100, otherwise it is 0.

Performance Measure 14: Number of access points to pedestrian facilities on project
The range of values for the projects varied from 0.67 to 22.22. The values were calculated as number of access points per mile of the project. Four data ranges were defined and assigned scores between 0 and 100 to each range. The break points for the ranges were decided, ensuring that not a lot of projects f all in just one category and can be differentiated.

Performance Measure 15: Reduction in number of accidents or incidents
It is a qualitative measure with values Low, Medium and High and scores of 25, 50 and 100 respectively.

Table 3 Conversion of project data values to 0-100 scores

No.	Themes	Criteria	Range	Lookup value	Scores
1	Balance the portfolio of transit projects serving short/medium/long term goals using multiple travel modes	Is project on schedule?	No	N	0
			Yes	Y	100
			NA	NA	0
		History on level of investment	Low	L	100
			Medium	M	50
			High	H	0
				MH	25
				NA	0
		Number of travel modes accessible	0	0	0
			1	1	25
			2	2	50
			3+	3	100
				No data	0
2	Increase mobility for workers to and from major job centers	Number of employees within 1/2 mile buffer	[0 -1000)	0	10
			[1000 -3000)	1,000	20
			[3000 -5000)	3,000	30
			[5000 -10000)	5,000	40
			[10000 -20000)	10,000	50
			[20000 -50000)	20,000	60
			[50000 -100000)	50,000	80
			[100000 -)	100,000	100
				No data	0

No.	Themes	Criteria	Range	Lookup value	Scores
		Forecasted ridership numbers	[0-5,000) [5,000-10,000) [10,000-20,000) 20,000+	0 5,000 10,000 20,000	0 25 50 100
				NA No data	0 0
3	Enhance predictability of commuter times by utilizing dedicated lanes, HOT lanes and other technology	Does project use exclusive ROW, a restricted access lane)?		N Y NA	0 100 0
		Travel time reduction		L M H NA	25 50 100 0
		Will project use TSP or other signalization priority system?		N Y	0 100

No.	Themes	Criteria	Range	Lookup value	Scores
				NA	0
4	Create layered, integrated transportation network to accomplish specific types of trips	Does project connect to multiple travel modes (i.e. bike/ped facilities)		N Y No data	0 100 0
5	Prioritize investments inside COA while laying foundation which will ultimately be integrated into regional transit networks	Will the project require additonal investment outside of CofA?		N Y	100 0
6	Partner with neighboring jurisdictions to leverage transit projects	Will the project potentially lead to other neighboring projects?		N Y	0 100
7	Create last mile connectivity using circulating buses, multi-use paths and sidewalks	Is project included (mentioned/tied to) in the CofA Capital Improvement Program?		N Y NA	0 100 0
8	Enhance ease of use and transfers within the network of transit options	Will project enhance access or use of transit system via technology, signage improvement, wayfinding, pedestrian improvements, etc.?		N Y	0 100

No.	Themes	Criteria	Range	Lookup value	Scores
9	Enhance safety and access to transit centers and MARTA stations	Number of access points to pedestrian facilities on project	[0-1)	0	0
			[1-5)	1	25
			[5-10)	5	50
			10+	10	100
				NA	0
				No data	0
		Reduction in number of accidents or incidents		L	25
				M	50
				H	100
				NA	0

