



## CHAPTER TWO: BASIS FOR PROJECT ALTERNATIVES



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The core question answered by a Locally Preferred Alternative Report is: How was the LPA selected? The process for selecting the LPA consists of 4 steps beginning with the identification of goals and objectives early in the project development process. These goals and objectives are then used to evaluate alternatives through a two-tiered evaluation process. All reasonable alternatives that would potentially address goals and objectives are identified and subjected to the evaluation. Finally, local decision makers, after consultation with the community and stakeholders, select the best alternative based on results from the detailed evaluation and public input.

## 2.1 Goals and Objectives

Based on an assessment of unmet needs in the study area, goals and objectives were identified through collaborative efforts between the public (general public and stakeholders), steering groups, and the study team. The goals and objectives are as follows:

### Goal 1: Improve corridor mobility, reliability, and accessibility to employment centers

#### Objectives:

- Relieve increasing highway congestion in the I-20 corridor by attracting auto users to transit;
- Improve travel times and reliability for all travelers in the I-20 corridor;
- Extend high quality public transportation service to employment destinations along Fulton Industrial Boulevard (FIB) by minimizing the number of transfers between different transit lines and routes;
- Improve access to major employment centers in the City of Atlanta and to the FIB area for residents of Fulton County, DeKalb County, the City of Atlanta and others in the region; and
- Increase accessibility for the transit dependent population.

### Goal 2: Preserve and enhance the environment

#### Objectives:

- Improve air quality by providing transit alternatives that attract auto users, thereby reducing vehicle miles of travel and air pollutant emissions; and
- Reduce potential impact on residential areas and the natural and built environment.

### Goal 3: Encourage economic development/transit supportive land use

#### Objectives:

- Encourage continued concentration of development where transportation facilities provide a high level of access, particularly near FIB;
- Concentrate development around transit stations in concert with zoning and related development policies; and
- Create public/private collaboration opportunities in real estate development.

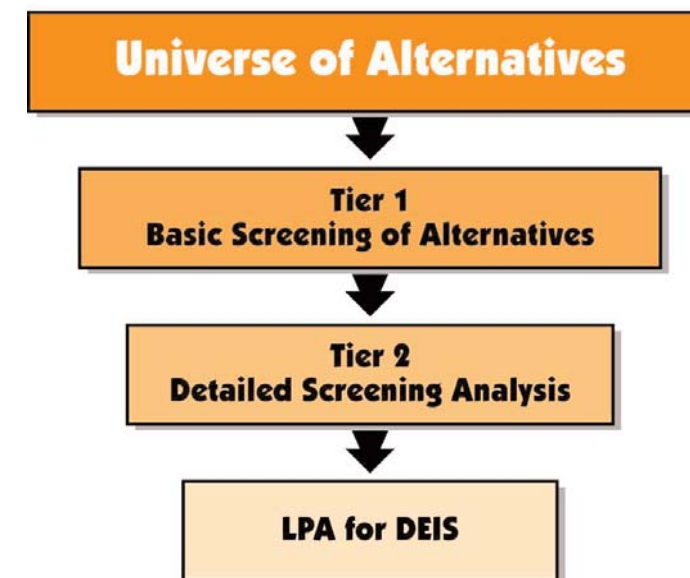
## 2.2 Evaluation Process

Evaluation of project alternatives was accomplished through a two-tiered screening process. The first tier, called the Basic Screening Analysis, included evaluating potential project alternatives based on study goals and objectives, transit modes, costs, and a number of other factors. Project data was used to develop a limited set of planning-level qualitative measures that provided order of

magnitude comparisons between each project alternative being considered in the first tier. The Basic Screening was presented in an evaluation matrix format, which clearly compared the performance of alternatives across the project goals and objectives. Alternatives that did not adequately address the goals and objectives of the project were not moved forward into the second tier of the screen.

Based upon the first tier evaluation, several project build alternatives were carried forward to a more detailed evaluation. This second tier evaluation, known as the Detailed Screening Analysis, provided decision-makers, stakeholders and the public, with the information necessary to select the single alternative (LPA) that best responds to goals and objectives of the project. Using the FTA New Starts and DEIS criteria as a starting point, emphasis was placed on developing evaluation measures that quantified the ability of each alternative to meet the need and purpose of the overall project. Consistency with federal evaluation criteria ensured that decision-makers understood the potential of each alternative to compete for federal funding and pass environmental clearance when choosing the LPA to advance to the DEIS. A diagram illustrating the study evaluation process is provided below.

Figure 2.1 : Study Evaluation Process



During the evaluation a series of matrices were developed to depict the performance of the various build alternatives across the range of criteria and associated performance measures. In addition to the build alternatives, a Transportation System Management (TSM) alternative was included in the analysis to present an approach to addressing the study needs, without the major capital investment required of the build alternatives.

Results of the basic screening evaluation are summarized in this report within Chapter 3: Identification of Alternatives. For additional information refer to the Basic Screening Evaluation Results Technical Memorandum dated January 2003. Detailed screening analysis results are presented within chapters 4-7 of this report, while Chapter 9 Alternatives Analysis Results and Recommendations, presents the evaluation matrices, final scoring and the LPA.

### 2.3 Transit Technologies

Transit technologies considered during the Basic Screening evaluation included bus rapid transit (BRT), light rail transit (LRT) and the extension of MARTA heavy rail transit (HRT). These technologies were chosen for further analysis based upon capital costs, environmental friendliness, carrying capacity, and compatibility with the existing MARTA line. A description of each technology is provided below.

#### 2.3.1 Bus Rapid Transit (BRT)

BRT combines the service characteristics of rail with the flexibility of buses. This technology eliminates impediments such as on-board fare collection and traffic signal delays in order to increase bus operating speed and reliability. BRT systems operate optimally on exclusive transitways or dedicated bus lanes. BRT systems can also utilize High Occupancy Vehicle Lanes (HOV) with dedicated access points along the facility. BRT systems are powered electrically, with diesel, or with compressed natural gas (CNG). Average travel speeds range from 30-50 miles per hour. BRT is the least expensive transit mode of the three technologies evaluated with capital costs ranging from \$10-\$40 million per mile.



#### 2.3.2 Light Rail Transit (LRT)

LRT systems are typically electric railways with smaller volumes than heavy rail. LRT facilities are



primarily operated at-grade but can also be grade separated in a tunnel or elevated. In comparison to HRT, light rail is more flexible due to its ability to easily maneuver through existing communities. Approximately 170 persons can be transported per vehicle with operating speeds generally ranging from 40-60 miles per hour. On average, light rail systems cost \$20-40 million per mile.

LRT was eliminated at the conclusion of the Basic Screening Analysis primarily due to costs and connectivity with the existing transit system. BRT and HRT technologies were further examined in the detailed screening.

#### 2.3.3 Heavy Rail Transit (HRT)

HRT is one of the most widely utilized forms of public transportation evaluated during the study process. Heavy rail is an electric railway located in exclusive rights-of-way. Vehicle capacity ranges from 170-300 persons with train lengths varying from 2 to 10 cars. Maximum speeds for this system can reach up to 70 miles per hour. HRT is one of the most expensive transit technologies, and therefore, is only implemented where high capacity is warranted. Capital costs range from \$50-\$120 million per mile.

