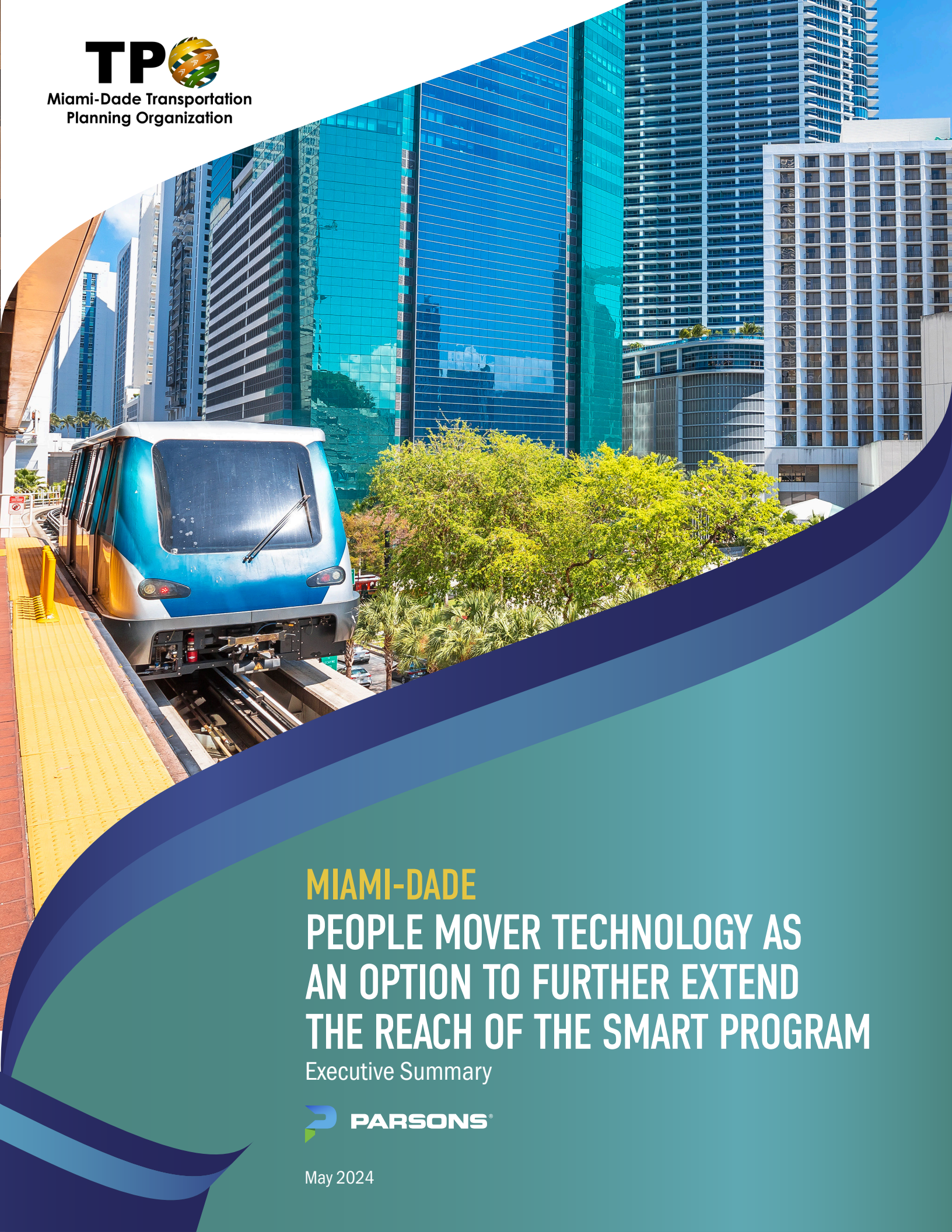




Miami-Dade Transportation
Planning Organization



MIAMI-DADE PEOPLE MOVER TECHNOLOGY AS AN OPTION TO FURTHER EXTEND THE REACH OF THE SMART PROGRAM

Executive Summary



May 2024

1. Introduction

The Miami-Dade Department of Transportation and Public Works (DTPW) operates the Metromover through 21 stations and along three loops, serving Downtown Miami’s Central Business District, Brickell, and the Arts and Entertainment neighborhoods; it also connects to the Metrorail system and Tri-Rail/Brightline. On 23 February 2023, the TPO Governing Board approved Resolution 08-2023 authorizing the TPO Executive Director to develop a scope of services and budget to assess Automated People Mover (APM) technology as an option to extend and augment the reach of the Strategic Miami Area Rapid Transit (SMART) Program in areas connecting to existing or future SMART Program corridors and intermodal hubs where feasible.



