

# **I-20 East Transit Initiative**

## **CONCEPTUAL RIGHT-OF-WAY COST ESTIMATING METHODOLOGY**

Technical Memorandum

**December 2011**

**Prepared for:  
Metropolitan Atlanta Rapid Transit Authority  
Atlanta, GA**

**Prepared by:**

**Jacobs**

## Table of Contents

1.0	INTRODUCTION .....	1
2.0	CALCULATION OF ROW REQUIREMENTS .....	1
3.0	CALCULATION OF ROW COSTS .....	2
3.1	LAND VALUE ANALYSIS SEGMENTS .....	2
3.2	CALCULATION OF EXISTING LAND VALUES .....	3
3.3	CALCULATION OF REQUIRED ROW COSTS .....	3

## List of Tables

Table 1: Average Land Values by Analysis Segment .....	3
--	---

## List of Figures

Figure 1: Land Use Analysis .....	2
-----------------------------------	---

## 1.0 INTRODUCTION

The purpose of this technical memorandum is to document the methodology utilized to prepare planning level right-of-way (ROW) cost estimates for the I-20 East Transit Initiative. This ROW cost estimating methodology was utilized to prepare right-of-way cost estimates for all Tier 1 and Tier 2 alternatives considered in this study. The ROW costs identified were utilized throughout the alternatives analysis process including the Tier 2 Screening which identified the recommended Locally Preferred Alternative (LPA). This memo details the methodology utilized to calculate property impacts and ROW costs for study alternatives.

## 2.0 CALCULATION OF ROW REQUIREMENTS

The first step in the ROW cost estimating process was the identification of ROW requirements for each study alternative. During the development of study alternatives, planning level alignments and station areas were prepared in MicroStation and subsequently imported into a geographical information system (GIS) format. All GIS analysis was completed using ArcGIS V10.0.

The three modes, or transit technologies, considered as part of this study are bus rapid transit (BRT), light rail transit (LRT), and heavy rail transit (HRT). The ROW requirements for each of these three modes differ only slightly. Furthermore, due to rolling terrain within the corridor, the transit alignments are expected to be comprised of areas of excavation, or cut, fill, retained earth walls, and structures. Thus, the ROW requirements for a transit alignment will vary throughout the corridor. Since this is a planning project evaluating multiple alternatives, it was necessary to make an assumption regarding an average ROW width for each alternative. An average ROW width of 80' was calculated by project engineers as being representative of all alternatives throughout the corridor.

In order to calculate the ROW requirements, the conceptual alignments with the above mentioned 80' ROW width was overlaid onto the property line information from DeKalb County and Fulton County for each project alternative. Using this methodology, it was possible to identify all ROW requirements for each alternative. Utilizing GIS, project planners identified all property impacts for each study alternative. These property requirements were divided into two categories: partial takes and total takes/displacements. Partial takes would only require the acquisition of a portion of a specific property. These acquisitions make up the majority of property acquisitions along the corridor. The second property requirement would be total takes, which would require the acquisition of an entire property, and displacements, which would be a property acquisition with the displacement of a residence or business. Property acquisitions were divided into these two categories because their property values were calculated differently. The calculation of the property value of each is discussed later in this document.

### 3.0 CALCULATION OF ROW COSTS

Once the ROW requirements were calculated, it was necessary to calculate the existing land value of the required ROW. In order to prepare planning level ROW cost estimates, tax assessor data from DeKalb and Fulton Counties was utilized.

These cost estimates relied on the following assumptions:

- 80 foot ROW envelope, 40 feet from centerline of proposed alignment
- No cost for property when required ROW is within existing public ROW
- Fulton County Tax Information is for 2011
- DeKalb County Tax Information is for 2010 (Tax Assessors website does not contain 2011 data)
- Assessed values include both Land Value and Building Value, where applicable

### 3.1 Land Value Analysis Segments

In order to calculate ROW cost estimates, it was necessary to identify assessed property values from the county tax assessor’s websites. With the I-20 East study area extending more than 20 miles; it was necessary to divide the corridor up into multiple analysis segments in order to capture the differences in residential and commercial property values throughout the corridor. These segments were based on land use and development patterns as well as physical break points such as Interstate 285. The analysis segments are presented in **Figure 1**.

