
I-20 EAST TRANSIT INITIATIVE

# Tier 1 and Tier 2 Alternatives Screening Report

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**Metropolitan Atlanta Rapid Transit Authority**

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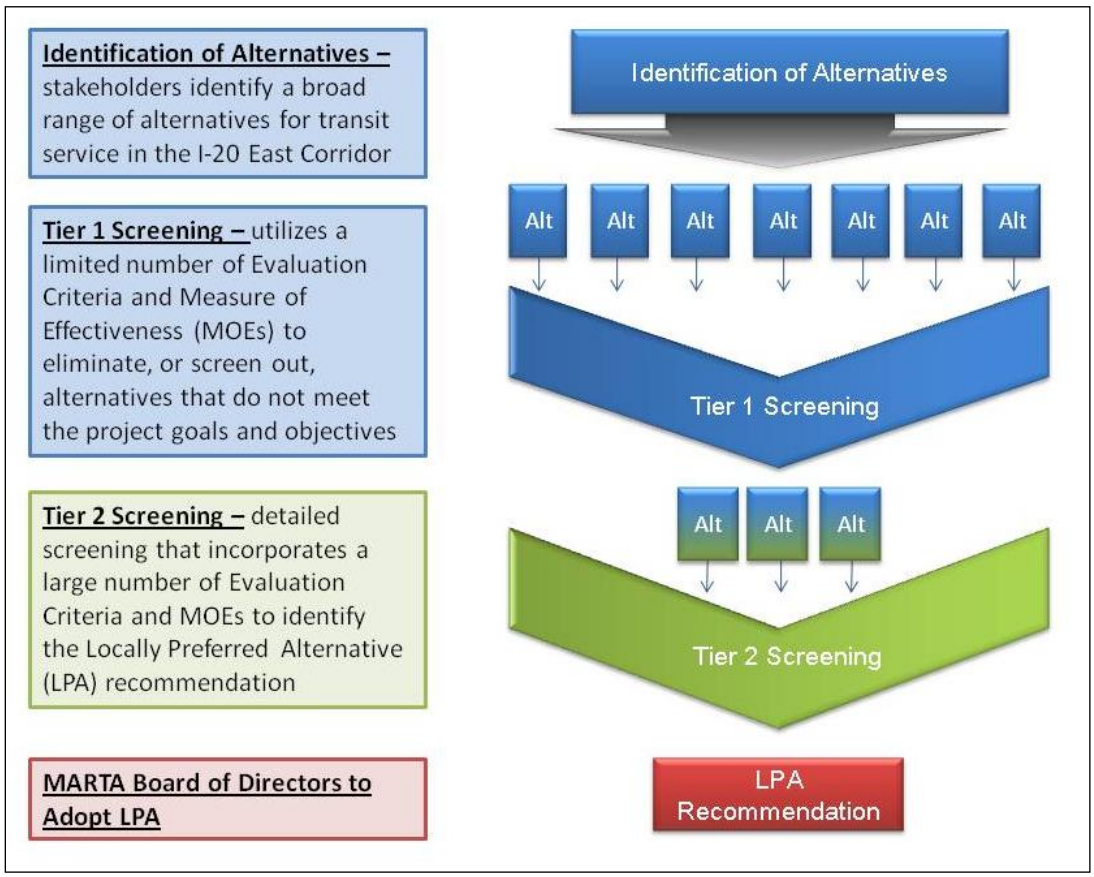
# EXECUTIVE SUMMARY

The purpose of this report is to document the results of the Tier 1 and Tier 2 Screening of alternatives for the I-20 East Transit Initiative. The two-tier screening process presented in **Figure ES-1** was utilized to identify and evaluate the proposed transit alternatives using increasingly detailed data and evaluation criteria. The two phases for the development and evaluation of alternatives for the I-20 East Transit Initiative Detailed Corridor Analysis (DCA) were:

- **Tier 1 (Preliminary) Screening** – This phase began with development and evaluation of a broad range of transit alternatives for the I-20 East Corridor. The Tier 1 Screening utilized a limited number of Measure of Effectiveness (MOEs) to eliminate, or screen out, alternatives that did not meet the objectives of the proposed project.
- **Tier 2 (Detailed) Screening** - The result of the Tier 1 Screening was a smaller group of Tier 2 Alternatives that were subject to more detailed evaluation. This screening included a Baseline Alternative and a No Build Alternative. The Tier 2 Screening was both more in-depth and wider in scope than that performed in the Tier 1 Screening and incorporated a high degree of technical analysis with many different MOEs.

**Figure ES-1: The DCA Process**



## Tier 1 Screening

The focus of the Tier 1 Screening was the identification of the best performing alignment and connection alternatives, regardless of transit technology, or mode. The Stakeholder Advisory Committee (SAC) was tasked with identifying transit alignments that would connect activity centers throughout the I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system. The process of identifying transit alignments to be advanced into Tier 2 Screening was comprised of three primary decision points (**Table ES-1** and **Figure ES-2**):

- Mainline Alignment Alternatives: Identification of the best mainline, or corridor level, transit alignments.
- Downtown Connectivity Alternatives: Identification of the best connections into downtown Atlanta.
- Panola Road Area Alternatives: Identification of the best alignments in the Panola Road area.

**Table ES-1: Tier 1 Alignment Alternatives**

| Alternative Type | Alternative Name |
|---|---|
| **Mainline Alternatives** | 1. Parallel I-20 Alignment |
| | 2. Connection to Edgewood Station |
| | 3. Heavy Rail Extension from Indian Creek |
| **Panola Road Area Alternatives** | 1. Parallel I-20 Sub-Alignment |
| | 2. Snapfinger Woods Drive Sub-Alignment |
| **Downtown Connectivity Alternatives** | 1. Connection to King Memorial Station via Memorial Drive |
| | 2. Connection to King Memorial Station and Downtown via Streetcar |
| | 3. Connection to King Memorial Station via Hill Street |
| | 4. Connection to Downtown via Streetcar |
| | 5. Connection to Garnett and Five Points Stations |
| | 6. Connection to Multi-Modal Passenger Terminal/Five Points Stations |
| | 7. Connection to West End Station/Atlanta University Center/Ashby Station |
| | 8. Connection to Midtown via BeltLine Alignment |

The Tier 1 Screening utilized a limited number of evaluation criteria and MOEs to evaluate which alternatives best addressed the identified project goals and objectives. All three Mainline Alternatives were advanced to Tier 2 because they all performed well in the evaluation. The only Panola Road Area Alternative that advanced to Tier 2 was the Parallel I-20 Alignment because it performed significantly better than the Snapfinger Woods Drive alignment. Based on the technical evaluation and input from the City of Atlanta, two Downtown Connectivity Alternatives were advanced into Tier 2 Screening. These were the Connection to Garnett and Five Points Stations and the Connection to Midtown via BeltLine Alignment. Despite rating well in the Tier 1 Screening, the Connection to Multi-Modal Passenger Terminal (MMPT)/Five Points Station was not promoted to Tier 2 Screening. First, while this alternative is virtually identical to the Connection to Garnett and Five Points Station alternative, it was projected to incur longer travel times and attract fewer daily riders as well as fewer new riders. Second, with the MMPT in its initial planning stages, there are far too many unknowns about the actual facility to pursue a connection at this time. The results of the Tier 1 Screening are presented in **Table ES-3**.

**Figure ES-2: Tier 1 Alignment Alternatives**

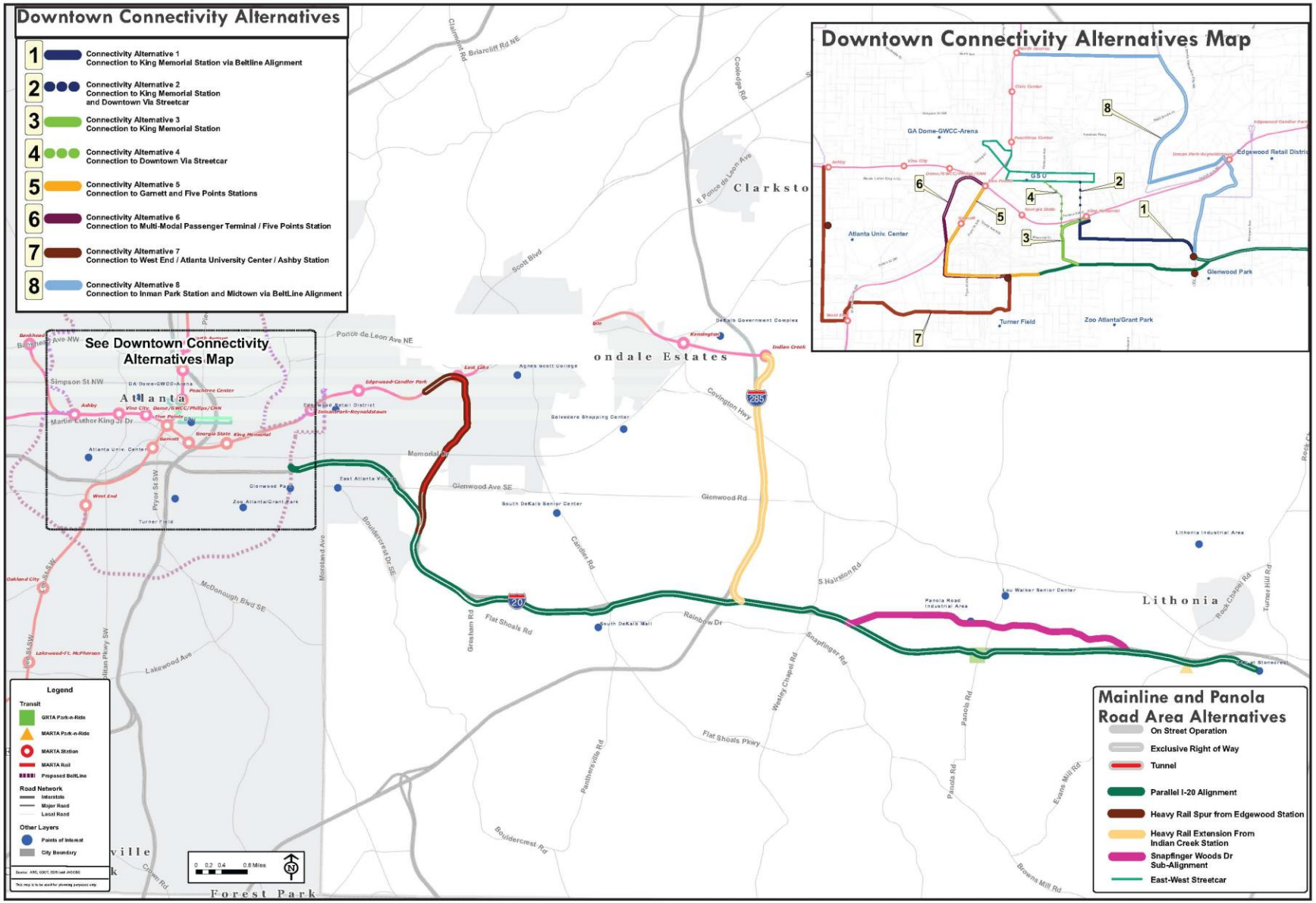


**Figure ES-3: Tier 1 Screening Results**

| | Mainline Alternatives | | | Panola Road Area Alternatives | | Downtown Connectivity Alternatives | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Goal | 1. Connection Directly to Downtown Atlanta | 2. Connection to Edgewood Station | 3. Heavy Rail Extension from Indian Creek | 1. Parallel I-20 Sub-Alignment | 2. Snapfinger Woods Drive Sub-Alignment | 1. Connection to King Memorial Station via Memorial drive | 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 3. Connection to King Memorial Station | 4. Connection to Downtown via Streetcar | 5. Connection to Garnett and Five Points Stations | 6. Connection to Multi-Modal Passenger Terminal/Five Points Stations | 7. Connection to West End Station/ Atlanta University Center/Ashby Station | 8. Connection to Inman Park Station and Midtown via Beltline Alignment |
| Increase Mobility and Accessibility |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Provide Improved Transit Service within the Corridor |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Support Land Use and Development Goals |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Promote Cost Effective Transit Investments |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Preserve Natural and Built Environment |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Achieve a High Level of Community Support |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Advanced to Tier 2 Screening | YES | YES | YES | YES | NO | NO | NO | NO | NO | YES | NO | NO | YES |

Legend  Performed well  Performed moderately well  Performed poorly

## Tier 2 Screening

The Tier 2 Alternatives represented the highest performing Tier 1 Alternatives. The purpose of the Tier 2 Screening was to identify the LPA utilizing a more robust list of evaluation criteria and MOEs. The result of the Tier 1 Screening was a set of feasible transit alignments that would connect activity centers along the I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system. The Tier 2 Screening paired these alignments with compatible transit technologies, or modes. As such, all Tier 2 Alternatives were evaluated with all feasible transit technologies. Thus, if a given alignment was compatible with multiple transit technologies, it was analyzed with each technology. The transit technologies identified as suitable for this project include heavy rail transit (HRT), light rail transit (LRT), and bus rapid transit (BRT), as depicted in **Figure ES-4**. **Table ES-2** presents descriptions of the six Tier 2 Alternatives that resulted from the technology analysis and **Figure ES-5** provides a map of these alternatives.

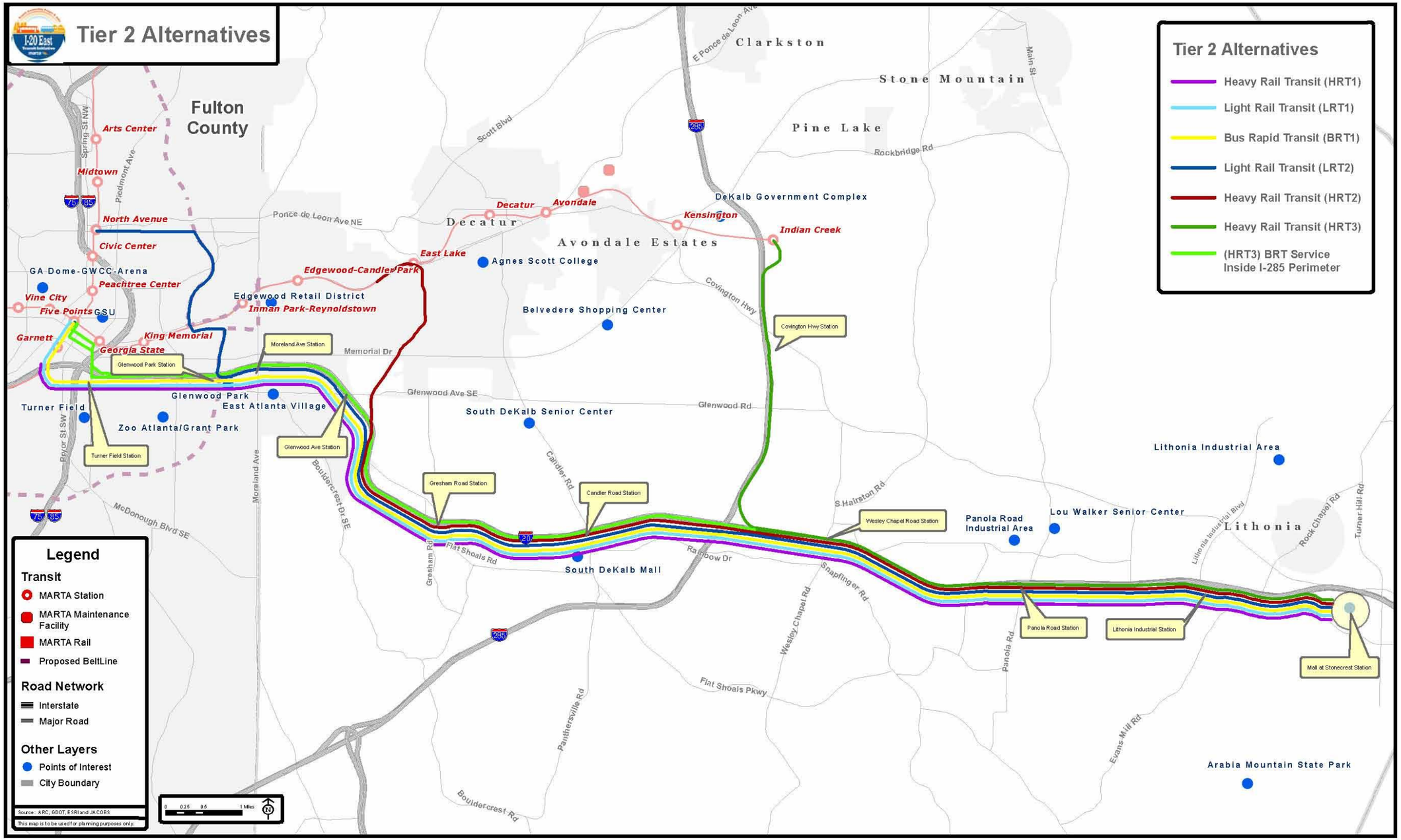
**Figure ES-4: Transit Technologies Considered**

| | | |
|---|---|---|
| BRT offers limited-stop service that relies on technology to help speed up travel. BRT operates in shared or exclusive right-of-way. This service usually has dedicated stations, pre-boarding fare payment, and is separated from normal traffic. | LRT consists of passenger rail cars powered by overhead catenaries. Operating individually or in short trains, service is usually on fixed rails in exclusive right-of-way. LRT and streetcar service can occasionally operate in shared traffic. | HRT operates on electric railway, and is characterized by high speeds, rapid acceleration of passenger rail cars, high platform loading, and grade separated rights-of-way from which all other vehicular and foot traffic are excluded. |
|  |  |  |

**Table ES-2: Tier 2 Description of Alternatives**

| Alternative Name | Description |
|---|---|
| HRT1 | • Heavy rail transit line from downtown Atlanta, east, adjacent to I-20, to the Mall at Stonecrest |
| LRT1 | • Light rail transit line from downtown Atlanta, east, adjacent to I-20, to the Mall at Stonecrest |
| BRT1 | • Bus rapid transit line from downtown Atlanta, east, adjacent to I-20, to the Mall at Stonecrest |
| LRT2 | • Light rail transit line utilizing BeltLine alignment from North Avenue Station to I-20, then east, adjacent to I-20 to Mall at Stonecrest |
| HRT2 | • Heavy rail spur from existing MARTA rail line between East Lake and Edgewood Stations, south in a tunnel to I-20, then east, adjacent to I-20 to the Mall at Stonecrest |
| HRT3 | • Heavy rail transit extension of existing MARTA line from Indian Creek Station, south, adjacent to I-285, then east, adjacent to I-20 to Mall at Stonecrest<br>• Areas along I-20 inside the I-285 Perimeter would be served with BRT |

**Figure ES-5: Map of Tier 2 Alternatives**



As part of the Tier 2 Screening cost estimates were developed based on conceptual engineering and realistic operating plans, preliminary station area planning was completed, right-of-way impacts were assessed, and impacts to natural and community resources were identified. Additionally, detailed ridership analysis and calculation of FTA New Starts performance criteria were completed in the Tier 2 Screening. Key findings from the Tier 2 Screening can be found in **Table ES-3**. **Table ES-4** presents the major assumptions considered during alternative development and subsequent analysis. **Table ES-5** presents the evaluation matrix for the Tier 2 Alternatives.

**Table ES-3: Tier 2 Comparison of Alternatives**

| Alternative Name | Alignment Length | Capital and O&M Costs | Daily Boardings | New Transit Riders | # of Displacements |
|---|---|---|---|---|---|
| HRT1 | 19.2 miles | $3.28B, $35.2M | 41,900 | 12,300 | 47 |
| LRT1 | 19.6 miles | $2.70B, $10.4M | 33,300 | 8,200 | 47 |
| BRT1 | 19.6 miles | $2.11B, $6.4M | 27,700 | 5,200 | 47 |
| LRT2 | 20.3 miles | $2.12B, $10.4M | 18,400 | 5,300 | 35 |
| HRT2 | 18.2 miles | $2.73B, $23.8M | 32,200 | 8,200 | 41 |
| HRT3 | 12.0 miles (HRT) 12.8 miles (BRT) | $1.84B, $18.0M | 28,700 | 6,400 | 13 |

**Table ES-4: Assumptions**

| | |
|---|---|
| Design Assumptions | • All new HRT stations would be smaller, simpler stations that will cost less than traditional MARTA HRT stations.<br>• No surface street operation or at-grade rail crossings for LRT alternatives with exception of BeltLine alignment for LRT2.<br>• Sufficient capacity at existing rail maintenance facilities to maintain HRT vehicles.<br>• Sufficient capacity at existing bus maintenance facilities to maintain BRT vehicles. Some additional equipment may be necessary.<br>• A new storage and maintenance facility in the I-20 corridor would be required for LRT alternatives. |
| Capital Cost Estimates | • All cost estimates are reported in 2011 dollars.<br>• Storage and maintenance facilities were only deemed necessary for LRT alternatives. Assumed that HRT and BRT vehicles would be stored and maintained at existing MARTA facilities. |
| Service Assumptions | • 10-minute peak and 20 minute off-peak headways.<br>• Six trains consists for HRT service.<br>• Four train consists for LRT service. |
| Forecasting Assumptions | • No HOV or managed lanes along I-20 east of I-285 in year 2030.<br>• GRTA express bus service would no longer serve the Panola Road park and ride lot. |
| Right-of-Way Cost Estimates | • 80’ Required right-of-way assumed for corridor.<br>• Property costs based on current assessed value plus escalations factors.<br>• Right-of-Way requirements on publicly owned property assumed to have no cost. |

**Table ES-5: Tier 2 Evaluation Matrix**

| Project Goal | Project Objective | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|
| Increase Mobility and Accessibility | Improve East-West Travel Times | 🟢 | 🟢 | 🟢 | 🟡 | 🟢 | 🟢 |
| | Improve Transit Accessibility within the Corridor | 🟢 | 🟢 | 🟢 | 🟢 | 🔴 | 🟡 |
| | Improve Connectivity with Existing and Planned Transit Investment | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 | 🟢 |
| | Improve Travel Options within the Corridor | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| Provide Improved Transit Service within the Corridor | Provide Transit Service with Sufficient Capacity to Accommodate Growing Demand | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 | 🟡 |
| | Provide Travel Time Competitive Transit Service in the Corridor | 🟢 | 🟢 | 🟢 | 🔴 | 🟢 | 🟢 |
| | Provide Transit Service for Traditionally Underserved Populations | 🟡 | 🟡 | 🟡 | 🟡 | 🟡 | 🟢 |
| Support Land Use and Development Goals | Promote Economic Development and Revitalization | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Support Adopted Local Land Use Plans | 🟢 | 🟡 | 🟢 | 🟡 | 🟢 | 🟢 |
| | Encourage Transit Supportive Land Use and Development Patterns | 🟢 | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 |
| Promote Cost Effective Transit Investments | Provide Transit Service that Can be Implemented, Operated, and Maintained with Available Resources | 🟡 | 🟡 | 🟡 | 🟡 | 🟡 | 🟢 |
| Preserve Natural and Built Environment | Minimize Impacts to Environmental Resources | 🔴 | 🔴 | 🔴 | 🔴 | 🔴 | 🟡 |
| Achieve a High Level of Community Support | Maintain Compliance with Stakeholder Guidance | 🟢 | 🟢 | 🟢 | 🟡 | 🟢 | 🟢 |
| | Achieve a High Level of Public Support | 🟢 | 🟢 | 🟡 | 🟢 | 🟢 | 🟢 |

Legend 🟢 Performed well 🟡 Performed moderately well 🔴 Performed poorly

# 1.0 INTRODUCTION

The Metropolitan Atlanta Rapid Transit Authority (MARTA) is undertaking the I-20 East Transit Initiative. This project seeks to identify transit investments that would increase east-west mobility and accessibility to jobs and housing, provide improved transit service, and support local land use and economic development goals within the corridor.

This report presents the findings of the Tier 1 and Tier 2 Screening of alternatives. Using a two-tier process, alternatives were evaluated based on the findings of technical analyses and stakeholder and public input. Alternatives that did not adequately address the identified transportation needs of the corridor were eliminated from further consideration. The result of the Tier 1 Screening was a set of feasible transit alignments that would connect activity centers along I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system.

The Tier 2 Screening paired these alignments with compatible transit technologies, or modes, to identify the final Build Alternatives that would be subject to a more detailed evaluation. These Build Alternatives were also evaluated with the Baseline and No Build Alternatives. The result of the Tier 2 Screening was the Locally Preferred Alternative (LPA) recommendation. The LPA is the alternative that would most effectively addresses the stakeholder identified needs of the corridor and goals and objectives of the project.

## 1.1 Evaluation Methodology

The methodology used to identify and evaluate the proposed transit alternatives was a two-tiered process in which alternatives were evaluated using increasingly detailed data and evaluation criteria. The two tiers for the development and evaluation of alternatives for the I-20 East Transit Initiative were:

- **Tier 1 (Preliminary) Screening** – This phase began with development and evaluation of a broad range of transit alternatives for the I-20 East Corridor. The Tier 1 Screening utilized a limited number of MOEs to eliminate, or screen out, alternatives that did not meet the objectives of the proposed project.
- **Tier 2 (Detailed) Screening** - The results of the Tier 1 Screening was a smaller group of Tier 2 Alternatives that were subject to more detailed evaluation. This screening included a Baseline Alternative and a No Build Alternative. The Tier 2 Screening was both more in-depth and wider in scope than that performed in the Tier 1 Screening and incorporated a high degree of technical analysis with many different MOEs.

### 1.1.1 Tier 1 Screening

The first step in the alternatives development and screening process was the identification of feasible alternatives. Using the final transit alternatives identified in the previous Alternatives Analysis (AA) (2004) as a starting point, the SAC was tasked with identification of transit alignments that would connect activity centers throughout the I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system. The Tier 1 Alternatives were developed to identify all feasible transit alignments in the corridor and connections to central Atlanta. Transit technologies, or transit modes, were not selected with the identification of these Tier 1 Alternatives.

The Tier 1 Screening only considered a limited number of evaluation criteria and MOEs to determine the transit alignment alternatives that best met the goals and objectives of

the project. There was no set number for the alternatives to be advanced. The highest performing Tier 1 Alternatives were advanced to the Tier 2 Screening. The Tier 1 Alternatives were divided into the following three distinct groups.

- **Mainline Alignment Alternatives:** Identification of the best mainline, or corridor level, transit alignments.
- **Downtown Connectivity Alternatives:** Identification of the best connections into downtown Atlanta.
- **Panola Road Area Alternatives:** Identification of the best alignments in the Panola Road area.

For detailed information on how each of these alternatives was evaluated for advancement through the alternatives development process, please reference the *Evaluation Framework Report.*

### 1.1.2 Tier 2 Screening

The Tier 2 Alternatives represent the highest performing Tier 1 Alternatives. The purpose of the Tier 2 Screening was to identify the LPA utilizing a more robust list of evaluation criteria and MOEs. These MOEs represent quantitative analysis results and qualitative public input. The result of the Tier 1 Screening was a set of feasible transit alignments that would connect activity centers along the I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system. The Tier 2 Screening paired these alignments with compatible transit technologies, or modes. Thus, if a given alignment was compatible with multiple transit technologies, it was analyzed with each technology. The transit technologies identified as suitable for this project include HRT, LRT, and BRT. Build Alternatives advanced from the Tier 1 to Tier 2 Screening were evaluated along with the No Build and Baseline Alternatives. Of the final alternatives considered, the LPA recommendation is the alternative that would most effectively address the stakeholder identified needs of the corridor and goals and objectives of the project.

### 1.1.3 Evaluation Criteria and Measures of Effectiveness

This section presents the evaluation criteria and MOEs that were utilized to evaluate and compare alternatives in the Tier 1 and Tier 2 Screenings. MOEs are the specific and detailed measures established for each evaluation criterion for the purpose of measuring the performance of the alternatives. The evaluation criteria and MOEs are presented in **Table 1-1**. As described previously, the project alternatives were evaluated using a two-tiered process in which alternatives were analyzed using increasingly detailed data and evaluation criteria. As shown in Table 1-1, the evaluation criteria and MOEs utilized in the Tier 1 Screening were a subset of those utilized for the detailed evaluation in the Tier 2 Screening. Since the Tier 2 Screening was a detailed evaluation of the final alternatives, significantly more evaluation criteria and MOEs were utilized to measure the effectiveness of the alternatives in addressing the identified project goals and objectives.

The identification of useful evaluation criteria requires that the purpose and need are well defined and the goals and objectives of the project are clearly outlined. Evaluation criteria were selected to measure how well the alternatives addressed the identified project goals and objectives.