Interconnectivity with local/regional transportation services has the potential to unlock enormous benefits for Miami-Dade County, especially as tourism, housing, employment, and freight movement are projected to increase. APM technology may provide safe, convenient, and effective connectivity to major transit corridors and hubs throughout the County.

1.1 Study Methodology

This study uses a two-tiered analysis to identify potential Metromover extensions—or applications of APM or similar technology—that would extend and augment the reach of the SMART Program. The first tier of analysis is geographic and includes splitting the county into four quadrants. Past studies were reviewed to determine feasible options for Metromover extension that may still be valid. Major origins and

destinations were identified in each quadrant, and options to connect to the SMART Program corridors were assessed.

The second tier of analysis included developing specific strategies and alignments for APM extension based on the Tier 1 screening, including assessing each extension’s alignment with the other modalities of the SMART Plan. Refinements and recommendations were then developed for five feasible options. Figure 1 summarizes the study process.

2. Tier Analysis and Areas Selection

2.1 Alternatives Being Evaluated as Part of Other Studies

Several potential APM alternatives are being evaluated or advanced as part of other studies and were not included under this study. These include:

- Brickell Loop Expansion
- Omni Loop Expansion
- Flagler Street

2.2 Identification of Tier 1 Feasible Expansion Areas

The study team identified potential alternatives by:

- Identifying options to further extend and augment the reach of the SMART Program, in areas connecting to existing and/or future SMART Program corridors and intermodal hubs where feasible.
- Drawing from options identified in existing plans and studies.
- Soliciting input from Miami-Dade TPO staff and member agencies.

Ten alternatives were identified:

- Northeast Quadrant
 - Alternative F: Aventura
- Northwest Quadrant
 - Alternative D: Hialeah Metrorail Station to Downtown Hialeah
 - Alternative G: Okeechobee Metrorail Station to Western Hialeah
 - Alternative H: Palmetto Metrorail to Downtown Doral
- Southeast Quadrant
 - Alternative A: Government Center to Marlins Stadium
 - Alternative B: Culmer Metrorail Station to Marlins Stadium

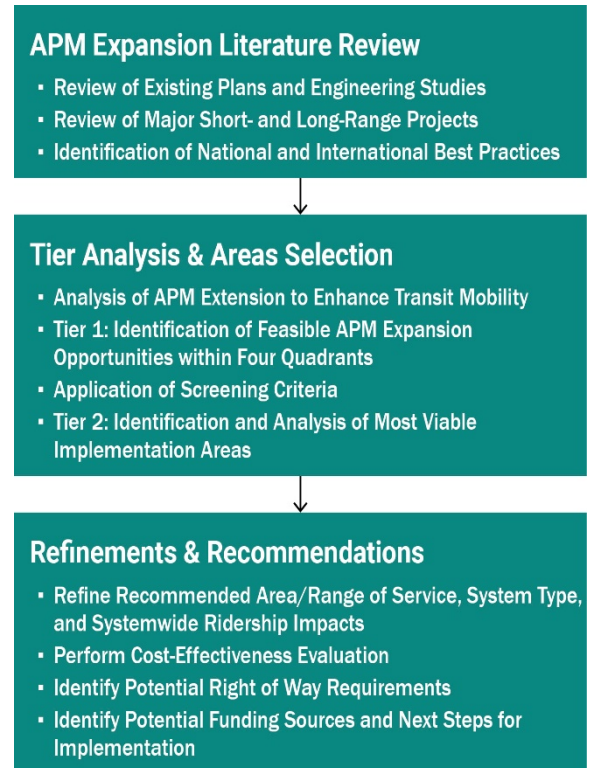


Figure 1. Study Process

- Alternative E: Metromover Connection to Port Miami
- Southwest Quadrant
 - Alternative C: Blue Lagoon Circulator
 - Alternative I: FIU
 - Alternative J: Homestead

2.3 Screening Criteria

Screening of the Tier 1 alternatives applied the following criteria:

- Roadway Network Congestion
- Demographics
 - Population Density
 - Employment Density
- Transit-Supportive Land Uses
- Connectivity to Other Rapid Transit Corridors or SMART Program
- Available Right-of-Way Constraints and Opportunities
- Pedestrian and Cycle Accessibility and Mobility Accommodation
- Existing Adjacent Ridership
- Transit Station Park-and-Ride/Kiss-and-Ride Access Opportunities
- Affordability
- Access to Transit Modes

Relative scores were assigned to identify highest ranking alternatives.