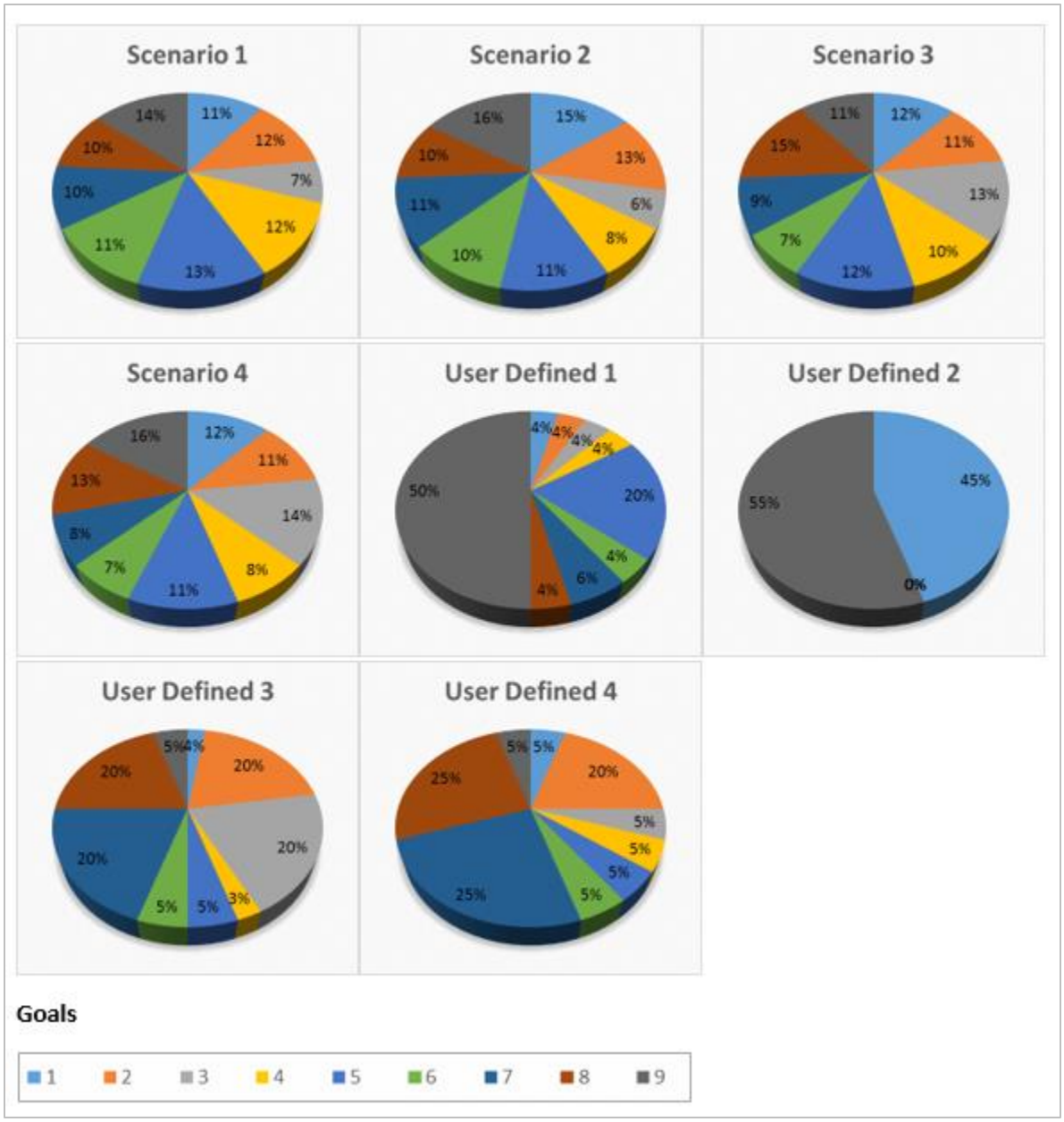
Ranking of Projects

After each project was scored based on the project evaluation criteria, scenarios were developed by assigning different weighting factors to individual goals. The purpose of this was to understand the impact of each goal on project rankings and to identify projects that consistently appeared near the top of the rankings, regardless of where the emphasis was placed.

The following eight scenarios were developed. The weights assigned to the goals in each scenario are shown in Figure 1.

- Scenario 1: MARTA importance
- Scenario 2: MARTA weights
- Scenario 3: TSP importance
- Scenario 4: TSP weights
- Four User defined scenarios

Figure 1 Goal weights by Scenario



The next step was to establish the rankings of the projects based on the total points they received. For each project, total points were calculated for each of the nine goals by summing up the scores of all the performance measures within the respective goals. For any scenario and project, a weighted score for each goal was estimated by multiplying the total points of that goal and weight of that goal. The total points each project received were then estimated by summing up the weighted scores of all the goals. The weights of individual performance measures within each goal were kept equal. The only exception is the Goal No. 2 - Increase mobility for workers to and from major job centers. For this goal, 80% weightage was given to "forecasted ridership numbers" and only 20% weight was given to "Number of employees within 1/2-mile buffer"

While the priority rankings were based on the qualitative and quantitative criteria discussed previously, it should be noted that the scores are not meant to be the final decision on whether a project should be implemented. Rather, they reflect the prioritization ranking of each project within the study area under different schemes and weighting factors. They provide input and guidance for planners and decision-makers.