**Table 1-1: Evaluation Criteria and Measures of Effectiveness**

| Goal 1: Increase Mobility and Accessibility | | | | |
|---|---|---|---|---|
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Improve East-West Travel Times | Travel Times | Transit Travel Times from Stonecrest to Five Points Station | X | X |
| | | Transit Travel Times from Stonecrest to Arts Center Station | | X |
| | | Reduction in VHT | | X |
| | | Number of transfers per linked trip | | X |
| Improve Transit Accessibility within the Corridor | Proximity of transit to corridor residents, employment, and special destinations. | Households with new access to transit* | | X |
| | | Employment within ½ mile of new stations that is not within ½ mile of existing MARTA rail stations | | X |
| | | Special destinations (major retail, entertainment, & university) within ½ mile of stations | | X |
| Improve Connectivity with Existing and Planned Transit Investments | Connections to Existing and Planned Transit | Connection to Concept 3 Rapid Transit Service | | X |
| Improve Travel Options within the Corridor | Additional Travel Options | New Travel Mode/Facility | | X |
| **Goal 2: Provide Improved Transit Service within the Corridor** | | | | |
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Provide Transit Service with Sufficient Capacity to Accommodate Growing Demand | Transit System Ridership | Total Transit Boardings | X | X |
| | | Transit Mode Share | | X |
| | | New Transit Riders | X | X |
| Provide Travel Time Competitive Transit Service in the Corridor | Transit Travel Times | Difference between transit travel times and auto travel times between the Mall at Stonecrest and Five Points | | X |
| Provide Transit Service for Traditionally Underserved Populations | Proximity to Underserved Populations | Zero car households with new access to transit* | | X |
| | | ADA population with new access to transit* | | X |
| | | Minority population with new access to transit* | | X |
| | | Number of low income households with new access to transit* | | X |
| | | Elderly population with new access to transit* | | X |

| Goal 3: Support Land Use and Development Goals | | | | |
|---|---|---|---|---|
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Promote Economic Development and Revitalization | Proximity of Underutilized Land | Acres of vacant or underutilized land within ½-mile of transit stations/stops | X | X |
| Support Adopted Local Land Use Plans | Land Use Plans | Consistency with adopted local and regional plans | | X |
| Encourage Transit Supportive Land Use and Development Patterns | Potential for TOD | Acres of transit-supportive future land uses within one-half mile of new stations/stops | | X |
| | | Acres of transit-supportive existing land uses within one-half mile of new stations/stops | | X |
| **Goal 4: Promote Cost Effective Transit Investments** | | | | |
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Provide Transit Service that Can be Implemented, Operated, and Maintained with Available Resources | Cost and Cost Effectiveness | Capital costs (Stations, transitways, tracks, vehicles, and maintenance facilities) and right-of-way costs in $millions | X | X |
| | | Operating and maintenance (O&M) costs in $millions | | X |
| | | Deliverability Risk | | X |
| | | Transit System User Benefits (TSUB) | | X |
| | | Incremental cost per new rider | | X |
| **Goal 5: Preserve Natural and Built Environment** | | | | |
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Minimize Impacts to Environmental Resources | Impact to community, cultural, and natural resources | Community Impacts (neighborhoods, churches, schools, community centers, etc.) | | X |
| | | Natural environmental impacts (streams, wetlands, T&E species, etc.) | | X |
| | | Cultural impacts (historic and archaeological resources) | | X |
| | | Total residential and commercial displacements | X | X |
| **Goal 6: Achieve a High Level of Community Support** | | | | |
| **Objective** | **Evaluation Criteria** | **Measure of Effectiveness** | **Tier 1 Screening** | **Tier 2 Screening** |
| Provide Transit Investments that are Supported by Local Stakeholders and the General Public | Maintain compliance with stakeholder guidance | Compliance with SAC Guiding Principles | X | X |
| | Achieve a high level of public support | Degree of Public Support (% of votes for Mainline, Downtown Connectivity, and Panola Road Alternatives) | X | |
| | | Average Survey Score (rating of each Tier 2 Alternative on a scale of 1-5) for respondents living east of I-285 | | X |
| | | Average Survey Score (rating of each Tier 2 Alternative on a scale of 1-5) of respondents living west of I-285 | | X |

*within two miles of Collector or Commuter Town Center Stations or within one-half mile of Town Center and Special Regional Destination Stations and not within ½ mile of existing Urban Core, Neighborhood, or Town Center Stations nor within two miles of existing Commuter Town Center or Collector stations.

# 2.0 TIER 1 EVALUATION CRITERIA AND MOES

Due to the length of the I-20 East study corridor, stakeholder indentified alternatives were divided into three distinct decision groups: Mainline Alternatives, Panola Road Area Alternatives, and Downtown Connectivity Alternatives. The Tier 1 Alternatives are presented in **Table 2-1**.

**Table 2-1: Tier 1 Build Alternatives**

| Alternative Type | Alternative Name |
|---|---|
| Mainline Alternatives | 1. Parallel I-20 Alignment |
| | 2. Connection to Edgewood Station |
| | 3. Heavy Rail Extension from Indian Creek |
| Panola Road Area Alternatives | 1. Parallel I-20 Sub-Alignment |
| | 2. Snapfinger Woods Drive Sub-Alignment |
| Downtown Connectivity Alternatives | 1. Connection to King Memorial Station via Memorial drive |
| | 2. Connection to King Memorial Station and Downtown via Streetcar Alignment |
| | 3. Connection to King Memorial Station |
| | 4. Connection to Downtown via Streetcar |
| | 5. Connection to Garnett and Five Points Stations |
| | 6. Connection to Multi-Modal Passenger Terminal/Five Points Stations |
| | 7. Connection to West End Station/Atlanta University Center/Ashby Station |
| | 8. Connection to Inman Park Station and Midtown via BeltLine Alignment |

## 2.1 Mainline Alternatives

The Mainline Alternatives represent the corridor-level alignment alternatives identified to provide a transit connection between Mall at Stonecrest and central Atlanta. As presented in the *Purpose and Need Report*, the proposed project is intended to provide rapid transit service for commuters traveling to and from central Atlanta. As such, the Mainline Alignment Alternatives were developed to identify the best overall alignment alternatives for connecting residents in the I-20 East Corridor with the employment centers in downtown and Midtown Atlanta. **Figure 2-1** presents the Mainline Alternatives.

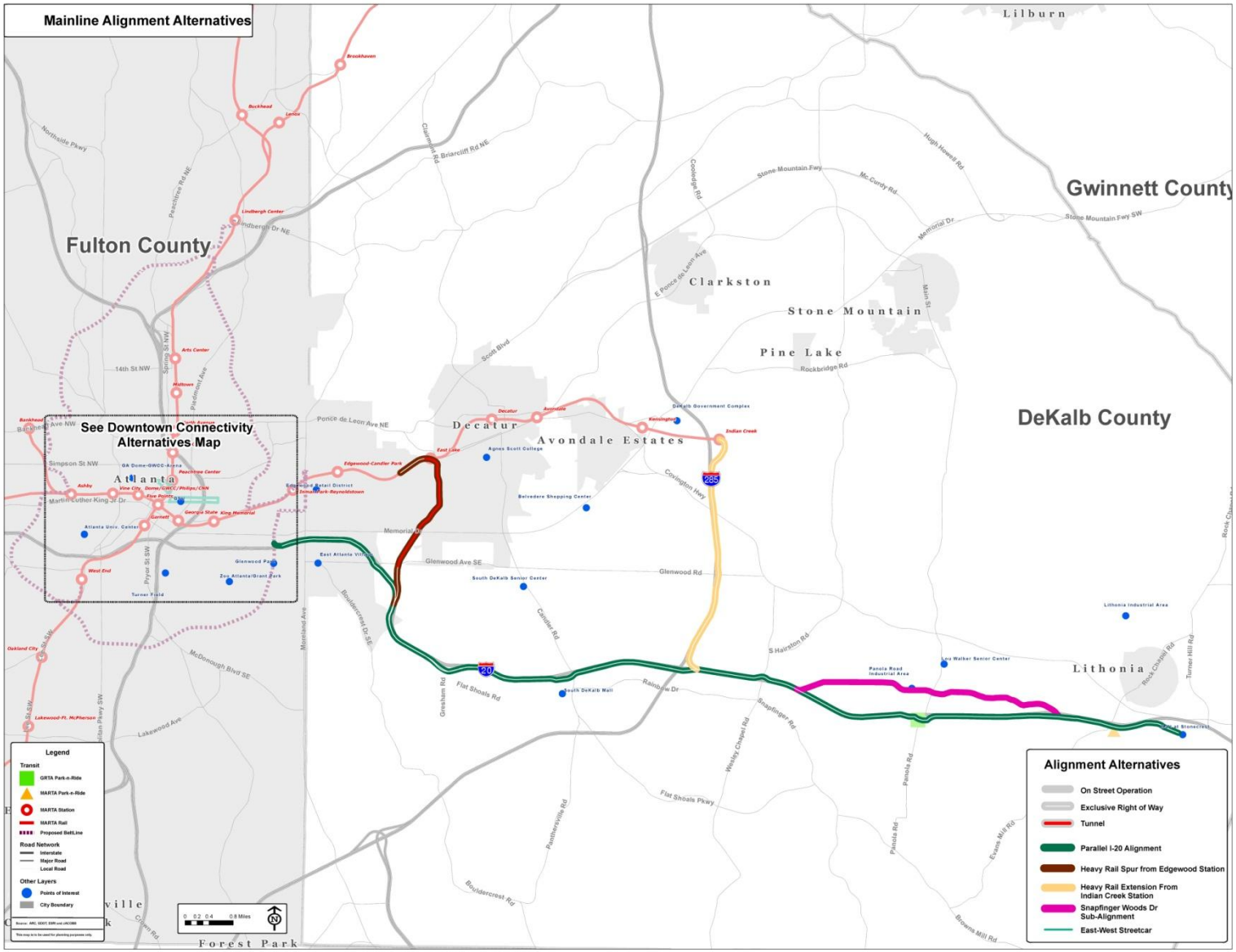
### 2.1.1 Parallel I-20 Alignment

The Parallel I-20 Alignment would run adjacent to I-20 from the Mall at Stonecrest to downtown Atlanta and has the potential to connect to the MARTA rail system at various locations in central Atlanta. These potential connections make up the Downtown Connectivity Alternatives, which were also subject to Tier 1 Screening. The Parallel I-20 Alignment would generally be located immediately adjacent I-20 on either the north or south side. However, within the City of Atlanta, it would be located on a structure in the interstate median. This elevated structure is necessary to avoid widening of the interstate which would result in impacts to multiple historic neighborhoods within the City.

### 2.1.2 Connection to Edgewood Station Alignment

Within DeKalb County, the Connection to Edgewood Station Alignment would be identical to the Parallel I-20 Alignment. Once near the City of Atlanta, it would diverge from the parallel alignment, turn north, and enter a tunnel. This tunnel would travel beneath several historic neighborhoods and connect to the Edgewood-Candler Park Station. By utilizing a tunnel and connecting to the existing east-west line, this alternative would avoid the elevated structure connection directly into downtown Atlanta.

**Figure 2-1: Mainline Alternatives and Panola Road Alternatives**



### 2.1.3 Heavy Rail Extension from Indian Creek

The Heavy Rail Extension from Indian Creek Alignment would extend the existing MARTA east-west rail line. This extension would run south adjacent to I-285 and then run east adjacent to I-20 to the Mall at Stonecrest. By utilizing the existing east-west line to connect into downtown Atlanta, this alternative would avoid the costs and construction challenges of building a new connection into downtown Atlanta from I-285.

## 2.2 Panola Road Area Alternatives

Due to a relatively large employment area north of I-20 near Panola Road, two alignment alternatives were identified to serve this area. These two alternatives comprise the Panola Road Area Alternatives presented in **Figure 2-1**.

### 2.2.1 Parallel I-20 Sub-Alignment

This Sub-Alignment would run parallel to I-20 through the Panola Road Area and would feature a station at Panola Road. It would operate in a dedicated transitway with no surface street operation or at-grade street crossings. This alignment is identical to the Parallel I-20 Alignment in the Mainline Alternatives, and is included in the Panola Road Area Alternatives to provide a comparison to the Snapfinger Woods Drive Sub-Alignment.

### 2.2.2 Snapfinger Woods Drive Sub-Alignment

This Sub-Alignment would deviate from I-20 between the Wesley Chapel Road and Panola Road Interchanges and follow Snapfinger Woods Drive parallel to I-20. It would then connect back to the I-20 alignment east of Panola Road. This alignment would operate in-street in mixed-traffic along Snapfinger Woods Drive.

## 2.3 Downtown Connectivity Alternatives

The Downtown Connectivity Alternatives are the specific transit connections into downtown Atlanta. The question of exactly how and where to connect directly into downtown Atlanta was not addressed in the 2004 AA. Stakeholders identified a broad range of downtown connections including connections to the planned Atlanta Streetcar, connections to the Atlanta BeltLine, connections to the Atlanta University Center, as well as connection alternatives to several different existing MARTA stations. All Downtown Connectivity Alternatives would provide a connection to the Atlanta BeltLine. These alternatives are presented in **Figure 2-2**.

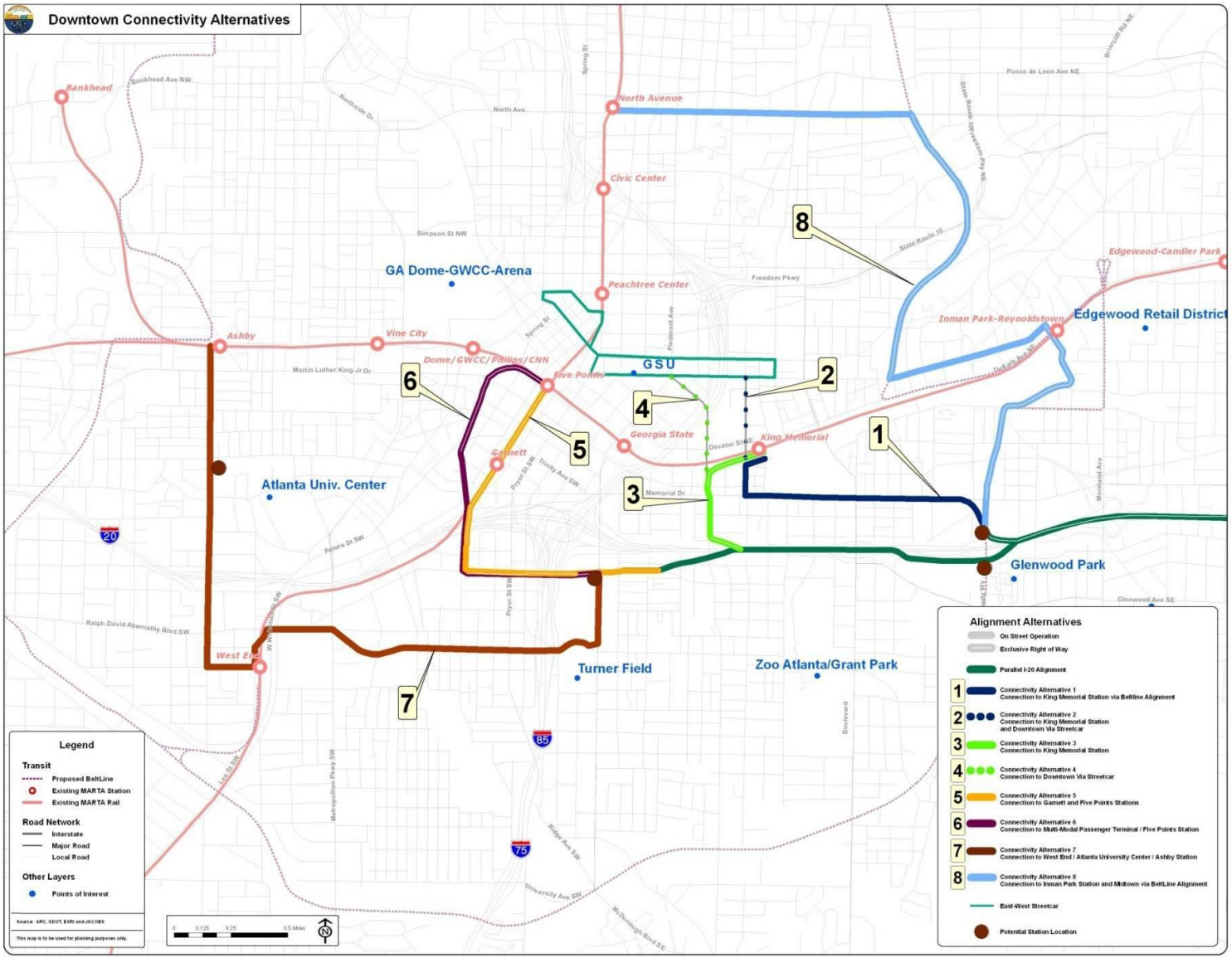
### 2.3.1 Alternative 1 – Connection to King Memorial Station via Memorial Drive

This alternative would deviate from the Parallel I-20 Alignment at Bill Kennedy Way and follow Bill Kennedy Way north to Memorial Drive. It would follow Memorial Drive to the west and operate in mixed traffic. From Memorial Drive it would travel north along Grant Street where it would connect with the King Memorial Transit Station.

### 2.3.2 Alternative 2 – King Memorial Station and Downtown via Streetcar

This alternative would consist of the same alignment as Downtown Connectivity Alternative 1, but it would continue north along Grant Street to a connection with the Atlanta Streetcar alignment. It would then follow the streetcar alignment, which includes a stop at the Peachtree Center MARTA Station.

**Figure 2-2: Downtown Connectivity Alternatives**



### 2.3.3 Alternative 3 – King Memorial via Hill Street

This alternative would diverge from I-20 at Hill Street and travel north along Hill Street in mixed traffic. It would turn east from Hill Street in exclusive right-of-way and connect with the King Memorial Station.

### 2.3.4 Alternative 4 – Downtown via Streetcar

Alternative 4 would deviate from I-20 at Hill Street and travel north along Hill Street in mixed traffic. This alignment would tie into the Atlanta Streetcar alignment at Edgewood Avenue. It would then follow the streetcar alignment which includes a stop at the Peachtree Center MARTA Station.

### 2.3.5 Alternative 5 – Garnett and Five Points

Alternative 5 would exit the I-20 right-of-way at Hill Street and travel along Glenwood Avenue to Fulton Street in exclusive right-of-way. This alternative would include a station Turner Field. At Windsor Street it would turn north, cross over I-20 and connect to Garnett Station then Five Points Station.

### 2.3.6 Alternative 6 – MMPT/Five Points

The Alternative 6 alignment would be almost identical to that of Alternative 5, but it would continue north on Windsor Street, where it becomes Spring Street, and bypass the Garnett Station. This alternative would operate for a short distance on Spring Street in mixed traffic. This alternative would tie into the proposed MMPT, which would have a direct connection into the Five Points Station. The MMPT is planned as a major transportation hub downtown that would provide a connection between express buses, local buses, streetcar, MARTA rail, and potential high-speed and commuter rail lines.

### 2.3.7 Alternative 7 – West End Station/Atlanta University Station/Ashby

Alternative 7 was identified to provide improved service to the Atlanta University Center. This alternative would deviate from I-20 and follow Glenwood Avenue and continue on Fulton Street. It would feature a station at Turner Field. The alignment would then turn south onto Capitol Avenue, operating in mixed traffic, and turn west along Ralph David Abernathy Boulevard. It would follow Ralph David Abernathy Boulevard to a connection with the West End MARTA Station. The alignment would continue west to Joseph Lowery Boulevard where it would turn north to serve the Atlanta University Center. The alignment would end at the Ashby Station.

### 2.3.8 Alternative 8 – Inman Park Station and Midtown via BeltLine

This alternative would diverge from I-20 at Bill Kennedy Way and follow the proposed BeltLine alignment north to North Street. It would then turn west, operating in mixed traffic along North Avenue to the North Avenue Station.

# 3.0 TIER 1 SCREENING

## 3.1 Tier 1 Measures of Effectiveness

As described in Section 1, the Tier 1 Screening was a preliminary evaluation intended to rule out those alternatives which rated poorly so that the remaining alternatives could be subject to a detailed screening in Tier 2. Therefore, only a limited number of evaluation criteria and MOEs were selected for use in the Tier 1 Screening. Tier 1 MOEs are summarized in **Table 3-1**. For a detailed explanation of all evaluation criteria and MOEs, please refer to the *Evaluation Framework Report*.

**Table 3-1: Tier 1 Screening**

| **Goal 1: Increase Mobility and Accessibility** | | |
|---|---|---|
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Travel Times | Transit Travel Times from Stonecrest to Five Points Station | Travel Demand Model output |
| **Goal 2: Provide Improved Transit Service within the Corridor** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Transit System Ridership | Total Transit Boardings | Travel Demand Model output |
| | New Transit Riders | Travel Demand Model output |
| **Goal 3: Support Land Use and Development Goals** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Proximity of Underutilized Land | Acres of vacant or underutilized land within ½-mile of transit stations/stops | • GIS spatial analysis<br>• Land use maps<br>• Aerial photography |
| **Goal 4: Promote Cost Effective Transit Investments** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Cost and Cost Effectiveness | Capital costs (Stations, transitways, tracks, vehicles, and maintenance facilities) and right-of-way costs in $millions | • Capital unit costs for similar transportation investments<br>• National and local transportation projects<br>• Existing land use and parcel-level tax data for estimated right-of-way costs |
| **Goal 5: Preserve Natural and Built Environment** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Impact to community, cultural, and natural resources | Total residential and commercial displacements | • GIS spatial analysis<br>• Aerial photography<br>• GIS based property line information for DeKalb and Fulton Counties |
| **Goal 6: Achieve a High Level of Community Support** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Maintain compliance with stakeholder guidance | Compliance with SAC Guiding Principles | • SAC guiding principles |
| Achieve a high level of public support | Degree of Public Support | • % of votes for Mainline, Downtown Connectivity, and Panola Road Alternatives from public meetings and online survey |

## 3.2 Alternatives Evaluation Ratings and Scores

In the Tier 1 Screening, each alternative was rated for its performance under a series of MOEs selected to assess the alternative's ability to meet the project goals. For each MOE, alternatives were given a rating of zero, one, or two based on how well that alternative performed. In order to assign each alternative a rating of zero, one, or two, rating thresholds were developed for each MOE. In most cases there were natural breaks in the performance data that established logical thresholds to provide differentiation among alternatives. Generally the rating thresholds were based on the range of MOE results for all alternatives. For example, if transit boardings for all alternatives ranged from 15,000 to 42,000, the thresholds and associated ratings would breakdown as shown in **Table 3-2**.

**Table 3-2: Sample MOE Ratings**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Total Transit Boardings | >40,000 | 20,000 – 40,000 | < 20,000 |

For scenarios where the variance was very small among the performance of all alternatives, the thresholds were not based purely on the range of results. Rather, the thresholds were assigned based on how well the alternatives addressed the specific evaluation criterion. For example, when evaluating the amount of underutilized land that would be available for redevelopment at station areas, if all alternatives were shown to have between 800 and 900 acres of land for redevelopment, it would not be appropriate to rate one alternative with a zero and another at two considering there was so little difference between their results, and the fact that all alternatives address this evaluation criterion well. In this case the ratings and thresholds would be as in **Table 3-3**.

**Table 3-3: Sample MOE Ratings**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Acres of vacant or underutilized land within ½-mile of transit stations/stops | >800 acres | 400-800 acres | <400 acres |

For certain MOEs, the performance measures were more qualitative, and thresholds were not based on quantitative performance results but were based on the range of qualitative findings. One example of this is the MOE that evaluated whether the alternatives were consistent with the adopted local and regional land use plans. In this case, a review of the local and regional land use plans revealed if the alternatives were completely consistent with, partially consistent with, or inconsistent with these land use plans. Thus, the rating for this MOE is as in **Table 3-4**.

**Table 3-4: Sample MOE Ratings**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Consistency with adopted local and regional plans | Complete | Partial | Inconsistent |

These MOE scores are the foundation for the alternatives' goal scores, and finally, for their overall scores. For each alternative, the ratings for each MOE were averaged and then

rounded to the nearest whole number to obtain a project goal score. In this way, each alternative was evaluated for how well it addressed each project goal. Project goal ratings were then summed for each alignment to produce overall ratings. Within each category of alignment, Mainline, Panola Road Area, and Downtown Connector, overall ratings led to the elimination of some alignments and the promotion of others into the Tier 2 Screening. The remainder of this section describes each evaluation criteria, MOE, and the evaluation results.

## 3.3 Goal 1: Increase Mobility and Accessibility

The first stakeholder identified goal of the I-20 East Transit Initiative is: Increase Mobility and Accessibility. As detailed in the *Purpose and Need Report*, traffic congestion and limited transportation options have led to increasingly long travel times which constrain mobility and accessibility within the corridor. To address this issue, the objective of improved travel times for east-west travel was identified. The ability of each alternative to meet this project goal was measured in the Tier 1 Screening in terms of comparative travel times.

### 3.3.1 MOE: Transit Travel Times from Stonecrest to Five Points Station

This MOE measured the total transit travel time between the Mall at Stonecrest and the Five Points Station in downtown Atlanta in 2030 for each alternative. This measure compiled travel time spent on transit, whether on a transit vehicle, time spent transferring from one transit mode to another, or wait times associated with the given trip. The travel demand model served as the source for all values.

### 3.3.2 Goal 1 Performance Ratings

As can be seen in **Table 3-5**, alternatives were rated two points for trip times below 45 minutes, one point for trips between 45 and 60 minutes and zero points for trips longer than 60 minutes.

**Table 3-5: Performance Ratings for Goal 1 MOE**

| | Ratings | | |
|---|---|---|---|
| Measure of Effectiveness | 2 | 1 | 0 |
| Transit Travel Times to Five Points Station | <45 minutes | 45-60 minutes | > 60 minutes |

### 3.3.3 Goal 1 Evaluation Results

**Mainline Alternatives**

For purposes of the evaluation of Mainline Alternatives, all alternatives were paired with the highest performing Panola Road Area Alternative, which was the Parallel I-20 Sub-Alignment, and Downtown Connectivity Alternative, which was the Connection to Garnett and Five Points Stations. Among Mainline Alternatives, the Parallel I-20 Alignment had the fastest travel time of 37.2 minutes, followed by the Connection to Edgewood Station, and then the Heavy Rail Extension from Indian Creek (**Table 3-6**). As travel times for each alternative were all less than 45 minutes, they were all rated two points for the MOE and thus for the Goal 1 Summary Rating.

**Table 3-6: Goal 1 Evaluation of Mainline Alternatives**

| | Transit Travel Times to Five Points Station, in minutes | Travel Time Rating | Goal 1 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Alignment | 37.2 | 2 | **2** |
| 2. Connection to Edgewood Station | 38.6 | 2 | **2** |
| 3. Heavy Rail Extension from Indian Creek | 39.9 | 2 | **2** |

## Panola Road Area Alternatives

For purposes of the evaluation of Panola Road Area Alternatives, all alternatives were paired with the highest performing Mainline Alternative, which was the Parallel I-20 Alignment, and Downtown Connectivity Alternative, which was the Connection to Garnett and Five Points Stations. The Parallel I-20 Sub-Alignment had the fastest travel time of the Panola Road Area alignments with 37.2 minutes (**Table 3-7**), and thus earned two points. The Snapfinger Road Alternative travel time was 48.2 minutes, which earned this alternative one point.

**Table 3-7: Goal 1 Evaluation of Panola Road Area Alternatives**

| | Transit Travel Times to Five Points Station, in minutes | Travel Time Rating | Goal 1 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 37.2 | 2 | **2** |
| 2. Snapfinger Woods Drive Sub-Alignment | 48.2 | 1 | **1** |

## Downtown Connectivity Alternatives

For purposes of the evaluation of Downtown Connectivity Alternatives, all alternatives were paired with the highest performing Mainline Alternative, which was the Parallel I-20 Alignment, and Panola Road Area Alternative, which was the identical Parallel I-20 Sub-Alignment. If a given Downtown Connectivity Alternative did not provide a direct connection, the transit trip assumed a transfer onto the existing rail system to reach Five Points Station. Among Downtown Connectivity Alternatives, the Connection to Garnett and Five Points Stations had the fastest travel time of 37.2 minutes, followed by the Connection to MMPT/Five Points (40.4 minutes) and the Connection to King Memorial Station (41.8 minutes) (**Table 3-8**). These three alignments were rated two points each. The remainder of the Downtown Connectivity Alternatives had travel times between 45 minutes and one hour and were rated one point each.

**Table 3-8: Goal 1 Evaluation of Downtown Connectivity Alternatives**

| | Transit Travel Times to Five Points Station, in minutes | Travel Time Rating | Goal 1 Summary Rating |
|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial drive | 47.5 | 1 | **1** |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 47.1 | 1 | **1** |
| 3. Connection to King Memorial Station | 41.8 | 2 | **2** |
| 4. Connection to Downtown via Streetcar | 49.3 | 1 | **1** |
| 5. Connection to Garnett and Five Points Stations | 37.2 | 2 | **2** |
| 6. Connection to MMPT/Five Points Stations | 40.4 | 2 | **2** |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 48.5 | 1 | **1** |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | 45.0 | 1 | **1** |

## 3.4 Goal 2: Provide Improved Transit Service within the Corridor

In order to evaluate how well the alternatives would meet Project Goal 2: Provide Improved Transit Service within the corridor, they were assessed in terms of their ability to provide transit service with sufficient capacity to accommodate growing demand. This ability was measured by the total transit riders and the number of new transit riders projected for each alternative.

### 3.4.1 MOE: Total Transit Boardings

This MOE measured the total boardings onto the new transit service proposed by each alternative. While some alternatives would serve multiple existing stations, only boardings onto the proposed transit line are counted as part of this MOE. The travel demand model served as the source for all values.

### 3.4.2 MOE: New Transit Riders

This MOE measured how well each alternative attracts corridor residents to use transit. The measure indicated how well the given alternative would capture new transit trips that would otherwise be made by automobile or ped/bike modes. The travel demand model served as the source for all values.

### 3.4.3 Goal 2 Performance Ratings

The number of total boardings and new riders among the alternatives was compared in order to formulate relative performance ratings for Goal 2 MOEs. As can be seen in **Table 3-9,** alternatives with total transit boardings greater than 20,000 riders were rated two points, boardings between 15,000 and 20,000 were rated one point, and those with fewer than 15,000 were rated zero. Similarly, those alignments with greater than 6,000 new transit riders were awarded a rating of two, between 3,000 and 6,000 were awarded one, and those with fewer than 3,000 were awarded zero points.

**Table 3-9: Performance Ratings for Goal 2 MOEs**

| | **Ratings** | | |
|---|---|---|---|
| **Measures of Effectiveness** | 2 | 1 | 0 |
| Total Transit Riders | >20,000 | 15,000-20,000 | <15,000 |
| New Transit Riders | >6,000 | 3,000-6,000 | <3,000 |

### 3.4.4 Goal 2 Evaluation Results

**Mainline Alternatives**

Among Mainline Alternatives, the Parallel I-20 Alignment was projected to attract 27,000 total transit boardings, significantly more than the other alternatives, which attracted 15,100 and 11,300 total boardings (**Table 3-10**). In accordance with the performance ratings, the Parallel I-20 Alignment was rated two points for total transit riders, the Connection to Edgewood Station was rated one point, and the Heavy Rail Extension from Indian Creek was rated zero points.