2.4 Alternatives to Be Evaluated Under Future Study

The following alternatives will be evaluated under future study:

- Alternative A: Government Center to Marlins Stadium
- Alternative B: Culmer Metrorail Station to Marlins Stadium
- Alternative E: Metromover Connection to Port Miami – future study per TPO Resolution 03-2024

2.5 Recommended Tier 2 Expansion Areas

The next five highest-scoring alternatives recommended to be advanced to Tier 2 are:

- Northeast Quadrant
 - Alternative F: Aventura
- Northwest Quadrant
 - Alternative D: Hialeah Metrorail Station to Downtown Hialeah
 - Alternative G: Okeechobee Metrorail Station to Western Hialeah
 - Alternative H: Palmetto Metrorail to Downtown Doral
- Southwest Quadrant
 - Alternative J: Homestead

Figure 2 provides an overview map of the advanced alternatives and those that will be evaluated further under current or future studies.

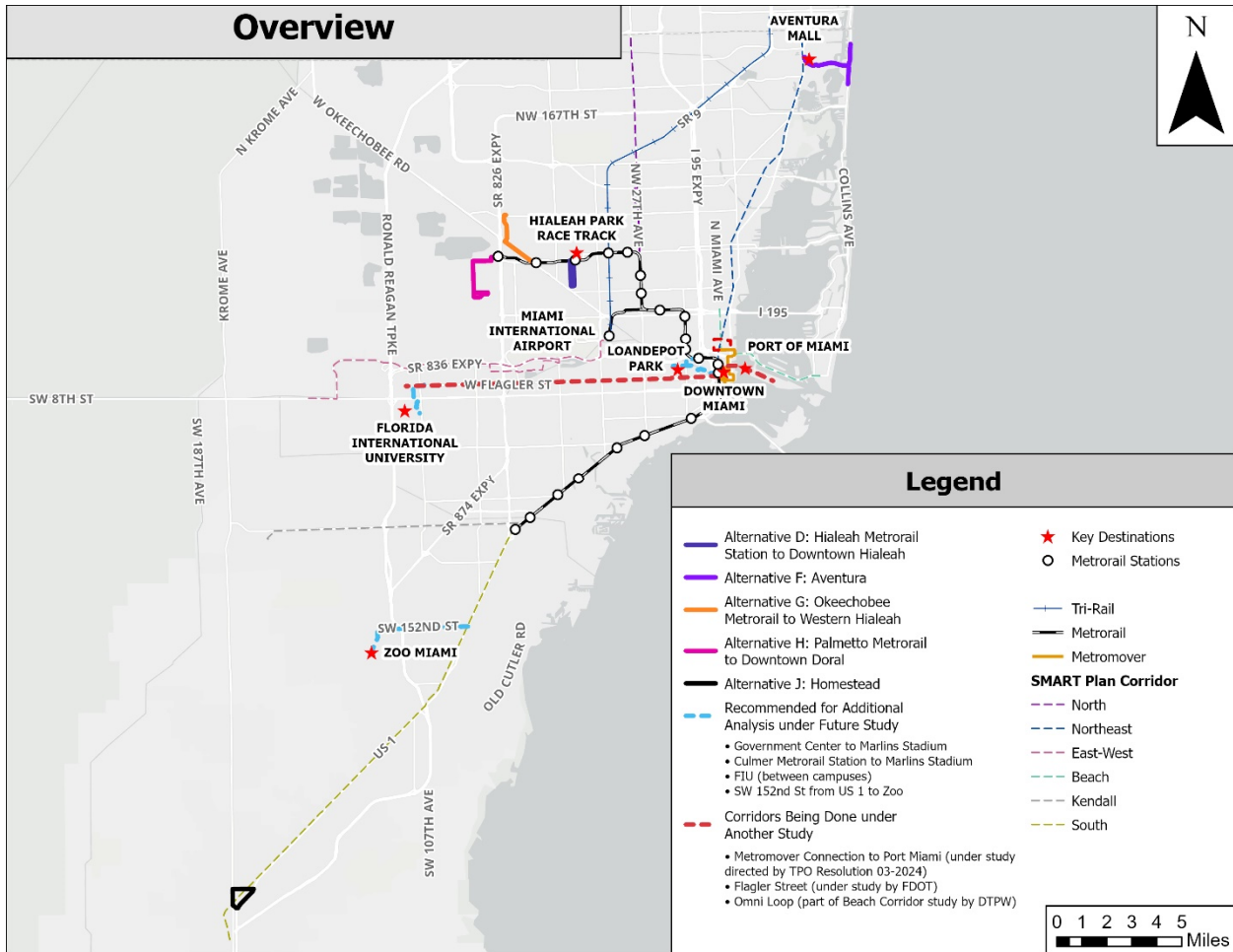


Figure 2. Overview Map of Alternatives.

3. Additional Refinements to Tier 2 Alternatives

3.1 Tier 2 Alternatives

Alternative D: Hialeah Metrorail Station to Downtown Hialeah – Alternative D would function as a loop within the City of Hialeah connecting future transit-oriented development (TOD) at the Hialeah Metrorail station with Downtown Hialeah and its Central Business District. The alternative does not include a potential connection to the existing Metromover system and would require a separate maintenance facility.

Alternative F: Aventura – Alternative F would travel east from the Brightline Aventura Station (and potential future Northeast Corridor Station) east along Abigail Road adjacent to Aventura Mall; east along the William Lehman Causeway (SR 856); and then branch both north and south on A1A (Collins Avenue/Ocean Boulevard). The alternative does not include a potential connection to the existing Metromover system and would require a separate maintenance facility.

Alternative G: Okeechobee Metrorail Station to Western Hialeah – Alternative G would travel from the Okeechobee Metrorail Station, northwest along W Okeechobee Road, north on W 18th Avenue to

Westland Mall. The alternative would serve the Miracle Mile Shopping Center, Westland Promenade, Westland Hialeah Senior High School, Florida National University, Miami-Dade College - Hialeah Campus, and Westland Mall. The alternative does not include a potential connection to the existing Metromover system and would require a separate maintenance facility.