**Figure 1: Land Use Analysis**



**Figure 1** presents the land value analysis segments for the entire corridor. Below is a description of each analysis segment:

- Segment 1:I-20: Downtown Atlanta
- Segment 2:I-20: Hill Street to Gresham Road
- Segment 3:I-20: Gresham Road to I-285
- Segment 4:I-285: Indian Creek Station to I-20
- Segment 5:I-20: I-285 to Panola Road

- Segment 6: Panola Road to Turner Hill Road

These segments allow a more accurate estimation of property values than using a single average property value for the entire corridor.

### 3.2 Calculation of Existing Land Values

At the Alternatives Analysis (AA) planning level, it was not feasible to identify the assessed value of every impacted property throughout the corridor. Instead, average residential and commercial property values per acre were calculated using a sample of property values within each analysis segment. To prepare average ROW costs per acre, the assessed value of 20 or more residential, and 15 or more commercial parcels per analysis segment was obtained from the tax assessor data for the two counties.

The properties utilized to calculate these averages were immediately adjacent to the interstate and generally in the location of the proposed transit alignments. Thus, only property values within close proximity to the proposed transit alignments were utilized. **Table 1** presents the average value per acre for residential and commercial property by analysis segment. This table also identifies the number of sample property values utilized to calculate the average value for each analysis segment.

For all segments except Segment #2, 20 residential parcels were used to prepare the averages. Due to the large size of Segment #2, 25 residential parcels were used to calculate the average cost per residential acre. 15 commercial parcels were used to calculate the average cost per commercial acre for each segment except #4. In Segment #4 an additional two commercial parcels were utilized to create an average that reflected the great variance in land values.

**Table 1: Average Land Values by Analysis Segment**

Segment #	Segment	Number of Parcels	Residential Value per Acre*	Number of Parcels	Commercial Value per Acre*
1	Downtown	20	\$303,460.70	15	\$558,316.11
2	Hill Street to Gresham Road	25	\$117,377.16	15	\$299,015.58
3	Gresham Road to I-285	20	\$62,384.41	15	\$126,327.73
4	I-285: Indian Creek Station to I-20	20	\$166,390.33	17	\$149,143.70
5	I-285 to Panola Rd.	20	\$155,188.45	15	\$284,383.10
6	Panola Rd. to Turner Hill Road	20	237,278.64	15	\$251,051.84

\* - Values from DeKalb and Fulton County Tax Assessors Office

As presented in **Table 1**, the average land values for commercial and residential property vary significantly throughout the corridor. This table only presents average assessed land values, however assessed land values prepared by tax assessors are generally significantly lower than the actual market values. Assessed values can often be up to 50% lower than actual values. Thus, for purposes of these planning level ROW estimates, the assessed values were inflated by 200% to better reflect actual market land values.

### 3.3 Calculation of Required ROW Costs

In order to calculate ROW costs for each alternative, the commercial and residential ROW requirements for each analysis segment were multiplied by the average land value

for each segment. This methodology for calculating ROW costs was only applied to partial takes. For those property acquisitions that would purchase the entire property or require the displacement of a residence or business, the actual assessed value of that specific property, plus the 200% multiplier was utilized.

### **Inflation Factors**

As described previously, an inflation factor of 200% was applied to the assessed property values to more accurately reflect market values. Furthermore, in order to prepare ROW cost estimates that reflect the actual costs of acquiring property for a major transportation project in Georgia, two additional inflation factors were applied to the calculated property costs. These inflation factors were developed by the Georgia Department of Transportation (GDOT) Office of Right-of-Way. GDOT developed these inflation factors to account for the many unknowns associated with estimating ROW costs for transportation projects. These factors include:

- **155% Scheduling Contingency:** This is an attempt to capture market based increases (appreciation) in property values, material and construction related cost in improvements (buildings, parking areas, signage, trade fixtures, costs to cure, changing property zonings and uses that may impact the demand and price of property in the project area. This figure has been calculated to reflect the cost appreciation of these items over the typical project life from concept and environmental approval, design, and ROW acquisition. The factor used is based on GDOT experience over decades of acquiring ROW.
- **160% Administrative/Court Costs Factor:** This is an attempt to capture the costs and appreciation of costs of acquiring ROW including: title work, closings, eminent domain litigation, and awards. This includes the appreciating cost of negotiation, appraisals, legal services; incidental costs (updated survey and prorated taxes). This factor was derived from experience over the years of GDOT ROW acquisition.

These two inflation factors were applied to the calculated property values for each study alternative to estimate the ROW costs. While the inflation factors do account for market appreciation and changes in the corridor, more detailed ROW cost estimates will need to be prepared during the preliminary engineering phase of the project.