In terms of new transit riders, the Connection to Edgewood Station was projected to attract 7,100 new riders; the Parallel I-20 Alignment, 6,600 new riders; and the Heavy

Rail Extension from Indian Creek, 6,300 new riders. Thus, all Mainline Alternatives were rated two points based on the performance rating structure.

The Goal 2 Summary Rating, which is a rounded average of the MOE ratings, was two for the Parallel I-20 Alignment and the Connection to Edgewood Station and one for the Heavy Rail Extension from Indian Creek.

**Table 3-10: Goal 2 Evaluation of Mainline Alternatives**

| Measures of Effectiveness | Total Transit Riders | Total Transit Riders Rating | New Transit Riders | New Transit Riders Rating | Goal 2 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Alignment | 27,000 | 2 | 6,600 | 2 | **2** |
| 2. Connection to Edgewood Station | 15,100 | 1 | 7,100 | 2 | **2** |
| 3. Heavy Rail Extension from Indian Creek | 11,300 | 0 | 6,300 | 2 | **1** |

## Panola Road Area Alternatives

The Parallel I-20 Sub-Alignment was the better performing Panola Road Area Alternative in terms of both total transit boardings, 27,000, and new riders, 6,600, and was rated a two in each MOE (**Table 3-11**). The Snapfinger Woods Drive Sub-Alignment was projected to attract 22,500 total transit riders and so was also rated a two for that MOE. With a projected 4,300 new transit riders, it was rated one point for that MOE. Since the Goal 2 Summary Rating is based on an average of the MOE ratings, both Sub-Alignments received a Summary Rating of two for Goal 2.

**Table 3-11: Goal 2 Evaluation of Panola Road Area Alternatives**

| Measures of Effectiveness | Total Transit Riders | Total Transit Riders Rating | New Transit Riders | New Transit Riders Rating | Goal 2 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 27,000 | 2 | 6,600 | 2 | 2 |
| 2. Snapfinger Woods Drive Sub-Alignment | 22,500 | 2 | 4,300 | 1 | 2 |

## Downtown Connectivity Alternatives

As shown in **Table 3-12**, among Downtown Connectivity Alternatives, the Connection to Garnett and Five Points Stations and the Connection to the MMPT/Five Points Stations were projected to attract 27,000 and 23,200 total passengers, respectively, and both were rated a two for the MOE. The Connection to West End Station/Atlanta University Center/Ashby Station and the Connection to Inman Park Station and Midtown via BeltLine Alignment were projected to attract 17,300 and 18,100 riders respectively. Thus, both were rated a one for the MOE, while the remaining alignments were projected to attract fewer than 15,000 riders and all received a rating of zero.

The Connection to Garnett and Five Points Stations was projected to attract 6,600 new riders, and so rated a two for that MOE. The Connection to MMPT/Five Points Stations was projected to attract 5,300 new riders and received a one for the MOE. All other alternatives, with the exception of the Connection to King Memorial Station via Memorial Drive Alternative, were projected to attract from 3,000 to 6,000 new riders and were awarded a one for the MOE. The Connection to King Memorial via Memorial Drive was projected to attract 2,900 new riders and was rated a zero for the MOE.

Based on the average of the ratings each received under the Goal 2 MOEs, the Connection to Garnett and Five Points Stations and the Connection to MMPT/Five Points Stations each received a Goal 2 Summary Rating of two. All other alignments were rated a one, with the exception of the Connection to King Memorial Station via Memorial Drive, which was rated a zero.

**Table 3-12: Goal 2 Evaluation of Downtown Connectivity Alternatives**

| | Total Transit Riders | Total Transit Riders Rating | New Transit Riders | New Transit Riders Rating | Goal 2 Summary Rating |
|---|---|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | 11,800 | 0 | 2,900 | 0 | 0 |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 14,200 | 0 | 3,100 | 1 | 1 |
| 3. Connection to King Memorial Station | 13,800 | 0 | 3,300 | 1 | 1 |
| 4. Connection to Downtown via Streetcar | 13,800 | 0 | 3,000 | 1 | 1 |
| 5. Connection to Garnett and Five Points Stations | 27,000 | 2 | 6,600 | 2 | 2 |
| 6. Connection to MMPT/Five Points Stations | 23,200 | 2 | 5,300 | 1 | 2 |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 17,300 | 1 | 3,900 | 1 | 1 |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | 18,100 | 1 | 3,800 | 1 | 1 |

## 3.5 Goal 3: Support Land Use and Development Goals

In order to evaluate how well the alternatives would meet Project Goal 3: Support Land Use and Development Goals, they were assessed for their potential to attract economic development and revitalization. This ability was measured in terms of the acreage of vacant or underutilized land within one-half mile of the proposed stations associated with each alternative. Underutilized land includes areas that are clearly not operating to their highest and best use. This includes areas with significant parking, large parcels with only a small percentage of the land area improved, and developed areas with a large percentage of vacant or abandoned structures. These areas represent prime locations in which redevelopment could occur. The existing MARTA stations to which these connect are not considered in the analysis since this evaluation is focused on the proposed alternatives rather than the existing transit system.

The Downtown Connectivity Alternatives were developed and evaluated for the purposes of identifying the most efficient transit connection into downtown Atlanta. Since the areas surrounding downtown Atlanta were not identified by stakeholders as needing redevelopment, the Downtown Connectivity Alternatives were assigned an equal rating for Goal 3 based on Mainline Alternative 1, the Parallel I-20 alignment, since it is the only Mainline Alternative that connected to the Downtown Connectivity Alternatives.

### 3.5.1 MOE: Land Available for Development or Redevelopment

Transit stations have the potential to act as catalysts for development and redevelopment of the lands around them, particularly for the redevelopment of low-density uses or vacant lands into transit-oriented development (TOD). In order to weigh each alternative's potential to meet Goal 3, the vacant and underutilized lands within a one-half mile radius of each proposed station was calculated, and then summed by alternative. Vacant and underutilized lands were determined through GIS analysis and field survey. The proposed new stations associated

with each Mainline Alternative and Panola Road Area Alternative are listed in **Tables 3-13** and **3-14**. These stations are also mapped in **Figure 3-1**.

**Table 3-13: Potential New Stations Associated with Tier 1 Mainline Alternatives**

| | Mall at Stonecrest | Panola Road | Wesley Chapel | Covington Highway | Candler Road | Gresham Road | Glenwood Park |
|---|---|---|---|---|---|---|---|
| 1. Parallel I-20 Alignment | x | x | x | | x | x | x |
| 2. Connection to Edgewood Station | x | x | x | | x | x | |
| 3. Heavy Rail Extension from Indian Creek | x | x | x | x | | | |

**Table 3-14: Potential New Stations Associated with Tier 1 Panola Road Area Alternatives**

| | Mall at Stonecrest | Panola Road | DeKalb Medical Center | Wesley Chapel | Candler Road | Gresham Road | Glenwood Park |
|---|---|---|---|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | x | x | | x | x | x | x |
| 2. Snapfinger Woods Drive Sub-Alignment | x | x | x | x | x | x | x |

The vacant and underutilized lands for each proposed new station are reported in **Table 3-15**.

**Table 3-15: Acreage of Vacant and Underutilized Land within One-Half Mile of Proposed Stations**

| Station Area | Acreage |
|---|---|
| Turner Field | 97.01 |
| Glenwood Park | 48.83 |
| Gresham Road | 147.96 |
| Candler Road | 158.64 |
| Wesley Chapel | 104.7 |
| DeKalb Medical | 52 |
| Panola Road | 137.79 |
| Mall at Stonecrest | 144.56 |
| Covington Highway | 26.52 |

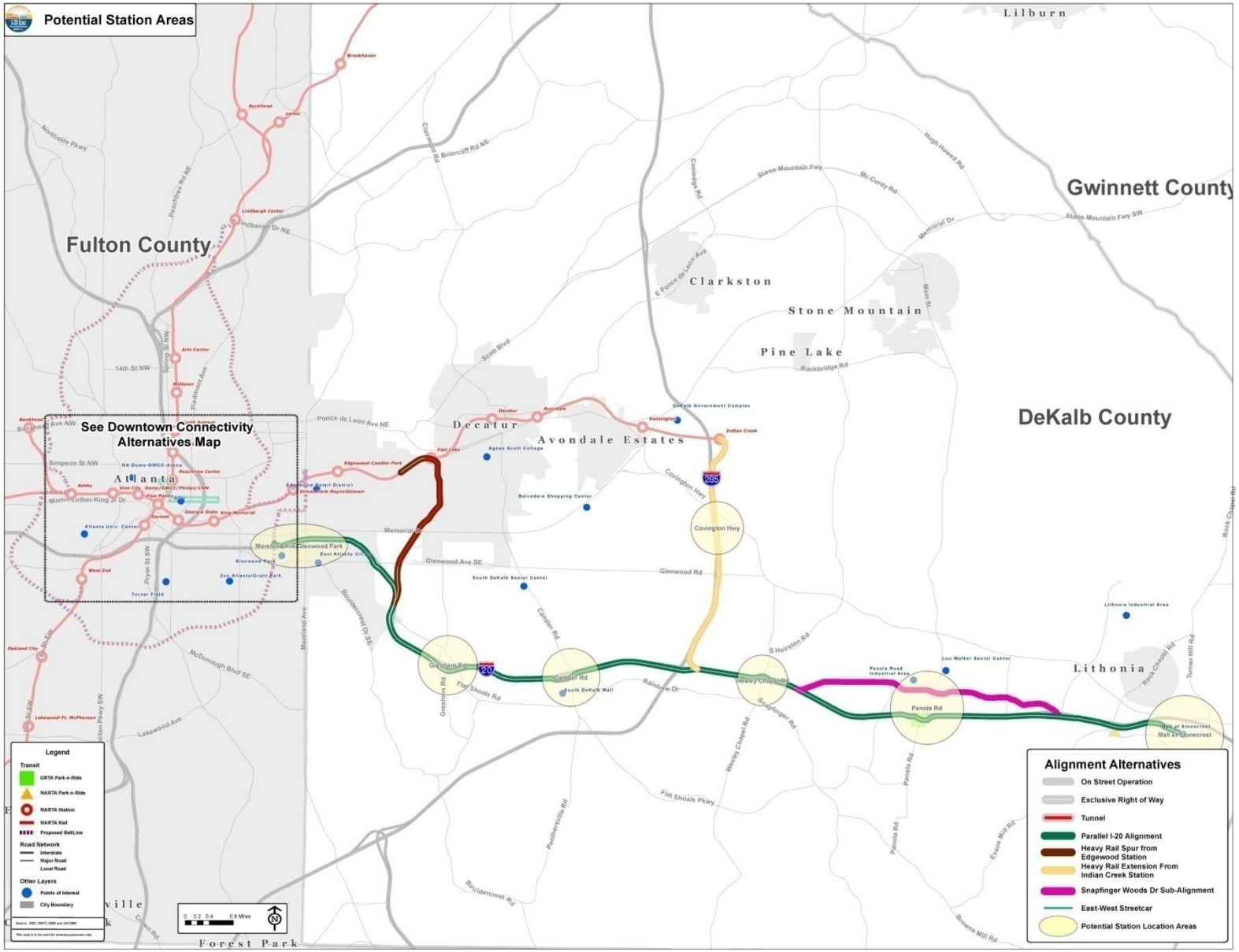
### 3.5.2 Goal 3 Performance Ratings

As can be seen in **Table 3-16**, alternatives were rated a two if there were 500 or more acres of developable or redevelopable land within one half mile of the stations along their alignments. They were rated a one for 250 to 500 acres, and a zero for fewer than 250 acres. As Goal 3 contains just one Tier 1 MOE, the MOE rating is also the Goal 3 Summary Rating for all alignments.

**Table 3-16: Performance Ratings for Goal 3 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measures of Effectiveness** | 2 | 1 | 0 |
| Acres of vacant or underutilized land within ½-mile of transit stations/stops | >500 acres | 250-500 acres | <250 acres |

**Figure 3-1: Proposed Stations for Tier 1 Mainline and Panola Road Area Alternatives**



### 3.5.3 Goal 3 Evaluation Results

#### Mainline Alternatives

The acreage of undeveloped or underutilized land within one-half mile of the stations proposed along each Mainline Alternative was summed for this assessment (**Table 3-17**). There were approximately 740 acres of undeveloped or underutilized land within a one-half mile radius of the stations long the Parallel I-20 Alignment and 690 acres within one-half mile of the stations along the Connection to Edgewood Station, and so both were rated a two for this MOE in accordance with the tiered ratings presented in Table 3-13. The Heavy Rail Extension from Indian Creek would only provide access to 410 such acres and so it was rated a one.

**Table 3-17: Goal 3 Evaluation of Mainline Alternatives**

| Measures of Effectiveness | Total Acreage of Undeveloped or Underutilized Land within ½ mile of Proposed Station Areas | Total Development Rating | Goal 3 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Alignment | 740 | 2 | **2** |
| 2. Connection to Edgewood Station | 690 | 2 | **2** |
| 3. Heavy Rail Extension from Indian Creek | 410 | 1 | **1** |

#### Panola Road Area Alternatives

There were approximately 740 acres of undeveloped or underutilized land within a one-half mile radius of the stations along the Parallel I-20 Alignment and 690 acres within one-half mile of the stations along the Snapfinger Woods Drive Sub-Alignment, and so both were rated a two for this MOE (**Table 3-18**).

**Table 3-18: Goal 3 Evaluation of Panola Road Area Alternatives**

| Measures of Effectiveness | Undeveloped or Underutilized Land within ½ mile of Proposed Station Areas | Total Development Rating | Goal 3 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 740 | 2 | **2** |
| 2. Snapfinger Woods Drive Sub-Alignment | 690 | 2 | **2** |

#### Downtown Connectivity Alternatives

All Downtown Connectivity Alternatives were assumed to operate in conjunction with the Parallel I-20 Alignment from the Mainline Alternatives. Since no additional station areas were associated with the Downtown Connectivity Alternatives for redevelopment analysis, all Downtown Connectivity Alternatives rated equally. Accordingly, there were approximately 740 acres of undeveloped or underutilized land within a one-half mile radius of the stations along each of the Downtown Connectivity Alternatives, as can be seen in **Table 3-19**. Thus each alternative was rated a two for this MOE.

**Table 3-19: Goal 3 Evaluation of Downtown Connectivity Alternatives**

| | Undeveloped or Underutilized Land within ½ mile of Proposed Station Areas | Total Development Rating | Goal 3 Summary Rating |
|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | 740 | 2 | 2 |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 740 | 2 | 2 |
| 3. Connection to King Memorial Station | 740 | 2 | 2 |
| 4. Connection to Downtown via Streetcar | 740 | 2 | 2 |
| 5. Connection to Garnett and Five Points Stations | 740 | 2 | 2 |
| 6. Connection to MMPT/Five Points Stations | 740 | 2 | 2 |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 740 | 2 | 2 |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | 740 | 2 | 2 |

## 3.6 Goal 4: Promote Cost Effective Transit Investments

Alternatives were evaluated on their ability to meet Project Goal 4: Promote Cost-Effective Transit Investments, and specifically their ability to provide transit service that can be implemented with available resources. The Total Costs MOE was composed of capital costs and right-of-way acquisition costs. As mentioned previously, all alternatives were cost estimated as LRT transit investments with the exception of the Heavy Rail Extension from Indian Creek Station Mainline Alternative. This is due to the fact that HRT was the only feasible transit mode for this alternative.

### 3.6.1 MOE: Total Cost

Given the fiscal constraints facing transportation investments in the Atlanta region, total project cost was utilized to evaluate the cost effectiveness of alternatives relative to each other.

### 3.6.2 Goal 4 Performance Ratings

The ratings for Goal 4 are presented in **Table 3-20**. Accordingly, alignments with projected costs of under $2,000M were rated a two; projects with total costs between $2,000M and $2,500M were rated a one; and projects with projected costs over $2,500M were rated zero. As Goal 4 contains just one Tier 1 MOE, the MOE rating is also the Goal 4 Summary Rating for all alignments.

**Table 3-20: Performance Ratings for Goal 4 MOE**

| | Ratings | | |
|---|---|---|---|
| **Measures of Effectiveness** | 2 | 1 | 0 |
| Total Costs - Capital costs (Transitways, tracks, structures) and right-of-way costs in $millions. | <$2,000M | $2,000M-$2,500M | >$2,500M |

### 3.6.3 Goal 4 Evaluation Results

**Mainline Alternatives**

As shown in **Table 3-21,** the Heavy Rail Extension from Indian Creek had the lowest projected total cost of the mainline alternatives, at $1,750M, and was rated a two. The Parallel I-20 Alignment had projected cost of $2,421M and was rated one, while the Connection to Edgewood Station was rated a zero for the projected costs of $2,856M.

Concept level cost estimates were developed using FTA standard cost categories for reporting, estimating and managing capital costs for New Starts projects. For more information on how capital costs and right-of-way costs were developed, please see the *I-20 East Definition of Alternatives Report* and its appendices.

**Table 3-21: Goal 4 Evaluation of Mainline Alternatives**

| Measures of Effectiveness | Total costs - Capital costs (Transitways, tracks, structures) and right-of-way costs in $millions. | Total Costs Rating | Goal 4 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Alignment | $2,421 | 1 | **1** |
| 2. Connection to Edgewood Station | $2,856 | 0 | **0** |
| 3. Heavy Rail Extension from Indian Creek | $1,750 | 2 | **2** |

## Panola Road Area Alternatives

As can be seen in **Table 3-22**, the Parallel I-20 Sub-Alignment and the Snapfinger Woods Drive Sub-Alignment were projected to cost $2,421M and $2,098M respectively and, thus, were both rated a one for costs between $2,000M and $2,500M.

**Table 3-22: Goal 4 Evaluation of Panola Road Area Alternatives**

| Measures of Effectiveness | Total costs - Capital costs (Transitways, tracks, structures) and right-of-way costs in $millions. | Total Costs Rating | Goal 4 Summary Rating |
|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | $2,421 | 1 | **1** |
| 2. Snapfinger Woods Drive Sub-Alignment | $2,098 | 1 | **1** |

## Downtown Connectivity Alternatives

Two Downtown Connectivity Alternatives, the Connection to King Memorial Station via Memorial Drive and the Connection to King Memorial Station and Downtown via Streetcar Alignment had projected costs under $2,000M and were rated a two for this MOE (**Table 3-23)**. The remaining alternatives had projected costs between $2,000M and $2,500M and were rated a one for the MOE.

**Table 3-23: Goal 4 Evaluation of Downtown Connectivity Alternatives**

| | Total costs - Capital costs (Transitways, tracks, structures) and right-of-way costs in $millions. | Total Costs Rating | Goal 4 Summary Rating |
|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | $1,952 | 2 | **2** |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | $1,962 | 2 | **2** |
| 3. Connection to King Memorial Station | $2,194 | 1 | **1** |
| 4. Connection to Downtown via Streetcar | $2,162 | 1 | **1** |
| 5. Connection to Garnett and Five Points Stations | $2,421 | 1 | **1** |
| 6. Connection to MMPT/Five Points Stations | $2,346 | 1 | **1** |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | $2,331 | 1 | **1** |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | $2,072 | 1 | **1** |

## 3.7 Goal 5: Preserve Natural and Built Environment

Alternatives were assessed under Project Goal 5: Preserve Natural and Built Environment in terms of their impacts to community. This evaluation was based on the estimated number of residential and commercial displacements each alignment would incur.

### 3.7.1 MOE: Total Potential Residential and Commercial Displacements

The estimated number of residential and commercial displacements was identified for all Tier 1 Alternatives. This MOE was utilized to evaluate the direct community impact of each alternative.

### 3.7.2 Goal 5 Performance Ratings

Tiered ratings for Goal 5 are listed in **Table 3-24**. Alternatives with fewer than 15 projected displacements were rated a two; alternatives with 15 to 30 displacements were rated a one, and those alternatives with greater than 30 projected displacements were rated a zero for this MOE. As Goal 5 contains just one Tier 1 MOE, the MOE rating is also the Goal 5 Summary Rating for all alignments.

**Table 3-24: Ratings for Performance under Goal 5 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measures of Effectiveness** | 2 | 1 | 0 |
| Total residential and commercial displacements | <15 | 15-29 | >30 |

### 3.7.3 Goal 5 Evaluation Results

**Mainline Alternatives**

The Heavy Rail Extension from Indian Creek had six projected displacements, the fewest among Mainline Alternatives (**Table 3-25**). The Connection to Edgewood Station had a projected 27 displacements and the Parallel I-20 Alignment had 34. Therefore, the alternatives were rated two, one and zero, respectively for this MOE.

**Table 3-25: Goal 5 Evaluation of Mainline Alternatives**

| Measures of Effectiveness | Total Displacements | Commercial Displace-ments | Residential Displace-ments | Displace-ments Rating | Goal 5 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Alignment | 34 | 16 | 18 | 0 | **0** |
| 2. Connection to Edgewood Station | 27 | 9 | 18 | 1 | **1** |
| 3. Heavy Rail Extension from Indian Creek | 6 | 2 | 4 | 2 | **2** |

## Panola Road Area Alternatives

In order to realistically evaluate the impacts stemming from the implementation of either Panola Road Area Sub-Alignment, both were paired with Downtown Connectivity Alternative 5 to create a full alignment. Both Panola Road Area Sub-Alignments in these combinations had 30 or more projected displacements, as can be seen in **Table 3-26.** Thus both received a rating of zero for the MOE.

**Table 3-26: Goal 5 Evaluation of Panola Road Area Alternatives**

| Measures of Effectiveness | Total Displacements | Commercial Displace-ments | Residential Displace-ments | Displace-ments Rating | Goal 5 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 34 | 16 | 18 | 0 | **0** |
| 2. Snapfinger Woods Drive Sub-Alignment | 30 | 12 | 18 | 1 | **1** |

## Downtown Connectivity Alternatives

Three of the Downtown Connectivity Alternatives had 28 projected displacements, Connection to King Memorial Station via Memorial Drive, the Connection to King Memorial Station and Downtown via Streetcar Alignment, and the Connection to King Memorial Station and Downtown via Streetcar Alignment. These alternatives all were rated one for the MOE. The remainder of the Downtown Connectivity Alternatives had more than 30 projected displacements a piece and were rated a zero for this MOE. The results of this analysis for the Downtown Connectivity Alternatives are presented in **Table 3-27**.

**Table 3-27: Goal 5 Evaluation of Downtown Connectivity Alternatives**

| | Total residential and commercial displacements | Commercial Displace-ments | Residential Displace-ments | Displace-ments Rating | Goal 5 Summary Rating |
|---|---|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | 27 | 9 | 18 | 1 | **1** |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 27 | 9 | 18 | 1 | **1** |
| 3. Connection to King Memorial Station | 30 | 12 | 18 | 0 | **0** |
| 4. Connection to Downtown via Streetcar | 30 | 12 | 18 | 0 | **0** |
| 5. Connection to Garnett and Five Points Stations | 34 | 16 | 18 | 0 | **0** |
| 6. Connection to MMPT/Five Points Stations | 34 | 16 | 18 | 0 | **0** |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 34 | 16 | 18 | 0 | **0** |
| 8. Connection to King Memorial Station and Downtown via Streetcar Alignment | 27 | 9 | 18 | 1 | **1** |

## 3.8 Goal 6: Achieve a High Level of Community Support

In order to evaluate how well the alternatives would meet Project Goal 6: Achieve a High Level of Community Support, they were assessed in terms of their ability to provide transit investments that are supported by local stakeholders and the general public. This support was quantified in terms of each alternative's compliance with SAC Guiding Principles, the support each received in an on-line public survey, and any stated community or stakeholder opposition.

### 3.8.1 MOE: Compliance with SAC Guiding Principles

The I-20 East SAC identified six primary functional and operational characteristics that a new transit service in the corridor should have. This MOE evaluates how well each alternative addresses these Guiding Principles for Transit Service in the I-20 East Corridor. These Guiding Principles are:

- Transit should be a rapid service to downtown Atlanta serving commuters with few stops.
- There should be dedicated transitway for length of project. No, or very limited, transit operation on surface streets in mixed traffic.
- A new transit line in the corridor must have direct connection to MARTA heavy rail system.
- There must be a way for riders to transfer to/from the Atlanta BeltLine.
- It is important to limit number of transfers to reduce travel times.
- The most desirable connection to downtown would be at the Five Points/MMPT since it would provide a connection to the north-south and east-west MARTA rail lines without additional transfers.

Each alternative in the Tier 1 Screening was reviewed for compliance with these principles, receiving two points for full compliance, one point for partial compliance, and zero points when it failed to comply. The degree to which each alternative in each category complies with the SAC Guiding Principles can be found in **Table 3-28**. These six scores were then summed for each alternative to create a SAC Guiding Principle compliance score.

### 3.8.2 MOE: Degree of Public Support

The MOE evaluated the general public support for each of the Tier 1 Alternatives. This was done through voting at public meetings and through an online survey. The public was asked to select the most appropriate Mainline, Downtown Connectivity and Panola Road Area alternatives. This MOE reflects the results of this voting.

### 3.8.3 Goal 6 Performance Ratings

**Table 3-29** presents the tiered ratings for Goal 6 MOEs. Under the first MOE, Compliance with SAC Guiding Principles, an alternative was rated a two if it scored 11-12 points, it was rated a one if it scored an 8-10, and rated a zero if it scored less than an eight.

For the second MOE, Degree of Public Support, the Mainline, Downtown Connectivity, and Panola Road Area Alternatives were rated based on the percentage of public support. Public support was determined by voting at public meetings and on online surveys. Voters were asked which alternative would be the "most appropriate to provide improved transit service to the I-20 East Corridor" in its category (e.g., Mainline Alternatives.) Since voting at the public meetings and on the online survey only allowed the public to select one alternative for each category, the tiered ratings for each category are different. Since the Downtown Connectivity Alternatives were comprised of eight choices, it is unlikely that one alternative would garner a significant percentage of votes. Thus the rating thresholds for each category are different to reflect the performance of each alternative relative to the alternatives considered for that category.

The Mainline Alignment Alternatives contained three choices. Therefore, an alternative receiving more than 50 percent of the votes received a rating of two, alternatives that received a rating between 25 percent - 50 percent received a one, and alternatives with less that 25 percent received a zero.

The Panola Road Area Alternatives contained two alternatives. Therefore, an alternative that received greater than 75 percent of the votes received a score of two, alternatives that received between 25 percent-75 percent received a one, and alternatives with less that 25 percent received a zero. The

As there are eight Downtown Connectivity Alternatives, those alternatives that received greater than 25 percent received a score of two, alternatives that received between 15 percent and 25 percent received a one, and alternatives with less that 15 percent received a zero.

**Table 3-29: Ratings for Performance under Goal 6 MOEs**

| | | Ratings | | |
|---|---|---|---|---|
| **Measures of Effectiveness** | | 2 | 1 | 0 |
| Compliance with SAC Guiding Principles | | 11-12 | 8-10 | <8 |
| Degree of Public Support | Mainline Alternatives | >50% | 25-50% | <25% |
| | Panola Road Area Alternatives | >75% | 25-75% | <25% |
| | Downtown Connectivity Alternatives | >25% | 15-25% | <15% |

**Table 3-28: Alternatives' Compliance with SAC Guiding Principles**

| SAC Guiding Principles | Mainline Alignment Alternatives | | | Panola Road Area Alts | | Downtown Connectivity Alternatives | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1. Connection Directly to Downtown Atlanta | 2. Connection to Edgewood Station | 3. Heavy Rail Extension from Indian Creek | 1. Parallel I-20 Sub-Alignment | 2. Snapfinger Woods Drive Sub-Alignment | 1. Connection to King Memorial Station via Memorial drive | 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 3. Connection to King Memorial Station | 4. Connection to Downtown via Streetcar | 5. Connection to Garnett and Five Points Stations | 6. Connection to MMPT/Five Points Stations | 7. Connection to West End Station/Atlanta University Center/Ashby Station | 8. Connection to Inman Park Station and Midtown via BeltLine Alignment |
| Transit should be a rapid service to downtown serving commuters with few stops. | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 1 |
| Dedicated transitway for entire length of project. None, or very limited, operation on surface streets in mixed traffic | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 0 | 1 |
| System must have direct connection to MARTA heavy rail system | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| There must be a way for riders to transfer to/from the BeltLine | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Important to limit number of transfers to reduce travel times | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| The most desirable connection to downtown would be at the 5-Points/ MMPT since it would provide a connection to the north-south and east-west MARTA rail lines without additional transfers | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| **Score** | **12** | **9** | **12** | **12** | **9** | **8** | **6** | **8** | **7** | **12** | **11** | **7** | **8** |

### 3.8.4 Goal 6 Evaluation Results

**Mainline Alternatives**

Among Mainline Alternatives, the Parallel I-20 Alignment and the Heavy Rail Extension from Indian Creek both complied with all of the SAC Guiding Principles and were given a rating of two (**Table 3-30**). The Connection to Edgewood Station only partially complied and was rated one point.

From the public meetings and online survey, the Parallel I-20 Alignment had the most support, receiving 58 percent of the votes and thus received a rating of two. The Heavy Rail Extension from Indian Creek received 28 percent of the votes and thus received a rating of one. The Connection to Edgewood Station received 14 percent of the votes and thus received a rating of one.

The Goal 6 Summary Rating is a rounded average of the two Goal 6 MOEs. Therefore, Parallel I-20 Alignment and the Heavy Rail Extension from Indian Creek received overall Goal 6 ratings of two while the Connection to Edgewood Station received a rating of one.