Alternative H: Palmetto Metrorail to Downtown Doral – Alternative H would travel from the Palmetto Metrorail Station, west on NW 74th Street, south on NW 87th Avenue, and then loop east on NW 53rd Street and west on NW 54th Street in Downtown Doral. The alternative does not include a potential connection to the existing Metromover system and would require a separate maintenance facility.

Alternative J: Homestead – Alternative J would travel south on Homestead Boulevard, west on SE 4th Street, northwest on SE 2nd Drive, north on SR 997/Krome Avenue, and then east on Campbell Drive connecting to the South Miami-Dade Busway. The alternative would serve Sedano’s Supermarkets, Homestead Towne Square, Somerset Academy South Homestead Middle/High, EVO Entertainment Homestead + IMAX, Seminole Theatre, Homestead City Hall, the Miami-Dade College Homestead Campus, and Homestead Plaza. The alternative does not include a potential connection to the existing Metromover system and would require a separate maintenance facility.

3.2 Estimated Ridership

The Federal Transit Administration’s (FTA) Simplified Trips-on-Project Software (STOPS) was used to develop ridership estimates for each of the five alternatives. Ridership estimates are shown in [Table 1](#). Year 2045 average daily boardings assume that year's background bus service, plus both the South Corridor and Northeast Corridor projects with 2045 demand.

Year	Alt D (Downtown Hialeah)	Alt F (Aventura)	Alt G (Western Hialeah)	Alt H (Doral)	Alt J (Homestead)
2045	900-1,300	2,600-3,000	1,900-2,300	300-700	700-1,100

Table 1. Average Daily Boardings.

3.3 Potential Right-of-Way Requirements

Right-of-way requirements include the following needs:

- Sufficient street width would need to be available to accommodate the elevated guideway and structural support elements.
- Since none of the alternatives connect to the existing Downtown Metromover system, each of the five alternatives would need sufficient right-of-way for a dedicated maintenance facility. The parcel would need to be adjacent to the alternative alignment or be connected to it.
- In addition, for Alternative H: Palmetto Metrorail to Downtown Doral, an easement or right-of-way would be needed for the north-south transition in downtown between NW 53rd Street and NW 54th Street at approximately NW 82nd Avenue.