**Table 3-30: Goal 6 Evaluation of Mainline Alternatives**

| | Compliance with SAC Guiding Principles | Principles Rating | Degree of Public Support | Support Rating | Goal 6 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Alignment | 12 | 2 | 58% | 2 | **2** |
| 2. Connection to Edgewood Station | 9 | 1 | 14% | 0 | **1** |
| 3. Heavy Rail Extension from Indian Creek | 12 | 2 | 28% | 1 | **2** |

*Source: I-20 East Transit Initiative Online Survey, Summer 2011*

**Panola Road Area Alternatives**

Between the two Panola Road Area Alternatives, the Parallel I-20 Sub-Alignment complied with all of the SAC Guiding Principles and was given a rating of two, while the Snapfinger Woods Drive Sub-Alignment only partially complied with all principles and was rated one point (**Table 3-31**).

From the public meetings and online survey, the Parallel I-20 Sub-Alignment found far more support than the Snapfinger Woods Drive Sub-Alignment and received 82 percent of the votes. It therefore received a rating of two. The Snapfinger Woods Drive Sub-Alignment received only 18 percent of the votes and thus received a zero rating.

**Table 3-31: Goal 6 Evaluation of Panola Road Area Alternatives**

| | Compliance with SAC Guiding Principles | Principles Rating | Degree of Public Support | Support Rating | Goal 6 Summary Rating |
|---|---|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 12 | 2 | 82% | 2 | **2** |
| 2. Snapfinger Woods Drive Sub-Alignment | 9 | 1 | 18% | 0 | **1** |

*Source: I-20 East Transit Initiative Online Survey, Summer 2011*

**Downtown Connectivity Alternatives**

Among Downtown Connectivity Alternatives, the Connection to Garnett and Five Points Stations and the Connection to MMPT/Five Points Stations most fully complied with the

SAC Guiding Principles and were given ratings of two (**Table 3-32**). Three alignments, the Connection to King Memorial Station via Memorial Drive, Connection to King Memorial Station, and the Connection to Inman Park Station and Midtown via BeltLine Alignment, met most of the principles and were given ratings of one. The final three alignments, the Connection to King Memorial Station and Downtown via Streetcar Alignment, the Connection to Downtown via Streetcar, and the Connection to West End Station/Atlanta University Center/Ashby Station, had the least compliance with the principles and were given ratings of zero.

**Table 3-32: Goal 6 Evaluation of Downtown Connectivity Alternatives**

| | Compliance with SAC Guiding Principles | Principles Rating | Degree of Public Support | Support Rating | Goal 6 Summary Rating |
|---|---|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | 8 | 1 | 6% | 0 | **1** |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 7 | 0 | 7% | 0 | **0** |
| 3. Connection to King Memorial Station | 8 | 1 | 4% | 0 | **1** |
| 4. Connection to Downtown via Streetcar | 7 | 0 | 6% | 0 | **0** |
| 5. Connection to Garnett and Five Points Stations | 12 | 2 | 26% | 2 | **2** |
| 6. Connection to MMPT/Five Points Stations | 11 | 2 | 32% | 2 | **2** |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 7 | 0 | 3% | 0 | **0** |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | 8 | 1 | 17% | 1 | **1** |

*Source: I-20 East Transit Initiative Online Survey, Summer 2011*

From the public meetings and online survey, the Connection to MMPT/Five Points Station and Connection to Garnett and Five Points Station each garnered greater than 25 percent of the votes and were both rated a two. The Connection to Inman Park Station and Midtown via BeltLine Alignment received 17 percent of the vote and was rated a one. All other Downtown Connectivity Alternatives received 7 percent or less of the votes and were all rated zero.

The Goal 6 Summary Ratings were based on the rounded average of the MOE ratings. As such, the Connection to Garnett and Five Points Stations and the Connection to MMPT/Five Points Stations were given Goal 6 Summary Ratings of two. The Connection to King Memorial Station via Memorial Drive, Connection to King Memorial Station, and Connection to Inman Park Station and Midtown via BeltLine Alignment all received Summary Ratings of one. All other Downtown Connectivity Alternatives were given Summary Ratings of zero.

## 3.9 Cumulative Tier 1 Evaluation Results

Cumulative results for the Tier 1 Screening are a sum of the Goal Summary Ratings for each alternative. The Cumulative Tier 1 Evaluation of Alternatives, including the results and ratings of all alternatives under each MOE and project goal ratings, and the cumulative score for each alternative, can be found in **Table 3-33**.

**Table 3-33: Cumulative Tier 1 Evaluation of Alternatives**

| | | | Mainline Alternatives | | | Panola Road Area Alternatives | | Downtown Connectivity Alternatives | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective** | **Evaluation Criteria** | **Measures of Effectiveness** | **1. Connection Directly to Downtown Atlanta** | **2. Connection to Edgewood Station** | **3. Heavy Rail Extension from Indian Creek** | **1. Parallel I-20 Sub-Alignment** | **2. Snapfinger Woods Drive Sub-Alignment** | **1. Connection to King Memorial Station via Memorial Drive** | **2. Connection to King Memorial Station and Downtown via Streetcar Alignment** | **3. Connection to King Memorial Station** | **4. Connection to Downtown via Streetcar** | **5. Connection to Garnett and Five Points Stations** | **6. Connection to Multi-Modal Passenger Terminal/Five Points Stations** | **7. Connection to West End Station/ Atlanta University Center/ Ashby Station** | **8. Connection to Inman Park Station and Midtown via Beltline Alignment** |
| **Goal 1: Increase Mobility and Accessibility** | | | **2** | **2** | **2** | **2** | **1** | **1** | **1** | **2** | **1** | **2** | **2** | **1** | **2** |
| Improve East-West Travel Times | Travel Times | Transit Travel Times to Five Points Station from Mall at Stonecrest | 37.2 | 38.6 | 39.9 | 37.2 | 48.2 | 47.5 | 47.1 | 41.8 | 49.3 | 37.2 | 40.4 | 48.5 | 45.0 |
| | | Rating | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 |
| **Goal 2: Provide Improved Transit Service within the Corridor** | | | **2** | **2** | **1** | **2** | **2** | **0** | **1** | **1** | **1** | **2** | **2** | **1** | **1** |
| Provide Transit Service with Sufficient Capacity to Accommodate Growing Demand | Transit System Ridership | Total Transit Riders | 27,000 | 15,100 | 11,300 | 27,000 | 22,500 | 11,800 | 14,200 | 13,800 | 13,800 | 27,000 | 23,200 | 17,300 | 18,100 |
| | | Rating | 2 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 |
| | | New Transit Riders | 6,600 | 7,100 | 6,300 | 6,600 | 4,300 | 2,900 | 3,100 | 3,300 | 3,000 | 6,600 | 5,300 | 3,900 | 3,800 |
| | | Rating | 2 | 2 | 2 | 2 | 1 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| **Goal 3: Support Land Use and Development Goals** | | | **2** | **2** | **1** | **2** | **2** | **2** | **2** | **2** | **2** | **2** | **2** | **2** | **2** |
| Promote Economic Development and Revitalization | Proximity of Underutilized Land | Acres of vacant or underutilized land within ½-mile of transit stations/stops | 740 | 690 | 410 | 740 | 690 | 740 | 740 | 740 | 740 | 740 | 740 | 740 | 740 |
| | | Rating | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Goal 4: Promote Cost Effective Transit Investments** | | | **1** | **0** | **2** | **1** | **1** | **2** | **2** | **1** | **1** | **1** | **1** | **1** | **1** |
| Provide Transit Service that Can be Implemented, Operated, and Maintained with | Cost and Cost Effectiveness | Total costs - Capital costs (Transitways, tracks, structures) and ROW costs in $millions. | $2,421 | $2,856 | $1,750 | $2,421 | $2,098 | $1,952 | $1,962 | $2,194 | $2,162 | $2,421 | $2,346 | $2,331 | $2,072 |
| | | Rating | 1 | 0 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Goal 5: Preserve Natural and Built Environment** | | | **0** | **1** | **2** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **0** | **1** |
| Minimize Impacts to Environmental Resources | Impact to community, cultural and natural | Total residential and commercial displacements | 34 | 27 | 6 | 34 | 30 | 28 | 28 | 31 | 30 | 34 | 34 | 34 | 28 |
| | | Rating | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Goal 6: Achieve a High Level of Community Support** | | | **2** | **1** | **2** | **2** | **1** | **1** | **0** | **1** | **0** | **2** | **2** | **0** | **1** |
| Provide Transit Investments that are Supported by Local Stakeholders and the General Public | Maintain compliance with stakeholder guidance | Compliance with SAC Guiding Principles | 12 | 9 | 12 | 12 | 9 | 8 | 7 | 8 | 7 | 12 | 11 | 7 | 8 |
| | | Rating | 2 | 1 | 2 | 2 | 1 | 1 | 0 | 1 | 0 | 2 | 2 | 0 | 1 |
| | Achieve a high level of public support | Degree of Public Support | 58% | 14% | 28% | 82% | 18% | 6% | 7% | 4% | 6% | 26% | 32% | 3% | 16% |
| | | | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 |
| | **Cumulative Alternative Rating** | | **9** | **8** | **10** | **9** | **7** | **7** | **7** | **7** | **5** | **9** | **9** | **5** | **8** |
| | **Advanced to Tier 2 Screening** | | **YES** | **YES** | **YES** | **YES** | **NO** | **NO** | **NO** | **NO** | **NO** | **YES** | **NO** | **NO** | **YES** |

Among Mainline Alternatives, the Heavy Rail Extension from Indian Creek received a cumulative score of 10 points. The Parallel I-20 Alignment received a score of nine points and the Connection to Edgewood Station received a score of eight points.

Of the Panola Road Area Alternatives, the Parallel I-20 Sub-Alignment received a score of nine points, while the Snapfinger Woods Drive Sub-Alignment scored seven points.

Among Downtown Connectivity Alternatives, the Connection to Garnett and Five Points Station and the Connection to MMPT/Five Points Station were the highest scoring alternatives, each receiving a score of nine points. The Connection to Inman Park Station and Midtown via BeltLine Alignment scored eight points, and all other alternatives scored seven points or fewer.

## 3.10 Summary of Tier 1 Screening

Tier 1 Screening compared the Tier 1 Alternatives across select MOEs to determine which alternatives would advance to Tier 2 Screening. In summary, the performance of the Mainline Alternatives across a series of key metrics is presented in **Table 3-34;** of Panola Road Area Alternatives, **Table 3-35; a**nd Downtown Connectivity Alternatives, **Table 3-36.**

**Table 3-34: Summary Comparison of Mainline Alternatives**

| | Projected Travel Time from Mall at Stonecrest to Five Points | Projected Daily Boardings | Projected New Riders | Capital Costs and ROW | Projected Residential and Commercial Displacements |
|---|---|---|---|---|---|
| 1. Parallel I-20 Alignment | 37.2 minutes | 27,000 | 6,600 | $2.42B | 34 |
| 2. Connection to Edgewood Station | 38.6 minutes | 15,100 | 7,100 | $2.86B | 27 |
| 3. Heavy Rail Extension from Indian Creek | 39.9 minutes | 11,300 | 6,300 | $1.75B | 6 |

**Table 3-35: Summary Comparison of Panola Road Area Alternatives**

| | Projected Travel Time from Mall at Stonecrest to Five Points | Projected Daily Boardings | Projected New Riders | Capital Costs and ROW | Projected Residential and Commercial Displacements |
|---|---|---|---|---|---|
| 1. Parallel I-20 Sub-Alignment | 37.2 minutes | 27,000 | 6,600 | $2.42B | 34 |
| 2. Snapfinger Woods Drive Sub-Alignment | 48.2 minutes | 22,500 | 4,300 | $2.10B | 30 |

**Table 3-36: Summary Comparison of Downtown Connectivity Alternatives**

| | Projected Travel Time from Mall at Stonecrest to Five Points | Projected Daily Boardings | Projected New Riders | Capital Costs and ROW | Projected Residential and Commercial Displacements |
|---|---|---|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | 47.5 minutes | 11,800 | 2,900 | $1.95B | 28 |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | 47.1 minutes | 14,200 | 3,100 | $1.96B | 28 |
| 3. Connection to King Memorial Station | 41.8 minutes | 13,800 | 3,300 | $2.19B | 31 |
| 4. Connection to Downtown via Streetcar | 49.3 minutes | 13,800 | 3,000 | $2.16B | 30 |
| 5. Connection to Garnett and Five Points Stations | 37.2 minutes | 27,000 | 6,600 | $2.42B | 34 |
| 6. Connection to MMPT/Five Points Stations | 40.4 minutes | 23,200 | 5,300 | $2.35B | 34 |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | 48.5 minutes | 17,300 | 3,900 | $2.33B | 34 |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | 45.0 minutes | 18,100 | 3,100 | $2.07B | 28 |

The relative performance of the Tier 1 Alternatives in these metrics translates into a series of advantages and disadvantages among the alternatives in the case of their implementation. The advantages and disadvantages of Mainline Alternatives are presented in **Table 3-37;** of Panola Road Area Alternatives, **Table 3-38;** and Downtown Connectivity Alternatives, **Table 3-39.**

**Table 3-37: Advantages and Disadvantages of Mainline Alternatives**

| | Advantages | Disadvantages |
|---|---|---|
| 1. Parallel I-20 Alignment | • Serves areas along I-20 inside I-285, including South DeKalb Mall/Candler Road, Gresham Road/Flat Shoals Road, East Atlanta Village, and Glenwood Park | • Initial construction phase unlikely to extend past South DeKalb Mall, not serve areas outside I-285<br>• Significant construction and environmental constraints associated with connection into downtown Atlanta<br>• Higher total costs associated with implementation of 18+ miles of new transit line<br>• Potential for significant impacts to historic districts inside I-285<br>• Potential for higher number of displacements |
| 2. Connection to Edgewood Station | • Serves areas along I-20 inside I-285, including South DeKalb Mall/Candler Road and Gresham Road/Flat Shoals Road<br>• Avoids construction and cost issues associated with connecting directly into downtown | • Community and environmental impacts associated with connection through Kirkwood neighborhood would require a subsurface (tunnel) alignment<br>• Potential for community opposition<br>• Associated capital costs resulting from the introduction of a new transit technology, such as LRT. These costs would include new maintenance facilities. |
| 3. Heavy Rail Extension from Indian Creek | • Initial construction phase could extend MARTA rail from Indian Creek Station to Wesley Chapel Road, thus providing rapid transit service to areas outside I-285<br>• Potential for lower total costs associated with implementation of 12+ miles of new transit line<br>• Cost savings associated with the use of existing heavy rail vehicles and maintenance facilities | • Would not serve areas along I-20 inside I-285, including South DeKalb Mall/Candler Road, Gresham Road/Flat Shoals Road, East Atlanta Village, and Glenwood Park<br>• Potential for longer travel times to downtown Atlanta due to numerous stations along East-West line |

**Table 3-38: Advantages and Disadvantages of Panola Road Area Alternatives**

| | Advantages | Disadvantages |
|---|---|---|
| 1. Parallel I-20 Sub-Alignment | • Reduced and more reliable travel times due to dedicated transitway<br>• Convenient park and ride access for commuters on I-20 | • Lack of direct access to DeKalb Medical Hillandale campus and the Panola Road Industrial Area<br>• Higher costs associated with dedicated transitway |
| 2. Snapfinger Woods Drive Sub-Alignment | • Better serves the DeKalb Medical Hillandale campus<br>• Better access to the Panola Road Industrial Area<br>• Lower costs due to in-street operation | • Longer and unreliable travel times resulting from on-street operation on Snapfinger Woods Dr |

**Table 3-39: Advantages and Disadvantages of Downtown Connectivity Alternatives**

| | Advantages | Disadvantages |
|---|---|---|
| 1. Connection to King Memorial Station via Memorial Drive | • Lower costs due to in-street operation<br>• Lower costs due to limited elevated structures<br>• Shorter travel distance to MARTA East-West line | • Potential for delay due to congestion on surface streets<br>• No direct access to MARTA North-South rail line |
| 2. Connection to King Memorial Station and Downtown via Streetcar Alignment | • Lower costs due to in-street operation<br>• Provides a connection to the Atlanta Streetcar, which is expected to be operational by 2013<br>• Serves major points of interest along the Streetcar alignment<br>• Shorter travel distance to MARTA East-West line<br>• Connection to MARTA North-South and West-West rail lines | • Potential for delay and unreliable travel times due to congestion on surface streets<br>• Longer travel times to MARTA North-South rail |
| 3. Connection to King Memorial Station | • Shorter travel distance to MARTA East-West line | • Potential for delay due to congestion on surface streets<br>• Higher costs due to elevated structures along I-20<br>• No direct access to MARTA North-South rail line |
| 4. Connection to Downtown via Streetcar | • Serves major points of interest along the Streetcar alignment<br>• Provides direct connection to MARTA North-South rail line | • No direct access to MARTA East-West rail line<br>• Potential for delay due to congestion on surface streets<br>• Longer travel times to access MARTA North-South rail line via Streetcar alignment |
| 5. Connection to Garnett and Five Points Stations | • Direct connection to MARTA North-South and East-West rail lines<br>• Reliable travel times due to no in-street operation<br>• Potential station at Turner Field | • Higher costs associated with significant elevated structure through downtown |
| 6. Connection to MMPT/Five Points Stations | • Direct connection to MARTA North-South and East-West rail lines<br>• Reliable travel times due to no in-street operation<br>• Potential station at Turner Field | • Higher costs associated with significant elevated structure through downtown<br>• Potential for delay and unreliable travel times due to congestion on surface streets |
| 7. Connection to West End Station/Atlanta University Center/Ashby Station | • Connection to Atlanta University Center<br>• Connection to MARTA North-South and East-West rail lines<br>• Potential Station at Turner Field | • Longer travel times to access the MARTA North-South rail line<br>• Potential for delay and unreliable travel times due to congestion on surface streets |
| 8. Connection to Inman Park Station and Midtown via BeltLine Alignment | • Lower costs due to in-street operation and use of Beltline right-of-way<br>• Connection to points of interest along the Beltline alignment<br>• Shorter travel distance to MARTA East-West rail line | • Transit for this segment of BeltLine is not funded yet, so construction costs on the BeltLine alignment would have to be incurred by the I-20 East project<br>• Longer travel times to access the MARTA North-South rail line<br>• Potential for delay due to congestion on surface streets |

## 3.11 Tier 1 Alternatives Advanced to Tier 2 Screening

The identification of Tier 1 Alternatives to be advanced to the Tier 2 (detailed) Screening was based primarily on the evaluation results presented in the previous sections. Additionally, the Tier 1 Alternatives were presented to the SAC and other corridor stakeholders including DeKalb County and the City of Atlanta for input and feedback. The following discussion identifies how some feedback from these stakeholders was utilized in the identification of which alternatives would be advanced to the Tier 2 Screening and which alternatives would be dropped from further consideration.

### 3.11.1 **Mainline Alternatives**

**Alternatives Advanced to Tier 2 Screening**

Based on the results of the Tier 1 Screening and feedback from corridor stakeholders, the **Parallel I-20 Alignment**, the **Connection to Edgewood Station**, and the **Heavy Rail Extension from Indian Creek** were all promoted to Tier 2 Screening for further analysis. As all three Mainline Alternatives performed well in Tier 1 Screening, none warranted removal from consideration at this point in the DCA. It was determined that all three of the Mainline Alternatives would benefit from further, more detailed evaluation in combination with appropriate transit technologies, or modes in the Tier 2 Screening.

**Alternatives Dropped from Further Consideration**

None of the Mainline Alternatives were dropped from further consideration at this point in the DCA.

### 3.11.2 **Panola Road Area Alternatives**

**Alternatives Advanced to Tier 2 Screening**

As it performed well throughout the Tier 1 Screening, the **Parallel I-20 Sub-Alignment** was advanced to the Tier 2 Screening for further evaluation. This Sub-Alignment performed well in the evaluation and received overwhelming public support.

**Alternatives Dropped from Further Consideration**

Based on poor performance in the Tier 1 Screening, the Snapfinger **Woods Drive Sub-Alignment** was dropped from further consideration. The Snapfinger Woods Drive Sub-Alignment had lower projected daily ridership and new riders than the Parallel I-20 Sub-Alignment, and longer travel times from Mall at Stonecrest to Five Points. This alternative also garnered very strong opposition from residents along its alignment. For these reasons, this alternative was dropped from further consideration.

### 3.11.3 **Downtown Connectivity Alternatives**

**Alternatives Advanced to Tier 2 Screening**

The **Connection to Garnett and Five Points Stations** and the **Connection to Inman Park Station and Midtown via BeltLine Alignment** were advanced for further evaluation in the Tier 2 Screening. Both alignments performed well in the Tier 1 Screening. The Connection to Garnett and Five Points Stations had the shortest travel time with the highest projected ridership and high public support. The Connection to Inman Park Station and Midtown via BeltLine Alignment had short travel times, with moderate projected ridership, costs, and public support. Moreover, the City of Atlanta

staff supported the advancement of these two alternatives to the Tier 2 Screening since the Connection to Garnett and Five Points Stations represented a direct connection into downtown and the Connection to Inman Park Station and Midtown via BeltLine Alignment would take advantage of and support the planned BeltLine investment. For these reasons, these two alternatives were advanced.

## Alternatives Dropped from Further Consideration

Despite rating well in the Tier 1 Screening, the **Connection to MMPT/Five Points Station** was not promoted to Tier 2 Screening. This alternative was not evaluated further because for two reasons. First, this alternative would be virtually identical to the Connection to Garnett and Five Points Station alternative, but was projected to incur longer travel times and attract fewer daily riders as well as fewer new riders. Second, the MMPT is in its initial planning stages, and there are far too many unknowns about the actual facility, thus it is not prudent to pursue a connection at this time.

The **Connection to King Memorial Station and Downtown via Streetcar Alignment** and the **Connection to Downtown via Streetcar** were dropped from further consideration for several reasons. First, these alternatives did not perform well in the Tier 1 evaluation. Secondly, based on input from the City of Atlanta, the Atlanta Streetcar alignment and service, which these alternatives would follow, has been identified as only appropriate for single car transit vehicles, rather than multi-car consists. Since the ridership and operating characteristics of the I-20 East transit service would require multi-car rail consists, rather than single car, operation on the Atlanta Streetcar alignment was ruled out. For these reasons, these two alternatives were dropped from further consideration.

The **Connection to King Memorial Station via Memorial Drive** was dropped from further consideration. Despite its relatively low projected costs, this alternative performed poorly and had low public support.

The **Connection to King Memorial Station** was dropped from further consideration. This alignment had relatively short travel times, but it also had relatively high projected costs, low ridership and low public support.

The **Connection to West End Station/Atlanta University Center/Ashby Station** was dropped from further consideration due to poor performance in the Tier 1 Screening. The alternative was projected to attract relatively low ridership, have longer travel times, and higher costs than other Downtown Connectivity Alternatives.

# 4.0 TIER 2 ALTERNATIVES

The Tier 2 Alternatives represent the highest performing Tier 1 Alternatives. The purpose of the Tier 2 Screening was to identify the LPA utilizing a more robust list of evaluation criteria and MOEs. The result of the Tier 1 Screening was a set of feasible transit alignments that would connect activity centers along I-20 East Corridor with central Atlanta and the existing MARTA heavy rail system. The Tier 2 Screening paired these alignments with compatible transit technologies, or modes. As such, all Tier 2 Alternatives were evaluated with all feasible transit technologies. Thus, if a given alignment was compatible with multiple transit technologies, it was analyzed with each technology. The transit technologies identified as suitable for this project included heavy rail transit (HRT), light rail transit (LRT), and bus rapid transit (BRT).

In addition to the Tier 2 Build Alternatives, a No Build Alternative and Baseline/Transportation System Management (TSM) Alternative were developed as required by the FTA's New Starts process. These were evaluated along with the Build Alternatives.

## 4.1 Transit Technologies Considered

An initial assessment of technologies was performed to determine their appropriateness for the I-20 East Transit Initiative. Based on their vehicle characteristics, station stop characteristics, operating service, and capital and operating costs, the technologies considered in the development of Tier 2 Alternatives included BRT, LRT, and HRT. **Figure 4-1** provides a brief description of the transit technologies.

**Figure 4-1: Transit Technologies Considered**

| | | |
|---|---|---|
| Bus Rapid Transit (BRT) offers limited-stop service that relies on technology to help speed up travel. BRT operates in shared or exclusive right-of-way. This service usually has dedicated stations, pre-boarding fare payment, and is separated from normal traffic. | Light Rail Transit (LRT) consists of passenger rail cars powered by overhead catenaries. Operating individually or in short trains, service is usually on fixed rails in exclusive right-of-way. LRT and streetcar service can occasionally operate in shared traffic. | Heavy Rail Transit (HRT) operates on electric railway, and is characterized by high speeds, rapid acceleration of passenger rail cars, high platform loading, and grade separated rights-of-way from which all other vehicular and foot traffic are excluded. |
|  |  |  |

## 4.2 Description of Tier 2 Alternatives

The following are descriptions of all alternatives developed and evaluated in the Tier 2 Screening.

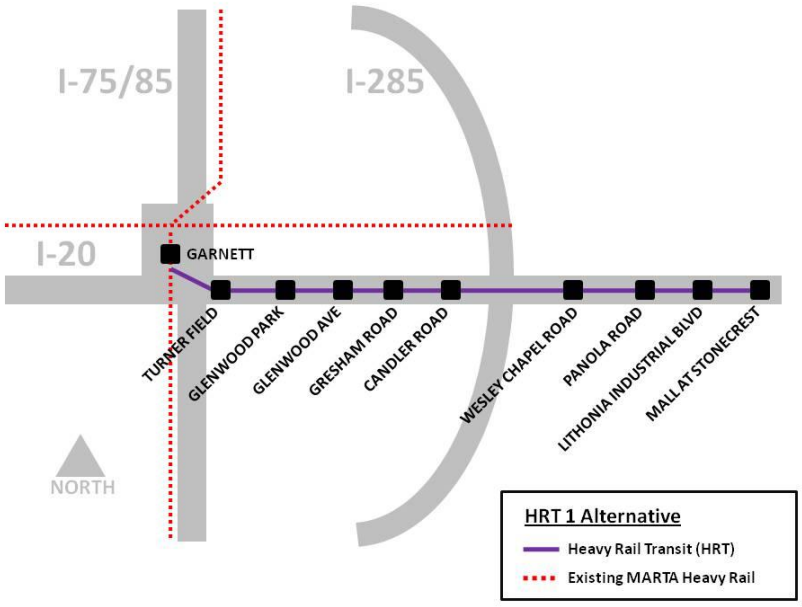
### 4.2.1 Heavy Rail Transit Alternative 1 (HRT1)

HRT1 would consist of a new HRT line that would spur from the existing MARTA rail network just south of Garnett Station. From there, the alignment would extend south

parallel to Windsor Street, then east along Glenwood Avenue/Fulton Street, before it would enter the I-20 right-of-way at Hill Street. From there, the alignment would extend east, on structure, in the center of the I-20 median. At Glenwood Avenue, the alignment would transition to the side of the interstate and run parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County.

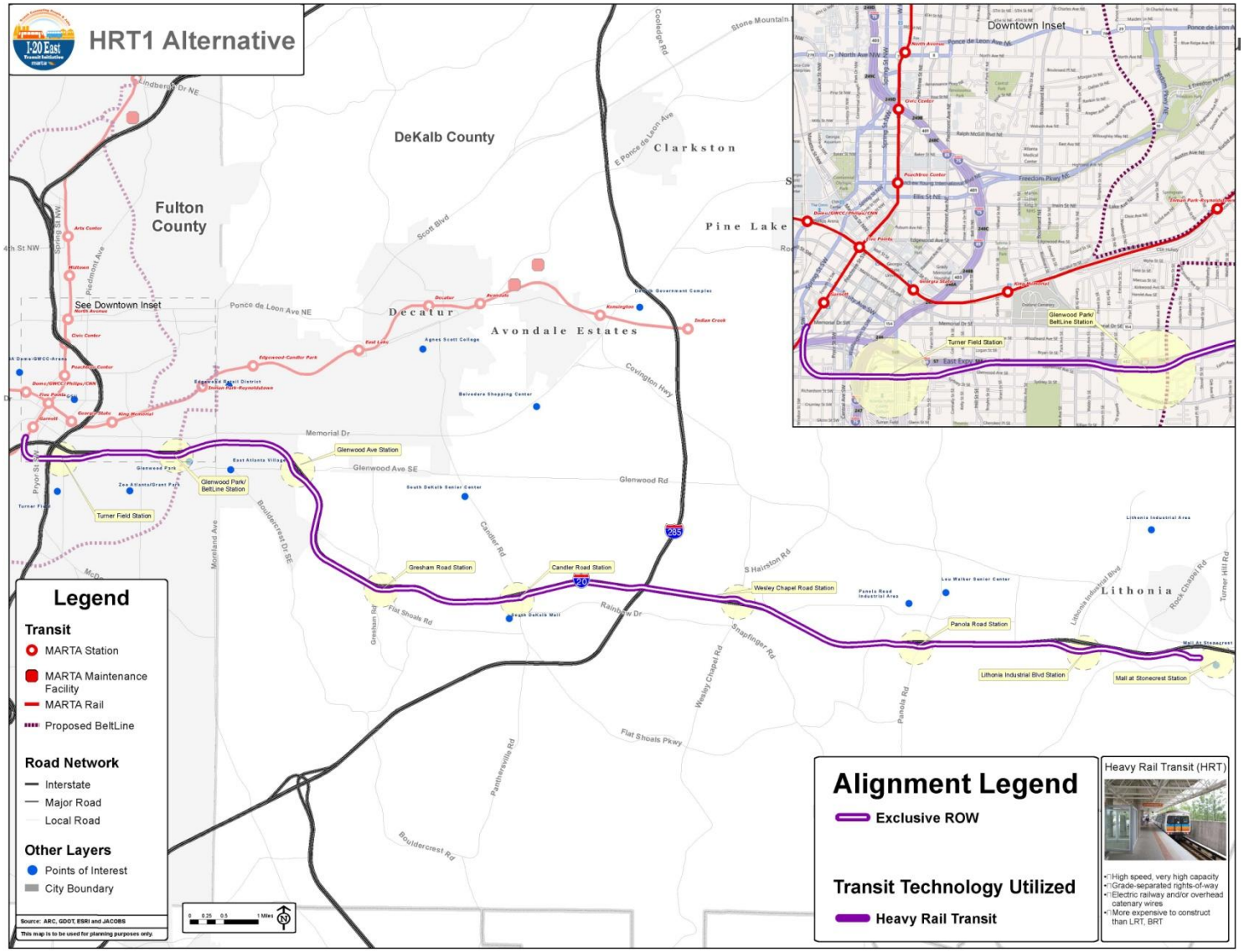
HRT1 would include stations at Turner Field, Glenwood Park, Glenwood Avenue, Gresham Road, Candler Road, Wesley Chapel Road, Panola Road, Lithonia Industrial Blvd., and Mall at Stonecrest. A conceptual map of this alignment is shown in **Figure 4-2**. A map of the HRT1 Alternative is provided in **Figure 4-3**.

**Figure 4-2: HRT1 Alternative Concept**




As shown above, this alternative would tie into the existing MARTA heavy rail system just south of the Garnett Station. This new service would continue north along the Red/Gold line serving all stations in downtown and Midtown Atlanta. The service would continue to the Lenox station where it would utilize a pocket track for a turn around without disruption to existing service. This alternative would serve as a new MARTA heavy rail line.

**Figure 4-3: HRT1 Alternative Map**

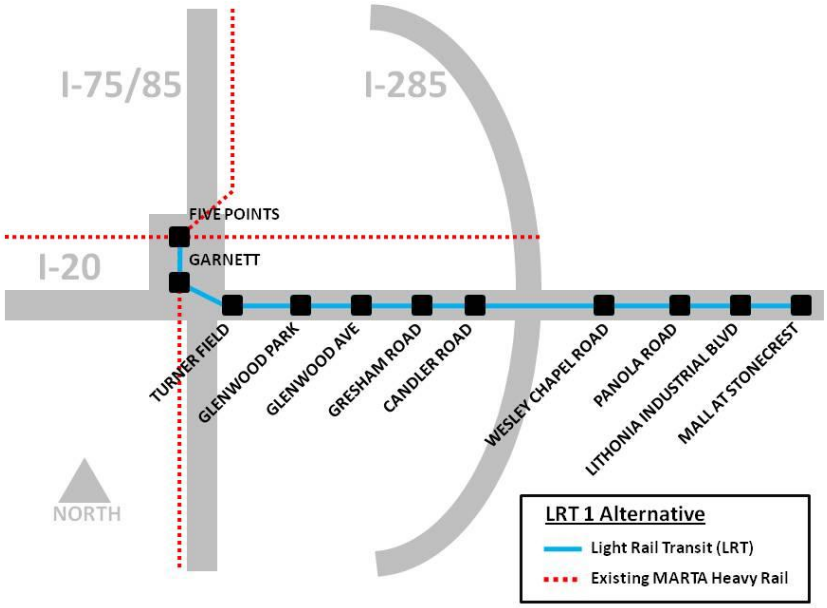


### 4.2.2 Light Rail Transit Alternative 1 (LRT1)

The LRT1 Alternative would be an LRT service that would operate along the same alignment as HRT1. It would extend at grade along Broad Street from Five Points Station to Garnett Station. Then it would operate in an exclusive guideway south of Garnett Station and extend south parallel to Windsor Street, then east along Glenwood Avenue/Fulton Street. It would enter the I-20 right-of-way at Hill Street. From there, the alignment would extend east, on structure, in the I-20 median. At Glenwood Avenue, the alignment would transition to the side of the interstate and run parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County. This alternative would require the construction of a new vehicle maintenance facility.

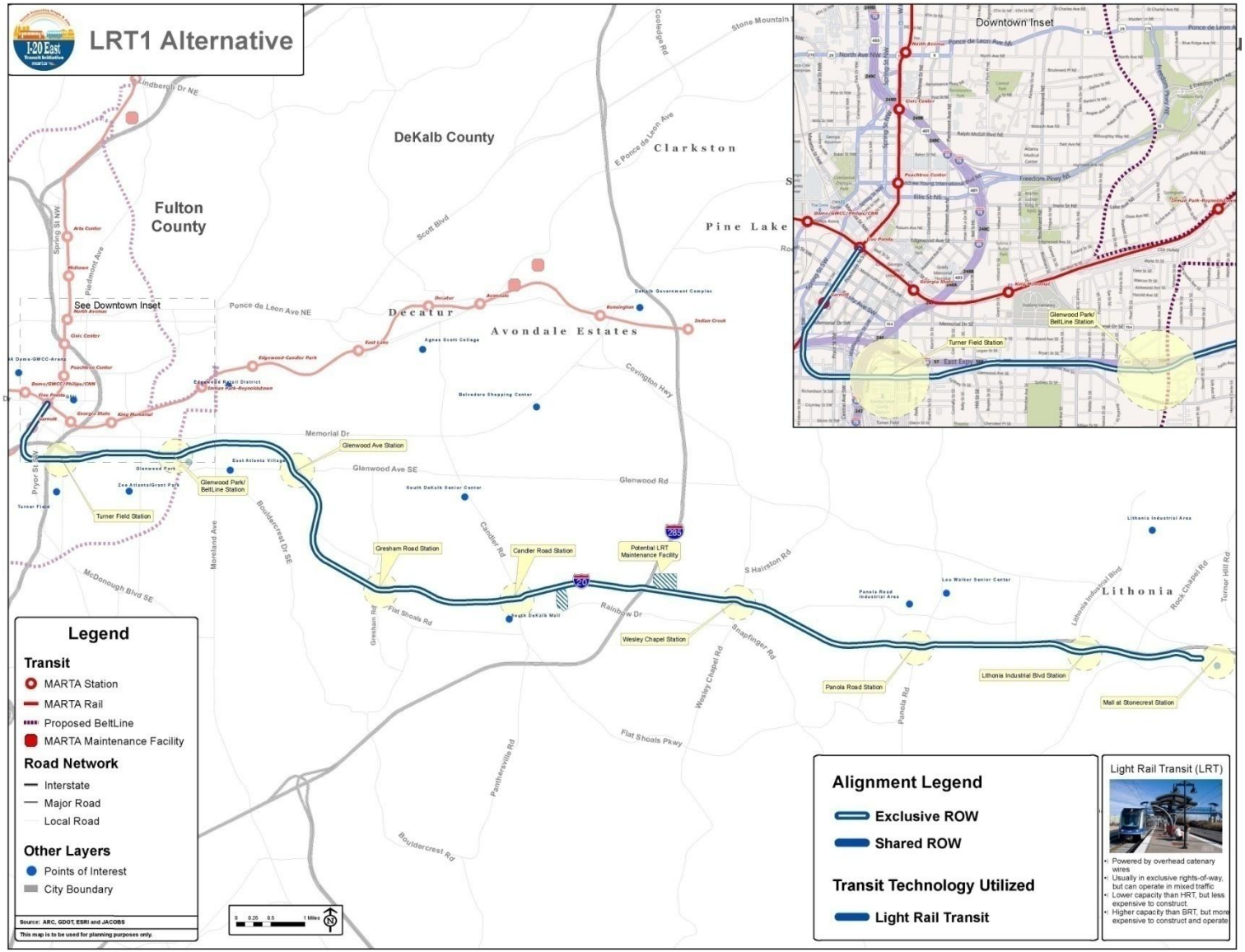
This alternative would include stations at Five Points, Garnett, Turner Field, Glenwood Park, Glenwood Avenue, Gresham Road, Candler Road, Wesley Chapel Road, Panola Road, Lithonia Industrial Blvd., and Mall at Stonecrest. A conceptual map of this alternative is shown in **Figure 4-4**. A map of the LRT1 Alternative is provided in **Figure 4-5**.

**Figure 4-4: LRT1 Alternative Concept**




As shown above, this alternative would connect to the existing MARTA heavy rail system at Five Points Station and Garnett Station. LRT1 would serve as a new light rail service in the I-20 East Corridor.

**Figure 4-5: LRT1 Alternative Map**

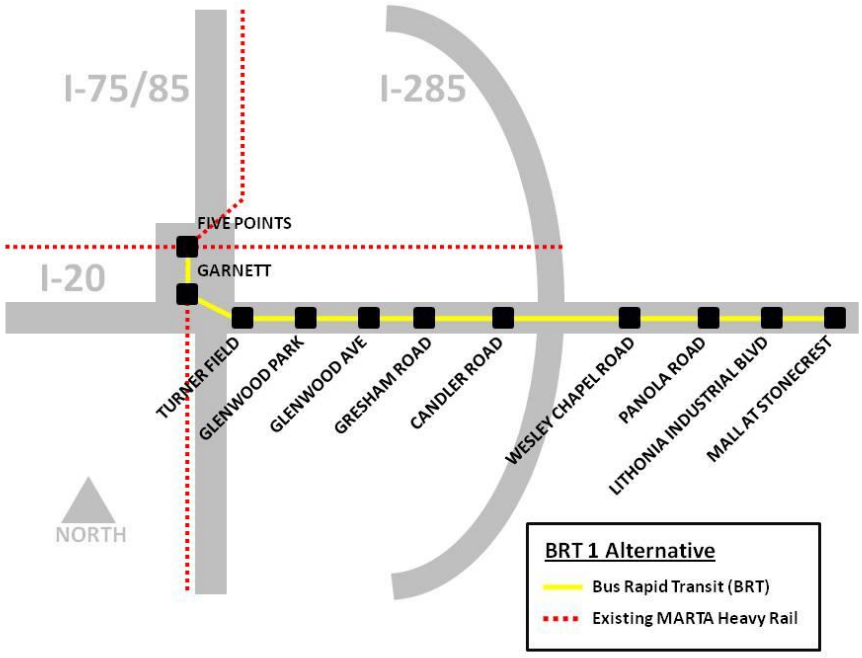


### 4.2.3 Bus Rapid Transit Alternative 1 (BRT1)

The BRT1 Alternative is a BRT line that would follow the same alignment as HRT1 and LRT1. It would operate in mixed traffic along Broad Street from Five Points Station to Garnett Station. It would then operate in an exclusive guideway south of Garnett Station and extend south parallel to Windsor Street, then east along Glenwood Avenue/Fulton Street, before it would enter the I-20 right-of-way at Hill Street. From there, the alignment would extend east, on structure, in the center of the I-20 median. At Glenwood Avenue, the alignment would transition to the side of the interstate and run parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County.

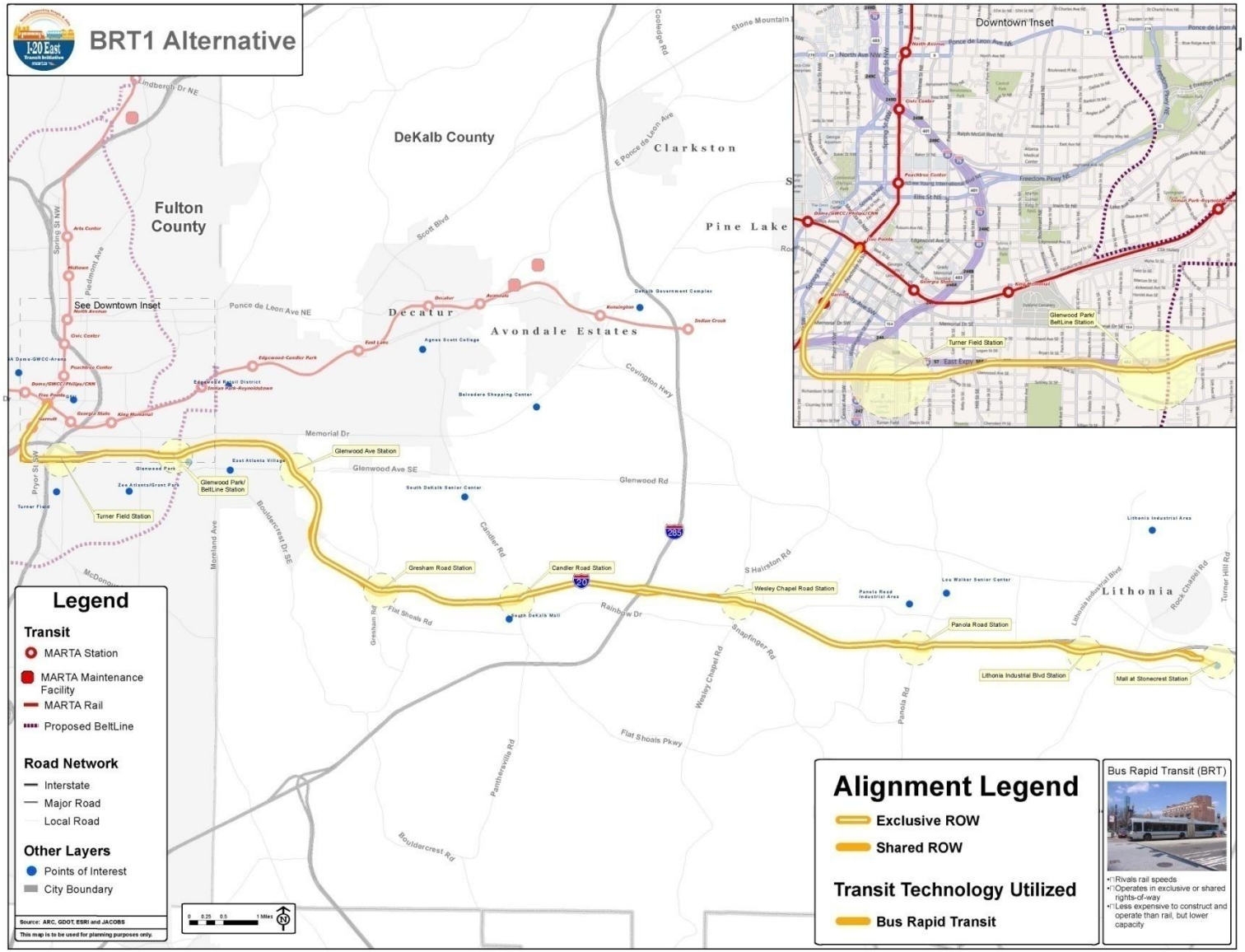
This alternative would include stations at Five Points, Garnett, Turner Field, Glenwood Park, Glenwood Avenue, Gresham Road, Candler Road, Wesley Chapel Road, Panola Road, Lithonia Industrial Blvd., and Mall at Stonecrest. This alignment would be identical and include the same station areas as the LRT1 and HRT1 alternatives. A concept of the BRT1 Alternative is shown in **Figure 4-6**. A map of the BRT1 Alternative is provided in **Figure 4-7**.

**Figure 4-6: BRT1 Alternative Concept**




As shown above, this alternative would connect to the existing MARTA heavy rail system at Five Points Station and Garnett Station. BRT1 would serve as a new bus rapid transit service in the I-20 East Corridor.

**Figure 4-7: BRT1 Alternative Map**

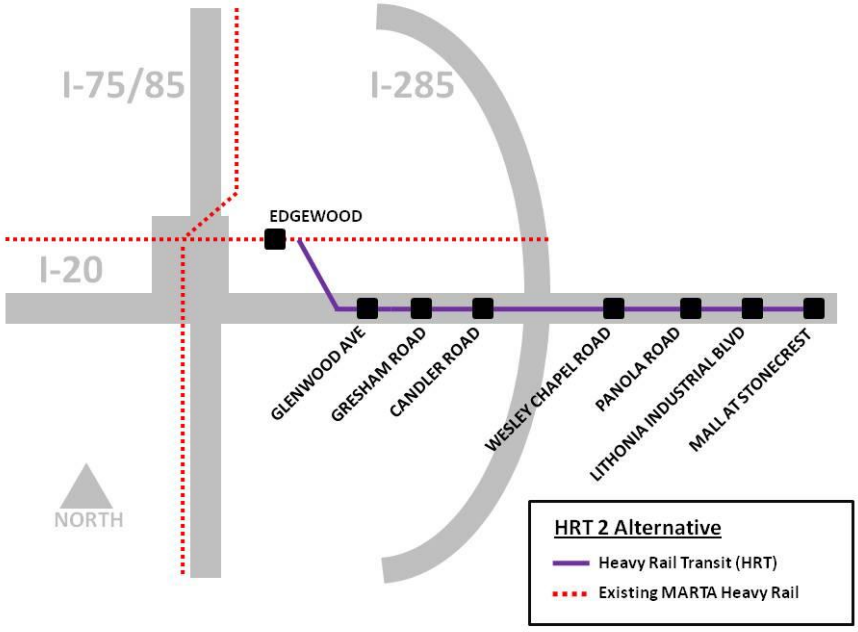


### 4.2.4 Heavy Rail Transit Alternative 2 (HRT2)

HRT2 would be a new HRT line that would spur from the existing MARTA rail network between the Edgewood/Candler Park Station and the East Lake Station. This alternative would utilize the existing tunnel portal constructed with the east-west line that was originally intended for the proposed Tucker – North DeKalb line. This tunnel portal would allow the HRT2 line to enter a tunnel alignment before leaving the MARTA right-of-way. This is necessary to ensure that this alternative does not adversely affect the surrounding historic neighborhoods. The tunnel alignment would extend south to I-20 where it would surface and run parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County.

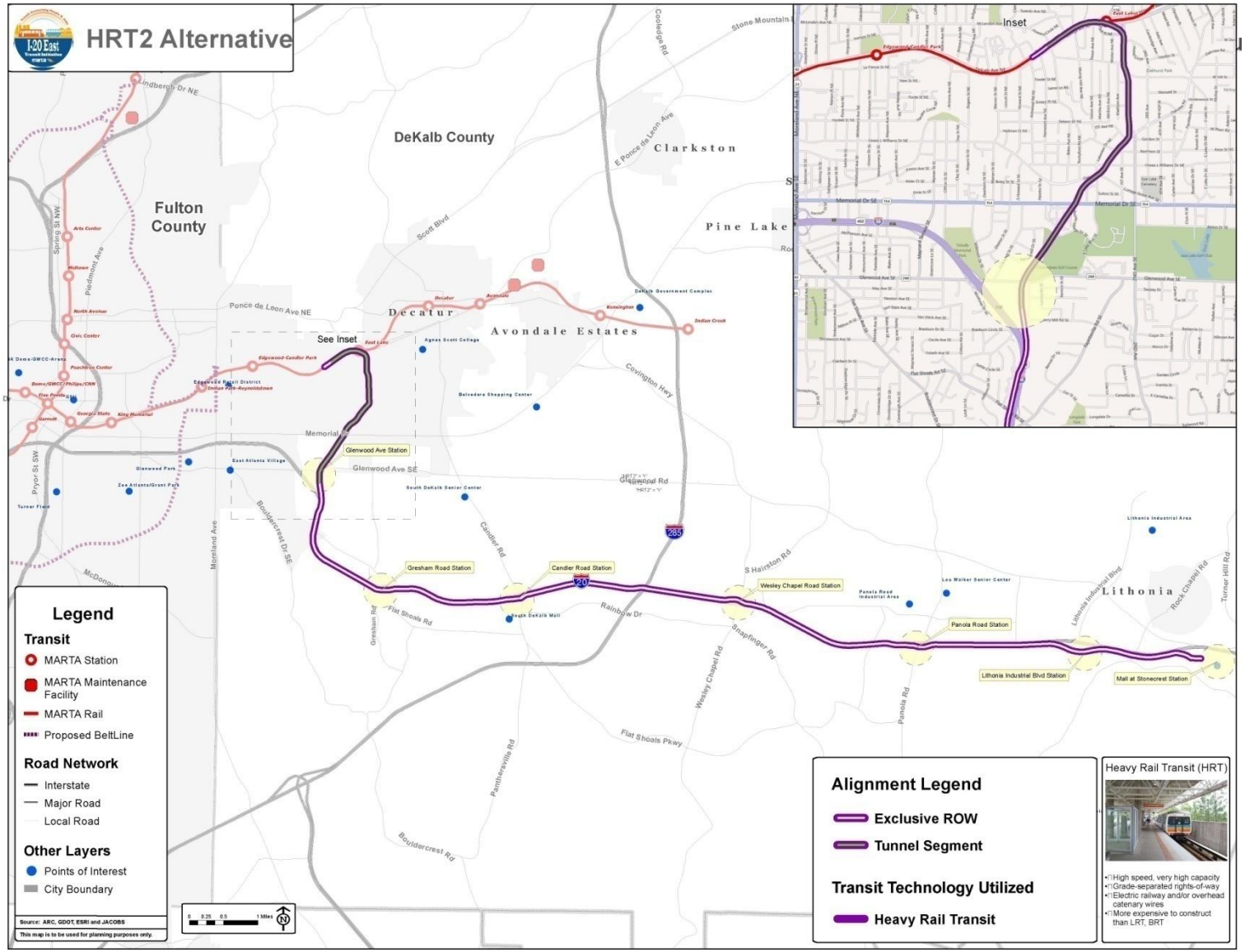
This alternative includes stations at Glenwood Avenue, Gresham Road, Candler Road, Wesley Chapel Road, Panola Road, Lithonia Industrial Blvd., and the Mall at Stonecrest. A conceptual map of this alternative is provided in **Figure 4-8**. A map of the HRT2 Alternative is provided in **Figure 4-9**.

**Figure 4-8: HRT2 Alternative Concept**




This alternative would tie into the existing MARTA heavy rail system between the Edgewood/Candler Park Station and the East Lake Station. Rather than add a third HRT service along the east-west line, this alternative would extend the MARTA Green Line from its current eastern terminus at Edgewood Candler Park Station to the Mall at Stonecrest. The Blue Line service would be unchanged.

**Figure 4-9: HRT2 Alternative Map**

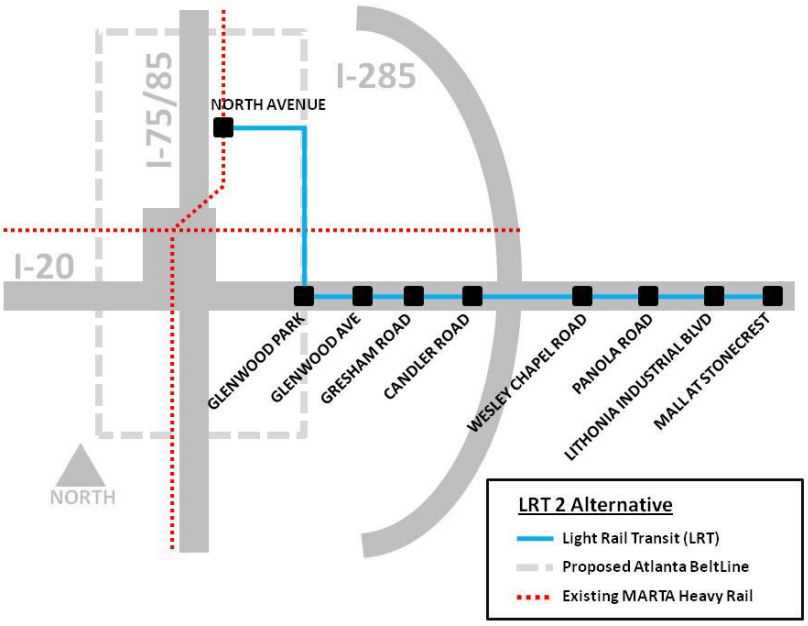


### 4.2.5 Light Rail Alternative 2 (LRT2)

LRT2 is proposed as new LRT line that would originate at the North Avenue Station and operate in mixed traffic along North Avenue east to the proposed BeltLine alignment. It would follow the BeltLine alignment south to I-20. It would then extend east in an exclusive guideway, on structure, in the center of the I-20 median. At Glenwood Avenue, the alignment would transition to the side of the interstate and run parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County. This alternative would require the construction of a new vehicle maintenance facility.

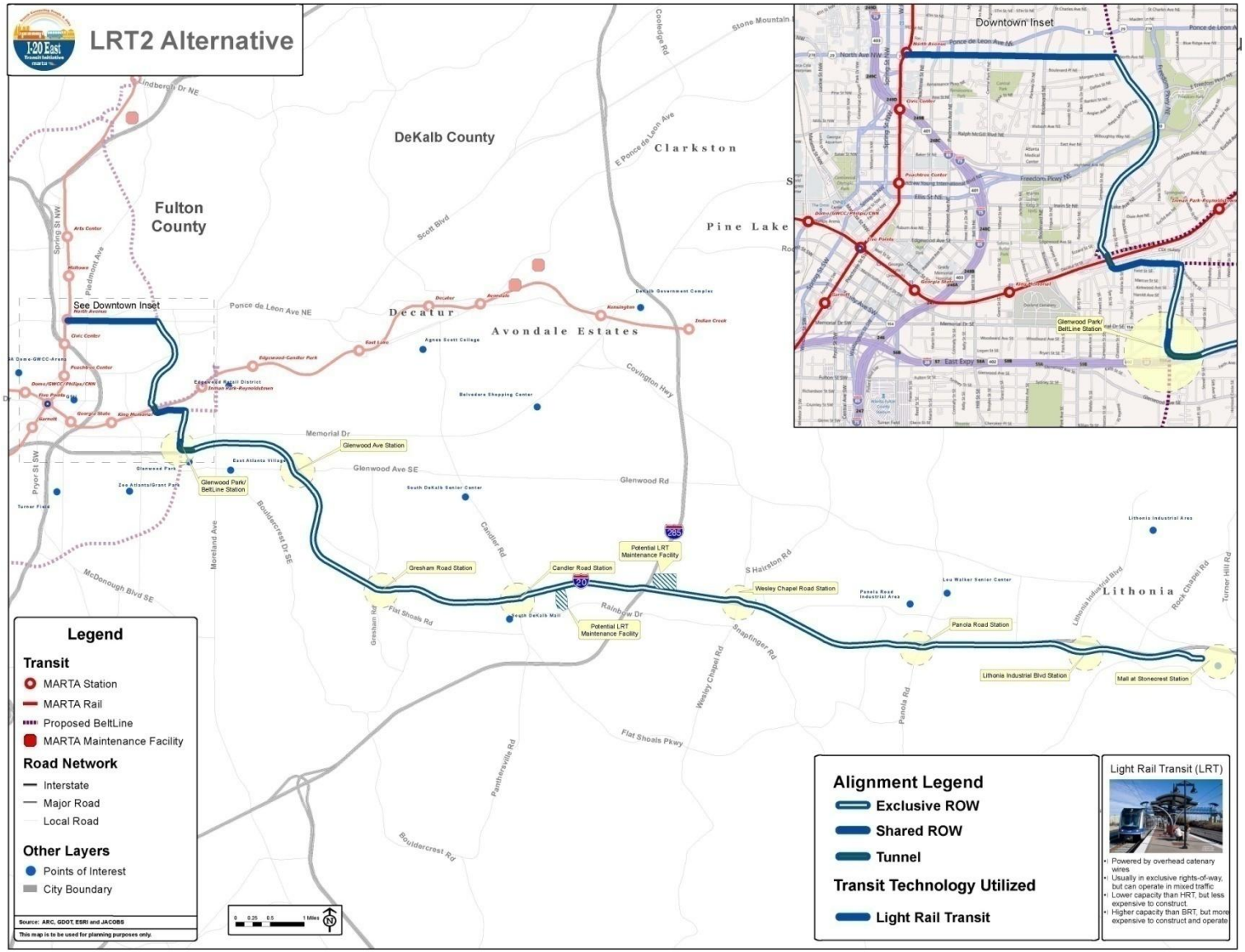
This alternative would include stops along the BeltLine alignment then stations along I-20 at Glenwood Park, Glenwood Avenue, Gresham Road, Candler Road, Wesley Chapel Road, Panola Road, Lithonia Industrial Blvd., and the Mall at Stonecrest. A conceptual map is provided in **Figure 4-10**. A map of the LRT2 Alternative is provided in **Figure 4-11**.

**Figure 4-10: LRT2 Alternative Concept**




As shown above, this alternative would utilize the BeltLine alignment to access Midtown Atlanta and the MARTA heavy rail system. LRT2 would serve as a new light rail service in the I-20 East Corridor.