3.4 Cost Estimates

Order of magnitude cost estimates were developed for each alternative. Unit costs were developed to account for guideway construction, stations, demolition, systems, and vehicle costs. Cost estimates (in 2024 dollars) for each alternative are shown in Table 2.

Item	Alt D (Downtown Hialeah)	Alt F (Aventura)	Alt G (Western Hialeah)	Alt H (Doral)	Alt J (Homestead)
Corridor Length (Miles)	2.33	3.53	2.54	3.60	2.59
Guideway Construction	\$430.0 M	\$652.6 M	\$469.4 M	\$665.3 M	\$478.7 M
Station Construction	\$84.8 M	\$95.4 M	\$84.8 M	\$84.8 M	\$74.2 M
Demolition	\$24.7 M	\$37.5 M	\$27.0 M	\$38.2 M	\$27.5 M
Vehicles	\$10.8 M	\$32.4 M	\$18.0 M	\$18.0 M	\$10.8 M
Other System Costs, Including Maintenance Facility	\$46.8 M	\$140.4 M	\$78.0 M	\$78.0 M	\$46.8 M
Sub-Total	\$597.1 M	\$958.3 M	\$677.2 M	\$884.3 M	\$638.0 M
25% Contingency and Soft Costs	\$149.3 M	\$239.6 M	\$169.3 M	\$221.1 M	\$159.5 M
Total Capital Cost	\$750 M	\$1,200 M	\$850 M	\$1,110 M	\$800 M
O&M Annual Cost	\$24.2 M	\$36.6 M	\$26.4 M	\$37.3 M	\$26.9 M

Table 2. Cost Estimates.

3.5 Potential Funding Sources

Potential funding sources for implementing any of the five APM alternatives include:

- Federal
 - FTA Capital Investment Grants Program (CIG Section 5309)
 - Small Starts
 - New Starts
 - Rebuild American Infrastructure with Sustainability and Equity (RAISE)
 - Transportation Infrastructure Finance and Innovation Act (TIFIA)
- State
 - Moving Florida Forward Infrastructure Initiative

- County Incentive Grant Program (CIGP)
- Public Transit Block Grant Program
- Local
 - State and local funds are required as match for certain federal grant programs.
 - Local funds would be needed to fill any gaps in funding.

3.6 Next Steps for Implementation

If an alternative has local support and is deemed worthy of advancing, the following should be performed:

- Conduct a feasibility study.
 - Perform environmental scan.
 - Identify any fatal flaws.
 - Develop preliminary engineering.
 - Develop more detailed cost estimates.
- Add projects to local and regional plans.
- Pursue funding.
 - Start CIG funding application process, if desired.
 - Apply for other federal and state grant programs.
 - Secure local funding as match for grant programs and for balance of needed funding.
- Adopt transit-supportive programs and policies.
 - Adopt plans and zoning that will encourage density around proposed stations.
 - Promote bicycling and walkability projects as part of urban design.
- Encourage stakeholder support.
 - Build a strong base of public and stakeholder support.

4. Conclusions

The purpose of this study was to assess the application of APM or similar technology as an option to extend and augment the reach of the SMART Program in areas connecting to existing or future SMART Program corridors. The study defined five recommended Tier 2 alternatives within four geographic quadrants of the County, identifying specific areas or range of service, estimated ridership, cost estimates, potential right-of-way requirements, potential funding sources, and next steps for implementation.

Introducing more elevated transit options such as an APM is a valid transportation option. It can provide safe, efficient, fully grade separated transportation service. As with any solution, however, costs can quickly escalate beyond the capacity of the region to absorb.

The results of this study's ridership estimates showed that introducing new elevated transit services in the test case communities may not consistently attract enough riders (under current conditions) to make the investment viable from the most reasonable funding source available, the FTA's Capital Investment Grant Program, as well as FDOT. However, it should be noted that many of these communities are implementing projects from their respective master plans, which will likely alter future ridership trends.

Despite the study results, communities may wish to further study how an APM could more efficiently be implemented by conducting a feasibility study. There may be ways to reduce cost by eliminating low-performing stations, adjusting service frequency, or changing the alignment.