**Figure 4-11: LRT2 Alternative Map**

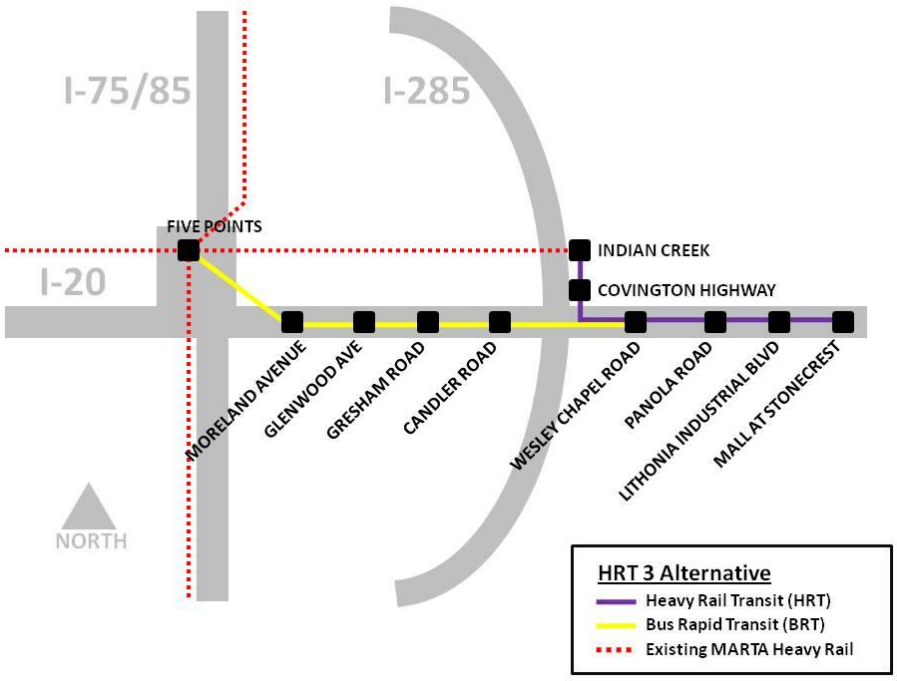


### 4.2.6 Heavy Rail Transit Alternative 3 (HRT3)

HRT3 would extend the existing MARTA east-west heavy rail line 12 miles from the Indian Creek Station, south parallel to I-285, then east parallel to I-20 to the Mall at Stonecrest in eastern DeKalb County. This alternative would also include BRT service operating on I-20 between the Five Points Station and Wesley Chapel. This would be a premium BRT service which could potentially operate on surface streets, in High Occupancy Vehicle (HOV) lanes, High Occupancy Toll (HOT) lanes, dedicated lanes or in the shoulder of the interstate, which will be determined as part of subsequent environmental and engineering studies to provide the best possible transit solution within existing physical and environmental constraints.

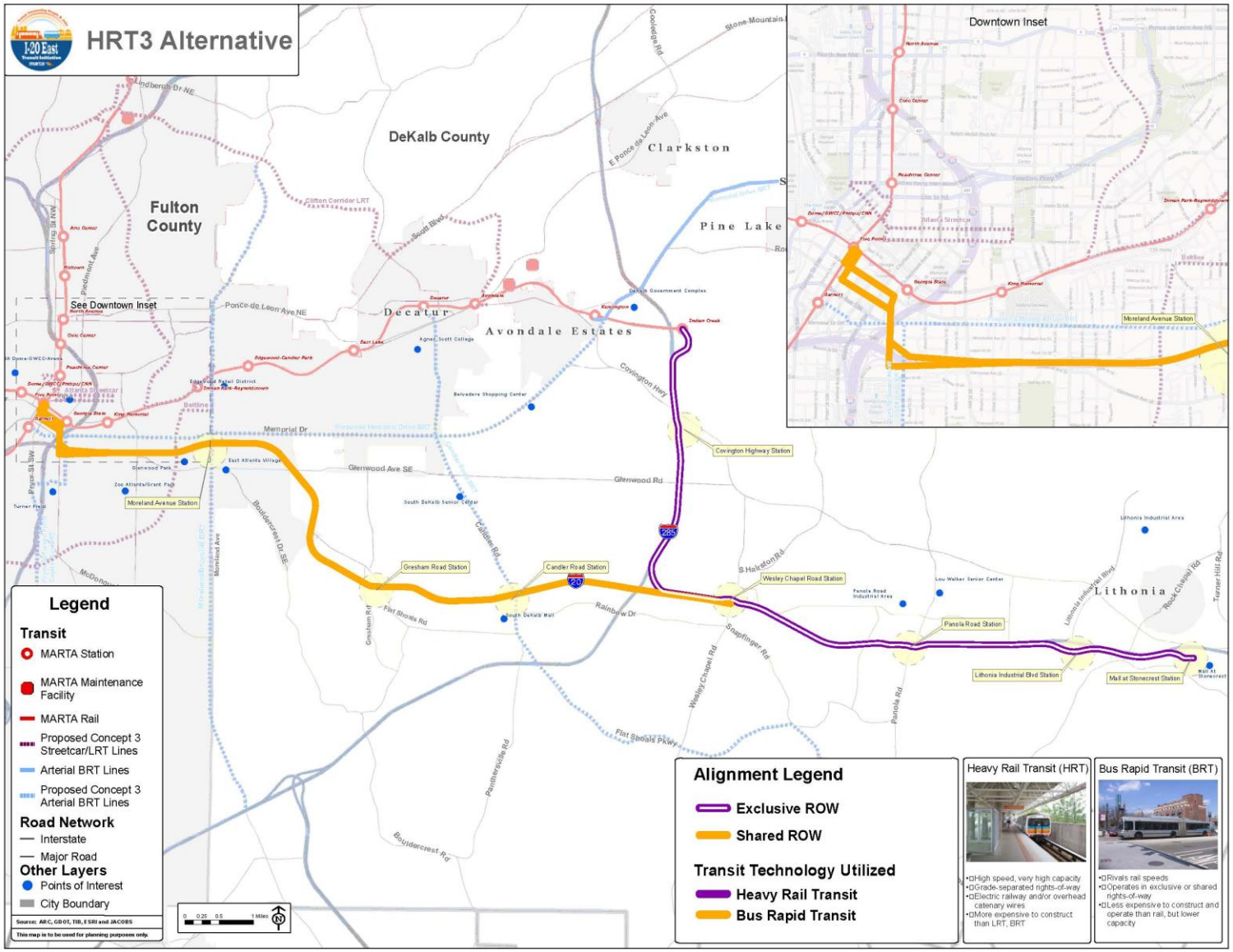
Stations along the HRT portion of this alternative would be located at Covington Highway, Wesley Chapel Road, Panola Road, Lithonia Industrial Boulevard, and Mall at Stonecrest. Stations for the BRT portion of the alternative would be located at Moreland Avenue, Glenwood Avenue, Gresham Road, Candler Road, and Wesley Chapel Road. A conceptual map of this alternative is provided in **Figure 4-12**. A map of the HRT3 Alternative is provided in **Figure 4-13**.

**Figure 4-12: HRT3 Alternative Concept**




HRT3 would extend MARTA's existing Green Line to provide new service in the I-20 Corridor. The extended Green Line would serve all new heavy rail stations as shown in the figure above, and then operate as an express service along the existing east line, serving only select stations in order to minimize travel times between Mall at Stonecrest and the Five Points Station. The Blue Line service would remain unchanged, providing local service to all existing stations between Indian Creek and Five Points Station.

**Figure 4-13: HRT3 Alternative Map**



### 4.2.7 Baseline/TSM Alternative

The Baseline/TSM Alternative is intended to be the best that can be done to improve mobility without making a major capital investment in fixed guideway infrastructure. This alternative is generally considered to be a low cost approach to addressing transportation problems in the study corridor. As such, the improvements associated with the Baseline/TSM Alternative are developed to respond to and satisfy the defined purpose and need associated with enhancing mobility in the study area. These improvements typically consist of a variety of actions to improve existing transportation services including modifications to existing bus routes, additions to existing park-and-ride facilities, and minor roadway signal improvements. The FTA guidance designates the Baseline/TSM Alternative to serve as the benchmark against which the Build Alternatives are evaluated in the New Starts program. To this end, the Baseline/TSM Alternative is utilized during the Tier 2 Screening as the basis for calculating incremental costs and benefits of a fixed guideway facility.

The I-20 East Baseline/TSM strategy focuses on developing a set of new express routes that provide linkages to downtown markets via connections to the existing MARTA heavy rail stations at Five Points or Indian Creek. The key objective of the Baseline/TSM strategy is to facilitate convenient transit access and connectivity by increasing service frequency, reducing transit travel times, and creating convenient opportunities for transfers to occur. To accomplish these objectives, new park and ride facilities, improvements to existing transit services and additional express services are proposed as part of the Baseline/TSM Alternative. More detail on the development and operational characteristics can be referenced in the *Baseline/Transportation System Management Alternative Report*.

The I-20 East Baseline/TSM strategy is a low cost approach to solving transportation needs in the corridor and includes the following:

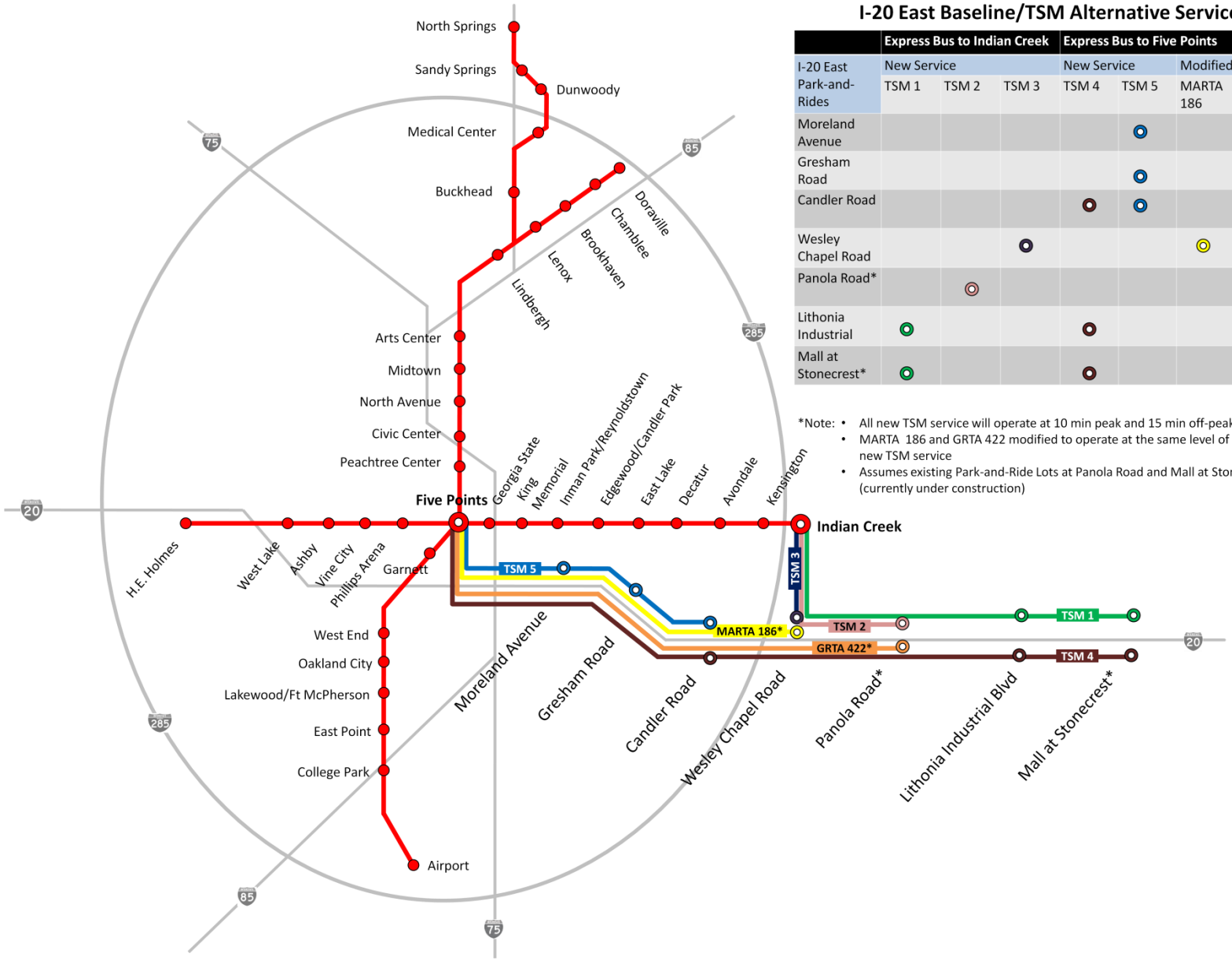
- Provide new park and ride facilities to expand opportunities to access transit.
- Enhance existing transit services to provide greater transit connectivity and accessibility within the corridor and the existing rail network; and
- Provide new limited stop express service with competitive travel times and destinations served by the Build Alternatives.

**Figure 4-14** presents a map of the proposed Baseline/TSM Alternative, which includes the new and improved express routes and identification of new park-and-ride lots.

### 4.2.8 No Build Alternative

The No Build Alternative represents future transportation conditions if no investments are made beyond transportation projects that are already planned and committed in Atlanta region's fiscally constrained long-range transportation plan. The programmed projects included in the TSM can be found in the *Baseline/Transportation System Management Alternative Report*. As such, it serves as the base case against which each of the Build Alternatives is compared.

**Figure 4-14: Baseline/TSM Alternative**




**I-20 East Baseline/TSM Alternative Service Plan**

| | Express Bus to Indian Creek | | | Express Bus to Five Points | | | |
|---|---|---|---|---|---|---|---|
| I-20 East Park-and-Rides | New Service | | | New Service | | Modified Service* | |
| | TSM 1 | TSM 2 | TSM 3 | TSM 4 | TSM 5 | MARTA 186 | GRTA 422 |
| Moreland Avenue | | | | | ● | | |
| Gresham Road | | | | | ● | | |
| Candler Road | | | | ● | ● | | |
| Wesley Chapel Road | | | ● | | | ● | |
| Panola Road* | | ● | | | | | ● |
| Lithonia Industrial | ● | | | ● | | | |
| Mall at Stonecrest* | ● | | | ● | | | |

*Note:
- All new TSM service will operate at 10 min peak and 15 min off-peak headways
- MARTA 186 and GRTA 422 modified to operate at the same level of service as new TSM service
- Assumes existing Park-and-Ride Lots at Panola Road and Mall at Stonecrest (currently under construction)

### 4.2.9 Cost Estimates for Tier 2 Build Alternatives

Cost estimates for the Tier 2 Alternatives were completed through a refinement of the Tier 1 cost estimates and the integration of factors specifically related to the chosen technology for each alignment advancing from Tier 1. More specifically, this included:

- Matching appropriate technologies for the alignments advancing from Tier 1 Screening;
- Operational characteristics of a given technology with respect to the existing and planned transit infrastructure; and
- Right-of-way availability to accommodate a specific technology.

As such, the documents utilized to refine the initial Tier 1 estimates and develop cost estimates for Tier 2 Alternatives were as follows:

- *Station Cost Estimating Methodology* - This memorandum provided preliminary costs for HRT, LRT, and BRT technologies based on a comparison of similar projects throughout the US and was utilized to refine the Tier 1 cost estimates to include capital costs for stations based on their location and type.
- *Conceptual Right-of-Way Cost Estimating Methodology* – This memorandum documented the development of right-of-way costs for each alternative. Right-of-way estimates were developed through the assumption of an 80' footprint for each alternative and applying land values based on Tax Assessor Office information from Fulton and DeKalb Counties. An 80' wide ROW footprint was assumed to provide initial order-of-magnitude costs. These initial estimates were then inflated to reflect market values, scheduling, and administrative and court costs.

**Table 4-1** presents the concept level cost estimates for the Tier 2 Build Alternatives. Please refer to the *I-20 East AA/DEIS Cost Estimating Methodology* and *Conceptual Right-of-Way Cost Estimating Methodology* memoranda for more detail on the methodology employed to develop these estimates.

**Table 4-1: Cost Estimates for Tier 2 Alternatives**

| Alternative # | Alternative Name | Right-of-Way Cost | Capital, Professional, Finance, & Contingency Costs | Total Cost | Annual O&M Costs |
|---|---|---|---|---|---|
| HRT1 | Heavy Rail Transit 1 | $233.7M | $3,048M | **$3,281M** | **$35.2M** |
| LRT1 | Light Rail Transit 1 | $233.7M | $2,467M | **$2,700M** | **$10.4M** |
| BRT1 | Bus Rapid Transit 1 | $233.7M | $1,862M | **$2,111M** | **$6.4M** |
| HRT2 | Heavy Rail Transit 2 | $116.7M | $2,612M | **$2,729M** | **$23.8M** |
| LRT2 | Light Rail Transit 1 | $112.7M | $1,987M | **$2,115M** | **$10.4M** |
| HRT3 | Heavy Rail Transit 2 | $107.4M | $1,718M | **$1,840M** | **$18.0M** |
| TSM/Baseline | TSM/Baseline | $41.9M | $29M | **$70.9M** | **$24.2M** |

## 4.3 Assumptions and Design Criteria

**Table 4-2** presents the major assumptions considered during the development and evaluation of alternatives. These include design, cost estimating, transit service, forecasting, and right-of-way cost estimating assumptions.

**Table 4-2: Major Assumptions**

| | |
|---|---|
| Design Assumptions | • All new HRT stations would be smaller, simpler stations that will cost less than traditional MARTA HRT stations.<br>• No surface street operation or at-grade rail crossings for LRT alternatives with exception of BeltLine alignment for LRT2.<br>• Sufficient capacity at existing rail maintenance facilities to maintain HRT vehicles.<br>• Sufficient capacity at existing bus maintenance facilities to maintain BRT vehicles. Some additional equipment may be necessary.<br>• A new storage and maintenance facility in the I-20 corridor would be required for LRT alternatives. |
| Capital Cost Estimates | • All cost estimates are reported in 2011 dollars.<br>• Storage and maintenance facilities were only deemed necessary for LRT alternatives. Assumed that HRT and BRT vehicles would be stored and maintained at existing MARTA facilities. |
| Service Assumptions | • 10-minute peak and 20 minute off-peak headways.<br>• Six car consists for HRT service.<br>• Four car consists for LRT service. |
| Forecasting Assumptions | • No HOV or managed lanes along I-20 east of I-285 in year 2030.<br>• GRTA express bus service would no longer serve the Panola Road park and ride lot. |
| Right-of-Way Cost Estimates | • 80' required right-of-way assumed for corridor.<br>• Property costs based on current assessed value plus escalations factors.<br>• Right-of-way requirements on publicly owned property assumed to have no cost. |

## Engineering Design Criteria

Each transit technology has its own set of design standards. Those standards are developed in conjunction with vehicle dimensions and operating characteristics. The different design criteria for the three transit technologies are found in **Table 4-3**. Design criteria were established utilizing technology standards for LRT, BRT, and HRT.

**Table 4-3: Design Criteria**

# I-20 East Design Criteria

## Light Rail Transit

**Minimum Horizontal Curve Radii:**
- Minimum
  - *<35mph = 500 ft radius*
  - *35mph = 700 ft radius*
- Absolute minimum on embedded track
  - *5mph = 82 ft radius*

**Grades**
- Preferred grade = 4% max sustained
- Maximum grade = 6% up to 2,500 feet
- Absolute maximum = 7% up to 500 feet

**Vertical Bridge Clearance Requirements**
- 23 ft between railroad and roadway over-pass
- 18 ft between roadway and railroad over-pass

**Station Platforms**
- Absolute minimum length = 330 ft
- Maximum grade = 1%

**Vehicle Design Speed**
- Desirable = 55 mph
- Minimum = 25 mph

**Passenger Capacity (per vehicle)**
- Seated = 69 (approx)
- Max density = 4 people/m²

**Vehicle Lengths**
- LRT vehicle = 90 ft

**Minimum Tangent Length Between Curves**
- Desirable = 200 ft
- Minimum = 100 ft

## Heavy Rail Transit

**Minimum Horizontal Curve Radii:**
- 60mph = 1,425 ft radius
- 50mph = 1,000 ft radius
- 37mph = 750 ft radius
- 25mph = 750 ft radius

**Grades**
- Preferred maximum grade = 3%
- Maximum grade = 4%
- Minimum grade for underground and aerial structures = 0-3%

**Vertical Bridge Clearance Requirements**
- 23 ft between railroad and roadway over-pass
- 18 ft between roadway and railroad over-pass

**Station Platforms**
- Absolute minimum length = 600 ft
- Maximum grade = 1%

**Vehicle Design Speed**
- Desirable = 70 mph
- Minimum = 25mph

**Passenger Capacity (per vehicle)**
- Seated = 64-68
- Full = 130-140
- Max = 235-250 (crush)

**Minimum Tangent length between curves**
- The greater of 3 x speed (in mph) or 100 ft

**Vehicle Lengths**
- HRT vehicle = 75 ft in locked pairs

## Bus Rapid Transit

**Minimum Horizontal Curve Radii:**
- 35 mph at 4% superelevation = 420 ft radius
- 35 mph at normal crown (2%) = 460 ft radius

**Grades**
- Maximum grade = 8%

**Vertical Bridge Clearance Requirements**
- 23 ft between busway and roadway overpass
- 18 ft between roadway and busway overpass

**Station Platforms**
- Absolute Minimum Length = 80 ft

**Vehicle Design Speed**
- Desirable = 65 mph
- Minimum = 25 mph

**Passenger Capacity (per vehicle)**
- Standard Bus = 39 seated, 60 max
- Articulated BRT Bus = 60 seated, 90 max

**Vehicle Lengths**
- Standard Bus = varies
- Articulated BRT Bus = 60 ft

**Minimum tangent length between curves**
- Dependent on radii, superelevation rate & road-way width

**Superelevation**
- Urban curbed @ 35 mph = 4% max

**All intersections within the BRT Alternatives would have Signal Priority or Signal Preemp-tion**

The minimums are listed, however, the design is completed with a factor of safety and best solution practices.

# 5.0 TIER 2 SCREENING

## 5.1 Tier 2 Screening Evaluation Criteria and MOEs

The Tier 2 Screening was a detailed evaluation of the final alternatives; therefore, significantly more evaluation criteria and MOEs were utilized to measure the effectiveness of the alternatives in addressing the identified project goals and objectives than were utilized in the Tier 1 Screening. However, the process by which alternatives were evaluated was similar to that of the Tier 1 Screening, in that each alternative was rated for its performance under a series of MOEs selected to assess the alternative's ability to meet the project goals.

As in the Tier 1 Screening, MOE scores are the foundation for the alternatives' goal scores, and finally, for their overall scores. The ratings and scores assigned to MOEs in the Tier 2 Screening were determined via the same means as in Tier 1 Screening. This process is described in **Section 3.2**.. For each alternative, the ratings for each MOE were averaged and then rounded to the nearest whole number to obtain a project goal score. In this way, each alternative was evaluated for how well it addressed each project goal. Project goal ratings were then summed for each alignment to produce overall ratings, which produced the candidate alternative for the LPA.

The performance of each alternative under each MOE was determined based on data obtained from a variety of sources and using a number of tools of analysis. **Table 5-1** presents the evaluation criteria and their associated MOEs, along with those analysis tools and resources utilized in the evaluation of alternatives within each of these categories. Please refer to the *Evaluation Framework Report* for a detailed explanation of all Tier 2 evaluation criteria and MOEs.

## 5.2 Goal 1: Increase Mobility and Accessibility

The first stakeholder identified goal of the I-20 East Transit Initiative is: **Increase Mobility and Accessibility**. As detailed in the *Purpose and Need Report*, traffic congestion and limited transportation options have led to increasingly long travel times which constrain mobility and accessibility within the corridor. Four objectives were identified by stakeholders to address this project goal:

- Objective 1.1: Improve travel times for east-west travel
- Objective 1.2: Improve transit accessibility within the corridor
- Objective 1.3: Improve connectivity with existing and planned transit investments
- Objective 1.4: Improve travel options within the corridor

For each of these project objectives, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed each objective and overall goal. The following is a description of the Goal 1 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

**Table 5-1: Tier 2 Evaluation**

| Goal 1: Increase Mobility and Accessibility | | |
|---|---|---|
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Travel Times | Transit Travel Times from Stonecrest to Five Points Station | • Travel Demand Model output |
| | Transit Travel Times from Stonecrest to Arts Center Station | • Travel Demand Model output |
| | Reduction in VHT | • Travel Demand Model output |
| | Number of transfers per linked trip | • Travel Demand Model output |
| Proximity of transit to corridor residents, employment, and special destinations. | Households with new access to transit* | • Census data<br>• GIS spatial analysis |
| | Employment within ½ mile of new stations that is not within ½ mile of existing MARTA rail stations | • Census data<br>• GIS spatial analysis |
| | Special destinations (major retail, entertainment, & university) within ½ mile of stations | • Major trip generators (GIS) and aerial photography<br>• GIS spatial analysis |
| Connections to Existing and Planned Transit | Connection to Concept 3 Rapid Transit Service | • Qualitative assessment<br>• Concept 3 Plan |
| Additional Travel Options | New Travel Mode/Facility | • Qualitative Assessment |
| **Goal 2: Provide Improved Transit Service within the Corridor** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Transit System Ridership | Total Transit Boardings | • Travel Demand Model output |
| | Transit Mode Share | • Travel Demand Model output |
| | New Transit Riders | • Travel Demand Model output |
| Transit Travel Times | Proposed transit travel times vs. auto travel times | • Travel Demand Model output |
| Proximity to Underserved Populations | Zero car households with new access to transit* | • 2000 US Census block group data<br>• GIS spatial analysis |
| | ADA population with new access to transit* | • Census data<br>• GIS spatial analysis |
| | Minority population with new access to transit* | • 2000 US Census block group data<br>• GIS spatial analysis |
| | Number of low-income households with new access to transit* | • 2000 US Census block group data<br>• GIS spatial analysis |
| | Elderly population with new access to transit* | • 2000 US Census block group data<br>• GIS spatial analysis |
| **Goal 3: Support Land Use and Development Goals** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Proximity of Underutilized Land | Acres of vacant or underutilized land within ½-mile of transit stations/stops | • GIS spatial analysis<br>• Land use maps<br>• Aerial photography |
| Land Use Plans | Consistency with adopted local and regional plans | • Community Agendas from adopted Comprehensive Plans of each jurisdiction within study area<br>• ARC Unified Growth Planning Map<br>• Previous studies (LCIs and corridor studies)<br>• GIS spatial analysis |
| Potential for TOD | Acres of transit-supportive future land uses within one-half mile of new stations/stops | • GIS spatial analysis<br>• Future Land use maps<br>• Aerial photography |
| | Acres of transit-supportive existing land uses within one-half mile of new stations/stops | • GIS spatial analysis<br>• Existing Land use maps<br>• Aerial photography |

| Goal 4: Promote Cost Effective Transit Investments | | |
|---|---|---|
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Cost and Cost Effectiveness | Capital costs (Stations, transitways, tracks, vehicles, and maintenance facilities) and right-of-way costs in $millions | • Capital unit costs experienced for similar transportation investments<br>• National and local transportation projects<br>• TPB Cost Estimates<br>• ARC RTP Cost Estimates<br>• Existing land use and parcel-level tax data<br>• Right-of-way costs from recent projects in the region<br>• Representative alignment within corridors identifying additional right-of-way required |
| | O&M costs in $millions | • Daily bus hours, bus miles, train miles, and train hours from transit network model<br>• Industry average transit O&M costs |
| | Deliverability Risk | • Identification of construction and delivery issues associated with each alternative |
| | Cost Effectiveness Index (CEI) | • FTA SUMMIT Model<br>• Travel Demand Model output |
| | Incremental cost per new rider | • Cost estimates<br>• Travel Demand Model output |
| **Goal 5: Preserve Natural and Built Environment** | | |
| | **Measure of Effectiveness** | **Tools/Resources** |
| Impact to community, cultural, and natural resources | Community Impacts (neighborhoods, churches, schools, community centers, etc.) | • GIS spatial analysis<br>• ARC ARIS community facilities shapefile<br>• Aerial photography |
| | Natural environmental impacts (streams, wetlands, T&E species, etc.) | • GIS spatial analysis using - NWI, FIRMs, GDOT's statewide DLG-F Polygonal Hydrographic dataset |
| | Cultural impacts (historic and archaeological resources) | • GIS spatial analysis using - Historic resources shapefile developed by Georgia Department of National Resources, ARC ARIS GIS data<br>• GA DNR SHPO previous studies data<br>• Windshield surveys |
| | Total residential and commercial displacements | • GIS spatial analysis<br>• Aerial photography<br>• GIS based property line information for DeKalb and Fulton Counties |
| **Goal 6: Achieve a High Level of Community Support** | | |
| **Evaluation Criteria** | **Measure of Effectiveness** | **Tools/Resources** |
| Maintain compliance with stakeholder guidance | Compliance with SAC Guiding Principles | • SAC guiding principles |
| Achieve a high level of public support | Degree of Public Support (percent of votes for Mainline, Downtown Connectivity, and Panola Road Alternatives) | • Voting at public meetings and online surveys |
| | Average Survey Score (on a scale of 1-5) for respondents living east of I-285 | • Voting at public meetings and online surveys |
| | Average Survey Score (on a scale of 1-5) of respondents living west of I-285 | • Voting at public meetings and online surveys |

### 5.2.1 Project Objective 1.1: Improve travel times for east-west travel

**Evaluation Criterion: Travel Times**

- *MOE: Transit Travel Times from Stonecrest to Five Points Station*

- This MOE measures the total transit travel time between the Mall at Stonecrest and the Five Points Station in Downtown Atlanta in 2030 for each alternative. MOE: Transit Travel Times from Stonecrest to Arts Center Station

  This MOE measures the total transit travel time between the Mall at Stonecrest and the Arts Center Station in Midtown Atlanta in 2030 for each alternative. This MOE was included to measure transit travel times to another major trip destination, Arts Center Station in Midtown Atlanta, which is the second most significant employment destination for commuters in the corridor.

- MOE: Reduction in Vehicle Hours Traveled

  This measure looks at the vehicle hours traveled (VHT) for all trips in the corridor in 2030. This measure is intended to show the potential for a reduction in the total vehicle hours traveled for all corridor trips from the various alternatives.

- MOE: Number of Transfers per Linked Trip

  This measure is designed to evaluate the efficiency of transit service based on the number of transfers a rider would have to make to complete a trip. Riders find transfers undesirable, and transfers add to trip time. Alternatives that require excessive transfers would likely be less successful transit investments.

**Objective 1.1: Performance Ratings**

**Table 5-2** presents the performance ratings for all Objective 1.1 MOEs.

**Table 5-2: Performance Ratings for Objective 1.1 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Transit Travel Times to Five Points Station | <45 minutes | 45-60 minutes | > 60 minutes |
| Transit Travel Times to Arts Center Station | <50 minutes | 50-65 minutes | > 65 minutes |
| Reduction in VHT | > 0.1% | 0.05-0.1% | <0.05% |
| Number of transfers per linked trip | <1 transfer | 1-2 transfers | >2 transfers |

### 5.2.2 Project Objective 1.2: Improve transit accessibility within the corridor

**Evaluation Criterion: Proximity of transit to corridor residents, employment, and special destinations.**

- MOE: Households with New Access to Transit

  This measure seeks to capture the number of households within reasonable proximity to the new transit stations for each alternative. This measures how well each alternative provides new transit access for corridor residents. Residents within reasonable proximity to existing rapid transit stations are not included in this measurement since they already have good access to transit.

- MOE: Employment within ½ mile of New Stations that is not within ½ mile of Existing MARTA Rail Stations

  This MOE seeks to measure how well each alternative provides improved transit access to employment within the corridor. The measure captures total employment within ½ mile of the proposed stations as long as those jobs are not already within ½ mile of an existing rapid transit station.

- MOE: Special Destinations (major retail, entertainment, & university) within ½ mile of Stations

  This MOE seeks to measure how well each alternative provides improved transit access to major retail and entertainment centers as well as universities. Examples include the Mall at Stonecrest, the Gallery at South DeKalb, and Turner Field. The measure identifies how many of these special destinations are within ½ mile of the proposed stations.

**Objective 1.2: Performance Ratings**

**Table 5-3** presents the performance ratings for all Objective 1.2 MOEs.

**Table 5-3: Performance Ratings for Objective 1.2 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Households with new access to premium transit | >40,000 HH | 35,000-40,000 HH | <35,000 HH |
| Employment within ½ mile of stations that is not also within ½ mile of an existing MARTA station | >10,000 jobs | 5,000-10,000 jobs | <5,000 jobs |
| Special Destinations (major retail, entertainment, university) within ½ mile of stations | 3 destinations | 2 destinations | 1 or 0 destinations |

### 5.2.3 Project Objective 1.3: Improve transit accessibility within the corridor

**Evaluation Criterion: Improve connectivity with existing and planned transit investments**

- MOE: Connection to *Concept 3* Rapid Transit Service

  This measure quantitatively rates the potential alternatives based upon how well they further the *Concept 3* regional transit vision by enhancing connectivity to planned facilities. This MOE measures how many connections each alternative will have with *Concept 3* rapid transit service.

**Objective 1.3: Performance Ratings**

**Table 5-4** presents the performance ratings for all Objective 1.3 MOEs.

**Table 5-4: Performance Ratings for Objective 1.3 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Connection to Concept 3 Rapid Transit | 4 connections | 3 connections | <3 connections |

### 5.2.4 Project Objective 1.4: Improve travel options within the corridor

**Evaluation Criterion: Additional Travel Options**

- MOE: New Travel Mode/Facility

  As identified by stakeholders, and presented in the *Purpose and Need Report*, there is a need to provide additional travel options in the I-20 East Corridor. This MOE would assess whether each alternative would provide an additional travel option beyond the existing automobile and bus transit options on surface streets.

**Objective 1.4: Performance Ratings**

**Table 5-5** presents the performance ratings for all Objective 1.4 MOEs.

**Table 5-5: Performance Ratings for Objective 1.4 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| New Travel Mode/Facility | Yes | - | No |

### 5.2.5 Goal 1 Evaluation Results

**Table 5-6** presents the evaluation results for Goal 1: Increase Mobility and Accessibility.

**Objective 1.1: Improve travel times for east-west travel**

As shown in Table 5-6, all Build Alternatives would provide significant travel time savings for commuters in the corridor when compared to the No Build Alternative. With the exception of the TSM and LRT2, all Build Alternatives would provide travel times between the Mall at Stonecrest and the Five Points Station of less than 40 minutes. Thus, HRT1, LRT1, BRT1, HRT2 and HRT3 were all rated a two for this MOE. With the No Build Alternative having a transit travel time of 74.4 minutes, these alternatives all offer travel times savings of more than one half hour.

LRT2 was rated a one for its transit travel time of 54.3 minutes between Five Points Station and the Mall at Stonecrest. The TSM, with its similar travel time of 59.2 minutes, was also rated a one, while the No Build Alternative was rated a zero. LRT2 would offer longer travel times to Five Points Station for two reasons: First, this alternative connects to the existing MARTA rail system at North Avenue, causing a commuter to transfer to the north-south line to travel south to Five Points Station. Second, overall travel times would be increased by the slower operating speeds and multiple stops along the BeltLine section of this alternative. While the connection to North Avenue Station offers LRT2 some time savings to the Arts Center Station, this alternative would still offer slower travel times than all Build Alternatives except the TSM.

Results were similar for the MOE which measured travel times between Arts Center Station and the Mall at Stonecrest, with all Build Alternatives but LRT2 being a rated a two for travel times less than 50 minutes and LRT2 being rated a one for its travel time of 54.3 minutes. The TSM received a zero for a travel time of 68.5 minutes, which was 14 minutes longer than that of LRT2. The No Build Alternative was rated a zero.

**Table 5-6: Goal 1 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Improve East-West Travel Times | Travel Times | Transit Travel Times to Five Points Station from the Mall at Stonecrest | 74.4 | 59.2 | 35.7 | 35.7 | 37.2 | 54.3 | 38.6 | 39.9 |
| | | Rating | 0 | 1 | 2 | 2 | 2 | 1 | 2 | 2 |
| | | Transit Travel Times to Arts Center Station from the Mall at Stonecrest | 82.9 | 68.5 | 41.7 | 44.4 | 45.9 | 54.3 | 47.1 | 48.4 |
| | | Rating | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 |
| | | Reduction in VHT | 0 | 0.01% | 0.13% | 0.08% | 0.05% | 0.04% | 0.08% | 0.07% |
| | | Rating | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 1 |
| | | Number of transfers per linked trip | 0.59 | 0.58 | 0.54 | 0.6 | 0.6 | 0.58 | 0.59 | 0.59 |
| | | Rating | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Improve Transit Accessibility within the Corridor | Proximity of transit to corridor residents, employment, and special destinations. | Households with new access to transit* | 0 | 32,690 | 40,334 | 40,334 | 40,334 | 41,886 | 34,408 | 38,224 |
| | | Rating | 0 | 0 | 2 | 2 | 2 | 2 | 0 | 1 |
| | | Employment within ½ mile of new stations that is not within ½ mile of existing MARTA rail stations | 0 | 5,171 | 6,501 | 6,501 | 6,501 | 13,030 | 4,224 | 5,589 |
| | | Rating | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 1 |
| | | Special Destinations (major retail, entertainment, university) within ½ mile of new stations | 0 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| | | Rating | 0 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| Improve Connectivity with Existing and Planned Transit Investment | Connections to Existing and Planned Transit | Connection to Concept 3 Rapid Transit Service | 0 | 3 | 4 | 3 | 3 | 3 | 3 | 4 |
| | | Rating | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 2 |
| Improve Travel Options within the Corridor | Additional Travel Options | New Travel Mode/Facility | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| | | Rating | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Goal 1: Increase Mobility and Accessibility** | | **Total Rating** | **0** | **1** | **2** | **2** | **2** | **1** | **1** | **2** |

All Build Alternatives would reduce corridor VHT. HRT1 would offer a 0.13 percent reduction in VHT, and so was rated a two. The remaining Build Alternatives would reduce corridor VHT from 0.05 percent to 0.1 percent, and were rated a one, with the exception of LRT2, which was rated a zero for a potential decrease in VHT of less than 0.05 percent. The TSM and No Build were also rated zero for the MOE for little or no reduction in VHT.

According to the travel demand model, HRT1 also offers a slightly lower number of transfers per linked trip. The model labels all premium transit trips as "linked trips" because the transit ride must be linked with other legs of the trip –walks, bus rides or drives – for a rider to make a complete trip from origin to destination. However, since all Build Alternatives, the TSM, and the No Build Alternative offer similar performance under this MOE, all were rated a two.

### Objective 1.2: Improve transit accessibility within the corridor

HRT1, LRT1, BRT1 and LRT2 would offer new transit access to more than 40,000 households in the corridor and were rated a two for the MOE. HRT3 would benefit 38,224 households and was rated a one. HRT2 would offer new access to the fewest households of all the Build Alternatives because its tunnel alignment reduces the number of stations it would service. HRT2 and the TSM were rated zero for the MOE.

All Build Alternatives provide transit access to a large number of jobs, but LRT2 would provide new access to the most of them by far. This is because LRT2 is comprised of a longer route that follows the BeltLine alignment. LRT2 was therefore rated a two for the MOE. The TSM, HRT1, LRT1, BRT1 and HRT3 all would extend transit service to more than 5,000 jobs, they were all rated a one while HRT2 was rated a zero for reaching 4,224 jobs.

All Build Alternatives offer transit access to the major retail destinations of the Mall at Stonecrest and Gallery at South DeKalb, however, only HRT1, LRT1, and BRT offer access to Turner Field as well. Therefore, these alternatives were rated a two for the MOE. LRT2, HRT2, HRT3 and the TSM were rated a one, and No Build was rated zero.

### Objective 1.3: Improve connectivity with existing and planned transit investments

All Build Alternatives would offer transit connectivity to the existing MARTA rail system, Atlanta BeltLine, and future regional rail such as the Madison commuter rail line. However, only HRT1 and HRT3 would also offer connectivity to the proposed Clifton Corridor light rail line, which would provide transit access to the employment center containing Emory University and the Centers for Disease Control (CDC). HRT1 would provide access at Lindberg Station and HRT3 would provide access at Avondale Station. These alternatives were rated two for the MOE, while the others were rated one.

### Objective 1.4: Improve travel options within the corridor

Stakeholders identified the need for new travel modes or options. All Build Alternatives, with the exception of the TSM, would offer a new transit service in a dedicated transitway and were rated two. While the TSM would offer new service, it would remain bus service on congested roadways as exists today, so was rated one. The No Build Alternative would not improve travel options and was rated zero.

### Overall Goal 1 Results: Increase Mobility and Accessibility

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 1 MOEs. As shown in Table 5-6, HRT1, LRT1, BRT1, and HRT3 all received a rating of two for the project goal of increasing mobility and accessibility. The travel time

performance combined with the improved transit accessibility allow these alternatives to perform better than the others. LRT2, HRT2, and the TSM received goal Summary Ratings of one.

## 5.3 Goal 2: Provide Improved Transit Service within the Corridor

The second stakeholder identified goal of the I-20 East Transit Initiative is: **Provide Improved Transit Service within the Corridor**. In order to evaluate how well the alternatives would provide improved transit service within the corridor, they were assessed in terms of their ability to provide transit service with sufficient capacity to accommodate growing demand. Three objectives were identified by stakeholders to address this project goal:

- Objective 2.1: Provide transit service with sufficient capacity to accommodate growing demand
- Objective 2.2: Provide travel time competitive transit service in the corridor
- Objective 2.3: Provide transit service for traditionally underserved populations

For each of these project objectives, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed each objective and overall goal. The following is a description of the Goal 2 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

### 5.3.1 Project Objective 2.1: Provide transit service with sufficient capacity to accommodate growing demand

**Evaluation Criterion: Transit System Ridership**

- MOE: Total Transit Boardings

  This MOE measures the expected total boardings onto the new transit service for each alternative.

- MOE: Transit Mode Share

  This MOE measures how well each alternative attracts corridor residents to use transit. The measure indicates how well the given alternative captures new transit trips that would otherwise be made by automobile, pedestrian, or bicycle modes.

- MOE: New Transit Riders

  This measure addresses each alternative's ability to attract new transit riders. These are riders who would otherwise not utilize transit for their trip.

**Objective 2.1: Performance Ratings**

**Table 5-7** presents the performance ratings for all Objective 2.1 MOEs.

**Table 5-7: Performance Ratings for Objective 2.1 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Total Transit Boardings | >40,000 | 20,000-40,000 | <20,000 |
| Transit Mode Share | >7% | 5-7% | <5% |
| New Transit Riders | >10,000 | 5,000-10,000 | <5,000 |

### 5.3.2 Project Objective 2.2: Provide travel time competitive transit service in the corridor

**Evaluation Criterion: Transit vs. Auto Travel Times**

- MOE: Proposed Transit Travel Times vs. Auto Travel Times

  This measure compares projected transit travel times for each alternative against automobile trip times to gauge the overall competitiveness of premium transit in the corridor. Since existing bus transit service in the corridor utilizes congested roadways, stakeholders identified a need to provide transit service that would provide competitive travel times compared to automobile travel.

**Objective 2.2: Performance Ratings**

**Table 5-8** presents the performance ratings for all Objective 2.2 MOEs. Alternatives were rated based on how many minutes they saved vs. automobile travel.

**Table 5-8: Performance Ratings for Objective 2.2 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Transit Travel Times vs. Auto Travel Times | >20 minutes | 10-20 minutes | < 10 minutes |

### 5.3.3 Project Objective 2.3: Provide transit service for traditionally underserved populations

**Evaluation Criterion: Proximity to Underserved Populations**

- MOE: Zero Car Households with New Access to Transit

  This measure identifies the total number of zero-car households within proximity to the proposed stations for each alternative. Zero car households are a good indicator of transit dependant populations. This MOE measures each alternative's ability to provide premium transit service to the transit dependant population in the corridor.

- MOE: ADA Population with New Access to Transit

  This MOE identifies the disabled population living within proximity to the proposed stations along each alternative. It measures each alternative's ability to provide premium transit service to the disabled population in the corridor.

- MOE: Minority Population with New Access to Transit

  This MOE identifies the number of minority persons within proximity to the proposed stations along each alternative. It measures each alternative's ability to provide new premium transit service to minorities within the corridor.

- MOE: Low-Income Population with New Access to Transit

  This MOE identifies the number of low-income persons within proximity to the proposed stations along each alternative. It measures each alternative's ability to provide new premium transit service to the low-income population within the corridor.

- MOE: Elderly Population with New Access to Transit

  This MOE identifies the number of elderly (65+) persons within proximity to the proposed stations along each alternative. It measures each alternative's ability to provide new premium transit service to the elderly population within the corridor.

### Objective 2.3: Performance Ratings

**Table 5-9** presents the performance ratings for all Objective 2.2 MOEs. Alternatives were rated based on transit travel time reduction vs. automobile travel time.

**Table 5-9: Performance Ratings for Objective 2.2 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Zero car households with new access to transit | >3,500 | 2,500-3,500 | <2,500 |
| ADA population with new access to transit | >15,000 | 10,000-15,000 | <10,000 |
| Minority population with new access to transit | >100,000 | 80,000-100,000 | <80,000 |
| Low-income households with new access to transit | >12,000 | 10,000-12,000 | <10,000 |
| Elderly persons with new access to transit | >9,000 | 7,000-9,000 | <7,000 |

## 5.3.4 Goal 2 Evaluation Results

**Table 5-10** presents the evaluation results for Goal 2: Provide Improved Transit Service within the Corridor.

### Objective 2.1: Provide transit service with sufficient capacity to accommodate growing demand

As presented in Table 5-10, HRT1 is projected to attract the highest total transit boardings of all alternatives and was rated two for the MOE. Since HRT1 provides single-seat transit to all MARTA stations on the north-south line between Garnett Station and Lennox Station, this alternative was expected to attract the highest ridership. HRT1 offers direct transit access, without any transfers, to most downtown and Midtown Atlanta employment centers. All other alternatives would require a transfer onto the north-south line to access these employment centers. LRT1, BRT1, HRT2, and HRT3 attract between 27,000 and 33,000 riders each day and were given a rating of one. LRT2 and the TSM were projected to attract only 18,400 and 12,700 daily riders, respectively, and were rated zero.

All Build Alternatives are expected to improve transit mode share slightly in the corridor. Since HRT1 attracts the most riders, it also garners the highest transit mode share. However, as mode share varied only slightly across all alternatives, from 5.14 for the No Build Alternative to 5.6 for HRT1, all alternatives were rated a one for the MOE.

HRT1 also attracts the highest number of new transit riders,12,300, and was rated a two for this MOE. LRT1 and HRT2 were both projected to attract 8,200 new riders; HRT3, 6,400; HRT2, 5,300; and BRT1, 5,200. These alternatives were rated a one, while the TSM, with 1,100 projected new riders, was rated zero.

### Objective 2.2: Provide travel time competitive transit service in the corridor

All Build Alternatives are expected to offer faster travel times between the Mall at Stonecrest and Five Points Station when compared to automobile travel in 2030. HRT1, LRT1, BRT1, HRT2, and HRT3 are all expected to provide greater than 20 minutes of travel time savings and were rated two for the MOE. LRT1 offers only 6.7 minutes of savings due to the slow operation on the BeltLine alignment and the transfer to the north-south line to travel south to Five Points Station. The TSM offered just 1.8 minutes of travel time savings. LRT1 and the TSM were rated zero for the MOE due to the pronounced difference between their travel time savings and those of the remaining alternatives.

**Table 5-10: Goal 2 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Provide Transit Service with Sufficient Capacity to Accommodate Growing Demand | Transit System Ridership | Total Transit Boardings | - | 12,700 | 41,900 | 33,300 | 27,700 | 18,400 | 32,200 | 28,700 |
| | | Rating | - | 0 | 2 | 1 | 1 | 0 | 1 | 1 |
| | | Transit Mode Share | 5.14 | 5.19 | 5.6 | 5.47 | 5.34 | 5.33 | 5.46 | 5.37 |
| | | Rating | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | New Transit Riders | - | 1,100 | 12,300 | 8,200 | 5,200 | 5,300 | 8,200 | 6,400 |
| | | Rating | - | 0 | 2 | 1 | 1 | 1 | 1 | 1 |
| Provide Travel Time Competitive Transit Service in the Corridor | Transit vs. Auto Travel Times | Difference between transit travel times and auto travel times between the Mall at Stonecrest and Five Points, in minutes | - | 1.8 | 25.3 | 25.3 | 23.8 | 6.7 | 22.4 | 21.1 |
| | | Rating | - | 0 | 2 | 2 | 2 | 0 | 2 | 2 |
| Provide Transit Service for Traditionally Underserved Populations | Proximity to Underserved Populations | Zero car households with new access to transit* | - | 2,594 | 2,642 | 2,642 | 2,642 | 3,276 | 2,343 | 3,198 |
| | | Rating | - | 1 | 1 | 1 | 1 | 2 | 0 | 2 |
| | | ADA population with new access to transit* | - | 11,217 | 11,244 | 11,244 | 11,244 | 12,400 | 10,430 | 16,263 |
| | | Rating | - | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | | Minority population with new access to transit* | - | 87,021 | 88,498 | 88,498 | 88,498 | 90,802 | 85,558 | 101,407 |
| | | Rating | - | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | | Number of low-income households with new access to transit* | - | 11,774 | 11,924 | 11,924 | 11,924 | 13,572 | 10,758 | 14,333 |
| | | Rating | | 1 | 1 | 1 | 1 | 2 | 1 | 2 |
| | | Elderly population with new access to transit* | - | 7,436 | 7,516 | 7,516 | 7,516 | 7,875 | 7,104 | 9,149 |
| | | Rating | - | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| **Goal 2: Provide Improved Transit Service within the Corridor** | | **Total Rating** | **0** | **1** | **1** | **1** | **1** | **1** | **1** | **2** |

*within two miles of Collector or Commuter Town Center Stations or within one-half mile of Town Center and Special Regional Destination Stations and not within ½ mile of existing Urban Core, Neighborhood, or Town Center Stations nor within two miles of existing Commuter Town Center or Collector stations.

**Objective 2.3: Provide transit service for traditionally underserved populations**

As shown in Table 5-10, all alternatives offer improved transit access to traditionally underserved populations. However, HRT3 outperforms all other alternatives for all categories with the exception of LRT2 which provides slightly better transit access to zero car households.

**Overall Goal 2 Results: Provide Improved Transit Service within the Corridor**

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 2 MOEs. As shown in Table 5-10, HRT3 is the only alternative that receives a rating of two for the goal of providing improved transit service within the corridor. HRT3 combines strong ridership performance and with the highest transit accessibility for underserved populations. All other alternatives receive a rating of one for Goal 2.

## 5.4 Goal 3: Support Land Use and Development Goals

The third stakeholder identified goal of the I-20 East Transit Initiative is: **Support Land Use and Development Goals**. Stakeholders identified a major need for development and redevelopment throughout much of the corridor. In order to evaluate how well the alternatives would address this goal, they were assessed for their potential to attract economic development and revitalization, whether they were consistent with the local land use plans, and whether station areas were supportive of TOD. Three objectives were identified by stakeholders to address this project goal:

- Objective 3.1: Promote economic development and revitalization
- Objective 3.2: Support adopted local land use plans
- Objective 3.3: Encourage transit supportive land use and development patterns

For each of these project objectives, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed each objective and overall goal. The following is a description of the Goal 3 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

### 5.4.1 Project Objective 3.1: Promote economic development and revitalization

**Evaluation Criterion: Proximity of Underutilized Land**

- MOE: Acres of Vacant or Underutilized Land within ½ Mile of Transit Stations/Stops

  This MOE examines the extent of vacant or underutilized land within ½ mile of the proposed stations associated with each alternative. Underutilized land includes areas that are clearly not operating to their highest and best use. This includes areas of excessive parking, large parcels with only a small percentage of the land area improved, and developed areas with a large percentage of vacant or abandoned structures. These areas represent prime locations in which redevelopment could occur. Vacant and underutilized land around existing MARTA stations was not considered in this analysis.

**Objective 3.1: Performance Ratings**

**Table 5-11** presents the performance ratings for the Objective 3.1 MOE.

**Table 5-11: Performance Ratings for Objective 3.1 MOE**

| | Ratings | | |
|---|---|---|---|
| **Measures of Effectiveness** | 2 | 1 | 0 |
| Acres of vacant or underutilized land within ½-mile of transit stations/stops | >800 acres | 400-800 acres | <400 acres |

### 5.4.2 Project Objective 3.2: Support adopted local land use plans

**Evaluation Criterion: Land Use Plans**

- MOE: Consistency with Adopted Local and Regional Plans

  This MOE identifies if the proposed station locations for each alternative are consistent with local and regional land use policies.

**Objective 3.2: Performance Ratings**

**Table 5-12** presents the performance ratings for the Objective 3.2 MOE.

**Table 5-12: Performance Ratings for Objective 3.2 MOE**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Consistency with adopted local and regional plans | Complete | Partial | Inconsistent |

### 5.4.3 Project Objective 3.3: Encourage transit supportive land use and development patterns

**Evaluation Criterion: Potential for TOD**

- MOE: Acres of Transit-Supportive Future Land Uses within one-half Mile of New Stations/Stops

  This MOE identifies how many acres of transit supportive land uses within ½ mile of the proposed stations/stops are included in future land use plans. This MOE measures how supportive the future land uses in the station areas will be of TOD.

- MOE: Acres of Transit-Supportive Existing Land Uses within one-half Mile of New Stations/Stops

  This MOE identifies how many acres of transit supportive land uses within ½ mile of the proposed stations/stops are included in existing land use plans. This measures how supportive the existing land uses in the station areas will be of TOD.

**Objective 3.3: Performance Ratings**

**Table 5-13** presents the performance ratings for all Objective 3.3 MOEs.

**Table 5-13: Performance Ratings for Objective 3.3 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Acres of transit-supportive future land uses | >2000 acres | 1000-2000 acres | <1000 acres |
| Acres of transit-supportive existing land uses | >500 acres | 300-500 acres | <300 acres |

### 5.4.4 Goal 3 Evaluation Results

**Table 5-14** presents the evaluation results for Goal 3: Support Land Use and Development Goals.

#### Objective 3.1: Promote economic development and revitalization

As presented in Table 5-14, all Build Alternatives provide transit access to over 800 acres of vacant or underutilized land, and were rated a two. The No Build Alternative would not offer any new access to land, developable or otherwise.

#### Objective 3.2: Support adopted local land use plans

Proposed stations associated with each of the Build Alignments are planned for locations at which local and/or regional plans have called for TOD or mixed-use, nodal future development. Therefore, all station locations for all alternatives are in support of adopted local land use plans. New vehicles associated with alternatives BRT1, HRT1, HRT2, and HRT3 would be maintained at existing MARTA rail or bus maintenance facilities. However, since LRT1 and LRT2 would introduce a new transit vehicle type to the MARTA system, they would require the construction of a storage and maintenance facility within the corridor. An LRT facility would require between 25 and 35 acres within close proximity to the proposed alignment. As such, the only vacant parcels suitable for the construction of such a facility are identified with residential land uses under existing and future plans. Thus, LRT1 and LRT2 would not fully comply with existing and future land use plans.

All alternatives offer full consistency with adopted land use plans with the exception of LRT1 and LRT2. Therefore, the TSM, HRT1, BRT1, HRT2, and HRT3 were rated two for the MOE. Their partial compliance garnered these alternatives a rating of one for the MOE.

#### Objective 3.3: Encourage transit supportive land use and development patterns

All alternatives would build stations within close proximity to a significant amount of land that has been identified in existing and future land use plans as being supportive of TOD. Due to its alignment along the proposed Atlanta BeltLine, LRT2 would provide transit access to far more transit-supportive future land uses than the other alternatives, 2718.1 acres, or 741.3 more acres of such lands than the next best alternatives, HRT1, LRT1 and BRT1 with 1976.8 acres, would access. The worst performing alternative, HRT2, would access 1470.9 acres, approximately 500 acres less than the second-best performing alternatives. LRT2 was therefore rated a two for the MOE and the other Build Alternatives were rated a one. The No Build Alternative would offer no new access to these lands and received no rating for the MOE.

Access to existing transit-supportive land was less varied among alternatives. HRT1, LRT1, BRT1 and LRT2 would access between 500 and 570 acres of existing transit-supportive lands, and were rated two for the MOE. Other Build Alternatives would offer access between 340 and 425 acres, and were rated a one. Again, the No Build Alternative would offer no new access to these lands and received no rating for the MOE.

#### Overall Goal 3 Results: Support Land Use and Development Goals

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 3 MOEs. As shown in Table 5-14, all Build Alternatives are expected to support land use and development goals. As such, all Build Alternatives were given a rating of two.

**Table 5-14: Goal 3 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Promote Economic Development and Revitalization | Proximity of Underutilized Land | Acres of vacant or underutilized land within ½-mile of new transit stations/stops | - | 844.7 | 977.8 | 977.8 | 977.8 | 900.4 | 818.7 | 892 |
| | | Rating | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Support Adopted Local Land Use Plans | Land Use Plans | Consistency with adopted local and regional plans | - | Complete | Complete | Partial | Complete | Partial | Complete | Complete |
| | | Rating | - | 2 | 2 | 1 | 2 | 1 | 2 | 2 |
| Encourage Transit Supportive Land Use and Development Patterns | Potential for TOD | Acres of transit-supportive future land uses within one-half mile of new stations/stops | - | 1584.1 | 1976.8 | 1976.8 | 1976.8 | 2718.1 | 1470.9 | 1584.1 |
| | | Rating | - | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| | | Acres of transit-supportive existing land uses within one-half mile of new stations/stops | - | 401.3 | 509.3 | 509.3 | 509.3 | 566.1 | 349.7 | 422.8 |
| | | Rating | - | 1 | 2 | 2 | 2 | 2 | 1 | 1 |
| **Goal 3: Support Land Use and Development Goals** | | **Total Rating** | **0** | **2** | **2** | **2** | **2** | **2** | **2** | **2** |

## 5.5 Goal 4: Promote Cost Effective Transit Investments

The fourth stakeholder identified goal of the I-20 East Transit Initiative is: **Promote Cost Effective Transit Investments**. Given the fiscal constraints facing transportation investments in the Atlanta region, project costs were identified as a critical measurement for the evaluation of alternatives. One objective was identified by stakeholders to address this project goal:

- Objective 4.1: Provide transit service that can be implemented, operated, and maintained with available resources

For this project objective, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed this objective and overall goal. The following is a description of the Goal 4 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

### 5.5.1 Project Objective 4.1: Provide transit service that can be implemented, operated, and maintained with available resources

**Evaluation Criterion: Cost and Cost Effectiveness**

- MOE: Capital Costs (Stations, transitways, tracks, vehicles, and maintenance facilities) and Right-of-Way Costs in $millions

  This MOE compares total capital and right-of-way costs for each alternative. Since right-of-way costs are a small percentage of the capital costs, they were included in this MOE.

- MOE: Operating and Maintenance (O&M) Costs in $millions

  This MOE compares the annual O&M costs of each alternative. This is an important factor in the evaluation of alternatives since these are ongoing annual costs.

- MOE: Deliverability Risk

  The purpose of this measure is to identify key project deliverability risks or issues that could serve to delay or prevent the construction of an alternative. This is a qualitative MOE that identifies key construction and delivery issues associated with each alternative. For instance, complicated transit construction such as tunneling involves significant unknowns (e.g. underground utilities and geology) that could significantly delay or prevent implementation.

- MOE: Cost Effectiveness Index (CEI)

  The measure is computed as the annual incremental cost of the alternative compared to the TSM divided by the annual hours of user benefits provided by the alternative. The costs include annualizing the capital costs as well as the annual O&M costs. The hours of user benefits is generated by the FTA Summit program.

- MOE: Incremental Cost per New Rider

  The purpose of this measure is to capture the cost-effectiveness of each alternative in attracting new riders to the transit system. The ARC regional TDM output is

utilized to determine the number of new transit users. Capital costs and O&M costs are annualized and then divided by the new transit users to compute the value.

**Objective 4.1: Performance Ratings**

**Table 5-15** presents the performance ratings for the Objective 4.1 MOEs.

**Table 5-15: Performance Ratings for Objective 4.1 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Capital & Right-of-Way Costs | <$2.0B | $2.0-2.5B | >$2.5B |
| Operations and Maintenance Costs | <$15M | $15M-$30M | >$30M |
| Deliverability | <2 Deliverability Risks | 2-3 Deliverability Risks | 4+ Deliverability Risks |
| Cost Effectiveness Index (CEI) | <$120 | 100-150 | < 100 |
| Incremental cost per new rider | <$104 | 100-125 | <100 |

### 5.5.2 Goal 4 Evaluation Results

**Table 5-16** presents the evaluation results for Goal 4: Promote Cost Effective Transit Investments.

**Objective 4.1: Provide transit service that can be implemented, operated, and maintained with available resources**

As presented in Table 5-16, the projected capital and right-of-way costs for Build Alternatives vary greatly, with the most expensive nearing $3.3B and the least expensive almost half that amount. The Baseline/TSM is expected to be $71M since it is, by definition, the low cost alternative. With the exception of the TSM, HRT3 is the least expensive alternative at $1.84B. Although heavy rail is the most expensive transit mode considered in this study, the significantly shorter length of HRT3 affords this alternative the lowest cost and thus, along with the TSM, a rating of two. LRT2 and BRT1 are slightly more costly than HRT3 with costs of $2.115B and $2.111B respectively. These alternatives earn a rating of one. With costs of $3.281B, $2.700B, and $2.729B, alternatives HRT1, LRT1 and HRT2 all earn a rating of zero.

All HRT alternatives are projected to require significantly higher O&M costs than LRT or BRT alternatives. Since HRT1 would operate between the Mall at Stonecrest and the existing Lenox Station, it has the higher O+M costs of $35.2M per year. BRT1 would have the lowest O&M costs of $6.4M per year. Although the TSM/Baseline Alternative would have the lowest capital and right-of-way costs, its O+M costs are the second highest due to the large number of vehicles that this alternative would require to serve the expected demand in this corridor.

All alternatives are expected to incur some deliverability risk with the exception of the TSM, which was designed to be implemented without major capital investment and would likely require little to no risk. The TSM was rated a two for the MOE. All Build Alternatives are expected to require close coordination with GDOT for design approvals and right-of-way agreements. HRT1, LRT1, BRT1, and LRT2 are expected to require very costly and complicated construction of structures in the median of I-20 to avoid impacts to historic neighborhoods within the City of Atlanta. These structures are expected to be as tall as 50’ in locations where they are above both I-20 and cross streets. A related deliverability risk is the design exception that would be required from GDOT and FHWA in order to construct these structures in the middle of I-20. The design exception would be required since these structures would reduce the width of the interstate shoulder along I-20 current standards. These Build Alternatives were rated a one for the MOE.

**Table 5-16: Goal 4 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Provide Transit Service that Can be Implemented, Operated, and Maintained with Available Resources | Cost and Cost Effectiveness | Capital costs (Stations, transitways, tracks, vehicles, and maintenance facilities) and Right-of-Way costs in $millions | - | $71 | $3,281 | $2,700 | $2,111 | $2,115 | $2,729 | $1,840 |
| | | Rating | - | 2 | 0 | 0 | 1 | 1 | 0 | 2 |
| | | O&M costs in $millions | - | $24.20 | $35.20 | $10.40 | $6.40 | $10.40 | $23.80 | $18.00 |
| | | Rating | - | 2 | 0 | 2 | 2 | 2 | 1 | 1 |
| | | Deliverability Risk | - | No Deliverability Risk | 3 Deliverability Risks | 3 Deliverability Risks | 3 Deliverability Risks | 4 Deliverability Risks | 4 Deliverability Risks | 1 Deliverability Risk |
| | | Rating | - | 2 | 1 | 1 | 1 | 0 | 0 | 2 |
| | | Cost Effectiveness Index | - | - | $95.37 | $118.79 | $193.55 | $178.84 | $121.94 | $125.21 |
| | | Rating | - | - | 2 | 1 | 0 | 0 | 1 | 1 |
| | | Incremental cost per new rider | - | - | $91.09 | $108.85 | $143.30 | $135.52 | $110.34 | $94.38 |
| | | Rating | - | - | 2 | 1 | 0 | 0 | 1 | 2 |
| **Goal 4: Promote Cost Effective Transit Investments** | | **Total Rating** | **0** | **2** | **1** | **1** | **1** | **1** | **1** | **2** |

LRT2 would face another key deliverability risk due to the construction of a tunnel under the CSX railroad and rail yard. This tunnel would require complicated construction methods as well as an agreement with CSX. HRT2 would face a key deliverability risk due to a very complicated, approximately two mile tunnel required under multiple neighborhoods. This tunnel would also require that vents be constructed in the historic neighborhoods above. These vents may face significant environmental constraints if they require the purchase of property from historic resources. Finally, HRT2 is likely to face significant public opposition of the neighborhoods it traverses. These two Build Alternatives were rated a one for deliverability risk.

Although HRT1 would incur the highest capital and right-of-way cost, its high ridership allows it to attain the lowest CEI of $95.37 and thus a rating of two. LRT1, HRT2 and HRT3 all attained a rating of one with CEIs ranging from $118.79 to $125.21. BRT1 and LRT2 had far higher CEIs, more than $50.00 above the previous alternatives, and each was rated zero. The TSM was used in calculating this MOE and was not rated. The No Build had neither costs nor riders and was not rated.

HRT1 and HRT3 both attained a rating of two for incremental cost per new rider with $91.09 and $94.38, respectively. LRT1 and HRT2 had incremental costs approximately $15.00 to $18.00 higher than the top performers, and were rated one for the MOE. BRT1 and LRT2 had incremental costs that were over $30.00 above LRT1 and HRT2, and were rated zero. The TSM was used in calculating this MOE and was not rated. The No Build had neither costs nor riders and was not rated.

**Overall Goal 4 Results: Promote Cost Effective Transit Investments**

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 4 MOEs. As shown in Table 5-16, HRT3 and the TSM are the only alternatives that received an overall rating of two for Goal 4. At $1.84B, HRT3 has the lowest total cost of all alternatives and almost one half the cost of the most expensive alternative (HRT1). Furthermore, HRT3 is more than $300M less expensive than the next lowest cost alternative (LRT2). The primary reason HRT3 has significantly lower costs is because it would utilize the existing MARTA east-west line to provide a direct transit connection into downtown Atlanta. By utilizing the existing transit investment, HRT3 avoids the construction of an expensive and complicated connection into downtown Atlanta, and its use of existing GDOT right-of-way reduces its overall cost.

## 5.6 Goal 5: Preserve the Natural and Built Environment

The fifth stakeholder identified goal of the I-20 East Transit Initiative is: **Preserve the Natural and Built Environment**. This goals seeks to minimize project impacts on natural, cultural, and community resources within the corridor. With the I-20 East Corridor largely developed, there are limited natural resources such as wetlands, streams, and undisturbed habitat. However, because the corridor is so developed, there is the potential for significant impacts to community resources such as residences and businesses. The objective identified by stakeholders to address this project goal:

- Objective 5.1: Minimize Impacts to Environmental Resources

For this project objective, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed this objective and overall goal. The following is a description of the Goal 5 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

### 5.6.1 Project Objective 5.1: Provide transit service that can be implemented, operated, and maintained with available resources

**Evaluation Criterion: Impact to community, cultural, and natural resources**

- MOE: Community Impacts (neighborhoods, churches, schools, community centers, etc.)

  This MOE provides a quantitative measure of the number of direct impacts to identifiable community resources each project alternative would have. Community resources include neighborhoods, churches, schools, community centers, and others.

- MOE: Natural Environment Impacts (streams, wetlands, threatened and endangered species, etc.)

  This MOE provides a quantitative measure of the number of direct impacts to natural resources each project alternative would have. For purposes of this evaluation, natural resources include streams, wetlands, and threatened and endangered species and habitat.

- MOE: Cultural Resource Impacts (historic properties, cemeteries, etc.)

  This MOE provides a quantitative measure of the number of direct impacts to cultural resources each project alternative would have. For purposes of this evaluation, cultural resources include historic and archaeological resources that are eligible for inclusion in the National Register of Historic Places (NRHP).

- MOE: Total Residential and Commercial Displacements

  This MOE provides a quantitative measure of the number of residential and commercial displacements that each alternative would have. While all projects would have right-of-way requirements, the physical displacement of a resident or business is seen as a significant impact.

**Objective 5.1: Performance Ratings**

**Table 5-17** presents the performance ratings for the Objective 5.1 MOEs.

**Table 5-17: Performance Ratings for Objective 5.1 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Community Impacts (neighborhoods, churches, schools, community centers, etc.) | None | Potential | Direct |
| Natural environmental impacts (streams, wetlands, T&E species, etc.) | <2,000+ linear feet of stream impacts | 2,000-2,500 linear feet of stream impacts | >2,500 linear feet of stream impacts |
| | Less than one acre of potential wetland impacts | One to five acres of potential wetland impacts | More than five acres of potential wetland impacts |
| Cultural resource impacts (historic properties, cemeteries, etc.) | None | Potential | Direct |
| Total residential and commercial displacements | <20 | 20-40 | 40+ |

### 5.6.2 Goal 5 Evaluation Results

**Table 5-18** presents the evaluation results for Goal 5: Preserve the Natural and Built Environment

**Table 5-18: Goal 5 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minimize Impacts to Environmental Resources | Impact to community, cultural, and natural resources | Community Impacts (neighborhoods, churches, schools, community centers, etc.) | - | Potential for noise and vibration impacts | Direct impacts to three neighborhoods & potential for noise and vibration impacts | Direct impacts to three neighborhoods & potential for noise and vibration impacts | Direct impacts to three neighborhoods & potential for noise and vibration impacts | Direct impacts to three neighborhoods & potential for noise and vibration impacts | Direct impacts to one neighborhood & potential for noise and vibration impacts | Potential for noise and vibration impacts |
| | | Rating | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Natural environmental impacts (streams, wetlands, T&E species, etc.) | - | None | 2,110 linear feet of potential stream impacts and .077 acres of potential wetland impacts | 2,110 linear feet of potential stream impacts and .077 acres of potential wetland impacts | 2,110 linear feet of potential stream impacts and .077 acres of potential wetland impacts | 2,110 linear feet of potential stream impacts and .077 acres of potential wetland impacts | 2,705 linear feet of potential stream impacts and .077 acres of potential wetland impacts | 524 linear feet of potential stream impacts and 1.2 acres of potential wetland impacts |
| | | Rating | 2 | 2 | 1 | 1 | 1 | 1 | 0 | 1 |
| | | Cultural resource impacts (historic or archaeological resources) | - | Potential indirect impact to multiple historic resources | Direct impact to one historic resource & potential indirect impact to multiple historic resources | Direct impact to one historic resource & potential indirect impact to multiple historic resources | Direct impact to one historic resource & potential indirect impact to multiple historic resources | Direct impact to one historic resource & potential indirect impact to multiple historic resources | Potential indirect impact to multiple historic resources | Potential indirect impact to multiple historic resources |
| | | Rating | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Total residential and commercial displacements | - | 10 | 47 | 47 | 47 | 41 | 35 | 13 |
| | | Rating | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Goal 5: Preserve the Natural and Built Environment** | | **Total Rating** | **0** | **2** | **0** | **0** | **0** | **0** | **1** | **1** |

### Objective 5.1: Minimize Impacts to Environmental Resources

As shown in Table 5-18, all Build Alternatives would have some impact to community, natural and cultural resources in the corridor. HRT1, LRT1, BRT1, and LRT2 would all incur more impact to neighborhoods and historic resources since the development within the I-285 Perimeter is much closer to the interstate. Furthermore, there is very little GDOT right-of-way along I-20 inside the Perimeter when compared to I-20 outside the Perimeter.

In terms of impacts to the surrounding community, only the No Build alterative was rated a two, as it was the only alternative that could be expected to incur no impacts. HRT1, LRT1, BRT1, and LRT2 performed poorly, with estimated direct impacts to three neighborhoods as well as the potential for noise and vibration impacts resulting from their longer alignments. These alternatives were rated zero. The TSM, HRT2 and HRT3 were determined to have the potential to impact one or no communities and the potential for noise and vibration impacts, and were rated one.

In the environmental analysis, the No Build and TSM were the only alternatives to rate a two for having little to no potential for negative impacts. HRT1, LRT1, BRT1 and LRT2 had 2,110 linear feet of potential stream impacts and .077 acres of potential wetland impacts along a shared portion of their alignments and rated a one. HRT2 was projected to have the same potential for wetland impacts as well as 2,705 linear feet of potential stream impacts and was rated a zero. While HRT3 was projected to have just 524 linear feet of potential stream impacts, it was also projected to have 1.2 acres of potential wetland impacts, and so was rated a one.

The cultural resource analysis found that HRT1, LRT1, BRT1, and LRT2, with their longer alignments, could be expected to have a direct impact to one historic resource as well as the potential for indirect impact to multiple historic resources, for which they were rated zero for the MOE. The TSM, HRT2 and HRT3 were rated one for their potential for indirect impact to multiple historic resources. Again, the No Build rated a two for having no potential for negative impacts.

The main difference between Build Alternatives in the Goal 5 evaluation is the number of expected residential and commercial displacements. As stated above, development along I-20 inside the Perimeter is generally closer to the interstate. Therefore, HRT1, LRT1, BRT1, LRT2, and HRT2 are all expected to incur more than 35 displacements. HRT3 is only expected to incur 13 displacements. For this reason HRT3 received a rating of one, the TSM received a rating of two, and all other alternatives received a rating of zero.

### Overall Goal 5 Results: Preserve the Natural and Built Environment

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 5 MOEs. Since HRT3 utilizes existing MARTA rail infrastructure to provide rail service from I-285 to and from downtown, this alternative also incurs the least impacts to community, natural, and cultural resources.

## 5.7 Goal 6: Achieve a High Level of Community Support

The sixth stakeholder identified goal of the I-20 East Transit Initiative is: **Achieve a High Level of Community Support**. In order to evaluate how well the alternatives would address Goal 6, they were assessed in terms of their ability to provide transit investments that are supported by local stakeholders and the general public. This support was quantified in terms of each alternative's compliance with SAC Guiding Principles, the support each received in an on-line public survey. The objective identified by stakeholders to address this project goal is:

- Objective 6.1: Provide Transit Investments that are Supported by Local Stakeholders and the General Public

For this project objective, specific evaluation criteria and MOEs were utilized to measure how well project alternatives addressed this objective and overall goal. The following is a description of the Goal 6 MOEs and the results of the evaluation of Tier 2 Alternatives against these MOEs. Please refer to the *Evaluation Framework Report* for a more detailed explanation of the project evaluation criteria and MOEs.

### 5.7.1 Project Objective 6.1: Provide Transit Investments that are Supported by Local Stakeholders and the General Public

**Evaluation Criterion: Maintaining Compliance with Stakeholder Guidance**

- MOE: Compliance with SAC Guiding Principles

The I-20 East SAC identified six primary functional and operational characteristics that a new transit service in the corridor should have. This MOE evaluates how well each alternative addresses these Guiding Principles for Transit Service in the I-20 East Corridor. These Guiding Principles are:

- Transit should be a rapid service to downtown Atlanta serving commuters with few stops.
- There should be dedicated transitway for length of project. No, or very limited, transit operation on surface streets in mixed traffic.
- A new transit line in the corridor must have direct connection to MARTA heavy rail system.
- There must be a way for riders to transfer to/from the Atlanta BeltLine.
- It is important to limit number of transfers to reduce travel times.
- The most desirable connection to downtown would be at the Five Points/MMPT since it would provide a connection to the north-south and east-west MARTA rail lines without additional transfers.

Each alternative was reviewed for compliance with these principles, receiving two points for full compliance, one point for partial compliance, and zero points when it failed to comply. The degree to which each alternative in each category complies with the SAC Guiding Principles can be found in **Table 5-19**. These six scores were then summed for each alternative to create a SAC Guiding Principle compliance score, which was then translated into a performance rating of zero, one, or two in the Goal 6 evaluation.

**Evaluation Criterion: Achieve a high level of public support**

As detailed in the *Purpose and Need Report* and *Travel Trends Assessment Report*, those residents living east of I-285 experience significantly more congestion and longer travel times to and from central Atlanta compared to those residents who live west of I-285 (i.e. inside the Perimeter). With different transportation challenges facing the eastern and western portions of the study corridor, it was necessary to separately measure the public's opinion from each area. This way the public's support for, or opposition to, of the project alternatives would reflect the specific travel challenges of residents within each portion of the study area.

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**Table 5-19: Alternatives' Compliance with SAC Guiding Principles**

| SAC Guiding Principles | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|
| **Transit should be a rapid service to downtown serving commuters with few stops.** | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 |
| **Dedicated transitway for entire length of project. None, or very limited, operation on surface streets in mixed traffic** | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 1 |
| **System must have direct connection to MARTA heavy rail system** | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **There must be a way for riders to transfer to/from the BeltLine** | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Important to limit number of transfers to reduce travel times** | 0 | 1 | 2 | 1 | 1 | 1 | 2 | 2 |
| **The most desirable connection to downtown would be at the Five Points/ MMPT since it would provide a connection to the north-south and east-west MARTA rail lines without additional transfers** | 0 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |
| **Total Score** | **0** | **5** | **12** | **11** | **11** | **8** | **12** | **11** |

- MOE: Average Survey Score (on a scale of 1-5) for Respondents Living East of I-285

The MOE evaluates the support, or opposition to, of each of the Tier 2 Alternatives by corridor residents living east of I-285 (i.e. outside the Perimeter). The residents east of I-285 in the study area experience long travel times and heavy congestion in traveling to Downtown Atlanta. In addition, they currently have access to little, if any, bus service, and no premium transit service options in their area that connect to downtown Atlanta.

- MOE: Average Survey Score (on a scale of 1-5) for Respondents Living West of I-285

The MOE evaluates the support for, or opposition to, of each of the Tier 2 Alternatives by corridor residents living west of I-285 (i.e. inside the Perimeter). The residents west of I-285 in the study area experience congestion on local roads, but their proximity to downtown Atlanta leads to shorter travel times overall. Residents in this area have access to bus service, and in some cases, premium transit service that connects to downtown Atlanta

### Objective 6.1: Performance Ratings

**Table 5-20** presents the tiered ratings for Goal 6 MOEs. Under the first MOE, Compliance with SAC Guiding Principles, an alternative was rated a two if it scored 11-12 points, it was rated a one if it scored an 8-10, and rated a zero if it scored less than an eight.

In order to measure public support of the alternatives, an online public survey was prepared. The survey was opened in September 2011 and was available until the end of October 2011. The survey was promoted at public meetings, on the project website, and on the project Facebook page. The respondents were given an overview of each of the six Tier 2 Build Alternatives and then asked to rate each alternative on a scale from one to five, in which one is the least appropriate for the corridor and five is the most appropriate. The survey received 653 responses. It is important to note that the voting results do not represent a statistically accurate representation of all I-20 East Corridor residents. Rather, it is just the voting results of those who took the survey.

**Table 5-20: Performance Ratings for Objective 5.1 MOEs**

| | Ratings | | |
|---|---|---|---|
| **Measure of Effectiveness** | **2** | **1** | **0** |
| Compliance with SAC Guiding Principles | 11-12 | 8-10 | <8 |
| Average Survey Score (on a scale of 1-5) for respondents living east of I-285 | >3.0 | 2.0-3.0 | <2.0 |
| Average Survey Score (on a scale of 1-5) for respondents living west of I-285 | >3.0 | 2.0-3.0 | <2.0 |

Alternatives that received an average voting score of higher than 3.0 received two points. Those alternatives with average scores between two and three received one point and those which received an average score less than two were given zero points.

## 5.7.2 Goal 6 Evaluation Results

**Table 5-21** presents the evaluation results for Goal 6: Achieve a High Level of Community Support.

**Table 5-21: Goal 6 Evaluation Results**

| Objective | Evaluation Criteria | Measures of Effectiveness | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Provide Transit Investments that are Supported by Local Stakeholders and the General Public | Maintain compliance with stakeholder guidance | Compliance with SAC Guiding Principles | 0 | 5 | 12 | 11 | 11 | 8 | 12 | 11 |
| | | Rating | 0 | 0 | 2 | 2 | 2 | 1 | 2 | 2 |
| | Achieve a high level of public support | Average Survey Score (on a scale of 1-5) for respondents living east of I-285 | - | - | 3.7 | 3.5 | 2.1 | 3.1 | 2.6 | 3.6 |
| | | Rating | - | - | 2 | 2 | 1 | 2 | 1 | 2 |
| | | Average Survey Score (on a scale of 1-5) of respondents living west of I-285 | - | - | 3.4 | 3.8 | 2.2 | 2.5 | 3.0 | 2.5 |
| | | Rating | - | - | 2 | 2 | 1 | 1 | 2 | 1 |
| **Goal 6: Achieve a High Level of Community Support** | | **Total Rating** | **0** | **0** | **2** | **2** | **1** | **1** | **2** | **2** |

## Objective 6.1: Provide Transit Investments that are Supported by Local Stakeholders and the General Public

As presented in Table 5-21, all alternatives, with the exception of the TSM and LRT2 alternatives, achieved a rating of two with respect to their compliance with the SAC Guiding Principles regarding new transit service in the I-20 East Corridor. LRT2, as it earned only eight of 12 possible points in the assessment, was rated a one, while the TSM was rated a zero for earning less than one-half of the points available.

In the public voting on Tier 2 Alternatives from residents living east of I-285, HRT1 received the highest average score, 3.7, followed closely by HRT3 at 3.6. LRT1 and LRT2 received average scores of 3.5 and 3.1, respectively. These four Build Alternatives were rated two for the MOE. BRT1, with an average score of 2.1, and HRT2 with 2.6, were both rated one. Neither the No Build nor the TSM were presented for public rating in the survey.

In the public voting on Tier 2 Alternatives from residents living west of I-285, LRT1 received the highest average score, 3.8, followed closely by HRT1, at 3.4, and HRT, at 3.0. LRT2 and HRT3 both had average scores of 2.5, while BRT1 again received the lowest average score. These alternatives were rated one for the MOE.

## Overall Goal 6 Results: Achieve a High Level of Community Support

Goal Summary Ratings are the rounded average of the ratings received for each alternative under Goal 6 MOEs. As shown in Table 5-21, alternative HRT1, LRT1, HRT2, and HRT3 all

achieved a rating of two for Goal 6. BRT1 and LRT2 proved least popular with the public and earned Summary Ratings of one.

## 5.8 Cumulative Tier 2 Alternatives Evaluation Results

The Tier 2 Screening was a comprehensive evaluation of alternatives that reflected both quantitative and qualitative analyses as well as input from corridor stakeholders and the general public. The purpose of the Tier 2 Screening was to identify the LPA utilizing a more robust list of evaluation criteria and MOEs. These evaluation criteria and MOEs were identified and utilized to measure the identified project goals and objectives. The analysis presented in the previous sections quantifies how well each of the Tier 2 Alternatives meet these goals and objectives. As described previously, the Tier 2 Alternatives were given a rating for each MOE, and then a rounded average of MOE ratings for each project goal was used to obtain a project goal score. In this way, each alternative was evaluated for how well it addressed each project goal. Project goal ratings were then summed for each alignment to produce overall ratings and determine a recommended LPA.

**Table 5-22** presents the cumulative results of the Tier 2 Screening. As shown in this table, HRT3 attained the highest total evaluation rating for all alternatives with 11 points. HRT1, LRT1, HRT2, and the TSM/Baseline Alternatives all ranked second with eight points. BRT1 and LRT2 received ratings of seven and six respectively.

**Table 5-22: Overall Tier 2 Evaluation Results**

| Project Goal | No Build | TSM | HRT1 | LRT1 | BRT1 | LRT2 | HRT2 | HRT3 |
|---|---|---|---|---|---|---|---|---|
| **Goal 1: Increase Mobility and Accessibility** | 0 | 1 | 2 | 2 | 2 | 1 | 1 | 2 |
| **Goal 2: Provide Improved Transit Service within the Corridor** | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| **Goal 3: Support Land Use and Development Goals** | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Goal 4: Promote Cost Effective Transit Investments** | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| **Goal 5: Preserve the Natural and Built Environment** | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 |
| **Goal 6: Achieve a High Level of Community Support** | 0 | 0 | 2 | 2 | 1 | 1 | 2 | 2 |
| **Tier 2 Alternatives: Cumulative Rating** | 0 | 8 | 8 | 8 | 7 | 6 | 8 | 11 |

## 5.9 Tier 2 Screening Summary

The Tier 2 Screening considered a wide variety of MOEs supporting six Project Goals in order to determine which of the Tier 2 Alternatives would best fulfill the Purpose and Need of the I-20 East Transit Initiative. In summary, the performance of the Tier 2 Build Alternatives across a series of key metrics is presented in **Table 5-23.**

**Table 5-23: Summary Comparison of Tier 2 Alternatives**

| | HRT1 | LRT1 | BRT1 | HRT2 | LRT2 | HRT3 |
|---|---|---|---|---|---|---|
| Projected Travel Time from Mall at Stonecrest to Five Points | 36 minutes | 36 minutes | 37 minutes | 39 minutes | 54 minutes | 40 minutes |
| Projected Travel Time from Mall at Stonecrest to Arts Center | 42 minutes | 44 minutes | 46 minutes | 47 minutes | 54 minutes | 48 minutes |
| Projected Daily Boardings | 41,900 | 33,300 | 27,700 | 32,200 | 18,400 | 28,700 - HRT |
| Projected New Riders | 12,300 | 8,200 | 5,200 | 8,200 | 5,300 | 6,400 - HRT |
| Projected Capital Costs | $3.05B | $2.47B | $1.88B | $2.61B | $2.00B | $1.73B |
| Projected Right-of-Way Costs | $233.7M | $233.7M | $233.7M | $112.7M | $116.7M | $107.4M |
| Projected Annual O & M Costs | $35.2M | $10.4M | $6.4M | $23.8M | $10.4M | $18.0M |
| Alignment Length | 19.2 miles | 19.6 miles | 19.6 miles | 18.2 miles | 20.3 miles | 12.0 miles - HRT 12.8 miles - BRT |
| Capital Cost per Mile | $168M | $138M | $108M | $147M | $104M | $148M per rail mile |
| Projected Residential and Commercial Displacements | 47 | 47 | 47 | 41 | 35 | 13 |

The relative performance of the Tier 2 Build Alternatives in these metrics translates into a series of advantages and disadvantages among the alternatives in the case of their implementation. These advantages and disadvantages are presented in **Table 5-24**.

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**Table 5-24: Advantages and Disadvantages of Tier 2 Alternatives**

| Alternative | Advantages | Disadvantages |
|---|---|---|
| **HRT1** | • Attracts the most riders<br>• Single seat ride to all existing stations along the north-south line in Downtown and Midtown Atlanta<br>• Serves Turner Field<br>• Would utilize existing heavy rail vehicles & maintenance facilities | • Most expensive<br>• Within City of Atlanta, alignment is in close proximity to existing MARTA rail service<br>• High number of displacements<br>• Longer implementation timeline due to high cost & construction limitations along I-20 inside the Perimeter<br>• Not likely to serve areas outside I-285 in first implementation phase |
| **LRT1** | • Attracts the second most riders<br>• Serves Turner Field<br>• Less expensive to implement than HRT1 | • Within City of Atlanta, alignment is in close proximity to existing MARTA rail service<br>• High number of displacements<br>• Longer implementation timeline due to high cost & construction limitations along I-20 inside the Perimeter<br>• Not likely to serve areas outside I-285 in first phase of implementation<br>• Would require 25-35 acres along corridor for LRT maintenance and storage facility |
| **BRT1** | • Serves Turner Field<br>• Second least expensive alternative<br>• Could utilize existing MARTA bus maintenance facilities | • Within City of Atlanta, alignment is in close proximity to existing MARTA rail service<br>• High number of displacements<br>• Longer implementation timeline due to construction limitations along I-20 inside the Perimeter<br>• Attracts the second fewest riders |
| **HRT2** | • Utilizes existing infrastructure to provide rapid transit service to central Atlanta<br>• Avoids redundant service within the City of Atlanta<br>• Would utilize existing heavy rail vehicles & maintenance facilities | • Strong community opposition<br>• High number of displacements<br>• Longer implementation timeline due to high cost and complicated tunnel alignment<br>• Not likely to serve areas outside I-285 in first phase of implementation<br>• Would not serve Turner Field |
| **LRT2** | • Uses BeltlLine alignment to provide connection to Midtown Atlanta<br>• Less expensive to implement than LRT1 | • Attracts the fewest riders<br>• Longest travel times due to slow operation along BeltLine segment<br>• High number of displacements<br>• Would require 25-35 acres along corridor for LRT maintenance and storage facility<br>• Longer implementation timeline due to tunnel alignment under CSX rail yard & construction limitations along I-20 inside the Perimeter<br>• Unlikely to serve areas outside I-285 in first phase of implementation<br>• Would not serve Turner Field |
| **HRT3** | • Least expensive<br>• Fewest displacements<br>• Would serve areas outside I-285 in first implementation phase<br>• Would utilize existing heavy rail vehicles & maintenance facilities<br>• Connects residents in South DeKalb County to Decatur (DeKalb Co. Seat), downtown Atlanta, and the proposed Clifton Corridor transit line to Emory/CDC<br>• Utilizes existing infrastructure to provide rapid transit service into central Atlanta<br>• Avoids redundant service within the City of Atlanta | • Would not provide rail service to areas along I-20 inside the Perimeter<br>• Attracts fewer new riders and daily boardings than most other alternatives. |

# 6.0 NEXT STEPS

The next step in the I-20 East Transit Initiative was the recommendation of the LPA, and its adoption by the MARTA Board of Directors. Then the project would focus on:

- Coordination with the Atlanta Regional Commission (ARC) to modify the Long Range Transportation Plan for the region, PLAN 2040, to reflect the improvement identified as the LPA for the I-20 East Transit Initiative; and
- Coordination with FTA to initiate the DEIS phase of the I-20 East Transit Initiative.